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Native born but not yet citizen

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Native born but not yet citizen

Citizenship and educational outcomes of the children of immigrants in the Netherlands

Marie Labussière

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À Jean, Jacqueline et Elisabeth

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1
Introduction

Introduction

Native-born children with two foreign-born parents represent a growing and sizeable proportion of the European student population. According to the OECD (2017a), this so-called second generation[1] accounts for 11% of all children below the age of 15 in the European Union. The educational outcomes of second-generation children have been widely studied in recent decades (see, *e.g.*, Heath et al., 2008; Crul et al., 2012; Alba and Holdaway, 2013), as a key indicator of the barriers and opportunities those children face in host societies[2].

On the one hand, native-born children of immigrant descent may face fewer obstacles in school than those born abroad. Contrary to their parents, the second generation goes through the same education system as the children of native-born parents. They have therefore more opportunities to acquire proficiency in the host country language and to develop context-specific skills (Esser, 2006; Heath et al., 2008, p.222). Through school, second-generation children are also intensively exposed to the host society culture and norms from an early age. Moreover, although the process of family settlement and

[1] The term "second generation" identifies the children of immigrants that are born in the country to which their parents migrated. It is part of a broader typology that distinguishes immigrants and their descendants based on where they are born and whether they have migrated themselves (see Rumbaut, 2004). This typology is used in this dissertation for two main reasons. First, I argue that the differentiation between generations is important for conceptual clarity, as individuals face very different socialisation conditions depending on whether and when they have migrated (Frauenfelder, 2007, pp.46-47; Crul and Schneider, 2010, p.1251). This has implications for the barriers and opportunities they face in their country of residence in general and in its education system in particular. Second, I prefer the term "second generation" to broader categories such as "migrant children" or "migrant youth", which foster a language of exclusion when they include native-born children of immigrants. Indeed, such children can be considered as natives given the locality of their birth (Lessard-Phillips et al., 2017, p.40) and may have never migrated from their country of birth. By contrast, the term "second generation" emphasises the legacy left by international migration in the lives of children of immigrants, without making them perpetuate foreigners in their country of birth. However, this term has the disadvantage to identify children only in terms of their parents' migration move to the destination country, thereby obscuring possible complex patterns of international and transnational mobility (van Geel, 2019, p.46; Gardner, 2012, p.900). While this dissertation focuses primarily on descendants of immigrants who *remain* in the destination country, it recognises that migration is not always exceptional in the lives of individuals, nor is it necessarily permanent (Della Puppa and Sredanovic, 2017, p.368).

[2] In this dissertation, "host society", " receiving society", "host country" and "destination country" are used interchangeably to refer to the country of residence of second-generation children. The term "origin country" refers to the country of birth of their parents – I use the singular for the sake of simplicity, but it is important to bear in mind that immigrant parents are not necessarily born in the same country.

adaptation may continue long after their birth, native-born children have not migrated themselves, which is often a disorienting and stressful experience (Suárez-Orozco and Suárez-Orozco, 2002, pp.69-72).

On the other hand, second-generation children are not just like children of native-born parents. The migration experience of their parents and their family's adaptation to a new context create an "essential background difference" (Luthra et al., 2018b, p.27), which shapes their lives in specific ways. While second-generation children have been socialised in the host society, they may maintain strong emotional and physical ties with their parents' country of origin and develop transnational forms of belonging (Levitt and Waters, 2002; Wessendorf, 2007; Levitt, 2009). This transnational experience may affect the way children of immigrants[3] orient themselves toward the host society and how they frame and construct their life trajectories between *here* and *there* (*e.g.*, Keskiner and Crul, 2017; Shahrokni, 2019; Orupabo et al., 2020).

Furthermore, although born in the host country, the second generation does not face the same opportunities as children born to natives. First, there is evidence that, depending on their ethnic background, children of immigrants may be treated differently by their teachers, peers, and potential employers (Heath et al., 2008, pp.225-227), which can lead to experiences of racism and discrimination. Second, immigrant parents may face specific barriers to supporting their children's educational progress. Due to their disadvantaged position in the labour market, immigrants often experience downward mobility in the host society (Engzell and Ichou, 2020) and tend to occupy low-skilled and low-paid jobs (*e.g.*, Alba and Foner, 2015). This loss of status affects their socioeconomic position and the resources they mobilise for their children. Immigrant parents may also find it difficult to transfer their own educational experience and knowledge to a new context, especially if they are not proficient in the host country language and/or have limited access to information (van De Werfhorst and Van Tubergen, 2007; Kristen, 2008). As a result, there are reasons to think that the children of immigrants face specific challenges when navigating the host society in general and its education system in particular.

In most countries, there is another important characteristic that separates chil-

[3]This dissertation focuses only on children who were born in the host country and leaves aside the so-called "1.5 generation", *i.e.*, children who were born in a foreign country before migrating at a young age (see p.29 for more details). The term "children of immigrants" thus exclusively refers to the second generation. Note that the term identifies individuals in their capacity as *offspring* of immigrants rather than as *minors*.

dren of immigrants from their peers born to native parents: their citizenship status.[4] While some classic immigration countries, such as the United States, grant citizenship automatically and unconditionally on the basis of birth on the national territory (*ius soli*), two out of three countries in the world do not offer such provisions to second-generation children (Honohan and Rougier, 2018). Instead, the children of immigrants acquire citizenship by descent (*ius sanguinis*) and thus become citizens of their parents' country – or countries – of origin. This is particularly true in Europe, where pure *ius soli* regimes no longer exist[5] and only a few countries provide for conditional forms of *ius soli*[6] (Honohan and Rougier, 2018, p.350). Second-generation children therefore mainly rely on their parents' ability and desire to naturalise if they are to acquire the citizenship of their country of birth and residence.

In recent decades, immigrants' access to host country citizenship has been increasingly restricted in Western Europe (Vink and de Groot, 2010). A number of countries have raised the level of requirements for naturalisation, restricting eligibility criteria and introducing compulsory language and country-specific tests (Goodman, 2010; van Oers, 2013). The length and conditions of the legal residence requirements have generally been tightened (Vink and de Groot, 2010, pp.725-726), while candidates are increasingly required to provide evidence of integration, including proof of self-support, absence of criminal records, and oaths of loyalty. This trend has been accompanied by a change in the conception of naturalisation, from a *right* or *means* for integration to a *reward* marking the end of immigrants' integration process (van Houdt et al., 2011). The increasing emphasis of states on immigrants' own responsibility for their integration has introduced new barriers to naturalisation, with possible exclusionary effects. Research indicates that stricter natu-

[4] In this dissertation, I define citizenship as the legal (*i.e.*, *de jure*) status involving rights, privileges and duties associated with nation state membership (see Bauböck, 2006, Chapter 1). I therefore focus exclusively on *formal* citizenship, as opposed to normative or substantive citizenship, which refers to the practices and attitudes through which individuals negotiate their membership to the political and social community (see, *e.g.*, Smith et al., 2005; Lange et al., 2007, p.33). While citizenship is often called *nationality* in international law, I use the term citizenship to emphasise the relationship between an individual and a sovereign state *within its borders* (see Bauböck, 2006, p.17, for a discussion of this point).

[5] As an exception, Moldova offers unconditional *ius* soli since 2003 (de Groot and Vonk, 2018, p.331) but does not grant Moldova citizenship *automatically*: parents need to complete a registration procedure on the behalf of their children.

[6] According to Honohan and Rougier (2018), eight European countries do provide restricted forms of *ius soli*. These include *conditional* or *after birth ius soli* provisions, whereby children born in the country (or their parents, on their behalf) can claim citizenship provided that they fulfil a number of requirements, most often related to their length of legal residence (see p.350).

ralisation requirements affect not only immigrants' naturalisation propensity (*e.g.*, Vink et al., 2021; Peters et al., 2016; Vink et al., 2013; van Oers, 2013) but also their very *ability* to apply for naturalisation (Jensen et al., 2019).

A less explored aspect are the potential effects of naturalisation requirements on access to host country citizenship for the *children* of immigrants. In *ius sanguinis* citizenship regimes, second-generation children may grow up as foreign citizens in their country of birth, not by choice but because the overall costs of naturalisation are too high for their parents. Without host country citizenship, children of immigrants are typically not entitled to vote in national elections, nor to access certain positions in the public sector[7]. They may also experience legal precariousness, especially if their family has not secured permanent legal residency. In addition, those holding non-EU passports may face various mobility restrictions when crossing international borders. Children of immigrants may thus face additional obstacles because of their foreign citizenship, with possible consequences on their educational and later-life outcomes.

Surprisingly, the potential consequences of host country citizenship – or lack thereof – on the life trajectories of second-generation children have remained largely unexplored. What is the share of the second-generation growing up as foreign citizens in *ius sanguinis* citizenship regimes? And what are the patterns of citizenship acquisition among the children of immigrants? Figures concerning access to host country citizenship for the second generation are typically not available in official statistics. For example, the OECD Database on Immigrants in OECD Countries (DIOC) does not contain comprehensive information on immigrant populations by country of birth *and* citizenship status.[8] This blind spot in official statistics makes it difficult to assess the prevalence and modalities of host country citizenship acquisition among second-generation children.

Furthermore, little is known about the potential effects of host country citizenship on the life opportunities of children of immigrants. Does naturalisation affect their well-being, their sense of security and their orientation towards the host society? Does it help them to mitigate some of the potential

[7] In the Netherlands, the case studied in this thesis, certain public functions are only open to Dutch citizens, such as police officers, soldiers or professions in the judiciary.

[8] The OECD DIOC statistics on Immigrants by citizenship and country of birth are available at the following link: `https://stats.oecd.org/Index.aspx?DataSetCode=DIOC_CITIZEN_AGE` [accessed July 19, 2021].

disadvantages they face in education? These questions are at the intersection of different bodies of literature, which have so far developed largely in isolation.

On the one hand, there is an extensive literature on the educational outcomes of the second generation, studying how children of immigrants fare in education relative to their peers of native descent (*e.g.*, Heath et al., 2008; Crul et al., 2012; Alba and Holdaway, 2013). This literature has paid increasing attention to the diversity of educational pathways *within* the second-generation and to the role of parental characteristics associated with migration (*e.g.*, Louie, 2012; Crul et al., 2017; Luthra et al., 2018b; Engzell and Ichou, 2020). However, despite the predominance of *ius sanguinis* citizenship provisions in Europe, very few studies carried out in the European context consider the citizenship status of second-generation children (see Dronkers and Fleischmann, 2010, for an exception). This is problematic because access to host country citizenship may be an unobserved factor of heterogeneity, contributing to the wide variations in educational outcomes observed among the second generation.

On the other hand, an important field of research in citizenship studies analyses the relevance of naturalisation for immigrants (*e.g.*, Peters, 2018; Hainmueller et al., 2017; Gathmann and Keller, 2018; Helgertz and Bevelander, 2017). Yet, due to the individual- and adult-centred perspective prevailing in citizenship studies (Cohen, 2005; Street, 2014; Soehl et al., 2018), existing research tends to invisibilise the place and role of children in the naturalisation process. As a result, the ways in which children engage with and are affected by host country citizenship have remained mostly unexplored.

Connecting these two separate strands of literature is at the core of this dissertation. It aims to better contextualise and conceptualise citizenship acquisition among the children of immigrants, and to assess its effects on their educational outcomes. It addresses the following research question:

> *To what extent does citizenship status affect the educational outcomes of native-born children of immigrants?*

To answer this question, I focus on the Netherlands, a country representative for the *ius sanguinis* citizenship tradition in Europe (Honohan and Rougier, 2018; Vink and de Groot, 2010). In the Dutch context, the children of immigrants depend on their parents to naturalise in order to acquire Dutch citizenship while minors, regardless of whether or not they were born in the

country.[9] This makes it a suitable case to analyse the patterns and effects of citizenship acquisition among the second generation, in the absence of automatic and unconditional *ius soli* provisions. Another advantage of the Netherlands is that its naturalisation policy occupies an intermediate position in the European landscape (Vink and de Groot, 2010, p.727). According to the Migrant Integration Policy Index 2019, Dutch law can be considered as "halfway favourable" in terms of access to nationality, with a score of 55 out of 100.[10] This middle position facilitates the generalisation of the results, as a number of other citizenship regimes are similar to the Dutch case. Furthermore, as elsewhere in Europe, Dutch naturalisation laws have undergone important reforms since the 1990s, in line with the "civic integration turn" (Goodman, 2019; van Oers, 2013). This variation in naturalisation policies allows me to assess whether the introduction of stricter naturalisation requirements have spillover effects on the acquisition of Dutch citizenship among immigrants' children.

I analyse the citizenship of the Dutch second generation using individual-level register data from Statistics Netherlands (CBS). Register data offer the opportunity to analyse complete birth cohorts of children of immigrants born in the Netherlands and to follow their trajectories over time. This has two important advantages: a comprehensive coverage of the Dutch second generation provides reliable estimates of the prevalence of acquiring host country citizenship in this population, while a wide observation window allows capturing potential long-term naturalisation patterns and effects. In addition, the use of large-scale data offers opportunities to address the issue of parents' self-selection into naturalisation, which is a key methodological concern when analysing the relationship between citizenship and education.

Quantifying and measuring the potential effects of citizenship is not only relevant from an academic perspective, but also from a societal and policy perspective. There is evidence that children of immigrants generally experience disadvantages in various life domains with respect to their peers of native descent in Europe (see Heath and Brinbaum, 2007; Dustmann et al.,

[9] Note that since 1985 the Netherlands has had conditional *ius soli* provisions for the children of immigrants, once they have reached the age of majority and provided that they have been resident in the Netherlands since birth. This procedure, known as the *option* application, is further detailed on p.18.

[10] MIPEX takes into account several dimensions to determine its Access to Nationality Index, including eligibility criteria, naturalisation requirements, attitude towards dual citizenship and birthright citizenship provisions for the second generation. See `https://mipex.eu/access-nationality` [accessed July 19, 2021] for more information.

2012; Drouhot and Nee, 2019). This is especially true for children whose parents originate from non-EU countries and have low levels of education and socio-economic resources (*ibid.*). Yet, the argument that facilitating citizenship acquisition may be an effective policy lever for improving the position of these disadvantaged groups has so far received limited public attention, especially in the Netherlands.[11] This dissertation therefore aims to shed light on an often neglected dimension of the lives of the children of immigrants, which may have far-reaching consequences for the way they navigate the host society. By analysing not only *whether* citizenship matters, but also *when* and *under which conditions*, I aim to enhance scholarly understanding of the relevance of host country citizenship for native-born children of immigrants, which can also inform policy debates on the rights and outcomes of the second generation.

The research question guiding this dissertation is broken down in a number of sub-questions, which are addressed in the three empirical chapters (Chapters 3-5):

1. Who acquires host country citizenship among second-generation children in the Netherlands, when and under which conditions? To what extent is children's access to host country citizenship affected by the implementation of restrictive naturalisation laws? (Chapter 3)
2. How do the children of immigrants navigate the Dutch secondary school system, and is host country citizenship associated with specific educational trajectories? (Chapter 4)
3. To what extent are the effects of citizenship on education driven by parental selection into naturalisation? Does the effects of citizenship vary over time and across individuals? (Chapter 5)

The following sections elaborate on these sub-questions and highlight the academic relevance of this dissertation.

[11] In comparison, the citizenship status of the second generation has received relatively more attention in Switzerland, where two referenda to facilitate access to Swiss citizenship for the second and third generation were rejected in September 2004; and in Italy, where the political collective "Italiani senza Cittadinanza" (Italians without Citizenship) campaigns for the introduction of conditional *ius soli* for the second generation.

The relevance of host country citizenship for the second generation

To date, only a limited number of studies have analysed the relevance of host country citizenship for the second generation, either quantitatively (Fibbi et al., 2007; Kilpi-Jakonen, 2014; Cygan-Rehm, 2018; Felfe et al., 2020) or qualitatively (Frauenfelder, 2007; Ribert, 2000; Colombo et al., 2011). These studies have been carried out in various national settings marked by *ius sanguinis* provisions, such as Switzerland (Fibbi et al., 2007; Frauenfelder, 2007), Italy (Colombo et al., 2011) and Germany before 2000 (Felfe et al., 2020; Cygan-Rehm, 2018). Despite using different data, methods and measures, these studies provide a fairly coherent picture: citizenship matters for second-generation youth (Frauenfelder, 2007; Ribert, 2000; Colombo et al., 2011), and has positive effects on a wide range of educational outcomes, from grades and school track placement (Kilpi-Jakonen, 2014; Felfe et al., 2020; Cygan-Rehm, 2018) to continuation in higher education (Fibbi et al., 2007).

Two broad sets of explanation are usually advanced to explain the relevance of host country citizenship for the second generation. On the one hand, qualitative studies highlight that children of immigrants value citizenship for both its practical and formal dimensions: they perceive it as a protection from legal precariousness, as well as a condition for full and effective participation in the host society (Colombo et al., 2011; Colombo, 2015; Ribert, 2000). While citizenship is certainly not experienced as a form of allegiance to the host country, it is seen as an important resource for shaping one's future and being involved in collective decisions (Colombo, 2015). By contrast, those who cannot acquire host country citizenship may experience various forms of exclusion, from not being able to go on a school trip due to a lack of passport to not being able to apply for certain internships or jobs (Frauenfelder, 2007; Colombo et al., 2011; Colombo, 2015).

On the other hand, quantitative studies typically conceptualise citizenship within human capital theory (Becker, 1993). The acquisition of host country citizenship is modelled as a positive shock to the long-term rate of return to education, triggering early parental investments in their children's educational trajectories (Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). This set of explanations focuses on the expected benefits of host country citizenship in the labor market: because citizens have unrestricted access to the labor market, they can derive greater benefits from their educational investments. Increased opportunities in the host society are expected to incentivise

children and their families to invest in their human capital and embark on longer and/or more prestigious educational careers (Kilpi-Jakonen, 2014).

These studies have laid the foundations for a better understanding of the relationship between citizenship and education. Yet, this emerging body of work is also marked by a number of limitations. First, the effects of citizenship are not embedded in a comprehensive theoretical framework. While previous studies advance some mechanisms for an independent effect of citizenship on education, they do not incorporate insights from other relevant bodies of literature. Two areas of research have been particularly neglected: the literature on the educational outcomes of the second generation, which highlights the specific obstacles that immigrant families face when navigating a foreign education system (*e.g.*, Heath et al., 2008; Crul et al., 2012; Alba and Holdaway, 2013); and the literature on the relevance of citizenship of first-generation immigrants (*e.g.*, Peters, 2018; Hainmueller et al., 2017; Gathmann and Keller, 2018). This dissertation connects these two areas of research to show that citizenship may not only increase the educational aspirations of immigrant families, but also provide them with additional resources to *achieve* those aspirations. By doing so, I contribute to a more comprehensive conceptualisation of the effects of citizenship, which is key to derive well-grounded theoretical expectations.

Second, previous studies tend to model citizenship acquisition as a one-off treatment effect on children's outcomes (*e.g.*, Felfe et al., 2020). Such a view is reductive in light of recent work on immigrant naturalisation (Peters et al., 2017, 2016), showing that naturalisation is a process that starts long before citizenship is officially granted to the naturalisation candidate. While immigrant families can only enjoy the rights and benefits of host country citizenship once they have acquired it, their mere engagement in the naturalisation process can increase their orientation towards the host country and produce anticipated effects (Peters et al., 2017). The narrow conceptualisation of citizenship acquisition that prevails in previous studies is also reflected in the outcomes used to measure children's educational success. Previous studies typically assess the effects of citizenship on isolated educational transitions or outcomes, whereas one could expect citizenship to have long-term and cumulative effects on children's life trajectories. To better capture such potential effects, I analyse the educational *trajectories* of second-generation children in the Dutch school system. This longitudinal approach provides a more comprehensive picture of how children of immigrants navigate education, depending on whether and when they acquire Dutch citizenship.

Lastly, due to different data and identification strategies, previous studies also focus on specific modes of citizenship acquisition – or analyse them indiscriminately. Some studies that measure students' citizenship status at one point in time (Fibbi et al., 2007; Kilpi-Jakonen, 2014) do not distinguish between those who acquired citizenship at birth and those who acquired citizenship through naturalisation during their childhood or youth. Other studies exclusively focus on citizenship acquisition at birth due to the policy context under study (Felfe et al., 2020; Cygan-Rehm, 2018 but see von Haaren, 2016). Yet, a substantial share of second-generation children in Europe may only acquire citizenship after birth, especially if they are born before their parents complete the minimum period of residence required for naturalisation. Overall, previous literature pays limited attention to *when* citizenship is acquired, thereby obscuring the potential effects of the *timing* of citizenship acquisition.

In the same vein, the effect of citizenship is often assumed to be uniform across individuals (see Dronkers and Fleischmann, 2010; Cygan-Rehm, 2018, for exceptions). Yet, children of immigrants form a very heterogeneous group: while the lack of host country citizenship may be very detrimental to some, becoming a citizen may have little value for others. For example, those from privileged backgrounds or who already enjoy the rights and benefits attached to EU citizenship may have little interest in becoming citizens. To date, it remains unclear, both conceptually and empirically, whether and how host country citizenship interacts with other characteristics of immigrants' children. In this dissertation, I draw on the literature on immigrant naturalisation to add new layers of complexity in the analysis of citizenship and education of children, highlighting potential timing and interaction effects.

A life course perspective on the citizenship of children

This dissertation draws on the life course approach to embed the patterns and effects of citizenship acquisition within a more comprehensive theoretical framework. The life course approach originates from the sociological life course paradigm, which was initially developed by Elder (1974) to better understand and conceptualise individual lives in the context of changing societies. This paradigm has been increasingly used in migration studies (see Wingens et al., 2011b, for an overview) and, more recently, in citizenship

studies (Peters, 2018). Life course research posits that the life courses of individuals interact with the historical, institutional and societal environment in which they live (Elder, 1994): social contexts shape the contours of human biographies, while being influenced in turn by the actions and personal characteristics of individuals. The life course approach aims to open "the black box of the missing links between individual lives and macro-social contexts" (Mayer, 2004, p.179), using a multilevel and longitudinal approach that captures the dynamics and interdependence of human life courses.

Such a perspective is particularly fruitful for analysing how the lives of individuals change as a result of migration (Wingens et al., 2011a). A life course approach draws attention to the specific *constraints* faced by immigrants in host societies, which are marked not only by the institutions and norms of the country of destination but also by those of their country of origin (*ibid.*). At the same time, it sheds light on the different *resources* immigrants develop and use *here* and *there* to construct their life courses in the face of new and changing institutional conditions (see de Hart et al., 2013). Naturalisation and citizenship laws are part of these institutional conditions: the lack of citizenship status can hinder individuals' plans and actions (*e.g.*, Gilbertson and Singer, 2003; Stewart and Mulvey, 2014; Della Puppa and Sredanovic, 2017). Conversely, becoming a citizen of the host country may help immigrants to take agency over their lives, by increasing their opportunities and ability to adapt (*e.g.*, Finotelli et al., 2017; Della Puppa and Sredanovic, 2017; Sredanovic, 2020).

While a life course approach to immigrant naturalisation has proven particularly insightful to understand its patterns and effects (Peters, 2018), the citizenship of the second generation has not yet been conceptualised within a life course perspective. However, some of the guiding principles of the life course approach are essential to conceptualise children's citizenship status comprehensively. First, because children of immigrants mainly rely on their parents to become citizens, their access to citizenship needs to be modelled at the family level. As Bonjour and de Hart (2021) note, immigrant parents do not experience citizenship "(...) as isolated individual[s], but as member[s] of a web of significant relationships, most notably family relationships" (p.7). Parents may therefore naturalise not only for themselves, but also or mainly for the sake of their children (Street, 2014; Della Puppa and Sredanovic, 2017; Sredanovic, 2020). Similarly, the positive effects of naturalisation on parents' integration outcomes (*e.g.*, Peters, 2018; Hainmueller et al., 2017) may have spillover effects on their children's educational and later-life outcomes, due to interaction processes between parents and children (see, *e.g.*, Elder, 1974,

p.12). This intergenerational dependence within the family has been extensively studied in life course research, based on the principle of *linked lives* (see Wingens et al., 2011a, p.12). This dissertation, particularly in Chapter 3, draws on this principle to highlight the intra-family dynamics at play in the naturalisation process, building on recent developments in citizenship studies (Street, 2014; Soehl et al., 2018).

Second, a life course approach allows for a better understanding of the structure of opportunities and constraints faced by the second generation in host societies. While children of immigrants are often compared with children of native descent (Lessard-Phillips et al., 2017), the trajectories of the former are singularly shaped by the migration experience of their parents (Luthra et al., 2018b, p.28). Contrary to natives, immigrant parents need to navigate a new and changing institutional context, whilst having varying levels of language proficiency and access to information. This includes immigration and citizenship laws, which determine their rights and obligations in the host country (de Hart et al., 2013), but also the education system, which may be widely different from the one they experienced as students. At the same time, immigrant families actively plan and structure their lives; they elaborate strategies and tactics within those constraints (Sredanovic, 2020). This interplay between *context* and *agency* is another key principle of the life course perspective (see Wingens et al., 2011a, p.6), which I use to model citizenship in the context of changing institutional constraints. On the one hand, I analyse the effects of naturalisation reforms on the propensity of second-generation children to acquire Dutch citizenship, as stricter naturalisation requirements may impose additional constraints on the decision-making process of immigrant families (Chapter 3). On the other hand, I conceptualise citizenship as a potential resource increasing their level of agency and ability to navigate complex institutions such as the Dutch school system (Chapter 4).

Finally, the life course approach helps to conceptualise the effects of citizenship over the life course (Peters and Vink, 2016). While previous research analysing the relationship between citizenship and education tends to model citizenship acquisition as a dichotomous and one-off event, I argue that it should be seen as a multi-faceted process whose effects unfold over time. Such a process is not expected to affect educational outcomes overnight, but rather to gradually steer naturalised children into distinct educational paths. The life course concept of *trajectory* (see Wingens et al., 2011a, p.13) is particularly relevant to capture those potential long-term and cumulative effects, by shifting the focus from isolated educational outcomes to longer sequences of school events and transitions. Educational trajectories are central to Chap-

ter 4, where I observe the pathways of the second generation into the Dutch secondary school system and analyse whether the acquisition of Dutch citizenship is associated with specific school mobility or dropout patterns.

Furthermore, a life course approach draws attention to the conditions under which host country citizenship is acquired: naturalisation does not occur in a vacuum, but interacts with the personal characteristics and resources of children. While in previous research the effects of citizenship are generally assumed to be uniform over time and across individuals, I analyse not only *whether* citizenship matters but also *when* and *for whom* in Chapter 5. By doing so, I contribute to a more contextualised understanding of the citizenship of second-generation children, following recent work by Peters et al. (2016) on the *ecology* of immigrant naturalisation.

A life course approach offers valuable analytical tools to address key gaps identified in the previous literature on the citizenship and educational outcomes of the second generation. In Chapter 2, I discuss the research to date in more detail and draw on the life course principles to develop the theoretical underpinnings of this thesis.

The Dutch context

The life course perspective highlights the need to embed individuals' lives in the historical time and places they experience (Wingens et al., 2011a). In this dissertation, I focus on children of immigrants living in the Netherlands, a country with specific institutional conditions regarding immigration, naturalisation and education. This section details the Dutch context with respect to these three dimensions to highlight the constraints and opportunities faced by the Dutch second generation and their parents.

Immigration to the Netherlands since 1945

On January 1, 2020, the Netherlands recorded 17.4 million registered residents, of which 4.2 million had a migration background, either as immigrants (2.2 million) or as children of immigrants (2 million).[12] This is the result of

[12]The figures used in this section have been retrieved from Statistics Netherlands (`https://opendata.cbs.nl/statline` [accessed July 19, 2021]). Note that the definition of the second generation used by Statistics Netherlands differs from the one used in this thesis: Statistics Netherlands defines the Dutch second generation as children born in the Nether-

several waves of immigration since the 1960s, during which the share of immigrants and their descendants has not only increased in volume but also in diversity (see van Meeteren et al., 2013).

While the Netherlands has long been a country of emigration, a long period of net migration into the country started after the Second World War. First, following Indonesia's independence in 1949, the Netherlands experienced a large influx of repatriates from their former colony. New migration flows then emerged in the early 1960s with the introduction of official guest worker programmes in response to severe labour shortages. Guest workers initially came from Southern Europe, before being recruited from Turkey and Morocco. Although the oil crisis put an end to the guest workers programs in 1973, migration continued from Turkey and Morocco, notably through family reunification (see Vink, 2007, p.116, for details). At the same time, the Netherlands experienced new waves of post-colonial migration, with a peak following the independence of Suriname in 1975.

These early migration flows had a lasting impact on the composition of the Dutch migrant population: in 2020, Turkey, Suriname and Morocco were still the three most represented countries of origin among "non-Western" [13] immigrants living in the Netherlands, including 197, 177 and 172 thousands individuals respectively. These are also the three most represented origin countries among the "non-Western" second generation, although in different proportions: there were 237 thousands native-born children of Moroccan descent in 2020, compared to 219 thousands children of Turkish descent and 179 thousands of Surinamese descent.

Immigrants arriving through guest worker programs and family reunification generally had secure residence statuses. Similarly, immigrants from the former colonies were either Dutch citizens – for those from the former Netherlands Antilles – or had privileged access to Dutch territory and citizenship (Engbersen et al., 2007, p.399). In contrast, from the early 1990s onwards, the

lands to *at least one* foreign-born parent, while I only include children born in the Netherlands to *two* foreign-born parents. I discuss this point in more detail in the next section of this chapter when presenting the research population on p.29.

[13] Until very recently, Statistics Netherlands divided immigrants into those from "Western" countries, including Europe (except Turkey), North America, Oceania, Japan and Indonesia; and those from "non-Western" countries, including Turkey, Africa, Latin America and Asia. Statistics Netherlands has announced in 2021 that it will abolish this distinction; however, it is still used in current official statistics. For a critical perspective on the Western/non-Western distinction, see Yanow and van der Haar (2013, pp.240-243).

Netherlands experienced a large influx of immigrants with more precarious residence statuses.

The number of asylum seekers rose sharply following the wars in former Yugoslavia, and was subsequently fuelled by immigrants from various countries, including the post-Soviet states, Turkey, Afghanistan, Iraq, Iran, Sri Lanka, Angola, Somalia and Sierra Leone (see Engbersen et al., 2007, pp.402-403). While the approval rate of asylum requests was relatively favourable in the early 1990s, it decreased significantly at the end of the decade, contributing to an increase in irregular stays on Dutch territory (van Meeteren et al., 2013, p.116).

In parallel, there was an increase in the number of temporary labor immigrants, mostly from Western Europe and more particularly from eastern European countries. The EU enlargements of 2004 and 2007 stimulated immigration from new EU member states to the Netherlands, especially from Poland, followed at a large distance by Romania and Bulgaria (Engbersen et al., 2007, p.405). This contributed to a sharp increase in the share of immigrants from other-EU countries, which had been growing steadily over the past decades.

The 1990s and 2000s were therefore characterised by new patterns of migration: immigrants from the traditional sending countries – Turkey, Morocco and Suriname – were gradually supplemented with new categories of immigrants from more diverse parts of the world, and whose settlement conditions were generally more insecure or temporary. The children of immigrants born in the Netherlands between 1995 and 2010, who are the focus of this dissertation, reflect this growing plurality in the composition of the Dutch population.

Citizenship laws and integration policies

Successive migration waves to the Netherlands since the Second World War have been accompanied by various changes in Dutch immigration and integration policies, which have shaped the context of settlement for immigrants and their families. In what follows, I pay particular attention to the different conditions under which the first and second generations could become Dutch citizens over time, either through the naturalisation of (one of) the parents or through the acquisition of Dutch citizenship *after birth*, by the children themselves.

Until 1892, children could acquire Dutch citizenship through descent from a parent or through birth on the territory. The Netherlands had a pure *ius soli* regime: children born on the Dutch soil acquired Dutch citizenship automatically, irrespective of the citizenship of their parents. However, in 1892, the Dutch Nationality Act replaced the *ius soli* principle by a gender-specific *ius sanguinis* transmission, through descent from the father. This change was based on the consideration that "the 'sole' fact of birth on Dutch territory was perceived as a coincidental event which did not necessarily create a bound with the Netherlands, while descent from a Dutch father did." (de Hart, 2010, p.99). From that date, children of immigrants born in the Netherlands to two foreign-born parents could only become Dutch if their fathers had become Dutch before their birth, or through their own naturalisation after the age of majority.

However, in the 20th century, some reforms facilitated access to Dutch citizenship for the descendants of immigrants. First, in 1958, a form of *ius soli* was adopted for the third generation, *i.e.*, the children born in the Netherlands from second-generation parents. Second, in 1976, a partial Amendment of the 1892 Nationality Act gave certain categories of applicants, including the second generation, the possibility of acquiring Dutch citizenship through a simplified and shorter procedure as adults. Citizenship could be acquired upon a simple decision by the Minister of Justice, in contrast to the standard naturalisation procedure, which had to be approved by both houses of Parliament (van Oers et al., 2009, p.6).

Despite the large influx of guest-workers from the Mediterranean in the 1960s, the Netherlands did not develop a comprehensive policy to address the legal status and integration of these newcomers until the early 1980s. Guest workers were expected to eventually return to their home countries, leading to a pragmatic strategy to foster immigrants' integration while preserving their cultural identity (Vink, 2007, p.345). However, at the end of the 1970s, it was increasingly recognised that most guest workers would remain in the Netherlands, and that the government should therefore ensure their equal participation in Dutch society. (WWR, 1979; AOCM, 1979). The so-called "minorities' policy" (*Minderhedenbeleid*) was introduced in 1983 to ensure equal opportunities for all residents in the Netherlands (Dutch Government, 1983).

A central element of this minorities' policy was to strengthen the legal position of immigrants in the Netherlands. This led to the adoption of the Dutch Nationality Act in 1985, which simplified the acquisition of Dutch citizenship through naturalisation and allowed candidates to appeal negative decisions.

With the new Act, "naturalisation became a right rather than a favour" (van Oers et al., 2009, p.13). Immigrants had to meet the following requirements to naturalise:

- "being at least 18 year of age,
- having been granted a residence permit for a purpose not limited in time,
- having been residing in the Netherlands for at least five consecutive years prior to the application
- having made an effort to renounce one's foreign nationality, unless renunciation could not reasonably be demanded,
- not constituting a danger to public order,
- having reasonable knowledge of the Dutch language and being accepted into Dutch society." (van Oers, 2013, p.43)

Fulfilment of the last requirement – commonly known as the "integration requirement" – was tested by a municipal official in a short interview, free of charge, which allowed for a more lenient treatment of some categories of immigrants (van Oers, 2013, Chapter 3). In addition to facilitating the naturalisation of immigrants, the new Act improved access to Dutch citizenship for the second generation. Native-born children of immigrants were indeed given the possibility to acquire Dutch citizenship by lodging a unilateral declaration between the ages of 18 and 25. This declaration, known as the *option procedure*, did not require the renunciation of the applicant's existing nationality as did naturalisation (van Oers et al., 2009, p.13).

The number of naturalisations rose significantly after 1985. In particular, there was a considerable increase between 1992 and 1997, when dual nationality was temporarily tolerated following a compromise between the government parties. Yet, this liberalisation appears to be an exception to the other developments of the decade (Vink, 2007, p.346). In the 1990s, the idea that newcomers should take responsibility for their integration, rather than being treated as "care categories", gained increasing support at the institutional level (WWR, 1989; Dutch Government, 1994) and in Dutch society (van Oers, 2013, p.48). In this context, the acquisition of Dutch citizenship came to be seen more as a reward or trophy than as an instrument for integration (see de Waal, 2017; van Oers, 2013, pp47-51). The introduction of stricter language and integration requirements for naturalisation was increasingly discussed in Parliament, and finally came into force in 2003 with the Naturalisation Test

Decree. The Decree introduced a formalised language and knowledge of the Dutch society test, which had to be paid for by applicants (€260). The level of language skills required to pass the naturalisation test was much more demanding than the previous integration interview; it was set at level A2 of the Common European Framework of Reference (CEFR). Overall, the introduction of the naturalisation test made it significantly more difficult and costly for applicants to meet the integration requirement, and was associated with a decline in naturalisations by almost 50% (van Oers, 2013, Chapter 7).

The Naturalisation Test decree came into force with the revised Dutch Nationality Act, which changed the right of option for the second generation. While the maximum age of 25 for lodging a declaration of option was cancelled, the procedure could now be interrupted by the mayor on discretionary grounds (van Oers et al., 2009, p.21). In addition, the new procedure included a requirement of lawful residence in the Netherlands, and was no longer free of charge. According to van Oers et al. (2009), this changed the very nature of the option procedure: "[since 2003] the right of option no longer constitutes a middle course between *ex lege* acquisition and naturalisation. It can be seen as a simplified form of naturalisation." (p.22).

The emphasis on the need to *earn* or *deserve* one's citizenship only became stronger in the 2000s, following a wider trend in Europe (van Houdt et al., 2011; van Oers, 2013). The Dutch political and social climate was highly conducive to the politicisation of immigration and integration issues, and led to the rise of political parties with explicit anti-immigration agendas (see Entzinger, 2014; van Oers, 2013, pp.51-53). Immigration policies became more selective, while integration policies were increasingly centred on the acceptance of so-called "Dutch" values and norms by immigrants (see Schinkel and Van Houdt, 2010). This led to the introduction of a naturalisation ceremony in 2006, and to the entry into force of the Integration Act in 2008, which imposed a "civic integration duty" (*inburgeringsplicht*) to all non-Dutch/EU residents between the ages of 16 and 65 – unless they had participated sufficiently in the Dutch education system or passed their naturalisation exam (see Vink, 2007, p.347).

The 2008 Integration Act replaced the naturalisation test by the "integration examination", which further increased the overall cost of the naturalisation procedure for applicants (van Oers, 2013, p.54). Candidates now had to pay for both the examination and the integration course themselves, with limited opportunities for financial support[14]. Compared to the naturalisation test, the

[14]The costs of the integration course rose dramatically after 2008 because the government trans-

content of the integration test was expanded, while maintaining the required level of language skills at A2 of the CEFR (see van Oers, 2013, p.63).

These subsequent changes in Dutch integration policies at the turn of the 20th century reflect broader transformations in the very conception of citizenship: its formal or juridical definition has progressively given way to normative views of what a "good" or "active citizen" should be (Schinkel and Van Houdt, 2010). This growing emphasis on the *moral* dimension of citizenship had important implications for the legal status of immigrant families. On the one hand, immigrant parents have been faced with increasingly stringent and costly naturalisation requirements, which may prevent or postpone their acquisition of Dutch citizenship and, indirectly, that of their children. On the other hand, the introduction of the option procedure in 1985 provided a specific legal route to Dutch citizenship for the native-born children of immigrants. Yet, access to this procedure was also restricted, so as to become a simplified form naturalisation. Furthermore, this procedure is only available from the age of majority, which means that second-generation children are exclusively dependent on the naturalisation of (one of) their parents if they are to become Dutch citizens when they are minors.

The Dutch education system

Previous studies analysing the relationship between citizenship and education of the second generation have been conducted in different national settings, marked by specific educational arrangements. While some education systems steer students into hierarchical tracks at an early age (*e.g.*, Germany, Switzerland), others postpone selection and have low levels of stratification (*e.g.*, Sweden) – or fall somewhere in between (*e.g.*, Italy). The Netherlands, with its full-curriculum tracking system in secondary education, belongs to the first category (see Nuffic, 2019, for a detailed overview). Students are assigned to a specific track for all subjects right after the end of primary school, around age 12, on the basis of a binding school advice they receive. The school advice is based on teachers' recommendation and, in most schools, on students' performance at a standardised test taken in the last year of primary school to measure cognitive abilities.

ferred the responsibility for the provision of the courses to the market. The average costs were estimated to be around €4,300, not including the costs of the examination itself (van Oers, 2013, p.54). The " Deltaplan integration" temporarily allowed municipalities to pay for the integration courses of those having a civic integration duty under the Integration Act. However, this was replaced by a system of loans in 2013 (see van Oers, 2013, pp.63-64).

The track in which students enter secondary education has important consequences for their subsequent trajectories, as tracks offer unequal opportunities to access higher education and move upward through the system. On the one hand, the pre-university (VWO) and general (HAVO) tracks provide direct routes to research universities (WO) and universities of applied science (HBO) respectively. On the other hand, students enrolled in the vocational track (VMBO) can only gain access to higher general education if they have been enrolled in the right sub-tracks, and at the cost of additional years of study. Moreover, students are generally grouped in different schools depending on their initial track, which places the Netherlands on the side of the *between-school* tracking systems (see LeTendre et al., 2003, p.51).

Despite its high level of stratification, Dutch secondary education is relatively flexible: students are able to correct a possible misplacement by moving upward or downward between tracks. However, students are not equally equipped to make use of this flexibility. Families need quality information to navigate this complex system and choose (sub-)tracks and schools with good upstream possibilities (Pfeffer, 2008; Forster and van de Werfhorst, 2019). Without a good knowledge of the available pathways and back doors, parents may inadvertently limit their children's options. Immigrant families may face specific obstacles in that respect (Crul, 2015, 2018). Because of their school experience in a foreign education system, immigrant parents are more likely than native-born parents to lack the necessary *content* and *strategic* knowledge (Pfeffer, 2008) to effectively guide their children through the system (van De Werfhorst and Van Tubergen, 2007). Parents' lack of proficiency in Dutch can also complicate their participation in school decisions, and limit their involvement at key stages of their children's school careers.

Parental resources have been shown to be particularly crucial in the Dutch education system (see Stevens et al., 2011, pp23-28, for an overview). At the end of primary school, children of highly-educated parents tend to get higher track recommendations from teachers and are more likely to be enrolled in a track above the one corresponding to their test scores (Inspectie van het Onderwijs, 2016; Timmermans et al., 2018). This suggests that parents from privileged backgrounds negotiate with teachers to secure a higher track than initially advised. There is also evidence that students whose parents have a high level of education and cultural capital are more likely to be mobile between tracks (Forster and van de Werfhorst, 2019), which is consistent with the idea that these intra-secondary transitions require significant parental involvement.

Comparative studies confirm the determining influence of parental resources in this type of education system (*e.g.*, Pfeffer, 2008; van de Werfhorst and Mijs, 2010; van de Werfhorst, 2019). Early-tracking education systems such as the Dutch one are generally found to increase the level of social inequalities at school, including disparities by parental socioeconomic and migration background (van de Werfhorst, 2019, p.69). Conversely, students from underprivileged families are less disadvantaged when they are in comprehensive unstratified systems, because they are less dependent on the resources and involvement of their parents.

In other words, the institutional characteristics of the school system shape the learning opportunities of students, and moderate the influence of their social background. In the Netherlands, unequal access to parental resources are expected to be a key factor in the heterogeneity of educational outcomes among children of immigrants (van De Werfhorst and Van Tubergen, 2007). If citizenship fosters the access of immigrant families to relevant country-specific resources and increases their level of agency, its effects on education may be more important in the Netherlands than in unstratified education systems. In that sense, the acquisition of host country citizenship is expected to be particularly relevant in the Dutch education context. In empirical Chapter 4, I explain in more detail how these specific educational arrangements may moderate the relationship between citizenship and education.

Data and research population

To analyse the relationship between host country citizenship and education of the Dutch second generation, I make use of register data from Statistics Netherlands. In the following, I describe the main characteristics of this administrative data and the conditions in which they were used. In a second step, I describe the research population that is at the focus of this thesis.

The Dutch administrative registers

Information on individuals and households is traditionally collected through surveys. However, the steady rise in survey nonresponse over the last decades has raised a number of difficulties (Singer, 2006). From a methodological point of view, non-random nonresponse violates one of the key assumptions of probability sampling, which may severely bias the inferential process. Besides casting doubts on the reliability of survey estimates, rising nonresponse

rates have substantially increased the costs of implementing surveys. In this context, administrative data have received growing attention from statistical offices, leading to the development and use of population registers in several countries (Bakker et al., 2014a).

In the Netherlands, Statistics Netherlands started to develop the System of Social Statistical Datasets (SSD) in the second half of the 1990s. The SSD refers to a system of linked administrative registers and surveys that can be combined efficiently using standardised linkage keys (see Bakker et al., 2014a, for a technical overview). This combination makes it possible to cover various life domains, from education and labour force participation to health and housing. A key part of this system is the Municipal Basis Registration for population data (*Gemeentelijke Basis Administratie persoonsgegevens*, GBA), a computerised and decentralised register at the municipality level which provides longitudinal data on all individuals residing in the Netherlands[15].

In principle, everyone legally residing in the Netherlands is recorded in the register of the municipality where he or she usually lives, regardless of their citizenship status. Foreign-born individuals who are planning to stay in the Netherlands for at least two third of the forthcoming six months are considered as immigrants, and must register at their municipality using a residence permit (van der Erf et al., 2006). Conversely, individuals who leave the Netherlands for at least eight months in the coming year must notify their municipality in order to be deregistered. If they do not declare their departure, they may be removed from the registers when it becomes apparent that they no longer live at the registered address and/or have no contact with the Dutch administration (see van der Erf et al., 2006, p.555). In this way, the GBA ensures extensive and up-to-date coverage of the population of the Netherlands. Municipal population registers provide basic information on the sociodemographic characteristics of individuals, which can be linked to other administrative data using unique and anonymised personal identifiers.

[15]Since 2015, the GBA has been merged with the Registration of Non-Residents (RNI) to form the Basic Registration of Persons (*Basisregistratie Personen*, BRP), comprising personal data of both residents and non-residents who have had a relationship with the Netherlands. As the BRP was not available for most of the observation period considered in this thesis (1995-2016), I used only the GBA.

Advantages of administrative register data

Using register data presents important advantages in the context of this dissertation. First, register data are especially relevant when studying small populations or low-incidence phenomena that cannot be captured in surveys. This is notably the case for immigrants and their descendants, who are typically underrepresented in surveys due to specific sampling and coverage difficulties (see Kappelhof, 2015, pp.18-23). As this dissertation exclusively focuses on the Dutch second generation, an adequate coverage of this population is crucial to obtain reliable estimates. Although some surveys are designed to over-sample the children of immigrants (*e.g.*, Dollmann and Jacob, 2014; Groenewold and Lessard-Phillips, 2012), they generally do not provide detailed information on respondents' changes in nationality. By contrast, data on acquisitions and losses of Dutch citizenship are available in the administrative registers of the Immigration and Naturalisation Service (IND) (van der Erf et al., 2006, p.563), which provides information on change of citizenship on a yearly basis and decreases the risk of inaccuracies compared to self-reported data.

Second, by design, population registers provide panel data where individuals are continuously followed over time, without generating attrition. This micro-level longitudinal aspect is crucial for analysing the relationship between citizenship and education from a life course perspective (Wingens et al., 2011a). In the empirical Chapter 3, panel data make it possible to assess the relevance of the policy context, by analysing the naturalisation propensity of immigrant families under changing institutional conditions. A longitudinal perspective is also pivotal in the empirical Chapter 4, where educational registers allow me to trace students' school careers on an annual basis, from entry into secondary education to early adulthood.

Finally, population registers offer the opportunity to match individuals with their partners, parents and children. This feature is important when analysing the citizenship of the second generation in the Netherlands, as children are dependent on their parents to acquire Dutch citizenship when they are minors. The matching of parents and children enables me to analyse naturalisation patterns at the family level in Chapter 3, highlighting the social dimension of the acquisition of citizenship by children. The possibility to match family members is also crucial in Chapter 5, where I identify siblings to estimate *within-family* effects of age at naturalisation on educational achievement. This empirical strategy is also made possible by the use of the total popula-

tion of Dutch second-generation children, which ensures sufficient statistical power to analyse variations between siblings.

Limitations and drawbacks of administrative register data

The use of administrative register data also comes with limitations. First, it is important to note that, despite its inclusive coverage of the population, registers only include people who are *legally* resident in the Netherlands. This notably excludes undocumented populations who are living in the Netherlands without a valid residence permit. In addition, some immigrant populations are likely to be underrepresented in the registers. For instance, asylum seekers are only registered after they have been granted a residence permit, or can register on their own initiative if the decision has been pending for more than six months. In practice, this leads to under-coverage and delays in the administrative registration of this population (van der Erf et al., 2006, p.553). The population statistics therefore "reflect the *de jure* population of the Netherlands and not the *de facto* population" (van der Erf et al., 2006, p.561). However, this should not introduce a significant selection bias in the analysis of the citizenship of children. Children of undocumented immigrants and pending asylum seekers are indeed not included in the target population, since a valid residence permit is a formal requirement for naturalisation. Nevertheless, the use of register data implies that the findings of this dissertation are only relevant for the population of children who are legal residents in the Netherlands.

Other limitations relate to the quality and availability of register data. Notably, there is evidence that register data contain considerable measurement error (Oberski et al., 2017, p.1477). Although existing studies suggest that the bias is not higher than the bias found in surveys (*e.g.*, Bakker, 2012; Pavlopoulos and Vermunt, 2015; Oberski et al., 2017), it is essential to critically assess the plausibility of the data. In the face of data inconsistencies, I paid particular attention to comparing information from several registers for cross-validation. Some self-constructed variables, such as immigrants' date of eligibility for naturalisation (Chapter 3), were created in several ways using different data sources to assess the risk of measurement error. I also systematically identified cases with missing or atypical information to assess the sensitivity of the results to the inclusion of such cases.

At the same time, register data impose important constraints in terms of data availability. Because the registers have only been computerised from 1994 on-

wards, it is not possible to trace the trajectories of individuals before that date. This is especially problematic for reconstructing the migration pathways of the parents included in the study, the majority of which arrived before 1994 in the Netherlands. The variables related to parents' migration background, such as their number of years since migration (Chapter 4), should therefore be interpreted with particular caution, as the risk of measurement error is not negligible. Furthermore, the registers have developed over time to cover an increasing range of themes and characteristics. This implies that some variables have only become available – and reliable – over time, which imposes additional constraints when analysing the data longitudinally. This was notably the case with the educational variables used in Chapters 4 and 5: educational registers were only added to the SSD in the early 2000s, and information on students' school outcomes became reliable at the end of the decade.

Finally, although the scope of register data has significantly improved over time, it is inherently limited by its administrative nature. Contrary to surveys, register data do not provide information on individuals' aspirations, motivations or experiences. This makes it difficult to *explain* the observed patterns, as the decision-making processes involved are not observable. Therefore, while this dissertation aims to investigate the mechanisms by which citizenship affects educational outcomes (see Chapter 2), it can only use empirical proxies to test these hypothesised mechanisms, due to the lack of appropriate data. Administrative registers nevertheless provide the basic information needed for the aggregate approach followed in this thesis, leaving aside the way individuals perceive and experience citizenship. In the conclusion, I will further reflect on the implications of the data limitations described in this section.

Access to register data and data confidentiality

The datasets provided by Statistic Netherlands contain strictly confidential personal information that must be treated with great care. To ensure a sufficient level of data security, Statistics Netherlands has taken a number of measures (see Bakker, 2012, p.419). First, personal identifiers are removed from the statistical data and are replaced by anonymous linkage keys that preclude direct identification. Second, the data are stored on a network with strictly regulated access rights. To access the network, a global plan for the analysis including a detailed description of the required data must be submitted to Statistics Netherlands. After approval, access is granted only for

the required data. In addition, the data are exclusively accessible via computers at the central offices of Statistics Netherlands, or via personal and secure remote access. When working on the data, access to email facilities is limited and any do-file or output is checked for compliance with Statistics Netherlands guidelines before being exported. Altogether, these measures ensure a high level of data protection and limit the risk of breach of confidentiality.

The research population

This dissertation focuses on the children of immigrants born in the Netherlands between 1995 and 2010. This choice is the result of several considerations. On the one hand, the naturalisation trajectories of those born before 1995 are difficult to trace due to the absence of computerised registers before that date. On the other hand, the data provided for this thesis go up to 2016, which prevented the inclusion of the youngest birth cohorts that could only be observed in their first years of life. This broad research population is used in the empirical Chapter 3 to get an overview of patterns of citizenship acquisition among the Dutch second generation from the mid-1990s to the mid-2010s. In the empirical Chapters 4 and 5, more restricted research populations were selected depending on the data constraints and research needs (see Figure 1.1 and Table 1.1).

In Chapter 4, I follow the cohort of second-generation students who were first enrolled in secondary education in 2008, which mainly corresponds to children born in 1995 and 1996.[16] This narrow focus allows me to cover the entirety of these students' secondary schooling, while ensuring sufficient quality for the educational data. In Chapter 5, I focus on the cohorts of second-generation students who were first enrolled in secondary education between 2008 and 2015, the large part of which were born between 1996 and 2002. The selection of several student cohorts is important for the empirical strategy of this chapter, which is based on the comparison of the standardised test scores obtained at the end of primary school by students from the same sibling. It is important to note that no major structural reforms took place in the Dutch education system during the observation period (see Garrouste-Norelius et al., 2010, p.68), which facilitates the comparison of students from different school cohorts.

[16] As Figure 1.1 shows, a small share of students are born before 1995 in Chapter 4 (6.4%) and Chapter 5 (0.6%). This is due to the selection criteria used in these Chapters, which are both based on student cohorts. Individuals born before 1995 correspond to students who have repeated one or more grades before entering secondary education.

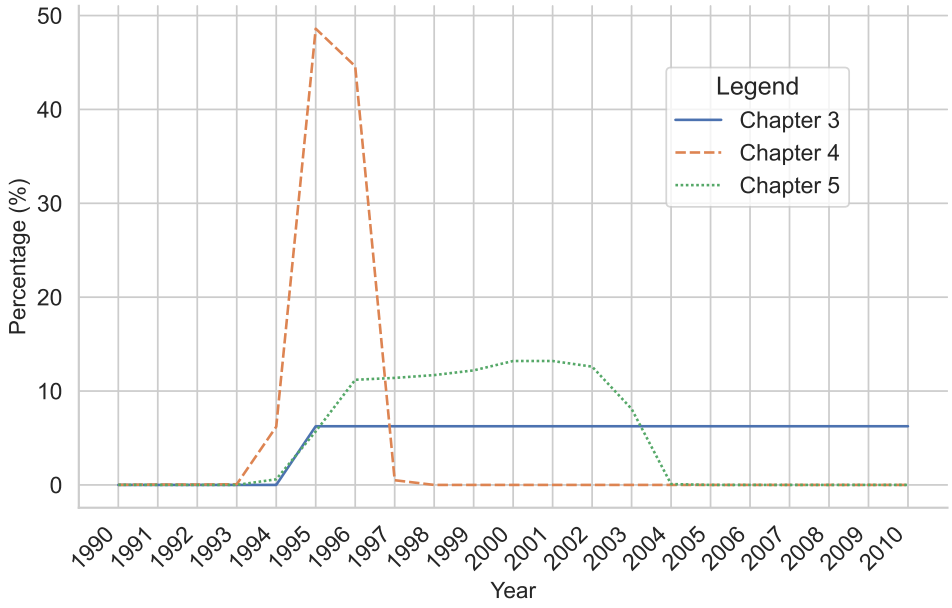

Figure 1.1: Distribution of the birth cohorts included as research populations in the empirical Chapters 3, 4 and 5.

	Chapter 3	Chapter 4	Chapter 5
Population	SG* born in 1995-2010	SG first enrolled in SE** in 2008	SG first enrolled in SE in 2008-2015
Sample size	287,250	12,505	122,356
Observation period	1995-2016	2008-2016	2008-2015
Method	Event history analysis	Sequence analysis	Family fixed-effects

Table 1.1: Overview of the main characteristics of the three empirical Chapters 3, 4 and 5.
*SG: Second generation; **SE: Secondary education.

Definition of the second generation

In all three empirical Chapters, I define second-generation children as those born in the Netherlands to two foreign-born parents, who themselves are born to at least one foreign-born parent. This is a stricter definition than the one used by Statistics Netherlands, which includes children with only one foreign-born parent. While some studies use the same criterion as Statistics Netherlands when analysing the relationship between citizenship and education (Kilpi-Jakonen, 2014; Cygan-Rehm, 2018), I argue that the children of mixed descent are a distinct group that should be analysed separately. Having one native parent, children of mixed descent are indeed likely to have facilitated access to host country-specific resources, as previous studies suggest (see, *e.g.*, van Ours and Veenman, 2010; Emonds and van Tubergen, 2015). Second, and perhaps more importantly, the children of mixed descent ought to obtain Dutch citizenship at birth by descent through their native parent. This group is therefore expected to have privileged access to Dutch citizenship, compared to those whose parents are both immigrants. Although children of mixed descent may still benefit from the naturalisation of their non-native parent, the mechanisms involved are likely to be specific to this group and would therefore warrant a separate analysis.[17]

My definition of the second generation also excludes the so-called 1.5 generation, *i.e.*, the children who migrated to the Netherlands at a young age. While some studies do combine the 1.5 and second generations (Fibbi et al., 2007; Bean et al., 2011; Patler, 2017), these two groups often differ in their access to host country citizenship.[18]. Furthermore, one can expect the 1.5 generation to face specific obstacles at school, due to their previous socialisation in another national context (see Suárez-Orozco and Suárez-Orozco, 2002, Chapter 3). As including this group would add substantial heterogeneity to an already widely diverse population, I have chosen to focus only on the second generation. Nevertheless, the importance of host country citizenship for the 1.5 generation should not be underestimated (Luthra et al., 2018b; Cebulko, 2014; Gonzales, 2011), and undeniably deserves further research in Europe (Homuth et al., 2020).

[17] Note that for similar reasons, children born in the Netherlands from second-generation parents – the third generation – are not included either, since they acquire Dutch citizenship automatically.

[18] For instance, children of immigrants who are born abroad can obtain Dutch citizenship by option, provided that they have been resident in the Netherlands since the age of 4. This is the so-called *socialisation based* acquisition.

Finally, I excluded children from specific origin groups in all three empirical Chapters. I first omitted the children originating from the Caribbean territories of the Kingdom of the Netherlands (the former Netherlands Antilles), who are Dutch citizens by law. Second, I excluded children whose parents came from the former Dutch colonies, namely Suriname, Indonesia and Netherlands New Guinea. The reason is that the immigrants or so-called "repatriates" from the former colonies had privileged access to Dutch territory and citizenship (see van Meeteren et al., 2013, pp.115-116).[19] Moreover, because of the historical ties of the Netherlands with its former colonies, those who came from these countries in the 1970s-1980s were likely to be proficient in Dutch and familiar with Dutch institutions, which shaped the settlement process – for them and their children – in specific ways. As a result, my research population only includes children whose parents were born outside the former Dutch empire.

Empirical strategy

From a methodological point of view, analysing the relationship between citizenship and education raises a number of questions. First, while the literature on the second generation typically compares the outcomes of children of immigrants with those of native-born, the focus on citizenship status highlights the heterogeneity *within* the second generation, calling for an alternative empirical strategy. Second, analysing the patterns and effects of naturalisation from a life course perspective requires appropriate methodological tools that capture the temporal dynamics involved. Finally, an important challenge when analysing the effects of citizenship is selection bias: because naturalisation is a costly and selective process, the observed relationship between citizenship and education may be confounded by unobserved parental characteristics that affect both the propensity to naturalise and the educational performance of children. Unobserved heterogeneity at the family level therefore needs to be taken into account in order to identify a potential *causal* effect of citizenship on education. In what follows, I further detail the empirical strategy of this thesis with regard to these three dimensions.

[19] According to van der Erf et al. (2006, p.561), this is one of the reasons why Statistics Netherlands used the concept of *allochtoon* – instead of citizenship status – to identify individuals who do not originate from the Netherlands *stricto sensu*. For a critical discussion of the notions of *allochtoon* and *autochtoon* in the Dutch context, see Yanow and van der Haar (2013).

Exploring the heterogeneity *within* the second generation

Studies analysing the educational outcomes of second-generation children have so far largely focused on comparing children of immigrants with those of natives (see Fernández-Reino, 2016; Hadjar and Scharf, 2019; Dollmann and Weißmann, 2019; van de Werfhorst and Heath, 2019, for recent examples). This approach, sometimes referred to as the "majority/minority dichotomy" (Lessard-Phillips et al., 2017, p.40), has proved analytically useful in explaining gaps in educational outcomes between children of immigrants and their peers with native-born parents. However, the majority/minority dichotomy comes with limitations.

A main limitation is that the systematic comparison of immigrant and native families tends to treat both groups as homogeneous populations (Wimmer and Schiller, 2003, p.588). On the one hand, children of native-born parents are often grouped together in the same category despite significant heterogeneity in terms of social and ethnic origin within this group (Lessard-Phillips et al., 2017, p.40). On the other hand, comparing the children of immigrants against this unspecific benchmark tends to obscure the diversity of educational trajectories *within* the second generation. Although the literature has paid growing attention to the heterogeneity of educational outcomes of children of immigrants (*e.g.*, Portes and Fernández-Kelly, 2008; Louie, 2012; Crul et al., 2017), the underlying factors have received limited focus so far (see, *e.g.*, Ichou, 2014; Engzell and Ichou, 2020).

This is particularly the case for factors relating to the migration and settlement experience of immigrant families. The context of reception is often proxied by the country of origin or nationality of immigrant parents (Luthra et al., 2018a), despite significant heterogeneity among immigrants from the same country of origin. As van Meeteren et al. (2013) note for the Dutch case, "(...) there are substantial differences between migrants from specific countries in terms of generation, migration motives, religious background and education" (p.115). Using multilevel modeling, Dronkers and Fleischmann (2010) show that the vast majority of the variance in the educational achievement of second-generation students in EU countries is at the individual level (above 80% for males and nearly 90% for female), "while the rest of the variance is mostly at the country of destination level and hardly at the country of origin level" (p.188; p.197). While this does not mean that the characteristics of the origin country are irrelevant, it does suggest that the country of origin alone does not adequately capture the diversity of migration and settlement patterns at the family level.

Parents' conditions of arrival in the destination country and access to host country citizenship may contribute to the variance in the educational outcomes of the second generation. Yet, analysing the effects of these specific characteristics of immigrant families requires restricting the analysis to children of immigrants. Otherwise, as Dronkers and Fleischmann (2010) explain, "[the] estimation [of such characteristics] would be dominated by the much larger group of natives for whom they are not applicable." (p.187).

In this thesis, I therefore focus solely on the children of immigrants to analyse the effects of citizenship on education. By doing so, I shift attention to the hitherto under-explored heterogeneity of the second generation, and contribute to a better understanding of the factors that may explain the variation in their educational outcomes, both *between* and *within* groups of different national origin. This empirical strategy also allows me to assess how naturalisation and citizenship laws contribute to such variation, highlighting "the way in which different ethnic or national groups negotiate in similar societal structures and institutional constraints that might not be relevant for the non-immigrant populations" (Lessard-Phillips et al., 2017, p.43).

Uncovering temporal dynamics

To analyse the patterns and effects of citizenship acquisition, I draw on two main sets of methods that bring temporal dynamics to the fore: event history analysis and sequence analysis. These methods help to model citizenship in a life course perspective in two ways. First, event history analysis provides adequate methodological tools to model the *propensity* of second-generation children to become Dutch citizens, in the context of changing institutional conditions (Chapter 3). Second, sequence analysis allows the construction of educational trajectories – as opposed to one-off school transitions or outcomes – in order to capture potential long-term and cumulative effects of citizenship on education (Chapter 4).

Previous research analysing the naturalisation propensity of immigrants typically relies on aggregated data (*e.g.*, van Oers, 2013; Perchinig, 2010; Green, 2012), due to the absence of individual-level data to identify and date the acquisition of host country citizenship by foreign nationals. Although informative, the use of aggregated data has important limitations when analysing the effect of naturalisation reforms on individuals' decision and ability to naturalise. Indeed, aggregated data make it difficult to analyse how such reforms translate at the individual level, and to isolate potential reform effect from

other temporal dynamics, such as changes in the composition of the immigrant population. The use of longitudinal individual-level data, combined with event history methods, provide opportunities to overcome these limitations.

Event history methods are well suited to analyse the timing and occurrence of events in the life course of individuals (Mayer and Tuma, 1990). Although rarely used in citizenship studies, such methods have proven useful in modeling immigrant naturalisation in the context of institutional conditions (Peters et al., 2016; Vink et al., 2021). This is particularly true of the Cox proportional hazard model, which allows for the inclusion of both time-invariant and time-varying covariates when estimating individuals' rate of naturalisation at a given time (Cox, 1972). In Chapter 3, I use the Cox model to analyse the patterns of citizenship acquisition among the Dutch second generation between 1995 and 2016, according to the conditions under which immigrant families were eligible for naturalisation. I contribute to previous work on immigrant naturalisation by adding specific time-by-covariates interactions to explicitly model time dependency in the Cox model (Box-Steffensmeier et al., 2003).

Next to event history methods, I use sequence analysis to model the relation between citizenship and education in a life course perspective. While existing studies tend to conceptualise and operationalise naturalisation as a one-off transition from non-citizen to citizen, I adopt a more holistic perspective by analysing whether citizenship is associated with specific education *trajectories* within the Dutch school system. The benefit of this approach is twofold. First, trajectories better capture the internal dynamics of students' educational pathways than single educational transitions (Boylan, 2020, p.3), especially in school systems such as the Netherlands where students can move from one track to another. Second, by focusing on educational trajectories, it is possible to model the complex relation between citizenship and education in a more comprehensive way, beyond a one-off treatment effect. Because trajectories take into account the interdependence of events within the life course (Wingens et al., 2011a, p.13), they make it possible to capture potential long-term and cumulative effects of citizenship acquisition on education.

In Chapter 4, I use sequence analysis to map the educational trajectories of the children of immigrants in the Dutch secondary school system. This set of methods, originally developed within biology to compare DNA sequences, is now widely used in the social sciences (Ritschard and Studer, 2018). In particular, I draw on recent studies that have analysed educational careers

in various education systems using optimal matching methods (Baysu and de Valk, 2012; Gomensoro and Bolzman, 2016; Boylan, 2020). However, unlike previous modelling of educational trajectories, I use a variant of optimal matching based on students' *transitions* within the school system (Biemann, 2011). This transition-oriented approach better captures non-standard trajectories that make use of the flexibility and back doors of the system. Such mobility patterns are important when analysing the effect of citizenship: they reflect not only how students navigate secondary education, but also how they adapt to the constraints and opportunities of the education system.

Dealing with self-selection into naturalisation

Analysing the effects of citizenship acquisition on the educational outcomes of the second generation is an important methodological challenge, due to potential endogeneity in the relationship between citizenship and education. A major source of endogeneity is common-cause confounding bias (Elwert and Winship, 2014): the parents that secure host country citizenship for their children may be better equipped to support their school achievement, already prior to becoming Dutch.

Common-cause confounding bias may arise from a dual mechanism. On the one hand, naturalisation is a selective process involving a broad range of financial and non-financial costs, which not all immigrants can afford or bear. While high application fees are a significant barrier for low-income households (Hainmueller et al., 2017), language and integration requirements have been shown to hinder the naturalisation of less educated applicants (Jensen et al., 2019; Vink et al., 2021). Moreover, in the absence of dual citizenship toleration, renouncing existing citizenship has greater emotional and practical implications for some immigrants than for others (Mazzolari, 2009; Vink et al., 2021, pp.4-5). Finally, the bureaucratic nature of the naturalisation process often requires candidates to deal with administrations, which favours immigrants who are are familiar with the host country context and able to navigate its institutions. Immigrants who naturalise are therefore not a random sample of the immigrant population: they are expected to be positively selected for income, level of education, and a number of host country-specific skills.

On the other hand, the parental resources involved in naturalisation propensity are likely to be associated with their children's educational outcomes. There is indeed well-established evidence that parents' education, occupation

and resources are important factors for educational success, including among children of immigrants (Heath and Brinbaum, 2007; van De Werfhorst and Van Tubergen, 2007). Familiarity with the language and institutions of the host country may also facilitate the involvement of parents in school decisions (Esser, 2006; van De Werfhorst and Van Tubergen, 2007; Kristen, 2008). What is more, parents seeking host country citizenship despite its substantial cost may have higher aspirations for their children and be more oriented towards the host society regardless of whether or not they naturalise. As a result, (part of) the positive relationship observed between citizenship and education may not be due to an effect of citizenship, but rather to parental characteristics that influence both citizenship acquisition and children's educational outcomes.

It is difficult to eliminate this possible spurious association between citizenship and education, as some of the parental characteristics involved are generally unobserved or unobservable in quantitative data. This is especially true when using administrative register data, which do not provide information on individuals' knowledge, aspirations and non-certified skills. In the presence of omitted variable bias, the standard strategy of conditioning on the common causes of the two variables of interest is not appropriate (Elwert and Winship, 2014, p.36). Some studies that are only able to include a limited number of parental characteristics are hence likely to measure spurious correlations between citizenship and education (*e.g.*, Fibbi et al., 2007; Kilpi-Jakonen, 2014).

To avoid the risk of omitted variable bias, a series of studies use recent changes in German citizenship law as a natural experiment (Felfe et al., 2020; Cygan-Rehm, 2018; Avitabile et al., 2014; von Haaren, 2016). These studies focus on the introduction of a conditional right to German citizenship at birth in 2000, which offers a unique opportunity to measure the effect of birthright citizenship net of parents' self-selection into naturalisation. Overall, these causal approaches provide further evidence for an independent effect of citizenship on education. Yet, the empirical strategy used in these studies is not easily replicable in other national contexts, as birthright citizenship laws have remained relatively stable over the past decades (de Groot and Vonk, 2018).

Another strategy to deal with omitted variable bias is to employ an instrumental variable, *i.e.*, a variable that is correlated with citizenship acquisition but uncorrelated with children's educational outcomes. For example, Bean et al. (2011) create an instrumental variable using the 1986 Immigration and Reform Act in the US. This reform, which introduced a legalisation program

to all immigrants residing in the country since January 1, 1982, provides an exogenous variation in the legal status of immigrants, which does not depend on the ability of parents to change their legal status. This strategy confirms the authors' result of a net positive impact of mothers' naturalisation on their children's years of schooling. However, with the exception of a few specific citizenship contexts (*e.g.*, Hainmueller et al., 2017), it is difficult to find suitable instrumental variables for citizenship acquisition.

Unfortunately, the Dutch context does not provide the possibility of using natural experiments or instrumental variables to measure a causal effect of citizenship on education during the observation period. For this reason, I developed an alternative empirical strategy in Chapter 5, based on the variation in age at naturalisation between siblings. This strategy is based on the idea that siblings share many of the parental characteristics that are expected to confound the relationship between citizenship and education. For instance, parents' context of migration, level of education and orientation towards the host country are constant or relatively stable over time, making siblings comparable in this respect. This strategy has already been used in the literature to account for unobserved heterogeneity at the family level (Nielsen and Rangvid, 2012; Böhlmark, 2008; Sigle-Rushton et al., 2014), but, to my knowledge, it has never been applied to assess the strength of parental self-selection into naturalisation. Unlike previous approaches, I use the between-within model to explicitly model unobserved heterogeneity at the family level (Bell and Jones, 2015). This empirical strategy is complemented by a novel bounding technique developed by Oster (2019), which takes into account both time-constant and time-varying unobserved characteristics.

Outline of the dissertation

This thesis is structured along four substantive chapters: a conceptual chapter (Chapter 2) and three empirical chapters (Chapters 3-5). The empirical chapters are all independent papers that have been published in or submitted to peer-reviewed journals (see the footnotes at the beginning of each empirical chapter). Only minor changes have been made to the empirical chapters for stylistic purposes. For ease of reading, all references and the supplementary materials have been placed at the end of the thesis.

The three empirical chapters are preceded by Chapter 2, which presents the theoretical underpinnings of this dissertation. In this chapter, I bring together

different bodies of literature relevant for the analysis of citizenship and education, which have so far mostly developed in isolation. Drawing on the life course perspective, I show how the literature on the second generation and citizenship studies can be connected to enhance our understanding of the relationship between citizenship and education. I identify the need for a more comprehensive theoretical framework, which takes into account the contextual and family dynamics involved in naturalisation and integration processes. This chapter lays the foundation for such a framework, and formulates well-grounded hypotheses for the empirical analysis. These hypotheses are then tested in the subsequent chapters using Dutch administrative register data from Statistics Netherlands.

In Chapter 3, I analyse the propensity to acquire Dutch citizenship among the children of immigrants in the Netherlands, with particular attention to how immigrant families adapt to changing institutional constraints. The descriptive results indicate that the vast majority of children who become Dutch citizens do so by co-naturalising with (one of) their parents before the age of majority. The dependence of children on their parents for the acquisition of Dutch citizenship is further confirmed in the analysis by the evidence of an *intergenerational* impact of naturalisation reforms: children have less or delayed access to Dutch citizenship when their parents become eligible under stricter requirements. The analyses also highlight changes in naturalisation patterns at the family level, which suggests that naturalisation reforms not only affect *whether* and *when* the children of immigrants acquire Dutch citizenship, but also *with whom*.

Chapter 3 indicates that immigrant families faced increasing barriers to naturalisation since the end of the 1990s. Chapters 4 and 5 then assess the consequences of these delayed or abandoned naturalisation projects for their children's educational opportunities. Chapter 4 takes an exploratory approach to analysing the relationship between citizenship and education, by investigating whether the acquisition of Dutch citizenship is associated with specific pathways in secondary education. I use sequence analysis to map the educational trajectories of a full cohort of second-generation students, providing an overview of how they negotiate their way through a complex stratified system. Results show that the acquisition of Dutch citizenship at birth or before entry into secondary education decreases the likelihood of following a dropout trajectory, while it increases students' chances of moving upward after their initial track placement. This chapter thus provides suggestive evidence that naturalised families are better equipped to navigate the Dutch

school system and take advantage of its flexibility, compared to those who have not (yet) become Dutch.

Chapter 5 complements Chapter 4 with a stricter approach to causal inference: while Chapter 4 measures associations between citizenship and education, Chapter 5 aims to assess the extent to which such associations are confounded by unobserved heterogeneity at the family level. Using a family fixed-effects approach, I show that second-generation students who acquired Dutch citizenship in early childhood have a substantial advantage over their peers of foreign nationality in the standardised test they take at the end of primary school. Importantly, I do not find evidence that these results are significantly biased by parents' self-selection into naturalisation. Empirical findings further highlight that the effect of citizenship is not uniform over time and across individuals. The advantage of naturalised students indeed decreases when they naturalise after the age of 6, and becomes negligible when Dutch citizenship is acquired at the end of primary school. Furthermore, the positive effects of Dutch citizenship are concentrated among children whose parents are at a disadvantage in the labour market and housing market, which sheds light on hitherto under-explored effect heterogeneity.

This dissertation ends with the conclusions (Chapter 6), which summarise the main research findings and discuss the main conceptual, empirical and methodological contributions of the dissertation. In this chapter, I also discuss the limitations of the thesis and provide suggestions for future research on the citizenship of children of immigrants.

2

Citizenship and educational attainment: a life course perspective

Introduction

This chapter reviews and discusses the research conducted to date on the relationship between citizenship and education, with a particular focus on the theoretical channels through which citizenship status is likely to affect educational attainment. While a range of studies have identified positive effects of host country citizenship on various educational outcomes, the underlying mechanisms remain unclear, or are not embedded in a comprehensive theoretical framework. Why would naturalised children be more likely to perform well at school and follow the most prestigious tracks, compared to their fellow foreign citizens? Do immigrant parents behave differently depending on whether they or their children are citizens of their country of residence? And do children of immigrants care about host country citizenship, although they may not reap its benefits until the age of majority? These questions are at the intersection of different bodies of literature, which hitherto have largely remained unconnected.

On the one hand, there are important areas of research on children of immigrant descent and immigrant families (*e.g.*, Suárez-Orozco and Suárez-Orozco, 2002; Alba and Holdaway, 2013; Menjívar et al., 2016). Such studies have shown that second generation life trajectories unfold in specific ways due to their parents' migration experience; however, little attention has been devoted to how these trajectories are shaped by law and legal institutions. In particular, few studies have examined whether immigrant offspring's access to host country citizenship matters for their prospects in life. On the other hand, citizenship studies bring the naturalisation process to the fore and highlight the relevance of host country citizenship for immigrants (*e.g.*, Peters, 2018; Vink et al., 2013; Hainmueller et al., 2017). However, the bulk of research addresses naturalisation from an individual- and adult-centred perspective, overshadowing the role of family and children in the naturalisation process.

In the following sections, I explain how I bring together these different bodies of literature, drawing on the sociological life course approach (Elder, 1974). A life course approach to naturalisation is particularly useful for the purpose of this research, as it conceptualises individual trajectories as embedded in social structures and relationships. As I will show, such a perspective is key to understanding how legal contexts shape the realities not only of immigrants, but also of their children and families at large.

After presenting the life course perspective, I elaborate on some of its key

principles to analyse how citizenship and migration laws shape immigrants' access to resources and mobility. Why do some immigrants seek citizenship in their country of residence, while others do not? Recent developments in the field of citizenship studies indicate that to fully grasp the decision-making process at play, naturalisation decision needs to be conceptualised within a broader family and institutional context.

I then proceed to examine different mechanisms through which citizenship may affect educational attainment. Based on the literature on immigrant youth's life experiences, I first review some *direct* effects highlighting the importance of host country citizenship to the sense of security, well-being and aspirations of the second generation. Second, I discuss potential *indirect* effects of citizenship, building upon citizenship studies and the sociology of education. To the best of my knowledge, no research has considered that immigrants' naturalisation may have spillover effects on their children's opportunities at school, despite growing evidence that naturalisation fosters the socioeconomic integration of immigrants. I therefore combine insights from various areas of research to offer a more comprehensive conceptualisation of the relationship between citizenship and educational attainment, including potential intergenerational dynamics from parents to children.

Finally, I conceptualise *when* and *for whom* citizenship matters. While previous work mainly considers *whether* host country citizenship is relevant for second-generation children, I argue that the effect of citizenship may vary over time and across the second generation, depending on the other resources available to children and their families.

The sociological life course approach

The sociological life course approach emerged in the 1960s following a landmark study by Elder (1974), who used a longitudinal and intergenerational perspective to analyse a cohort of Californian children who grew up during the Great Depression. One of the main concerns at that time was to better grasp "the pattern and content of life in changing societies" (Elder, 1994, p.10), with a theoretical perspective that would allow for the joint consideration of continuity and change in the life course.

The life course is conceived as a sequence of age-related events, social positions and roles through which individuals participate in society (Mayer, 2004, p.163). An important premise of the life course approach is that the life course

of individuals interacts with the historical and societal environment in which they live: life courses are embedded in societal structures and institutions, which are in turn affected by the way people construct their individual lives. Life courses are part and product of interdependent processes that develop at various levels: micro (individual), meso (institutional) and macro (historical) (Wingens et al., 2011a, p.10). The life course approach investigates those multilevel processes from a dynamic perspective, analysing in particular how the timing, pacing and sequencing of individual life events are associated with changes at the meso and macro levels (*ibid.*, p.6).

Since Elder's (1974) seminal work, the life course has developed over several decades into an "emerging paradigm" (Elder, 1994, p.4) and has been applied to a wide range of research topics in the social sciences (see Mayer, 2004). Yet, as noted by Wingens et al. (2011a), migration research has long taken limited advantage of the analytical potential of the life course approach. This is surprising because this theoretical perspective seems particularly relevant to analyse migration and integration processes. Migration is arguably a disruptive experience in individuals' trajectories, which may affect their ability to plan their life and pursue their goals. This is particularly true for international migrants, who need to find their way in an often unfamiliar context, marked by the laws and institutions of the destination country.

In the wake of the collective work by Wingens et al. (2011b), recent developments in migration studies have shown the contribution of the life course approach to understanding the evolution of immigrants' trajectories in various life domains within and across borders (*e.g.*, Kraus, 2019; Barbiano di Belgiojoso and Ortensi, 2019; Kleinepier et al., 2015). Although more moderate, attention has also been paid to the life courses of the children of immigrants, highlighting how their trajectories are shaped both by the destination context and by the migration experience of their family (*e.g.*, Kleinepier and de Valk, 2016; Zorlu and Mulder, 2011). In this dissertation, I follow up on these studies and build on the life course approach to analyse the citizenship of children of immigrants.

Life course research has developed a number of guiding principles and concepts, some of which are particularly relevant for the purpose of this thesis (see Wingens et al., 2011a, pp.11-18 for a full overview of the life course approach). In what follows, I review three conceptual signposts of the life course approach and highlight their contribution to the conceptualisation of citizenship for the second generation: *linked lives*, *trajectories*, and the interplay between *context* and *agency*.

Linked lives

One of the key principles of life course research is that of *linked lives*, which refers to the interdependence of individuals' life courses. Human lives are typically embedded in networks of social relationships that lie at the intersection of various social worlds, ranging from family and friends to work and wider communities (Elder, 1994, p.6). While individuals depend on such relationships, they also provide resources and opportunities. Elder (1994) places particular emphasis on the intergenerational interdependence within the family: children's trajectories depend heavily on the life decisions of their parents, while parents' life courses can be greatly influenced by those of their children. Such a perspective is crucial to contextualise the acquisition of host country citizenship by children of immigrants. Indeed, in most countries, the children of immigrants acquire citizenship by descent and legally depend on their parents to acquire the citizenship of their country of birth and residence while they are minors (Honohan and Rougier, 2018).

Children's access to host country citizenship does not only depend on parents' ability and desire to naturalise, but may also be conditioned by their migration trajectories. When countries provide conditional *ius soli* provisions for the second generation, these are often accompanied by conditions relating to the length of residence of parents or children (Honohan and Rougier, 2018). As a result, parents' migration decisions – for themselves or their family – may have long-term spillover effects on their children's ability to acquire the citizenship of their country of birth (Colombo et al., 2011, p.337). The interdependence of life courses at the family level may also be reflected in parents' naturalisation decisions, when host country citizenship is acquired for the sake of their children or the family as a whole (Street, 2014). The notion of *linked lives* therefore calls for a conceptualisation of children's citizenship acquisition at the family level, which I will elaborate in the next section of this chapter and in the empirical Chapter 3 of this dissertation.

The notion of *linked lives* is also relevant when analysing the potential effects of host country citizenship on the life opportunities of second-generation youth. The acquisition of host country citizenship by one family member may shape the trajectories of the others in specific ways, even if they themselves remain foreign citizens (Cook, 2020). On the one hand, children's access to host country citizenship may change the opportunity structure facing their family and affect parents' migration and settlement decisions. On the other hand, parents' own naturalisation may improve their socioeconomic position and their access to relevant information and resources, which, in turn, would

positively affect the educational trajectories of their children. As a consequence, while citizenship has undoubtedly a *direct* impact on the life course of its holder, a life course approach suggests possible *indirect* or "feedback" effects (Elder, 1994, p.12) due to interaction processes between children and parents. In the third section of this chapter, I develop in more detail these direct and indirect theoretical channels, arguing that such a distinction is a first analytical step towards a more comprehensive conceptualisation of citizenship effects.

From one-off events to *trajectories*

Transitions and *trajectories* are crucial concepts for translating the life course theoretical perspective into empirical research (Wingens et al., 2011a). While transitions refer to "changes in state that are more or less abrupt" (Elder, 1985), trajectories relate to longer sequences of life events and transitions, which may occur both within and between life domains. An important point is that life events and transitions should not be analysed in isolation: changes in state may have long-term spillover and cumulative effects on subsequent transitions, creating path-dependence in the life course (Wingens et al., 2011a, p.13). The life course approach thus invites to go beyond the investigation of one-off events and to take into account their temporal dynamics through the analysis of trajectories.

This longitudinal approach to life events is particularly relevant when conceptualising naturalisation and its potential effects on children's life opportunities. Although foreign citizens do not officially become citizens until the naturalisation procedure is completed, "citizenship acquisition is not an abrupt legal status transition, but rather a process that requires careful planning and preparation leading up to naturalisation." (Peters et al., 2017, p.6). Naturalisation candidates may need several months to collect the required documents and obtain the necessary certificates, and often face substantial administrative delays until they are informed of the decision. Those who are not yet eligible but will be able to apply in the future may also plan their lives differently from those who are unlikely or unwilling to meet the naturalisation requirements (*e.g.*, Sredanovic, 2020; Della Puppa and Sredanovic, 2017). The naturalisation process may therefore start long before immigrants acquire host country citizenship, influencing their present behaviours and their expectations for the future. This draws attention to the potential *anticipated* effects of naturalisation (Peters et al., 2017), which I discuss in more detail in the third section of this Chapter.

Understanding naturalisation as a process also invites us to conceptualise its potential effects in a dynamic perspective. While previous research on the second generation has measured the effects of host country citizenship on isolated educational outcomes or transitions (*e.g.*, Felfe et al., 2020; Kilpi-Jakonen, 2014; Fibbi et al., 2007), there are reasons to think that the acquisition of host country citizenship has long-term and cumulative effects on children's life course. Becoming citizen of the host country comes with a number of rights and benefits, which affect the opportunities and constraints of immigrant families and may increases their ability to plan and construct their lives. In that sense, the acquisition of host country citizenship by children is not expected to have a one-off effect, nor to uniformly affect subsequent events in children's lives. On the contrary, I hypothesise that naturalisation more generally influences the way children and their families navigate host country institutions and leaves a lasting imprint on their life courses. In the empirical Chapter 4, I therefore move away from static educational outcomes or single transitions to focus on the full education *pathways* of the children of immigrants in the Dutch secondary school system. This enables me to assess the effects of citizenship more comprehensively, by comparing whether host country citizens tend to follow specific trajectories in education compared to their non-citizen counterparts.

Finally, a longitudinal perspective on citizenship suggests that its effects may vary over children's life course. Children of immigrants may become citizens from birth or later, in childhood, adolescence or even adulthood. These periods correspond to distinct phases of development, during which citizenship may have a wide range of meanings and effects. In the last section of this chapter, I conceptualise further these potential *timing* effects of citizenship acquisition for the children of immigrants, before assessing them empirically in Chapter 5.

The interplay between *context* and *agency*

Historical time and place

The life course perspective highlights the need to embed individuals' decisions and actions in the historical times and places they experience (Wingens et al., 2011a). This is particularly relevant for immigrants, who are not only subject to a new national context but may also (still) be dependent on the institutions and norms of their country of origin (de Hart et al., 2013).

While research has long focused on the process of settlement of immigrants from the perspective of the host society alone, growing attention has been devoted to the characteristics of the origin country and its combinations with those of the destination country to explain the various integration outcomes of immigrants and their offspring (*e.g.*, van Tubergen et al., 2004; Levels and Dronkers, 2008; Luthra et al., 2018a).

The importance of macro-level contextual factors should not be overlooked when analysing the citizenship of the second generation. First, the citizenship status of children of immigrants is jointly determined by the birthright citizenship laws of their country of birth and that of their parents (Honohan and Rougier, 2018; de Groot and Vonk, 2018). Second, the conditions under which immigrant parents and their children can acquire host country citizenship are defined by the naturalisation laws of the destination country, and, to some extent, by the attitude of the origin country towards dual nationality. Moreover, citizenship laws establish the rights and benefits of host country citizenship, which confronts immigrant families with a specific set of opportunities and constraints (Vink et al., 2013). This opportunity structure should be analysed over time, depending on the evolution of the legal context (Vink and de Groot, 2010). I give particular emphasis to this point in the next section and in the empirical Chapter 3, where I analyse the patterns of acquisition of Dutch citizenship among the children of immigrants in relation to two important legislative changes in the Netherlands.

Beyond the legal context, other macro-level factors are relevant for the purpose of this research. I analyse the potential effects of citizenship on the educational outcomes of the second generation, which are shaped by the characteristics of the school system. A significant number of comparative studies have highlighted how the institutional structure of the education system affects the level of social inequalities at school (see, *e.g.*, Pfeffer, 2008; van de Werfhorst and Mijs, 2010; Bol et al., 2014; van de Werfhorst, 2019). In particular, there is consistent evidence that the timing and degree of stratification of the education system influences the relationship between parents' social and migration background and their children's achievement and attainment (Blossfeld et al., 2016; van de Werfhorst, 2019). School systems characterised by an early selection of students into different tracks, such as in the Netherlands, tend to magnify educational inequalities. By contrast, comprehensive unstratified systems are associated with a smaller socioeconomic gradient in educational outcomes (*ibid.*).

Although I do not adopt a cross-country comparison in this dissertation, the

organisation of the education system needs to be taken into account when analysing the effect of citizenship. As I will detail in the empirical Chapter 4, the Dutch education system is complex and requires relatively high levels of information and knowledge. Because parents' resources matter especially in this context, the family's access to host country citizenship may be more relevant in the Dutch system than in non-stratified or late tracking systems. I therefore use the life course approach to derive context-specific hypotheses for the effect of citizenship, based on the institutional arrangements of the school system.

Agency in context

While trajectories are embedded in the societal and institutional context in which individuals live, their life course is not merely the product of this context. Individuals construct their life courses as "self-monitored actors" (Wingens et al., 2011a, p.9) and interact with their environment through active and purposeful participation. The ability to master one's life, referred to as *agency*, is another key principle of the life course approach. It reflects the fact that individuals are planful and pursue their own goals *within* the constraints imposed by laws, institutions and social norms. This draws attention to immigrants' strategies and tactics in the face of legal constraints. Although international immigrants have fewer resources than non-immigrants to cope with such constraints (Wingens et al., 2011a), "even vulnerable groups of transnational families are within the law, as they learn about and learn to use various local, national and international laws" (de Hart et al., 2013, p.997).

In other words, the agency of immigrants should not be denied when assessing the effect of the legal context. Similarly, one should not overlook the resources that may *enhance* the agency of immigrant families in the host society, such as their access to host country citizenship. In the third section of this chapter, I detail how citizenship may increase the level of agency of immigrant families and their capacities to navigate complex institutions such as the Dutch school system.

In conclusion, a life course approach offers valuable analytical tools to analyse the effects of citizenship on the educational outcomes of children of immigrants. While this dissertation does not aim to offer a fully-fleshed theoretical framework, the principles described above serve as a conceptual glue to link its main theoretical contributions: modelling citizenship acquisition at the family level, in the context of changing institutional conditions (Chapter

3); focusing on long-term, multidimensional indicators of educational attainment, as opposed to isolated academic outcomes (Chapter 4); and conceptualising the timing of citizenship acquisition for the children of immigrants (Chapter 5).

In the next sections of this chapter, I draw on the life course approach to critically address previous conceptualisations of the drivers and effects of citizenship acquisition by immigrant families.

Law in the lives of immigrant families

In *ius sanguinis* citizenship regimes, the access of minor children to host country citizenship largely depends on their parents' initiative, whether through parents' naturalisation or through the administrative procedures parents carry on the behalf of their children.[1] This suggests that the decision process leading to children's citizenship acquisition mostly takes place at the family level, with parents playing a leading role. However, few studies have analysed naturalisation from this perspective, obscuring either migrant families' citizenship status or the social dimension of the naturalisation process. In this section, I draw on two bodies of literature that provide complementary insights: the literature on migrant families, on the one hand, and citizenship studies, on the other.

Immigrant families in the face of legal constraints

The importance of the family has not always been recognised in migration studies. As observed by Kofman (2004), for various reasons, migration scholars have long used the individual as the primary unit of analysis and focused on males at the expense of migrant females and children (Zlotnik, 1995; Kofman et al., 2011). In response to this gap, a growing body of research has focused on migrant families since the late 1980s, analysing how family dynamics change in the process of migration and transnationalism (for an overview, see Kofman et al., 2011; Haagsman, 2015, pp.24-32). An important contribution of this field of research is to show that immigrants should not be considered as isolated individuals: they are embedded in dense networks of signif-

[1] In countries with conditional *ius soli* provisions, parents can claim citizenship for their children before they reach the age of majority provided that they fulfil a number of requirements – most often relating to parents' length of residence (Honohan and Rougier, 2018, p.350).

icant relationships – including family relationships – that affect their opportunities and constraints both in the countries of origin and destination.

Studies on migrant and transnational families have looked in depth at how family ties are preserved or transformed across national borders. Yet, although the role of law in such processes is often acknowledged, few studies analyse how migrant families navigate legal institutions and cope with legal constraints (exceptions include de Hart et al., 2013; Mazzucato and Schans, 2011, p.709). As a result, knowledge about how migration and citizenship policies affect the lives of immigrants families in practice is still relatively limited. There is valuable evidence that immigration and family reunification policies reshape family dynamics and impose important structural constraints on their agency and mobility (Menjívar, 2012; Poeze and Mazzucato, 2016). Research has highlighted the effects of such constraints on parenting, care-giving and family dynamics in general (*e.g.*, Haagsman, 2015; Serra Mingot, 2018). Yet, less is known about the specific effects of citizenship laws, which define access to lawful residence and citizenship.

This lack of attention is puzzling, as legal status has a significant impact on the ability of family members to move freely across borders and to access education, employment and social protection in their country of residence. One reason for this gap is that most research has focused on immigrants with precarious or undocumented legal statuses, to the detriment of those undergoing legalisation (Cook, 2020, p.13). Furthermore, when citizenship status is considered, data do not always allow to differentiate legal residents from host country citizens (*e.g.*, Díaz McConnell and Yellow Horse, 2020). This is problematic because legal residents and citizens have different access to rights and resources (Menjívar, 2012, 2006). Citizenship is the only status guaranteeing full formal membership and legal protection in one's country of residence. By contrast, non-citizen residents have to deal with tedious administrative procedures (*e.g.*, Mazzucato, 2008) and face various restrictions on geographical mobility and access to employment (Della Puppa and Sredanovic, 2017).

The limited attention devoted to citizenship status has obscured important dynamics at the family level. According to Bonjour and de Hart (2021), previous studies on migrant families have overlooked the fact that "many families affected by migration policies consist not only of migrants, but also of citizens" (p.1). This is particularly true in countries recognising unconditional *ius soli*, such as the United Sates: those who are native-born automatically become citizens, regardless of their parents' legal status (Honohan and Rougier,

2018). However, research also highlights the growing complexity and restrictiveness of immigration laws, which make it increasingly difficult for families to share the same citizenship (Bonjour and de Hart, 2021; Cook, 2020).

Whether variation of legal statuses within the family is chosen or suffered (Cook, 2020), it can affect the opportunity structure of family members and shape their trajectories *here* and *there*. To better understand the specific relevance of citizenship for immigrants and their children, it is necessary to link research on migrant families with another area of research in the field of citizenship studies.

Immigrant families as legal actors

A large body of research in the field of citizenship studies has analysed immigrant naturalisation and the relevance of citizenship for immigrants' adaptation in the host society (see Peters and Vink, 2016). Traditionally, naturalisation has been interpreted as a moment that *completes* the settlement process of immigrants, and shows their full integration into the host society. This conception derives from the perspective of the modern nation-state (Wimmer and Glick-Schiller, 2002) that views citizenship as a status binding its holder to a particular state (Finotelli et al., 2017; Ip et al., 1997). The decision to change nationality is therefore understood as a deliberate choice through which immigrants establish allegiance to the state of which they become citizens.

In addition to this nation-state centred approach, traditional conceptions of naturalisation tend to be based on methodological individualism. This can be traced back to the seminal work of Yang (1994), who conceptualises naturalisation within the framework of the rational choice model. Yang models naturalisation as the result of an individual decision-making process, in which immigrants weight the costs and benefits of host country citizenship. This model is based on the idea that immigrants value the rights and privileges of citizenship differently depending on their background and preferences. Similarly, they are not equally able to manage the various costs and obligations attached to naturalisation. This approach has long been the dominant theoretical framework on citizenship acquisition, not only because the economic theory has been influential in this field of research (Street, 2014). This approach has also affinities with the epistemology of law and the way legal science conceives of the individual and human actions (see Frauenfelder, 2007, p.55).

Following this perspective, scholars explain immigrants' propensity to naturalise by the socioeconomic factors that either increase the returns to naturalisation or make its costs more bearable. Previous research has shed light on important individual factors positively associated with naturalisation, such as income, level of education, and length of residence (see, *e.g.*, Peters et al., 2016; Hainmueller et al., 2018; Street, 2014, p.270). Specific attention has also been paid to contextual factors, such as the acceptance of dual citizenship and the political or economic development of the country of origin (*e.g.*, Dronkers and Vink, 2012; Chiswick and Miller, 2009), showing that migration background conditions the relative value and attractiveness of host country citizenship.

Such studies have been fruitful and undoubtedly contributed to an enhanced understanding of naturalisation propensity, both at the micro and macro level. However, they have also been criticised for their methodological individualism. This becomes apparent in the literature on immigrant naturalisation. As Street (2014) argues, "[the] critique (...) is not that scholars have settled on the wrong list of costs and benefits but rather that most have assumed that only individual interests figure in this decison" (p.271). For example, even when marital status or the presence of children are considered (*e.g.*, Chiswick and Miller, 2009; Vink et al., 2013; Peters et al., 2016), the decision to naturalise tends to be conceptualised at the individual-level only. This is problematic from a life course perspective, since individuals are typically embedded in a web of social relationships that affect the way they experience their citizenship status (Bonjour and de Hart, 2021). The interdependence of life courses is particularly marked within the family, where children are legally dependent on their parents. Immigrants' decision to naturalise should therefore be conceptualised within a broader framework that takes into account potential family dynamics.

Towards a model of "embedded citizenship choice" (Soehl et al., 2018)

While migration studies have long since moved beyond the rational choice model (Nauck and Settles, 2001), this shift is still in its infancy in citizenship studies. Street (2014) has made an important contribution in that respect, highlighting the key role of the family in shaping the decision-making process leading to naturalisation. His study of the reform of German citizenship law in 2000 challenges traditional explanations of naturalisation propensity: Why was this reform followed by a drop in the number of naturalisations, even

though it simplified access to German citizenship? According to Street (2014), the partial introduction of *ius soli* for children born in the country removed an essential reason for the naturalisation of immigrant parents, namely to obtain German citizenship for the sake of their children.

The evidence of an *intergenerational* motive to naturalise shifts the focus to how family-level dynamics factor into the decision-making process. While it is now well established that the presence of children greatly influences their parents' migration decisions (for a critical overview, see Bushin, 2009), the role of children in parents' propensity to naturalise has remained largely unexplored. Yet, there is growing qualitative evidence that immigrant parents may seek to naturalise for the sake of their children, as to ensure them the best opportunities in the host society (Sredanovic, 2020; Della Puppa and Sredanovic, 2017; de Hart, 2010; Stewart and Mulvey, 2014). For instance, Della Puppa and Sredanovic (2017) note in their study of Ukrainian and Moroccan immigrants living in Italy that many parents acquired or wished to acquire Italian citizenship so that their children would have a chance to obtain public jobs – while few personally aspired to them (p.371).

As Street (2014) notes, naturalisation may also be a complementary good within the family, conferring higher utility if shared by all family members. This is particularly important when it comes to international mobility, as family members may only be able to reap the benefits of the host country passport if all family members possess a passport. This idea of complementarity is supported by a number of studies showing that the probability to naturalise is higher when other family members have naturalised in the same year or before (Street, 2013; Soehl et al., 2018; Helgertz and Bevelander, 2017). These family patterns lead Soehl et al. (2018) to call for an *embedded* model of citizenship choice, in which the social and family dynamics of the naturalisation process are fully integrated.

In the same way that "decisions to migrate are seldom the product of individual decision making, but are the result of collective efforts" (Nauck and Settles, 2001, p.462), decisions to naturalise are likely to be influenced by resources at the family level. Naturalisation is indeed a costly procedure, which can involve not only substantial fees but also significant administrative hurdles. As showed by Street (2013) in the Austrian case, family members support and assist each other in meeting naturalisation requirements. Moreover, the overall costs of naturalisation can be lower when family members initiate the procedure at the same time, especially in countries where applications

with a spouse are financially advantageous.[2]

While naturalisation may be a collective endeavour, it may also reflect different interests within the family. As Cook (2020) observes in the United-States, "Legalisation decisions entail a process of negotiation, in the context of family relationships in which members often have widely different goals, desires, and motivations" (p.14). Families are not monolithic units: family members likely face different costs and returns to naturalisation and may even disagree over the value of host country citizenship (Frauenfelder, 2007). This is particularly the case for children and parents, who may develop different relationships with the countries of origin and destination. On the one hand, the acquisition of full and permanent membership may be particularly valuable for second-generation children who "grew up as *de facto*, but not *de jure* citizens" (Soehl et al., 2018, p.4). On the other hand, naturalisation may yield limited returns for parents who have maintained strong ties with their country of origin, especially when they have already secured permanent resident status.

In the empirical Chapter 3 of this dissertation, I analyse how these dynamics translate in different naturalisation patterns at the family level. To what extent do second-generation children have access to the citizenship of their country of birth and residence? Do children naturalise at the same time as (both of) their parents, or do they acquire citizenship independently from the age of majority? To answer these questions, a family approach to naturalisation is crucial; however, as the following paragraphs explain, it also needs to be embedded within the family's broader environment.

The multiple uses of host country citizenship in changing contexts

An important principle of the life course approach is that of historical time and place: individual lives are not evolving in a vacuum but are embedded in their respective "historical world" (Elder, 1994, p.5). Immigrants' naturalisation propensity should therefore be analysed within a given societal and institutional context, which is notably marked by the laws of the countries of origin and destination. Some studies have specifically focused on citizenship policies (Jensen et al., 2019; Dronkers and Vink, 2012; Mazzolari, 2009),

[2] As an example for the Netherlands, the administrative fees for naturalising together with a partner are far cheaper: in 2021 couples need to pay €1,181 (*i.e.*, €590 each) to submit a joint application, against €925 to apply on their own.

analysing how "the legal framework set by the citizenship laws in the countries of origin and destination provides the *opportunity structure* with regard to access to citizenship." (Vink et al., 2013, p.3). Immigrants are generally found to have a lower naturalisation propensity when they face stricter naturalisation requirements, either because citizenship reforms restrict citizenship eligibility or increase candidates' obligations (Goodman, 2010; Jensen et al., 2019). Conversely, there is some evidence that naturalisation rates increase under favourable legal conditions, such as when dual citizenship is legalised in the origin country (Mazzolari, 2009).

In a context where naturalisation requirements have become increasingly strict (Vink and de Groot, 2010; Goodman, 2010), a growing attention has been devoted to the exclusionary effects of citizenship laws, shifting research focus from naturalisation *propensity* to naturalisation *capacity* (Jensen et al., 2019). Yet, these new barriers to citizenship acquisition should not overshadow immigrants' agency. As de Hart et al. (2013) argue, " there is no dichotomy but a continuum of opportunities and constraints" (p.997), even with restrictive migration and citizenship laws. First, the legal framework interacts with other contextual factors; the social and political context of reception, for instance, may also aid or impede naturalisation of immigrants (Bloemraad, 2002; van Hook et al., 2006). Second, immigrants' capacity to master their own life course should not be underestimated, as individuals *interact* with their environment and shape it in turn (de Hart et al., 2013; Elder, 1994).

In recent years, a growing body of literature has shed light on the tactics and strategies immigrants adopt in the face of changing circumstances, whether related to the economic, political or legal context (Della Puppa and Sredanovic, 2017; Finotelli et al., 2017; Sredanovic, 2020). This was encouraged by dissatisfaction with the predominant nation-state approach in citizenship studies (Finotelli et al., 2017), which tends to obscure the diversity of reasons for which immigrants naturalise. Traditional conceptions indeed assume that immigrants mainly naturalise for political and economic reasons, with the idea of settling permanently in the host society (Hoon et al., 2020; van Hook et al., 2006). By contrast, a transnational perspective sheds light on the multiple ties and interactions that link immigrants across national borders (Vertovec, 1999). For example, immigrants may seek the host country passport to carry out new migratory projects, maintain transnational ties or to pragmatically stabilise residence in times of crisis (Finotelli et al., 2017; Hoon et al., 2020; Della Puppa and Sredanovic, 2017; de Hart, 2010).

This recent body of literature highlights that citizenship may be acquired on a

wide variety of grounds, and used in various ways: while some seek citizenship for affective and symbolic reasons, others use it for practical or instrumental purposes – or a combination thereof (Finotelli et al., 2017; Della Puppa and Sredanovic, 2017). Focus on practices redirects attention to how laws affect the decision-making process leading to naturalisation, and may prompt families to pursue different naturalisation tactics. In Chapter 3, I analyse how immigrant families cope with the tightening of naturalisation requirements in the Netherlands and how this translates into different family naturalisation patterns. In line with the concept of "embedded citizenship choice" advanced by Soehl et al. (2018), I contend that it is crucial to take into account the fundamentally social and contextual dimension of naturalisation when analysing citizenship acquisition among children of immigrants.

Legal status and educational outcomes of the second generation

The relative lack of attention to whether and how children of immigrants obtain host country citizenship is matched by limited knowledge of the potential *effects* of their citizenship status on their life chances. Does naturalisation affect the opportunities of second-generation children in host societies and, if so, *how*? In this section, I build upon different bodies of literature to examine the potential effects of citizenship on a key determinant of children's life chances: their education. Education is not only important in itself; it is also a crucial means of social advancement in post-industrial societies, which arguably matters especially for immigrant families (Levels and Dronkers, 2008, p.1405).

I start with the literature on the educational outcomes of the second generation, which has significantly enhanced our understanding of how children of immigrants fare in host societies. While the citizenship status of children is virtually absent from this literature, it provides important insights into the mechanisms by which children of immigrants can succeed in education. I then draw on a disparate body of research that has approached the citizenship of children of immigrants from different angles. Although rarely linked, these lines of research offer converging evidence that host country citizenship positively affects the life opportunities of second-generation children, including their education. I will show that citizenship may affect educational outcomes either *directly* – by increasing children's well-being, aspirations and

motivation – or *indirectly* – by improving parents' position in the host country.

The educational outcomes of the second generation

The second generation now represents a growing and sizeable population in Western societies (OECD, 2012). This population has come of age since the early 1990s in the US (Zhou and Gonzales, 2019) and a few decades later in Europe (Heath et al., 2008), leading to extensive research on how these children find their way into host societies. Their education has received particular attention, as a key indicator of the obstacles and opportunities children of immigrants face growing up.

Scholarship on the educational outcomes of the second generation has grown into a significant area of research, at the intersection of migration studies and the sociology of education (*e.g.*, Crul et al., 2012; Alba and Holdaway, 2013). This area of research has placed a major emphasis on comparing children of immigrants with those of native-born parents, following the idea that this is a good proxy for the level of integration of the second generation (Lessard-Phillips et al., 2017, p.40). This perspective has highlighted so-called "ethnic inequalities" in educational outcomes: children of immigrants have been shown to be generally disadvantaged relative to their native counterparts, albeit to varying degrees depending on the country of study and children's origin group (Heath et al., 2008; Dustmann et al., 2012). Explaining such inequalities has been high on the research agenda, as unexplained gaps between children of immigrants and that of natives would run counter to meritocratic principles (van De Werfhorst and Van Tubergen, 2007).

A first and important series of studies has focused on disentangling the effect of migrant or ethnic background from that of social class. Indeed, a significant share of the educational disadvantages experienced by children of immigrants can be explained by their parents' social class and level of education (Heath et al., 2008; Levels and Dronkers, 2008; Dustmann et al., 2012). This is unsurprising, as parents' social background has long been identified as a key factor of educational inequalities in the sociology of education (Bourdieu and Passeron, 1990; Willis, 1981), and that immigrant parents tend to come from less advantaged social backgrounds than the native-born.[3] Fur-

[3]This is especially true in Europe where research has mainly focused on the children of former guest-workers who migrated to Europe in the 1960s (see Heath et al., 2008, p.213). This second-generation cohort has transitioned to adulthood in the last two decades, facilitating

thermore, there is evidence that the mechanisms of social reproduction work in the same way for the second generation as it does for children of natives (see Heath and Brinbaum, 2007). There are therefore substantial differences between the *gross* effects of migration background and its effects *net* of students' socioeconomic status.

A number of studies have sought to move beyond the "class versus ethnicity debate", shedding light on other relevant characteristics such as the resources in the family environment (van De Werfhorst and Van Tubergen, 2007). Taking parental resources into account is particularly important in the analysis of ethnic inequalities, as immigrant parents may face specific obstacles in effectively supporting their children's educational careers. For example, some studies suggest that parents' limited knowledge of the education system and lack of proficiency in the host country language can have a lasting effect on their children's performance and educational trajectory (van De Werfhorst and Van Tubergen, 2007; Heath et al., 2008; Dustmann et al., 2012; Kilpi-Jakonen and Alisaari, 2021). At the same time, studies have paid more attention to parental characteristics before migration, such as parents' relative level of education in their home country (Feliciano, 2005a,b; Ichou, 2014; van de Werfhorst and Heath, 2019). These developments have enabled researchers to better contextualise the conditions in which children of immigrants attend school and to include more precise measures of their families' actual resources.

Even when researchers are able to control for a wide range of relevant parental characteristics, it is notable that some residual gaps remain between children of immigrants and natives. However, such net effects of ethnic background often go in the opposite direction of its gross effects: among children of similar parental characteristics, children of immigrants tend to *outperform* their native counterparts. This is especially true for the type of track students follow in secondary education. Indeed, conditional on their school performance, children of immigrants have been consistently found to opt for relatively higher-levels tracks (*e.g.*, van De Werfhorst and Van Tubergen, 2007; Feliciano and Lanuza, 2016; Fernández-Reino, 2016; Dollmann and Weißmann, 2019). These "ethnic advantage" or "immigrant optimism" have received growing attention in the literature in recent years, highlighting the role of expectations and aspirations in the educational trajectories of the children of immigrants (*e.g.*, D'hondt et al., 2016; Hadjar and Scharf, 2019) and the factors that

the analysis of their life trajectories. However, the younger cohorts of children of contemporary immigrants now coming of age in Europe are arguably more diverse (Haas et al., 2019, pp888-892).

condition the transformation of favourable aspirations into academic success (Miyamoto et al., 2020; Dollmann and Weißmann, 2019).

Overall, the literature on the second generation is instructive in several ways. First, its successive developments have shed light on the specific educational experiences of the children of immigrants. As Luthra et al. (2018b) argue, children of immigrants are not just like their native counterparts: being born from people who grew up in foreign places and had to adapt in a new society creates an essential "background difference", inherent in the migration experience itself (p.27). Second, this literature has become increasingly sensitive to the considerable variation *within* the second generation, showing that children of immigrants fare differently depending on their parents' migration background (Heath et al., 2008; Zhou and Gonzales, 2019).

However, the systematic comparison of children of immigrants with those of natives in quantitative studies comes with an important limitation. The inclusion of immigrants and non-immigrants in the same models indeed constraints the selection of variables to characteristics common to both groups (see, *e.g.*, Dronkers and Fleischmann, 2010, p.187). This is problematic because a number of characteristics of the second generation are associated with the migration experience of their parents, and are thus not applicable to the children of natives. Such characteristics include parents' migration history, their settlement process, and their conditions of residence in the host country. For example, very few studies have analysed the relevance of parents' length of residence in the host country for the second generation (OECD, 2017a, pp.44-45). The focus on the "majority/minority dichotomy" (Lessard-Phillips et al., 2017, p.40) has arguably contributed to put aside another characteristic that primarily concerns immigrants' children: their citizenship status. As I will show below, only a limited number of studies have analysed the effect of citizenship on the educational outcomes of the second generation.

There may be other reasons for this overall lack of attention to citizenship status, which are worth mentioning at this point. First, children's citizenship status is not relevant in countries with unconditional *ius soli* provisions, whereby all children born in the country have automatic rights to citizenship. This is notably the case in the United States, where the literature on the second-generation has been most extensive. In fact, most key works of the US literature on the second-generation ignore citizenship or take it for granted (Luthra et al., 2018b, p.154). This implicit assumption that alien status is unproblematic has arguably influenced studies on the European con-

text, although most European countries do not offer unconditional *ius soli*.[4]

Second, important data limitations have made it difficult to analyse the citizenship status of the children of immigrants. Some data sources do simply not include information on nationality. In others, nationality is the only way to identify children of immigrant descent, in the absence of information on (see *e.g.*, Fibbi et al., 2007; Bolzman et al., 2003, for the Swiss case). This has a major drawback, as children of immigrants who acquire host country citizenship at birth cannot be differentiated from children of native descent. In addition, some data sources do not include children's or their parents' country of birth (see *e.g.*, Parameshwaran and Engzell, 2015), whereas it is necessary to take into account both nationality and migration status to identify the second generation (Heath et al., 2008, p.214).

On a more conceptual level, this lack of attention may also stem from the way in which citizenship of children is conceived in liberal democracies. According to Cohen (2005), minors hold an "ill-defined partial membership", marked by ambiguity:

> "Children are simultaneously assumed to be citizens – they hold passports and except in the rarest of cases receive at least one nationality at birth – and judged to be incapable of citizenship in that they cannot make the rational and informed decisions that characterise self-governance." (Cohen, 2005, p.221)

As minor children do not have the right to vote and have restricted access to the labour market, their citizenship status is partly abstract and some of its benefits are intangible. However, as I will show below, burgeoning areas of research suggest that citizenship is important for the children of immigrants, even if they do not fully enjoy the rights attached to it until they reach the age of majority.

The direct effects of naturalisation on educational outcomes

Until recently, few studies on the second generation have focused on – or at least considered – the citizenship status of the children of immigrants. This led the OECD to note in a 2017 report on the intergenerational mobility of the children of immigrants that "there is currently no evidence whether parental naturalisation (…) may impact their children's outcomes" (OECD, 2017a,

[4] With the exception of Moldova, no European country offers unconditional *ius soli* since it was abolished in the UK (1983) and in Ireland (2006) (de Groot and Vonk, 2018, p.331).

p.45). However, a closer examination of the literature brings more nuanced conclusions. While there is not a unified field of research on the relation between citizenship and education of the second generation, different bodies of literature have addressed this issue to varying degrees. In what follows, I will review and connect three main areas of research that contribute to a better understanding of the potential effects of naturalisation on the educational outcomes of the second generation. Although these areas of research have mostly developed in isolation, I will show that they provide a fairly coherent picture of how host country citizenship may positively affect educational outcomes.

The legal status of the 1.5 generation in the United States

There is an important line of research in North America focusing on the life trajectories of youth who initially came in the US as unauthorised migrants. These youth are often described as the 1.5 generation: they are not born in the country of destination but migrated at a young age, typically before 12 (Rumbaut, 2004).[5]

Although this line of research focuses on the 1.5 generation, it is informative for several reasons. First, the 1.5 generation in the U.S resembles the second generation in Europe, in that both populations live in their country of residence without the benefit of birthright citizenship (Luthra et al., 2018b, p.156). Second, although this literature has dedicated much attention to the effects of illegality and undocumented status, it offers interesting perspectives on how legal insecurity affects the well-being and opportunities of immigrant children in general (Gonzales, 2011; Cebulko, 2014; Enriquez, 2017). Finally, more and more studies not only look at the differences between documented and undocumented immigrants but also consider citizenship as an important axis of stratification (Menjívar, 2006; Cebulko, 2014; Patler, 2017).

These studies shed light on important mechanisms through which legal status affects children's or adolescents' well-being and life chances. Legal insecurity and the fear of deportation have been shown to shape the lives of immigrant youth in important ways (Gonzales, 2011; Cebulko, 2014). Undocumented youth have to deal with the stigma of illegality and set up strategies

[5]In his landmark study, Rumbaut (2004) defines the 1.5 generation as those who arrive in the destination country during middle school, between 6 and 12 years old. Other authors, however, define the term "1.5 generation" in a more flexible way and include youth who arrived in their late adolescence, up to the age of 15-16 (*e.g.*, Enriquez, 2017; Cebulko, 2014).

to overcome the legal obstacles in their school and work trajectories. In particular, Gonzales (2011) observes that undocumented status often prevents youth's efforts at school from being rewarded in the labour market, generating frustration and demotivation: "the assumed link between educational attainment and material and psychological outcomes after school is broken" (p.616).

Illegality affects various social aspects of immigrant youth's lives, and prevents them from moving through rites of passage that are usually associated with their age (Gonzales, 2011; Cebulko, 2014). This experience of exclusion leads to important triggers of stress and has been shown to severely impair psychological well-being, while transition to lawful presence is associated with a lower probability of stress and negative emotions (Patler and Pirtle, 2018). Exclusion also affects immigrant youth's sense of belonging: as Cebulko (2014) notes, without legal status undocumented youth do not identify as "Americans", even when they feel very "Americanised". Lack of well-being and anxiety can both impede educational progress, as mental heath has been shown to affect academic functioning and how students take advantage of learning opportunities in school (for an overview, see Rose et al., 2017, p.2324).

These findings are largely specific to the experience of being undocumented in the US. However, research has increasingly emphasised the need to move beyond the "legal-illegal binary" (Cebulko, 2014, p.145) to draw attention to the multiple categories of legal membership created by immigration and citizenship policies (Cebulko, 2014; Gonzales, 2011; Menjívar, 2006). In a context where the rights of all non-citizens are being eroded, "citizenship – in addition to legal status – has become an important axis of stratification" (Patler, 2017, p.4). Indeed, while legal non-citizens may be less at risk of deportation than undocumented immigrants, they may still experience insecurity and exclusion (Cebulko, 2014; Menjívar, 2006). Following Gonzales' (2011) argument, the lack of citizenship may also limit the returns to education, as it restricts access to a number of high-skilled jobs. Furthermore, the lack of citizenship may undermine the sense of inclusion in the host society. As argued by Luthra et al. (2018b), "as products of receiving-society schools, [immigrant offspring] have already been socialised for citizenship" (p.74) but lack the *de jure* status.

Studies looking more specifically at the differences between undocumented residents, legal non-citizens and U.S citizens support the idea of a "citizenship advantage" in education (Patler, 2017). Patler (2017) and Bean et al.

(2011) highlight a hierarchy of educational success, where undocumented students perform the worse while U.S citizenship confers the highest educational premium. Citizenship is found to positively affect the number of years of schooling (Bean et al., 2011), high school completion and enrolment into post-secondary school (Patler, 2017).

Both studies conceptualise citizenship within the framework of *membership exclusion*, according to which the lack of legal status excludes immigrants from social membership and leads to processes of delayed incorporation (see Bean et al., 2015). This theoretical framework has been designed primarily to analyse how children of unauthorised Mexican immigrants fare in education. As such, it focuses mainly on the effects of legalisation through the acquisition of legal permanent residency, devoting less attention to the acquisition of US citizenship. Furthermore, the mechanisms through which legal status affects children's educational outcomes remain unclear. In the following paragraphs, I draw on another line of research in Europe that specifically studies the effects of citizenship on the second generation.

The citizenship of the second generation in Europe

In addition to the US literature on the 1.5 generation, there are a number of studies on the citizenship of the second generation in Europe. These studies have taken a different view of children's citizenship status, aligned with the specificities of the European context. Contrary to the US, being born in a European country is not (or is no longer) enough to make a child one of its citizens (Honohan and Rougier, 2018). Children of immigrants have rights to the citizenship of their parents, not their country of birth, which puts them in a similar position to that of the 1.5 generation in the US. At the same time, while the size of Europe's unauthorised immigrant population has been growing in recent years, it is still less than half the number in the US (Pew Research Center, 2019). As a result, the European literature has devoted relatively more attention to citizenship than to legal status, compared to the other side of the Atlantic.

There are a few qualitative studies that analyse the relevance and value of citizenship for second-generation children in countries where the *ius sanguinis* principle prevails (Colombo, 2015; Colombo et al., 2011; Frauenfelder, 2007; Ribert, 2009). Colombo (2015) focuses on children of immigrants born and raised in Italy who are not (yet) Italian citizens, while Frauenfelder (2007) traces the naturalisation process of second-generation youth in Switzerland.

These studies shed valuable light on the multiple facets of host country citizenship for the children of immigrants. Citizenship may be acquired on practical grounds, such as gaining access to internships in the banking sector in Switzerland or avoiding the complications of the Italian administrative system. However, host country citizenship also assumes "a wider meaning, that goes beyond the specific restrictive situation generated by the law and bureaucratic rules" (Colombo et al., 2011, p.339).

Colombo et al. (2011) observe that for second-generation youth, becoming Italian citizens is a condition for full and effective participation in social life. First, having a host country passport opens up new horizons in terms of geographical and social mobility, whether for school trips or future job opportunities. Second, the political rights attached to citizenship guarantee the possibility to act as a self-monitored actor and defend their interests, notably through voting. This confirms earlier work from Ribert (2000) in France, showing that second-generation youth see the acquisition of French identity papers as marking access to adulthood and to full formal equality with those who are born in France to native parents. In that sense, acquiring host country citizenship enables children of immigrants to assert their rights and offers a form of protection against potential exclusion (Ribert, 2000; Frauenfelder, 2007, p.326)

Finally, citizenship can be an element of identification with the host country, although, as Colombo et al. (2011) nuance it, "citizenship (...) represents just one of the multiple forces at work in the construction of the sense of belonging" (p.344). Becoming a citizen can help second-generation youth to feel "at home", by changing their relationships with the host society and its institutions, such as when they interact with the police or the administration (Ribert, 2000; Frauenfelder, 2007). It can also help immigrant offspring to acquire a *de jure* status that reflects their everyday experience and practices in the host country, while maintaining a strong emotional bond with the country of origin of their parents (Ribert, 2009; Frauenfelder, 2007; Colombo, 2015).

Altogether, these findings indicate that host country citizenship matters for children of immigrants: it not only broadens their opportunities, but also contributes to a sense of security, autonomy and self-fulfilment. This provides important insights into the specificities of host country citizenship (notably vis-à-vis permanent residence) and the ways it can affect educational outcomes. If naturalised children do indeed feel more protected and motivated than their non-citizen counterparts, this may have a positive effect on how they perform in education and navigate the school system.

Another lesson from these studies is that while citizenship status matters, it is not a panacea. Indeed, becoming a citizen guarantees full *formal* membership but does not protect against all forms of discrimination. Although children of immigrants acquire host country citizenship, they may still not be recognised as "real" citizens in their daily lives or more generally in public and political discourses (Duyvendak, 2011; Frauenfelder, 2007, p.334). This is because other personal characteristics such as the skin colour or the sound of family name are enduring – and more visible – attributes shaping immigrant offspring's everyday interactions and access to resources (Cebulko, 2018; Erdal et al., 2018). In the last section of this chapter, I discuss in more detail the possible interactions of citizenship status with class and race.

Citizenship and educational outcomes of the second generation in Europe

Next to these qualitative studies, there is a series of quantitative studies that specifically examine the effects of citizenship status on educational outcomes in Europe (Fibbi et al., 2007; Kilpi-Jakonen, 2014; Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). This line of research, especially in its latest developments, has devoted particular attention to identifying an *independent* effect of citizenship, net of selection effects. It is indeed a methodological challenge to determine a causal impact of citizenship on education, as naturalisation is a complex and costly procedure into which immigrants *self-select*. A major threat to identification is due to common-cause confounding bias: parents acquiring host country citizenship tend to be positively selected for education, income and country-specific skills (Peters et al., 2016; Jensen et al., 2019; Hainmueller et al., 2018), which are in turn commonly associated with children's educational attainment. Parental naturalisation can also reflect high levels of integration or parents' willingness to integrate (Donnaloja, 2020), which means that parents who seek to become citizens may orient their children to the host society and its education system in specific ways, independent of their naturalisation process. When estimating the effect of citizenship, the parental characteristics involved in naturalisation decisions should thus be included as control variables; however, some of these characteristics are typically unobserved or unobservable in quantitative data. This implies that (part of) the association between citizenship and education observed in nonexperimental studies may be due to unobservable selection.

The first studies on the topic indicate that children who are host country citizens have better educational outcomes than non-citizens. At the same

time, citizens are found to come from a more privileged socio-economic background, suggesting selection effects (Kilpi-Jakonen, 2014; Fibbi et al., 2007). However, the authors observe that the positive effect of host country citizenship persists on some educational outcomes, even when important parental characteristics are controlled for. While this suggests that the observed relationship between citizenship and education is not solely driven by selection, this result could also be due to residual unobserved confounding factors at the family level.

The most recent studies develop innovative empirical strategies to isolate the effect of citizenship from unobserved family factors (Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). The authors use the introduction of partial *ius soli* in Germany in 2000 as a natural experiment to assess the effect of exogenous variation in the birthright citizenship status of children of immigrants. The results indicate an independent – and sizeable – effect of the acquisition of German citizenship at birth on children's educational outcomes in both the short and long term (Felfe et al., 2020; Cygan-Rehm, 2018).[6] While this is consistent with previous work (Kilpi-Jakonen, 2014; Fibbi et al., 2007), it should be stressed that extrapolating these results beyond the German case is difficult. The authors only measure the impact of the automatic acquisition of German citizenship at birth, while most European countries do not offer such *ius soli* provisions. Furthermore, their research strategy is hardly replicable in other countries since birthright citizenship provisions are fairly stable over time in Western Europe (Vink and de Groot, 2010, 720). In the Chapter 5 of this dissertation, I develop a novel identification strategy to isolate the effect of citizenship in the absence of a natural experiment.

Overall, existing research suggests that citizenship has positive effects on various indicators of educational attainment, such as pre-school enrolment and grade retention in primary school (Felfe et al., 2020), track enrolment in secondary education, (Kilpi-Jakonen, 2014; Cygan-Rehm, 2018; Felfe et al., 2020) and continuation to university (Fibbi et al., 2007). On a theoretical level, there are several reasons for a causal relationship between citizenship and education.

[6] Von Haaren (2016) uses the same citizenship reform in Germany to measure the effect of an exogenous variation in parents' eligibility for naturalisation. The author observes that parents' eligibility status has a positive effect on children's educational attainment, but, contrary to Felfe et al. (2020) and Cygan-Rehm (2018), this effect is non-statistically significant. Von Haaren concludes that the effect is fully driven by self-selection into naturalisation. However, the lack of statistical significance may also be due to the imprecision of the estimation and the use of a weak instrument (see p.17).

Previous studies typically conceptualise citizenship acquisition within the framework of human capital theory (Becker, 1993) and the human skill formation model (Cunha and Heckman, 2007). The effect of host country citizenship is described as a positive shock to the long-term rate of return on investment in children's human capital (*e.g.*, Felfe et al., 2020; Cygan-Rehm, 2018). Because citizenship provides unrestricted access to the host country labour market, early parental inputs in children's education should yield higher returns. Parents whose children are host country citizens are thus incentivised to make early investments in their children's education, such as to have them participate to non-compulsory pre-school (Felfe et al., 2020). In line with this argument, children who automatically get host country citizenship at birth are found to have better behavioral, socio-emotional and health outcomes in the short run compared to those who do not (Avitabile et al., 2014; Felfe et al., 2020). This hypothesis of higher early parental investments in human capital is further supported by studies showing that *ius soli* provisions decrease immigrant families' out-migration propensity (Sajons, 2016) and fertility (Avitabile et al., 2014) in the short-run.

This theoretical argument of higher labour market returns is also used to explain the higher likelihood of host country citizens of choosing the general rather than vocational track in secondary school compared to their non-citizen peers (Felfe et al., 2020; Cygan-Rehm, 2018; Kilpi-Jakonen, 2014). For example, Kilpi-Jakonen (2014) notes in her study of the Finnish case that "choosing general education reflects a greater willingness to invest in human capital accumulation" (p.1094). As education yields higher returns on the labour market for those who are host country citizens, it is expected to increase students' motivation to embark on longer and/or more prestigious educational careers.

More generally, host country citizenship expands the opportunities of second-generation students, which may give them – and their parents – higher educational aspirations and expectations. This would be consistent with the literature on the so-called "immigrant optimism hypothesis" (see Feliciano and Lanuza, 2016), and in particular with the work of Fernández-Reino (2016), which shows that the higher probability of choosing academic rather than vocational qualifications among students of migration background in the UK is partly mediated by their more ambitious school expectations.

However, the exact mechanisms through which citizenship fosters children's school careers remain unclear. Previous studies are based on the underlying assumption that immigrant parents are *able* to make successful investments

in their children's education, and to translate their aspirations and expectations into effective educational decisions. Such an assumption overlooks the various obstacles immigrant families may face in making informed investments in a foreign educational context. To varying degrees, educational systems require information and knowledge for parents to guide their children (Pfeffer, 2008). Importantly, recent studies suggest that parents' knowledge about the education system may be an under-investigated mechanism of social inequalities (see van De Werfhorst and Van Tubergen, 2007; Forster and van de Werfhorst, 2019). This mechanism should be particularly relevant in countries with stratified education systems containing many pathways and furcations.

Parents are not equally equipped to navigate the school system and effectively guide their children, notably because they do not have the same access to knowledge and information. First, parents' ability depends on their own educational attainment and socioeconomic position, from which they derive content and strategic knowledge (Pfeffer, 2008, p.545). Second, they rely on networks – and in particular, relationships with other parents – to access relevant information channels and social capital (Coleman, 1988). Besides, immigrant parents' investments may be constrained by specific factors, such as language barriers or difficulties in transferring their own educational experience and knowledge to a new context. There is evidence that immigrant parents face more barriers to involvement in their children's schools than native parents (Turney and Kao, 2009), which reduces their opportunities to build school-specific social capital and interact with school staff and other parents.

As a result, while citizenship may shift the preferences of immigrant families towards greater investment in host country education, "parents and their children rely on a variety of resources to *realise* these preferences" (Pfeffer, 2008, p.3, emphasis added). This raises another question: does the acquisition of host country citizenship help parents circumvent some of the obstacles they face in supporting their children's performance at school? A large body of literature looking at the relationship between host country citizenship and the socioeconomic integration of immigrants suggests that such a mechanism may be at work (*e.g.*, Hainmueller et al., 2017; Avitabile et al., 2013; Peters, 2018). In the next section, I draw in particular on the literature on the naturalisation of first-generation immigrants to explore potential *indirect* effects of citizenship acquisition on educational outcomes, which are mediated by parents' improved position in the host society.

The various studies referred to in this section, both qualitative and quantitative, overall converge on the idea that citizenship has an independent and direct effect on educational attainment. A key theoretical expectation is that citizenship contributes to the development of long-term goals and aspirations among the children of immigrants, resulting in better educational outcomes and more ambitious educational choices. Yet, an alternative or additional mechanism for a direct effect of citizenship could be related to discrimination: citizenship may affect the way others – and especially teachers – treat children of immigrants. For example, teachers' assessment of students' performance might be influenced by their citizenship status, in a similar way as it can be influenced by students' gender or socioeconomic status (Timmermans et al., 2018).

The hypothesis of discrimination against non-citizens has been considered in some studies (Kilpi-Jakonen, 2014; Cygan-Rehm, 2018), but has not received much empirical support so far. Kilpi-Jakonen (2014) does not find a significant effect of Finnish citizenship on the grades assigned by teachers, while Felfe et al. (2020) observe that teachers' track recommendation is not significantly affected by the introduction of birthright citizenship in Germany. From a theoretical point of view, one could expect more visible characteristics such as the skin colour to play a more important role in discrimination than citizenship status, especially in an institution where citizenship status does not condition access to or use of resources. In the rest of the dissertation, I therefore do not consider the mechanism of discrimination further.

The indirect intergenerational effects of naturalisation

The integration of immigrant populations into host societies has received much public and policy attention. Among the heated debates on integration policies, one involves the effects that naturalisation has on immigrants' political, social and economic participation. Usually, there are two opposing paradigms about the relationship between citizenship and integration (Hainmueller et al., 2017). On the one hand, the "crown paradigm" postulates that naturalisation does not enhance integration, but is simply a reward for those who have reached the end point of the integration process. By contrast, naturalisation propels the integration process according to the "catalyst paradigm", as "it provides immigrants with the necessary incentives and resources to integrate and invest in a future in the host country" (Hainmueller et al., 2017, p.256).

An extensive literature has emerged on how naturalisation affects the socioeconomic outcomes of immigrants (for a full overview, see Peters and Vink, 2016). Overall, results provide support for the catalyst paradigm: naturalisation is shown to have an independent effect on various indicators of socioeconomic and cultural integration. However, that parents' improved position in the host society may in turn affect their children's opportunities has not yet been examined, either theoretically or empirically. This lack of attention is surprising, given that it has long been established in other fields that changes in parents' outcomes have feedback effects on their children's development, notably through changes in parental resources and behaviour (see, *e.g.*, Elder, 1994). Following the principle of *linked lives*, I argue that the interdependence within the family should be taken into account to comprehensively assess the effects of citizenship acquisition. In this section, I review two types of parental resources associated with citizenship acquisition: the ones that parents acquire or develop *as a result of* naturalisation, and the ones they acquire during the naturalisation process itself.

Spillover effects of citizenship acquisition

An important part of the studies of naturalisation analyses its impact on economic outcomes, such as wages and employment (*e.g.*, Gathmann and Keller, 2018; Peters et al., 2017, 2020; Steinhardt, 2012; Helgertz et al., 2014). Results suggest that naturalised immigrants experience a "citizenship premium" in the labour market, with naturalisation facilitating access to employment and giving significant boosts in earnings (Gathmann and Keller, 2018; Steinhardt, 2012; Peters et al., 2017). This citizenship premium is generally attributed to the fact that host country citizenship provides unrestricted access to the labour market, and sends a positive signal to (potential) employers.

Parents' access to the labour market contributes greatly to the income and financial stability of the family, which in turn may play a role in children's educational attainment. Based on their income, parents can invest more or less of their disposable resources in their children's performance. Income enables them to purchase materials, experiences and services that directly or indirectly foster their children's cognitive ability and educational attainment (see, *e.g.*, Schulz et al., 2017). Although income is generally weakly correlated with levels of educational attainment, experience of persisting poverty does impact children's outcomes (Schöb, 2001). As immigrants tend to be at

a higher risk of poverty than natives (Blume et al., 2007), experiencing a citizenship premium in the labour market may be particularly relevant for improving the living conditions of immigrants' children. Parents' access to the labour market also contributes to parents' socioeconomic position, which, as mentioned above, has been shown to be a key factor in explaining inequalities in educational attainment, including among children of immigrants (van De Werfhorst and Van Tubergen, 2007; Heath and Brinbaum, 2007, p.295).

What is more, a recent line of research suggests that naturalisation facilitates access to the housing market. In the Netherlands, naturalised immigrants have been found to be 26% more likely to be homeowner (Peters, 2020), and 40% more likely to move out of immigrant-concentrated neighbourhoods (Leclerc et al., 2021). This may be an additional mechanism through which naturalisation indirectly affects educational outcomes, as neighbourhood characteristics exert an influence on children's and adolescents' educational development (see Nieuwenhuis et al., 2021). Furthermore, homeownership provides long-term financial benefits (Peters, 2020, p.1240) and can participate to the settlement process of immigrants (Chiswick and Miller, 2009).

Next to financial and employment stability, there is evidence that naturalisation promotes the social and political integration of immigrants. Hainmueller et al. (2017) show for the Swiss case that naturalised citizens have a higher score on a social integration scale, which includes interactions with the local community and the reading of Swiss newspapers. Such activities provide parents with additional resources to assist their children's educational career. Contacts with native parents can indeed give access to relevant networks and information flows, while acquaintance with the host country context and language can foster parents' advice ability and facilitate their participation in school decisions.

Several reasons may explain why naturalisation fosters immigrants' social integration. As we have seen, host country citizenship shifts the time horizon of immigrants and ensures that they will reap the long-term benefits of increased investments in their political and social integration. Naturalisation may also affect the way they feel perceived, or are perceived, by natives, and lead to increased attachment to the host society. This is consistent with evidence that host country citizenship generally favours both plans to stay in the host country and the likelihood of doing so (Hainmueller et al., 2017; Sajons, 2016; Hoon et al., 2020). In addition, previous work suggests that naturalisation fosters immigrants' identification with the host country (Fick, 2016; Donnaloja, 2020) and their political participation (Hainmueller et al., 2015).

Altogether, these results indicate that naturalisation may increase the socio-cultural resources available to children and foster parents' ability to provide advice through better acquaintance with the host country and its language. This is arguably an important mechanism because, as Chapter 3 shows, a substantial share of the second generation only acquire citizenship through their parents' naturalisation, either before their birth or via co-naturalisation. Yet, in a few countries such as Germany, children of immigrants may automatically get host country citizenship at birth if their parents meet certain residence requirements. In such cases, can we expect parents to develop similar resources although they do not necessarily become citizens themselves? Sajons (2019) observes that birthright citizenship for children did not change the labour market behaviours of immigrant fathers, while it reduced the labour market attachment of mothers. This is not in line with the findings that naturalisation improves the labour market outcomes of immigrants, especially women (*e.g.*, Gathmann and Keller, 2018). However, Avitabile et al. (2013) show that birthright citizenship for children has similar effects as parental naturalisation on their level of social integration: immigrant parents whose children are granted German citizenship at birth are found to be more likely to interact with native Germans, use the German language and read German newspapers.

The findings of Avitabile et al. (2013) underline the presence of interpersonal dynamics at the family level (Street, 2014; Soehl et al., 2018): children's citizenship status seems to have an effect on parents' practices and resources, regardless of the citizenship status of the latter. This suggests that children' increased opportunities in the host society affect parents' investments and orientation to the host country. In other words, as Avitabile et al. (2013) note, "immigrants might decide to integrate more with the culture of the host country because their children will be growing up as German citizens, speaking German, and adopting German habits" (p.786).

In summary, the acquisition of host country citizenship – whether by parents or by children alone – is expected to provide immigrant families with resources that are relevant for children's educational attainment. Naturalisation thus not only improves the position of immigrants in the host society, but may also, indirectly, foster their children's educational outcomes. This points to a potential *intergenerational* effects of naturalisation: the benefits of naturalisation are passed on from parents to children, *via* the resources parents can invest in their children's education.

Anticipated effects of citizenship acquisition

Previous research typically analyses the effects of naturalisation from the moment immigrants legally and officially become citizens. Yet, some studies suggest that the citizenship premium may actually develop faster *before* the actual change of nationality (Peters et al., 2017, 2020). This may sound counter-intuitive, or be hastily interpreted as evidence of selection into naturalisation (see Peters et al., 2017, p.6). However, there are several reasons to argue that immigrants benefit from naturalisation before it is formally approved and recorded.

As Peters et al. (2017) notes, "citizenship acquisition is not an abrupt legal status transition, but rather a process" (p.6) that starts when immigrants decide to seek host country citizenship. In that sense, prospective citizens may already anticipate the future opportunities associated with host country citizenship, and take steps to take full advantage of them, such as by improving their language skills (Peters et al., 2017). Furthermore, with the introduction of language and integration requirements in most European countries over the last two decades (Goodman, 2010), prospective citizens need to meet increasingly demanding requirements. Immigrants seeking host country citizenship may therefore not only *want* but also *need* to invest in their human capital before naturalisation.

Following this line of argument, immigrant parents may acquire or further develop relevant skills during the naturalisation process itself. Naturalisation procedures typically require at least basic language proficiency and some familiarity with the host country institutions. Going through such procedures may therefore provide naturalisation candidates with country-specific resources and knowledge, which may be transferable to other domains. For example, a study from Patler et al. (2020) shows that US citizens have higher levels of legal and procedural knowledge to challenge workplace abuses than documented non-citizens and undocumented immigrants. The authors conclude that workplace agency may be associated with the naturalisation process:

> "Citizen workers, in contrast [to noncitizens], may be more likely to have access to information about and experiences with government agencies – either through experiences with privileges afforded uniquely to citizens, or *through the naturalisation process itself* – and, therefore, experience less fear accessing such services." (Patler et al., 2020, p.16, emphasis added).

In the same vein, one could expect naturalised parents to be better equipped to navigate complex institutions such as the school system. Their interactions with host country administrations during the naturalisation process may increase their ability to overcome bureaucratic hurdles and negotiate their way through, especially when they do not comply with teachers' assessment and recommendations. Such a mechanism would be all the more relevant in countries where civic integration tests include specific questions about host country institutions, such as in the Netherlands.[7] In the empirical Chapter 4, I analyse in more detail the extent to which the acquisition of Dutch citizenship increases immigrant families' ability to navigate a complex education system and make use of its flexibility.

In other words, the resources and skills immigrant parents acquire during and in response to the naturalisation process are likely to have positive implications for their children's educational outcomes. While it is beyond the scope of this dissertation to isolate such *anticipated* effects of host country citizenship acquisition, I argue that it is a promising avenue for future research. If the decision to naturalise does indeed contribute to changes in immigrants' outcomes – in addition to the effects of the formal acquisition of host country citizenship – this has important implications for how we should define and measure the effects of naturalisation. In particular, this means that a strict comparison of immigrants' outcomes before and after the actual change in nationality may overlook the effects of the naturalisation process itself. This should be kept in mind when analysing the results of the empirical Chapters 4 and 5: children of immigrants who become Dutch citizens in a given year may have been influenced by their family's naturalisation process long before that date.

Timing and effect heterogeneity: effects of citizenship over the life course

Previous work on citizenship and education has mainly focused on *whether* citizenship has an independent effect on educational outcomes. Because naturalisation is a selective process that not all immigrants are able or willing to

[7] In the Netherlands, naturalisation candidates need to take a civic integration examination that includes a "knowledge of the Dutch society" component. This part consists of questions about Dutch customs and the functioning of the main institutions in the Netherlands, including the school system. See more details and example questions on `https://www.naarnederland.nl/en/exampleexams` [accessed July 19, 2021].

undertake, there is a high risk of bias when measuring the effect of citizenship on education. This makes it particularly important to disentangle the effect of citizenship from that of other confounding factors. Yet, the focus on causation has overshadowed other relevant questions, such as *when* and *for whom* citizenship matters.

Existing studies tend to assume that the effect of citizenship is uniform over time and across individuals. However, there are reasons to think that the mechanisms presented above do not apply equally to all children of immigrants: citizenship acquisition may be more relevant at certain stages of their life than others, and may be contingent upon some of children's characteristics and resources. In the next paragraphs, I build on the literature on naturalisation of first-generation immigrants to highlight two understudied aspects of the relevance of citizenship for the second generation, namely timing and effect heterogeneity.

The timing of citizenship acquisition

Previous studies generally use a static approach to citizenship. They identify *whether* children of immigrants are citizens at a given date, but do not consider *when* they became citizens. There are several explanations for this. First, information on the exact naturalisation date is not always available, especially when using cross-sectional data (Patler, 2017). Second, researchers have generally focused on citizenship acquisition at an early age, whether at birth (Felfe et al., 2020; Avitabile et al., 2014) or before school enrolment (Cygan-Rehm, 2018). This is mainly driven by methodological considerations, since the change in citizenship status should be observed before the outcome to avoid reverse causality. By contrast, the few studies that consider citizenship acquisition in early adulthood cannot "disentangle the observed link between positive selection on educational achievement and naturalisation" (Fibbi et al., 2007, p.1132). Furthermore, a number of studies focus on the introduction of conditional *ius soli* in Germany, and thus exclusively analyse acquisition of German citizenship at birth (Felfe et al., 2020; Avitabile et al., 2014).

While it is crucial to deal with reverse causality, it is also important to consider the implications of such methodological choices. Even in countries with conditional *ius soli*, children acquire automatic birthright citizenship only if

their parents fulfil certain residency requirements.[8] Those whose parents have not resided long enough in the host country before their birth are not eligible and may therefore naturalise later. Furthermore, as Chapter 3 shows for the Netherlands, in the absence of *ius soli*, a substantial share of children of immigrants only acquire host country citizenship in late childhood or early adolescence, through co-naturalisation with their parents. Some may even remain foreign citizens after they reach the age of majority, as highlighted by Frauenfelder (2007) and Colombo et al. (2011). There is therefore significant variation in children's age at naturalisation, which is not reflected in previous research. This variation raises questions about the effect of the *timing* of citizenship acquisition: is becoming a citizen more important at an early age than at an older age? Are children who acquired host country citizenship from birth more oriented towards the host society than those who become citizens later? These questions have received very little theoretical or empirical attention – if any at all.

Nevertheless, the literature on naturalisation of the first generation provides valuable insights into the effect of timing of citizenship acquisition. A number of studies show that the earlier immigrants are eligible to apply for citizenship and the quicker they naturalise, the more relevant citizenship is for their socioeconomic integration (*e.g.*, Gathmann and Keller, 2018; Peters et al., 2017). Furthermore, citizenship matters more for social integration when it is acquired early in the settlement process, rather than later (Hainmueller et al., 2017). Hainmueller et al. (2017) note that "this [timing] effect is strong in the sense that even a few years earlier can make a real difference for long-term social integration" (p.273). Immigrants who naturalise shortly after they are eligible are incentivised to make early investments in their human capital and country-specific skills (Peters et al., 2017; Hainmueller et al., 2017). Conversely, naturalisation may lose part of its relevance after a long period of residence, when immigrants have less time to enjoy the benefits of citizenship.

There are reasons to think that the timing of naturalisation not only matters for immigrants, but also for their children. First, as described above, children

[8] In the German case, *ius soli* provisions apply only to children whose parents have lived in Germany for at least eight years before their birth. As Sajons (2019) notes, this entails that findings derived from the 2000 citizenship reform only apply to immigrant families who have stayed in Germany for a long time (see p.16). In other words, the German studies (*e.g.*, Felfe et al., 2020; Cygan-Rehm, 2018) measure the effect of citizenship when it is acquired at a time when most of the integration process has already taken place. This implies a risk of downward bias because, as described below, citizenship may have a stronger effect at the beginning of the integration process.

may indirectly benefit from their parents' economic and social integration. In that sense, the faster parents naturalise and orient themselves towards the host society, the greater the spillover effect of naturalisation on their children's educational outcomes. This would be particularly relevant if parents naturalise before their children start their school career, as increased familiarity with the host country context and institutions may help them guide their children through the education system.

Second, the effect of citizenship is expected to vary over the life trajectory of children. Following the life course perspective, citizenship acquisition may have a different meaning depending on the *life-stage* in which children of immigrants experience the naturalisation process (Wingens et al., 2011a). Children who acquire host country citizenship from birth or at a very young age may experience secure belonging (see Erdal et al., 2018, pp.715-718), while those growing up as foreign citizens in their country of birth and residence may face legal uncertainty and a number of barriers prior to naturalisation. Not "feeling at home", even temporarily, can have a long-lasting impact on children's well-being and performance at school (Cebulko, 2018).

As a result, I hypothesise that the earlier second-generation children acquire host country citizenship, the greater their advantage over their non-Dutch counterparts in terms of educational attainment. This timing effect may not be linear: while I expect the effect of naturalisation to decrease as children grow older, there may be breakpoints at children's main stages of life. On the one hand, the lack of host country citizenship may not be salient for children of immigrants, until they are old enough to "discover" it and face situations where they suffer its consequences, in early adulthood (see Gonzales, 2011, p.609). On the other hand, a few studies suggest that children of immigrants may experience feelings of exclusion at a relatively young age. For example, there is evidence that non-citizen students have difficulties participating to international school trips due to burdensome visa procedures (*e.g.*, Colombo et al., 2011, p.340). The host country passport (or lack thereof) may also become salient when children travel across borders with their families (Ribert, 2000, p.140). Thus, overall, it remains unclear at what point(s) citizenship plays a role in children's life course.

In the empirical part of this dissertation, I first distinguish in Chapter 4 second-generation students based on whether they have acquired Dutch citizenship at birth or after birth, before entering secondary education. This enables me to assess whether there are substantial differences between the two groups, following the idea that those who are Dutch from birth should experience the

greatest advantage in education. In Chapter 5, I then place the timing of citizenship acquisition at the heart of the analysis by modeling the effects of *age* at naturalisation on the school performance of second-generation students at the end of primary school.

Heterogeneous effects of citizenship acquisition

In addition to timing, another under-explored aspect pertains to effect heterogeneity. The literature on naturalisation of the first generation provides consistent evidence that citizenship matters more for some immigrants than for others (Hainmueller et al., 2017; Peters et al., 2016). For example, previous studies point to higher returns to naturalisation among immigrants from less developed countries and/or marginalised groups in the host country (Hainmueller et al., 2017; Vink et al., 2013; Peters et al., 2016; Helgertz et al., 2014). This suggests that the catalyst effect of naturalisation is most effective for immigrants who otherwise lack the resources to achieve a stable socioeconomic position in the host society (Hainmueller et al., 2017). This is particularly true as regards access to employment, as becoming a citizen may enable those who are discriminated against in the labour market to send positive signals to their potential employers (Helgertz et al., 2014). By contrast, immigrants with recognised qualifications who face limited ethnic prejudice may have a stable labor market attachment, regardless of their legal status.

Previous work thus suggests that host country citizenship interacts with other characteristics of immigrants, such as their country of origin, social class and race[9]. Such interaction effects have rarely been considered when analysing the relevance of citizenship for the children of immigrants. In the US, where most attention has been devoted to the experience of illegality, legal status is often conceived as a "master status" that transcends other social locations (see Enriquez, 2017; Cebulko, 2018). However, recent studies take an intersectional approach and suggest that race, class and gender shape young people's experiences and the way they navigate illegality (Enriquez, 2017). In her study of 1.5-generation Brazilian young adults, Cebulko (2018) observes that "being light-skinned, well-educated, and from middle-class families can positively impact immigrant experiences relative to other unauthorised 1.5-generation immigrants" (p.237). Race and social class therefore interact with

[9] In this dissertation, I define race as a socially defined construct, with no biological basis, that underpins a system in which individuals are classified and treated differently based on observable characteristics such as their skin colour, hair type or accent (see, *e.g.*, Essed et al., 2019, for a discussion of this notion in the European context).

legal status: a privileged position in the host society can partially compensate for the lack of authorised immigration status.

Such an intersectional lens is still largely absent from research analysing the effect of citizenship on second generation educational outcomes. Although most studies include children of immigrants from a wide range of socioeconomic and educational backgrounds, the effect of citizenship is generally assumed to be uniform. There are nevertheless a few notable exceptions. Bean et al. (2011) compare the educational attainment of children of immigrants from several national-origin groups and show that pathways to legalisation and naturalisation exert a different effect depending on parents' migration and social background. While delayed legalisation and naturalisation hamper the educational attainment of youth of Mexican origin, they exert little effects on the attainment of the children of highly educated Asian immigrants who entered the US legally. In a similar vein, Cygan-Rehm (2018) tests whether second-generation students respond differently to the acquisition of host country citizenship at birth depending on whether their parents are EU citizens or not. Naturalisation may be of little value for children of immigrants who already enjoy the rights and benefits attached to EU citizenship; however, Cygan-Rehm does not find conclusive evidence of such interaction effects.

Interaction effects between citizenship and socioeconomic resources

Studies analysing interaction effects with citizenship typically use parents' country or region of origin as a proxy for their migration experience and social position in the host country (see Bean et al., 2011; Cygan-Rehm, 2018). However, this approach does not enable researchers to identify precisely which parental characteristics citizenship interacts with. For example, do parental income or level of education equally matter? And to what extent do socioeconomic and cultural resources compensate for the lack of host country citizenship? A study from Dronkers and Fleischmann (2010) provides some valuable insights. The authors analyse the educational attainment of second-generation students in a European comparative perspective. Although their research objective is to measure the effects of macro-level indicators, the authors do consider the effects of host country citizenship at the individual level as well as its interaction with parental level of education. Their findings point to a negative interaction between citizenship and level of education for females. That is to say, host country citizenship exerts a positive effect on ed-

ucational attainment for female students whose parents are lowly educated, while its effect is slightly negative for those whose parents have completed tertiary education. The effect is less precisely estimated for males, but the results also suggest some interaction effects between citizenship and parental level of education.

That citizenship mostly (or only) matters for children whose parents are lowly educated is consistent with the above finding that naturalisation primarily matters for disadvantaged immigrants. This suggests that host country citizenship acts as a *compensatory* mechanism, which facilitates the settlement and integration process of immigrant families facing a difficult reception context. In particular, citizenship may mainly matter for parents who otherwise lack the social, cultural and economic resources to assist their children's educational careers. Dronkers and Fleischmann (2010) provide preliminary evidence that such a mechanism is at play for female students, but more research is needed to understand these dynamics. Other parental characteristics, such as parents' position in the labor market and housing market, may also intersect with citizenship status. In the Chapter 5 of this dissertation, I test interaction effects between citizenship and various indicators of the family's socioeconomic position to shed further light on the factors that condition the relevance of citizenship for the second generation.

A moderating effect of gender?

In addition to socioeconomic background, other characteristics such as gender may moderate the relationship between citizenship and education. The findings of Dronkers and Fleischmann (2010) suggest that male and female students do not equally benefit from naturalisation. However, other studies conclude that the effect of citizenship acquisition is similar for both sexes (Cygan-Rehm, 2018; Kilpi-Jakonen, 2014). From a theoretical point of view, the mechanisms are also still unclear. There is evidence that gender modulates the relationship between naturalisation and the socioeconomic outcomes of immigrant parents, particularly because immigrant men and women differ in their labour force attachment (*e.g.*, Gathmann and Keller, 2018; Helgertz and Bevelander, 2017). Similar mechanisms could be relevant at children's level, if, for example, male and female students tend to value host country citizenship differently. However, qualitative studies have not reported such differences to date (*e.g.*, Colombo, 2015; Frauenfelder, 2007; Ribert, 2009).

Another mechanism could be that immigrant parents react differently to the citizenship status of their children, as a recent study by Dahl et al. (2020) suggests. The authors observe in the German case that the introduction of *ius soli* in 2000 had a differential impact on various indicators of well-being and parental support for male and female students. The authors interpret these findings as evidence that immigrant parents constrain their daughters' integration into German society to keep them in a traditional culture, while they allow their sons to take advantage of the opportunities tied with German citizenship. Yet, such effects are only found for Muslim students and the authors focus on the automatic acquisition of German citizenship *at birth*, which leaves open the question of whether the alleged mechanisms apply when children acquire host country citizenship at the initiative of their parents. In summary, the results about a potential moderating effect of gender are still ambiguous and require further research.

When citizenship intersects with race

Finally, previous work suggests that citizenship status may intersect with race in different ways (Cebulko, 2018; Erdal et al., 2018). On the one hand, host country citizenship may help those who face racial prejudice to partially overcome discrimination. Ribert (2000) and Frauenfelder (2007) show that becoming a citizen of the host country can subtly change the way children perceive themselves and the way they interact with others. For example, children who are constantly referred to their foreign origin because of their skin colour may use citizenship as a way to remind native people of the legitimacy and validity of their presence (Frauenfelder, 2007, p.327). Host country citizenship may also facilitate their interactions with the administration, the police, or potential employers, as they feel it protects them from certain forms of discrimination (Ribert, 2000; Frauenfelder, 2007). As one young person interviewed by Ribert put it, "you do not look like a Frenchman but you are French" (p.238). In that sense, host country citizenship can alleviate the sense of exclusion that some children of immigrants feel in their interactions with natives and host country institutions. This echoes the study of Erdal et al. (2018) in Norway, which shows that for some respondents the "passport [...] became symbolic of being a Norwegian citizen – of being a Norwegian – *regardless of its holder's personal appearance*" (p.714, emphasis added). According to this line of reasoning, host country citizenship would be particularly important for children of immigrants who face high levels of prejudice, while it would make little difference to those whose belonging is rarely questioned.

On the other hand, inverse mechanisms could be at work if citizenship status is overpowered by race. The acquisition of host country citizenship may indeed alleviate some of the disadvantages faced by the children of immigrants, without mitigating the effects of their most visible characteristics (Frauenfelder, 2007; Ribert, 2009, 2000; Della Puppa and Sredanovic, 2017). Children who are identified as foreigners due to their physical appearance, clothing or name may remain so even after becoming fully-fledged citizens. According to Erdal et al. (2018), this explains why respondents might describe the host country passport as a mere "piece of paper": "'People are going to ask you where you are from regardless'" (p.715). Obtaining citizenship may therefore have a limited performative effect for those who are not *seen* as host country citizens anyway (see also Della Puppa and Sredanovic, 2017, p.377). Conversely, it may be a final step completing the assimilation of those who are *de facto* perceived as citizens, but only lack the *de jure* status (Erdal et al., 2018, p.717).

Previous studies show that these two mechanisms are not antagonistic but rather coexist (Frauenfelder, 2007; Erdal et al., 2018; Ribert, 2000). Yet, the conditions under which they prevail remain unclear, and previous research has not investigated the implications for the school outcomes of the children of immigrants in particular. Further empirical work, both quantitative and qualitative, is needed to map the complex interactions between citizenship status and race as well as their effects on education.

To date, there is consistent evidence in the literature on the second generation that differences in educational attainment are largely – if not primarily – attributable to social class rather than ethnic background (see Heath et al., 2008). This is particularly true for the Netherlands, for which van De Werfhorst and Van Tubergen (2007) observe that differences in school achievement and track are almost entirely driven by variation in students' parental resources. If students' ethnic background does not directly affect educational outcomes, it is unlikely that it modulates the relationship between citizenship and education. As a result, I only focus on the interactions between citizenship and parental socioeconomic characteristics in Chapter 5.

Conclusion

In this chapter, I discussed different bodies of literature relevant for the study of the relationship between citizenship and education. The different sections

bring together diverse areas of research which, to date, have mostly developed in isolation. I used the life course perspective as a conceptual glue, drawing on the notions of linked lives, trajectories, agency and context to develop a more unified theoretical framework for the drivers and effects of citizenship acquisition by children of immigrants. The second section linked research on migrant families to citizenship studies to better contextualise the conditions under which second-generation children may acquire the citizenship of their country of birth. In doing so, I shed light on understudied family and macro-level dynamics in immigrant naturalisation, which I discuss in more detail in Chapter 3.

In the third section, I drew on different bodies of literature that approached the life outcomes of children of immigrants from different but complementary perspectives. On the one hand, the literature on the second generation tends to analyse their educational outcomes without considering children's

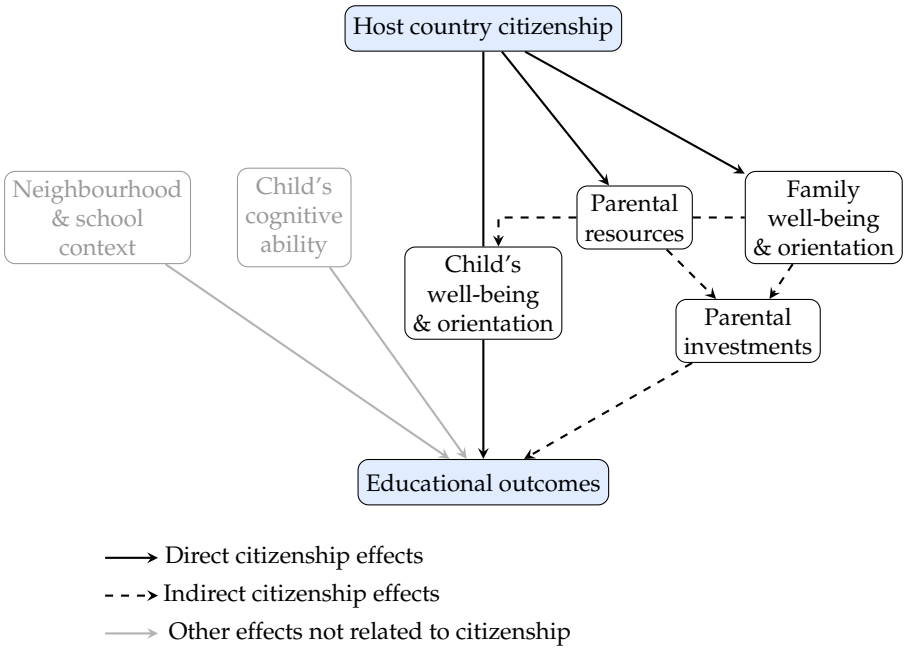

Figure 2.1: Diagram for the direct and indirect effects of host country citizenship on educational outcomes.

citizenship. On the other hand, studies focusing on the legal status of the descendants of immigrants rarely isolate its effects on educational outcomes alone. At the intersection is a series of quantitative studies analysing the effect of citizenship on educational outcomes, from which this dissertation directly follows on. I showed that this existing research can be integrated into a more comprehensive theoretical framework that draws from the sociology of education as well as from migration and citizenship studies.

Figure 2.1 represents schematically the main theoretical channels I explored in this chapter for the effects of citizenship. First, the acquisition of host country citizenship may have a direct effect on the educational outcomes of the second generation, by increasing their well-being, aspirations and motivation to succeed in school. Second, or alternatively, citizenship may indirectly affect educational outcomes through parents' improved position in the host society. Better access for parents to socioeconomic resources and increased orientation to the destination country can enable them to invest more in their chil-

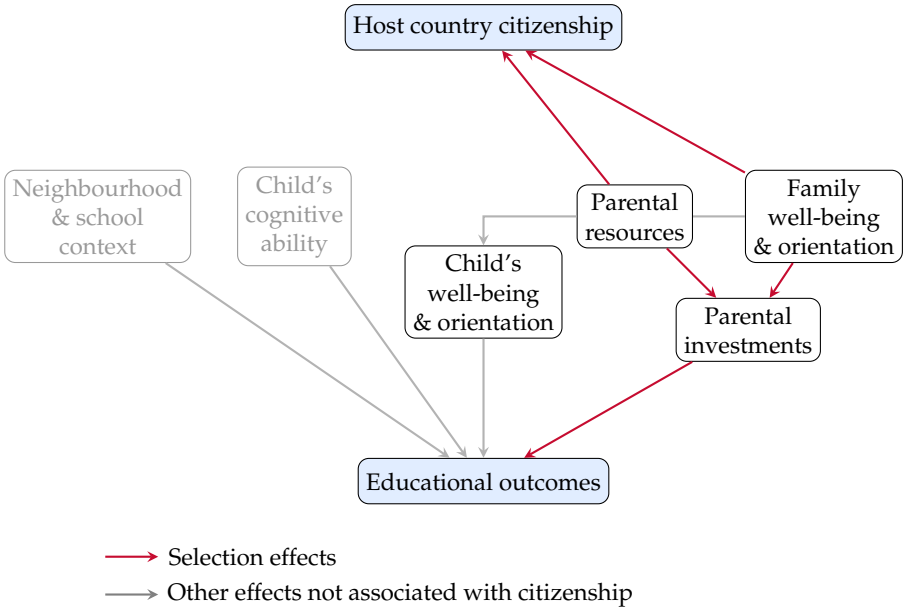

Figure 2.2: Diagram for selection effects between host country citizenship and educational outcomes.

dren's educational careers. These two mechanisms illustrate, better than previous theoretical approaches, the interplay between children's own agency and their dependence on their family context. In Chapter 4, I build on this theoretical framework to analyse whether Dutch citizens of immigrant descent navigate the school system differently from their foreign citizen peers.

In the last section, I added a layer of complexity to this model by introducing potential interaction effects with the timing of citizenship acquisition and the social background of the family. I expect both the direct and indirect effects of citizenship to be greater the earlier the citizenship of the host country is acquired and the more modest the family background; two hypotheses that will be tested in Chapter 5. I also discussed an alternative mechanism that would account for a positive association between citizenship and education. Figure 2.2 illustrates possible selection effects, with parents' resources and orientation affecting both their naturalisation propensity and the school performance of their children. In Chapter 5, I develop an analytical strategy to assess the extent to which such a mechanism might confound the observed relationship between citizenship and education.

With this chapter, I aimed to offer solid theoretical foundations for an independent effect of citizenship on school outcomes. However, it is important to note that the analyses presented hereafter will not always allow to identify or isolate the mechanisms at play. In particular, the data used do not make it possible to distinguish between direct and indirect effects, nor to operationalise and measure complex concepts such as "orientations" or "well-being". Nevertheless, I argue that a comprehensive theoretical framework is crucial to elaborate well-grounded hypotheses and interpret the empirical results. Furthermore, conceptual clarity is key for future work to further disentangle the different channels that link citizenship and education.

3

The intergenerational impact of naturalisation reforms: the citizenship status of the children of immigrants in the Netherlands, 1995-2016

This chapter is adapted from: Labussière, M. and Vink, M. (2020). The intergenerational impact of naturalisation reforms: the citizenship status of children of immigrants in the Netherlands, 1995–2016. *Journal of Ethnic and Migration Studies*, 46(13):2742–2763.

Introduction

In recent decades, naturalisation requirements have become increasingly strict in Europe (Vink and de Groot, 2010), with prospective citizens often required to meet language and country-specific requirements (Goodman, 2010). At the same time, being born in a European country is not – or is no longer – enough to make a child one of its citizens, owing to the predominance of *ius sanguinis* citizenship provisions whereby children have rights to the citizenship of their parents, not their country of birth (Honohan and Rougier, 2018, p.350). In this context, children of immigrants rely on their parents' ability and desire to naturalise if they are to acquire the citizenship of the host country (Honohan and Rougier, 2018, p.335). Therefore, restrictive naturalisation reforms not only affect immigrants' propensity to naturalise, as previous research has shown (*e.g.*, Peters et al., 2016), but we can also expect such reforms to prevent their children from becoming citizens of their country of birth and residence.[1] This potential intergenerational impact seems of crucial importance in European countries where the so-called second generation represents a sizeable and growing proportion of the population (Heath et al., 2008).

To our knowledge, such intergenerational effect of naturalisation reforms has never been investigated. Overall, children's citizenship has not received much attention, making it difficult to assess *who* acquires host country citizenship among second-generation children, let alone *when* and *under which conditions*. This lack of attention is puzzling considering growing evidence of the detrimental effects of legal insecurity on young people's well-being and their opportunities for the future (Cebulko, 2014; Patler, 2017; Bean et al., 2011; Colombo et al., 2011; Felfe et al., 2020). Analysing the potential intergenerational effects of naturalisation reforms requires a better understanding of how children's citizenship relates to the legal status of their parents, which departs from the traditional individual- and adult-centred perspective prevailing in citizenship studies (Soehl et al., 2018; Street, 2014; Cohen, 2005).

Building on recent developments in the field (Street, 2014; Soehl et al., 2018; Street, 2013), we propose to explore the intra-family dynamics at play in the

[1] This paper only focuses on children who were born in the host country and leaves aside the so-called "1.5 generation", i.e. children who were born in a foreign country before migrating at a young age. Although the 1.5 generation may also be affected by restrictive naturalisation laws, the specific requirements it faces in terms of citizenship acquisition warrant a separate analysis. The term "children of immigrants" thus exclusively refers to the second generation. Note that the term identifies individuals in their capacity as offspring of immigrants rather than as minors.

naturalisation of immigrants' children. We discern two approaches that families take to naturalisation, differentiating whether parents seek citizenship for all members (complementary) or for their children only (differentiated). Based on these approaches, we analyse to what extent naturalisation reforms influence patterns of citizenship acquisition by second-generation children. Thanks to its methodological approach, this paper also contributes to work on the impact citizenship reforms have on the propensity of immigrants to naturalise (Stadlmair, 2017; van Oers, 2013; Vink et al., 2013; Green, 2012; Mazzolari, 2009). Our use of longitudinal micro-level data and event history models enables us to move beyond the mere description of naturalisation trends and makes it possible to analyse how legal requirements affect naturalisation propensity over time. Depending on the kinds of barriers they face to acquiring host country citizenship, we expect immigrants either to postpone making an application to meet the new requirements or to be put off from applying altogether. We argue that such a distinction is both conceptually useful and empirically necessary in assessing the long-term consequences of naturalisation laws.

We focus on the Netherlands to illustrate the intergenerational impact of naturalisation reforms in Western Europe. We do so for two reasons. First, the Netherlands is representative for most European countries where, in order to acquire citizenship, children of immigrants primarily rely on their parents' naturalisation (Honohan and Rougier, 2018). Second, various naturalisation reforms in the Netherlands over the past three decades reflect those issues most widely debated in Western Europe: dual citizenship acceptance, on the one hand, and language and civic knowledge requirements for naturalisation, on the other (Goodman, 2010; van Oers, 2013, pp.41-66). In this paper we focus on two significant reforms in particular: the end of a temporary dual citizenship liberalisation in 1997, and the introduction of a language and naturalisation test in 2003. Drawing on register data from Statistics Netherlands, we analyse the naturalisation propensity of children born between 1995 and 2010 to two foreign-born parents. Using Cox regression models, we show that the Dutch naturalisation reforms are associated with a lower naturalisation propensity among second-generation children, with a much stronger though less lasting effect for the 2003 reform. Whereas the prohibition of dual nationality seems to dissuade some immigrant families from naturalising, the integration requirements mainly postpone naturalisation of children to a later date. In addition, a cause-specific hazards model shows that children are more likely to naturalise with only one of their parents instead of both when they are eligible after the implementation of the reforms, suggesting that nat-

uralisation laws also affect immigrant families' naturalisation patterns.

Becoming a Dutch citizen

According to the Migrant Integration Policy Index 2015 (MIPEX), Dutch law can be considered as "slightly favourable" in terms of access to nationality.[2] MIPEX takes into account several dimensions, including eligibility criteria, naturalisation requirements, and attitude towards dual citizenship. Compared to other European countries, both the minimum length of required legal residence of five years (three years if married to a Dutch citizen) and the A2 language proficiency requirement are considered moderate. However, acquiring Dutch citizenship is still not easy. The language exam incorporates a "knowledge of Dutch society" component, which candidates have to prepare on their own (van Oers, 2013, pp.60-64). Furthermore, the costs of both the examination and the courses candidates often need to take have to be paid by candidates themselves, which can act as a substantial financial barrier (van Oers, 2013, pp.60-64). Finally the Netherlands does not recognise dual citizenship; it requires (with some exceptions) candidates to renounce their existing nationality in order to acquire Dutch citizenship (Vink and de Groot, 2010, p.721).

Evolution of Dutch citizenship law: the 1997 and 2003 reforms

This current citizenship regime is the result of significant changes over recent decades. As in a number of other countries in Western Europe (Vink and de Groot, 2010), access to citizenship in the Netherlands has been reformed, especially since the 1990s (van Oers, 2013, pp.41-66). Two institutional changes are of particular interest for this paper. The first was the reintroduction in 1997 of a requirement that candidates for Dutch citizenship renounce their current nationality. Between 1992 and 1997, this dual citizenship restriction had been temporarily abolished, which is likely to have contributed to a considerable rise in the number of naturalisations (van Oers et al., 2009, p.17; Mazzolari, 2009). The second key change was the introduction of a naturalisation test in 2003 with the passing of the revised Dutch Nationality Act. This act reflected a growing emphasis, which can also be observed in other countries, on the notion of "active citizenship" and on the

[2] Retrieved from `http://www.mipex.eu/access-nationality` [accessed May 29, 2019].

importance of immigrants taking responsibility for their own integration trajectories (Goodman, 2010, p.766; van Oers, 2013, p.48). The act raised and formalised the level of skills candidates required for naturalisation, and it also brought a substantial increase in naturalisation fees. Added to the administrative cost of the procedure – €336 for one person and €427 for a couple – applicants had to pay to take the naturalisation test (€260).[3] The new law led to a significant and seemingly permanent decrease in the number of naturalisations, with a particularly detrimental effect on vulnerable groups (van Oers, 2013, pp.147-217). To our knowledge, however, no study has analysed how these reforms affected the acquisition of Dutch citizenship by children of immigrants.

Acquiring Dutch citizenship when born in the Netherlands

The legal provisions concerning the acquisition of Dutch citizenship are marked by the country's *ius sanguinis* tradition, which determines citizenship by descent rather than by place of birth (Vink and de Groot, 2010). The main consequence for individuals born in the Netherlands to immigrant parents is that they do not get automatic birthright citizenship. Instead, they may get Dutch citizenship through four main procedures, depending on the legal status of their parents and on whether they are below or above the age of majority (Figure 3.1).

The first option is to automatically receive Dutch citizenship by descent if at least one parent has naturalised before the child's birth, though specific provisions apply if this is the father. Second, the children of immigrants can be included in the naturalisation procedure of (one of) their parents as minors. And third, they can apply for citizenship autonomously from the age of 18 onwards. In the latter case, young people born in the Netherlands may benefit from the simplified "option procedure", provided that they have been living in the Netherlands since birth. Acquiring Dutch citizenship by option procedure has several advantages compared to the naturalisation procedure: it is less costly,[4] quicker,[5] and does not involve a civic integration test. How-

[3] See the overview of naturalisation costs over time in the Supplementary Materials (section VI).

[4] In 2003 the option procedure cost €128, against €336 for a single naturalisation application (see section VI in the Supplementary Materials). While the latter continuously increased over time to €881 in 2019, the fees for the option procedure have remained relatively stable (€187 in 2019).

[5] Waiting times are a maximum of 13 weeks for the option procedure, versus 12 months for the naturalisation procedure (van Meeteren et al., 2013, p.129).

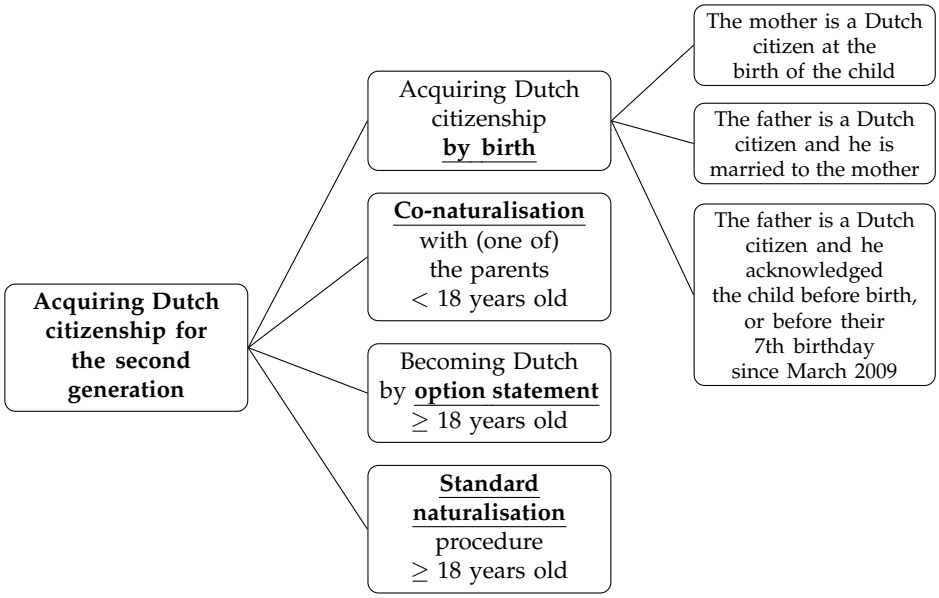

Figure 3.1: Main procedures for the acquisition of Dutch citizenship by immigrants' children born in the Netherlands.

ever, the condition of continuous residence in the Netherlands is a potential obstacle, one that especially affects children whose families have moved between countries at various times during their upbringing (van Geel and Mazzucato, 2018). In all four procedures, it is important to note that the children of immigrants are exempted from the requirement to renounce their nationality. By contrast, their parents "must be willing to renounce" their existing citizenship to be eligible for Dutch naturalisation, providing an additional obstacle for individuals who wish to maintain a formal citizenship link with their country of origin (Soehl et al., 2018, p.14; van Oers et al., 2009, pp.17-19). Interestingly, relatively few children make use of the option procedure: between 2005 and 2009, applications submitted for Dutch citizenship on the grounds of continuous residence in the Netherlands since birth (article 6.1a RWN) represented between 4.6 and 6.6% of all applications (IND Informatie- en Analyse Centrum, 2011, p.26).[6] This suggests that children largely depend on their parents when it comes to becoming a Dutch national, calling for a conceptualisation of citizenship acquisition at the family level.

Analytical framework

Bringing back the family

Becoming a Dutch citizen confers a number of rights, namely the rights to vote in national elections, to join the armed forces, and to access various high-ranking positions in the law and public sectors. It also provides the right to a Dutch passport, which allows for considerable international mobility. This is especially valuable for citizens of non-EU countries, who are granted the right to move, work and reside in every country within the EU and then to return to the Netherlands after having been abroad for an unlimited period of time.

While immigrants value these benefits differently according to their background and preferences, they also base their decision to seek Dutch citizenship on a number of constraining factors, since the naturalisation procedure

[6] Unfortunately, the IND does not provide information about the number of applications submitted by second-generation individuals. The given percentage is therefore an approximation of how frequently Dutch citizenship is acquired on the grounds of continuous residence among the second generation. Yet, the idea that children largely rely on their parents to acquire Dutch citizenship is confirmed by our descriptive statistics (Table A2), which show that 96% of those who become Dutch after birth do so before the age of 18.

involves substantial financial and non-financial costs. Owing to this self-selection process, a number of characteristics have been shown to be associated with naturalisation propensity (for an overview, see Peters and Vink, 2016, p.363-364). Among the most common factors, income, level of education, length of residence and marriage are all positively associated with naturalisation. Immigrants' country of origin, which shapes the relative attractiveness of host country citizenship, has also been found to be an important factor, together with other contextual variables related to the origin and destination countries (Vink et al., 2013).

Following the approach of Yang (1994), most studies model naturalisation as an individual decision, based on a cost-benefit calculation. Even when family characteristics are included, such as the presence of a spouse or of children (*e.g.*, Peters et al., 2016), the decision to naturalise is not conceptualised at the family-level. As Street (2014) argues based on the German case, this methodological individualism limits our understanding of citizenship acquisition among immigrants and does not adequately account for recent trends in naturalisation rates. By contrast, an altruistic model where parents may decide to naturalise for the sake of their children better explains why the partial introduction of *ius soli* in 2000 was followed by a decrease in naturalisation rates in Germany. Soehl et al. (2018) have further highlighted the importance of family dynamics, showing that having a parent who naturalised in the same year is the most important factor in explaining the naturalisation propensity among 1.5 generation young adults in Los Angeles. While these recent developments in the literature show that intra-family dynamics do matter, we still know very little about how immigrant parents perceive host country citizenship for themselves and their children, let alone how these perceptions result in different family patterns of naturalisation.

As a first analytical step towards a better understanding of family dynamics in naturalisation decisions, we distinguish between two main approaches families take to naturalisation. The first approach, which we shall term complementary, derives from Street's (2014, p.287) idea that citizenship may be a complementary good within the family, *i.e.*, that it confers higher utility if consumed by all family members. A complementary approach to naturalisation stresses the idea of interdependence between family members. It translates into a preference for co-naturalisation of the whole family whenever possible. This is particularly important when it comes to international mobility, as parents may only be able to reap the benefits of the host country passport if all family members possess a passport as well, so as to be mobile together. The significant costs associated with naturalisation may also be-

come more affordable if shared,[7] as suggested by qualitative evidence from Austria (Street, 2013).

The second approach that families take to naturalisation we term differentiated. A differentiated approach means that only some family members seek to naturalise. It emphasises the idea that while children largely depend on their parents when it comes to naturalisation, they have, at the same time, different motivations and interests in obtaining host country citizenship. Since they have lived in the host country since birth and have gone through its education system, children of immigrants are likely to be proficient in the host language and to subscribe to forms of belonging and self that are different from their parents (Kalmijn, 2019, p.1422; Heath et al., 2008, pp.222-24; Colombo et al., 2011). They are more likely than their parents to reap the long-term benefits of host country citizenship, with naturalisation sometimes yielding limited returns for parents, especially when they have already secured permanent resident status. The idea that children do not necessarily face the same trade-offs as their parents is supported by the evidence of an "intergenerational motive" for naturalisation (Street, 2014), with parents naturalising solely for the sake of their children in the absence of *ius soli* provisions. A differentiated approach to naturalisation thus emphasises the different costs and returns family members face vis-à-vis host country citizenship. In the Dutch context, we expect families taking a differentiated approach to naturalisation either to have the children co-naturalise with only one parent (assuming a two-parent household) to contain the overall costs of the procedure, or to rely on the option statement through which only the children would acquire Dutch citizenship.

Overall, we expect parents' choice of whether to naturalise – together or not – with their children or to wait for the option procedure when the children reach the age of majority to be shaped by a number of family-level dynamics. These include parents' socioeconomic resources and migration trajectories, but also family members' levels of attachment to their country of origin and orientation towards the host society. By employing these two main approaches to naturalisation, which call for further refining, we aim to elaborate on the concept of "embedded citizenship choice" suggested by Soehl et al. (2018), which stresses the inherent social dimension of the naturalisation process.

[7] In the Netherlands, naturalising together with a partner is far cheaper: in 2003 couples paid €363 (*i.e.*, €181.50 each) to submit a joint application, against €272 to apply on their own. This premium of about €90 in 2003 has steadily increased over time to reach more than €300 in 2019 (see Supplementary Materials, section VI).

The institutional context and our hypotheses

Though we expect family to play a crucial role in the naturalisation propensity of the second generation, we also need to explore how decision-making processes take place within the family's broader environment. Whereas a number of studies have highlighted the importance of the institutional context in a cross-country comparison perspective (*e.g.*, Stadlmair, 2017; Vink et al., 2013), less attention has been paid to studying the impact of legal provisions on individual ability or propensity to naturalise over time (Peters et al., 2016; Jensen et al., 2019; Mazzolari, 2009). We have three hypotheses relating to the legal context.

First, we expect naturalisation rates to drop after the implementation of stricter legal requirements. This is because stricter naturalisation laws either reduce the number of eligible candidates or add additional barriers that individuals are no longer able or willing to overcome (Jensen et al., 2019; Goodman, 2010, p.757). While published studies usually observe decreased naturalisation rates after the introduction of stricter regulations (Green, 2012; Perchinig, 2010; van Oers, 2013), with the use of aggregated data it is not possible to analyse how this translates at the individual level: do people give up the idea of becoming citizens of their country of residence, or do they postpone naturalisation to a later date? The answer has consequences when assessing the long-term impact of restrictive naturalisation laws. Based on Goodman's distinction between "restrictive" and "thick" changes 2010, we expect that the impact of citizenship law will differ based on the type of requirements. On the one hand, "restrictive" changes limiting citizenship eligibility may permanently prevent certain categories of immigrants from naturalising. With a prohibition against dual citizenship, those who want to hold on to their existing nationality exclude themselves from becoming citizens of their new country. In the Netherlands, we thus hypothesise that the end of dual-citizenship tolerance in 1997 is associated with a durable drop in naturalisation propensity for families falling under this new requirement (**hypothesis 1**).

On the other hand, "thicker" definitions of citizenship that increase candidates' obligations (requiring, for example, good language skills or knowledge of the host country) may prevent naturalisation for some, but postpone it for others – for those who need more time and/or additional resources before beginning the naturalisation process. This is what we would expect following the 2003 reform in the Netherlands, which required candidates to pass a language and integration test which they were not necessarily prepared to complete right away. With postponement a possibility, we hypothesise that

for those who were eligible after the 2003 reform, there is an initial drop in naturalisation rates that at least partly recovers over time (**hypothesis 2**).

Besides seeing a change in the total number of naturalisations, we also expect stricter requirements to affect the composition of the naturalised population (Hainmueller et al., 2018; van Oers, 2013). As candidates for naturalisation need more resources to go through the procedure (e.g. to finance language or integration courses), we expect naturalised citizens to be positively selected for income and level of education. But how are intra-family dynamics affected by the need for financial and educational resources? We hypothesise that when more restrictive or thicker naturalisation requirements apply, families will find it harder to seek the naturalisation of all family members because of the costs and effort involved. Even if parents have a preference for the complementary approach, they are likely to adopt a differentiated approach when the naturalisation of both parents is too costly. In two-parent households, children may therefore naturalise with only one parent – the parent best equipped to negotiate the naturalisation process and for whom the costs are lowest. The costs may not only involve the time or money required for the application process and integration course, they may also be emotional, such as when parents are required to renounce their home country citizenship (Mazzolari, 2009, p.173). The requirements of naturalisation may thus lead to a strategic division of tasks between parents, which aims to minimise the cost of citizenship acquisition at the family level. When the costs of naturalisation are too great, naturalisation may be postponed to a later date or children may naturalise via the option procedure. Overall, we expect restrictive legal reforms to affect families' decision-making processes, with available resources restricting the preferences families otherwise have for naturalisation. As a result, we expect that families falling under the new requirements of the 1997 and 2003 reforms will be more likely to follow a differentiated approach to naturalisation than a complementary approach, compared to those eligible before (**hypothesis 3**).

Data and Methodology

Register data and study population

Our data are drawn from Dutch administrative registers supplied by Statistics Netherlands. Registers offer longitudinal and individual-level data covering the entire legally resident population of the Netherlands (Bakker et al.,

2014a), limiting the possibilities of selection bias and guaranteeing sufficient statistical power. For our research, we followed nearly all immigrants legally residing in the Netherlands from 1995 to 2016 (our observation window), together with their partners and their children.[8] Our analysis will focus on the children, restricted to the 1995-2010 birth cohorts, which we tracked for a period of 6 (cohort 2010) to 21 (cohort 1995) years.

We define second-generation children as those born in the Netherlands to two foreign-born parents, who themselves are born to at least one foreign-born parent. Children of mixed descent are excluded from the scope of our analysis because, having one native parent, they ought to obtain Dutch citizenship at birth by descent. Children born in the Netherlands from second-generation parents – the third generation – are not included either, since they acquire automatic birthright citizenship according to the so-called double *ius soli* principle. For related reasons, we also exclude children from specific origin groups from the analysis: children originating from the Caribbean territories of the Kingdom of the Netherlands, who are Dutch citizens; and children whose parents come from the former Dutch colonies and thereby had privileged access to Dutch territory and citizenship (van Meeteren et al., 2013, pp.115-116).[9] Finally, we exclude children who naturalised at a different date than their parents while minors, as well as children whose families engaged in non-standard naturalisation trajectories, involving a loss or renunciation of Dutch citizenship over time (N=6,780). This leaves us with a final dataset of 287,250 individuals.

Within this population, 66% of children were Dutch citizens at birth and thus acquired Dutch citizenship by descent through the prior naturalisation of their parents (for descriptive statistics, see Tables A1 and A2 in the Supplementary Materials). Among the remaining children, who are thus foreign citizens at birth, 21% acquired Dutch citizenship during our observation period (1995 to 2016), representing a naturalisation rate of nearly 62%, while 13%

[8] Due to the administrative nature of the data, those identified as "parents" in the dataset are children's legal guardians but not necessarily the ones with whom children are actually living. However, minors can only naturalise together with their legal guardians. Potential divorces or remarriages are also not captured by our data, at least when this does not result in a change in parental authority. Note that children who changed both of their legal guardians during the observation period (N=529) have not been included in the analysis.

[9] The countries in question are Suriname, Indonesia and Netherlands New Guinea, which are former Dutch colonies, and Aruba and the Netherlands Antilles, which belong to the Kingdom of the Netherlands.

were still foreign citizens in 2016.[10] These proportions change slightly if we only measure naturalisation for those who are eligible during the observation period, 3% of the children never being eligible due to their parents' limited length of residence in the Netherlands. Among those who naturalised, 96% did so before age 18, in line with our hypothesis that children mainly depend on their parents to acquire host country citizenship.

Furthermore, the patterns of acquisition of Dutch citizenship evolved substantially over time. As Figure 3.2 shows, there is an upward trend in the percentage of children who are Dutch citizens at birth, which is consistent with the fact that immigrants eligible for naturalisation in the 1990s could acquire Dutch citizenship under favourable conditions; their children born in the early 2000s were more likely than their older peers to acquire Dutch citizenship at birth by descent.

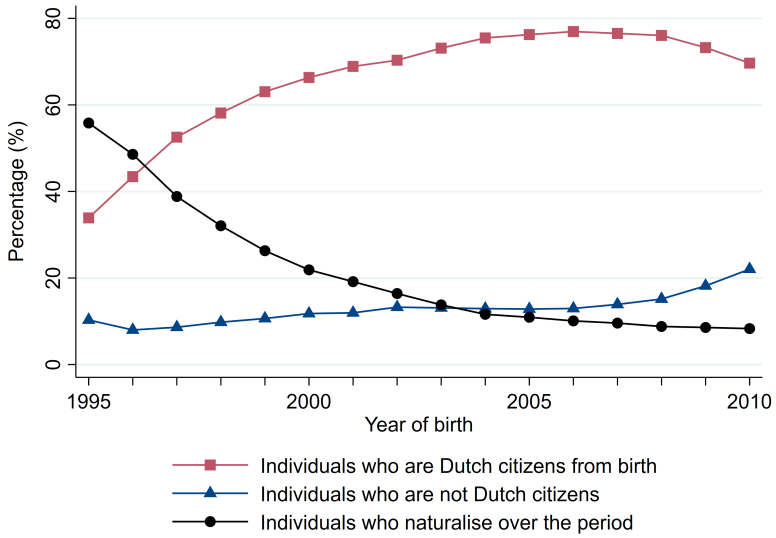

Figure 3.2: Dutch citizenship acquisition by immigrants' children born in the Netherlands, by year of birth (N=287,250).

[10] This percentage drops to 9.8% if we restrict the sample to those born in 1995 and 1996, who had respectively 21 and 20 years to naturalise within our observation window.

Figure 3.2 also indicates a decreasing naturalisation propensity, in line with the fact that more and more children are Dutch from birth over the period. However, we also observe an increase in the percentage of children who do not acquire Dutch citizenship at all during the observation period, which may reflect a detrimental effect of the 1997 and 2003 naturalisation reforms. However, the last two curves have to be interpreted with caution due to right censoring: the succeeding birth cohorts have less and less time to naturalise within the observation period. Besides, changes in the composition of the immigrant population may explain at least part of these trends, which requires controlling for other factors. The methodology we develop in the next section will address both points. We first discuss this methodology in general terms, before providing more detail about our specification when presenting our operationalisation and covariates.

Empirical strategy

To test our first two hypotheses pertaining to children's naturalisation propensity over time, we use event history models. Event history analysis is well suited to analyse the timing and occurrence of an event over time once individuals under observation have entered a specific risk set. In our case, the event of interest is acquisition of Dutch citizenship and entrance into the risk set is based on children's eligibility. Eligibility is defined as follows: children under 18 are eligible as soon as one or both of their parents become eligible (co-naturalisation); those above 18 are eligible if they have resided permanently in the Netherlands since birth (option procedure); otherwise, children are eligible after five years of uninterrupted residence in the Netherlands (standard naturalisation).[11] Individuals are included in the estimation once they enter the risk set, which means that those who are never eligible during the observation period and those who are Dutch from birth are excluded from the analysis.

The main advantage of this approach is that it takes into account right censoring, which is particularly crucial here as we only observe children during a limited period of time, especially for the younger birth cohorts. To allow for the inclusion of both time-invariant and time-varying covariates when estimating the rate of naturalisation at a given time, we use a Cox proportional

[11] The construction of the eligibility variable is further detailed in the Supplementary Materials (section VII).

hazard model. For subject j, the hazard rate has the following form:

$$h(t|x_j) = h_0(t)\, exp(x_j\beta_x) \tag{3.1}$$

where x and β_x refer to the covariates and their associated coefficients, t to time, and $h_0(t)$ is the baseline hazard. The main strength of the Cox model is that it allows us to estimate the effect of the covariates β_x on $h(t|x_j)$ without making assumptions about the functional form of the baseline hazard. However, this flexibility comes at the price of the proportional-hazards assumption: the assumption that all subjects' hazard ratios are proportional and that this proportionality is maintained over time. When the effect of covariates on the hazard varies over time, the proportionality assumption is violated, leading to biased estimates and decreased statistical power (Box-Steffensmeier et al., 2003, p.974). In this paper, we use two techniques to relax this assumption.

The first technique consists in stratifying the model by the non-proportional variable(s), which relaxes the hypothesis that the baseline hazard is the same across strata. The hazard ratio depends then on the specific stratum s to which the subject j belongs:

$$h(t|x_j) = h_{0s}(t)\, exp(x_j\beta_x) \tag{3.2}$$

Though this allows for more flexibility, this technique is mostly suitable for control variables, as it is no longer possible to directly estimate the effect of the variables used for the stratification. When the proportional-hazards assumption is violated for variables of interest, we instead use time-by-covariate interactions to directly model time dependency. This is the second technique, which leads to the following specification:

$$h(t|x_j, y_j) = h_{0s}(t)\, exp(x_j\beta_x + y_j\beta_y + \alpha_y y_j f(t)) \tag{3.3}$$

where y refers to the covariate(s) for which an interaction with time has been added, α_y to the time-varying coefficient(s) and f to a function of time. Following Box-Steffensmeier et al. (2003), we have chosen the natural logarithm for f ($ln(t)$), which reflects a decreasing effect of the covariate(s) over time (further details below). Time-varying coefficients have been added based on an analysis of the Schoenfeld residuals (see Figures A1-A2, Supplementary Materials).

Finally, to test our third hypothesis about the impact of the Dutch legislative reforms on families' approaches to naturalisation, we follow a cause-specific

approach by applying separate Cox regression analyses to different events (Dignam et al., 2012). This method allows differentiating between (1) naturalisation with only one parent and (2) naturalisation with both parents.[12]

Operationalisation and covariates

Our main variable of interest is children's cohort of eligibility (eligibility cohort), based on the year they first became eligible to seek Dutch citizenship. In order to study the impact of the requirement that candidates for Dutch citizenship both renounce their existing citizenship and complete a civic integration test, we cluster eligibility cohorts into three main categories: eligibility between 1995 and 1997 (when dual nationality was tolerated); eligibility between 1998 and 2002 (when the citizenship renunciation requirement was re-introduced); and eligibility from 2003 (when language and naturalisation tests were introduced). Examining the potential intergenerational impact of the legislative reforms through the lens of eligibility cohorts allows us to assess the impact of the new requirements on the length of time individuals take to become Dutch citizens once they become eligible. While individuals choose their date of application, they can hardly manipulate their eligibility and the specific legislative conditions they will face.

Our approach does have some drawbacks. We do not estimate the impact of the reforms strictly speaking, but rather the effect of being eligible in a specific legislative context, with varying opportunities for facilitated naturalisation. In addition, the longer the duration between the time a person becomes eligible and their actual naturalisation, the more likely candidates are to fall under different requirements. Two factors help to mitigate these limitations. First, an analysis of children's naturalisation propensity shows that the bulk of second-generation children naturalise shortly after eligibility, half of them within seven years (see Figure A3). Secondly, the decreasing relevance of the eligibility cohort over time can be assessed and modelled in a Cox regression. While an analysis of the Schoenfeld residuals confirms that we tend to overestimate the effect of the eligibility cohort over time, with a deviation from the proportional-hazards assumption after approximately 12 years, we can account for this decreasing effect by adding an interaction with the natural logarithm of time in our model.

[12] Due to our limited observation window and the fact that most children naturalise as minors, we do not have a sufficient number of independent naturalisations after the age of majority (N=2,367) to perform a separate analysis.

We control for a set of family characteristics that are usually associated with naturalisation propensity (see Peters et al., 2016). Parents' socioeconomic status is proxied by two categorical variables (mother SES and father SES) that indicate whether the parents are in employment (including self-employment), are social benefit or pension recipients, or lack any registered source of income.[13] A time-varying dummy EU origin country captures whether, in a given year, mother's or father's country of origin is a member state of the European Union, as naturalisation is expected to be of little value for those who already enjoy the rights and benefits attached to EU citizenship.[14] To take into account potential dynamics at the family level, and notably the fact that parents may wish to start the naturalisation procedure at the same time, we add a time-varying dummy (both parents eligible) which equals one from the moment both parents are eligible to naturalise. Finally, we include mother's country of origin (origin country)[15] to account for unobservable immigration and settlement patterns at the country level, together with national regulations concerning citizenship renunciation. Descriptive statistics show substantial variation in naturalisation propensities across countries of origin (see Table A3), which results in a violation of the proportional-hazards assumption when looking at the residuals. As we are not interested in the effect of the origin country *per se*, we include mother's country of origin as a stratification variable in the model. Fifteen clusters have been distinguished based on the most represented groups in our population (see "country of origin" in Table A1).

For our competing risks specification, we identify whether the child naturalised with only one or with both parents by comparing parents' and children's dates of naturalisation. The variable obtained (naturalisation with whom) is used as a proxy for the family's approach to naturalisation. But this comes with an important caveat. A given family's approach is the result of a decision-making process, though the data do not allow us to unpack this. For example, the co-naturalisation of the child with only one parent may reflect

[13] Data for parental socioeconomic status is only available from 1998 onwards and may be missing over time (*e.g.*, in case of outward migration). Missing values were grouped in the category "SES unknown" and included in all our models.

[14] We expect children whose parents come from an EU country to inherit EU citizenship since all countries of the European Union have *ius sanguinis* provisions (Honohan and Rougier, 2018, p.150).

[15] Note that 88% of children have parents who share the same country of origin and that there is a slightly higher number of missing parental identifiers among fathers. As a robustness check, we also conducted the analysis using father's country of origin, which led to highly similar estimates (Table A6).

parents' low interest in having all family members acquire Dutch citizenship, or it may reflect a default choice due to strict naturalisation laws. Though we are not able to identify the driving mechanisms, this imperfect lens helps to open further the "black box" of decisions about naturalisation by drawing attention to the diversity of naturalisation patterns at the family level over time. The descriptive results are interesting in that regard. While 39% of the children becoming Dutch during the observation period naturalised at the same date as their parents, around 60% naturalised with only one – the mother or the father in equal proportions (Table A2). Furthermore, this pattern changes quite drastically over the observation period. As Figure 3.3 shows, there is a sharp decrease in the proportion of children naturalising with both parents from 2004 onwards, after which the proportion stagnates between 20-35%. Conversely, the percentage of children naturalising with only one parent increases during the same period, with a reversal of the trend between fathers and mothers.

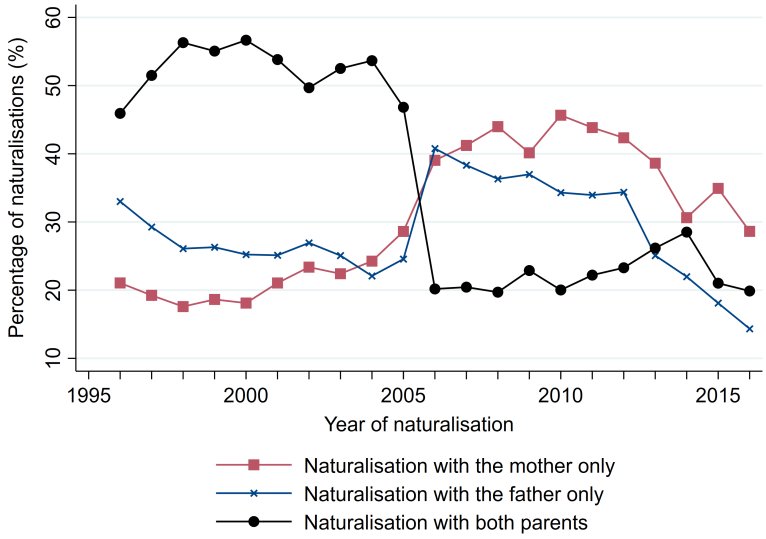

Figure 3.3: Family patterns of naturalisations before the age of majority among immigrants' children born in the Netherlands, by year of naturalisation (N=57,884).

Analysis

Assessing the impact of the eligibility cohort on naturalisation propensity

Before conducting a Cox regression analysis, it is helpful to estimate the probability that a person will naturalise within a given number of years using the Kaplan-Meier estimator. This method considers right censoring but, contrary to the Cox model, does not require making any assumptions about how covariates change experience of the event (naturalisation). Figure 3.4 shows the distribution of naturalisation time by cohort of eligibility.

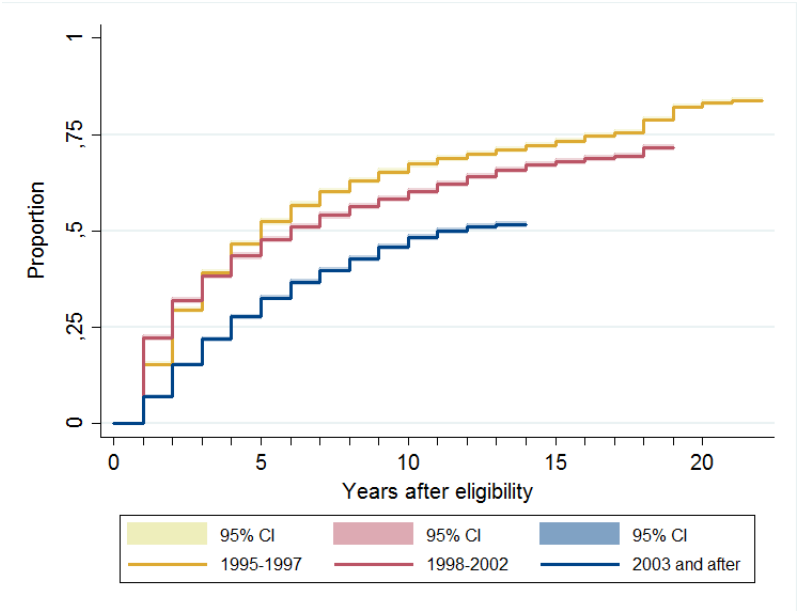

Figure 3.4: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: Kaplan-Meier failure functions, by cohort of eligibility (N=91,066).

Children who became eligible before the 1997 and 2003 reforms have a higher naturalisation propensity than those who became eligible later on. While the length of time between eligibility and naturalisation only slightly increases for those who became eligible between 1998 and 2002, there is a clear gap for those eligible after the 2003 reform. We can see that about half of the children eligible in the first two periods had naturalised within 5 years, whereas

this is only the case for 30% of those who became eligible in 2003 or afterwards. Notice that these discrepancies do not narrow much over time. The Kaplan-Meier estimates give a first indication of how being in a different eligibility cohort matters for children of immigrants' naturalisation propensity, suggesting a more substantial impact for the 2003 reform.

	Hazard ratio	**Std. Error**	**z**	**P > z**	**95% Conf. Interval**	
			Main			
Eligibility cohort *(ref: 1995-1997)*						
Eligibility 1998-2002	0.587	0.014	-21.950	0.000	0.560	0.616
Eligibility 2003 and after	0.199	0.006	-57.250	0.000	0.188	0.210
EU origin country	0.209	0.011	-28.910	0.000	0.188	0.233
Mother SES *(ref: employed)*						
Recipient of benefits	1.014	0.014	0.980	0.326	0.986	1.042
No income	0.782	0.010	-18.960	0.000	0.762	0.802
SES unknown	0.530	0.015	-22.680	0.000	0.502	0.560
Father SES *(ref: employed)*						
Recipient of benefits	0.907	0.011	-8.240	0.000	0.887	0.929
No income	0.501	0.011	-31.580	0.000	0.480	0.523
SES unknown	0.915	0.022	-3.720	0.000	0.873	0.959
Both parents eligible	1.339	0.017	22.910	0.000	1.306	1.372
			Interacted with $ln(t)$			
Eligibility cohort *(ref: 1995-1997)*						
Eligibility 1998-2002	1.083	0.014	5.960	0.000	1.055	1.111
Eligibility 2003 and after	1.883	0.032	37.370	0.000	1.822	1.947
Number observations: 717,009	Number of failures: 57,493			LR Chi2(12): 9623.2		
Number of individuals: 91,066	Time at risk: 717013			Log likelihood: -503890.1		
Stratification by country of origin	Probability > Chi2: 0.000					

Table 3.1: Cox proportional-hazard model for the risk of naturalisation among immigrants' children born in the Netherlands (N=91,066).

We now turn to the Cox proportional-hazard model to see whether this trend is robust when adding covariates. Table 3.1 presents the results of our main Cox model (the coefficients have been exponentiated for ease of interpretation). As explained above, the regression has been stratified by mother's country of origin, and an interaction with the natural logarithm of time has been included for our main variable of interest, the eligibility period. In the first year following eligibility, the hazard rate associated with those eligible in 1998-2002 is 0.58 times that of those who were eligible in the first period, while the ratio goes down to 0.19 for those eligible after 2003. The eligibility

cohort effect is precisely estimated and its magnitude is comparable to having a father without any registered source of income in the first case, or to having a parent coming from an EU member state in the second case.

Figure 3.5, which plots the hazard ratios over time, shows the results of the eligibility variable interactions with $ln(time)$. We see that the large detrimental effect attached to the cohorts eligible after 2003 is substantially reduced a few years after eligibility: the hazard ratio comes closer to one over time, suggesting that parents needed more time to meet the stricter requirements of the naturalisation procedure. This delay may be necessary for people to prepare and pass the language and naturalisation test, but it may also allow them to save money for what is now a costlier procedure. The hazard ratio even passes 1 after 12 years, indicating that the cohorts eligible after 2003 need more than ten years to completely catch up with the older eligibility cohorts in terms of naturalisation propensity. Overall, this supports our expectation that naturalisation of children is mainly postponed after the introduction of civic integration requirements (hypothesis 2). However, as reflected in the larger confidence intervals, estimates are less reliable for long durations due to the lack of observations at the upper end. When looking at the lower bound of the confidence interval, the hazard ratio indeed remains below 1 even 15 years after eligibility.

Figure 3.5 offers a different picture of the effect on naturalisation propensity attached to the cohorts eligible between 1998 and 2002. The hazard ratio slightly increases but overall remains between 0.6 and 0.8. Contrary to the 2003 eligibility cohorts, the number of years since eligibility seems to have a limited impact on the hazard ratio, suggesting that some families have been permanently dissuaded from naturalising due to the citizenship renunciation requirement for parents. This is in line with our expectation that the end of dual citizenship tolerance in 1997 deterred families from acquiring Dutch citizenship (hypothesis 1). The moderate size of the effect is in line with the selective targeting of the renunciation requirement, from which a number of nationalities are exempted. By contrast, the 2003 reform offered very little ground for exemptions (van Oers, 2013, pp.61-62), which is consistent with a stronger effect in terms of magnitude. Altogether, these results support the idea that the naturalisation reforms have an effect on children's citizenship acquisition, though this effect differs based on the nature of the requirements that applicants for citizenship face: while we observe a decrease in naturalisation propensity for those who became eligible after the end of dual citizenship tolerance in 1997, there is an increase in the length of time between eligibility and naturalisation for those who became eligible after the 2003 reform.

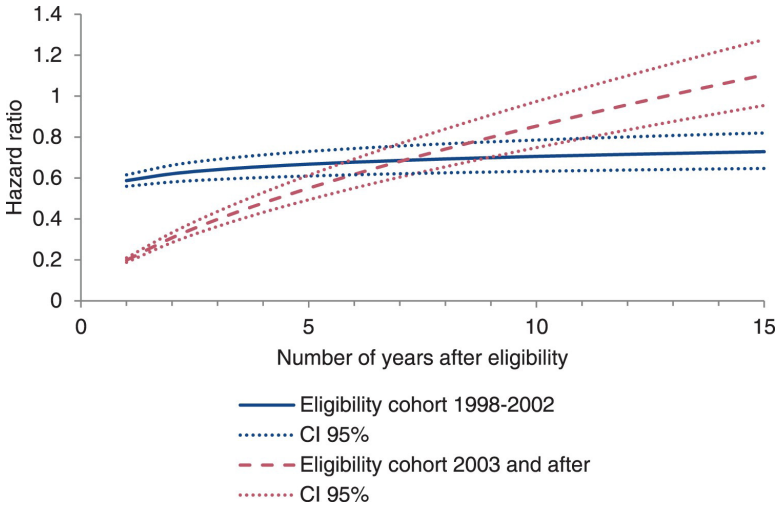

Figure 3.5: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: odds-ratio associated with eligibility cohort categories (ref. 1995–1997), by years after eligibility (N=91,066).

Another finding relates to the time-varying dummy both parents eligible, which is positively associated with naturalisation propensity. The hazard rate is multiplied by 1.3 when children's parents are both eligible, suggesting an overall preference for parents to naturalise at the same time. This sheds additional light on the interpersonal dynamics involved in the naturalisation decision at the family-level (Soehl et al., 2018; Street, 2014). Although the data do not allow identification of the mechanisms at play, the substantial cost difference between a single person and a multiple persons request for citizenship in the Netherlands might be one of the reasons. This is in line with earlier qualitative findings (Street, 2013). Finally, we note that the coefficients associated with parents' socioeconomic status are in line with the literature on naturalisation propensity (*e.g.*, Hainmueller et al., 2018): for children of immigrants whose parents are not employed the risk of naturalisation is substantially reduced, down to a hazard ratio of 0.5 for those whose fathers are recipients of benefits.

To assess the robustness of our findings, we compared the results of several alternative specifications. The main model was successively estimated without time-varying coefficients, with clustered standard errors by country of

origin instead of stratifying, and with a more precise method for handling tied events (see section VIII in the Supplementary Materials). Estimates are fairly comparable across models and do not substantively alter our interpretation. As additional robustness checks, we also conducted the analysis with different eligibility groupings (2-year clusters, Table A4) and without any multi-year eligibility grouping (Table A5). This does not change the results substantially; while naturalisation propensity constantly decreases over time, we observe stair-step effects when comparing the eligibility cohorts 1997 (1997-1998) and 2003 (2003-2004) to the ones that precede.

Differentiated family naturalisation patterns in context

To test our third hypothesis – that the 1997 and 2003 reforms increased the likelihood of families taking a differentiated approach to naturalisation – we use a proportional cause-specific hazards model where naturalisation with both parents and naturalisation with only one parent are treated as competing events. We followed the same procedure as the main model for the specification; both regressions have been stratified by mother's country of origin and interactions with time have been added for the eligibility cohort following an analysis of the Schoenfeld residuals. The results of the two models are compared in Figure 3.6 (see Tables A7-A8 for full results and section VIII for the robustness checks).

The first year after eligibility, the hazard ratios for the second eligibility category (1998-2002) are similar across the two models. This is not the case for the last category (2003 and after), whose hazard ratio is far smaller when comparing naturalisation with both parents (coefficient estimate of 0.10) with naturalisation with one parent (0.29). Figures 3.7a and 3.7b highlight the differences over time, comparing between eligibility cohorts the risk of naturalisation with both parents (Figure 3.7a) and with only one parent (Figure 3.7b). We find that, for those children eligible for citizenship from 2003 onwards, the risk of naturalising with one parent only temporarily decreases (Figure 3.7b, hazard ratio crosses 1 in less than ten years), while the risk of naturalising with both parents durably diminishes (Figure 3.7a, hazard ratio is below 0.7 after 15 years). We observe a similar pattern for the children who are eligible after the dual citizenship restriction, though to a lesser extent. While the hazard ratio of naturalising with both parents slightly decreases before stagnating around 0.5 (Figure 3.7a), the one of naturalising with one parent converges towards one (Figure 3.7b). Furthermore, comparing the coefficients of the other covariates shows that traditional negative factors for naturalisation

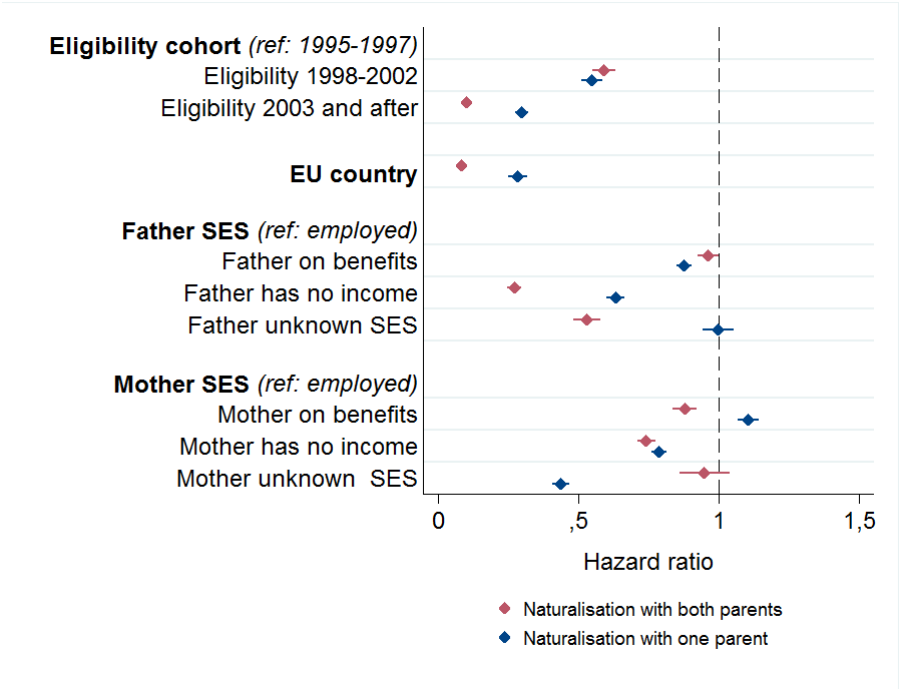

Figure 3.6: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: coefficient plot for cause-specific hazards models (N=91,066).

Note: Coefficients associated with eligibility cohorts are main effects (i.e. one year after eligibility); interactions with the logarithm of time are represented on Figure 3.7 (a and b).

are more negatively associated with the propensity to naturalise with both parents. This is especially true for those children whose father has no registered source of income, compared to those whose father is (self)employed (hazard ratio of 0.27 versus 0.63, see Figure 3.6).

These results support hypothesis 3, according to which families falling under the requirements of the 1997 and 2003 reforms are more likely to secure host country citizenship at the lowest cost (*via* a differentiated approach) than to seek citizenship for all family members (complementary approach). Several mechanisms could be at play. First, the prohibition of dual citizenship may

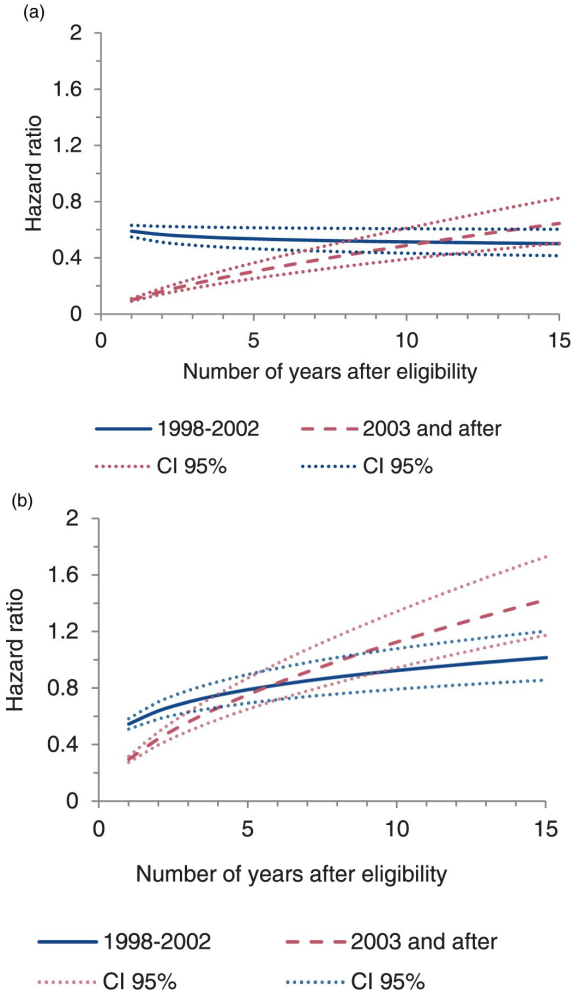

Figure 3.7: (a) Acquisition of Dutch citizenship with both parents among immigrants' children born in the Netherlands: odds ratio associated with eligibility cohort categories (ref. 1995–1997), by years after eligibility (N=91,066). (b) Acquisition of Dutch citizenship with only one parent among immigrants' children born in the Netherlands: odds ratio associated with eligibility cohort categories (ref. 1995–1997), by years after eligibility (N=91,066).

increase the emotional cost of naturalisation and prompt only one partner to naturalise, with the other retaining their origin-country citizenship. This would secure dual citizenship at the family level rather than at the individual level and preserve some legal ties with the country of origin. Second, the introduction of civic integration requirements may incentivise families to leave naturalisation to the parent who is the most equipped to navigate the procedure. This would especially apply to households where parents did not arrive in the Netherlands at the same time and/or where they faced different opportunities to learn Dutch and acquire other country-specific skills. Further empirical work, both quantitative and qualitative, is needed to identify the relevant mechanisms. Yet, our preliminary findings suggest that the naturalisation reforms not only influenced whether and when second-generation children acquire Dutch citizenship, but also *with whom*.

Conclusion

In countries with a *ius sanguinis* citizenship tradition, such as the Netherlands, second-generation children mainly depend on their parents to naturalise in order for them to become citizens of their country of birth and residence. We show that restrictive naturalisation laws not only prevent immigrants from accessing host country citizenship, they also make it harder for their children to become citizens of the country in which they were born. This paper has shed light on the intergenerational impact of Dutch naturalisation laws, revealing the detrimental effect that two significant reforms have had on people's propensity to naturalise. While we found that naturalisation propensity durably decreased for those who became eligible for Dutch citizenship after the end of dual citizenship tolerance in 1997, those who became eligible after the introduction of civic integration requirements in 2003 seem to have postponed, rather than completely put off, their applications for citizenship.

The consequences of these delayed or abandoned naturalisation projects for children's well-being and future opportunities remain to be assessed, but several studies point to the impact of legal status on immigrant youth trajectories, perceptions and expectations (Cebulko, 2014; Patler, 2017; Colombo et al., 2011). A limited body of literature has also highlighted the potential positive effect of holding host country citizenship on a variety of educational outcomes (Kilpi-Jakonen, 2014; Felfe et al., 2020; Bean et al., 2011). Altogether, while further research is needed to explore underlying mechanisms, our findings support the idea that naturalisation reforms have a last-

ing impact on children. Given that most European countries, like the Netherlands, are both characterised by a descent-based birthright regime and have witnessed changing requirements for citizenship over the past decades, the intergenerational consequences of naturalisation reforms merit research beyond the Dutch case.

This paper has also shown that the 2003 reform was associated with a change in immigrant families' naturalisation patterns: children who only became eligible under the stricter requirements were far more likely to naturalise with one parent than with both. To a more limited degree, we observe a similar pattern for those eligible after the restriction on dual citizenship was reintroduced in 1997. These findings are in line with those who have highlighted the importance of analysing immigrant naturalisation at the family level (Street, 2014; Soehl et al., 2018). In a context where candidates for naturalisation are increasingly required to show proof of integration (van Oers, 2013), it is unsurprising that families develop different strategies to cope with the tightening of naturalisation requirements. Fine-grained data and qualitative methods are necessary to shed light on the decision-making processes at play, but this paper shows that a family perspective on naturalisation offers one fruitful avenue for future research in citizenship studies.

4

Citizenship and education trajectories of the children of immigrants in secondary school: an exploratory analysis

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Introduction

Second-generation children, those born in the country to which their parents migrated, now represent a growing and sizeable population in Western societies. Although there is substantial variation in the way these children perform in education across destination countries, extensive evidence suggests that children of immigrants experience disadvantages with respect to their native counterparts in Europe (e.g. Heath et al., 2008; Dustmann et al., 2012). Recently, some literature has shown that one element that may help children of immigrants to overcome some of these obstacles is their access to host country citizenship (Felfe et al., 2020).

In two out of three countries in the world, the children of immigrants do not have rights to the citizenship of their country of birth. They instead rely on their parents' ability and desire to naturalise if they are to acquire the citizenship of their country of birth and residence (Honohan and Rougier, 2018, p355). European countries are no exception: most of them combine *ius sanguinis* citizenship regimes with varying conditional *ius soli* provisions. At the same time, naturalisation requirements have become increasingly strict in Europe (Vink and de Groot, 2010). This makes it all the more important to understand whether and how legal status affects children of immigrants' life conditions in general and their educational achievement in particular.

While interest in the citizenship of the second generation is not new (Frauenfelder, 2007; Bolzman et al., 2003; Colombo et al., 2011), only a few quantitative studies do analyse educational outcomes in relation to citizenship (Bean et al., 2011; Cygan-Rehm, 2018; Felfe et al., 2020; Fibbi et al., 2007; Kilpi-Jakonen, 2014). Overall, these studies suggest citizenship has a positive impact on various indicators of educational achievement. However, previous literature tends to focus on isolated educational transitions or outcomes, which neglects how students negotiate their way through a given school system (Boylan, 2020; Goldrick-Rab, 2016). We argue that the effect of citizenship needs to be assessed more comprehensively. From a life course perspective (Elder, 1974), naturalisation can be seen as a process affecting the opportunities and constraints of immigrant families in host societies, which increases their level of agency and their capacities to navigate complex institutions (Wingens et al., 2011b; Patler et al., 2020). We shed light on the resources and skills parents may acquire during and following the naturalisation process, further equipping them to assist their children's school careers in a foreign education system. Such resources are particularly crucial in early-tracking

and stratified school systems, where immigrant parents may face various obstacles in efficiently guiding their children (Pfeffer, 2008; Dustmann et al., 2012).

Following this life course perspective, we take a dynamic approach to educational attainment to get a more comprehensive insight into the educational trajectories of immigrants' children. We map children of immigrants' educational trajectories using sequence analysis to offer a multidimensional and context-specific indicator of educational attainment. This paper contributes to previous analyses of educational careers using optimal matching (Cayouette-Remblière and Saint-Pol, 2013; Boylan, 2020; Baysu and de Valk, 2012) and applies the transition-oriented optimal matching method introduced byBiemann (2011) to better capture the mobility patterns of students in stratified school systems.

While children of immigrants are often compared with those of native-born residents, we analyse educational trajectories among citizen and non-citizen children of immigrants only. Without diminishing the analytical value of the majority/minority dichotomy (Lessard-Phillips et al., 2017, p40), we argue that analysing legal status contributes to shifting the focus towards the hitherto under-explored heterogeneity *within* the second-generation category (Chimienti et al., 2019). We focus on children of immigrants born in the Netherlands, a country that is representative of the *ius sanguinis* citizenship tradition in Europe. We expect citizenship to be especially relevant in complex school systems such as the Dutch one, where information and strategic knowledge are key to move up the education ladder (Forster and van de Werfhorst, 2019).

We follow a full cohort of second-generation students from their first enrolment in secondary education in 2008 until 2016, using central population registers from Statistics Netherlands. Their school trajectories are mapped as sequences of educational transitions and compared by computing a transition-oriented optimal matching distance (Biemann, 2011). School trajectories are then clustered into predominant educational paths using the partitioning around medoids algorithm. Finally, we carry out multinomial logistic regressions to better understand how naturalisation, among other individual and parental characteristics, is related to specific clusters of educational trajectories.

Conceptualising the effect of citizenship within the life course of the children of immigrants

The benefits of host country citizenship for immigrants and their children

Becoming a citizen of one's country of residence confers a number of rights and benefits. Along with the rights to vote in national elections and to join the armed forces, citizenship opens the doors to various high-ranking positions in the law and public sectors and facilitates access to occupations requiring transnational mobility. More broadly, a host country passport allows for considerable international mobility, which is especially valuable for citizens of non-EU countries.

Previous work has put particular emphasis on the expected labour market benefits of host country citizenship for first-generation immigrants (e.g Gathmann and Keller, 2018). That immigrants' host country citizenship may also affect their children's opportunities is less often considered, although the benefits of citizenship are arguably higher for children than for parents (Avitabile et al., 2013, p.784). When they enter the labour market, the children of immigrants can reap higher and more long-term rewards for skills they have acquired than their parents, who are at a later stage in their careers. Children who are born and educated in the host country are also likely to value the full rights of social and political participation that citizenship brings (Colombo et al., 2011; Frauenfelder, 2007), while their parents may maintain stronger ties with their origin country.

Despite the potential effect of citizenship on the opportunities and well-being of the children of immigrants, the legal status of the second generation has received less attention, in line with the prevalent individual- and adult-centred perspective in citizenship studies (Cohen, 2005; Street, 2014). By contrast, the life course perspective points to the interdependence of individual lives and their embedding within a particular social and institutional context (Wingens et al., 2011b). As Peters et al. (2016) argue, "(...) the relevance and potential impact of citizenship is bound in a mutually shared context with others" (p361), such as one's partner or children. While there is growing evidence that intra-family dynamics are involved in immigrants' naturalisation decisions (Street, 2014; Labussière and Vink, 2020; Soehl et al., 2018), the effect of such decisions on family members has been unexplored so far, both conceptually and empirically. Yet, as we elaborate below, the notion of linked lives

seems crucial to identify the mechanisms through which citizenship may affect children's educational outcomes.

Education and citizenship of the children of immigrants

A few studies have analysed the effect of citizenship on the educational opportunities of the children of immigrants. Overall, citizenship is found to be positively associated with a range of outcomes, from pre-school enrolment (Felfe et al., 2020) and time spent in schooling (Bean et al., 2011) to academic (vs. vocational) orientation (Felfe et al., 2020; Kilpi-Jakonen, 2014; Cygan-Rehm, 2018) and enrolment in tertiary education (Fibbi et al., 2007). The main theoretical argument that has been developed so far to explain this "citizenship advantage" (Patler, 2017) in education stems from the human capital theory. A number of authors conceptualise the effect of birthright citizenship as a positive shock to the long-term rate of return on investments in children's human capital (Felfe et al., 2020; Avitabile et al., 2014; Cygan-Rehm, 2018). This, in turn, incentivises parents to make early investments in their children's education, such as to have them participate to non-compulsory pre-school (Felfe et al., 2020). In line with this argument, children who automatically get host country citizenship at birth are found to have better behavioural, socio-emotional and health outcomes in the short run compared to those who do not (Avitabile et al., 2014; Felfe et al., 2020).

While it is plausible that host country citizenship incentivises immigrant parents to offer greater educational opportunities to their children, the way they succeed in doing so remain unclear. Immigrant parents may face multiple obstacles in making informed investments in a foreign educational context. Their investments may be constrained by a number of factors, such as poor language competence, lack of interaction with school personnel or difficulties transferring their own educational experience and country-specific knowledge to a new context (van De Werfhorst and Van Tubergen, 2007). As a result, immigrant parents' level of agency may substantially decrease after migration (Wingens et al., 2011b), undermining their ability to efficiently guide their children through the education system. Such ability is particularly crucial in countries where education is hierarchically structured, as students may need to deviate from established pathways to correct initial misplacement (Crul et al., 2017).

Because of these barriers, parents' higher aspirations for their children may not always translate into greater educational opportunities. Yet, if we look at

naturalisation from a life course perspective, there are reasons to think that host country citizenship does not only increase immigrant families' expectations: it may also give them additional resources to fulfil their aspirations.

Toward a comprehensive theoretical framework

Following the idea that "citizenship acquisition is not an abrupt legal status transition, but rather a process" (Peters et al., 2017, p.6), we propose to conceptualise the effect of naturalisation more comprehensively. Just as the decision to become a citizen is socially embedded (Street, 2014; Soehl et al., 2018; Labussière and Vink, 2020), its impact may ripple through immigrants' broader social networks, starting with their family. Based on the literature, we can identify three main mechanisms through which naturalisation may affect children of immigrants' educational outcomes.

First, citizenship may benefit children because their parents gain an increased orientation toward the host country as a result of naturalisation. A substantial body of literature has highlighted the "citizenship premium" naturalised immigrants experience in the labour market (e.g. Gathmann and Keller, 2018; Peters et al., 2017; Steinhardt, 2012). Yet, citizenship not only enhances immigrant families' financial and employment stability, there is also evidence that naturalisation acts as a "catalyst" that promotes the social and political integration of immigrants. Naturalisation might indeed not only provide immigrants with greater opportunities, but also shift their time horizon and affect the way they feel perceived, or are perceived, by natives. As Hainmueller et al. (2017) show for the Swiss case, naturalised citizens are more likely to interact with the local community or to follow the country's news. Altogether, naturalisation may increase the economic and sociocultural resources available to children and foster parents' ability to provide advice through better acquaintance with the host country and its language.

Second, parents may acquire or further develop relevant skills for their children's educational success during the naturalisation process itself. Before becoming citizens, immigrant parents have to go through complex procedures that require at least basic language proficiency and some familiarity with the host country institutions (Goodman, 2010; Patler et al., 2020). The naturalisation process thus incentivises parents to make additional investments in their human capital, notably to acquire language and country-specific skills (Peters et al., 2017). This development of human capital during – and in response to

– the naturalisation process is likely to have positive implications for their children's educational outcomes.

Finally, while the children of immigrants are expected to indirectly benefit from their parents' enhanced skills and resources, they may also be directly impacted by the acquisition of host country citizenship. Becoming a citizen confers them with the same formal rights as natives, and has many implications for their current and future life. Qualitative work has highlighted the relevance of the formal dimension of citizenship for second-generation youth in *ius sanguinis* regimes (Frauenfelder, 2007; Colombo et al., 2011, pp.337-340), with young people perceiving citizenship as a protection from legal precariousness and a condition for full and effective participation. Children who feel more included in the host society are likely to have higher levels of motivation.

We would not expect these three mechanisms to play out uniformly, as the relevance and meaning of citizenship may vary across the life course. Previous research shows that the timing of naturalisation matters: the earlier immigrants are eligible to apply for citizenship, the more relevant citizenship is for their socioeconomic integration (e.g. Gathmann and Keller, 2018; Peters et al., 2017; Hainmueller et al., 2017). It is reasonable to expect a similar effect for children, as early acquisition of host country citizenship would limit legal uncertainty and possible feelings of exclusion (Colombo et al., 2011). In that sense, citizenship might have a stronger effect when it is acquired at birth than at a later point in life.

These theoretical considerations suggest that citizenship may have far-reaching consequences for children's aspirations and opportunities, notably through positive spillover effects from parents' increased orientation towards the host society. However, it is important to note at this stage that an alternative mechanism may be selection: parents acquiring host country citizenship have been shown to be positively selected for education, income and country-specific skills (Peters et al., 2016; Jensen et al., 2019; Hainmueller et al., 2018), which are also commonly associated with children's educational attainment (e.g. Bernardi and Triventi, 2020). While a few studies are able to identify a causal effect for citizenship (Felfe et al., 2020; Avitabile et al., 2014; Cygan-Rehm, 2018), the exploratory approach chosen in this paper is not adequate to disentangle the mechanisms at play.

The Dutch context and our hypotheses

Becoming a Dutch citizen

The Netherlands is representative of most European countries with its *ius sanguinis* citizenship tradition (Honohan and Rougier, 2018). Children of immigrants automatically receive Dutch citizenship by descent if at least one of their parents has naturalised before their birth. Otherwise, they may be included in the naturalisation procedure of (one of) their parents while minors, or apply for citizenship autonomously from the age of majority.[1] A noteworthy aspect, which distinguishes the Netherlands from other countries, is that children of immigrants are not required to renounce their existing nationality, regardless of the procedure under which Dutch citizenship is granted. This may remove an obstacle for parents who want their children to maintain a formal citizenship link with their country of origin. Nevertheless, in such a citizenship regime, second-generation children's citizenship largely depends on parents' desire and ability to naturalise in the first place (Labussière and Vink, 2020).

To become Dutch citizens through naturalisation, foreign citizens need to meet a number of conditions. Importantly, in contrast with their children, first-generation immigrants "must be willing to renounce" their existing citizenship to be eligible for Dutch naturalisation. Beyond its emotional and psychological cost, the renunciation requirement is likely to deprive immigrants of a number of rights in their home countries (Mazzolari, 2009, p.173). Other eligibility criteria include a minimum length of legal residence of five years (three years if married to a Dutch citizen) and a clean criminal record in the five years preceding the application. Moreover, prospective citizens need to complete a civic integration test, and demonstrate language proficiency in written and oral expression/comprehension (CEFR level A2). For the civic integration test, candidates have to prepare a "knowledge of Dutch society" component on their own, with limited teaching materials available (van Oers, 2013, pp.60–64). The introduction of a formal civic integration test in 2003 substantially raised the overall cost of the naturalisation procedure, as candidates have to pay the costs of both the examination and the courses they often need to take.

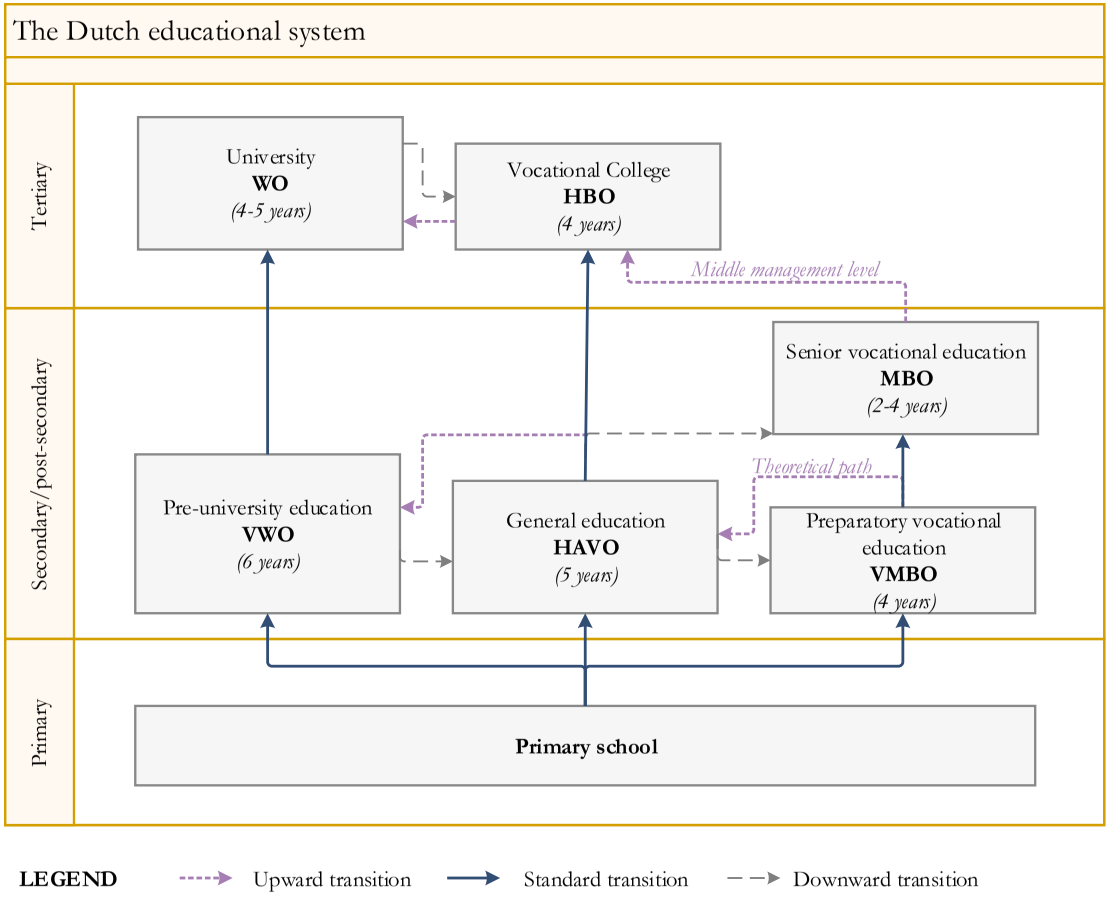
[1] Note that there is an additional procedure for those born in the Netherlands to foreign citizens: at the age of 18, second-generation youth can acquire Dutch citizenship through "option statement" if they have been living in the Netherlands since birth. Although this procedure is simpler, faster and less costly than the standard naturalisation process, relatively few individuals make use of it (see Labussière and Vink, 2020, p.2746).

Going through the Dutch education system

Research has shown that the educational context influences children's educational achievement (Heath et al., 2008; Baysu and de Valk, 2012; Crul, 2015; Dicks et al., 2019) and mediates the relationship between parental resources and their children's educational success (Bol et al., 2014; van de Werfhorst, 2019). In the Dutch school system, obstacles arise less from the financial cost of education (which is mostly free) than from the complexity of its institutional arrangements (Crul, 2018). It is characterised by a full-curriculum tracking system, where students are placed at an early stage – around age 12 – into a specific track for all subjects. Each track offers students unequal opportunities to access higher education and to move upward through the system (see Figure 4.1): the pre-university track (VWO) and the general track (HAVO) prepare students for a research university (WO) or a university of applied science (HBO) respectively, while the vocational track (VMBO) prepares them for four different levels of senior vocational education (MBO). Track placement is primarily based on a standardised test at the end of primary school, yet research has shown that parental resources shape students' trajectories, with children of highly-educated parents being more likely to be enrolled in a track above the one corresponding to their test scores (Inspectie van het Onderwijs, 2016; Timmermans et al., 2018).

This stratified system comes with a certain degree of flexibility and fluidity. Notably, being enrolled in a given track does not prevent students from moving upward or downward at a later point, a number of "back doors" being provided for that purpose. Moreover, the hierarchy between the three main tracks is mitigated by the high value placed on vocational education, which, in addition, leads to valuable labour market prospects (Inspectie van het Onderwijs, 2016, p.18). Yet, students are not equally likely to move between tracks, especially upward. First, families need quality information to navigate this complex system and to choose tracks with good upstream possibilities (Forster and van de Werfhorst, 2019; Crul, 2018, p8). For example, students can only go from vocational (VMBO) to general education (HAVO) if they have completed the theoretical track within VMBO (*theoretische leerweg*). Moreover, upward mobility often comes at the price of additional years of schooling. Accessing vocational college (HBO) from a track other than the general or pre-university tracks (HAVO and VWO) requires three additional years of schooling, which may act as an obstacle for a number of students and families (Crul, 2015, p334).

Figure 4.1: Simplified diagram of the Dutch educational system.



Another specificity of the Dutch system is that not all schools offer the same types of education. Although broad school communities exist, education is largely segregated, even within those broader communities. While some schools offer all tracks from vocational to pre-university education, some only cater for the intermediate (e.g. VMBO/HAVO) or highest levels (e.g. HAVO/VWO). Schools also provide different opportunities to attend bridge classes (*brugklas*), in which students follow a combination of levels before choosing a final track. The combinations of levels vary greatly across schools, as well as the length of bridge classes, which can last from one to three years. As a result, "not only must parents know about tracking decisions; they must also be aware of what schools can offer in terms of upstream possibilities" (Crul, 2018, p488). Parents who lack the requisite knowledge may inadvertently limit their children's options when choosing a given school. As recent work suggests, knowledge of the educational system especially matters for transitions involving a change of school (Forster and van de Werfhorst, 2019). As a result, transitioning to a higher level after the initial placement not only depends on the student's performance; parents' resources and level of information about the desirable tracks and outcomes also play an important role in securing the best up-streaming possibilities for their children. Forster and van de Werfhorst (2019) have highlighted the specific roles of cultural capital and parental aspirations on the probability of upward transition. With naturalisation increasing both children's long-term educational returns and parents' country-specific resources, we expect naturalised parents not only to have higher expectations, but also to be better equipped to make use of the system's flexibility to provide their children with the best opportunities.

The Dutch educational system also offers possibilities for downward transitions: when students fail to meet the expectations of a given track, they may be invited to move to a lower level.[2] On the one hand, downward mobility can be perceived as a less desirable option than staying in the current track, since it is likely to result in fewer opportunities for reaching higher education. Families that are well informed and have high educational expectations are therefore likely to enact remedial strategies to compensate for the low performance of their child and avoid downward mobility (Bernardi and Triventi, 2020; Huang, 2020). On the other hand, downward mobility may also be seen as a safety net, one which prevents students from dropping out

[2]Grade retention is also a possibility and is common in the Netherlands. In our population of interest, 24% of children are identified as repeating at least one grade during the observation period. While grade retention is meant to consolidate previous achievements before moving on, transitioning to a lower level is an indication of misplacement.

of school altogether when their current track is inappropriate (Kalmijn and Kraaykamp, 2003). In that sense, students experiencing downward mobility may still benefit from some strategic knowledge and make use of the system's "back doors" to remain in education. Conversely, those who leave school without a starting qualification – that is, without a VWO, HAVO or MBO-level 2 diploma – have limited employment and career prospects (Researchcentrum voor Onderwijs en Arbeidsmarkt, 2009).[3] Various complexities and ambiguities thus surround downward mobility. So although we expect naturalised children to be less likely to drop out of school, we do not formulate any clear-cut hypothesis for the effect that citizenship has on downward mobility.

Empirical strategy: a transition-oriented sequence analysis

Optimal Matching between sequences of transitions

Previous work analysing the impact of citizenship on education typically takes an event-oriented or static approach to educational outcomes. School attainment is either operationalised by specific educational transitions, such as the transition from primary to secondary school, (e.g. Fibbi et al., 2007; Cygan-Rehm, 2018; von Haaren, 2016) or by one-time measures of cognitive or behavioural outcomes (e.g. Felfe et al., 2020; Kilpi-Jakonen, 2014). These approaches have their problems, especially when studying stratified and flexible school systems, where students are mobile between tracks. First, focusing on isolated transitions may be misleading when a substantial number of students do not follow the standard path to which they were initially allocated. Second, students obtaining the same diploma are not necessarily comparable because they may have followed distinct paths, with varying educational and opportunity costs. Transitions therefore need to be embedded in students' broader educational careers, both conceptually and methodologically.

Following the life-course perspective (Elder, 1974), we argue that analysing educational trajectories as a whole provides a more comprehensive picture

[3] Education is compulsory (*leerplicht*) until the age of 16 in the Netherlands. However, between 16 and 18, students have an obligation (*kwalificatieplicht*) to stay in education if they have not obtained a starting qualification. Furthermore, they receive government support until the age of 23 to get such a qualification.

of educational outcomes. In this paper, we use sequence analysis to identify how second-generation students navigate the Dutch educational system. This longitudinal approach is particularly relevant when studying children of immigrants, since their educational *careers* have received limited attention so far (Baysu and de Valk, 2012; D'hondt et al., 2016, p227).

The technique of sequence analysis has been increasingly used in the social sciences to analyse social processes in a multidimensional and holistic perspective (Piccarreta and Studer, 2019), following seminal work by Abbott and others (1986;1990). After being coded as sequences of *states* (see Table 4.1), trajectories are typically compared using the Optimal Matching (OM) distance. OM distance is based on the smallest number of operations required to transform one sequence into another using three types of edit operations: substitution, insertion and deletion. Edit operations are penalised by specific costs fixed by the researcher, and these costs determine the distance's sensitivity to either the timing or the order of events (see Lesnard, 2010). The similarity between each pair of sequences is computed by summing the edit costs for the least costly transformation. Sequences can then be grouped according to their resemblance using standard clustering methods.

Originally developed within biology to compare DNA sequences, OM is now widely used to analyse careers in the social sciences (see Ritschard and Studer, 2018). However, as Biemann (2011) argues, the application of OM to certain types of trajectories is questionable due to important distinctions between DNA sequences and social processes. This is especially the case for careers, which, unlike DNA sequences, grow through time with "a cause and effect relationship between neighbour elements" (Biemann, 2011, p199). For example, the probability of following a given educational track at time t is contingent on the track followed at time $t-1$, which is not reflected in the standard OM approach. As explained by Elzinga and Studer (2015), "OM is context-insensitive: Each state is handled separately without considering previous or subsequent states" (p6). Furthermore, building trajectories as sequences of states does not allow one to distinguish different types of transitions: the transition from state A to B is considered equal to the transition from state B to A. However, when analysing educational careers, it seems crucial to incorporate distinctions between different types of transitions, such as standard or non-standard, upward or downward.

In contrast to the standard focus on sequences of *states*, Biemann (2011) suggests building the trajectories as sequences of *transitions*, which would enable researchers to better capture processes that unfold over time (see Table 4.1).

	t_1	t_2	t_3
Sequence 1	A	A	B
Sequence 2	A	B	B
Sequence 3	A	A	A

(a) States Approach

	t_1	t_2	t_3
Sequence 1	SA	AA	AB
Sequence 2	SA	AB	BB
Sequence 3	SA	AA	AA

(b) Transitions Approach

Table 4.1: Examples of artificial sequences built on states (a) and sequences (b). Note: In this example, we observe three sequences at time positions $t_1 - t_3$, with an alphabet of two state elements: *A* and *B*. Corresponding transition elements are *AA*, *AB*, *BB*, *BA*, *SA*, *SB*, with *S* the start of a sequence.

This transition-oriented approach has been shown to better uncover patterns of mobility than the standard approach, and offers more flexibility to define cost schemes based on theoretical expectations (Biemann, 2011). Although promising, the method has not been applied to actual data beyond Biemann's (2011) paper.

One drawback of Biemann's approach is that it complicates the cost settings, as building the sequences based on the transitions considerably increases the size of the alphabet (see Table 4.2). To mitigate this issue, we aggregate similar types of transitions to only distinguish between those that are qualitatively different. As described in more detail below, we consider 12 states and we cluster the associated transitions ($n = 132$) into 8 categories, which brings the substitution costs matrix to a manageable size of 8×8. This leaves us with $(8 + 1) * 8/2 = 36$ substitution costs to define (instead of about 9,000), that we set based on theoretical expectations.

As our hypotheses mainly relate to the type of transitions that students experience, we base similarity on their mobility profile — that is, on whether they are moving or not between tracks and if so, how – rather than on the specific tracks in which they are enrolled. As a result, the substitution costs are used to further emphasise non-standard transition patterns among students. Indel costs are set so as to allow time warping for standard transitions only, which accounts for potential grade repetition. We therefore give little weight to the *location* of non-standard transitions, since their timing is not directly relevant to our purpose (see the Supplementary Materials, section II for details).

After coding the trajectories as sequences of transitions and defining the corresponding substitution and insertion-deletion costs, pairwise dissimilarities between the sequences are computed using the optimal matching distance.

	A	B
A	$c_{A,A}$	$c_{A,B}$
B	$c_{B,A}$	$c_{B,B}$

(a) States Substitution Costs Matrix

	SA	AA	AB	SB	BB	BA
SA	$c_{SA,SA}$	.	.	.	.	$c_{SA,BA}$
AA	.	.				.
AB	.		.			.
SB	.			.		.
BB	.				.	.
BA	$c_{BA,SA}$	.	.	.	.	$c_{BA,BA}$

(b) Transitions Substitution Costs Matrix

Table 4.2: Examples of substitution costs matrices based on states (a) and sequences (b).

We then group the sequences according to their dissimilarity using the Partition around Medoids algorithm (Kaufman and Rousseeuw, 1990). This partitioning method groups the sequences into a pre-defined number of clusters, based on the clusters' medoids, defined as the sequences whose average dissimilarity to all other sequences in the cluster is minimal. The global quality of the partition is assessed using the average silhouette width (Rousseeuw, 1987), which indicates the extent to which, on average, sequences are closer to the cases from the same cluster than to those from the next nearest cluster. The silhouette width is also analysed at the cluster level to evaluate the internal cohesion of the partition, as recommended by Piccarreta and Studer (2019). Global and local cluster quality are the main criteria for choosing the preferred cluster solution (for details, see the Supplementary Materials, section III).

Data and Population

We use Dutch administrative registers, supplied by Statistics Netherlands, which offer longitudinal micro-level data covering the entire legally resident population of the Netherlands (Bakker et al., 2014a). For our research, we follow the cohort of second-generation children who were first enrolled in secondary education in 2008. This choice of the cohort is a trade-off between maximising the length of observation while ensuring sufficient data quality, as educational data become increasingly available and reliable over time. We follow students for eight years until 2016, covering their entire time in secondary education as well as part of their trajectories through higher education (if relevant).

We define second-generation children as those born in the Netherlands to two foreign-born parents, who themselves are born to at least one foreign-born parent. Children of mixed descent are excluded from the scope of our analysis because, having one native parent, they ought to obtain Dutch citizenship at birth by descent. Children born in the Netherlands from second-generation parents -– the third generation — are not included either, since they acquire automatic birthright citizenship according to the so-called double *ius soli* principle. For related reasons, we also exclude children from specific origin groups: children originating from the Caribbean territories of the Kingdom of the Netherlands, who are Dutch citizens; and children whose parents come from the former Dutch colonies and thereby had privileged access to Dutch territory and citizenship (van Meeteren et al., 2013, p115-116). Based on our definition, there are 14,571 second-generation students who were first enrolled into secondary education in 2008.

We further restrict our study population to children who were not in institutional care (N=19), nor enrolled in special education (*Speciaal onderwijs*, N=16), which is intended for students with learning difficulties or disabilities. Moreover, we exclude students who were enrolled in practical education (*Praktijkonderwijs*, N=948) or adult education (*Voortgezet algemeen volwassenenonderwijs*, N=1,071) at some point in their school careers. The reason is that both tracks target very specific groups of students: those with low IQ and learning gaps on the one hand, and the early school drop-outs on the other.

Our final study population consists of 12,505 students.[4] For our regression models, the sample size decreases to N=12,249 following the exclusion of a few individuals with punctual missing values on some of the sociodemographic variables (N=256, 2.0%). For descriptive statistics, see Tables B2-B1 in the Supplementary Materials.

Operationalisation in the Dutch educational context

We follow students' trajectories from the moment they enter secondary school. Table 4.3 indicates the different states we coded to map their educational trajectories. After primary school, Dutch students can be allocated to four different tracks: vocational education (VMBO), general education (HAVO), preuniversity education (VWO), or bridge class, which is a combination of the first three. We code each track into a specific state, as we do for the three

[4]We also exclude individuals who die before the end of the observation period (N=12).

subsequent tracks in secondary or tertiary education: senior vocational education (MBO), vocational college (HBO) and university (WO). Because students may have left education by the end of the observation period or be temporarily registered as being out of school, we identify four additional states: temporary deregistration, outward, dropout, and out of school.[5]

Temporary deregistration We code years as "temporary deregistration" when a student has been temporally deregistered from school while still living in the Netherlands. Temporary deregistration can occur for various reasons: illness, schooling in bordering countries like Belgium or Germany, or enrolment in private institutions, which are not included in the educational registers. Although temporary deregistrations are quite common and concern 9.2% of the sample, the average duration is short (1.5 years on average).

Outward We code years as "outward" when there is consistent evidence that the student is abroad: the student is not registered as being in education, migration abroad is recorded by the Dutch Immigration and Naturalisation Service (IND), and information is missing from other registers as well. In our sample, 6.1% of students are identified as leaving the Netherlands at some point during the observation period, for an average duration of three years.

Dropout We code years as "dropout" when we are able to determine that a student has left education without a starting qualification (i.e. VWO, HAVO or MBO-level 2 diploma). A substantial proportion (13.5%) of students are identified as early school leavers in our sample.

Out of school We code years as "out of school" when we have evidence that the student has left education with a starting qualification. Due to the limited observation period, this only concerns 19.2% of students in our sample and is associated with short educational trajectories.

Differentiating between these four states is important if we are to uncover the various ways children of immigrants navigate the Dutch school system. Although the data do not enable us to contextualise certain states (notably

[5]Note that this also ensures sequences of equal length. There is, however, right-censoring in the definition of some of the state elements, as a student identified as an early school-leaver during the observation period may actually go back to school a few years after the end of observation.

temporary deregistration) in more detail, this typology of states gives a comprehensive picture of how an entire school cohort makes their way through secondary education.

Finally, we add an artificial state, "start", which enables us to distinguish whether students enter secondary education through bridge class ("Start-Bridge"), vocational education ("Start-VMBO"), or through general or pre-university education ("Start-HAVO/VWO"). Note that the two highest tracks, HAVO and VWO, are merged because the majority of students do not access these tracks directly but rather after one or several years of bridge class.

Table 4.4 shows all the categories of transitions we used to aggregate similar types of transitions. After their initial transition into secondary education, students can follow the standard route and move up to the level that is provided by their track. For example, a student starting in the pre-university track (VWO) is expected to move on to university (WO), while a student entering general education (HAVO) is mainly preparing to attend vocational college (HBO). These are what we refer to as "standard" transitions. On the other hand, students who were initially placed in the wrong track or who gradually fall behind or move ahead of their peers may need to deviate from the standard route. We therefore differentiate between those moving "downward" to a lower track and those moving "upward" to a more general or prestigious track than the one in which they were enrolled the year before. Two additional categories of transitions take into account atypical trajectories. First, we code as "exit" those transitions in which a student begins with a year of emigration ("outward") or temporary school deregistration ("temporary deregistration"), so as to take into account potential discontinuities in school trajectories. Second, in order to identify the early school leavers, we code transitions ending with dropout as a separate category, "dropout". In the Supplementary Materials, Table B4 gives the full matrix we used to shift the sequence elements from states to transitions.

Multinomial logistic regression and covariates

Following a standard approach in sequence analysis, we use the resulting clusters as a categorical input for multinomial logistic regression analysis. This enables us to assess how clusters are associated with individual and contextual characteristics, although this comes with a number of caveats. One important limitation lies in the fact that we can only analyse how the clusters relate to characteristics that are either constant or measured before the start

	States
1	Start
2	Bridge
3	VMBO
4	HAVO
5	VWO
6	MBO
7	HBO
8	WO
9	Temporary deregistration
10	Outward
11	Dropout without diploma
12	Out of school with diploma

Table 4.3: State elements.

	Transitions
1	Start VMBO
2	Start Bridge
3	Start HAVO/VWO
4	Standard
5	Downward
6	Upward
7	Exit
8	Dropout

Table 4.4: Transition elements.

of the trajectory if we are to avoid anticipatory analysis (Studer et al., 2018, p8). As a result, our time-varying covariates are measured before or shortly after the start of the observation period.

Another caveat relates to causal interpretation. When analysing the relationship between citizenship and educational trajectories, it is important to account for selection into naturalisation: immigrant parents who naturalise are expected to be positively selected for a number of characteristics that are commonly associated with children's educational attainment. Although we are able to control for some of the most important predictors of naturalisation propensity, such as parents' education level or years since migration, the dynamics involved in the naturalisation process are arguably many-fold and largely unobservable, especially when using administrative registers. We therefore use multinomial logistic regression to test associations between citizenship and education, without assuming a cause-and-effect relationship.

Presentation of the covariates

Variable of interest The citizenship status of second-generation students is our main variable of interest. We distinguish three categories: those who are Dutch from birth (45.8% of the sample), those who naturalise together with their parents before entering secondary education (39.0%), and those who are still foreign citizens at that date (15.2%). In the first

category, one or both parents naturalised before the child was born. Distinguishing between parental naturalisation before and after birth allows us to analyse the potential effect of the timing of naturalisation.

Educational controls In the sequence analysis, we set the edit function so as to emphasise patterns of (im)mobility relative to a student's initial track. Yet, a student's starting point and subsequent trajectory cannot be fully disentangled, as the initial track determines how far a student can move up or down. As we aim to isolate the effect of citizenship on mobility alone, we control for the initial track in which students are enrolled when entering secondary education.[6] The variable differentiates between vocational education (VMBO), bridge year, and general/pre-university education (HAVO/VWO).

Moreover, we expect school trajectory to be influenced by a student's cognitive ability. A student with cognitive potential is more likely to move upward other things being equal. As a proxy for cognitive skills, we use the score obtained in the standardised test at the end of primary school. This comes with a caveat, because scores are only available for students whose schools registered with the main test provider, Cito, representing about 77% of our sample. We assess the selectivity of this group in the Supplementary Materials (section IV). We use quintiles of Cito score and we group the missing values in a separate category, due to the lack of auxiliary information in the registers to impute the missing scores.

Sociodemographic variables We control for a number of sociodemographic variables that are traditionally associated with educational outcomes. We control for gender, as girls are usually found to outperform boys in education, including among second-generation students (Fleischmann and Kristen, 2014). Two household characteristics are included to proxy the parental time and financial resources available to children: the number of children registered in the household and the type of household, either two- or single-parent. We also include a dummy capturing whether the respondent is first-born, since there is evidence that it confers an advantage in education (see e.g. Kantarevic and Mechoulan, 2006). Finally, we control for whether the child is an EU citizen with a dummy

[6]Note that we set null substitution costs between all the starting transition elements in the substitution costs matrix (see Table B5, Supplementary Materials), which ensures the independence of the outcome from the first education track in the multinomial logistic regression.

that captures whether mother's or father's country of origin is a member state of the European Union.

Confounding factors Several parental characteristics are expected to be associated with both naturalisation propensity and children's educational outcomes. First, we account for parents' SES status by including two complementary variables: parents' main source of income, which indicates whether the parents are in employment (including self-employment), are social benefit or pension recipients, or lack any registered source of income; and a dummy capturing whether at least one parent is registered as a homeowner. While homeownership status is a good discriminatory factor in the higher end of the SES distribution, the main source of income captures different profiles at the lower end. To approximate the financial resources available to children, we include household standardised disposable income.

We also control for parental education level, albeit imperfectly. Such information tends to be missing and/or unreliable for first generation parents, and is difficult to impute without indication of parents' exact occupation. We take the highest education level obtained among parents, and distinguish between low (primary education), middle (completed some secondary education), and high (bachelor or higher). Missing values, which still represent a non-negligible share (17.3%), are coded as a separate category. In the Supplementary Materials (section IV), we describe in more detail the construction and limitations of the variable.

Finally, we use parents' years since migration and the language spoken at home as proxies for the family orientation towards the host country. Parents who have arrived in the Netherlands at a young age are expected to navigate more easily Dutch institutions, especially if they have been enrolled at some point in the education system (Nielsen and Rangvid, 2012). Likewise, those who are proficient in Dutch may be more likely both to naturalise and to assist their children's educational careers effectively (Dustmann et al., 2012).

More details about our covariates are available in the Supplementary Materials, section IV.

Analysis

Sequence Analysis on educational transitions

Following the steps set out above, we cluster the sequences based on a transition-oriented approach to OM. We select a cluster solution which optimises both the global quality of the partition and the internal cohesion of all clusters (Piccarreta and Studer, 2019). While the average silhouette width reaches a plateau after eight clusters ($ASW \approx 0.82$, see Figure B3, Supplementary Materials), cases are not adequately classified in some of the associated clusters ($ASW \leq 0.2$). We therefore prefer a six-cluster solution with a smaller average silhouette width ($ASW = 0.78$), but well-defined clusters ($ASW > 0.4$). From a substantive point of view, the six-cluster solution offers meaningful groups with a sufficient level of detail.

Descriptive information on each of the six clusters is provided in Tables 4.5 and 4.6, while Figure 4.2 graphically represents the individual sequences within each cluster. In line with our cost setting, students who follow standard trajectories are grouped into the same cluster (cluster 1) and form the largest group (50.1%) of the partition. This group is very homogeneous and substantially contributes to the global quality of the partition (see Figure B4, Supplementary Materials). The remaining clusters distinguish students who experienced non-standard transitions during the observation period.

The next cluster represents the second-largest group of the partition, with about 20% of the students. The medoid sequence is characterised by an upward transition the year before the end of the observation period, and Figure 4.2 shows that there is limited variation in timing. Most of these students

	Label	**Medoid**	**N**	**%**
1	Standard	Start Bridge-S-S-S-S-S-S-S-S	6,265	50.1
2	Upward	Start Bridge-S-S-S-S-S-S-upward-S	2,451	19.6
3	Dropout	Start Bridge-S-S-S-S-S-S-dropout-S	1,647	13.2
4	Discontinued	Start VMBO-S-S-S-S-S-interrupted-S-S	1,137	9.1
5	Downward	Start Bridge-S-S-S-downward-S-S-S-S	656	5.3
6	Detour	Start Bridge-S-S-S-downward-S-S-upward-S	349	2.8
			12,505	**100.0**

Table 4.5: Cluster description and medoids sequences of the six-cluster solution. Note: "S" stands for "Standard".

start directly in the vocational track or access this track after bridge class (see the individual sequences based on states elements, Figure B5 in the Supplementary Materials) and experience an upward transition in senior vocational education (MBO), though some move upward a little later. This accounts for the large over-representation of students enrolled in vocational college (HBO) in this cluster: 83% vs. 30% in the full sample. A smaller group who access general education (HAVO) after primary school or bridge class is able to make it to university (WO). It is noticeable that this second cluster barely contains any pattern of downward mobility, and that students from this cluster are the less likely to repeat a grade compared to the other clusters. We therefore label these *upward* transitions.

The third cluster captures sequences that end up with a dropout, typically during the last three years of observation. This cluster, which represents 13.2% of the sample, includes almost all students identified as early school leavers (Table B8). Most of them start in the vocational track (VMBO) or access this track after one or two years of bridge class and subsequently drop out from senior vocational education (MBO) (Figure B5). This cluster confirms earlier work showing that vocational students are particularly at risk of dropout in the Dutch school system (Inspectie van het Onderwijs, 2016, 2010, p.260), compared to those who follow the general or pre-university tracks. Interestingly, very few individuals experience downward mobility before leaving school without a qualification: less than 2% of downward transitions are observed at each time point within this cluster (result not shown). This suggests that downward mobility can act as a safety net against dropout for some children of immigrants (Kalmijn and Kraaykamp, 2003). Finally, this cluster includes a slight over-representation of students who are identified as being temporarily deregistered or abroad, indicating that in some cases interruptions or disruptions in the school trajectory prevent students from obtaining their starting qualification. The students in this cluster follow what we call *dropout* trajectories.

	Standard (50.1%)	**Upward** (19.6%)	**Dropout** (13.2%)	**Discontinued** (9.1%)	**Downward** (5.3%)	**Detour** (2.8%)	**Full sample**
Percentage experiencing:							
Grade repetition	23.1	15.5	33.3	20.8	40.7	33.2	**23.9**
Temporary deregistration	0.1	3.2	12.6	70.4	7.0	5.2	**9.2**
Outward move	1.2	2.5	10.9	35.9	3.2	5.4	**6.1**
School dropout	0.0	1.4	100.0	0.1	0.0	0.6	**13.5**
Out of school	29.7	10.4	0.0	12.8	17.4	7.7	**19.2**
Percentage enrolled in:							
Start Bridge	53.6	50.5	46.7	52.1	75.3	79.4	**53.8**
Start VMBO	39.3	46.0	51.4	43.5	0.6	7.5	**39.7**
Start HAVO/VWO	7.2	3.5	1.9	4.4	24.1	13.2	**6.6**
Bridge	53.6	62.3	50.3	52.2	79.7	84.0	**56.9**
VMBO	71.4	90.0	92.2	75.8	21.5	58.7	**75.2**
HAVO	14.3	32.8	6.1	9.7	91.5	96.6	**22.8**
VWO	14.1	6.9	2.6	7.3	61.9	21.5	**13.3**
MBO	71.5	71.1	86.6	71.3	43.1	69.1	**71.9**
HBO	14.0	82.9	0.0	17.1	57.3	93.4	**30.4**
WO	13.8	9.6	0.0	4.8	4.9	14.0	**9.9**

Table 4.6: Cluster descriptives: occurrence of state elements within each cluster and in the full sample (%).
Note: With the exception of the initial track, for which variables sum up to 100%, the other states are captured by dummy variables which equal one when the state or event is observed at least once during the observation period. As a result, the dummies are not mutually exclusive.

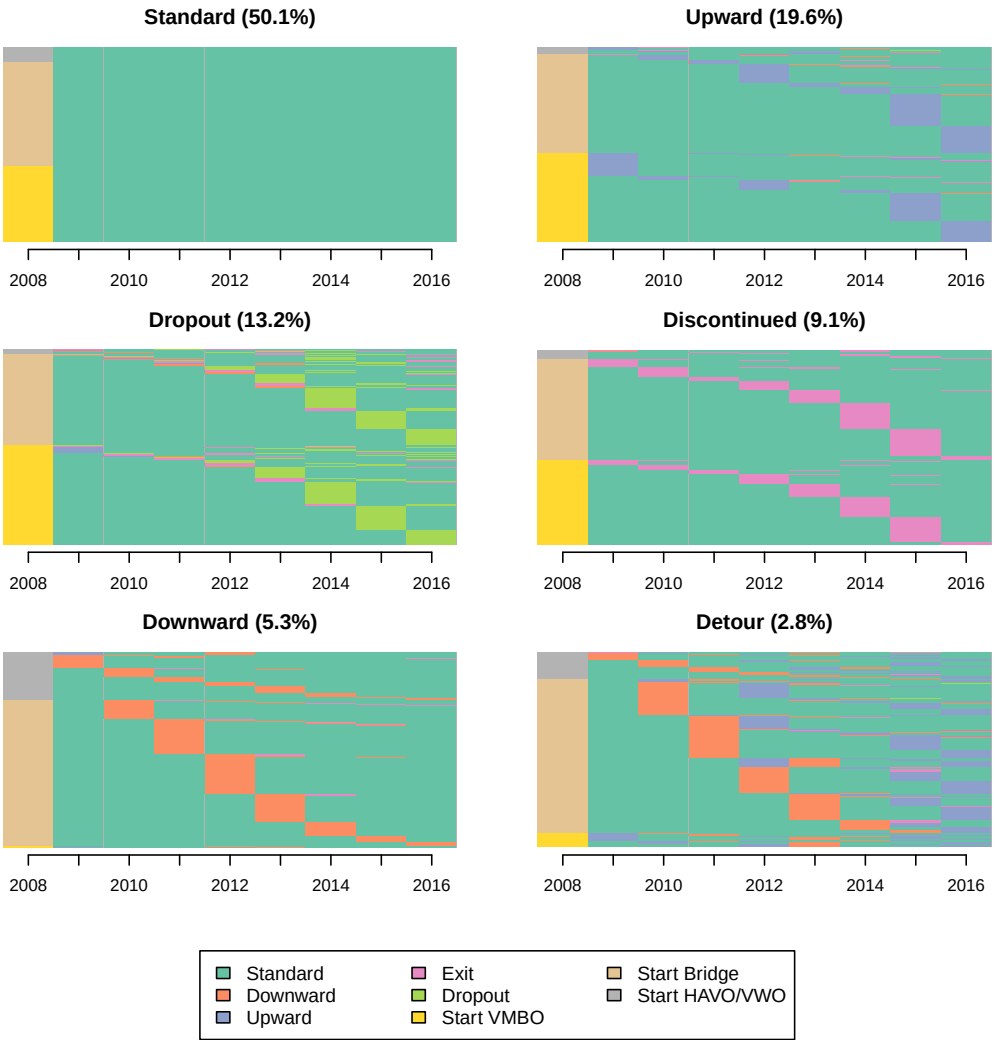


Figure 4.2: Index-plot based on transition elements for the full sample (N=12,505).

The fourth cluster groups those who followed standard trajectories but were deregistered from school at some point (9.1%). Although deregistration may occur at any time, it seems to be more likely towards the end, when students have reached the age of majority. Those who are temporarily deregistered from school or identified as going abroad are clearly over-represented in this category: 70% of students experience school deregistration and 36% are identified as being abroad at least one year, versus 9 and 6% in the full sample, respectively. An important thing to note is that those who leave the Netherlands usually stay abroad several years in a row, while those who are deregistered typically leave school for a year (see Figure B5). As a result, the sequences in this group are not similar with respect to state duration. What is more, temporary deregistration may occur for various reasons, from illness to a school year abroad. Despite its heterogeneity, this cluster sheds light on a specific group of students who do not complete their entire education in the publicly-funded Dutch education system. To stress this pattern of temporary or definitive deregistration, we label these trajectories as *discontinued*.

The fifth cluster, representing 5.3% of the sample, contains sequences characterised by a downward transition. While the medoid sequence suggests that this transition typically occurs four years after enrolment into secondary education, the plot of individual sequences shows that there is substantial variation in timing. In this cluster, the vast majority of students started in a bridge class (75%, Table 4.6) and subsequently went into the general (HAVO) or pre-university track (VWO), while a smaller proportion (24%) went directly into those tracks after primary school. Both profiles of students end up moving down later at various points in time. Interestingly, the percentage of students who repeated at least one grade is particularly high in this group: 41%, versus 24% in the full sample. This suggests that the track to which students were allocated after bridge class or primary school was too ambitious, leading to subsequent grade retention and, ultimately, downward mobility. Consequently, we refer to students in this cluster as being on *downward* trajectories.

The last cluster includes the smallest group of the partition, representing 2.8% of the sample (N=349). The medoid sequence is characterised by both an upward and a downward transitions a few years apart. The individual sequences show that there is substantial variation in timing: in some cases downward moves are quickly corrected by an upward transition, while in others the upward transition occurs towards the end of the observation period. Being upwardly mobile enables these students to stay longer in education and to access vocational college (HBO) or university (WO) in greater pro-

portions. Notably, in the last year of observation, 75% of these students were enrolled in vocational college, 13% in university and 2% in senior vocational education (MBO) (result not shown). This suggests that these students seek a higher education diploma, although this may come at the price of additional years of schooling. Since these paths towards higher education are marked by initial downward mobility, we label them as *detour* trajectories. The clusters of detour and upward trajectories illustrate that a substantial number of children of immigrants make use of the school system's flexibility to move higher up the education ladder. This is in line with earlier evidence of "long routes" to higher education in the Netherlands, with children of immigrants needing to "stack" diplomas (*diploma stapelaars*) to repair their initial placement in the wrong track (Crul, 2015, 2018, p.488).

Altogether, this partition shows that a substantial share of students end up in a different track from the one in which they were initially enrolled; 5.3% end lower and 22.4% finish higher (including the detour routes). This highlights the added value of comparing the starting and ending points of educational trajectories instead of focusing on isolated transitions (Boylan, 2020). In addition to offering a comprehensive picture of how the second generation navigates the Dutch education system, this transition-oriented approach enables us to effectively reduce the complexity the Dutch education system while emphasising non-standard moves. However, it is important to stress that although our clusters are analytically meaningful, cluster membership "cannot be univocally interpreted" (Piccarreta and Studer, 2019, p5). In line with the cost setting described above, our clusters are primarily defined based on the *sequencing* of the transitions, to the detriment of other dimensions such as the *timing* and *duration* (Studer and Ritschard, 2016, p.483). While this is suitable for our research purposes, it should be considered when interpreting the regression results.

Multinomial logistic regression results

We next turn to the multinomial logistic regression to assess the association between educational trajectories and individual and family characteristics. The six-cluster solution presented above serves as a dependent variable with six possible outcomes. Because we are interested in the odds of experiencing an alternative pathway within the Dutch education system, we use the standard paths as the base outcome. Before discussing our main model, it is helpful to add the different sets of covariates in a stepwise fashion to contextualise cluster membership with regard to our main variable of interest.

Figure 4.3 shows the variation of the coefficients attached to citizenship using four nested specifications, while Table B10 in the Supplementary Materials provides full details on the complete regression model including all covariates.

In Model 1, only citizenship is added to the model, with the foreign citizens as a reference group. Compared to the foreign citizens, second-generation children who are Dutch from birth and those who naturalise before entry into

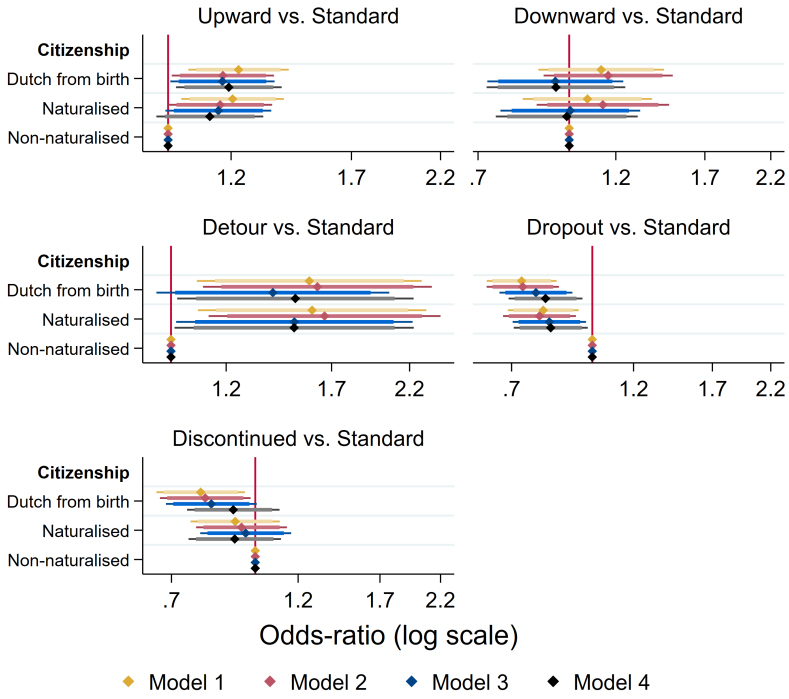


Figure 4.3: Plot of the odds of experiencing different trajectories in secondary and tertiary education, by citizenship status.
Note: This plot represents coefficient estimates and confidence intervals at the 90% (thick) and 95% (thin) levels. Model 1 only includes citizenship; we introduce step by step the sociodemographic variables (Model 2), the educational controls (Model 3) and the confounding factors (Model 4). The coefficients can also be seen on Table B11 in the Supplementary Materials.

secondary school have a higher chance of experiencing upward or downward transitions than they do of following a standard path. At the same time, they are more likely to follow the standard path than dropout or discontinued trajectories. While the coefficient estimates for citizenship only change slightly when adding the sociodemographic variables (Model 2), there is a more substantial shift when adding the educational controls (Model 3). If we account for the score obtained at the end of primary school and the initial track, those who acquire Dutch citizenship are no longer more likely to follow a downward trajectory than a standard path (the odds ratio shrinks to around 1). The coefficients also decrease for the detour path relative to the standard one, though more moderately. Detailed regression results show that those in the two higher quintiles of Cito score are much more likely to follow a downward trajectory versus a standard one than those in the first quintile. This suggests that students going down in the course of their educational careers, such as those following a detour or downward trajectory, were initially allocated to a too ambitious track based on the high score they received in the Cito test. The introduction of the educational controls also decreases the magnitude of the coefficient attached to the dropout trajectory. This is related to the fact that those who directly enter the general (HAVO) or pre-university (VWO) tracks have a much lower probability of experiencing a dropout versus a standard path than those who start in vocational education or – to a lesser extent – in bridge class.

Interestingly, there is little change in the coefficients when adding the confounding factors (Model 4). Only the coefficient associated with discontinued trajectories substantially decreases for the Dutch from birth. Detailed regression results suggest that the effect of citizenship was confounded with parental years since migration in Model 3: children whose parents have stayed more than 15 years in the Netherlands are substantially less likely to experience discontinued trajectories, regardless of their citizenship status.

Overall, citizenship seems to have a moderate protective effect against dropout, while it increases the odds of deviating from the standard path through upward transitions. The latter is especially true for detour trajectories: compared to foreign citizens, those acquiring Dutch citizenship are substantially more likely to experience both downward and upward mobility than to follow the standard path, with an odds-ratio around 1.5. Those with Dutch citizenship are also more likely to follow an upward trajectory as opposed to the standard path, yet the coefficient is smaller in magnitude, and confidence intervals show that only limited effects are reasonably compatible with the data.

Another noteworthy aspect concerns the timing of citizenship: there are limited differences between those who are Dutch from birth and those who naturalise before 12. The confidence intervals indeed largely overlap for most outcomes, suggesting that, if any, differences in timing are limited. This indicates that, contrary to our expectations, acquiring Dutch citizenship at birth does not offer significant advantages over naturalising before entry into secondary education. One possible explanation is that children benefit from the naturalisation process from the moment their parents seek Dutch citizenship, i.e. possibly several years before the family actually naturalises. If so, those who naturalise in their childhood would experience similar integration dynamics to those who obtain Dutch citizenship at birth. While this would be consistent with previous evidence of anticipatory mechanisms in the naturalisation process (Peters et al., 2017), more research is needed to understand the mechanisms involved.

To assess the magnitude of the effects of citizenship more precisely, we calculate average marginal effects (AMEs), plotted in Figure 4.4. AMEs show how the predicted probability of each outcome varies as legal status changes, holding the other variables at their observed values. Getting Dutch citizenship at birth or before the age of 12 increases the probability that a student will be an upward mover by 3.1 and 2.1 percentage points, respectively. Interestingly, this effect size is comparable to that of the effect of parental level of education: children whose parents have a middle or higher education diploma are more likely to follow the upward track by around 2 percentage point, compared to those whose parents only completed primary education (see Table B13). By contrast, citizenship acquisition only increases the likelihood of taking a detour trajectory by around 1 percentage point. As for downward mobility, citizenship does not seem to have any effect. These average marginal effects provide suggestive evidence that naturalised parents are better equipped to help their children move upward after their initial track placement, in line with our hypothesis. However, this advantage could also be driven by unobserved heterogeneity at the family level. Furthermore, the absence of an effect on downward trajectories calls for a deeper understanding of the mechanisms at play. This differential effect may be explained by the fact that schools are a driving force for downward transitions, as in the Netherlands schools gain financially if students graduate within the allocated time span. Conversely, upward transitions may depend more heavily on initiatives that families take.

While the acquisition of Dutch citizenship does not affect the likelihood of following downward transitions, it does influence the probability that a student will leave school prematurely. Compared to foreign citizens, students

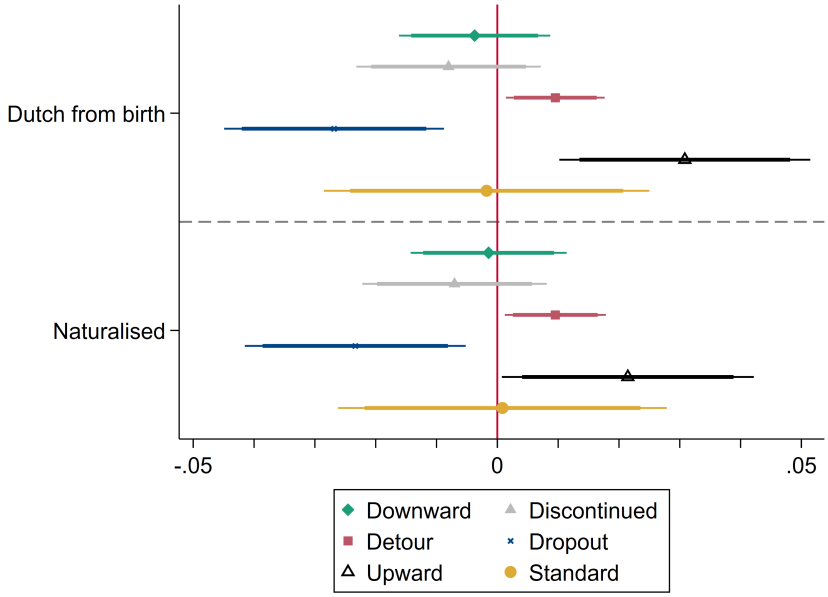


Figure 4.4: Plot of the average marginal effects of Dutch citizenship predicting trajectory in secondary and tertiary education (ref. Non-naturalised).
Note: This plot represents coefficient estimates and confidence intervals at the 90% (thick) and 95% (thin) levels.

who acquire Dutch citizenship at birth or before the age of 12 are less likely to experience dropout by 2.7 and 2.3 percentage points, respectively. Although the size of the effect is moderate, it is in the same order of magnitude as that of other important predictors. By way of comparison, students whose parents have a secondary qualification or higher education diploma are less likely to experience dropout by 1.8 and 3.8 percentage points, respectively (Table B13). These results suggest that Dutch citizenship, especially if acquired at birth, has a protective effect against dropout. Naturalised parents may be more informed about the consequences of school dropout for their children's future labour market outcomes, or they may have higher aspirations for their children. While we are not able to tease out these mechanisms, our results overall indicate that citizenship is associated with students' ability to remain in education.

Complementary analysis

Because AMEs tend to miss variability in effects across cases (Williams, 2012), we also compute marginal effects at representative values (MERs) of the key predictors, such as parental education and years since migration (see Tables B15-B14, Supplementary Materials). While MERs suggest that the relevance of citizenship varies according to parents' resources, differences are rather limited (generally below 1 percentage point) and do not alter our interpretation.

We also use an alternative specification to assess potential biases in our estimations of the effect of citizenship on educational trajectories. As mentioned above, the empirical strategy followed in this paper does not allow the inclusion of time-varying covariates. This is particularly problematic for estimating the effect of citizenship status, since a number of students naturalise during the observation period (See Table B3, Supplementary Materials). Some of the students we categorise as non-naturalised in the main analysis may be already on their way to becoming Dutch when entering secondary education, which may lead to downward bias in the estimated effect. To calculate an upper bound for the effect of citizenship, we use an alternative specification where we define all students who acquire citizenship after birth within the observation period as naturalised. This leads to very similar patterns to those observed in the main analysis, with the difference that the estimated effects for citizenship are substantially larger in magnitude (see Figure B6, Supplementary Materials).

Conclusion

In most countries, second-generation children do not get automatic birthright citizenship but rather depend on their parent's ability and desire to naturalise if they are to become citizens of their country of birth and residence. While naturalisation requirements have been increasingly strict over recent decades (Goodman, 2010; Vink and de Groot, 2010), we still know little about whether and how citizenship status matters for children of immigrants in *ius sanguinis* regimes (Labussière and Vink, 2020). Following recent developments in the literature (Felfe et al., 2020; Bean et al., 2011; Kilpi-Jakonen, 2014; Fibbi et al., 2007), this paper focuses on the Netherlands to analyse the extent to which children of immigrants who acquire host country citizenship are better able to navigate a complex and stratified education system.

A life course perspective sheds light on the multi-faceted process immigrants go through when seeking host country citizenship. While migration may deeply affect individuals' agency over their life course (Wingens et al., 2011b), naturalisation opens up new opportunities in host societies and may foster the ability of immigrant families to navigate complex institutions (Patler et al., 2020). Importantly, the resources and skills they develop during and following the naturalisation process may help them identify desirable tracks for their children and take advantage of the system's flexibility, which is of particular importance in educational contexts combining early selection and between-school tracking (Pfeffer, 2008; Crul, 2018). This paper calls for a more dynamic and comprehensive approach to naturalisation, and adds to the burgeoning literature exploring the influence of migration on youth educational opportunities in a life course perspective (e.g. Soehl et al., 2018; Baysu and de Valk, 2012).

Our paper also contributes to a better operationalisation of educational trajectories using a transition-oriented sequence analysis. Unlike event-oriented approaches to educational outcomes, we map the school careers of a full cohort of second-generation students from their entry into secondary education in 2008 to 2016. This enables us to focus on long-term pathways and to better reflect the complexity of educational careers (Boylan, 2020). Drawing on the transition-oriented approach developed by Biemann (2011), we also offer a context-sensitive method of highlighting (im)mobility patterns based on theoretical expectations. While the identification of broad types of educational trajectories has been sufficient for our purposes, this method has potential for generating more fine-grained typologies of educational careers. In that respect, we argue that transition-oriented sequence analysis may prove especially fruitful for future research on educational trajectories within stratified systems.

In addition to standard paths through the Dutch education system, we identify five clusters of alternative pathways: downward, upward, discontinued, dropout and detour, with the latter referring to those who experience first a downward and then an upward transition. This partition indicates that while a substantial proportion of students (27.6%) make use of the system's back doors to move between tracks, another significant share (22.3%) spends time temporarily or permanently away from the Dutch public school system. In the regression analysis, citizenship stands out as a significant predictor of one's trajectory through secondary and tertiary education. Students who acquire Dutch citizenship before they enter into secondary education are between 2 and 3 percentage points more likely to follow an upward tra-

jectory than those who are still foreign citizens when they start secondary school. Conversely, Dutch citizens are about 2.5 percentage points less likely to dropout.

As can be expected when seeking such a comprehensive and multidimensional indicator of educational attainment, other factors, such as cognitive ability or family characteristics, play an equal or larger role than citizenship. Besides, our set of covariates is far from exhausting the range of relevant characteristics: register data do not offer information on students' aspirations and parents' expectations (D'hondt et al., 2016; Boylan, 2020), and we are not able to incorporate characteristics beyond the household to account for potential peer and neighbourhood effects. We therefore interpret our results as preliminary and suggestive evidence that the acquisition of Dutch citizenship influences the way children of immigrants navigate the school system.

While further research is needed to assess the relevance of host country citizenship for children and tease out the mechanisms through which it affects educational outcomes, our findings support the idea that children who are foreign citizens in their country of birth have fewer educational opportunities. Given that most European countries, like the Netherlands, are characterised by a descent-based birthright regime, the potential effect of naturalisation on the life paths of the second generation merits research beyond the Dutch case.

5

Timing of citizenship acquisition and immigrants' children educational performance: towards causal inference

This chapter is submitted for publication as a single author paper and is currently under review.

Introduction

Immigrants' access to host country citizenship has received growing attention in the last decade. However, while there is converging evidence that naturalisation contributes to immigrants' social, political and economic integration (*e.g.*, Hainmueller et al., 2017; Peters et al., 2017; Gathmann and Keller, 2018), little is still known about its potential consequences on their children's opportunities in host societies (Felfe et al., 2020; Colombo et al., 2011). This question is especially relevant in countries whose citizenship laws are based on *ius sanguinis*, whereby children have rights to the citizenship of their parents, not their country of birth (Honohan and Rougier, 2018, p.350). In such contexts, those born in the country to which their parents migrated – the so-called second generation – rely on their parents' ability and desire to naturalise if they are to acquire the citizenship of their country of birth and residence.

There is an emerging body of literature looking at the effect of host country citizenship acquisition on second generation children's educational attainment, as a prime indicator of their life chances in host societies. It assesses the effect of citizenship on various educational outcomes, from cognitive skills and grades (Felfe et al., 2020; Kilpi-Jakonen, 2014) to track orientation and continuation to higher education or years of schooling (Bean et al., 2011; Fibbi et al., 2007; Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). These studies overall suggest that host country citizenship positively affects educational attainment, both at the early and later stages of students' educational trajectories.

This citizenship premium is explained through different mechanisms. A number of authors conceptualise host country citizenship within the human capital theory as a positive shock to the long-term rate of return on education, leading to early parental investments in children's human capital (Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). Others argue more broadly that naturalisation may increase students' aspirations and motivation by shifting immigrant families' frame of reference towards the host society (Kilpi-Jakonen, 2014; Colombo et al., 2011). However, an alternative mechanism, less often considered, is selection: parents acquiring host country citizenship have been shown to be positively selected for education, income and country-specific skills (Peters et al., 2016; Jensen et al., 2019; Hainmueller et al., 2018), which are also commonly associated with children's educational attainment (*e.g.*, Schulz et al., 2017). As some of these parental characteristics are typically not observable, standard estimates are likely to be upwardly biased due

to unobserved heterogeneity.[1]

Though several studies discuss this potential source of endogeneity (Kilpi-Jakonen, 2014; Fibbi et al., 2007), they are generally not able to fully account for selection due to data limitations. An exception lies in the few studies exploiting the introduction of a conditional *ius soli* in Germany in 2000 as a natural experiment (Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016), which provide further causal evidence for an independent effect of citizenship on education. Yet, such studies only consider a potential effect of host country citizenship *at birth*, whereas a substantial share of second-generation children in Europe acquire citizenship only *after* birth through naturalisation procedures (Labussière and Vink, 2020). Furthermore, such analyses are hardly replicable in other countries since birthright citizenship provisions are fairly stable over time in Western Europe (Vink and de Groot, 2010, p.720).

This paper contributes to previous literature in two ways. First, I address parental selection into naturalisation by using two complementary methods: a family fixed-effects approach exploiting variation in siblings' exposure to host country citizenship, and a novel bounding technique developed by Oster (2019). I estimate the effect of age at naturalisation using the "between-within" linear mixed model (Allison, 2009; Mundlak, 1978), as coined by Sjölander et al. (2013). The key advantage of this approach compared to standard fixed-effects models is that it allows to explicitly model and adjust for unobserved heterogeneity at the family level (Bell and Jones, 2015; Schunck and Perales, 2017). Second, while previous work mainly considers *whether* host country citizenship is relevant for second-generation children, I also conceptualise and assess *when* and *for whom* citizenship matters. Using the between-within modeling approach, I analyse both the effect of the timing of naturalisation and potential interaction effects between citizenship and the socioeconomic status of immigrant families. This offers new analytical insights into the factors that condition the relevance of citizenship for second generation children.

I investigate the potential causal impact of host country citizenship acquisition in the Netherlands. This is a country representative of the *ius sanguinis* citizenship tradition in Europe (Honohan and Rougier, 2018), where children of immigrants can only acquire Dutch citizenship as minors through their

[1] As noted by Bell and Jones (2015), the term "endogeneity" has different meanings and may refer to different types of selection biases. To enhance clarity, I use the term "unobserved heterogeneity" to refer to the situations where endogeneity arises because of common-cause confounding bias (Elwert and Winship, 2014).

parents' naturalisation (Labussière and Vink, 2020). The Dutch setting offers a unique research opportunity, thanks to the availability of detailed micro-data from administrative registers on children' educational attainment and their family context. The data include the entire population of second-generation students born between 1990 and 2010. Their educational performance can be traced back between 2008 and 2015 using their scores at a high-stakes standardised test at the end of primary school. This test is a core element of the multi-tiered and early stratified school system in the Netherlands (Crul, 2018), and offers a standardised measure of educational performance in early adolescence.

I find that second generation students who acquired Dutch citizenship in early childhood outperform their peers of foreign nationality by about 0.1 standard deviations on the standardised test. This advantage decreases from the age of 7, and then becomes negligible when students naturalise at the end of primary school. Based on the between-within model, I do not find probative evidence that these results are significantly biased by the omission of confounding factors at the family level. My results are also robust to use of the robustness approach developed by Oster (2019). Overall, this study provides further evidence that citizenship has an independent effect on educational performance, net of parents' self-selection into naturalisation (Felfe et al., 2020; Cygan-Rehm, 2018). However, the effects are concentrated among children whose parents are at a disadvantage in the labour market and housing market, which sheds light on hitherto under-explored effect heterogeneity.

Theoretical background

Citizenship and educational attainment

While the benefits of host country citizenship for first-generation immigrants have received ample attention in previous literature (for an overview, see Peters and Vink, 2016), we still know little about whether and how host country citizenship affects their children's life opportunities in destination countries. This lack of attention is puzzling considering that citizenship is the only status guaranteeing full formal membership and legal protection in one's country of residence. Becoming a citizen bestows a number of rights and benefits, such as the right to vote in national elections, join the armed forces, and run for various high-ranking positions in the law and public sectors. It also

comes with a host country passport, which allows for considerable international mobility and facilitates access to occupations requiring transnational mobility. Previous work suggests that these citizenship privileges, both formal and practical, matter for young people of migrant background. For example, qualitative research find that youth of foreign nationality perceive host country citizenship as a protection from legal precariousness and a condition for full and effective participation in Switzerland and Italy (Frauenfelder, 2007; Colombo et al., 2011, pp.337-340).

Although the right to school access and resources is generally independent of children's legal status, there is evidence that host country citizenship also influences educational outcomes (*e.g.*, Felfe et al., 2020; Kilpi-Jakonen, 2014; Bean et al., 2011; Patler, 2017) and the way students navigate and interact with educational institutions (Cebulko, 2014). Children of immigrants who get access to host country citizenship, either by birth or naturalisation, are found to perform better in terms of cognitive skills and grades than those who remain foreign citizens (Felfe et al., 2020; Avitabile et al., 2014). They are also more likely to follow an academic (vs. vocational) orientation (Felfe et al., 2020; Kilpi-Jakonen, 2014; Fibbi et al., 2007; Cygan-Rehm, 2018), stay longer in education (Bean et al., 2011) and are at lower risk of dropout (Patler, 2017).

An important mechanism to explain this "citizenship advantage" (Patler, 2017) is found in the human capital theory: because citizenship is associated with better employment opportunities, it is expected to increase the long-term rate of return on parental investments in children's human capital (Felfe et al., 2020; Cygan-Rehm, 2018; von Haaren, 2016). Parents are thus incentivised to make early investments in their children's education, such as to have them participate to non-compulsory pre-school (Felfe et al., 2020; Avitabile et al., 2014). Other authors argue more broadly that citizenship increases immigrant families' orientation towards the host society and students' level of motivation (Kilpi-Jakonen, 2014), or that the lack thereof contributes to processes of delayed assimilation (Bean et al., 2011).

Another mechanism, less often considered, is that children may benefit from their parents' improved position in the host country. There is indeed ample evidence that naturalised immigrants experience a "citizenship premium" in the labour market (Gathmann and Keller, 2018; Steinhardt, 2012; Peters et al., 2017) and that naturalisation can act as a "catalyst" for social and political integration (Hainmueller et al., 2017). These parental resources, both material and non-material, are expected to help parents assist their children's educational careers effectively. Moreover, parents may acquire or further develop

relevant skills during the naturalisation process itself, or through experiences with privileges afforded to citizens only (Peters et al., 2017; Patler et al., 2020, p.16).

Acquiring host country citizenship: a selective process

The aforementioned literature highlights various channels, both direct and indirect, through which naturalisation may affect children of immigrants' educational outcomes independently. However, an alternative mechanism may be selection: naturalisation procedures typically carry a broad range of financial and non-financial costs that immigrants may not be able or willing to incur. In addition, such costs have steadily increased over the last decades (Goodman, 2010; Vink and de Groot, 2010), shifting research focus from naturalisation *propensity* to naturalisation *capacity* (Jensen et al., 2019). Among the hurdles to overcome, naturalisation candidates have to meet increasingly strict language and integration requirements (Goodman, 2010; van Oers, 2013), which predominantly impact candidates with a low education level (Jensen et al., 2019). Relatively high application fees have also been shown to constitute a substantial financial barrier for low-income households (Hainmueller et al., 2018). Moreover, the bureaucratic nature of the naturalisation process often requires candidates to navigate complex institutions, which favours immigrants who are familiar with the host country language and context.

At the same time, these financial and sociocultural resources involved in naturalisation propensity are likely to be associated with children's educational outcomes. There is indeed well-established evidence that parents' education, occupation and resources are important factors for educational success, including among children of immigrants (Heath and Brinbaum, 2007; van De Werfhorst and Van Tubergen, 2007). What is more, parents seeking host country citizenship despite its substantial cost may have higher aspirations for their children and be more oriented towards the host society regardless of whether or not they naturalise. The relationship between citizenship and education may therefore be driven by a process of social selection, due to a number of parental characteristics influencing both naturalisation propensity and children's educational outcomes. As these parental characteristics are typically unobserved or unobservable in quantitative data, (part of) the observed association between citizenship and education may be due to unobserved heterogeneity at the family level.

The relevance of timing and effect heterogeneity

While a number of studies do consider the issue of selection bias (Kilpi-Jakonen, 2014; Patler, 2017), only a few are able to control for unobserved heterogeneity due to data limitations. An exception lies in a series of studies in Germany, where the introduction of a conditional right to German citizenship at birth in 2000 provides a unique natural experiment for assessing the impact of birthright citizenship (Felfe et al., 2020; Cygan-Rehm, 2018; Avitabile et al., 2014; von Haaren, 2016). Overall, these approaches provide further evidence for an independent effect of citizenship on education (with the exception of von Haaren, 2016). Yet, such studies only consider a potential effect of host country citizenship at birth, whereas, certainly in Europe, a substantial share of second-generation children only acquire citizenship after birth through standard naturalisation procedures (Labussière and Vink, 2020). This is because *Ius soli* citizenship provisions, whereby children have automatic rights to the citizenship of their country of birth, are the exception rather than the rule (Honohan and Rougier, 2018). Moreover, there is evidence that immigrant families tend to postpone their applications for citizenship under tightened naturalisation requirements (Labussière and Vink, 2020), begging the question of the impact of such delays on children's educational opportunities.

The relevance of the *timing* of citizenship for second-generation children has hitherto received scant attention, both conceptually and empirically. By contrast, a number of studies show that the timing of naturalisation matters for their parents' outcomes: the earlier immigrants are eligible to apply for citizenship, the more relevant citizenship is for their socioeconomic integration (*e.g.*, Gathmann and Keller, 2018; Peters et al., 2017; Hainmueller et al., 2017). I expect a similar effect for children, as parents' improved position in the host society could have positive spillover effects on the resources they can make available to their children. In particular, immigrant parents who acquire citizenship early in the settlement process may be better informed and equipped to assist their children when they enter the school system. Moreover, early acquisition of host country citizenship would limit legal uncertainty and possible feelings of exclusion among children of immigrants (Colombo et al., 2011; Patler, 2017). I therefore hypothesise that the earlier second-generation students acquire Dutch citizenship (*i.e.*, the earlier their parents naturalise[2]), the

[2]I formulate this hypothesis based on the Dutch case, where, while minors, second-generation children can only acquire Dutch citizenship through their parents' naturalisation (Labussière and Vink, 2020).

greater their advantage over their non-Dutch counterparts in terms of educational attainment.

In addition to timing, another still under-explored aspect pertains to effect heterogeneity. There is consistent evidence that citizenship matters more for some immigrants than for others (Hainmueller et al., 2017; Peters et al., 2016). For example, previous studies point to higher returns to naturalisation among immigrants from less developed countries and/or marginalised groups in the host country (Hainmueller et al., 2017; Vink et al., 2013; Peters et al., 2016). This suggests that the catalyst effect of naturalisation is most effective for immigrants who otherwise lack the resources to achieve a stable socioeconomic position in the host society (Hainmueller et al., 2017). Such interaction effects between naturalisation and immigrants' characteristics are likely to be reflected at the level of their children. As a result, I expect naturalisation to act as a compensatory mechanism: the lower the socioeconomic status of students who acquire Dutch citizenship, the greater the effect of naturalisation on school performance.

In conclusion, this study aims to add to the literature in two related ways: I design a family fixed-effects approach to further disentangle citizenship effects from selection, while offering a more comprehensive theoretical approach addressing *when* and *for whom* citizenship matters.

Research strategy

Between-within linear mixed model

Some of the characteristics associated with immigrant parents' naturalisation propensity, such as parents' human capital, socioeconomic resources and orientation towards the host society, are likely to influence their children's educational outcomes. As these parental characteristics are often unobservable, standard estimates for the effect of citizenship are likely to be (upwardly) biased. In this paper, I exploit variation in siblings' exposure to naturalisation to net out the effect of time-constant parental characteristics. This approach, applied in other contexts to account for unobserved heterogeneity at the family level (Nielsen and Rangvid, 2012; Böhlmark, 2008; Sigle-Rushton et al., 2014), has, to my knowledge, never been used to assess the strenght of parental self-selection into naturalisation.

Unlike previous studies, I analyse the within-family effect of age at naturalisation using the so-called "hybrid" or "correlated random-effects" model (Mundlak, 1978; Allison, 2009), increasingly known as the "between-within" model (Sjölander et al., 2013). Contrary to standard fixed-effects modeling, the between-within approach explicitly models heterogeneity bias and does not control out family-invariant covariates (Bell and Jones, 2015).

Let subscript i denotes the individual level and j denotes the family level. I define the following between-within model:

$$y_{ij} = \beta_0^{BW} + \beta_1^{BW}(x_{ij} - \overline{x_j}) + \beta_2^{BW} c_j + \beta_3^{BW} \overline{x_j} + (\delta_j + \epsilon_{ij}) \tag{5.1}$$

where y_{ij} is the educational outcome of child i in family j, x_{ij} a (serie of) covariate(s) measured at the individual level, and c_j a (serie of) covariate(s) measured at the family level. In the between-within model, the individual-level variables x_{ij} are decomposed into a between- ($\overline{x_j} = n_i^{-1} \sum_{t=1}^{n_i} x_{ij}$) and a within-cluster ($x_{ij} - \overline{x_j}$) component (Allison, 2009; Schunck, 2013, p.66), so that the within- (β_1^{BW}) and between-cluster (β_3^{BW}) effects are clearly separated. This decomposition allows the unobserved heterogeneity at the family level to be explicitly modelled as a linear function of the mean values of x_{ij} (See the Supplementary Materials, section III for details).

The estimator $\hat{\beta}_1^{BW}$ is identical to the fixed-effects estimator: it is robust to unobserved heterogeneity at the family level. By contrast, $\hat{\beta}_3^{BW}$ is biased if relevant family characteristics are omitted. However, calculating the between-cluster effect is informative although the estimator is biased. It informs about the extent to which individual-level coefficients are biased when unobserved heterogeneity is not modelled (Schunck and Perales 2017, 96). More specifically, testing if $\beta_1^{BW} = \beta_3^{BW}$ provides a regression-based alternative to the Hausman test: if one cannot reject the hypothesis that the within-cluster and between-cluster effects are equal, there is no evidence against the exogeneity assumption of the random-effects (RE) estimation (Snijders and Berkhof, 2008, p.145) and (5.1) collapses to a standard RE model:

$$y_{ij} = \beta_0^{RE} + \beta_1^{RE} x_{ij} + \beta_2^{RE} c_j + (\mu_j + \epsilon_{ij}) \tag{5.2}$$

Using the between-within model therefore informs about the extent to which the relationship between y_{ij} and x_{ij} is driven by unobserved heterogeneity at the cluster level. This is particularly relevant for the present case, since selection into naturalisation occurs at the parental rather than at the child's

level. A number of key stable characteristics involved in parent's desire and ability to naturalise are therefore expected to be shared by siblings, such as parents' human capital and aspirations for their children's education.

However, there is an important limitation of this methodological approach, as it does not control for time-varying unobserved characteristics at the family level. This is problematic because some characteristics associated with naturalisation propensity are likely to change over time. For example, parents' host country specific skills such as language proficiency may increase with years since migration, while the family's socioeconomic resources can change according to parents' employment status. Two factors help mitigate this limitation. First, as explained below, the chosen observation window limits the maximum age gap between siblings: 72.5% of siblings in the sample have an age-gap of four years or less (see Figure C1, Supplementary Materials). This increases the chance that siblings grew up in roughly the same family environment (Sigle-Rushton et al., 2014, p.168). Second, and more importantly, I use a novel bounding technique developed by Oster (2019) to gauge the sensitivity of the findings to both constant and time-varying unobserved characteristics.

Another limitation is that the estimator $\hat{\beta}_1^{BW}$ is not efficient. It is solely based on within variation, that is, on families whose siblings are *differentially exposed* to the treatment of interest. As a result, the precision of $\hat{\beta}_1^{BW}$ depends on the variation in age at naturalisation between siblings, which may severely impair statistical power (Gilman and Loucks, 2014, p.191). I will allude to this point below when interpreting the results.

By design, the within-family approach allows to analyse the effect of the *timing* of naturalisation. To investigate *effect heterogeneity* – that is, whether the effect of naturalisation varies across students – I add interaction terms between naturalisation and common family socio-economic characteristics that may condition the relevance of Dutch citizenship for second-generation children.

Bounding Analysis

As a robustness check, I assess the sensitivity of the results to unobserved heterogeneity using an alternative strategy, which relies on different assumptions than that of the between-within model. Estimating the effect of age at naturalisation through siblings' comparison is prone to biases notably due to

residual time-varying unobserved heterogeneity (Sigle-Rushton et al., 2014; Petersen and Lange, 2020). In the absence of a good instrumental variable for naturalisation, an alternative is to assess selectivity bias based on the amount of selection on the *observed* characteristics in the model. This method is adequate when researchers are able to include a relatively broad set of relevant regression controls, which are informative about the relationship between the regressor and unobservable confounding factors (Altonji et al., 2005, p.171). In this study, and as described below, data are available on various parental, family and household characteristics that are known to matter both for parents' naturalisation propensity and their children's educational attainment.

This approach has first been proposed by Altonji et al. (2005), and was further expanded by Oster (2019), who proposed a formal bounding argument linking selection bias to coefficient and R-squared stability. Oster developed a consistent estimator for the bias-adjusted treatment effect $\beta^\star$, which can be approximated with:

$$\beta^\star \approx \tilde{\beta} - \delta \left[\dot{\beta} - \tilde{\beta}\right] \frac{R_{max} - \tilde{R}}{\tilde{R} - \dot{R}} \tag{5.3}$$

where $(\tilde{\beta}, \tilde{R})$ and $(\dot{\beta}, \dot{R})$ are the coefficients for naturalisation and the (non-adjusted) R-squared resulting from the controlled and uncontrolled regression, respectively. δ is the selection ratio, which can be interpreted as "the degree of selection on unobservables relative to observables that would be necessary to explain away the result" (Oster, 2019, p.195). For example, a value of $\delta = 1$ reflects the situation where the observables (*e.g.*, parental education, income) are as important as the unobservables (*e.g.*, parents' language proficiency and orientation towards the host society). Following Altonji et al. (2005) and as shown by Oster (2019, 197), it is a reasonable cutoff when the most important controls are included in the model.

Besides δ, another key input into the estimator of $\beta^\star$ is R_{max}. This R-squared results from the hypothetical regression where one would control for the full set of unobservables. While Altonji et al. (2005) argue that including all the unobservables would produce an R-squared of 1, Oster (2019) shows that this assumption is too conservative in most empirical settings. Likewise, in the present case, there are reasons to think that educational attainment cannot be fully explained, even when controlling for the full set of characteristics. This is so because one can expect residual idiosyncratic variation, as well as

measurement error in school outcomes. As a result, I follow Oster's recommendation to set $R_{max} = 1.3\tilde{R}$ in the main specification.

To my knowledge, this method has not been developed for non-binary categorical treatment variables. I therefore use a dummy variable for the effect of naturalisation when I compare the results of the two identification strategies. I estimate $\beta^{\star}$ and assess the extent to which the conclusions drawn from the controlled regression are still valid when considering selection on unobservables. The standard-errors for $\beta^{\star}$ are bootstrapped using 1,000 replications.

I perform the analysis using Stata 16.0. I use the commands *xthybrid* to estimate the between-within model (Schunck and Perales, 2017) and *psacalc* to perform the bounding approach (Oster, 2019).

Data and operationalisation

Register data and study population

I use Dutch administrative registers, supplied by Statistics Netherlands, which offer longitudinal micro-level data covering the entire legally resident population of the Netherlands (Bakker et al., 2014a). For this research, I follow the cohorts of second-generation children who were first enrolled in secondary education between 2008 and 2015. This observation window includes siblings with a birth interval of approximately seven years at the most (including possible grade-repetition and grade-skipping in primary school). This covers the typical birth spacing patterns in the Netherlands while ensuring sufficient comparability between siblings (Sigle-Rushton et al., 2014, p.168).

I define second-generation children as those born in the Netherlands to two foreign-born parents, who themselves are born to at least one foreign-born parent. Children of mixed descent are excluded from the scope of the analysis because, having one native parent, they ought to obtain Dutch citizenship at birth by descent. Children born in the Netherlands from second-generation parents –– the third generation – are not included either, since they acquire automatic birthright citizenship according to the so-called double *ius soli* principle. For related reasons, I also exclude children from specific origin groups: children originating from the Caribbean territories of the Kingdom of the Netherlands, who are Dutch citizens; and children whose parents come from the former Dutch colonies and thereby had privileged access to Dutch territory and citizenship (van Meeteren et al., 2013, pp.115-116). I further restrict

the study population to children who were not in institutional care (N=150, 0.1%) or enrolled in practical education (*Praktijkonderwijs*, N=6,806, 5.3%), as the latter targets students with low IQ and learning gaps. The final study population consists of 122,356 students.

For all of these students, I have identifiers of their parents or legal guardians, which I use to identify family units. Note that these family units do not necessarily identify the adult(s) with whom children are actually living. Since minor children can only naturalise together with (one of) their legal guardians, it is relevant to focus on legal ties only. I identify families based on mother's identifier alone, because there is a slightly higher number of children who are not associated with any father in the Dutch registers. This leads to cluster the study population into 85,607 families. As a robustness check, I replicate the analysis using an alternative definition of family based on both mother's and father's personal identifiers (See the Supplementary Materials, section VI).

Educational outcome

As a measure of educational performance, I use the scores of a high-stakes aptitude test taken at the end of primary school, which corresponds to a a key turning point in the Dutch education system. In the Netherlands, students follow primary education for seven years from the age of 5, after which they are allocated to a specific track for all subjects in secondary education. There are three main tracks : pre-university (VWO), general (HAVO), and vocational (VMBO). Although this stratified and early-tracking system comes with a certain degree of flexibility, students are not equally likely to move between tracks due to the complexity of its educational arrangements (Forster and van de Werfhorst, 2019; Crul, 2018, p.8). The initial track placement is therefore a crucial stage in students' subsequent educational careers. Students' track allocation is mainly based on their score at a standardised test, which they take in the final year of primary school, around age 12. I use students' test score as my outcome, for two main reasons. First, although these standardised tests are primarily designed to measure students' cognitive abilities, they also reflect different levels of parental commitment and investment (Inspectie van het Onderwijs, 2016). Parents who are not familiar with the Dutch education system may not perceive the test as a high-stakes event, or may lack the resources to effectively assist their children. Second, these test scores provide an objective measure of students' educational performance, which is not influenced by teachers.

One important limitation lies in the fact that test scores are only available for students whose schools registered with the main test provider, Cito, representing about 77% of the population. In the absence of external information on the profiles of the schools registered with a different provider, I assess schools' selectivity based on their students' sociodemographic characteristics (see the Supplementary Materials, section I). As differences are relatively limited, I only conduct the analysis on the sample of students with a valid test score. This leads to a final sample of 95,015 students, clustered into 69,909 families.

The Cito score is developed by the Central Institute of Test Development and includes multiple choice questions on Dutch, mathematics, and information processing. To make the Cito test scores comparable over the observation period, I standardise students' scores by year to have a mean zero and unit variance (Sigle-Rushton et al., 2014; Nielsen and Rangvid, 2012).

Measurements

My main variable of interest is age at naturalisation, which is identified based on yearly observations of respondents' nationality(ies). I use a categorical variable to capture potential complex timing patterns in the relationship between citizenship and education. While I expect the effect of naturalisation to decrease as children grow older, this relationship may not be linear due to possible breakpoints at children's development stages. I distinguish seven categories: those who are Dutch citizens from birth (Age 0), those who naturalise at ages 1-2, 3-4, 5-6, 7-10, 11-13, and those who are still foreign citizens at age 14. Note that the results are robust to using different age groupings (including age dummies) and an alternative upper censoring bound at age 10 (see the Supplementary Materials, sections I and VI).

When estimating within-family effects, it is important to control for sources of systematic differences in outcomes across siblings (Sigle-Rushton et al., 2014). I therefore control for gender, as girls are usually found to outperform boys in education, including among second-generation students (Fleischmann and Kristen, 2014). I also include a dummy capturing whether the respondent is first-born, since there is evidence that it confers an advantage in education (see, *e.g.*, Kantarevic and Mechoulan, 2006). Finally, I add the date of birth to account for broader societal changes that may systematically differentiate older and younger siblings in terms of test scores, in ways that are not due to their different family experience (Sigle-Rushton et al., 2014, p.166).

I add a number of parental and household characteristics that are expected to influence both parents' naturalisation propensity and their children's educational attainment. To control for parental socioeconomic background, I use two complementary variables: parents' main source of income, which indicates whether the parents are in employment (including self-employment), are social benefit or pension recipients, or lack any registered source of income; and a dummy capturing whether at least one parent is registered as a homeowner. To approximate the financial resources available to children, I include household standardised disposable income. I also control for parental education level, albeit imperfectly. Such information tends to be missing and/or unreliable for first generation parents, and is difficult to impute without indication of parents' exact occupation. I take the highest education level obtained among parents, and code the missing values as a separate category (see the Supplementary Materials, section I, for more details). I distinguish between low (primary education), middle (completed some secondary education), and high (bachelor or higher) levels of education.

Two household characteristics are included to proxy the parental time and financial resources available to children: the number of children registered in the household and the type of household, either two- or single-parent. In the absence of reliable information on parents' migration motive and date of arrival, I add mother's country of birth to capture systematic differences in immigration and integration patterns across origin groups.[3]

The time-varying covariates are measured at the time of the test, so that to take into account potential changes in the family situation between the two Cito dates. Note that there is an exception for parental level of education, which is time-constant due to data limitations. Table C2 gives the detailed coding of the variables in the Supplementary Materials. Note that for the descriptive statistics and regression models, the sample (cluster) size decreases to N=94,727 (69,894) following the exclusion of a few individuals with punctual missing values on some of the sociodemographic variables (N=288, 0.3%).

[3]Note that 90.6% of children in the sample have parents originating from the same country of birth. Furthermore, there is a slightly higher number of missing parental identifiers among fathers. This is why I only include mother's country of birth in the models.

Analyses

Descriptive statistics

Table 5.1 shows the distribution of age at naturalisation groups in the sample, while Table C3 in the Supplementary Materials displays descriptive statistics for the covariates. Two-thirds of respondents were Dutch citizens at birth (Age 0) and thus acquired Dutch citizenship by descent through the prior naturalisation of their parents.

Age	N	% in the full sample	% among foreign citizens at birth
0	62,338	65.8	–
1-2	7,000	7.4	21.6
3-4	5,318	5.6	16.4
5-6	3,850	4.1	11.9
7-10	4,254	4.5	13.1
11-13	2,076	2.2	6.4
≥ 14	9,891	10.4	30.5
Total	94,727	100.0	100.0

Table 5.1: Distribution of age at naturalisation groups among children of immigrants born in the Netherlands.

Among those who were foreign citizens at birth, 38% were naturalised by the age of 4. Naturalisation propensity then steadily decreases with age: only 6.4% of students naturalised between 11 and 13. Importantly, most of those (80%) who had not acquired Dutch citizenship at age 14 were still foreign citizens at the end of the observation period, in their late teens or early twenties (see Table C4).

Figure 5.1 shows the average Cito test scores of students, by age at naturalisation groups. The test results are relatively similar among students who acquired Dutch citizenship at birth or before the age of 7, despite a slight inflection for those who naturalised at ages 1-2. However, there is a substantial decrease for those who became Dutch in later childhood: those who naturalised shortly before or after taking the test, at ages 11-13, have test scores about 0.1 standard deviations lower on average than those who naturalised between birth and 6 years of age.

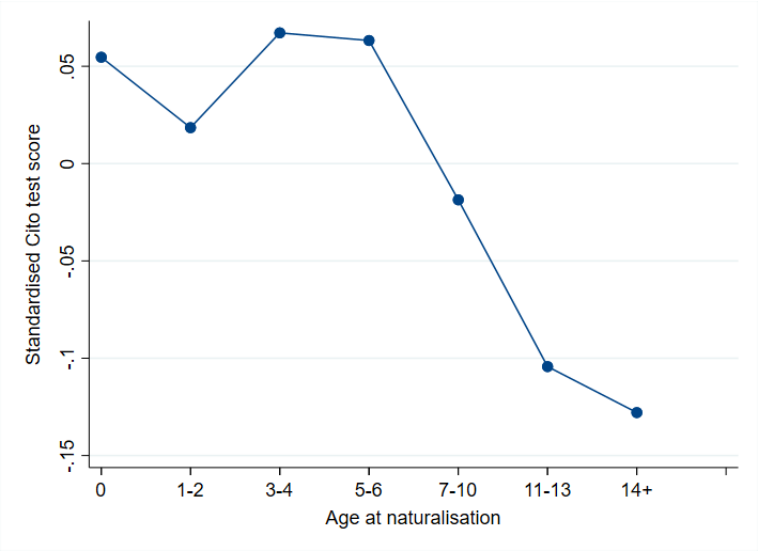


Figure 5.1: Average standardised Cito test scores for the children of immigrants born in the Netherlands, by age at naturalisation groups.

While Figure 5.1 suggests a negative relationship between age at naturalisation and educational attainment, this association could be due to systematic differences in families' socioeconomic background. Parents whose children are still foreign citizens in their early teens may lack the socioeconomic resources to both naturalise and support their children's performance at school. In order to effectively control for potential confounding characteristics at the family level, I exploit variation in age at naturalisation between siblings. Yet, this approach requires sufficient variation in age at naturalisation *within* the families (Gilman and Loucks, 2014). In the sample, 14,393 (15.2%) students did naturalise at a different age than their siblings, with a difference of three years on average. In most cases (91.5%), siblings were no more than five years apart at the time of naturalisation (See Figure C2). This means that the within-family effect of more than five years of delay in citizenship acquisition falls largely outside the support of the data. This should be considered when interpreting the within-cluster effects below.

Within- and between-family effects of citizenship

I perform the analysis using the full set of covariates described in Section 5. As I hypothesise that students who naturalise before the Cito test have an advantage over their non-Dutch counterparts in terms of test scores, I use those who are still foreign citizens when entering secondary education ("≥14") as the reference group.

The results for the effects of age at naturalisation are presented in Table 5.2. Column 1 reports the results from the standard random-effects model (β_1^{RE}), for comparison purposes. Those who acquire Dutch citizenship before the age of 6 have a substantial advantage over those who are still foreign citizens at age 14: their test scores are between 0.09 and 0.1 standard deviations higher. The coefficient decreases to 0.6 for those who naturalise at ages 7-10, while those who naturalise just before or after the Cito test between the ages of 11 and 13 do no have a significant advantage over those who are still foreign citizens at age 14.[4]

Column 2 shows how these coefficients evolve when I separate the within- (β_1^{WB}) and the between-cluster effects (β_3^{WB}) in the between-within model. The within-cluster effects, based on siblings' comparison, are slightly higher than the random-effects. However, the precision of the estimation for the within-cluster effects has substantially decreased. This is particularly true for the coefficient associated with those who are Dutch from birth (Age 0): despite a meaningful effect size ($\beta_1^{WB} = 0.105$), the coefficient is imprecisely estimated ($p = 0.125$). As mentioned below, relatively few siblings are more than five years apart when they naturalise (see Figure C2), which complicates the estimation of long delays in citizenship acquisition between siblings. By contrast, the between-cluster effects are fairly comparable to the random-effects, both in terms of effect size and statistical significance.

Although there are differences between the within- and between-cluster effects, the estimated coefficients are of the same order of magnitude. This begs the question of whether the two sets of coefficients are statistically different from each other. This question is answered in column 3, which gives the *p*-values from the formal test of the null hypothesis $\beta_1^{WB} = \beta_3^{WB}$ for each age group coefficient. The large *p*-values indicate that the data support the hypothesis that the within- and between-cluster effects are equal for all age

[4]The differences between the coefficients for age at naturalisation are not statistically significant below age 7. By contrast, the differences between the age groups "5-6"/"7-10" and "7-10"/"11-13" are statistically different (at the 10% and 5% level, respectively).

groups. In other words, changes in age at naturalisation exert a similar effect on Cito test scores *within* a given family as they do *across* families. This constitutes evidence in favour of using a standard random-effects model, since one *cannot* reject the hypothesis that there is no unobserved heterogeneity at the family level.

Based on the between-within model, I conclude that the observed relationship between age at naturalisation and educational attainment is not exclusively driven by unobserved selectivity at the family level. Acquiring Dutch citizenship is associated with a substantial and significant advantage in terms of test scores, especially when it is acquired in early childhood. This advantage decreases from the age of 7, and is no longer sizeable when students are in their transition to secondary education. Such findings provide mixed results in favour of the timing hypothesis: while there is evidence that the effect of citizenship is not constant over time, timing seems to play a role only towards the end of childhood.

	Random-effects		**Between-within**				**Test**
Age	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p	$\beta_1^{WB} = \beta_3^{WB}$
0	0.096	(0.000)	0.105	(0.125)	0.095	(0.000)	(0.870)
1-2	0.087	(0.000)	0.119	(0.070)	0.079	(0.000)	(0.547)
3-4	0.101	(0.000)	0.144	(0.025)	0.086	(0.000)	(0.380)
5-6	0.092	(0.000)	0.127	(0.043)	0.087	(0.000)	(0.537)
7-10	0.059	(0.001)	0.101	(0.069)	0.054	(0.007)	(0.419)
11-13	0.012	(0.600)	0.051	(0.308)	0.005	(0.859)	(0.411)
≥ 14	ref.	(.)	ref.	(.)	ref.	(.)	
Observations	94,727		94,727				
Family clusters	69,894		69,894				
Covariates	All*		All*				

Regression coefficients, *p*-values in parentheses

Table 5.2: Random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation.
*I include all the covariates described in Section 5: gender, birth order, date of birth, household type, mother's and father's SES status, homeownership status, household income, highest educational level among parents and mother's country of birth. For the full between-within model, see Table C5 in the Supplementary Materials.

To investigate the effects of the other covariates in more detail, I refer to the more parsimonious random-effects model. The full results, displayed in Table 5.3, compare the effects of age at naturalisation with other important predictors of educational attainment. The effect magnitude of acquiring Dutch citizenship before the age of 7 – versus after age 14 – is comparable to that of having at least one parent being a homeowner ($\beta = 0.11$), or to live in a single-parent household ($\beta = -0.10$). The benefit of naturalising in early childhood is slightly below that of having at least one parent with a secondary education qualification, versus none ($\beta = 0.15$). Yet, it is well below the effect of having at least one parent with a higher education diploma ($\beta = 0.46$), which is one of the strongest associations in the model. Unlike parental education, there is only a limited effect of parental income or SES status. Overall, these results are consistent with earlier work on the Dutch case showing that education level is a stronger predictor of educational attainment than occupational status (Tieben et al., 2010; Büchner and Velden, 2013).

Finally, I assess whether the effects of age at naturalisation are conditioned by parental socioeconomic resources. To do so, I test interactions between age at naturalisation and a number of covariates which operationalise parents' socio-economic position: their level of education, SES status, homeownership status and level of income. I find notable interactions only with parental level of education and homeownership status, which are the strongest socioeconomic predictors of school performance in the main model (see Table 5.3). For ease of interpretation, I focus on the effect of Dutch citizenship regardless of timing when presenting the results. I estimate interaction effects with a naturalisation dummy capturing whether the respondent has acquired Dutch citizenship before the age of 14 (see Tables C7-C9 for the full results and Tables C8-C10 for the interactions with age at naturalisation).

	β	p	95% *CI*	
Age at naturalisation				
0 (Dutch from birth)	0.095	0.000	0.074	0.117
1-2	0.086	0.000	0.057	0.116
3-4	0.100	0.000	0.068	0.132
5-6	0.092	0.000	0.057	0.127
7-10	0.059	0.001	0.025	0.093
11-13	0.011	0.608	-0.032	0.055
14 and above	ref.	ref.	ref.	ref.
Gender				
Male	ref.	ref.	ref.	ref.
Female	-0.064	0.000	-0.075	-0.052
Birth order				
Non first-born	ref.	ref.	ref.	ref.
First-born	0.067	0.000	0.055	0.079
Date of birth				
$\leq$ 1995	ref.	ref.	ref.	ref.
1996	0.167	0.000	0.138	0.195
1997	0.148	0.000	0.120	0.176
1998	0.135	0.000	0.106	0.163
1999	0.119	0.000	0.091	0.147
2000	0.125	0.000	0.097	0.152
2001	0.118	0.000	0.090	0.146
2002	0.118	0.000	0.090	0.147
$\geq$ 2003	0.247	0.000	0.216	0.278
Number of children	-0.033	0.000	-0.039	-0.027
Household type				
Two-parent household	ref.	ref.	ref.	ref.
Single-parent household	-0.095	0.000	-0.114	-0.075
Mother SES status				
Employee or self-employed	ref.	ref.	ref.	ref.
Reception of benefits	-0.028	0.001	-0.046	-0.011
No declared income	0.028	0.001	0.011	0.045
Missing information	-0.043	0.288	-0.123	0.036
Father SES status				
Employee or self-employed	ref.	ref.	ref.	ref.
Reception of benefits	-0.042	0.000	-0.058	-0.026

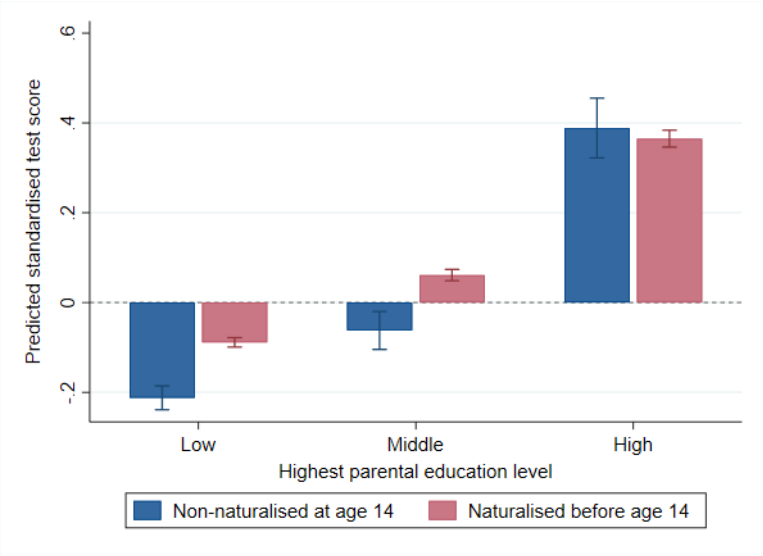
Continued

Table 5.3: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands.

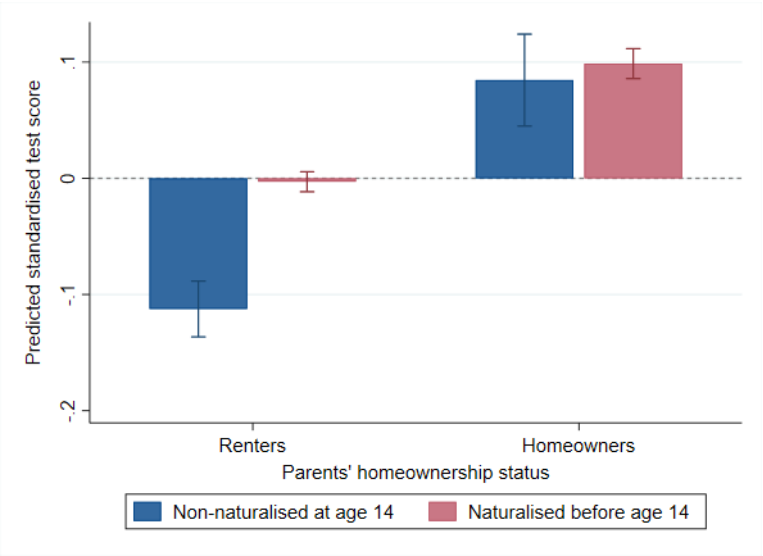
	β	p	95% CI	
No declared income	0.010	0.522	-0.020	0.040
Missing information	-0.016	0.385	-0.052	0.020
Homeownership status				
Renters	ref.	ref.	ref.	ref.
Homeowners	0.109	0.000	0.093	0.125
Household income				
First income tercile	ref.	ref.	ref.	ref.
Second income tercile	-0.006	0.457	-0.021	0.010
Third income tercile	0.042	0.000	0.024	0.061
Missing income	-0.098	0.001	-0.158	-0.038
Highest educational level among parents				
Low education	ref.	ref.	ref.	ref.
Middle education	0.151	0.000	0.135	0.166
High education	0.464	0.000	0.443	0.485
Missing education	0.136	0.000	0.116	0.157
Mother's country of birth				
Other EU countries	ref.	ref.	ref.	ref.
Afghanistan	0.123	0.000	0.063	0.183
China	0.495	0.000	0.442	0.549
Irak	-0.052	0.059	-0.107	0.002
Iran	0.062	0.081	-0.008	0.131
Morocco	-0.210	0.000	-0.250	-0.170
Other non-EU countries	-0.015	0.463	-0.055	0.025
Turkey	-0.356	0.000	-0.395	-0.317
Yugoslavia	-0.078	0.002	-0.126	-0.029
Constant	-0.053	0.045	-0.105	-0.001
Observations	94,727			
Family clusters	69,894			
R^2	0.098			

Table 5.3 Continued: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands.

Figure 5.2 displays predicted average scores at the standardised test according to students' citizenship status and their parents' education level (a) and homeownership status (b). In line with my expectations, there is a negative interaction between citizenship and parents' highest level of education, especially at the higher end. Children whose parents only completed primary or secondary education benefit from naturalisation in a comparable way, with



(a) Parental education level



(b) Parental homeownership status

Figure 5.2: Predicted average standardised test score obtained at the end of primary school by children of immigrants born in the Netherlands, conditionally on citizenship status and parents' highest education level (a) and homeownership status (b).

an increase of about 0.12 standard deviations in their school performance. By contrast, those with at least one highly educated parent do not have any significant advantage when they naturalise before the age of 14. Figure 5.2 a) also suggests that citizenship is not a panacea: although naturalised students whose parents have a secondary qualification have above-average test scores, they are clearly outperformed by students with highly educated parents – regardless of the latter's citizenship status.

In a similar fashion, those with at least one parent who is a homeowner derive substantially less benefit from naturalisation in terms of test scores, compared to those whose parents are renters. Figure 5.2 b) shows that naturalisation before the age of 14 closes the gap to the average for those whose parents are renters, while it only marginally increases the predicted test scores of those whose parents are homeowners. Altogether, these findings provide valuable evidence that naturalisation primarily matters for children of immigrants whose parents are at a disadvantage in the labour market and housing market.

Bounding analysis

The between-within model suggests that the relationship between citizenship and education is not substantially driven by unobserved heterogeneity at the family level. However, this model does not control for parental unobservables that may vary over time, such as parents' language proficiency or their orientation towards the host country. Although siblings in the sample are relatively close in age, I cannot rule out the possibility that the effects of age at naturalisation are confounded by changes in the family environment.

To further assess the sensitivity of the results to unobserved heterogeneity, I use a novel bounding approach developed by Oster (2019). This approach consists of comparing the treatment coefficients and regression R-squared before and after the inclusion of the observed characteristics. As it has not yet been developed for non-binary categorical treatment variables, I use a dummy variable capturing whether the respondent has acquired Dutch citizenship before the age of 14. I analyse the effect of Dutch citizenship on test scores with the same set of covariates as in the main specification, using OLS, random-effects and between-within models (See Table C11 in the Supplementary Materials). Considering the limited differences between the random-effects estimates and OLS estimates, I use the simpler OLS model to perform the bounding analysis.

	Uncontrolled OLS		Controlled OLS	
	$\dot{\beta}$	$\dot{R}$	$\tilde{\beta}$	$\tilde{R}$
	0.164	0.016	0.097	0.098
	(0.000)		(0.000)	
Selection ratio δ	1	1.5	2	3
Bias-adjusted treatment effect $\beta^{\star}$	0.071	0.058	0.044	0.015
	(0.000)	(0.000)	(0.000)	(0.260)

Table 5.4: Bounding the effect of naturalisation on standardised test scores obtained at the end of primary education by children of immigrants born in the Netherlands. Note: p-values are in parentheses (standard-errors are bootstrapped using 1,000 replications). I set R_{max}= 1.3$\tilde{R}$ = 0.13 as recommended by Oster (2019). The controlled regression includes all the covariates described in Section 5. The uncontrolled regression includes gender, birth order and date of birth, which are considered to be unrelated to the selection process.

The upper panel of Table 5.4 shows that the advantage of those who acquire Dutch citizenship before the age of 14 decreases from 0.16 to 0.10 standard deviations when observed parental characteristics are controlled for. The lower panel gives the bounded estimator $\beta^{\star}$ for different values of the selection ratio δ. Even when the selection on unobservables is as important as the selection on observables ($\delta = 1$), children who naturalise before 14 outperform those who are still foreign citizens at that age by 0.07 standard deviations. This advantage decreases to 0.04 standard deviations when the selection on unobservables is twice as important as the selection on observables ($\delta = 2$), and is no longer sizeable nor significant when $\delta \geq 3$. Even if some of the covariates are imperfect proxies for parents' socioeconomic position, such a high selection ratio seems unlikely considering the wide range of relevant control variables included. The bounding analysis brings thus further evidence that the results are likely to have a causal interpretation.

Robustness checks

I conduct various robustness checks to assess the sensitivity of my results. First, I use a different definition of family clusters based on both parents' identifiers (See Table C13 in the Supplementary Materials). Second, I build the main variable of interest in alternative ways. I censor age at naturalisation after age 10 (versus age 14) to ensure that the results are not biased

by anticipatory analysis (see Table C14). I also use different age groupings, including age dummies, to confirm the findings as regards the timing of naturalisation (see Tables C15-C16). Third, I estimate the bounded estimator for different values of δ and R_{max}. Overall, my conclusions are robust to these alternative specifications. While the magnitude of the effects sometimes differs, the results are consistent with the overall substantive findings presented herein.

Discussion

This paper studied the relationship between host country citizenship acquisition and the educational attainment of the children of immigrants in the Netherlands. My aim was to assess the extent to which the observed relationship is driven by immigrant parents' self-selection into naturalisation. Beyond the question of *whether* host country citizenship matters, I also analysed whether the effect of citizenship varies over time and across individuals, depending on the other socioeconomic resources available to them.

Using Dutch administrative micro-level data, I analysed the effect of age at naturalisation on the scores obtained at a high-stakes standardised test at the end of primary school. My results show that second generation students who acquired Dutch citizenship in early childhood outperform their peers of foreign nationality by about 0.1 standard deviations on this test. I used a family fixed-effects approach to assess whether this relationship is confounded by unobserved heterogeneity at the family level. The comparison of the between- and within-family effects indicates that the results are not significantly biased by the omission of time-constant parental characteristics. I used an alternative approach developed by Oster (2019) to assess potential biases due to residual time-varying unobserved heterogeneity. The bounding estimator suggests that selection on unobservables would have to be three times more important as the selection on observables to explain away the positive effect of naturalisation. As a result, while the covariates considered in this study do not exhaust the range of relevant predictors of educational attainment, I find evidence that the main confounders are included in the model. This study indicates that host country citizenship has an independent, positive and substantial influence on educational attainment, in line with prior work using alternative identification strategies (Felfe et al., 2020; Cygan-Rehm, 2018; Avitabile et al., 2014).

This paper provides further evidence that citizenship has become an important axis of stratification in countries where *ius sanguinis* citizenship prevails (Colombo et al., 2011; Frauenfelder, 2007). This has implications both for research and policy: the predominant focus on comparing children of immigrants with those of native-born residents had the counterpart of eclipsing important factors of heterogeneity *within* the second generation (Chimienti et al., 2019; Lessard-Phillips et al., 2017). Considering the sizeable positive effect of citizenship acquisition on school performance, easier access to citizenship for children of immigrants could be an effective policy lever (Felfe et al., 2020, p.174). Such an effect also points to the intergenerational impact of naturalisation laws, which has hitherto remained unexplored (Labussière and Vink, 2020).

While previous studies focused on the acquisition of host country citizenship at birth, I extended the focus to children who become citizens after birth through naturalisation. The findings suggest that the timing of naturalisation matters: the later students acquire Dutch citizenship, the weaker their advantage over their peers of foreign nationality in terms of test scores. This is especially true when students approach adolescence, after age 7. This result is consistent with previous evidence in the literature that the sooner immigrants get host country citizenship, the more it improves their economic and social integration (Gathmann and Keller, 2018; Hainmueller et al., 2017; Peters et al., 2017). The benefits of early acquisition of citizenship among immigrants may have spillover effects on their children's academic development. By contrast, children who only acquire citizenship in late childhood may have experienced stress and negative emotions due to legal uncertainty, with detrimental impact on their well-being and school performance (Patler and Pirtle, 2018; Patler, 2017). Parents who naturalise after their children enter primary education may also be less informed and equipped to navigate a complex education system such as the Dutch one.

Another possible explanation is that the benefits of naturalisation gradually develop over time. This would require to measure children's outcomes several years after naturalisation takes place, which the present data do not allow. Previous literature has explored the effect of legal status at various ages, from early childhood (Avitabile et al., 2014; Felfe et al., 2020) to adolescence (Cygan-Rehm, 2018; Fibbi et al., 2007; Kilpi-Jakonen, 2014) and early adulthood (Fibbi et al., 2007; Patler, 2017; Cebulko, 2014). Yet, we still know little about whether children of immigrants experience the naturalisation process differently depending on their stage of life. In the light of these findings, I invite future research to analyse these temporal dynamics in more detail, es-

pecially in the context of tougher citizenship legislation where prospective citizens may need to postpone naturalisation (Labussière and Vink, 2020).

This paper also shows that naturalisation does not have a uniform impact on educational attainment: its effects are concentrated among children whose parents have at most a secondary education qualification and do not have access to homeownership. This suggests that citizenship mainly acts as a compensatory mechanism, which foster the educational performance of children when other parental resources are otherwise lacking. While preexisting research has shed light on substantial effect heterogeneity for first generation immigrants (Hainmueller et al., 2017; Peters et al., 2016), this study is the first to highlight similar mechanisms for the second generation. However, the data do not allow to measure parental resources precisely. Importantly, I do not have precise information on parents' actual occupation, which would be a more accurate proxy for their social status. Likewise, the variable capturing parents' education level lacks precision. Thus, it would be important for future work to disentangle further these different dimensions of socioeconomic resources, as well as their interplay with naturalisation.

Another limitation warrants discussion. Due to data constraints, the household and parental characteristics included in the model are measured at the time of test, rather than at child's birth. This may create "over-adjustment bias" (Schisterman et al., 2009) if some of those characteristics are influenced by naturalisation, as previous literature suggests (*e.g.*, Hainmueller et al., 2017). This is particularly true for parents' position in the labour market and housing market, which is expected to improve as a result of naturalisation (Gathmann and Keller, 2018; Peters, 2020; Peters et al., 2017). The measured effects may therefore be direct – and not total – effects. With more appropriate data, future research could model parental resources both as confounders and mediators. This would provide a more complex understanding of the relationship between citizenship and education, beyond the "selection vs. causation" dichotomy.

This contribution provides further evidence that difficulties and delays in acquiring the citizenship of one's country of birth and residence have detrimental impacts on well-being and educational opportunities (Colombo et al., 2011; Frauenfelder, 2007). Citizenship is certainly not a panacea compared to other predictors of educational attainment, such as parental education or social status. Nevertheless, this study shows that it has the potential to mitigate some of the obstacles children of immigrants may face in education.

6
Conclusions

Introduction

In recent decades, immigrants' access to the citizenship of their country of residence has been increasing restricted in Western Europe (Vink and de Groot, 2010; van Oers, 2013; Jensen et al., 2019). In a number of countries, this can be traced to the moralisation and emotionalisation of what it means to be a citizen (Schinkel and Van Houdt, 2010; van Houdt et al., 2011; Duyvendak, 2011, p.94). Whereas citizenship used to be understood as a right to membership by virtue of residence in the country, it is increasingly conceived as a status to be *earned* or *deserved* (van Houdt et al., 2011, p.420). Prospective citizens need to prove that they are worthy of becoming citizens by fulfilling a series of criteria, typically including evidence of self-sufficiency, integration and allegiance to the country of residence through acceptance of its assumed values and norms. Previous literature has documented the detrimental impact of stricter naturalisation requirements on the ability and propensity of immigrants to acquire host country citizenship, showing that it disproportionately affects those with low levels of income and education (Peters, 2018; Jensen et al., 2019; Vink et al., 2021).

The fact that such restrictions in access to host country citizenship may not only affect immigrants but also their children has been largely overlooked so far, both from a research and a policy perspective. Yet, in most European countries, the children of immigrants mainly depend on their parents if they are to acquire the citizenship of their country of birth and residence. This is because *ius soli* citizenship provisions, whereby children have automatic rights to the citizenship of their country of birth, are the exception rather than the rule (Honohan and Rougier, 2018). In the absence of *ius soli*, children of immigrants whose parents are not able or willing to naturalise may remain foreign citizens, and thus be offered fewer opportunities in their country of residence. Surprisingly, very little is known about the extent of this phenomenon. A limited number of studies suggest that host country citizenship has a positive impact on the educational outcomes of children of immigrants (Fibbi et al., 2007; Avitabile et al., 2014; Kilpi-Jakonen, 2014; Cygan-Rehm, 2018; Felfe et al., 2020). However, such studies mostly focus on *whether* citizenship matters, at the expense of *why*, *when* and *under which conditions* citizenship is relevant for the children of immigrants.

This dissertation has aimed to contribute to this emerging literature by examining the patterns and effects of citizenship acquisition among children of immigrants in the Netherlands. It focused on the so-called second generation; the children of immigrants who are born in the Netherlands to two

foreign-born parents. In a *ius sanguinis* citizenship regime as in the Netherlands, native-born children of immigrants depend primarily on their parents to naturalise in order to become Dutch citizens. This dissertation examined how these legal provisions affect access to Dutch citizenship for the children of immigrants born in the Netherlands between 1995 and 2010. Drawing on the life course perspective, it then conceptualised and assessed the effects of children's citizenship status on their opportunities in the Dutch education system. For this purpose, I used administrative register data from Statistics Netherlands, which track full cohorts of native-born children of immigrants from birth to early adulthood.

The central research question was:

> *To what extent does citizenship status affect the educational outcomes of native-born children of immigrants?*

The research question was broken down in a number sub-questions, which are addressed in the three empirical chapters (3-5) of this dissertation:

1. Who acquires host country citizenship among second-generation children in the Netherlands, when and under which conditions? To what extent is children's access to host country citizenship affected by the implementation of restrictive naturalisation laws? (Chapter 3)
2. How do the children of immigrants navigate the Dutch secondary school system, and is host country citizenship associated with specific educational trajectories? (Chapter 4)
3. To what extent are the effects of citizenship on education driven by parental selection into naturalisation? Does the effects of citizenship vary over time and across individuals? (Chapter 5)

The following sections reflect on the main findings of this research. I first outline the main contributions of the thesis to the analysis of the citizenship of immigrants' children, before discussing some of the main limitations and suggesting avenues for future research.

Main contributions to the literature

Theoretical contributions

The effects of citizenship on the educational outcomes of children of immigrants have already received some attention in previous work (Felfe et al., 2020; Cygan-Rehm, 2018; Kilpi-Jakonen, 2014; Fibbi et al., 2007; Bean et al., 2011; Patler, 2017). This literature has primarily focused on identifying *whether* citizenship has an independent effect on children's outcomes. This focus is justified, as there is a great potential for endogeneity in the relationship between citizenship and education: parents who are *willing* and *able* to naturalise may be better equipped to support their children's performance at school even before naturalisation, due to the selective nature of the process. Yet, this focus has arguably led previous studies to overlook other important dimensions. First, the question of *why* citizenship would matter has received relatively less attention, resulting in often narrow conceptualisations of the mechanisms by which citizenship would affect education. Second, only a handful of studies do analyse *when* and *for whom* citizenship matters (see Cygan-Rehm, 2018; Dronkers and Fleischmann, 2010, for exceptions). Consequently, knowledge about the factors that condition the relevance of citizenship for children is still limited.

One reason for these gaps may be that, from a conceptual point of view, the study of the citizenship of children of immigrants lies at the intersection of different bodies of literature, which have hitherto largely remained disconnected. On the one hand, the literature on the educational outcomes of children of immigrants in Europe has paid very limited attention to their citizenship status. As a result, while there is extensive evidence that some second-generation students face significant barriers in education (Heath et al., 2008; Alba and Holdaway, 2013; Dustmann et al., 2012), citizenship has rarely been considered as a potential mitigating factor (see Dronkers and Fleischmann, 2010, for an exception). On the other hand, citizenship studies have highlighted the relevance of host country citizenship for the socioeconomic and cultural integration of immigrants. However, studies of immigrant naturalisation are generally individual- and adult-centred, ignoring the role and place of children in the naturalisation process (Peters et al., 2016; Street, 2014). Besides, there are also important qualitative studies analysing how second-generation children experience host country citizenship – or the lack thereof (Colombo, 2015; Frauenfelder, 2007; Ribert, 2000). While valuable in understanding what citizenship means to children, these studies do not specifically

consider whether and how becoming a citizen influences their educational aspirations and school decisions.

In Chapter 2 of this dissertation, I showed that it is necessary to combine these various strands of literature to understand *why*, *when* and *for whom* citizenship matters. Building on the work of Peters (2018), I used the sociological life course paradigm as a conceptual glue to bring together the insights from previous studies into a more comprehensive theoretical framework. Three principles of the life course approach have proved particularly useful in enhancing our understanding of the patterns and effects of host country citizenship for immigrants' children.

Linked lives

The principle of *linked lives*, which emphasises the embedding of human life courses in family and social relationships, was essential for analysing the citizenship status of children. Because children primary rely on their parents to become citizens of their country of residence, family dynamics are key to understanding both the patterns and effects of citizenship acquisition by the children of immigrants. In the first place, the interdependence between family members calls for a conceptualisation of immigrant naturalisation propensity at the family level, beyond the standard individual-centred approach prevailing in citizenship studies (Street, 2014). While previous work had already paid valuable attention to the interpersonal dynamics involved in naturalisation decisions (Street, 2013, 2014; Soehl et al., 2018), Chapter 3 went further in conceptualising different family approaches to citizenship acquisition, based on observed parent-child naturalisation patterns. The focus on children's dependence on their parents enabled me to hypothesise and test an *intergenerational* impact of naturalisation laws, which had been neglected so far in the literature on immigrant naturalisation.

In the second place, the interaction processes between parents and children need to be taken into account in order to conceptualise the effects of citizenship in a comprehensive way. Previous quantitative studies have relied mainly on human capital theory to explain the impact of citizenship on education, limiting host country citizenship acquisition to a positive shock to labour market returns to education (Felfe et al., 2020; Cygan-Rehm, 2018; Kilpi-Jakonen, 2014). Such a perspective tends to overlook two complementary insights from the second generation literature and citizenship studies. These are, respectively, the specific obstacles that immigrant families face in

making successful investments in a foreign educational context (Heath et al., 2008; Crul et al., 2012; Alba and Holdaway, 2013); and the resources that parents develop following the acquisition of host country citizenship (Hainmueller et al., 2017; Avitabile et al., 2013; Peters, 2018). To my knowledge, no research has so far considered the potential spillover effects of parental naturalisation on their children's outcomes. In Chapters 4 and 5, I hypothesised and provided evidence that host country citizenship not only raises the educational expectations of immigrant families: it also gives them relevant resources to realise these expectations in a foreign education system. I argue that these indirect effects of citizenship explain better than previous approaches why naturalised children navigate the complex system of Dutch secondary education more easily than their non-citizen counterparts.

Context and agency

A second principle of the life course approach that was relevant to this thesis is the analysis of the interplay between *context* and *agency*. Immigrant families may face significant institutional constraints in the host society, which limit their ability to control and plan their lives (Wingens et al., 2011a). This institutional context is marked by immigration and citizenship laws, which shape the opportunities available to foreign residents and the legal status to which they are entitled (de Hart et al., 2013). It is also characterised by the structure of the education system, whose institutional arrangements can make it difficult for immigrant parents to support their children's educational achievement (Blossfeld et al., 2016; van de Werfhorst, 2019). At the same time, immigrant families have *agency*: they pursue their goals and actively organise their lives according to the constraints they face (Wingens et al., 2011a). In particular, they develop resources, strategies and tactics to adapt to an often changing environment (Sredanovic, 2020; de Hart et al., 2013). The life course perspective emphasises the need to analyse *context* and *agency* in a relational way, in order to understand how individual lives interact with macro-level processes (Mayer, 2004).

In this dissertation, I devoted specific attention to embedding the actions of immigrant families within broader institutional dynamics, while highlighting their active role. In Chapter 3, I analysed the naturalisation patterns of immigrant families in a context of changing naturalisation reforms. Although the introduction of stricter requirements has placed additional constraints on prospective citizens, I developed and tested original hypotheses about how

families adapt to these restrictions to minimise the cost of citizenship acquisition at the family level. In Chapters 4 and 5, I then turned to the education system to determine whether host country citizenship increases the level of agency of immigrant families, and helps them navigate complex institutions. By doing so, I contribute to an emerging body of literature showing that legal status is associated with immigrants' levels of everyday agency (see Patler et al., 2020). Overall, the joint attention to constraints and opportunities enabled me to avoid two important pitfalls in the study of immigrant families: that of assuming "disproportionate agency" (Sredanovic, 2020; Bloemraad, 2002, p.196) on the one hand, and that of denying agency to immigrants on the other (de Hart et al., 2013).

A life-course process

Finally, this dissertation draws on the notion of *life course*, which highlights the temporal dynamics of individuals' biographies (Wingens et al., 2011a). I show that conceptualising the effects of citizenship over the life course is important in two ways. Firstly, recent work on immigrant naturalisation suggests that citizenship acquisition should not be conceived as an abrupt transition, but rather as a process that develops over time (Peters et al., 2017; Hainmueller et al., 2017). While immigrants can only enjoy the rights and benefits of host country citizenship after they have officially become citizens, the effects of citizenship should not be limited to a one-off "before-after" impact. There is indeed evidence that the naturalisation process can trigger both *anticipated* and *long-term* effects on the integration trajectories of immigrants (Peters et al., 2017; Hainmueller et al., 2017). This led me to pay attention not only to the final legal transition, but also to the resources and knowledge that parents may acquire as a result of the naturalisation process itself. So far, both anticipated and long-term effects of naturalisation have mostly been analysed in the perspective of immigrants' own integration outcomes (*ibid.*). In Chapters 4 and 5, I argued that such effects may also be relevant for their children's educational outcomes.

Secondly, the notion of *life course* invites us to analyse citizenship acquisition in the context of human biographies. While the literature on immigrant naturalisation shows that the effects of host country citizenship vary depending on when and by whom it is acquired (Hainmueller et al., 2017; Peters, 2018; Vink et al., 2021), studies on the second generation generally assume that citizenship has a uniform impact on children's educational outcomes (see

Cygan-Rehm, 2018; Dronkers and Fleischmann, 2010, for exceptions). This calls for a better contextualisation of citizenship effects, paying greater attention to the factors that may condition the relevance of citizenship for the second generation. In Chapter 5, I therefore formulated and tested hypotheses about the potential timing and interaction effects of citizenship for the second generation, adding new layers of complexity to previous conceptualisations of citizenship for children of immigrants.

Substantive findings

To answer the research question, this dissertation consists of three empirical chapters that are based on published or submitted research articles. Chapter 3 focused on the patterns of citizenship acquisition of children of immigrants in the Netherlands, in a context of changing naturalisation requirements. Results highlight two interrelated dynamics. First, a descriptive overview of the modes of acquisition of Dutch citizenship among children of immigrants indicates that the vast majority (96%) of children relied on their parents to become Dutch, either by descent or by co-naturalisation. This calls for a conceptualisation of children's naturalisation at the family level, in line with recent developments in the field of citizenship studies (Street, 2014; Soehl et al., 2018). Second, Cox proportional hazard models show that the introduction of stricter naturalisation requirements in 1997 and 2003 had negative effects on the naturalisation propensity of children: those whose parents were eligible before the implementation of the reforms have a higher naturalisation propensity than those who became eligible later on. This is consistent with earlier findings on the detrimental effects of dual citizenship restrictions and integration requirements on immigrant naturalisation (Peters et al., 2016; van Oers, 2013; Stadlmair, 2017; Vink et al., 2021). However, unlike previous studies, the use of time-by-covariate interactions allows me to highlight specific temporal patterns depending on the nature of the requirements: while the dual citizenship restriction deters families from naturalising in the long run, mandatory civic integration requirements see them postpone naturalisation. This shows that reforms increasing the obligations of prospective citizens do not necessarily prevent naturalisation, but can postpone it to a later date. Furthermore, a competing-risk model indicates that children whose parents only became eligible under stricter requirements were much more likely to naturalise with one parent than with both, suggesting that families develop strategies to cope with the tightening of naturalisation requirements. These results confirm the hypothesis of an *intergenerational* impact of naturalisation

reforms, and emphasise the inherent social dimension of the naturalisation process (Street, 2014; Soehl et al., 2018; Sredanovic, 2020; Della Puppa and Sredanovic, 2017): family and contextual dynamics both shape the naturalisation decision of parents, and influence *when* and *with whom* children become host country citizens.

Findings in Chapter 3 suggest that a number of immigrant families have either postponed or put off their application for Dutch citizenship since the mid-1990s. Chapters 4 and 5 aimed to assess the consequences for their children's opportunities in the Dutch society: does citizenship – or the lack thereof – affect the educational outcomes of the children of immigrants?

Chapter 4 took an exploratory approach to analyse whether Dutch citizenship is associated with specific educational pathways in the Dutch school system. The focus on trajectories rather than on isolated transitions or outcomes offers a comprehensive picture of how the second generation navigates the Dutch education system, highlighting a great diversity of pathways. In addition to standard paths through the Dutch education system, I identified five clusters of alternative trajectories: downward, upward, discontinued, dropout and detour, with the latter referring to those who experience first a downward and then an upward transition. Sequence analysis confirms the added value of mapping the complete educational trajectories of students in a stratified and flexible system such as Dutch secondary education: a substantial share of students (28%) end up in a different track from the one in which they were initially enrolled. Sequence analysis also makes it possible to measure the prevalence of non-standard trajectories in the Dutch system, such as the so-called "long routes" to university described in qualitative studies (Pásztor, 2012; Crul et al., 2017). However, the most important finding is that Dutch citizenship is associated with some of the trajectories students follow in secondary education: students who acquire Dutch citizenship at birth or before the age of 12 are more likely to move upward through the system by 3.1 and 2.1 percentage points, respectively. Dutch citizenship also seems to have a protective effect against dropout: it decreases the likelihood of leaving school early by 2.7 percentage points when acquired at birth (and 2.3 percentage points when acquired before age 12). In contrast, Dutch citizenship is not significantly associated with the probability of following a downward trajectory. These results suggest that children of immigrants who acquired Dutch citizenship have better access to back doors and safety nets in the education system, which is consistent with the hypothesis that these students and their parents are better equipped to navigate secondary education. Finally, Chapter 4 provides preliminary findings about the timing of citizenship

acquisition: I find that acquiring Dutch citizenship at birth does not seem to offer significant advantages over naturalising between birth and entry into secondary education.

In Chapter 5, I delved deeper into the potential timing effects of naturalisation. I compared the results of a standardised test at the end of primary school between siblings who acquired Dutch citizenship at a different age. This empirical strategy has two main advantages. First, focusing on the *age* at naturalisation allows for a more detailed analysis of the timing of naturalisation than in Chapter 4, where I only distinguished between citizenship acquisition at birth and before the age of 12. Second, a family fixed-effects approach neutralises the effects of invariant family characteristics that can confound the relationship between citizenship and education. While Chapter 4 measured associations without assuming a cause-and-effect relationship, Chapter 5 goes further in identifying a causal impact of naturalisation on education. Results show that second-generation students who acquired Dutch citizenship in early childhood outperform their non-citizen peers by about 0.1 standard deviations on the standardised test. Importantly, the between-within model indicates that these results are not significantly biased by the omission of time-constant parental characteristics. This result is supported by a bounding analysis, which reveals that selection on unobservables would have to be three times more important as the selection on observables to explain away the positive effect of naturalisation. An important implication of these findings is that the relationship between citizenship and education is not only driven by selection, confirming the hypothesis of an independent effect of citizenship on education. The magnitude of the coefficients also indicates that citizenship has a substantial positive effect on test scores, comparable to that of other important predictors of educational achievement. These empirical findings are consistent with prior work using alternative identification strategies for the effect of host country citizenship (Felfe et al., 2020; Cygan-Rehm, 2018; Avitabile et al., 2014). Yet, Chapter 5 also shows that the effect of citizenship acquisition is not uniform. The later students acquire Dutch citizenship, the weaker their advantage over their non-citizen peers in terms of test scores. Advantage decreases sharply after the age of 7, and becomes marginal when students acquire Dutch citizenship shortly before or after taking the standardised test. This suggests that children of immigrants most benefit from host country citizenship when their parents naturalise in early childhood, before they enter primary education. Furthermore, interaction effects between citizenship status and parental characteristics indicate substantial effect heterogeneity: the acquisition of Dutch citizenship mostly matters for

children whose parents have at most a secondary education qualification and do not have access to homeownership. This is consistent with the hypothesis that citizenship mainly acts as a compensatory mechanism, fostering the educational performance of children when other parental resources are lacking. Such findings are in line with the literature on immigrant naturalisation, which shows that the effects of naturalisation for immigrants' economic and social integration are most effective when it is acquired early and by immigrants who otherwise lack the resources to achieve a stable socioeconomic position in the host society (Gathmann and Keller, 2018; Hainmueller et al., 2017; Peters et al., 2020). In other words, Chapter 5 confirms that naturalisation promotes the educational success of children, but points out that this is mostly the case for those who acquire Dutch citizenship in early childhood and whose parents are disadvantaged in the labour and housing markets.

The three empirical chapters provide several avenues for answering the research question. Chapter 3 first indicates that there is substantial variation in the citizenship status of native-born children of immigrants in the Netherlands. This variation is linked to the fact that children mostly acquire Dutch citizenship through co-naturalisation with their parents, who themselves depend on the naturalisation laws in force. In a context of increasingly stringent requirements, some children were denied early access to Dutch nationality – if not access at all. Chapters 4 and 5 then provide convergent evidence that citizenship status is associated with various educational outcomes of the children of immigrants in the Netherlands: their school achievement (Chapter 5) and the way they navigate Dutch secondary and tertiary education (Chapter 4). While previous literature has consistently shown that citizenship favours students' placement in a higher track (Felfe et al., 2020; Cygan-Rehm, 2018; Kilpi-Jakonen, 2014), the effects of citizenship on school achievement had received less attention so far (see Kilpi-Jakonen, 2014, for an exception). Another consistent finding relates to the magnitude of the effects: citizenship advantage in education is significant, generally comparable to that of other important predictors of educational performance. While key family characteristics such as parents' level of education often have a greater effect, host country citizenship has nevertheless the potential to mitigate some of the obstacles children of immigrants may face in education.

Chapters 4 and 5 also bring complementary insights into the effects of citizenship. On the one hand, Chapter 4 highlights that citizenship is not only associated with students' initial placement after primary school (Felfe et al., 2020; Cygan-Rehm, 2018; Kilpi-Jakonen, 2014), but also with their wider mobility trajectory in secondary education. This suggests that host country citi-

zenship durably influences the educational aspirations of immigrant families, and gives them resources to realise them despite the complexity of the education system. On the other hand, Chapter 5 focuses on a single educational outcome but takes the identification strategy further, by identifying whether the observed relationship between citizenship and education is confounded by unobserved heterogeneity at the family level. While previous studies have justifiably focused on isolating the *causal* effect of host country citizenship (Felfe et al., 2020; Cygan-Rehm, 2018), the identification strategy used in this chapter also allows me to estimate the strength of parental self-selection into naturalisation. Results suggest that the main confounders are included in my models, which lends credence to the findings obtained in Chapter 4. Taken together, the two chapters further indicate that host country citizenship affects students' education on several level: it influences students' initial tracking into secondary education, through its effects on test scores, as well as how they subsequently orient themselves in secondary education and possibly correct an initial misplacement. This confirms the added value of conceptualising the effects of citizenship from a life course perspective, which takes into account the internal dynamics of students' educational pathways in stratified education systems.

Finally, Chapters 4 and 5 move beyond the question of *whether* citizenship matters to examine the factors that condition the relevance of citizenship acquisition. Chapter 4 suggests that there are no significant differences between acquiring Dutch citizenship at birth or later before entry into primary education for the type of trajectory that students follow thereafter. Using a more precise measure of the timing of naturalisation, Chapter 5 provides additional insights: while those who acquire Dutch citizenship from birth or in early childhood have a comparable advantage in school achievement, those who naturalise in the years before they enter secondary education perform similarly to their non-citizen counterparts. With its early-tracking education system, the Netherlands requires parents to be involved in their children's education from the beginning of their school careers (Crul, 2018; Inspectie van het Onderwijs, 2016). Naturalisation may therefore provide parents with helpful resources to navigate this complex system when acquired at an early stage, but may be less relevant when acquired after their children have made key educational transitions in early adolescence. Chapter 5 further shows that the effects of citizenship are conditioned by the other characteristics of children, such as their parents' level of education: host country citizenship does not *add* to the effects of other parental resources, but rather *compensate* for their absence. This is consistent with earlier findings that citizenship es-

pecially matters for the integration of immigrants who face structural constraints in the host society (Hainmueller et al., 2017; Peters, 2020). The fact that similar mechanisms hold for their children is in line with the hypothesis of *indirect* citizenship effects, mediated by parents' improved position in the host society.

Overall, Chapters 4 and 5 provide a nuanced answer to the research question: the acquisition of host country citizenship does affect the educational outcomes of native-born children of immigrants, but not at any time and for all. Indirectly, these chapters also provide preliminary answers to the question left open in Chapter 3, which highlighted the detrimental effect of recent naturalisation laws on the acquisition of citizenship by children of immigrants. Immigrant parents who were only eligible after the 1997 and 2003 reforms have tended to postpone or abandon the naturalisation of their family, but what were the possible implications for their children's opportunities in the Netherlands? The findings mentioned above suggest that naturalisation reforms had an indirect impact on their children's educational outcomes. In particular, simple delays in the acquisition of host country citizenship can have significant adverse effects if naturalisation is postponed to a time when children are already enrolled in school. Furthermore, previous findings suggest that the 1997 and 2003 restrictive naturalisation reforms predominantly affected the life chances of children from disadvantaged backgrounds. This should be taken into account when assessing the overall impact of restrictive naturalisation reforms: such reforms not only decrease the naturalisation propensity of immigrants who need it the most (Peters, 2018; Jensen et al., 2019; Vink et al., 2021), but also indirectly denies citizenship to children who would benefit the most from it.

Methodological contributions

In the empirical chapters, I devoted specific attention to designing empirical strategies that align with the theoretical orientation of the dissertation. The use of administrative register data from Statistics Netherlands was important in this respect, for two main reasons. First, the longitudinal nature of the data enabled me to analyse the effects of citizenship over the life course of children of immigrants, in line with the sociological life course paradigm. Second, register data provide a comprehensive coverage of the Dutch second-generation population legally residing in the Netherlands. The use of data on the whole population – instead of a survey sample – allowed the implementation of identification strategies that require high statistical power. These

valuable features of the data were combined with recent methodological developments to operationalise the theoretical framework as precisely as possible. As I detail below, this contributed to the dissemination of methods that had previously received little attention in the various fields of study in which this dissertation is embedded.

In Chapter 3, I used the Cox proportional hazard model. This model is commonly used to study the association between the time to a certain event and one or more predictor variables. Yet, one important assumption of this model is that the hazard ratios of all individuals are proportional and that this proportionality is maintained over time. This assumption is violated when the effects of the covariates on the hazard vary over time. This is notably the case when estimating the effect of the cohort of eligibility of immigrant parents: the longer the time between eligibility and actual naturalisation, the more likely candidates are to fall under different requirements. To address this issue, I used time-by-covariate interactions to explicitly model the decreasing influence of the eligibility cohort over time (Box-Steffensmeier et al., 2003; Keele, 2010; Bellera et al., 2010). Unlike the more commonly used stratification technique (*e.g.*, Vink et al., 2021), time-by-covariate interactions capture the temporal dynamics involved in non-proportional covariates. This proved to be especially relevant in the analysis of restrictive naturalisation reforms. The interactions suggested that while certain cohorts of eligibility are durably excluded from naturalisation, others mostly delay it over time. This finding has important implications for understanding the temporal dynamics of policy effects, and more generally invites future studies to pay more attention to non-proportional covariates in Cox regression models.

Chapter 4 employed sequence analysis to compare the educational trajectories of children of immigrants. A standard approach is to code the trajectories as sequences of states and to compare them using the Optimal Matching (OM) distance (Ritschard and Studer, 2018). Previous studies analysing educational trajectories have generally coded students' pathways as sequences of school tracks, so as to identify the students who attended similar courses of study (*e.g.*, Baysu and de Valk, 2012; Boylan, 2020). However, OM approach is context-insensitive: it considers each state separately, without considering previous or subsequent states (Elzinga and Studer, 2015, p.6). This does not adequately reflect the dynamics of students' educational pathways, where the track followed at time t influences the tracks accessible at time $t + 1$, and the meaning of the transition between t and $t + 1$. This is why I followed Biemann's (2011) suggestion to code educational trajectories as sequences of *transitions* instead of sequences of *states*. The advantage of this approach is

that it makes it possible to differentiate between different types of transitions in secondary education, and to identify students who have followed similar patterns of mobility. This is particularly relevant to operationalise the notion of "navigating" the education system, since OM cost setting can be set in such a way as to highlight atypical trajectories where students move away from their initial course of study. Applied to the Dutch context, transition-oriented OM offered an unprecedented image of how second-generation students make their way into secondary education. While this method had never been used beyond Biemann's study (2011), I showed its potential to generate meaningful typologies of educational careers within stratified systems.

In Chapter 5, I used a family fixed-effects approach to identify the effects of naturalisation net of parental self-selection into naturalisation. The idea to compare siblings in order to neutralise the effects of unobserved time-invariant characteristics at the family level is not new (*e.g.*, Böhlmark, 2008; Nielsen and Rangvid, 2012; Sigle-Rushton et al., 2014). Previous studies typically use sibling fixed-effects models, which only estimate within-effects, *i.e.*, the effects of the covariates *within* families. This approach has the advantage of removing the risk of heterogeneity bias. Yet, it also comes with limitations: sibling fixed-effects models do not allow the estimation of variables that are constant between siblings (such as time-invariant family characteristics), and do not explicitly model heterogeneity bias (Bell and Jones, 2015). By contrast, the between-within model developed by Mundlak (1978) and Allison (2009) makes it possible to assess the extent to which the coefficients are biased when unobserved heterogeneity is not modelled. I argue that this is more informative than testing only *between* selection and causation. Unfortunately, despite recent methodological developments and discussions on the between-within model (Sjölander et al., 2013; Brumback et al., 2017), it is still very little used in empirical research, especially in the social sciences (see Zorn, 2001, for an exception).

Limitations and avenues for further research

Analysing the relationship between citizenship and education of children of immigrants has posed a number of methodological problems and limitations, not all of which could be resolved in the context of this thesis. In the following, I discuss some of these limitations and how they might lead to fruitful ideas for future research.

Limitations in data and operationalisation

While administrative register data offer undeniable advantages for analysing the citizenship of children of immigrants, they also have limitations that have influenced the operationalisation of the main hypotheses of this thesis.

Parental characteristics as both confounders and mediators

One theoretical contribution of this dissertation was to emphasise that parental characteristics may act both as confounders and mediators in the relationship between citizenship and education (see Figures 2.1-2.2 on p.82). On the one hand, the positive association between citizenship and education may be due to unobserved parental characteristics that influence both parents' naturalisation propensity and their children's educational outcomes, thus providing a classic case of common-cause confounding bias (Elwert and Winship, 2014). On the other hand, I argued that naturalisation may have an *indirect* effect on educational outcomes, through the improved position of parents in the host society. This suggests that parental characteristics after naturalisation *mediate* part of the effects of citizenship on education. To jointly identify such confounding and mediated effects, the timing of measurement of parental characteristics is key: the potential confounders should be measured *before* naturalisation, while the potential mediators should be measured *after* naturalisation.

Although the differentiation between confounding and mediated effects is crucial for causal identification, it was not possible to distinguish them empirically with the available data. The reason is that most parental characteristics that are expected to act as confounders and/or mediators are not available before the early 2000s, when most of the children in the study population have already naturalised.[1] For example, parents' socioeconomic status is only available from 1999, while information on household income and homeownership status of parents is recorded from 2003. As a result, including parental characteristics measured before naturalisation was in general not possible.[2]

[1] This is especially true for Chapters 4 and 5, for which I restricted the research population to those born in the second-half of the 1990s in order to observe their educational outcomes in secondary education (see Figure 1.1, p.28).

[2] Nonetheless, I did robustness checks in Chapter 5 using parents' socioeconomic status measured at the time of naturalisation or shortly thereafter (depending on children's date of naturalisation), since this variable is available since 1999. The results indicate that the effects of age at naturalisation are slightly higher when parents' socioeconomic status is measured

In all models of Chapters 3 and 4, I included parental characteristics measured in the last year of primary school (when time-varying). This introduces a risk of over-adjustment bias, because these variables may mediate (part of) the relationship between citizenship and education (see, *e.g.*, Schulz et al., 2017, p.2202, for an illustration of this point). As a result, the estimated effects of citizenship acquisition should be interpreted as direct – and not total – effects. This choice was dictated by the priority given to identifying the effects of citizenship net of confounding factors; nevertheless, the potential mediating role of parental characteristics deserves more attention. While this thesis took a first step in that direction, a joint analysis of mediating and confounding effects requires more comprehensive data and dedicated methods.

The timing of citizenship acquisition

This thesis provided a better understanding of the effects of the timing of citizenship acquisition, indicating that children of immigrants who become Dutch in late childhood benefit less from citizenship than those who become Dutch at birth or in later years. Yet, it did not investigate timing effects during adolescence, when second-generation youth reach an age where lack of citizenship status may be a more salient issue. This is due to two reasons. On the one hand, it is important to observe changes in citizenship status before the outcome is measured, to avoid reverse causality. On the other, the educational registers did not contain adequate variables for measuring the academic performance of students during secondary school. For example, students' grades were not systematically recorded or reliable for the observed period. It was therefore not possible to find indicators of academic performance that were either comparable within individuals over time[3], or comparable between students enrolled in different fields of study.

Because of these data constraints, I only investigated the effects of citizenship when it is acquired before entering secondary education (*i.e.*, around ages 12-13). This may introduce two sources of downward bias in the analysis. Firstly, if, as is assumed, naturalisation is a process that starts long before Dutch citizenship is officially acquired, some students who are registered as

at the time at naturalisation, compared to the time of the Cito test. While these preliminary results should be interpreted with great caution, they are in line with the hypothesis that parental characteristics measured after naturalisation act as mediators (analysis not shown).

[3]Note that this is the reason why I did not employ standard individual fixed-effects for analysing the effects of citizenship on education.

foreign citizens at the end of primary school may still be on their way to becoming Dutch, thus already enjoying some of the direct or indirect benefits of the naturalisation process. As these students are included in the group of the non-naturalised students, the estimated effect of citizenship acquisition may be biased downwards. Secondly, the lack of citizenship status may have more adverse effects on the well-being and perceived opportunities of young people than on children (Gonzales, 2011; Cebulko, 2014). This is because adolescents may become more aware of the implications of their citizenship status as they realise that certain doors are either open or closed to them (*ibid.*). Furthermore, the children of immigrants who are still foreign citizens in their late teens may be so because their parents face significant obstacles in naturalising. As citizenship is expected to matter especially for those families (Hainmueller et al., 2017; Peters, 2018; Chapter 5), there may be even greater gaps between those who are citizens and those who are not in late adolescence than in childhood.[4] However, the effects of citizenship acquisition in late adolescence and early adulthood cannot be adequately analysed with our data and therefore remain a matter of speculation. Future research should further investigate the timing effects of citizenship acquisition, using educational outcomes measured later in time.

The heterogeneous effects of citizenship acquisition

This dissertation provided preliminary insights into the factors that condition the relevance of host country citizenship for children, highlighting compensatory mechanisms similar to those found with first-generation immigrants (Chapter 5). In particular, I showed that citizenship acquisition is most important for children whose parents have low levels of education and/or limited access to homeownership. However, limited information on the sociodemographic characteristics and resources of parents made it difficult to fully assess the interaction effects between naturalisation and parental background. First, measuring the level of education of immigrant parents generally poses serious problems of data accuracy and comparability (see Heath and Brinbaum, 2007, pp.295-296). The variables used for parental education in this

[4] This is what a robustness analysis conducted in Chapter 4 suggests (see p.144): the effects of citizenship are substantially larger in magnitude when I include in the group of naturalised students the children of immigrants who became Dutch over the whole observation period until 2016 – and not only before the end of primary education. While this alternative specification is not robust to reverse causality, it arguably provides an upper-bound for the effect of naturalisation.

dissertation are not an exception in this respect: information on education level is disproportionately missing for immigrants in the Dutch registers, and tends to be underestimated because education abroad or at private institutions is difficult to take into account (see p.260 for more details on this point). Although I used an imputed variable with the most recent data to maximise accuracy, I cannot exclude the possibility of substantial measurement error.

Second, measures of parental social background are often imprecise for the children of immigrants, as their parents' position in the host society does not always give a true indication of the family's level of resources (Ichou, 2014; Engzell and Ichou, 2020). Finding adequate proxies of parental background has been particularly difficult in the Dutch registers, as there is no exploitable nomenclature for socio-professional categories. Statistics Netherlands defines the socioeconomic status of a person according to their main source of income, thus distinguishing between those whose main economic activity is (self-)employment, those who receive benefits and those who do not have any declared source of income. This variable captures different profiles at the lower end of the socioeconomic status distribution, but is not a good discriminatory factor in the higher end. For this reason, I included information on whether parents are renters or not, as access to homeownership can be selective in the Netherlands, especially for immigrants (see Peters et al., 2020, pp.1241-1242). These two variables, combined with the household disposable income, only imperfectly reflect the family's socioeconomic and educationally relevant resources. As a result, it would be relevant for future work to investigate the interaction effects between citizenship and parental social background using more precise measures of parents' resources in the host society. This would make it possible to identify more precisely the dimensions of social origin that interact with naturalisation, beyond the preliminary results of this dissertation.

Finally, potential interaction effects between citizenship and race have not been empirically tested in this thesis. As there is substantial evidence in qualitative studies that such interaction effects exist (Ribert, 2000; Frauenfelder, 2007; Della Puppa and Sredanovic, 2017; Erdal et al., 2018), it could be fruitful for further research to model and measure the potential mediating role of race on the relationship between citizenship and the life outcomes of children of immigrants, especially in areas where they are likely to face discrimination.

Unobserved conditions of immigration, settlement and naturalisation

This dissertation set out to explore the heterogeneity of the second generation, reflecting the diversity of their backgrounds and trajectories. Yet, some important characteristics relating to their parents' arrival and settlement conditions could not be included in our analyses, due to insufficient or missing data. This is the case of the migration motive of parents, which would make it possible to identify the status under which they entered the Netherlands. Such information is important because the adaptation and integration of immigrants into the host society is affected by their migration history and initial settlement conditions. For example, there is evidence that refugees face specific pre- or post-migration stressors in the Netherlands, which hamper their chances of success on the labour market (Bakker et al., 2014b; de Vroome and van Tubergen, 2010). Refugees tend to experience higher level of mental health problems (*ibid*), which may affect their ability to support their children at school. The immigration status of parents upon arrival may therefore capture otherwise unobserved characteristics of immigrant families. However, although the migration motive is recorded in the Dutch registers, the variable suffers from a significant lack of completeness. While Statistics Netherlands provides an imputed version of this variable, the lack of external information to determine immigrants' migration motives suggests substantial measurement error. As a result, I preferred not to use this variable. When relevant, I controlled for parents' country of origin directly so as to account for unobservable immigration and settlement patterns at the country level. Though imperfect, this approach is justified by the fact that immigrants who arrive as asylum seekers in the Netherlands disproportionately come from well-identified countries of origin (Engbersen et al., 2007, pp.402-493).

Another important aspect of the settlement conditions of immigrant families is the type of residence permit they have. While temporary residence permits are associated with frequent administrative renewal procedures and legal uncertainty, permanent residency offers a certain level of security and access to Dutch citizenship.[5] This information was not available in the Dutch administrative registers, which resulted in two main limitations. First, not controlling for the type of residence permit of children and their families introduces

[5]Note that immigrants detaining a temporary residence permit with a non-temporary purpose of stay are also entitled to naturalisation. See the following link `https://ind.nl/en/dutch-citizenship/Pages/Becoming-Dutch-temporary-non-temporary-purposes-of-stay.aspx` [accessed July 19, 2021] for more information.

unobserved heterogeneity in the analysis of citizenship acquisition. For example, naturalisation may yield limited returns for immigrant parents who have secured permanent residence without difficulty – especially if they have to renounce their existing nationality for this purpose. Conversely, Dutch citizenship may be especially valuable for immigrant families that have experienced prolonged periods of insecurity, as some research suggests (Bakker et al., 2014b). In this sense, the past and current residence permits of family members give precious information on their settlement conditions, and would enable researchers to gain a more detailed insight into the mechanisms that condition the relevance of citizenship. Second, information on the type of residence permit would have allowed for a more precise measure of parents' date of eligibility for naturalisation. Indeed, immigrants should have a permanent residence permit at the time of naturalisation, or a temporary permit with a non-temporary purpose of stay. As this information was missing, the eligibility variable constructed in Chapter 3 may overestimate the proportion of eligible families: some immigrant parents who have resided in the Netherlands for more than five years may in fact not be eligible because they have not yet obtained one of the required residence permits. Unfortunately, it is not possible to assess the prevalence of these cases with the available data, nor to estimate the bias that such an overestimation might introduce into the analysis.

Finally, information on the naturalisation applications of prospective citizens would have been necessary to model the naturalisation process in the empirical chapters. While stressing the need not to reduce naturalisation to the formal transition of legal status, I was not able to operationalise this broader conceptualisation with the available data. Estimating the start of the application procedure is difficult, as the time to become Dutch by naturalisation varies – from 6 months up to a year, according to van Meeteren et al. (2013, p.129). Furthermore, information on when naturalisation candidates enrolled in naturalisation or integration courses and passed the tests is important to estimate more accurately the actual duration of the naturalisation procedure. While such statistics are available at the aggregate level (see, *e.g.*, van Oers, 2013, Chapters 3 and 7), they are not recorded in the individual administrative registers. More precise measures of the timing and duration of the naturalisation process would allow for a more refined analysis of the effects of citizenship, including possible anticipated effects initiated by immigrants' decision to naturalise.

Overall, these data constraints limited the identification of the mechanisms involved. However, it is important to note that such variables are also rarely

available in surveys, including those focused on the children of immigrants (*e.g.*, CILS4EU, 2017). Therefore, I strongly encourage future data collections initiatives on the second generation to pay greater attention to the immigration and settlement conditions of immigrant parents. This has important consequences for the way they value and access citizenship in the host country, but also for the opportunities available to their children more generally.

Extending the analytical scope of the thesis

The data and quantitative approach followed in this dissertation provided valuable insights into the relationships between citizenship and education in the Netherlands. Yet, a systematic analysis of the relevance of host country citizenship for native-born children of immigrants would require expanding the scope of the analysis in at least three respects, which I detail in the following paragraphs.

Labour market and other life outcomes

This dissertation has focused on the educational outcomes of the children of immigrants for two main reasons. First, in post-industrial societies, education is a crucial means of social advancement for the children of immigrants (Levels and Dronkers, 2008; Crul, 2015; Crul et al., 2017). Students' educational background does not only determine the qualifications they can use in the labour market, but also shapes their networks and levels of cultural capital (Crul et al., 2017). Second, because the second generation is still relatively young in Western Europe, data on their experience in the labour market was scarce until recently (Heath et al., 2008, p.218). With some exceptions (Fibbi et al., 2007; Liebig and von Haaren, 2011), studies analysing the relevance of citizenship for children of immigrants thus focused on their educational outcomes. I followed the same direction in this thesis, as I could not fully cover the labour-market transitions of the considered birth cohorts, especially for those following long educational trajectories.

However, investigating the effects of citizenship on the labour market outcomes of native-born children of immigrants could be a fruitful line of research. There is indeed a growing body of literature showing that children of immigrants face important barriers in the labour market (see Heath et al., 2008, pp.226-227, for an overview). Importantly, some studies indicate that

children of immigrants experience significant disadvantages in terms of earnings, access to employment and discrimination, to a similar extent as their parents (Carlsson, 2010; Algan et al., 2010). At the same time, the literature on immigrant naturalisation suggests that host country citizenship facilitates access to the labour market of first generation immigrants (Peters et al., 2017), and has a positive impact on earnings (Steinhardt, 2012), especially for those facing structural barriers (Helgertz et al., 2014; Peters et al., 2020).

The citizenship premium for immigrants in the labour market is generally attributed to three main mechanisms: host country citizenship provides unlimited access to the labour market, reduces administrative costs for companies, and sends positive signals to current and potential employers (Liebig and von Haaren, 2011). Whether such mechanisms also apply to their children remain the subject of speculation. Can host country citizenship help alleviate some of the obstacles that the second generation face in the labour market? The few existing studies only provide preliminary answers. While Fibbi et al. (2007) and Liebig and von Haaren (2011) find no substantial association between citizenship and the probability of (un)employment, Liebig and von Haaren show that host country citizenship is associated with a higher probability of employment in high-skilled jobs in countries with *ius sanguinis* citizenship regimes such as Switzerland and Austria. In particular, the authors find that naturalised children of immigrants are more likely to be employed in the public sector; this is consistent with the fact that host country citizenship is often required for some high-level positions in the public sector. Some qualitative studies conducted in Switzerland also show that native-born children of immigrants need Swiss citizenship to work in certain sectors, or to obtain an apprenticeship (Frauenfelder, 2007; Imdorf, 2019). To establish these results more firmly, a more systematic and tailored analysis of the relationship between citizenship and labour market outcomes of the second generation is needed.

Beyond the labour market, other life outcomes may be associated with the citizenship status of children of immigrants. A line of research has investigated whether host country citizenship is associated with values, national identification and political participation of first-generation immigrants (*e.g.*, Donnaloja, 2020; Fick, 2016; Manning and Roy, 2010; Bevelander and Veenman, 2006); but, to my knowledge, no similar studies have been dedicated to their children. However, qualitative studies suggest that the possession or lack of host country citizenship influences how second-generation youth feel included (or not) in the host society (Colombo, 2015; Frauenfelder, 2007; Ribert, 2009). Although attitudes and feelings are difficult to capture in quan-

titative data, it would be interesting to analyse whether the acquisition of host country citizenship promotes political participation among children of immigrants. On another note, growing attention has been paid to the relationship between citizenship and international mobility. While previous research suggests that the acquisition of host country citizenship generally decreases the likelihood of immigrant families to outmigrate (Hoon et al., 2020; Sajons, 2016), specific data on the second generation are scarce, despite increasing attention to the transnational mobility of migrant youth (*e.g.*, van Geel and Mazzucato, 2021; Ogden and Mazzucato, 2021). As citizenship significantly facilitates international mobility, its role in youth engagements and relationships *here* and *there* may merit research.

The need for a comparative perspective

In line with the life course perspective, this dissertation conceptualised host country citizenship in the Dutch institutional context. Two elements received particular scrutiny: citizenship and naturalisation laws, on the one hand, and the characteristics of the education system, on the other. There are reasons to think that these institutional conditions at least partly shape the observed effects of citizenship on education. First, citizenship advantage can be expected to vary according to the level and nature of naturalisation requirements that prospective citizens must meet. As Peters (2018) argues, applicants' investments in the naturalisation process may pay off when the requirements are affordable and help them acquire relevant host country-specific knowledge. Conversely, very liberal or selective conditions may deter immigrants from engaging in the naturalisation process – or from naturalising at all. As the Netherlands occupies an intermediate position in the European landscape with regard to access to citizenship[6], I expect the acquisition of host country citizenship to be especially relevant in the Dutch case. Second, I hypothesised that citizenship is of particular importance in stratified and early-tracking education systems, in which students heavily rely on the resources and involvement of their parents.

A rigorous assessment of these two assumptions requires a different approach and design than that used in this dissertation. Indeed, the focus on a single

[6]In 2019, Dutch law was considered as "halfway favourable" in terms of access to nationality according to the Migrant Integration Policy Index 2019 (MIPEX). Retrieved from `https://mipex.eu/access-nationality` [accessed July 19, 2021].

destination country limits the assessment of the role of the institutional context. Although there is some variation in Dutch naturalisation laws over the period under consideration, the multiplication of reforms every few years – especially in the 2000s – makes it difficult to distinguish the effects of specific naturalisation requirements separately. In a similar way, there were no radical changes in educational arrangements that I could have used to test whether the characteristics of the school system condition the relevance of host country citizenship for children of immigrants. A systematic analysis of the role of the institutional context thus requires a comparative perspective and a cross-national design, which are still relatively rare in the literature on immigrant naturalisation (see Helgertz et al., 2014; Vink et al., 2021, for exceptions).

I therefore encourage future research to compare the Dutch case with other national contexts that vary on one of the two institutional dimensions considered. Sweden, for example, had naturalisation requirements similar to those of the Netherlands in the 1990s-2000s (Bernitz, 2012), but has a contrasting education system, with a low differentiation between tracks and late selection (OECD, 2015). This could be a relevant case for analysing whether naturalised children of immigrants still enjoy a comparative advantage in education in a comprehensive education system. Conversely, countries such as Austria and Switzerland have more restrictive naturalisation policies, but relatively similar education systems. In such countries, the percentage of non-naturalised children of immigrants is among the highest in the OECD (Liebig and von Haaren, 2011, p.43). At the same time, the Austrian and Swiss education systems are complex and highly stratified (OECD, 2017b; Pfeffer, 2008, p.564). They could provide an appropriate benchmark to assess whether naturalised children of immigrants have a greater or lesser advantage in education when naturalisation is a highly selective process. Comparing countries is certainly a difficult task, which relies on finding comparable data and research populations. Nevertheless, previous cross-national studies on the children of immigrants highlight the analytical value of such a comparative approach (*e.g.*, Crul et al., 2012; Alba and Holdaway, 2013; Kalter et al., 2018), and should encourage researchers to further investigate the relevance of the institutional context – including the citizenship context – on the opportunities of the second generation.

The complementary contribution of qualitative studies

This dissertation has followed a quantitative approach to analyse the relationship between citizenship and education of the children of immigrants. This approach was justified by the lack of statistical data and analysis on the citizenship status of the second generation. Measuring the prevalence of non-naturalised children of immigrants, as well as the possible consequences of their citizenship status for their educational educational outcomes, is informative from a research and policy perspective. In particular, this thesis has shown that a substantial share (10%) of second-generation youth are still foreign citizens at the age of majority (Chapter 3) and that the lack of Dutch citizenship is associated with substantial educational difficulties, both in terms of educational paths (Chapter 4) and outcomes (Chapter 5). Yet, this dissertation provides only a limited insight into the underlying mechanisms: by design, the quantitative nature of the data makes it difficult to investigate the *why* questions. The family decision-making process leading to the naturalisation of children cannot be directly observed, while the mechanisms by which citizenship affects their educational outcomes remain largely hidden.

In contrast, qualitative data provide insights into how immigrants perceive and experience host country citizenship. They allow researchers to open the black box of naturalisation decisions (*e.g.*, Della Puppa and Sredanovic, 2017; Sredanovic, 2020; Street, 2013, 2014), and to delve into the diverse meanings that naturalised individuals attach to citizenship (*e.g.*, Erdal et al., 2018; Nunn et al., 2016; Sredanovic, 2020). In this thesis, qualitative studies on the relevance of naturalisation for the second generation were instrumental in including the youth perspective on citizenship (Colombo, 2015; Colombo et al., 2011; Frauenfelder, 2007; Ribert, 2000). This perspective was largely absent from existing research on the effects of citizenship on education, which focused instead on parental investments in human capital (Felfe et al., 2020; Cygan-Rehm, 2018; Avitabile et al., 2014). In that sense, engaging with qualitative work was key to lay the foundations for a more comprehensive theoretical framework.

However, I was not able to incorporate qualitative data to the analysis, for two main reasons. First, the preparation and use of register data require significant investment, which is worth fully utilising. Second, data on citizenship do not generally provide opportunities for mixed-methods analysis (see Street, 2013, 2014, for valuable exceptions). Moreover, while a growing number of qualitative studies have adopted a family approach to natu-

ralisation and highlighted its intergenerational dimension (Della Puppa and Sredanovic, 2017; Sredanovic, 2020), research from the perspective of the children of immigrants is still rare (Erdal et al., 2018). This dissertation therefore calls for a more integrated approach to second generation citizenship, which takes full advantage of qualitative and quantitative knowledge.

❧

To conclude, this dissertation has laid the groundwork for an in-depth analysis of the relevance of host country citizenship for the native-born children of immigrants. It combined a life course perspective with rich quantitative data and advanced methods to uncover patterns of naturalisation among the second generation in the Netherlands, and assess the effects of these patterns on their educational outcomes. Although host country citizenship is certainly not a panacea, the results suggest that early acquisition of Dutch citizenship has the potential to alleviate some of the disadvantages faced by second-generation children, especially in families with low levels of socioeconomic resources. Future research could strengthen these findings in different ways. While more detailed data on the settlement and naturalisation trajectories of immigrant families would improve the identification and characterisation of citizenship effects, a comparative and mixed-methods research agenda would broaden the analytical scope of the thesis. In addition, the effects of citizenship on other life outcomes, beyond education, deserve greater attention. In a context where the integration and the feelings of belonging of the second generation are often questioned (Duyvendak, 2011; Ribert, 2009), it seems all the more crucial to consider the possible contradiction between these children's physical and social presence in the host country and their status as foreign citizens.

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Appendix A

Supplementary Materials Chapter 3

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I Descriptive statistics

	N	%
Male	147,111	51.21
Female	140,139	48.79
Father SES		
Employee or self-employed	143,164	49.84
Reception of benefits	50,84	17.7
No declared income	18,899	6.58
Unknown SES	74,347	25.88
Mother SES		
Employee or self-employed	53,638	18.67
Reception of benefits	63,364	22.06
No declared income	98,215	34.19
Unknown SES	72,033	25.08
EU origin country		
No	268,955	93.63
Yes	18,295	6.37
Country of origin (mother)		
Morocco	92,275	32.12
Turkey	72,363	25.19
Iraq	10,142	3.53
Yugoslavia	10,735	3.74
Somalia	8,256	2.87

Continued

Table A1: Socio-demographic characteristics of the whole sample.

	N	%
Afghanistan	7,352	2.56
former Soviet-Union	4,615	1.61
Poland	3,043	1.06
Great Britain	2,398	0.83
China	7,211	2.51
Germany	2,598	0.9
Iran	3,192	1.11
Angola	1,561	0.54
Other EU countries	9,362	3.26
Other non-EU countries	52,147	18.15
Father's country of origin		
Same as mother's one	253,791	88.35
Different than mother's one	33,459	11.65
Dutch citizenship		
Dutch from birth	190,014	66.15
No naturalisation	36,985	12.88
Naturalisation over the period	60,251	20.98
TOTAL	287,25	

Table A1 Continued: Socio-demographic characteristics of the whole sample.

Eligibility period	**N**	**%**
between 1995 and 1997	24,608	25.31
between 1998 and 2002	29,831	30.68
in or after 2003	39,496	40.62
never eligible	3,301	3.39
TOTAL	97,236	

(a) **Sample A:** Those who are not Dutch from birth.

Dutch citizenship status	**N**	**%**
No naturalisation	33,684	35.86
Naturalisation over the period	60,251	64.14
Dummy both parents are eligible		
Never eligible together	1,854	1.97
Eligible together over the period	92,081	98.03
TOTAL	93,935	

(b) **Sample B:** Those who are eligible over the period.

Naturalisation with whom	**N**	**%**
Same year than mother	17,638	29.27
Same year than father	16,945	28.12
Same year than both parents	23,592	39.16
Independent year	2,076	3.45
Age at naturalisation		
Before 18	57,884	96.07
After 18	2,367	3.93
TOTAL	60,251	

(c) **Sample C**: Those who naturalise over the period.

Table A2: Eligibility, citizenship and naturalisation characteristics of restricted samples.

	No naturalisation		Naturalisation		Already Dutch		Total	
	N	%	N	%	N	%	N	%
Morocco	4,928	5.34	20,832	22.58	66,515	72.08	92,275	100
Turkey	8,834	12.21	13,106	18.11	50,423	69.68	72,363	100
Iraq	503	4.96	3,841	37.87	5,798	57.17	10,142	100
Yugoslavia	1,044	9.73	3,202	29.83	6,489	60.45	10,735	100
Somalia	348	4.22	2,997	36.3	4,911	59.48	8,256	100
Afghanistan	256	3.48	3,001	40.82	4,095	55.7	7,352	100
Former Soviet-Union	1,359	29.45	1,741	37.72	1,515	32.83	4,615	100
Poland	2,046	67.24	190	6.24	807	26.52	3,043	100
Great Britain	1,85	77.15	103	4.3	445	18.56	2,398	100
China	829	11.5	1,116	15.48	5,266	73.03	7,211	100
Germany	1,405	54.08	203	7.81	990	38.11	2,598	100
Iran	167	5.23	919	28.79	2,106	65.98	3,192	100
Angola	508	32.54	548	35.11	505	32.35	1,561	100
Other EU countries	5,569	59.49	717	7.66	3,076	32.86	9,362	100
Other non-EU countries	7,339	14.07	7,735	14.83	37,073	71.09	52,147	100
Total	36,985	12.88	60,251	20.98	190,014	66.15	287,25	100

Table A3: Dutch citizenship status by mother's country of origin.

II Alternative specifications for the Cox model

Variable	Hazard rate	Std. Error	z	P > z	[95% Conf. Interval]	
Eligibility cohort *(ref: 1995-1996)*						
1997-1998	0.827	0.011	-14.300	0.000	0.805	0.849
1999-2000	0.694	0.011	-22.820	0.000	0.672	0.716
2001-2002	0.618	0.010	-28.360	0.000	0.598	0.639
2003-2004	0.462	0.009	-41.270	0.000	0.446	0.480
2005-2006	0.405	0.008	-47.470	0.000	0.390	0.421
2007-2008	0.422	0.009	-40.470	0.000	0.404	0.440
2009 and after	0.377	0.008	-44.980	0.000	0.361	0.393
N observations 717,009		N failures 57,493		LR Chi2(12) 8117.5		
N individuals 91,066		Time at risk 717013		Log likelihood -504643.0		
				Probability > Chi2 0.000		

Table A4: Cox proportional-hazard model for the risk of naturalisation by immigrants' children born in the Netherlands – with two-year clusters of eligibility cohorts.
Note: other covariates included are EU origin country, Mother SES, Father SES, Both parents eligible. The model is stratified by mother's country of origin.

Variable	Hazard rate	Std. Error	z	P > z	[95% Conf. Interval]	
Eligibility cohort						
(ref: 1995)						
1996	0.990	0.016	-0.600	0.549	0.958	1.023
1997	0.860	0.015	-8.490	0.000	0.831	0.891
1998	0.781	0.015	-13.090	0.000	0.752	0.810
1999	0.719	0.015	-15.840	0.000	0.690	0.749
2000	0.656	0.014	-19.600	0.000	0.629	0.684
2001	0.645	0.014	-19.890	0.000	0.617	0.673
2002	0.579	0.013	-23.860	0.000	0.554	0.606
2003	0.474	0.012	-30.590	0.000	0.452	0.497
2004	0.440	0.011	-32.500	0.000	0.419	0.463
2005	0.402	0.010	-37.170	0.000	0.383	0.422
2006	0.398	0.010	-36.820	0.000	0.379	0.418
2007	0.421	0.011	-32.030	0.000	0.399	0.443
$\geq$ 2008	0.383	0.008	-45.360	0.000	0.368	0.400
N observations 717,009		N failures 57,493		LR Chi2(12) 8174.3		
N individuals 91,066		Time at risk 717013		Log likelihood -504614.6		
				Probability > Chi2 0.000		

Table A5: Cox proportional-hazard model for the risk of naturalisation by immigrants' children born in the Netherlands – with year of eligibility.
Note: other covariates included are EU origin country, Mother SES, Father SES, Both parents eligible. The model is stratified by mother's country of origin.

Variable	Hazard rate	Std. Error	z	P > z	[95% Conf. Interval]	
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	0.585	0.014	-22.120	0.000	0.558	0.613
2003 and after	0.198	0.006	-57.490	0.000	0.187	0.209
EU origin country	0.336	0.015	-23.840	0.000	0.307	0.368
Mother SES						
(ref: employed)						
Benefit recipient	1.014	0.014	1.010	0.312	0.987	1.043
No income	0.782	0.010	-19.010	0.000	0.762	0.802
SES unknown	0.530	0.015	-22.750	0.000	0.502	0.560
Father SES						
(ref: employed)						
Benefit recipient	0.906	0.011	-8.330	0.000	0.886	0.928
No income	0.504	0.011	-31.310	0.000	0.483	0.526
SES unknown	0.921	0.022	-3.460	0.001	0.879	0.965
Both parents are eligible	1.352	0.017	23.710	0.000	1.319	1.387
	Interacted with *ln(t)*					
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	1.085	0.014	6.140	0.000	1.057	1.114
2003 and after	1.884	0.032	37.460	0.000	1.823	1.948
N observations 717,009		N failures 57,493		LR Chi2(12) 9623.2		
N individuals 91,066		Time at risk 717013		Log likelihood -503890.1		
				Probability > Chi2 0.000		

Table A6: Cox proportional-hazard model for the risk of naturalisation by immigrants' children born in the Netherlands – main model with father's country of origin.
Note: the model is stratified by father's country of origin.

III Cause-specific hazard models

Variable	Hazard rate	Std. Error	z	P > z	[95% Conf. Interval]	
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	0.589	0.021	-14.820	0.000	0.549	0.632
2003 and after	0.100	0.005	-50.350	0.000	0.092	0.110
EU origin country	0.083	0.010	-20.770	0.000	0.066	0.105
Mother SES						
(ref: employed)						
Benefit recipient	0.877	0.022	-5.330	0.000	0.836	0.921
No income	0.741	0.016	-13.680	0.000	0.710	0.774
SES unknown	0.946	0.045	-1.170	0.241	0.862	1.038
Father SES						
(ref: employed)						
Benefit recipient	0.961	0.019	-2.000	0.045	0.924	0.999
No income	0.270	0.013	-27.150	0.000	0.246	0.297
SES unknown	0.529	0.024	-14.130	0.000	0.484	0.578
	Interacted with *ln(t)*					
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	0.942	0.021	-2.740	0.006	0.902	0.983
2003 and after	1.989	0.059	23.300	0.000	1.877	2.108
N observations 717,009		N failures 21,857		LR Chi2(12) 8646.3		
N individuals 91,066		Time at risk 717013		Log likelihood -191099.9		
				Probability > Chi2 0.000		

Table A7: Cause-specific hazards model for the risk of naturalisation by immigrants' children born in the Netherlands – naturalisation with both parents.
Note: the model is stratified by mother's country of origin.

Variable	Hazard rate	Std. Error	z	P > z	[95% Conf. Interval]	
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	0.547	0.019	-17.460	0.000	0.511	0.585
2003 and after	0.298	0.011	-32.140	0.000	0.276	0.320
EU origin country	0.284	0.017	-20.780	0.000	0.252	0.319
Mother SES						
(ref: employed)						
Benefit recipient	1.105	0.020	5.550	0.000	1.067	1.145
No income	0.788	0.013	-14.310	0.000	0.762	0.814
SES unknown	0.438	0.015	-23.460	0.000	0.409	0.469
Father SES						
(ref: employed)						
Benefit recipient	0.876	0.013	-8.630	0.000	0.851	0.903
No income	0.631	0.016	-18.090	0.000	0.600	0.663
SES unknown	0.996	0.028	-0.130	0.894	0.943	1.052
	Interacted with *ln(t)*					
Eligibility cohort						
(ref: 1995-1997)						
1998-2002	1.256	0.024	11.930	0.000	1.210	1.304
2003 and after	1.783	0.040	25.720	0.000	1.706	1.863
N observations 717,009		N failures 33,560		LR Chi2(12) 3153.7		
N individuals 91,066		Time at risk 717013		Log likelihood -295925.0		
				Probability > Chi2 0.000		

Table A8: Cause-specific hazards model for the risk of naturalisation by immigrants' children born in the Netherlands – naturalisation with only one parent.
Note: the model is stratified by mother's country of origin.

IV Schoenfeld residuals

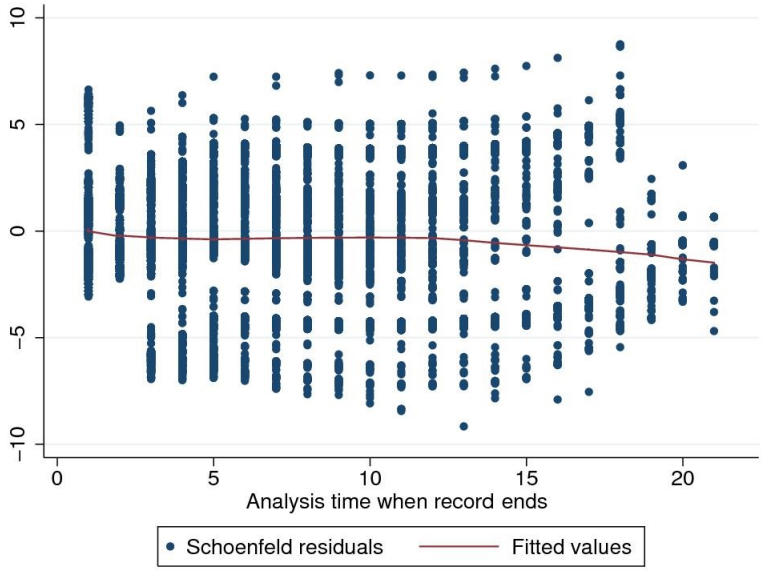

Figure A1: Test of the proportionality assumption for the Cox proportional-hazard model stratified by mother's country of origin without time-by-covariate interactions (model B): Schoenfeld residuals of the eligibility period 1998-2002 (ref. 1995-1997).

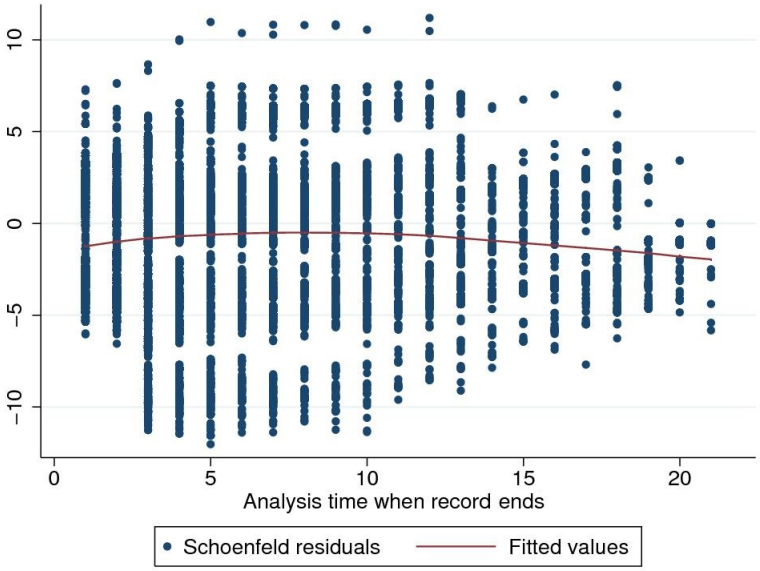

Figure A2: Test of the proportionality assumption for the Cox proportional-hazard model stratified by mother's country of origin without time-by-covariate interactions (model B): Schoenfeld residuals of the eligibility period 2003 and after (ref. 1995-1997).

V Kaplan-Meier function

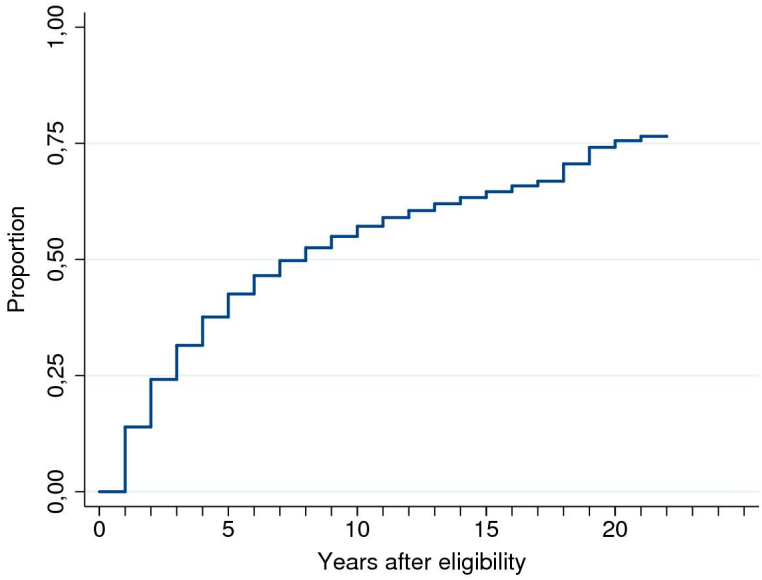

Figure A3: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: Kaplan-Meier failure function (N=91.066).

VI Naturalisation fees: historical development 2001-2020

Year	**Naturalisation request** for one person	**Naturalisation request** together with a partner	**Option procedure** (one person)
2001	€ 226	€ 316	N.A.
2002	€ 272	€ 363	€ 110
2003	€ 336	€ 427	€ 128
2004	€ 344	€ 437	€ 131
2005	€ 348	€ 442	€ 132
2006	€ 351	€ 446	€ 133
2007	€ 358	€ 454	€ 136
2008	€ 366	€ 464	€ 139
2009	€ 380	€ 492	€ 144
2010	€ 567	€ 719	€ 148
2011	€ 789	€ 1,008	€ 168
2012	€ 798	€ 1,019	€ 170
2013	€ 810	€ 1,035	€ 173
2014	€ 821	€ 1,048	€ 175
2015	€ 829	€ 1,058	€ 177
2016	€ 840	€ 1,072	€ 179
2017	€ 855	€ 1,091	€ 182
2018	€ 866	€ 1,105	€ 184
2019	€ 881	€ 1,124	€ 187
2020	€ 901	€ 1,150	€ 191

Table A9: Evolution of administrative fees between 2001 and 2020, by type of citizenship acquisition procedure.

Sources

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VII Construction of the eligibility variable

Definition of eligibility

To become eligible for Dutch citizenship, several conditions must be satisfied[1]. First, prospective citizens should have lived uninterruptedly in the Netherlands for at least five years, with a valid residence permit. During this

[1] See the Immigration and Naturalisation Service, `https://ind.nl/en/dutch-citizenship/Pages/Naturalisation.aspx` [accessed May 29, 2019].

five-year period prior to naturalisation, they should not have been convicted or sentenced to a conditional discharge for a crime. Finally, prospective citizens should not have any ongoing criminal proceedings against them when applying for nationalisation. As we do not have access to information about individuals' criminal records, we base eligibility on the sole required length of legal residence in the Netherlands. Parents' eligibility is therefore proxied by the number of years they have stayed in the Netherlands.

From parents to children

We then construct children's eligibility based on the eligibility of their parents:

- When children are minors, they are considered eligible as soon as (one of) their parents become themselves eligible (co-naturalisation).
- When children are above 18, they are considered as eligible if they have stayed permanently in the Netherlands since birth (option procedure).
- When children are above 18 and have not stayed permanently in the Netherlands since birth, they are eligible after five years of uninterrupted residence in the Netherlands (standard naturalisation).

Circular migration

For each parent, a counter counts the number of continuous years of residence in the Netherlands, while a dummy variable equals one when the counter exceeds five years. In case of circular migration, the counter starts again at zero from the moment the individual comes back to the Netherlands. This reflects the requirement of uninterrupted residence in the Netherlands; if immigrants leave the country and are de-registered, they need to wait another five-year period upon their return in the Netherlands to become eligible. There is however one exception to this rule: when individuals have accumulated ten years of – potentially interrupted – residence in the Netherlands, they can become eligible after two years of residence. Unfortunately, this exception is difficult to take into account due to data restriction, since individuals are only observed from 1995 onwards. Besides, these provisions are not very common:

over the period 2014-2017 they were associated with around 100-150 annual naturalisations, which represents about 1% of all naturalisations[2].

[2]See the last report Monitor Naturalisatie en optie, https://ind.nl/Documents/2018%20Monitor%20naturalisatie%20en%20optie%202014-2017.pdf [accessed May 29, 2019].

VIII Robustness checks

Several specifications were compared to assess the robustness of our main model, visualised in Figure A4.

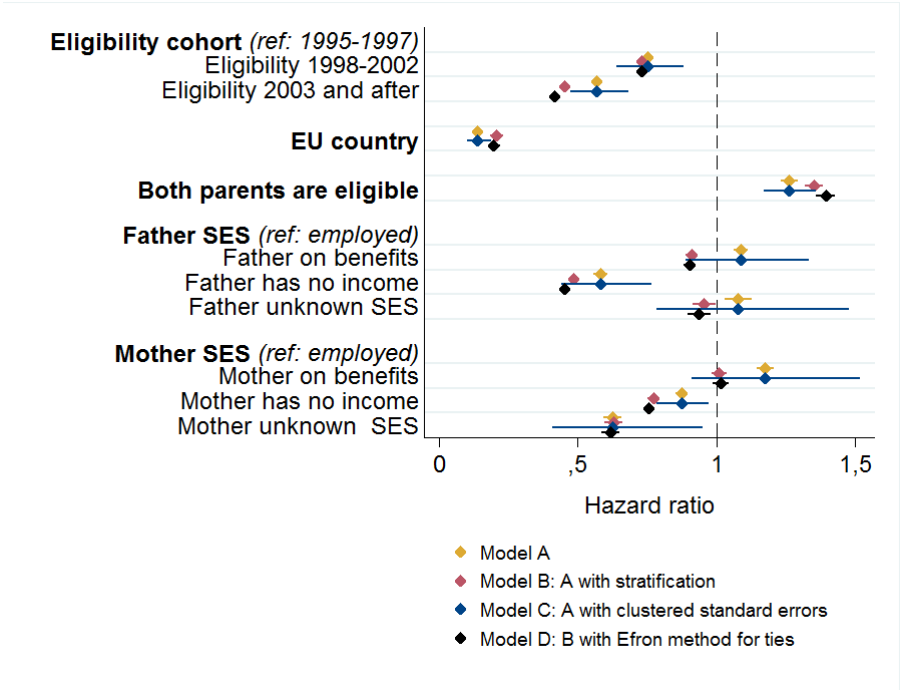

Figure A4: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: coefficient plot based on Cox regression models A to D.

We first model duration until naturalisation without stratifying by mother's country of origin and without any interaction with time (Model A). While the stratification is added in Model B, we instead cluster the standard errors by country of origin in Model C. This relaxes the hypotheses of independent observations and allows taking into account potential intra-cluster correlation at the country level, without making any assumption about the nature of this correlation. In that sense, Model C is more conservative than Model B and gives accordingly larger confidence intervals. The estimation of the coefficients for the eligibility cohorts are still sufficiently precise to preserve our earlier interpretation of a detrimental impact of naturalisation laws, but

the overlap of the confidence intervals nuances the idea that there is a clear added disadvantage for those eligible from 2003 onwards.

Overall, alternative specifications A to C provide estimates that are quite similar to those obtained in the main model, with the exception of those associated with the last eligibility category. However, these models estimate the effect of the eligibility cohort without time interaction terms, which amounts to estimating an average effect of the eligibility cohort over time, assuming it is constant. Yet, as could be seen in Figure 3.5 (in manuscript), the effect associated with the last eligibility category varies greatly over time, from close to zero to above one, which is rather consistent with an average effect of around 0.5. Besides, Figure 3.5 also shows that between approximately five and ten years since eligibility, the confidence intervals associated with the second and third categories of eligibility partly cross each other, which is in line with the overlapping confidence intervals of Model C. In conclusion, these different models do not substantively alter our prior interpretation.

A last specification deals with the presence of tied events in our dataset, which may be a point of concern. Indeed as naturalisation date is measured in years, we do not precisely identify the ordering of naturalisation times. In Model D, we estimate model B with the Efron method for ties, which is more precise than the standard Breslow approximation. Figure A4 shows that the estimates between models B and D are comparable.

The same procedure has been followed to check the robustness of the cause-specific hazards model, the results are displayed on Figure A5.

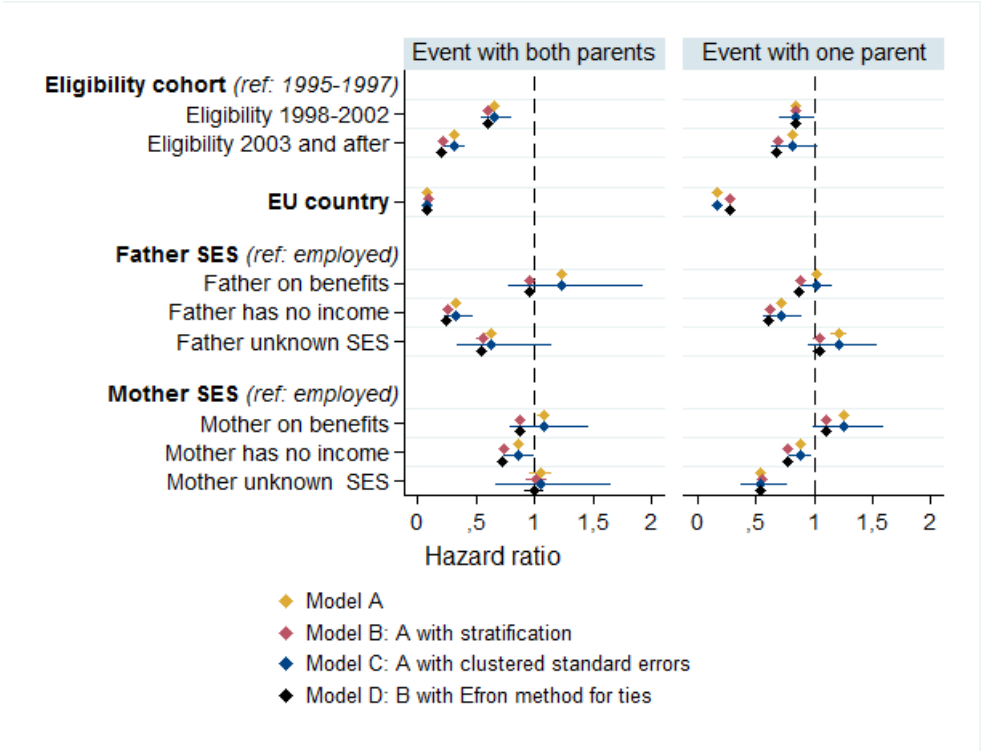

Figure A5: Acquisition of Dutch citizenship after birth by immigrants' children born in the Netherlands: coefficient plot for the cause-specific hazards models A to D.

Appendix B

Supplementary Materials Chapter 4

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I Descriptive statistics

	N	%
Gender		
Male	6,433	51.4
Female	6,072	48.6
Age		
10	46	0.4
11	4,815	38.5
12	6,571	52.6
13	1,049	8.4
14 and older	24	0.0
First born		
Non first-born	8,265	66,1
First-born	4,240	33,9
Mother's country of birth		
Turkey	4,519	36.1
Morocco	4,270	34.2
Yugoslavia	530	4.2
China	355	2.8
Iraq	176	1.4
Iran	125	1.0
Afghanistan	92	0.7

Continued

Table B1: Overview of the sample with sociodemographic characteristics measured at the start of the observation period.

	N	%
Other non-EU countries	2,036	16.3
Other EU countries	402	3.2
Father's country of birth		
Same as mother's one	11,504	92.0
Different from mother's one	1,001	8.0
Language spoken at home		
Dutch	2,186	17.5
Turkish	2,093	16.7
Arabic	1,588	12.7
Other language	1,224	9.8
Dutch and Turkish	860	6.9
Dutch and Arabic	882	7.1
Dutch and other languages	543	4.3
Missing	3,129	25.0
Household type		
Two-parent household - married couple	9,718	77.5
Two-parent household - non-married couple	506	4.0
Single-parent household	2,257	18.1
Missing	24	0.2
Father SES		
Employee	6,690	53.5
Self-employed	1,295	10.4
Reception of benefits	3,412	27.3
No declared income	653	5.2
Missing SECM	455	3.6
Mother SES		
Employee	4,126	33.0
Self-employed	724	5.8
Reception of benefits	3,958	31.7
No declared income	3,598	28.8
Missing SECM	99	0.8
Homeownership		
At least one parent is a homeowner	4,080	32.6
No parent is a homeowner	8,398	67.2
Missing	27	0.2
Father's education level		
Low	4,759	38.1

Continued

Table B1 Continued: Overview of the sample with sociodemographic characteristics measured at the start of the observation period.

	N	%
Middle	2,169	17.4
High	824	6.6
Missing	4,753	38.0
Mother's education level		
Low	6,404	51.2
Middle	1,859	14.9
High	596	4.8
Missing	3,646	29.2
Highest education level in the household		
Low	5,905	47.2
Middle	3,198	25.6
High	1,240	9.9
Missing	2,162	17.3
Mother's years since migration		
0-15	3,930	31,4
16-25	5,348	42,8
over 25	3,227	25,8
Father's years since migration		
0-15	4,165	33,3
16-25	4,277	34,2
over 25	4,063	32,5
TOTAL	12,505	

Table B1 Continued: Overview of the sample with sociodemographic characteristics measured at the start of the observation period.

	Mean	Median	Std. dev.	Missing N (%)
N. of children in the household	2.78	3.00	1.26	77 (0.6)
Standardised disposable income (€)	16229.96	14847.00	7420.61	172 (1.4)
Score obtained at the Cito test	529.52	530.00	10.16	2889 (23.1)

Table B2: Overview of the sample with numerical characteristics measured at the start of the observation period, excepted the Cito score measured the year before.

	N	%
Citizenship status of the child		
2008 *(start)*		
Dutch from birth	5,724	45.8
Naturalised	4,881	39.0
Non-naturalised	1,900	15.2
2016 *(end)*		
Dutch from birth	5,724	45.8
Naturalised individuals	5,941	47.5
Non-naturalised	840	6.7

Table B3: Legal status of the child measured at the start and the end of the observation period.

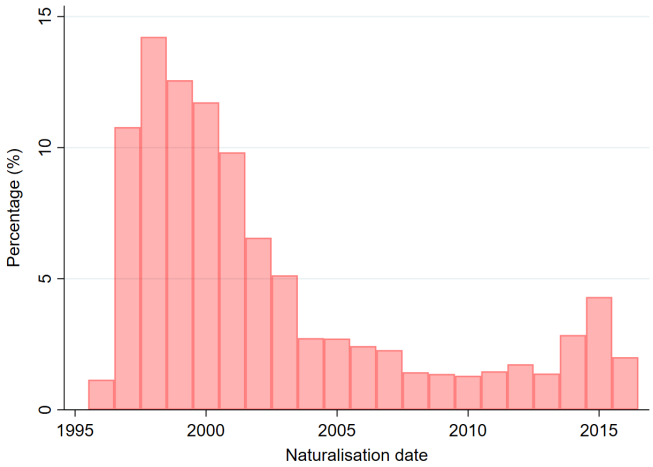

Figure B1: Distribution of naturalisation date (in %) among the children born as foreign citizens.

II Technical Appendix: Optimal matching between sequences of transitions

This Appendix describes in more detail the construction of the distance we use for the Optimal Matching (OM) between sequences of transitions. While Table B4 gives the full matrix we use to shift the sequence elements from states to transitions, Tables B5 and B6 indicate the substitution and indel costs we use to assess the level of dissimilarity between sequences.

Alphabet and number of possible transitions

Before detailing the construction of the distance, it is important to note that Biemann's approach tends to complicate the cost settings. Indeed, compared to the standard approach, building the sequences based on the transitions considerably increases the size of the alphabet (see Table 4.2 for a comparison). However, there are at least two ways to mitigate this issue. First, it is possible, based on theoretical expectations, to reduce the size of the substitution cost matrix by only distinguishing between the states that are qualitatively different and aggregating similar types of transitions (Biemann, 2011, p.215). Second, it is possible to calculate the costs of transitions based on the costs of states using a formula developed by Studer and Ritschard (2016, p.495). In this paper, we use Biemann's theoretical approach to bring further evidence that transition-oriented OM provides "a stronger link between social science theory and methods" (Biemann, 2011, p219).

To implement OM between sequences of transitions, we consider 12 states, including an artificial start state (see details in section 4). This alphabet corresponds to $(11 + 1) * 11 = 132$ possible transitions, which requires us to set the substitution costs for $((132 + 1) * 132)/2$ or about 9,000 pairs of transitions (assuming that the substitution costs are symmetric). However, if we cluster the transitions into 8 categories, the substitution costs matrix is brought down to a manageable size, with $((8 + 1) * 8)/2 = 36$ costs left to define.[1]

Setting of the substitution and indel costs

We took into consideration two main aspects when setting the costs. First, the distance should satisfy the axioms of a metric and notably the triangle

[1] In practice the number of costs to define is even smaller because transitions including the start state are not substitutable by all other transitions (see Table B5).

inequality, which states that "when two objects (x and z) are close to a third object (y), they cannot be remote from each other" (Elzinga and Studer, 2015, p8). This mathematical condition is crucial to ensure that the space in which we quantify the distances exhibits coherence and regularity. Another important aspect is that the cost setting determines the sensitivity of the distance to timing, duration and sequencing (Studer and Ritschard, 2016). By design, OM between sequences of transitions is sensitive to the latter, i.e. to the order of the distinct successive states. However, the setting of substitution and indel costs enables us to further highlight transition patterns in students' educational trajectories.

Substitution costs We use the substitution costs to further emphasise differences in educational mobility *between* tracks, so as to identify non-standard trajectories. Table B5 gives the full substitution costs matrix. The top left block of the matrix indicates that there is no cost in substituting a starting transition by one other, while the bottom right block specifies different costs for substituting subsequent transitions. The two most expensive edit operations are to replace a given transition by an upward ($c = 3$) or dropout ($c = 2.5$) transition, since these are expected to have a lasting impact on students' future career and opportunities. Conversely, substituting a given transition with an exit transition comes at the lowest cost (1.5), so as not to over-emphasise the significance of temporary discontinuities.

Indel costs Table B6 indicates the costs for inserting or deleting each category of transition. When indel operations are used, time is warped so that to align identical transition elements (Lesnard, 2010, p394). In our case, it is important to allow time warping for standard transitions, as students may repeat – or more exceptionally skip – a grade during their educational career. Consequently, we set the indel cost for standard transitions at around $1/30$ the largest substitution cost, which is 3 [2]. For the other categories of transitions, we set large indel costs so that substitutions are always favoured. This ensures that we preserve the sequencing of non-standard transitions. These costs also ensure that the triangular inequality is met.

[2] The literature usually recommends to set the indel costs at around $1/10$ the largest substitution cost (Brzinsky-Fay et al., 2006, p450). However, considering the length of our observation period, it was necessary to lower this ratio down to $1/30$ for decreasing the effect of timing.

State element in t	State element in t+1											
	Start	Bridge	VMBO	HAVO	VWO	MBO	HBO	WO	Deregist.	Outward	Dropout	Out of school
Start	.	2	1	3	3	.	.	.	.	.	.	.
Bridge	.	**4**	4	4	4	4	.	.	7	7	8	4
VMBO	.	6	**4**	6	6	4	6	.	7	7	8	4
HAVO	.	6	5	**4**	6	5	4	.	7	7	8	4
VWO	.	5	.	5	**4**	5	5	4	7	7	8	4
MBO	.	.	5	6	.	**4**	6	.	7	7	8	4
HBO	.	.	.	.	.	5	**4**	6	7	7	.	4
WO	.	.	.	.	.	.	5	**4**	7	7	.	4
Deregistration	.	4	4	4	4	4	4	4	**4**	7	.	.
Outward	.	4	4	4	4	4	4	4	4	**4**	8	4
Dropout	.	.	.	.	.	.	.	.	.	7	**4**	.
Out of school	.	.	.	.	.	.	.	.	.	7	.	**4**

Table B4: States-to-transitions matrix for the transition-oriented Optimal Matching (see legend p.255).

Legend	1	Start-VMBO	Atypical transitions
	2	Start-Bridge	
	3	Start-HAVO/VWO	**Distribution atypical cases**
	4	Standard transition	
	5	Downward transition	
	6	Upward transition	
	7	Exit transition	
	8	Dropout transition	
	.	Non-existing transition	

t	t+1	N
MBO	VMBO	3
VMBO	VWO	5
VMBO	HBO	1
VMBO	Out of school	6
Bridge	Out of school	3

Table B4 Continued: States-to-transitions matrix for the transition-oriented Optimal Matching (legend).

The underlying rationale for this cost setting is that our aim is to measure similarity between students based on their mobility profiles – that is, on whether they are moving or not between tracks and if so, *how* – rather than on the specific tracks in which they are enrolled. To put it differently, according to this edit function, we consider that two students starting out in different tracks and being upwardly mobile are more similar than two individuals starting in the same track but following diverging paths. Likewise, the chosen cost setting gives priority to the *presence* or *absence* of a given non-standard transition, at the expense of their *timing* or *frequency*. We do so because our theoretical mechanisms mainly relate to the type of transitions that students experience, rather than to the number of transitions or their timing. There is indeed ample evidence that in stratified school systems, parents need resources to negotiate a given track for their children. By contrast, little is known about how these resources are related to the timing or the number of non-standard transitions, and whether such patterns are important for the meaning of the transitions.

Finally, it is important to stress that other cost settings could have been used, since the values chosen for the ratios between the costs are arbitrary (Studer and Ritschard, 2016, p491). However, transitions can be ranked according to their nature based on theoretical grounds, which enhances transparency and results in a closer link between theory and method (Biemann, 2011).

	Start VMBO	Start Bridge	Start HAVO/VWO	Standard	Downward	Upward	Exit	Dropout
Start VMBO	0	0	0	.	.	.	.	.
Start Bridge	0	0	0	.	.	.	.	.
Start HAVO/VWO	0	0	0	.	.	.	.	.
Standard	.	.	.	0	2	3	1.5	2.5
Downward	.	.	.	2	0	3	1.5	2.5
Upward	.	.	.	3	3	0	1.5	2.5
Exit	.	.	.	1.5	1.5	1.5	0	2.5
Dropout	.	.	.	2.5	2.5	2.5	2.5	0

Table B5: Substitution Costs Matrix for the transition-oriented Optimal Matching.

	Start VMBO	Start Bridge	Start HAVO/VWO	Standard	Downward	Upward	Exit	Dropout
indel cost	.	.	.	0.1	2	3	1.5	2.5

Table B6: Indel Costs vector for the transition-oriented Optimal Matching.

III Technical Appendix: Robustness of the cluster solution

To assess the stability of the partition, we group sequences using two different algorithms:

Ward Ward's algorithm is a hierarchical agglomerative method which joins groups so that to minimise the error-sum-of-squares (Ward, 1963). Although this method is very popular, it has a number of limitations: it assumes that points can be represented in Euclidean space, tends to find same-size and spherical clusters and is sensitive to outliers (Everitt, 2011, p.89).

PAM The Partition around medoids (PAM) is a partitional algorithm developed by Kaufman and Rousseeuw (1990), which groups the sequences into a pre-defined number of clusters, based on the clusters' medoids. This method is less sensitive to outlying values, but assumes that the number of clusters is known *a priori*.

As Ward's algorithm suggests that the optimal number of clusters is below ten, we implement the PAM algorithm for $k \leq 10$ clusters. We further use the medoids obtained from Ward's partitions as seeds for the partition around medoids algorithm. Yet, we also analyse cluster solutions obtained with seeds generated with a genetic algorithm. While cluster quality is overall equally good (see Figure B2), using the Ward's medoids as starting points slightly increases the analytical quality of the clusters. We therefore refer to PAM based on Ward's medoids in the following.

Overall, results are relatively comparable between Ward's and PAM algorithms, leading to similar cluster partition and interpretation. As Figure B2 shows, the resulting partitions are very similar in terms of global cluster quality. However, Ward's local cluster quality is generally more heterogeneous with a combination of very high- and low-quality groupings: while numerous clusters have an average silhouette width around 0.8, others have a substantial share of miss-classified cases ($ASW < 0$). We therefore use the PAM algorithm for our main analysis, to ensure a reasonable classification of cases across all clusters.

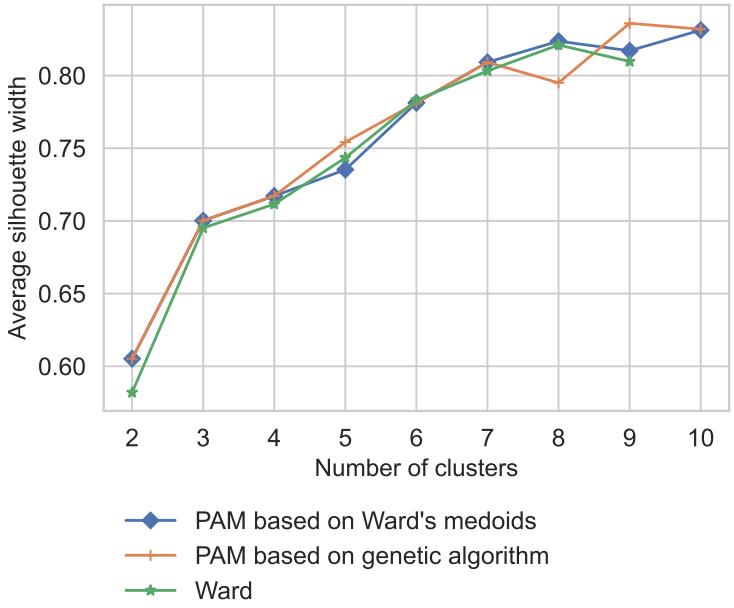

Figure B2: Comparison of the Average silhouette width between three different clustering algorithms.

IV Full description of the covariates

See Table B7 on p.263 for an overview of the full set of covariates.

Note on Cito score

A substantial share (23%) of students in our sample did not take the Cito standardised test at the end of primary school. This can be for different reasons: some primary schools do not offer any test (this is common in special primary education, SBO), while others have a different test provider than Cito. Unfortunately, there is very little external information about the profiles of such schools in the considered year. We have checked in our sample whether schools without a Cito test are systematically different from those with a Cito test in terms of their students' sociodemographic characteristics (results available upon request). It seems that students that are enrolled in a school without the test come from a slightly more disadvantaged social background than those who take the test. However, the differences are limited (2 percentage points at most).

Note on parental educational level

Unfortunately, information on the educational level of first generation parents is very limited in the Dutch register data, especially in the 1990s and 2000s. To maximise the coverage, Statistics Netherlands obtains or derives information on education level from various registers and the Labor Force Survey.[3] However, although information on education level exists for an increasing share of the population, reaching 58% in 2012 (Gans et al., 2015), information is still missing for a substantial group of individuals, specifically for older cohorts and immigrants. Moreover, the level of education tends to be underestimated in administrative data because education abroad or at private institutions is difficult to take into account. As a result, an imputed educational level is available in the most recent registers. Since first-generation immigrants are particularly at risk of having their educational level underestimated, we use the imputed level of education whenever available. This

[3]This combination of register and survey data requires the use of weights to get a representative measure of education for the entire Dutch population. However, the weights are not meant to ensure representativity for the sub-population of first generation immigrants alone; they have therefore not been used.

measure of education is more reliable but it is also more recent, which introduces a risk of anticipatory analysis, *i.e.*, explaining students' current outcomes by the future characteristics of their parents (see Hoem and Kreyenfeld, 2006). Nevertheless, parents' education level is arguably relatively stable from the moment their children enter secondary education,[4] which justifies treating it as a time-constant characteristic in the absence of any more reliable information. We take the highest education level obtained among parents, and distinguish between low (primary education), middle (completed some secondary education), and high (bachelor or higher). Missing values, which still represent a non-negligible share (17.3%), are coded as a separate category.

Note on parental date of arrival in the Netherlands

Parents' initial date of arrival is difficult to identify in Dutch register data for several reasons. First, immigrants are only present in the registers when they are registered as residents of the Netherlands, which creates gaps in the event of repeated migration moves. Second, the registers needed for this paper only start in 1995, which means that we can only observe migration moves on a yearly basis from 1995 onwards. This is problematic, because the vast majority (91.5%) of immigrant parents in our population of interest arrived in the Netherlands before 1995 at the earliest. We have nonetheless a variable for immigrants' last migration move, which is correct when parents have stayed registered in the Netherlands since 1995. In our sample, 1,319 (10.6%) mothers and 2,610 (20.9%) fathers are identified as leaving the Netherlands at some point between 1995 and 2016, and, thus, have an unknown date of arrival in the Netherlands. We replace missing values by a minimum bound: the age of the parents' child. As their children are necessarily born on Dutch soil, we can reasonably assume that the parents arrived in the Netherlands at least at the time of the birth.[5] On the one hand, this approximation may underestimate the amount of time parents have stayed in the Netherlands. On the other hand, this concerns parents who have moved back and forth to the Netherlands during the childhood or youth of their child. As years since migration is used to proxy the knowledge and language parents acquire over time, it

[4] When looking at non-missing cases, 17.0% of mothers and 18.1% of fathers have more than one level of education recorded during the period under observation. Note that this gives an upper bound for variation in parental education level over time, because the measure relies on a very detailed classification of educational credentials.

[5] Note that this is more accurate for mothers than for fathers, since parents are not necessarily moving together.

is arguably reasonable to assume that those who are not permanently settled do not become familiar with the Dutch context to the same extent as those who stay continuously. As a robustness check, we run the models with a separate category for the missing values. While imputation has some effect on the coefficients for years since migration, this does not affect the citizenship coefficients (results available upon request).

Variable	Measurement	Description/Caveats
Variable of interest		
Citizenship	1. Dutch from birth 2. Naturalised 3. Non-naturalised	This variable is based on observed changes in the respondent's registered nationalities. It is censored at the start of the observation period in the main model. A robustness check includes the variable censored at the end of the observation period (see Figure B6).
Sociodemographic variables		
Gender	1. Male 2. Female	
EU/non-EU	Dummy: mother's or father's country of birth is a member state of the European Union.	
Number of children in the household	Number	The variable indicates the number of individuals below 18 living in the same household as the respondent. Note that this may differ from the respondent's actual number of siblings.
Type of household	1. Two-parent household 2. Single-parent household	
School controls		
Track at first enrolment	1. Bridge 2. VMBO 3. HAVO/VWO	
Cito score	Quintiles + separate category for missing value	See detailed note about the missing values for the Cito score on p.260
Confounding factors		
Father/mother years since migration	1. 15 years or less 2. 16-25 3. More than 25 years.	See detailed note about the measurement of immigrants' year of arrival on p.261
Parental education	1. Low education (primary education) 2. Middle education (completed some secondary education) 3. High education (bachelor or higher)	Highest educational degree obtained among parents. See detailed note about the measurement of immigrants' level of education on p.260
Father/mother SES status	1. (self-)Employed 2. Reception of benefits 3. No declared income 4. Missing SES	In the Dutch registers, SES status is operationalised as the main source of income.
Homeownership	Dummy: at least one parent is a homeowner	
Family income	Terciles	Measured after tax and adjusted for household size and composition
Language spoken at home	1. (Including) Dutch 2. Other than Dutch 3. Unknown	This information is only available for students who took the Cito test at the end of primary school.

Table B7: Detailed overview of the covariates for the main regression model.

V Additional outputs for the sequence analysis

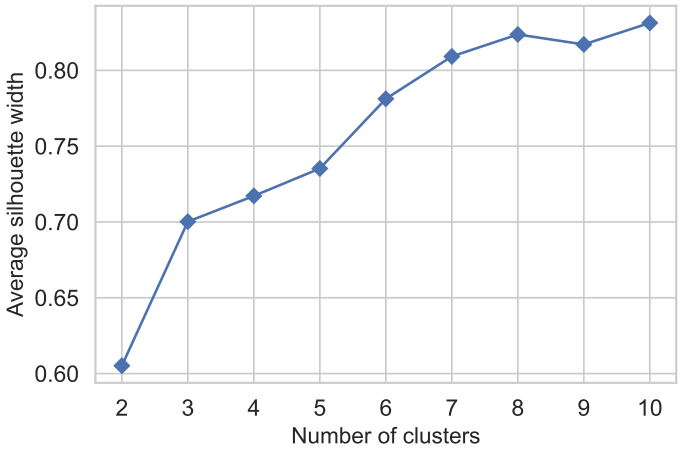

Figure B3: Average silhouette width for the ten first cluster solutions from the Partition around Medoids algorithm.

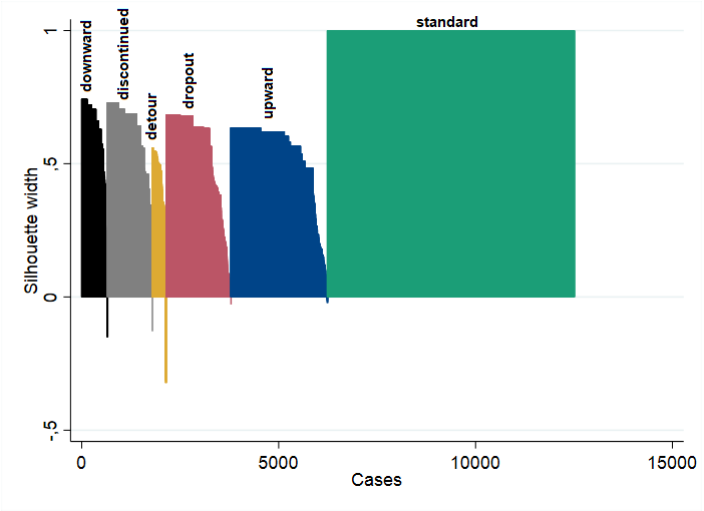

Figure B4: Average silhouette width for the six-cluster solution from the Partition around Medoids algorithm.

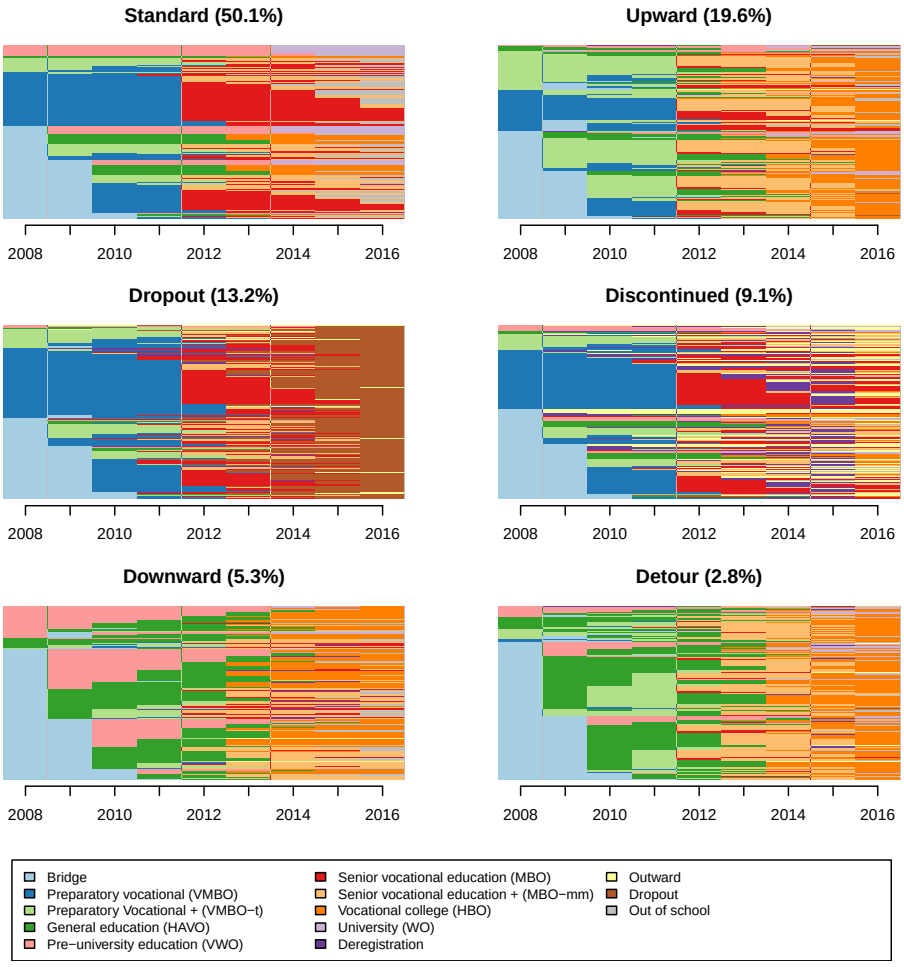

Figure B5: Index-plot based on states elements for the full sample (N=12,505).
Note: *VMBO-t* stands for the theoretical path within vocational education, which gives access to general education (HAVO), while *MBO-mm* stands for the middle management level within senior vocational education, which opens the door to vocational college (HBO).

Additional descriptive statistics for cluster membership

	Type of transition				
	Standard	Upward	Dropout	Exit	Downward
Cluster					
Standard	50.1	0.0	0.0	0.0	0.0
Upward	19.6	85.8	2.0	6.2	12.2
Dropout	13.17	2.3	97.8	20.4	7.3
Discontinued	9.1	0.0	0.1	68.7	0.2
Downward	5.3	0.3	0.0	3.2	52.4
Detour	2.8	11.6	0.1	1.4	27.9
Total	100.0	100.0	100.0	100.0	100.0

Table B8: Type of transition experienced in secondary education by cluster membership (%).

	Dutch from birth	**Naturalised**	**Non-naturalised**	**Total**
Standard	50.5	49.5	50.4	50.1
Upward	20.5	19.8	16.6	19.6
Dropout	12.2	13.2	16.2	13.2
Discontinued	8.4	9.6	10.1	9.1
Downward	5.5	5.1	4.8	5.3
Detour	3.0	2.9	2.0	2.8
Total	100.0	100.0	100.0	100.0

Table B9: Citizenship status by cluster membership (%).

VI Full regression models

	Downward	Discontinuous	Detour	Dropout	Upward
			vs. Standard		
Citizenship					
Dutch from birth	0,949	0,911	1,508	0,813	1,192
	(0,707)	(0,351)	(0,039)	(0,013)	(0,024)
Naturalised	0,990	0,916	1,502	0,832	1,128
	(0,946)	(0,384)	(0,044)	(0,028)	(0,126)
Non-naturalised	ref.	ref.	ref.	ref.	ref.
Sociodemographics					
Gender					
Male	ref.	ref.	ref.	ref.	ref.
Female	1,258	0,815	1,543	0,402	1,186
	(0,008)	(0,003)	(0,000)	(0,000)	(0,001)
First born					
Non first-born	ref.	ref.	ref.	ref.	ref.
First-born	1,060	0,770	0,955	0,875	1,011
	(0,544)	(0,001)	(0,717)	(0,052)	(0,852)
country of origin					
Non-EU	ref.	ref.	ref.	ref.	ref.
EU	1,329	1,459	1,224	1,003	0,746
	(0,121)	(0,018)	(0,450)	(0,985)	(0,041)
Number of children	0,921	1,042	0,881	1,089	0,997
	(0,058)	(0,208)	(0,023)	(0,002)	(0,895)
Household type					
Two-parent	ref.	ref.	ref.	ref.	ref.
Single-parent	0,821	1,517	0,858	1,593	0,993
	(0,178)	(0,000)	(0,404)	(0,000)	(0,926)
School controls					
First enrolment					
Bridge	ref.	ref.	ref.	ref.	ref.
VMBO(+)	0,821	1,517	0,858	1,593	0,993
	(0,178)	(0,000)	(0,404)	(0,000)	(0,926)
HAVO/VWO	1,576	0,787	1,059	0,474	0,754
	(0,000)	(0,173)	(0,753)	(0,000)	(0,035)
Cito score					
First quintile	ref.	ref.	ref.	ref.	ref.

Continued

Table B10: Multinomial logistic regression of the odds of experiencing different trajectories through secondary and tertiary education.

	Downward	Discontinuous	Detour	Dropout	Upward
			vs. Standard		
Second CITO quintile	4,268	1,050	1,886	0,870	2,379
	(0,062)	(0,663)	(0,249)	(0,133)	(0,000)
Third CITO quintile	22,70	1,151	11,48	0,900	4,057
	(0,000)	(0,220)	(0,000)	(0,281)	(0,000)
Fourth CITO quintile	52,81	0,847	17,84	0,841	3,712
	(0,000)	(0,217)	(0,000)	(0,119)	(0,000)
Fifth CITO quintile	45,67	0,550	10,65	0,402	0,927
	(0,000)	(0,000)	(0,000)	(0,000)	(0,553)
Missing CITO	37,07	0,891	11,49	1,018	1,937
	(0,000)	(0,644)	(0,001)	(0,934)	(0,001)
Confounding factors					
Parental education					
Low education	ref.	ref.	ref.	ref.	ref.
Middle education	1,253	1,076	1,087	0,885	1,130
	(0,040)	(0,389)	(0,564)	(0,098)	(0,049)
High education	0,990	0,917	1,018	0,678	1,032
	(0,944)	(0,502)	(0,923)	(0,002)	(0,730)
Missing education	0,784	1,001	0,959	0,909	0,956
	(0,071)	(0,993)	(0,800)	(0,265)	(0,530)
Homeownership					
Not homeowner	ref.	ref.	ref.	ref.	ref.
Homeowner	0,875	1,019	0,770	0,936	1,198
	(0,194)	(0,820)	(0,057)	(0,365)	(0,002)
Mother's SES					
(Self-)Employed	ref.	ref.	ref.	ref.	ref.
Reception of benefits	0,768	0,885	0,993	1,112	0,944
	(0,043)	(0,211)	(0,965)	(0,195)	(0,417)
No declared income	0,959	1,077	1,197	1,080	1,094
	(0,719)	(0,434)	(0,238)	(0,350)	(0,179)
Missing SES	1,239	1,196	1,391	1,842	0,628
	(0,676)	(0,620)	(0,602)	(0,049)	(0,207)
Father's SES					
(Self-)Employed	ref.	ref.	ref.	ref.	ref.
Reception of benefits	0,856	1,104	0,998	1,083	1,025
	(0,206)	(0,263)	(0,991)	(0,283)	(0,705)
No declared income	1,166	1,292	1,414	1,092	0,948

Continued

Table B10 Continued: Multinomial logistic regression of the odds of experiencing different trajectories through secondary and tertiary education.

	Downward	Discontinuous	Detour	Dropout	Upward
			vs. Standard		
	(0,437)	(0,081)	(0,169)	(0,513)	(0,674)
Missing SES	1,207	0,968	1,467	1,035	1,328
	(0,505)	(0,863)	(0,230)	(0,828)	(0,059)
Family income					
First tercile	ref.	ref.	ref.	ref.	ref.
Second income tercile	0,903	0,882	1,131	0,927	1,124
	(0,381)	(0,149)	(0,406)	(0,298)	(0,073)
Third income tercile	0,732	0,963	0,960	0,885	1,131
	(0,017)	(0,713)	(0,814)	(0,161)	(0,097)
Language spoken at home					
(Including) Dutch	ref.	ref.	ref.	ref.	ref.
Other than Dutch	0,931	0,970	0,888	1,064	1,051
	(0,461)	(0,705)	(0,346)	(0,370)	(0,391)
Unknown	0,526	0,972	0,484	0,869	1,008
	(0,142)	(0,905)	(0,225)	(0,502)	(0,966)
Mother's YSM*					
0-15	ref.	ref.	ref.	ref.	ref.
16-25	0,785	0,637	0,766	0,949	0,843
	(0,027)	(0,000)	(0,060)	(0,489)	(0,007)
over 25	0,945	0,621	0,788	1,035	0,761
	(0,642)	(0,000)	(0,137)	(0,674)	(0,000)
Father's YSM*					
0-15	ref.	ref.	ref.	ref.	ref.
16-25	1,057	0,693	0,821	0,729	1,007
	(0,629)	(0,000)	(0,189)	(0,000)	(0,910)
over 25	1,046	0,623	0,906	0,839	0,879
	(0,715)	(0,000)	(0,530)	(0,028)	(0,066)
Observations	12,249				

Exponentiated coefficients; *p*-values in parentheses

*YSM stands for the number of years since migration

Table B10 Continued: Multinomial logistic regression of the odds of experiencing different trajectories through secondary and tertiary education.

	Downward	Discontinuous	Detour	Dropout	Upward
			vs. Standard		
Citizenship					
Model 1 - citizenship only					
Dutch from birth	1,133 (0,319)	0,793 (0,016)	1,579 (0,016)	0,732 (0,000)	1,226 (0,006)
Naturalised	1,074 (0,580)	0,918 (0,378)	1,594 (0,015)	0,805 (0,007)	1,205 (0,014)
Non-naturalised	ref.	ref.	ref.	ref.	ref.
Model 2 - Model 1 with sociodemographic controls					
Dutch from birth	1,165 (0,237)	0,808 (0,031)	1,622 (0,012)	0,736 (0,000)	1,172 (0,036)
Naturalised	1,141 (0,319)	0,943 (0,553)	1,661 (0,009)	0,792 (0,005)	1,163 (0,050)
Non-naturalised	ref.	ref.	ref.	ref.	ref.
Model 3 - Model 2 with educational controls					
Dutch from birth	0,947 (0,688)	0,829 (0,058)	1,400 (0,086)	0,780 (0,002)	1,170 (0,041)
Naturalised	1,004 (0,975)	0,960 (0,680)	1,503 (0,041)	0,827 (0,022)	1,157 (0,063)
Non-naturalised	ref.	ref.	ref.	ref.	ref.
Model 4 - Model 3 with confounding factors					
Dutch from birth	0,949 (0,707)	0,911 (0,351)	1,508 (0,039)	0,813 (0,013)	1,192 (0,024)
Naturalised	0,990 (0,946)	0,916 (0,384)	1,502 (0,044)	0,832 (0,028)	1,128 (0,126)
Non-naturalised	ref.	ref.	ref.	ref.	ref.
Observations	12,249				

Exponentiated coefficients; *p*-values in parentheses

Table B11: Step-wise multinomial logistic regressions of the odds of experiencing different trajectories through secondary and tertiary education, by citizenship status.

Analysis of the covariates

Table SB10 enables us to consider the associations between covariates and educational trajectories in more detail. We observe that parental characteristics, especially parents' highest education level, have some effect on the trajectory that one takes through secondary and tertiary education. Notably, students whose parents have a higher education diploma are substantially less at risk of following the dropout trajectory than those whose parents only completed primary education. Compared to the latter, those whose parents have a middle education diploma are also slightly more likely to experience downward or upward transitions as opposed to staying in their initial track.

By contrast, household disposable income is not strongly associated with the type of trajectory a student follows. For example, being in the third income tercile instead of the first one only marginally decreases the odds of following a non-standard trajectory as opposed to the standard path. The most noticeable effect is for the downward movers, suggesting that children whose parents have a comfortable financial position are more likely to remain in their track than to go down, in line with findings in the literature on compensatory advantage (Huang, 2020). In the same vein, there is no noticeable pattern for parental socioeconomic status. Overall, these results are consistent with earlier work on the Dutch case showing that education level is a stronger predictor of educational attainment than occupational status (Tieben et al., 2010). In a context where the direct costs of education have dropped, cultural resources can indeed be expected to take precedence over financial means.

Contrary to expectations, the language spoken at home has no significant effect on the trajectory a student follows. While those who speak Dutch at home are more likely to take a detour than the standard path, the effect is not precisely estimated (p=0.346). By contrast, parents' years since migration is strongly associated with certain types of trajectory. Notably, students whose mother or father is living in the Netherlands for more than 15 years are substantially less likely to follow a discontinuous trajectory compared to those whose parents arrived more recently.

Finally, the sociodemographic variables have some moderate effects on the trajectories followed. The household type has a notable effect on the likelihood that a student will follow a dropout or discontinued trajectory as opposed to staying in their initial track: those in single-parent households are substantially more likely to leave school without qualifications at some point than those living with both parents (odds ratio of about 1.5). Consistent with

the idea that those taking a detour might commit significant resources to move upward after an initial downward transition, the odds of following this path as opposed to the standard one decrease as the number of children in the household increases.

Average marginal effects

Outcome	AME	p-value	95% conf. interval	
Dutch from birth (ref. non-naturalised)				
Downward	-0.004	0.557	-0.016	0.009
Discontinued	-0.008	0.300	-0.023	0.007
Detour	0.010	0.021	0.001	0.018
Dropout	-0.027	0.004	-0.045	-0.009
Upward	0.031	0.003	0.010	0.051
Standard	-0.002	0.897	-0.029	0.025
Naturalised (ref. non-naturalised)				
Downward	-0.001	0.827	-0.014	0.011
Discontinued	-0.007	0.363	-0.022	0.008
Detour	0.010	0.025	0.001	0.018
Dropout	-0.023	0.012	-0.042	-0.005
Upward	0.021	0.042	0.001	0.042
Standard	0.001	0.951	-0.026	0.028

Table B12: Average marginal effects (AME) of citizenship status predicting pathways into secondary and tertiary education.

Outcome	AME	p-value	95% conf. interval	
Middle education (ref. low education)				
Downward	0.010	0.063	-0.001	0.020
Discontinued	0.004	0.518	-0.008	0.017
Detour	0.001	0.799	-0.007	0.008
Dropout	-0.018	0.015	-0.033	-0.004
Upward	0.018	0.048	0.000	0.036
Standard	-0.015	0.202	-0.037	0.008
High education (ref. low education)				
Downward	0.001	0.882	-0.011	0.013
Discontinued	-0.003	0.775	-0.021	0.016
Detour	0.001	0.781	-0.008	0.011
Dropout	-0.038	0.000	-0.060	-0.017
Upward	0.015	0.266	-0.011	0.041
Standard	0.024	0.150	-0.009	0.057
Missing education (ref. low education)				
Downward	-0.009	0.082	-0.020	0.001
Discontinued	0.003	0.704	-0.012	0.018
Detour	0.000	0.996	-0.008	0.008
Dropout	-0.008	0.347	-0.026	0.009
Upward	-0.002	0.813	-0.022	0.017
Standard	0.017	0.190	-0.009	0.043

Table B13: Average marginal effects (AME) of parental education predicting pathways into secondary and tertiary education.

VII Robustness checks

Average marginal effects of citizenship at representative values

Outcome	Language at home	AME	p-value	95% conf. interval	
Dutch from birth					
(ref. non-naturalised)					
Downward	Incl. Dutch	-0.004	0.553	-0.018	0.010
Downward	Excl. Dutch	-0.004	0.566	-0.017	0.009
Discontinued	Incl. Dutch	-0.008	0.298	-0.023	0.007
Discontinued	Excl. Dutch	-0.008	0.306	-0.022	0.007
Detour	Incl. Dutch	0.011	0.030	0.001	0.022
Detour	Excl. Dutch	0.010	0.028	0.001	0.019
Dropout	Incl. Dutch	-0.027	0.004	-0.045	-0.009
Dropout	Excl. Dutch	-0.028	0.004	-0.047	-0.009
Upward	Incl. Dutch	0.030	0.004	0.010	0.050
Upward	Excl. Dutch	0.031	0.003	0.010	0.052
Standard	Incl. Dutch	-0.002	0.887	-0.029	0.025
Standard	Excl. Dutch	-0.002	0.910	-0.028	0.025
Naturalised					
(ref. non-naturalised)					
Downward	Incl. Dutch	-0.002	0.820	-0.016	0.013
Downward	Excl. Dutch	-0.001	0.836	-0.015	0.012
Discontinued	Incl. Dutch	-0.007	0.358	-0.022	0.008
Discontinued	Excl. Dutch	-0.007	0.368	-0.021	0.008
Detour	Incl. Dutch	0.011	0.033	0.001	0.022
Detour	Excl. Dutch	0.010	0.032	0.001	0.020
Dropout	Incl. Dutch	-0.024	0.012	-0.042	-0.005
Dropout	Excl. Dutch	-0.025	0.012	-0.044	-0.005
Upward	Incl. Dutch	0.021	0.046	0.000	0.041
Upward	Excl. Dutch	0.022	0.041	0.001	0.042
Standard	Incl. Dutch	0.000	0.982	-0.027	0.028
Standard	Excl. Dutch	0.001	0.948	-0.026	0.028

Table B14: Average marginal effects (AME) of citizenship at representative values of language spoken at home, predicting pathways into secondary and tertiary education.

Outcome	Parental education	AME	p-value	95% conf. interval	
Dutch from birth					
(ref. non-naturalised)					
Downward	low	-0.004	0.571	-0.016	0.009
Downward	middle	-0.004	0.542	-0.019	0.010
Downward	high	-0.004	0.530	-0.017	0.009
Discontinued	low	-0.008	0.315	-0.023	0.007
Discontinued	middle	-0.009	0.282	-0.024	0.007
Discontinued	high	-0.008	0.263	-0.023	0.006
Detour	low	0.009	0.023	0.001	0.018
Detour	middle	0.010	0.023	0.001	0.018
Detour	high	0.010	0.028	0.001	0.018
Dropout	low	-0.028	0.004	-0.047	-0.009
Dropout	middle	-0.026	0.004	-0.043	-0.008
Dropout	high	-0.022	0.005	-0.037	-0.007
Upward	low	0.031	0.003	0.010	0.051
Upward	middle	0.032	0.004	0.010	0.054
Upward	high	0.031	0.005	0.009	0.052
Standard	low	0.000	0.975	-0.027	0.026
Standard	middle	-0.003	0.816	-0.030	0.024
Standard	high	-0.006	0.660	-0.033	0.021
Naturalised					
(ref. non-naturalised)					
Downward	low	-0.001	0.841	-0.014	0.011
Downward	middle	-0.002	0.813	-0.016	0.013
Downward	high	-0.002	0.798	-0.015	0.011
Discontinued	low	-0.007	0.378	-0.022	0.008
Discontinued	middle	0.008	0.346	-0.023	0.008
Discontinued	high	-0.007	0.326	-0.022	0.007
Detour	high	0.009	0.026	0.001	0.018
Detour	middle	0.010	0.027	0.001	0.018
Detour	high	0.010	0.032	0.001	0.019
Dropout	low	-0.025	0.012	-0.044	-0.005
Dropout	middle	-0.022	0.012	-0.040	-0.005
Dropout	high	-0.019	0.014	-0.034	-0.004
Upward	low	0.021	0.040	0.001	0.042
Upward	middle	0.022	0.044	0.001	0.044
Upward	high	0.021	0.054	0.000	0.043
Standard	low	0.002	0.887	-0.025	0.029
Standard	middle	0.000	0.976	-0.028	0.027
Standard	high	-0.003	0.844	-0.030	0.025

Table B15: Average marginal effects (AME) of citizenship at representative values of parental education, predicting pathways into secondary and tertiary education.

Outcome	Mother's YSM	AME	p-value	95% conf. interval	
Dutch from birth					
(ref. non-naturalised)					
Downward	0-15	-0.004	0.539	-0.017	0.009
Downward	16-25	-0.003	0.561	-0.015	0.008
Downward	over 25	-0.004	0.578	-0.017	0.010
Discontinued	0-15	-0.010	0.278	-0.029	0.008
Discontinued	16-25	-0.007	0.304	-0.021	0.007
Discontinued	over 25	-0.007	0.336	-0.020	0.007
Detour	0-15	0.010	0.025	0.001	0.020
Detour	16-25	0.009	0.023	0.001	0.017
Detour	over 25	0.009	0.022	0.001	0.017
Dropout	0-15	-0.026	0.004	-0.043	-0.008
Dropout	16-25	-0.027	0.004	-0.045	-0.009
Dropout	over 25	-0.028	0.004	-0.048	-0.009
Upward	0-15	0.032	0.004	0.011	0.054
Upward	16-25	0.031	0.004	0.010	0.052
Upward	over 25	0.029	0.003	0.010	0.048
Standard	0-15	-0.003	0.838	-0.030	0.024
Standard	16-25	-0.002	0.863	-0.029	0.024
Standard	over 25	0.000	0.975	-0.026	0.027
Naturalised					
(ref. non-naturalised)					
Downward	0-15	-0.002	0.810	-0.015	0.012
Downward	16-25	-0.001	0.831	-0.013	0.011
Downward	over 25	-0.001	0.845	-0.015	0.012
Discontinued	0-15	-0.009	0.344	-0.028	0.010
Discontinued	16-25	-0.006	0.367	-0.020	0.007
Discontinued	over 25	-0.006	0.393	-0.019	0.008
Detour	0-15	0.010	0.026	0.001	0.020
Detour	16-25	0.009	0.027	0.001	0.017
Detour	over 25	0.009	0.028	0.001	0.017
Dropout	0-15	-0.022	0.012	-0.040	-0.005
Dropout	16-25	-0.023	0.011	-0.041	-0.005
Dropout	over 25	-0.025	0.012	-0.044	-0.005
Upward	0-15	0.023	0.042	0.001	0.044
Upward	16-25	0.021	0.044	0.001	0.042
Upward	over 25	0.020	0.041	0.001	0.039
Standard	0-15	0.000	0.996	-0.027	0.027
Standard	16-25	0.000	0.972	-0.027	0.028
Standard	over 25	0.002	0.857	-0.025	0.030

Table B16: Average marginal effects (AME) of citizenship at representative values of mother's years since migration (YSM), predicting pathways into secondary and tertiary education.

Upper bound: with citizenship measured at the end of the observation period

The empirical strategy followed in the paper does not allow the inclusion of time-varying covariates in order to preserve a temporal order between the covariates and the outcome. This is particularly problematic for our variable of interest, citizenship status, which varies over time (See Table SB3). We therefore use an alternative specification to assess potential biases in our estimations of the effect of citizenship on educational trajectories.

In the main analysis, we only categorised as naturalised those who acquired Dutch citizenship before entering secondary education. However, some students may already be on their way to becoming Dutch and may have acquired citizenship by the beginning of the observation period. What is more, parents who plan to naturalise in the coming years may already be developing their country-specific skills, with beneficial effects for their children's educational orientation and motivation. As a result, we expect the effect of citizenship to be underestimated in the main model.

To estimate an upper bound for the effect of citizenship, we use an alternative specification where we define all students who acquire citizenship after birth within the observation period as naturalised. This reduces the share of non-naturalised students from 15.2% to 6.7% and shifts the focus towards those who are still foreign citizens *after the age of majority*.

The results of this specification, presented in Figures B6, show very similar patterns to those observed in the main analysis, with the difference that the estimated effects for citizenship are substantially larger in magnitude. In this specification, acquiring Dutch citizenship at birth or during the observation period decreases the chances that a student will follow a dropout trajectory by about 7 percentage points compared to a student who remains a foreign citizen in 2016 (Figure B6). For upward mobility, the average marginal effects both exceed 5 percentage points. Although these results require careful interpretation due to anticipatory analysis (see Hoem and Kreyenfeld, 2006), they are informative in two respects. First, they show that those who are still foreign citizens after the age of majority are at a strong disadvantage in the Dutch education system and have a substantially lower ability to make use of its flexibility. Second, the results further support the idea that differences in the timing of naturalisation are marginal, while there is a significant gap between those who get Dutch citizenship at some point in their youth and those who do not.

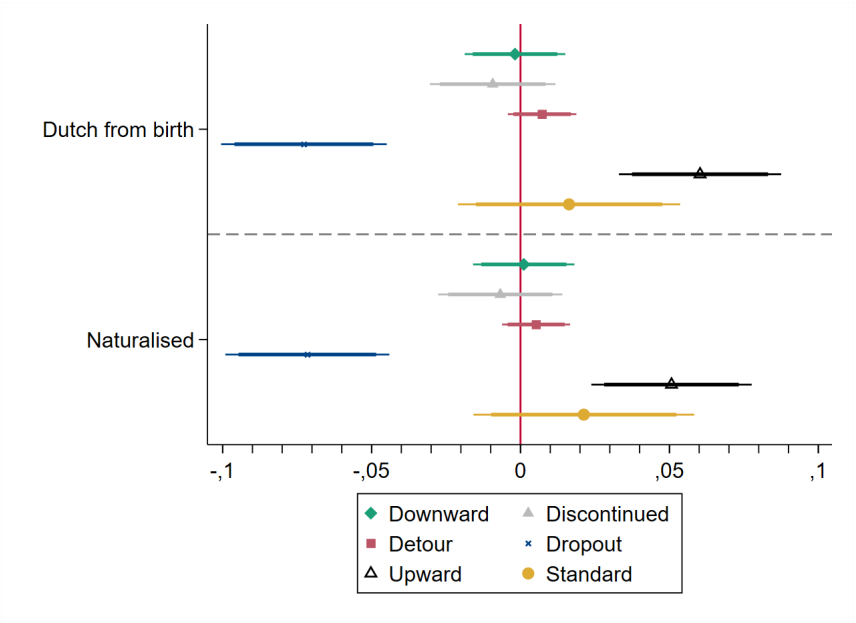

Figure B6: Plot of the average marginal effects of Dutch citizenship (measured at the end of the observation period) predicting trajectories through secondary and tertiary education (ref. non-naturalised).
Note: This plot represents coefficient estimates and confidence intervals at the 90% (thick) and 95% (thin) levels.

Appendix C

Supplementary Materials Chapter 5

Contents

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I Covariates description

Table C2 on p.283 gives the detailed coding of the full set of covariates, while I detail below the construction of three important variables: the score obtained at the Cito test (the outcome), age at naturalisation (the variable of interest) and parental level of education (an important confounder).

Cito test scores

A substantial share (23%) of students in the sample did not take the Cito standardised test at the end of primary school. This can be for different reasons: some primary schools do not offer any test (this is common in special primary education, SBO), while others have a different test provider than Cito. Unfortunately, there is very little external information about the profiles of such schools in the considered year. I have checked in the sample whether schools without a Cito test are systematically different from those with a Cito test in terms of their students' sociodemographic characteristics (results available upon request). It seems that students that are enrolled in a school without the test come from a slightly more disadvantaged social background than those who take the test. However, the differences are limited (2 percentage points at most).

Parental education level

Unfortunately, information on the educational level of first generation parents is very limited in the Dutch register data, especially in the 1990s and 2000s. To maximise the coverage, Statistics Netherlands obtains or derives

information on education level from various registers and the Labor Force Survey.[1] However, although information on education level exists for an increasing share of the population, reaching 58% in 2012 [2], information is still missing for a substantial group of individuals, specifically for older cohorts and immigrants. Moreover, the level of education tends to be underestimated in administrative data because education abroad or at private institutions is difficult to take into account. As a result, an imputed educational level is available in the most recent registers. Since first-generation immigrants are particularly at risk of having their educational level underestimated, I use the imputed level of education whenever available. This measure of education is more reliable but it is also more recent, which introduces a risk of anticipatory analysis, *i.e.*, explaining students' current outcomes by the future characteristics of their parents (see Hoem and Kreyenfeld, 2006). Nevertheless, parents' education level is arguably relatively stable from the moment their children enter secondary education,[3] which justifies treating it as a time-constant characteristic in the absence of any more reliable information.

Age at naturalisation

Ideally, naturalisation should be measured before the outcome. However, one caveat is that students do not take the Cito test at the same age (see Table C1). In the Netherlands, entry into compulsory education is based on the age at the start of the school year, which means that each school level consists of at least two birth cohorts (including possible grade-repetition and grade-skipping). I therefore censor age at naturalisation at age 14, when the vast majority of students have already taken the test. This implies that those who naturalise at ages 11-13 may acquire Dutch citizenship shortly after taking the Cito test. Although this introduces a risk of anticipatory analysis in the regression, I do not expect a major bias to the extent the naturalisation process starts at least a year before the respondent officially becomes – and is registered as – a Dutch

[1] This combination of register and survey data requires the use of weights to get a representative measure of education for the entire Dutch population. However, the weights are not meant to ensure representativity for the sub-population of first generation immigrants alone; they have therefore not been used.

[2] Gans, S., Linder, F., Mooren, F.v., 2015. Gebruikershandleiding Onderwijsinformatie uit het SSB.

[3] When looking at non-missing cases, 17.0% of mothers and 18.1% of fathers have more than one level of education recorded during the period under observation. Note that this gives an upper bound for variation in parental education level over time, because the measure relies on a very detailed classification of educational credentials.

citizen. Yet, as a robustness check, I used an alternative specification where age at naturalisation is censored at age 10. This ensures temporal consistency but gives a conservative estimate for the age at naturalisation, as those who naturalise after 10 before the Cito test are included in the censored group. As expected, coefficients are smaller in magnitude, but the results do not substantively alter my interpretation (see p.304). I also conducted the analysis with different age groupings (including age dummies), which yield analogous conclusions about the effect of timing (see section VI for all robustness checks).

Age	N	%
≤ 10	333	0.4
11	43,660	46.0
12	45,847	48.3
13	5,129	5.4
≥ 14	46	0.1
Total	95,015	100.00

Table C1: Distribution of age at the time of the test in the full sample of children of immigrants born in the Netherlands taking the Cito test between 2008 and 2015.

Variable	Operationalisation	Measurement
Cito test score	Standardised by year	See note on p.280
Age at naturalisation	(1) 0 (Dutch from birth) (2) 1-2 (3) 3-4 (4) 5-6 (5) 7-10 (6) 11-13 (7) $\geq$ 14	Censored at age 14. See the robustness checks for an alternative specification with the variable censored at age 10 (p.303).
Gender	(1) Male (2) Female	Time-constant
Birth order	(1) First-born (2) Non first-born	Time-constant
Date of birth	Year dummies from 1995 to 2003	Time-constant
Number of minor children in the household	Range: 1-7	Year of Cito
Type of household	(1) Two-parent household (2) Single-parent household	Year of Cito
Father's and mother's socioeconomic status	(1) Employee or self-employed (2) Reception of benefits (3) No declared income (4) Missing information	Year of Cito
Parents' homeownership status	Dummy: at least one parent is a homeowner	Year of Cito
Family income	Terciles	Year of Cito
Highest educational degree among parents	(1) Low education (primary education) (2) Middle education (completed some secondary education) (3) High education (bachelor or higher) (4) Missing education	Time-constant See detailed note about the measurement of immigrants' level of education on p.280.
Mother's country of birth	(1) Afghanistan (2) China (3) Irak (4) Iran (5) Morocco (6) Other EU countries (7) Other non-EU countries (8) Turkey (9) Yugoslavia	Time-constant Note: 90.6% of children in the sample have parents originating from the same country of birth.

Table C2: Information about the coding of all variables.

II Descriptive Statistics

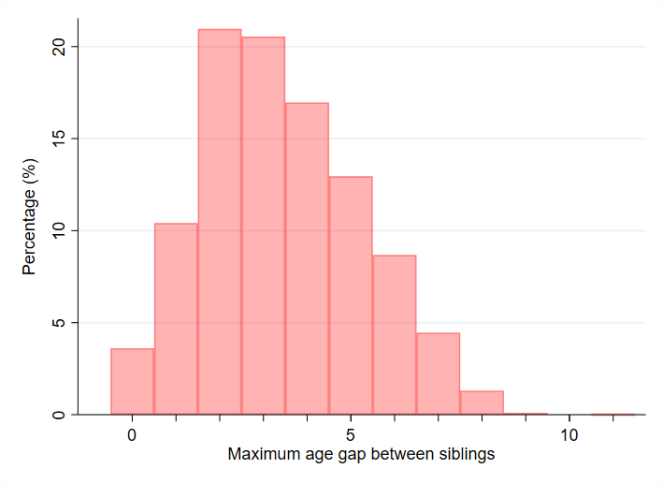

Figure C1: Age difference between siblings in the full sample (N=94,727).
Note: I take the *maximum* age difference in the families with three siblings or more.

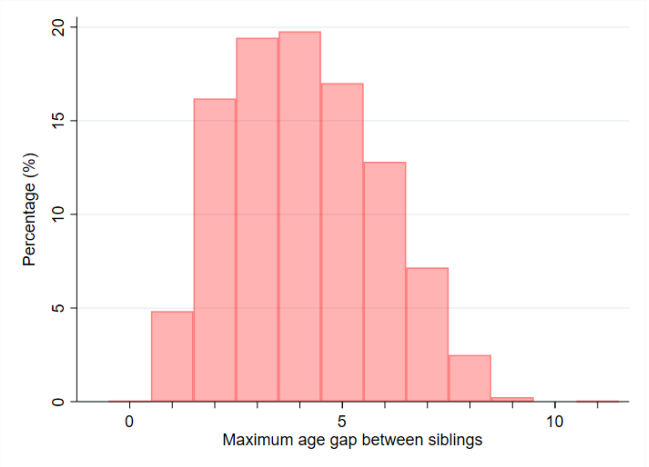

Figure C2: Age difference between siblings in the sample of exposure-discordant families (N=14,393).
Note: I take the *maximum* age difference in the families with three siblings or more.

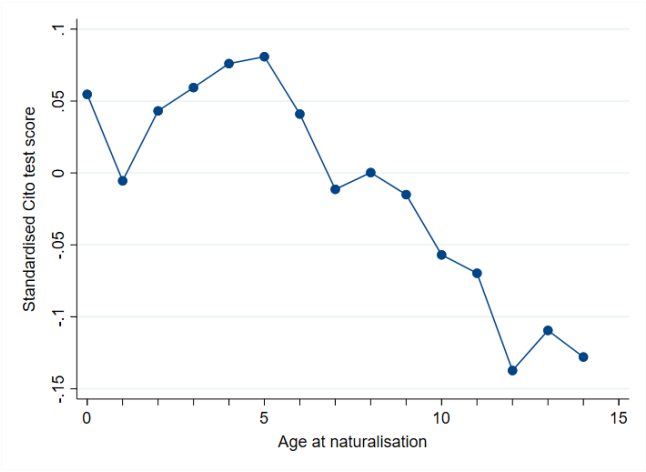

Figure C3: Average standardised Cito test scores for the children of immigrants born in the Netherlands, by age at naturalisation.

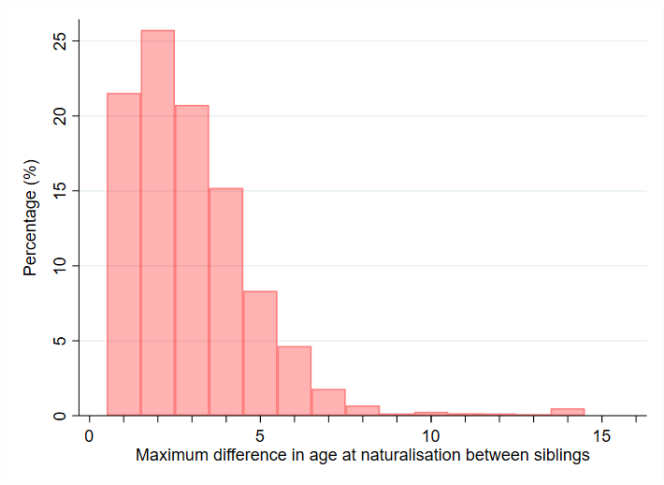

Figure C4: Difference in age at naturalisation between siblings in the sample of exposure-discordant families (N=14,393).
Note: I take the *maximum* difference in age at naturalisation in the families with three siblings or more.

Variable	N	%
Gender		
Male	47,390	50.0
Female	47,337	50.0
Birth order		
Non first-born	62,202	65.7
First-born	32,525	34.3
Date of birth		
$\leq$ 1995	5,982	6.3
1996	10,561	11.2
1997	10,819	11.4
1998	11,118	11.7
1999	11,547	12.2
2000	12,543	13.2
2001	12,489	13.2
2002	11,957	12.6
$\geq$ 2003	7,711	8.1
Number of children		
1	9,165	9.7
2	30,299	32.0
3	30,967	32.7
4	16,590	17.5
5	5,470	5.8
6	1,647	1.7
7 (and more)	589	0.6
Type of household		
Two-parent	78,115	82.5
Single-parent	16,612	17.5
SES status mother		
Employee or self-employed	36,444	38.5
Reception of benefits	30,341	32.0
No declared income	27,368	28.9
Missing information	574	0.6
SES status father		
Employee or self-employed	59,051	62.3
Reception of benefits	28,071	29.6
No declared income	4,144	4.4
Missing information	3,461	3.7
Parents' homeownership status		

Continued

Table C3: Descriptive statistics for covariates

Variable	N	%
Renters	64,312	67.9
Homeowners	30,415	32.1
Household income		
First tercile	30,786	32.5
Second tercile	31,119	32.9
Third tercile	31,871	33.7
Missing Income	951	1.0
Parents' highest educational level		
Low	42,258	44.6
Middle	26,651	28.1
High	12,359	13.1
Missing	13,459	14.2
Mother's country of birth		
Afghanistan	1,756	1.9
China	2,717	2.9
Irak	2,558	2.7
Iran	1,038	1.1
Morocco	33,729	35.6
Other EU countries	2,808	3.0
Other non-EU countries	16,830	17.8
Turkey	29,453	31.1
Yugoslavia	3,838	4.1
Total	**94,727**	**100.0**

Table C3 Continued: Descriptive statistics for covariates

Age	N	% in the full sample	% among foreign citizens at birth
0	62,338	65.8	–
1	3,555	3.8	11.0
2	3,445	3.6	10.6
3	2,815	3.0	8.7
4	2,503	2.6	7.7
5	2,153	2.3	6.7
6	1,697	1.8	5.2
7	1,293	1.4	4.0
8	1,095	1.2	3.4
9	987	1.0	3.1
10	879	0.9	2.7
11	760	0.8	2.4
12	702	0.7	2.2
13	614	0.7	1.9
14	464	0.5	1.4
15	361	0.4	1.1
16	250	0.3	0.8
17	147	0.2	0.5
18	444	0.5	1.4
19	365	0.4	1.1
20	50	0.1	0.2
21	7,810	8.2	24.1
Total	94,727	100.0	100.0

Table C4: Distribution of age at naturalisation in the full sample (N=94,727).

III Appendix between-within linear mixed model

Model description

I analyse the within-family effect of age at naturalisation using the so-called "hybrid" or "correlated random-effects" model (Mundlak, 1978; Allison, 2009). This model separates *within-* and *between-effects* in a random-effects framework. Because of this defining feature, it has been increasingly known as the "between-within" model, following a suggestion from Sjölander et al. (2013). Contrary to standard fixed-effects modeling, the between-within model explicitly models heterogeneity bias and does not control out family-invariant covariates (Bell and Jones, 2015).

Let subscript i denotes the individual level and j denotes the family level. A standard random-effects model is:

$$\begin{cases} y_{ij} = \beta_0^{RE} + \beta_1^{RE} x_{ij} + \beta_2^{RE} c_j + (\mu_j + \epsilon_{ij}) \\ E(\mu_j | x_{ij}, c_j) = 0 \end{cases} \tag{C.1}$$

where y_{ij} is the educational outcome of child i in family j, x_{ij} a (serie of) covariate(s) measured at the individual level with β_1^{RE}, and c_j a (serie of) covariate(s) measured at the family level with β_2^{RE}. The idiosyncratic error ϵ_{ij} ($\sim N(0, \sigma_\epsilon^2)$) and the unmeasured cluster-level effect μ_j ($\sim N(0, \sigma_\mu^2)$) constitute the random part of the model. A main reason why fixed-effects models are usually preferred over random-effects models is that the latter assume that there is no unobserved heterogeneity at the cluster level, *i.e.*, $E(\mu_j | x_{ij}, c_j) = 0$.

By contrast, the between-within approach explicitly models the correlation between μ_j and x_{ij} with the assumption that the unmeasured cluster-level effect depends on the mean values of x_{ij}: $\mu_j = \gamma \overline{x_j} + \delta_j$, with $\delta_j \sim N(0, \sigma_\delta^2)$. This allows to pick up potential correlation between the unmeasured cluster effect μ_j and the individual-level variables. Following this assumption, equation of model (C.1) can be reformulated by decomposing the individual-level variables into a between- ($\overline{x_j} = n_i^{-1} \sum_{t=1}^{n_i} x_{ij}$) and a within-cluster ($x_{ij} - \overline{x_j}$) component (Allison, 2009; Schunck, 2013, p.66), such that

$$\begin{cases} y_{ij} = \beta_0^{BW} + \beta_1^{BW} (x_{ij} - \overline{x_j}) + \beta_2^{BW} c_j + \beta_3^{BW} \overline{x_j} + (\delta_j + \epsilon_{ij}) \\ E(\delta_j | x_{ij}, c_j) = 0 \end{cases} \tag{C.2}$$

Under this formulation, the within- (β_1^{BW}) and between-cluster ($\beta_3^{BW} = \beta_1^{BW} + \gamma$) effects are now clearly separated. $\hat{\beta}_1^{BW}$ is identical to the fixed-effects estimator (Mundlak, 1978) and is consistent for β_1^{BW} under rather general conditions in the linear case such as ours (Brumback et al., 2017, p.3842)[4]. By contrast, $\hat{\beta}_3^{BW}$ is not robust to unobserved heterogeneity at the family level: it is biased if $E(\mu_j|x_{ij}, c_j) \neq 0$ (Schunck and Perales, 2017, p.95).

Calculating the between-cluster effect is informative although the estimator is biased. It informs about the extent to which the estimator $\hat{\beta}_1^{RE}$ is biased when unobserved heterogeneity is not modelled (Schunck and Perales 2017, 96). More specifically, testing if $\beta_1^{BW} = \beta_3^{BW}$ provides a regression-based alternative to the Hausman test: if one cannot reject the hypothesis that the within-cluster and between-cluster effects are equal, (C.2) collapses to the random-effects model (C.1) and there is no evidence against $E(\mu_j|x_{ij}, c_j) = 0$ (Snijders and Berkhof, 2008, p.145).

[4] Brumback et al. (2017, p.3842) show in a generalised linear mixed model framework that the estimator $\hat{\beta}_1^{BW}$ is consistent for β_1 regardless of whether $\mu_j = \gamma\overline{x_j} + \delta_j$, under the conditions that the link function is the identity link *and* that the variance $var(y_{ij}|x_{ij}, c_j, \mu_j)$ is constant.

Full between-within model

	Random-effects		Within-effects		Between-effects	
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p
Age at naturalisation						
Age 0			0.105	0.123	0.094	0.000
Age 1-2			0.120	0.070	0.079	0.000
Age 3-4			0.144	0.025	0.086	0.000
Age 5-6			0.127	0.042	0.086	0.000
Age 7-10			0.101	0.068	0.053	0.008
Age 11-13			0.051	0.308	0.004	0.868
Age $\geq$ 14			ref.	ref.	ref.	ref.
Gender						
Male			ref.	ref.	ref.	ref.
Female			-0.086	0.000	-0.052	0.000
Birth order						
Non first-born			ref.	ref.	ref.	ref.
First-born			0.013	0.299	0.080	0.000
Date of birth						
$\leq$ 1995			ref.	ref.	ref.	ref.
1996			0.078	0.001	0.222	0.000
1997			0.048	0.042	0.213	0.000
1998			0.051	0.032	0.186	0.000
1999			0.011	0.663	0.181	0.000
2000			0.021	0.416	0.178	0.000
2001			0.014	0.609	0.163	0.000
2002			0.010	0.726	0.162	0.000
$\geq$ 2003			0.063	0.046	0.330	0.000
Number of children			0.016	0.157	-0.037	0.000
Household type						
Two-parent households			ref.	ref.	ref.	ref.
Single-parent household			-0.030	0.346	-0.097	0.000
Mother SES status						
Employee or self-employed			ref.	ref.	ref.	ref.
Reception of benefits			0.039	0.091	-0.033	0.001
No declared income			0.026	0.240	0.034	0.000
Missing information			-0.085	0.641	-0.041	0.321
Father SES status						

Continued

Table C5: Between-within model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands.

	Random-effects		Within-effects		Between-effects	
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p
Employee or self-employed			ref.	ref.	ref.	ref.
Reception of benefits			-0.016	0.445	-0.040	0.000
No declared income			0.009	0.779	0.017	0.323
Missing information			-0.052	0.327	-0.007	0.715
Homeownership status						
Parents are renters			ref.	ref.	ref.	ref.
Parents are homeowners			-0.053	0.161	0.110	0.000
Household income						
First income decile			ref.	ref.	ref.	ref.
Second income decile			-0.014	0.378	-0.002	0.841
Third income decile			-0.001	0.953	0.056	0.000
Missing income			-0.138	0.022	-0.086	0.015
Highest education level						
Low education	ref.	ref.				
Middle education	0.146	0.000				
High education	0.455	0.000				
Missing education	0.131	0.000				
Mother's country of birth						
Other EU countries	re.f	ref.				
Afghanistan	0.136	0.000				
China	0.497	0.000				
Irak	-0.041	0.140				
Iran	0.066	0.062				
Morocco	-0.200	0.000				
Other non-EU countries	-0.009	0.646				
Turkey	-0.349	0.000				
Yugoslavia	-0.073	0.003				
Constant	-0.114	0.000				
Observations	94,727					
Family clusters	69,894					

Table C5 Continued: Between-within model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands.

Note: The between-within model does not estimate separate effects for the variables of parental education and mother's country of birth, since these variables only vary between clusters. The estimated effects for these two variables are the same as those in a standard random-effects model.

Comparison with a standard OLS model

	OLS		**Random-effects**		**Between-within**			
Age at nat.	β_1^{OLS}	p	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p
0	0.102	(0.000)	0.096	(0.000)	0.105	(0.125)	0.095	(0.000)
1-2	0.089	(0.000)	0.087	(0.000)	0.119	(0.070)	0.079	(0.000)
3-4	0.100	(0.000)	0.101	(0.000)	0.144	(0.025)	0.086	(0.000)
5-6	0.096	(0.000)	0.092	(0.000)	0.127	(0.043)	0.087	(0.000)
7-10	0.060	(0.000)	0.059	(0.001)	0.101	(0.069)	0.054	(0.007)
11-13	0.009	(0.700)	0.012	(0.600)	0.051	(0.308)	0.005	(0.859)
≥ 14	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Observations	94,727		94,727		94,727			
Family clusters	–		69,894		69,894			
Covariates	All*		All*		All*			
R^2	0.099		0.098		–			

Table C6: OLS, random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation groups.
*I include all the covariates described in Table C2: gender, birth order, date of birth, household type, mother's and father's SES status, homeownership status, household income, highest educational level among parents and mother's country of origin.

IV Appendix random-effects models

Interactions with parental education

➢ With naturalisation dummy

	β	p
Citizenship status		
(ref. not naturalised at age 14)		
Naturalised before 14	0.124	0.000
Parental education		
Low education	ref.	(.)
Middle education	0.150	0.000
High education	0.601	0.000
Missing education	0.269	0.000
Interactions citizenship x parental education		
Low education × Naturalised before 14	ref.	(.)
Middle education × Naturalised before 14	0.000	0.993
High education × Naturalised before 14	-0.147	0.000
Missing education × Naturalised before 14	-0.149	0.000
Observations	94,727	
Family clusters	69,894	
Covariates	All*	
R^2	0.099	

Table C7: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between naturalisation dummy and parental education.
*All the other covariates described in Table C2 are included: gender, birth order, date of birth, household type, mother's and father's SES status, homeownership status, household income, mother's country of birth.

➢ With age at naturalisation

	β	p
Age at naturalisation		
Age 0	0.131	0.000
Age 1-2	0.109	0.000
Age 3-4	0.127	0.000
Age 5-6	0.101	0.000
Age 7-10	0.115	0.000
Age 11-13	0.078	0.010
Age $\geq$ 14	ref.	ref.
Parents' homeownership status		
Renters	ref.	ref.
Homeowners	0.108	0.000
Highest parental education level		
Low education	ref.	ref.
Middle education	0.149	0.000
High education	0.601	0.000
Missing education	0.268	0.000
Highest parental education level $\times$ Age at naturalisation		
Low education $\times$ Age 0	ref.	ref.
Low education $\times$ Age 1-2	ref.	ref.
Low education $\times$ Age 3-4	ref.	ref.
Low education $\times$ Age 5-6	ref.	ref.
Low education $\times$ Age 7-10	ref.	ref.
Low education $\times$ Age 11-13	ref.	ref.
Low education $\times$ Age $\geq$ 14	ref.	ref.
Middle education $\times$ Age 0	-0.002	0.927
Middle education $\times$ Age 1-2	0.014	0.707
Middle education $\times$ Age 3-4	0.014	0.712
Middle education $\times$ Age 5-6	0.054	0.210
Middle education $\times$ Age 7-10	-0.025	0.544
Middle education $\times$ Age 11-13	-0.048	0.372
Middle education $\times$ Age $\geq$ 14	ref.	ref.
High education $\times$ Age 0	-0.148	0.000
High education $\times$ Age 1-2	-0.125	0.013
High education $\times$ Age 3-4	-0.125	0.018
High education $\times$ Age 5-6	-0.107	0.062

Continued

Table C8: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between age at naturalisation and parental education.

	β	p
High education × Age 7-10	-0.222	0.000
High education × Age 11-13	-0.223	0.005
High education × Age $\geq$ 14	ref.	ref.
Missing education × Age 0	-0.147	0.000
Missing education × Age 1-2	-0.116	0.009
Missing education × Age 3-4	-0.149	0.002
Missing education × Age 5-6	-0.120	0.033
Missing education × Age 7-10	-0.194	0.000
Missing education × Age 11-13	-0.284	0.000
Missing education × Age $\geq$ 14	ref.	ref.
Observations	94,727	
Family clusters	69,894	
Covariates	All*	
R^2	0.099	

Table C8 Continued: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between age at naturalisation and parental education.
*I include all the covariates described in Table C2.

Interactions with parental education and homeownership status

➢ With naturalisation dummy

	β	p
Citizenship status		
(ref. not naturalised at age 14)		
Naturalised before 14	0.140	0.000
Parental education		
Low education	ref.	(.)
Middle education	0.140	0.000
High education	0.575	0.000
Missing education	0.248	0.000
Parental homeownership status		
Renters	ref.	(.)
Homeowners	0.197	0.000
Interactions citizenship x parental education		
Low education × Naturalised before 14	ref.	(.)
Middle education × Naturalised before 14	0.011	0.689
High education × Naturalised before 14	-0.119	0.002
Missing education × Naturalised before 14	-0.126	0.000
Interactions citizenship x parental homeownership status		
Renters × Naturalised before 14	ref.	(.)
Homeowners × Naturalised before 14	-0.095	0.000
Observations	94,727	
Family clusters	69,894	
Covariates	All*	
R^2	0.099	

Table C9: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between naturalisation dummy and parental education and homeownership status.
*All the other covariates described in Table C2 are included: gender, birth order, date of birth, household type, mother's and father's SES status, household income, mother's country of birth.

➢ With age at naturalisation

	β	p
Age at naturalisation		
Age 0	0.150	0.000
Age 1-2	0.123	0.000
Age 3-4	0.132	0.000
Age 5-6	0.115	0.000
Age 7-10	0.124	0.000
Age 11-13	0.095	0.002
Age $\geq$ 14	ref.	ref.
Parents' homeownership status		
Renters	ref.	ref.
Homeowners	0.199	0.000
Highest parental education level		
Low education	ref.	ref.
Middle education	0.139	0.000
High education	0.574	0.000
Missing education	0.246	0.000
Highest parental education level $\times$ Age at naturalisation		
Low education $\times$ Age 0	ref.	ref.
Low education $\times$ Age 1-2	ref.	ref.
Low education $\times$ Age 3-4	ref.	ref.
Low education $\times$ Age 5-6	ref.	ref.
Low education $\times$ Age 7-10	ref.	ref.
Low education $\times$ Age 11-13	ref.	ref.
Low education $\times$ Age $\geq$ 14	ref.	ref.
Middle education $\times$ Age 0	0.010	0.704
Middle education $\times$ Age 1-2	0.023	0.536
Middle education $\times$ Age 3-4	0.017	0.670
Middle education $\times$ Age 5-6	0.063	0.143
Middle education $\times$ Age 7-10	-0.019	0.655
Middle education $\times$ Age 11-13	-0.036	0.497
Middle education $\times$ Age $\geq$ 14	ref.	ref.
High education $\times$ Age 0	-0.115	0.003
High education $\times$ Age 1-2	-0.099	0.051
High education $\times$ Age 3-4	-0.110	0.039

Continued

Table C10: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between age at naturalisation and parental education and homeownership status.

	β	p
High education × Age 5-6	-0.081	0.163
High education × Age 7-10	-0.201	0.000
High education × Age 11-13	-0.193	0.015
High education × Age $\geq$ 14	ref.	ref.
Missing education × Age 0	-0.121	0.000
Missing education × Age 1-2	-0.096	0.034
Missing education × Age 3-4	-0.138	0.005
Missing education × Age 5-6	-0.098	0.083
Missing education × Age 7-10	-0.177	0.001
Missing education × Age 11-13	-0.259	0.000
Missing education × Age $\geq$ 14	ref.	ref.
Parents' homeownership status × Age at naturalisation		
Renters × Age 0	ref.	ref.
Renters × Age 1-2	ref.	ref.
Renters × Age 3-4	ref.	ref.
Renters × Age 5-6	ref.	ref.
Renters × Age 7-10	ref.	ref.
Renters × Age 11-13	ref.	ref.
Renters × Age $\geq$ 14	ref.	ref.
Homeowners × Age 0	-0.109	0.000
Homeowners × Age 1-2	-0.083	0.015
Homeowners × Age 3-4	-0.026	0.498
Homeowners × Age 5-6	-0.088	0.039
Homeowners × Age 7-10	-0.052	0.221
Homeowners × Age 11-13	-0.112	0.052
Homeowners × Age $\geq$ 14	ref.	ref.
Observations	94,727	
Family clusters	69,894	
Covariates	All*	
R^2	0.099	

Table C10 Continued: Random-effects model for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, with interactions between age at naturalisation and parental education and homeownership status.
*I include all the covariates described in Table C2.

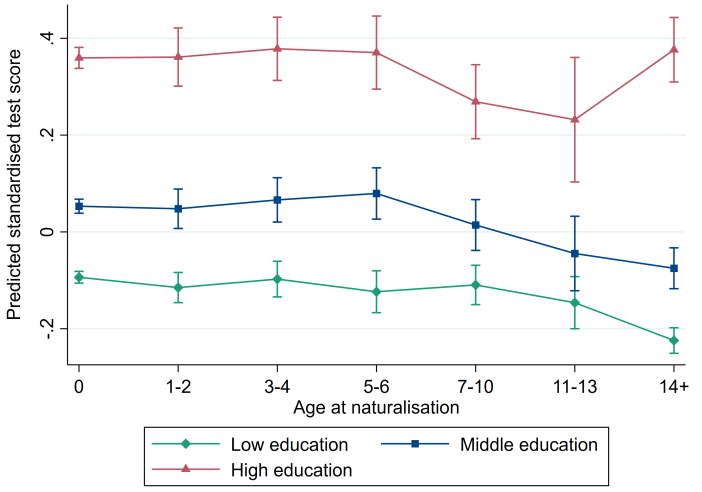

Figure C5: Predicted average standardised test score obtained at the end of primary school by children of immigrants born in the Netherlands, conditionally on age at naturalisation and parents' highest education level.

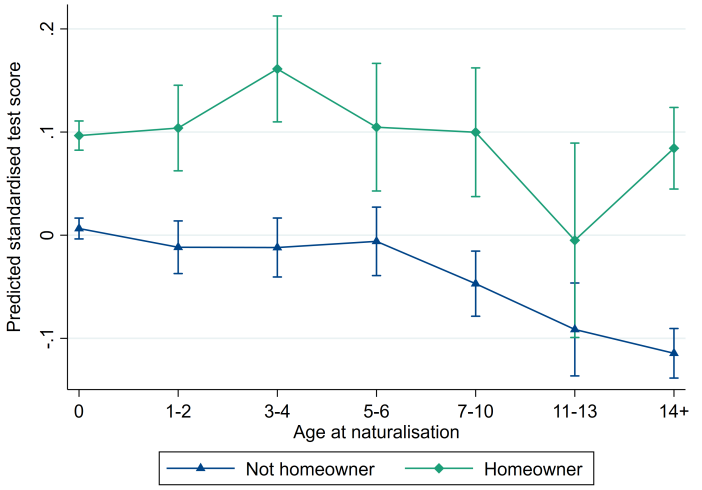

Figure C6: Predicted average standardised test score obtained at the end of primary school by children of immigrants born in the Netherlands, conditionally on age at naturalisation and parents' homeownership status.

V Appendix bounding estimator

To my knowledge, Oster's bounding technique has not been developed for non-binary categorical treatment variables. I therefore use a dummy variable for the effect of naturalisation, capturing whether the respondent has acquired Dutch citizenship before the age of 14. Table C11 displays the results for the OLS, random-effects and between-within specifications when this dummy is used instead of age at naturalisation groups.

	OLS	Random-effects	Between-within		Test
	β_1^{OLS}	β_1^{RE}	β_1^{WB}	β_3^{WB}	$\beta_1^{WB} = \beta_3^{WB}$
Naturalisation	0.095	0.089	0.073	0.089	–
before 14	(0.000)	(0.000)	(0.126)	(0.000)	(0.739)
Observations	94,727	94,727	94,727		
Family clusters	–	69,894	69,894		
Covariates	All*	All*	All*		
R^2	0.098	0.098	–		

Table C11: OLS, random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by naturalisation dummy.
*I include all the covariates described in Table C2: gender, birth order, date of birth, household type, mother's and father's SES status, homeownership status, household income, highest educational level among parents and mother's country of birth.

To further explore the sensitivity of the results to omitted variable bias, I estimate $\beta^{\star}$ assuming a range of different values for R_{max} in Table C12. I set δ to 1 in all specifications because, following Altonji et al. (2005) and as shown by Oster (2019, 197), it is a reasonable cutoff when the most important controls are included in the model. It reflects the situation where the observables (e.g. parental education, income) are as important as the unobservables (e.g. parents' language proficiency and orientation towards the host society).

Note on R_{max}: As an alternative definition for R_{max}, Oster suggests to use sibling correlation as a benchmark (Oster, 2019, p.198). In the present case, sibling correlation in test scores is equal to $\rho = 0.52$. However, setting the R_{max} to this value would far exceed the usual explanatory power of social science models for individual behaviour, which is known to be relatively low (Altonji et al., 2005, p.171). As Table C12 shows below, the results for the

bounding analysis are not robust to such a high R_{max}.

	Uncontrolled OLS			Controlled OLS	
	$\dot{\beta}$	$\dot{R}$		$\tilde{\beta}$	$\tilde{R}$
	0.164	0.016		0.097	0.098
	(0.000)			(0.000)	
R_{max}	0.13	0.15	0.17	0.19	0.2
Bias-adjusted treatment effect $\beta^{\star}$	0.071	0.052	0.033	0.014	0.003
	(0.000)	(0.000)	(0.003)	(0.230)	(0.805)

Table C12: Bounding the effect of naturalisation on standardised test scores obtained at the end of primary education by children of immigrants born in the Netherlands. Note: p-values are in parentheses (standard-errors are bootstrapped using 1,000 replications). I set $\delta = 1$, which reflects the situation where the observables are as important as the unobservables. The controlled regression includes all the covariates described in Table C2. The uncontrolled regression includes gender, birth order and date of birth, which are considered to be unrelated to the selection process.

VI Robustness checks

Family definition based on both parents' identifiers

In the main analysis, I define families based on mothers' personal identifiers only. This is because there are about ten times as many children whose father's identifier is missing at least one year during the observation period as there are children whose mother's identifier is similarly missing. This suggests that children of immigrants are more likely to have a father than a mother who is not continuously registered as a Dutch resident. As continuous residence is a requirement for naturalisation, priority was given to mothers' identifiers.

However, without fathers' identifiers, it is difficult to correctly identify complex family patterns where, for example, siblings are born of the same mother but not of the same father. To ensure that the results are robust to alternative definitions of the family clusters, I use both mothers' and fathers' identifiers in a robustness check. This leads to 70,002 family clusters, versus 69,894 previously when only mothers' identifiers were considered. As Table C13 shows, this leads to very comparable results.

	Random-effects		Within-effects		Between-effects		β_1^{WB}=β_3^{WB}
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p	p
Age at nat.							
Age 0	0.098	0.000	0.101	0.143	0.097	0.000	0.946
Age 1-2	0.087	0.000	0.113	0.092	0.080	0.000	0.633
Age 3-4	0.098	0.000	0.138	0.034	0.082	0.000	0.412
Age 5-6	0.090	0.000	0.117	0.065	0.087	0.000	0.653
Age 7-10	0.059	0.001	0.093	0.097	0.055	0.006	0.528
Age 11-13	0.011	0.618	0.046	0.364	0.004	0.889	0.461
Age $\geq$ 14	ref.	ref.	ref.	ref.	ref.	ref.	
Observations	94,727				94,727		
Family clusters	70,002				70,002		
Covariates	All*				All*		

Regression coefficients, *p*-values in parentheses

Table C13: Random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation.
*I include all the covariates described in Table C2.

Age at naturalisation censored at age 10

Ideally, naturalisation should be measured before the outcome. However, one caveat is that students do not take the Cito test at the same age (see Table C1). In the Netherlands, entry into compulsory education is based on the age at the start of the school year, which means that each school level consists of at least two birth cohorts (including possible grade-repetition and grade-skipping). I therefore censor age at naturalisation at age 14, when the vast majority of students have already taken the test. This implies that those who naturalise at ages 11-13 may acquire Dutch citizenship shortly after taking the Cito test. Although this introduces a risk of anticipatory analysis – *i.e.*, explaining students' current results by their future characteristics (Hoem and Kreyenfeld, 2006), I do not expect a major bias to the extent the naturalisation process starts at least a year before the respondent officially becomes – and is registered as – a Dutch citizen. Yet, as a robustness check, I used an alternative specification where age at naturalisation is censored at age 10. This ensures temporal consistency but gives a conservative estimate for the age at naturalisation, as those who naturalise after 10 before the Cito test are included in the censored group. As expected, coefficients are smaller in magnitude, but the results do not substantively alter my interpretation.

	Random-effects		Within-effects		Between-effects		$\beta_1^{WB}=\beta_3^{WB}$
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p	p
Age at nat.							
Age 0	0.093	0.000	0.066	0.241	0.093	0.000	0.639
Age 1-2	0.084	0.000	0.081	0.133	0.078	0.000	0.953
Age 3-5	0.098	0.000	0.106	0.042	0.085	0.000	0.699
Age 6-10	0.090	0.000	0.089	0.076	0.086	0.000	0.950
Age 11-13	0.056	0.001	0.063	0.124	0.053	0.007	0.822
Age $\geq$ 14	ref.	ref.	ref.	ref.	ref.	ref.	
Observations	94,727			94,727			
Family clusters	69,894			69,894			
Covariates	All*			All*			

Regression coefficients, *p*-values in parentheses

Table C14: Random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation censored at age 10.
*I include all the covariates described in Table C2.

Different age groupings for age at naturalisation

➢ Age dummies

	Random-effects		Within-effects		Between-effects		β_1^{WB}=β_3^{WB}
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p	p
Age at nat.							
Age 0	0.096	0.000	0.093	0.187	0.094	0.000	0.991
Age 1	0.078	0.000	0.096	0.172	0.072	0.001	0.744
Age 2	0.095	0.000	0.122	0.079	0.085	0.000	0.609
Age 3	0.099	0.000	0.123	0.077	0.085	0.000	0.610
Age 4	0.102	0.000	0.147	0.032	0.085	0.001	0.395
Age 5	0.094	0.000	0.116	0.093	0.093	0.000	0.757
Age 6	0.090	0.000	0.129	0.059	0.078	0.008	0.493
Age 7	0.061	0.025	0.070	0.305	0.077	0.022	0.929
Age 8	0.073	0.012	0.096	0.164	0.078	0.029	0.814
Age 9	0.066	0.029	0.155	0.021	0.030	0.425	0.105
Age 10	0.030	0.344	0.080	0.232	0.016	0.688	0.408
Age 11	0.030	0.380	0.071	0.282	0.024	0.578	0.550
Age 12	0.019	0.588	0.049	0.468	0.041	0.343	0.263
Age 13	0.024	0.521	0.034	0.622	0.035	0.453	0.996
Age $\geq$ 14	ref.	ref.	ref.	ref.	ref.	ref.	
Observations	94,727			94,727			
Family clusters	69,894			69,894			
Covariates	All*			All*			

Regression coefficients, p-values in parentheses

Table C15: Random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation (age dummies).
*I include all the covariates described in Table C2.

➢ 6-cluster variable

	Random-effects		Within-effects		Between-effects		β_1^{WB}=β_3^{WB}
	β_1^{RE}	p	β_1^{WB}	p	β_3^{WB}	p	p
Age at nat.							
Age 0	0.095	0.000	0.091	0.171	0.094	0.000	0.968
Age 1-2	0.086	0.000	0.107	0.098	0.079	0.000	0.674
Age 3-5	0.098	0.000	0.128	0.039	0.088	0.000	0.533
Age 6-10	0.068	0.000	0.103	0.061	0.060	0.001	0.458
Age 11-13	0.012	0.592	0.051	0.311	0.004	0.881	0.409
Age $\geq$ 14	ref.	ref.	ref.	ref.	ref.	ref.	
Observations	94,727			94,727			
Family clusters	69,894			69,894			
Covariates	All*			All*			

Regression coefficients, *p*-values in parentheses

Table C16: Random-effects and between-within models for the standardised test scores obtained at the end of primary school by children of immigrants born in the Netherlands, by age at naturalisation (6 instead of 7 clusters).
*I include all the covariates described in Table C2.

Impact Paragraph

This dissertation analyses the relationship between the citizenship status of the children of immigrants and their educational outcomes in the Netherlands. As in two out of three countries in the world, children of immigrants born in the Netherlands do not have automatic rights to the citizenship of their country of birth. They instead rely on their parents' ability and desire to naturalise if they are to acquire Dutch citizenship before the age of majority. Surprisingly, the potential effects of host country citizenship – or lack thereof – on the life trajectories of children of immigrants have received limited attention from either a research or policy perspective. This dissertation aims to enhance scholarly understanding of the relevance of host country citizenship for children of immigrants, specifically by examining how citizens and non-citizens find their way in a complex educational system such as the Dutch one. By doing so, it provides valuable evidence of the barriers and opportunities that children of immigrants face in relation to citizenship, which should inform current policy and public debates on immigrant integration. In this section, I will briefly highlight the scientific and social impact of my dissertation and consider its potential in the near future.

The main objective of this dissertation was to conceptualise and evaluate the potential effects of host country citizenship on education in a comprehensive perspective. While previous research has focused primarily on *whether* citizenship matters for children of immigrants, I combined different strands of literature to develop a nuanced understanding of *why* and *how* citizenship status affects educational outcomes. The empirical findings show that citizenship has positive and substantial effects on the school trajectories of children of immigrants: students who have acquired Dutch citizenship not only perform better on tests at the end of primary school, but are also better equipped to move upward through secondary education and avoid dropping out of school compared to their non-citizen counterparts. However, contrary to previous research, this dissertation shows that the effects of citizenship are not uniform. Dutch citizenship matters most when it is acquired early in the settlement process, when children have not yet entered primary school, and is most relevant for children whose parents are at a disadvantage in the labour market and housing market. The evidence of timing and heterogeneous effects adds new layers of complexity in the relationship between citizenship

and education, which merit greater attention in future research on the citizenship of children of immigrants. Finally, this dissertation employs innovative identification strategies to determine whether citizenship affects educational outcomes independently, beyond parents' self-selection into naturalisation. I provide additional evidence of a causal relationship between citizenship and education, where, with a few exceptions, previous studies were likely to measure spurious associations. In this respect, this dissertation contributed to the dissemination of methods that had previously received little attention in research on the citizenship of children of immigrants.

These findings are not only relevant to academic research, but also to policy makers. Ensuring equal opportunities for the children of immigrants is an important social challenge in most European societies, including the Netherlands. There is consistent evidence that some children face significant obstacles in school and in their adult life, including lack of socioeconomic and host country-specific resources and discrimination. Yet, it is rarely considered that ensuring smooth and rapid access to host country citizenship for these disadvantaged groups can be an effective policy lever. In particular, two important aspects have so far been neglected in Dutch political and parliamentary debates. First, while requirements for becoming a Dutch citizen have been increasingly restricted over the past decades to increase the obligations of naturalisation applicants, the potential consequences of such reforms for the children of immigrants are generally not taken into consideration. However, I demonstrate that restrictive naturalisation reforms not only prevent or delay the acquisition of Dutch citizenship by immigrants, but also have spillover negative repercussions on the propensity of their children to become Dutch. This dissertation therefore shows that the trend towards stricter naturalisation requirements has wider and longer-term consequences then currently envisaged in policy debates.

A second aspect pertains to school inequalities. In the Netherlands, differences in student outcomes based on ethnicity are widely discussed in public reports. Students with a migration background tend to perform less well than their native counterparts, which has drawn a lot of attention to the factors that differentiate children of immigrants and those of natives. This emphasis has obscured significant heterogeneity *within* the group of immigrants' children, and in particular their unequal access to Dutch citizenship. This dissertation shows that students' citizenship status should be considered as a potential factor of school success, helping some children of immigrants to overcome initial disadvantages in education. In doing so, it directs attention to the factors that are specific to the migration and settlement experiences of immi-

grant families, as well to the legal and institutional context that shapes these experiences. Policy makers should give more weight to these factors when addressing ethnic inequalities in educational achievement, in order to design policies tailored to the diverse needs of immigrant families. Besides, the empirical findings suggest that facilitating access to Dutch citizenship could be an effective policy lever to attenuate educational disparities, at limited cost: while direct educational interventions require significant funding, facilitating access to Dutch citizenship for children has a mainly administrative cost.[1]

My research findings are relevant to different groups. First, from a research perspective, it speaks to researchers who have contributed in relative isolation to two major areas of study: the literature on the second generation, which has paid little attention to the legal obstacles that children of immigrants may face in host societies; and citizenship studies, which have neglected the role and place of children in the process of immigrant naturalisation. In this dissertation, I argued that a better integration of these two bodies of work allows for a more detailed understanding of the life experiences of children of immigrants. Second, from a policy perspective, this research is relevant to various actors involved in law and policy making. While parliamentary debates on strengthening naturalisation requirements should take into account the intergenerational effects of these restrictive reforms, educational policies should address the legal barriers that non-citizen children of immigrants can face while growing up.

Last but not least, this research is aimed at the main stakeholders: the native-born children of immigrants themselves. Although, to my knowledge, there is no strong public campaign calling for better access to Dutch citizenship for the children of immigrants in the Netherlands, such campaigns exist in other *ius sanguinis* citizenship regimes such as Italy and Switzerland. This dissertation provides a detailed study of the patterns and effects of Dutch citizenship acquisition, which can support the formulation of evidence-based claims for the introduction of conditional *ius soli*. Although the empirical findings are not directly transferable to other countries, they can nevertheless provide a relevant benchmark, which may be particularly valuable in light of the current lack of data and research on the citizenship status of children of immigrants in Europe.

These target groups were – or will be – informed about the research in different ways. During my PhD, I shared insights from my research by publishing

[1] See the costs and benefits of introducing conditional *ius soli* in Germany, compared to direct educational interventions, estimated by Felfe et al. (2020, pp.173-174).

several peer-reviewed articles and presenting at ten international conferences and workshops. I have been careful to present at both education-focused and citizenship-focused conferences, in order to reach out and connect areas of research that rarely intersect. In a similar vein, in 2020, I co-organised the workshop "Citizenship of children of immigrants. Legal status and life opportunities in host country societies" with the aim of bringing together researchers from various backgrounds (political science, sociology, law and economics) to discuss ongoing research on how legal status affects the life opportunities of children of immigrants in Western countries. This workshop was designed to gather isolated and fragmented knowledge about children's citizenship status and stimulate research on the topic.[2]

I used Twitter to communicate my research to a wider audience and to connect with relevant institutions and associations committed to improving access to legal status and citizenship for immigrants and their children.[3] To reach out policy makers and the general public, I participated in November 2020 to the workshop "Societal Impact of your Research", co-sponsored by Springer Nature, the Association of Dutch Universities (VSNU) and Maastricht University. During this workshop, I designed an impact plan to organise how I will reach and interact with relevant stakeholders in the future.[4] On the institutional level, the impact plan includes the submission of a paper to *Statistische Trends*, the online medium of Statistics Netherlands, to draw attention to the citizenship of native-born children of immigrants. This publication, written in Dutch, will share my results in a more condensed and accessible way and highlight the need to rethink some of the statistical categories used by Statistics Netherlands to identify and analyse the Dutch second generation. At the societal level, the impact plan includes the publication of an Op-Ed in a Dutch newspaper that will summarise the main findings of the dissertation in a policy perspective. This will serve to raise awareness about the citizenship status of children of immigrants born in the Netherlands, and may initiate policy or societal debates on whether and how to address unequal access to citizenship for children of immigrants.

[2]Unfortunately, this workshop scheduled for June 2020 has been cancelled due to covid-19.

[3]My Twitter account is available at the following link: `https://twitter.com/LabussiereMarie`.

[4]For a short presentation of the impact plan, see the slide deck prepared while working on the Societal Impact Workshop at `https://zenodo.org/record/4271473` [accessed July 16, 2021].

Nederlandse samenvatting

De 'tweede generatie', kinderen die zijn geboren in het land waarnaar hun ouders migreerden, vertegenwoordigen een aanzienlijk en groeiend aandeel van de Europese bevolking. De onderwijsresultaten van deze kinderen zijn in de afgelopen decennia uitgebreid bestudeerd, voortvloeiend uit de brede constatering dat kinderen van immigranten vaak minder goed presteren dan hun leeftijdsgenoten waarvan de ouders zijn geboren in het land waarin zij worden grootgebracht. Aangezien onderwijs van cruciaal belang is voor hun kansen op allerlei levensterreinen, staat het verklaren van het verschil in onderwijsresultaten tussen deze groepen hoog op de onderzoeksagenda. Onderzoekers hebben verschillende factoren tegen het licht gehouden om te verklaren waarom kinderen van migranten dikwijls problemen ervaren op school. Hierbij is aandacht voor de migratieachtergrond van hun ouders en daaraan gerelateerde hindernissen voor de onderwijsprestaties van hun kinderen. Migrantenouders ondervinden bijvoorbeeld structurele obstakels op de arbeidsmarkt, waardoor zij hun kinderen minder goed kunnen ondersteunen. Daarnaast is het mogelijk dat migrantenouders meer dan andere ouders moeite hebben bij het begeleiden van hun kinderen en hun onderwijstrajecten, omdat zij in het algemeen minder bekend zijn met het onderwijssysteem en de bredere institutionele en sociale context waarbinnen hun kinderen opgroeien.

Terwijl de invloed van sociaaleconomische en culturele kenmerken van immigrantengezinnen op onderwijsprestaties van de tweede generatie uitgebreid is bestudeerd, blijven alternatieve verklaringen onderbelicht. Er is weinig onderzoek naar de rol van nationaliteit (staatsburgerschap) in de onderwijsprestaties van migrantenkinderen. Dit is opmerkelijk, aangezien kinderen in de meeste Europese landen standaard de nationaliteit van hun ouders verkrijgen, en niet die van hun eigen geboorteland. Dit houdt in dat kinderen van de tweede generatie voor het verkrijgen van deze nationaliteit grotendeels afhankelijk zijn van de naturalisatie van hun ouders. Over de rol van nationaliteit in de kansen van migrantenkinderen in het algemeen en onderwijsprestaties in het bijzonder, is nog weinig bekend. In dit proefschrift staat het theoretiseren en het analyseren van effecten van nationaliteit op onderwijsresultaten van de tweede generatie centraal. De centrale onderzoeksvraag (geïntroduceerd in Hoofdstuk 1) luidt als volgt: *In hoeverre heeft de nationaliteit invloed op onderwijsresultaten van in Nederland geboren kinderen van immi-*

granten? Ik beantwoord deze vraag aan de hand van empirisch onderzoek in Nederland; een land waarvan de nationaliteitswetgeving in grote lijnen representatief is voor de Europese context. In Nederland geboren worden geeft niet automatisch toegang tot de Nederlandse nationaliteit. Minderjarige kinderen van migrantenouders zijn voor toegang tot het Nederlanderschap afhankelijk van de naturalisatie van hun ouders. Meerderjarige kinderen kunnen zelfstandig naturaliseren. Nederland vormt hiermee een geschikte casus om te analyseren in hoeverre kinderen van immigranten van elkaar verschillen in hun toegang tot het Nederlanderschap. Dit genereert inzicht in de vraag in hoeverre en op welke wijze toegang tot de Nederlandse nationaliteit samenhangt met specifieke trajecten binnen het onderwijssysteem.

Onderzoek naar de relatie tussen nationaliteit en onderwijs in andere landen dan Nederland toont aan dat het verkrijgen van de nationaliteit van het vestigingsland een positief effect heeft op onderwijsresultaten van kinderen van immigranten. Deze studies vragen echter om meer diepgang, zowel vanuit conceptueel als vanuit methodologisch oogpunt. Ten eerste zijn de onderliggende mechanismen van het effect van nationaliteit op onderwijsprestaties niet duidelijk geïdentificeerd in bestaande literatuur en zijn deze niet ingebed in een overkoepelend theoretisch kader. Dit maakt het lastig te doorgronden *waarom* en *hoe* naturalisatie ertoe doet. Ten tweede stel ik vast dat het identificeren van de effecten van nationaliteit belangrijke methodologische uitdagingen met zich meebrengt, aangezien de positieve samenhang tussen nationaliteit en onderwijs mogelijk (deels) een schijnverband is. Naturalisatie is immers een kostbaar proces dat niet alle migrantengezinnen kunnen of willen doorlopen. Ouders die naturaliseren zijn mogelijk in een betere positie om de onderwijsloopbaan van hun kinderen te ondersteunen, reeds voordat naturalisatie aan de orde komt. Een dergelijk mechanisme illustreert de noodzaak om te controleren voor selectie in naturalisatie.

Dit proefschrift adresseert de bestaande theoretische en empirische tekortkomingen op twee manieren. Hoofdstuk 2 behelst een uitgebreide bespreking van de bestaande literatuur en besteedt aandacht aan de verschillende theoretische kanalen die nationaliteit en onderwijsresultaten met elkaar verbinden. Vanuit een levensloopperspectief veranker ik deze kanalen in een overkoepelend theoretisch kader waarin de rol van gezins-, temporele en institutionele dynamieken worden geïntegreerd. Dit verrijkte theoretische model vormt het fundament voor de empirische hoofdstukken 3 tot en met 5, welke de patronen en effecten van naturalisatie analyseren aan de hand van bevolkingsregisters op micro-niveau van het CBS. Ik volg verschillende cohorten van migrantenkinderen die tussen 1995 en 2010 in Nederland zijn ge-

boren, en traceer hun nationaliteitstransities en schoolresultaten tot 2016. Het volgen van een gehele groep van de tweede generatie kinderen in Nederland en het brede observatievenster bieden unieke methodologische mogelijkheden om de effecten van nationaliteit op de onderwijsresultaten te identificeren en te doorgronden.

De volgende hoofdstukken voorzien in een samenvatting van de theoretische bijdrage van dit proefschrift en de belangrijkste bevindingen uit de empirische hoofdstukken.

Theoretische bijdragen

In bestaand onderzoek komen zowel de nationaliteit als de onderwijsresultaten van kinderen van immigranten uitgebreid aan bod. Deze twee zaken worden echter hoofzakelijk afzonderlijk van elkaar geanalyseerd. Zo wordt in onderzoek naar staatsburgerschap van kinderen van immigranten zelden gekeken naar de mogelijke effecten hiervan op onderwijsprestaties, en laat literatuur over verschillen in onderwijsresultaten de nationaliteit van leerlingen meestal ongemoeid. De enkele studies die nationaliteit en onderwijs wel in relatie tot elkaar analyseren, bouwen niet expliciet op elkaar voort, waardoor deze resultaten moeilijk in een breder overzicht te plaatsen zijn.

Hoofdstuk 2 heeft als doel de relevante onderzoeken samen te brengen en de complementaire inzichten die hieruit voorvloeien uit te lichten. Dit doe ik aan de hand van de sociologische levensloop benadering om de effecten van nationaliteit op onderwijsprestaties verder inzichtelijk te maken, waarbij ik mij richt op de dynamiek en onderlinge afhankelijkheid van levenslopen. Ten eerste ben ik van mening dat onderzoek naar staatsburgerschap en onderwijs rekening dient te houden met intergenerationele samenhang: kinderen zijn wettelijk afhankelijk van hun ouders om de nationaliteit van het vestigingsland te verkrijgen en kunnen dus zowel direct als indirect profiteren van de naturalisatie van hun ouders. Dit vraagt om het inzichtelijk maken van naturalisatie op familieniveau, wat afwijkt van eerdere perspectieven waarbij de nadruk ligt op volwassenen.

Ten tweede laat ik zien dat de gevolgen van nationaliteit moeten worden geplaatst binnen de specifieke structuur van kansen en beperkingen waarmee scholieren van de tweede generatie worden geconfronteerd. Terwijl nationaliteitswetgeving een directe invloed heeft op de mogelijkheden voor vestiging en verblijf van migrantengezinnen, wordt de schoolervaring van kinderen in het vestigingsland bepaald door de kenmerken van het onderwijssysteem.

Het is van groot belang om patronen en effecten van naturalisatie te bezien in het licht van deze macro factoren, aangezien de waarde van de nationaliteit van het vestigingsland kan variëren naar gelang de institutionele context waarmee immigrantengezinnen te maken hebben. Ik analyseer het verkrijgen van nationaliteit als een bron die de mate van zelfbeschikking van kinderen en hun ouders vergroot, en zo ook hun bekwaamheid zich een weg te banen in een complex institutioneel landschap als het onderwijssysteem. Dit perspectief bouwt voort op bestaande benaderingen, waarin de focus hoofdzakelijk ligt op toegenomen verwachtingen die ouders hebben wat betreft onderwijs, zonder dat hiermee inzicht wordt gegeven in de wijze waarop deze verwachtingen zich vertalen naar daadwerkelijke investeringen in het onderwijs van hun kinderen.

Tot slot stel ik dat naturalisatie moet worden geanalyseerd in de context van levenslopen. Naturalisatie is een proces dat geruime tijd voor de daadwerkelijke transitie in nationaliteit begint – namelijk wanneer aspirant-staatsburgers zich gaan verdiepen in de vereisten en zich voorbereiden op een aanvraag. Het proces duurt bovendien voort na het verkrijgen van de nationaliteit, getuige de voordelen van de nieuwe nationaliteit die immigranten op lange termijn ervaren. Desondanks wordt naturalisatie veelal gemodelleerd als een geïsoleerde, eenmalige transitie in het leven van een individu, waarmee belangrijke temporele dynamieken onbelicht blijven. In mijn onderzoek daarentegen, plaats ik patronen en effecten van naturalisatie binnen de bredere levensloop van kinderen, met een focus op *wanneer* nationaliteit wordt verkregen en de vraag of *timing* van naturalisatie van belang is voor onderwijsuitkomsten. Daarnaast laat ik zien dat de effecten van nationaliteit afhankelijk zijn van de hulpbronnen van kinderen en hun ouders: naturalisatie voltrekt zich niet in een vacuüm, maar hangt samen met andere individuele- en gezinskenmerken.

Empirische bevindingen

De levensloopbenadering vormt een sterk theoretisch uitgangspunt voor een empirische analyse van de nationaliteit van kinderen van migranten. De drie empirische hoofdstukken, gebaseerd op gepubliceerde of ingediende artikelen, richten zich op drie onderling samenhangende deelvragen omtrent naturalisatiepatronen van tweede generatie migranten in Nederland, en de effecten van deze patronen en trajecten op uitkomsten in het Nederlandse onderwijssysteem.

Hoofdstuk 3 onderzoekt *wie naturaliseert onder tweede generatie migranten in Nederland, en wanneer en onder welke condities dat het geval is*. Een beschrijvende analyse laat zien dat het overgrote merendeel van de kinderen van migranten het Nederlanderschap verkrijgen via hun ouders, wat onderstreept dat intergenerationele afhankelijkheid binnen de familie in acht genomen dient te worden. Op basis van event history modellen analyseer ik vervolgens of toegang tot het Nederlanderschap onder kinderen van migranten beïnvloed is door de invoering van restrictieve eisen voor naturalisatie in de jaren negentig. Resultaten tonen aan dat kinderen van ouders die pas in aanmerking kwamen voor naturalisatie na de invoering van een strenger naturalisatiebeleid een lagere kans hadden om Nederlander te worden dan hun tegenhangers wiens ouders onder meer liberale condities konden naturaliseren. Belangrijk is bovendien dat kinderen die Nederlander werden onder het restrictieve beleid een veel hogere kans hadden om te naturaliseren met één ouder in plaats van met beide ouders, wat suggereert dat gezinnen strategisch omgaan met de kosten voor naturalisatie. Dynamic modelling van de kans op naturalisatie laat verder zien dat het negatieve effect van de beleidswijziging afhangt van de specifieke eisen: hoewel migrantenouders die afstand moeten doen van hun oorspronkelijke nationaliteit (vanaf 1997) afzien van naturalisatie op de lange termijn, zorgen inburgeringseisen (vanaf 2003) vooral voor uitstel. Meer algemeen laten de resultaten zien dat migrantengezinnen verschillende naturalisatietrajecten volgen afhankelijk van hun maatschappelijke omgeving, wat resulteert in verschillende naturalisatiepatronen onder kinderen van migranten. Dit benadrukt het belang van het gezin en contextuele factoren, en onderstreept de intergenerationele impact van wijzigingen in nationaliteitswetgeving: eisen voor naturalisatie voor migranten hebben een indirect effect op de toegang tot het Nederlanderschap van hun kinderen.

Hoofdstuk 4 en 5 toetsen vervolgens of uitstel – of afstel – van het verkrijgen van het Nederlanderschap een negatief effect heeft op de onderwijsprestaties van kinderen van migranten. Hoofdstuk 4 is verkennend en onderzoekt *hoe kinderen van migranten het Nederlandse onderwijssysteem navigeren, en of de nationaliteit van het vestigingsland samenhangt met verschillende onderwijstrajecten*. De focus op volledige onderwijstrajecten in plaats van geïsoleerde uitkomsten of overgangen van het ene opleidingstype naar een ander geeft waardevolle inzichten in hoe tweede generatie scholieren hun weg vinden in het complexe Nederlandse schoolsysteem. In Nederland wordt scholieren een specifiek onderwijstraject toegewezen vanaf twaalf jaar, wat hen voorbereidt op een specifieke kwalificatie. Hoewel het mogelijk is van traject te wisse-

len vereist dit informatie en kennis die niet aanwezig is onder alle gezinnen. Op basis van de hypothese dat de nationaliteit van het vestigingsland het migrantengezinnen makkelijker maakt om keuzes te maken, analyseer ik of scholieren die het Nederlanderschap verkregen mobieler zijn binnen het onderwijslandschap dan hun tegenhangers zonder de Nederlandse nationaliteit. Met dat doel maak analyseer ik de opeenvolgende overgangen tussen schooltypes die scholieren maken in het voortgezet onderwijs. Beschrijvende resultaten laten zien dat een meerderheid van de tweede generatie scholieren een standaardroute volgt in het voortgezet onderwijs, maar dat meer dan een kwart niet in het traject blijft waarin zij oorspronkelijk waren begonnen. Ik laat een veelvoud aan trajecten zien, waarbij scholieren omhoog en omlaag bewegen tussen de verschillende onderwijstypen maar ook het Nederlandse onderwijssysteem verlaten en weer terugkomen. In de regressies analyseer ik of naturalisatie samenhangt met specifieke mobiliteitspatronen. Resultaten tonen aan dat studenten die Nederlander werden voor hun twaalfde een hogere kans hebben om in een opwaarts mobiliteitstraject te zitten, en minder kans hebben om zonder diploma van school te gaan. Dit suggereert dat naturalisatie scholieren en hun gezin helpt om te profiteren van de achterdeuren en vangnetten van het flexibele onderwijssysteem. Hoewel het exploratieve karakter van hoofdstuk 4 geen causale relaties impliceert, geeft het een eerste indicatie dat naturalisatie lange-termijn effecten heeft op de onderwijstrajecten van tweede generatie migranten.

Hoofdstuk 5 gaat specifieker in op het effect van naturalisatie door te onderzoeken *in welke mate het effect van de nationaliteit van het vestigingsland gedreven wordt door selectie van ouders in naturalisatie, en of het effect afhangt van timing of persoonskenmerken*. Ik ontwikkel een empirische strategie op basis van gezin fixed-effects om te achterhalen of (een deel van) de geconstateerde positieve relatie tussen naturalisatie en de schoolprestaties van kinderen een schijnverband is. Dit zou het geval zijn wanneer ongemeten kenmerken van ouders samenhangen met zowel de kans op naturalisatie als de schoolprestaties van hun kinderen. Om voor dergelijke ongemeten kenmerken op gezinsniveau te controleren vergelijk ik Cito scores van zussen en broers die het Nederlanderschap op verschillende leeftijden verkregen. Deze strategie is niet alleen meer robuust tegen vertekeningen door selectie, maar maakt bovendien mogelijk om te meten of de timing van naturalisatie ertoe doet. Dit bouwt voort op bestaand onderzoek dat zich louter richt op de vaag *of kinderen genaturaliseerd zijn of niet* op het moment van observatie. Een belangrijke bevinding in hoofdstuk 5 is dat de relatie tussen naturalisatie en onderwijs niet volledig gedreven wordt door selectie: scholieren die Nederlander werden

vroeg in hun kindertijd hebben significant hogere Citoscores dan hun niet-genaturaliseerde tegenhangers, zelfs wanneer voor ongemeten gezinskenmerken gecontroleerd wordt via de vergelijking met zussen of broers. Dit komt overeen met de bevindingen van verschillende studies die een oorzaak-gevolg relatie vaststellen tussen naturalisatie en onderwijsuitkomsten in andere landen. Bovendien vind ik bewijs dat de timing van naturalisatie ertoe doet. Hoe later scholieren Nederlander worden, des te zwakker is het positieve effect daarvan op hun Citoscore. Meer specifiek laten de resultaten zien dat kinderen vooral profijt hebben van het Nederlanderschap wanneer dit verkregen wordt voordat zij aan het basisonderwijs beginnen. Onderzoekers zouden daarom niet alleen oog moeten hebben voor de vraag of de nationaliteit van het vestigingsland door migrantengezinnen verkregen wordt maar ook *wanneer*. Hoofdstuk 5 geeft meer bewijs dat het effect van naturalisatie niet gelijk is voor alle scholieren: het doet er vooral toe voor kinderen wiens ouders een achterstand hebben op de arbeidsmarkt en woningmarkt. Dit suggereert dat naturalisatie vooral als een compenserend instrument functioneert dat de onderwijsprestaties bevordert van kinderen waarvan de ouders beperkte middelen hebben. Hoewel vergelijkbare compenserende mechanismen in de literatuur over naturalisatie van eerste generatie migranten zijn vastgesteld is er sprake van veel minder aandacht voor de tweede generatie. Hoofdstuk 5 roept daarom op tot meer onderzoek naar factoren die de relevantie van naturalisatie voor kinderen van migranten conditioneren.

Conclusie

Hoewel er zowel in onderzoek als in officiële stastieken ruim aandacht wordt besteed aan de tweede generatie, is nog steeds weinig bekend over de juridische drempels waarmee kinderen van immigranten te maken krijgen in landen waarin zij opgroeien, maar waarvan zij niet automatisch staatsburger zijn. Dit proefschrift laat zien dat het niet hebben van de nationaliteit van het land waar kinderen opgroeien een negatieve uitwerking heeft op onderwijskansen van de tweede generatie. Zo blijken kinderen met de Nederlandse nationaliteit aan het eind van de basisschool betere Cito-scores te behalen en beter in staat te zijn zich een weg te banen door het complexe systeem van voortgezet onderwijs dan kinderen zonder de Nederlandse nationaliteit. Met andere woorden: het verkrijgen van het Nederlanderschap heeft niet alleen invloed op de prestaties van scholieren, maar houdt ook verband met hun mobiliteit en het type onderwijs waartoe zij toegang hebben. Tegen deze achtergrond zullen recente restricties in de toegang tot het Nederlanderschap

van immigrantenouders het verschil in onderwijsresultaten tussen kinderen met en zonder de Nederlandse nationaliteit verder doen toenemen en zo ook de verschillen tussen kinderen met en zonder migratieachtergrond. Een belangrijke kanttekening hierbij is dat de effecten van nationaliteit op onderwijsprestaties niet uniform zijn: ze moeten worden bezien in de context van de levensloop en sociale relaties van individuen. Staatsburgerschap doet er met name toe wanneer dit verkregen is tijdens de vroege jeugd en wanneer het families betreft die structurele hindernissen ervaren in het vestigingsland. Dit suggereert dat het faciliteren van vroege toegang tot het verkrijgen van staatsburgerschap voor kinderen van immigranten als hefboom kan fungeren, in het bijzonder voor de minst bevoordeelde gezinnen. Gezien aanhoudende hindernissen die kinderen van immigranten over het algemeen ervaren binnen en buiten het schoolsysteem, is voortzetting van onderzoek naar potentiële verzachtende factoren zoals toegang tot staatsburgerschap van cruciaal belang.

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Back when I was a Bachelor student, I had the rare opportunity to attend a lecture by the American sociologist Howard S. Becker in Bordeaux. While I cannot remember precisely the theme of the lecture, one of his remarks has stayed with me until today. As he was discussing art work, Howard Becker drew our attention to the gap between how we typically describe movies ("*the last movie by director X*") and the never-ending list in the end credits of the individuals who contributed to the creation of the film. The focus on the haloed figure of the artist tends to obscure the collective dimension of art work and the many individuals who contribute to the process of creation. I would draw a parallel with research: behind each researcher, there is usually a whole crew of people involved to varying degrees in conducting the research. Acknowledgements in PhD dissertations are actually one of the few opportunities to bring them out of the shadows.

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Marie Labussière
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About the author

Marie Labussière was born in Rochefort, France, on November 5th, 1992. She obtained a Bachelor's degree in 2013 after three years in the *Classe préparatoire aux grandes écoles* BL "Arts and Social Sciences" in Toulouse and Bordeaux (France). She was then admitted to the *École Nationale de la Statistique et de l'Administration Économique* (ENSAE) in Paris, where she completed an engineering program specialised in statistics, economics and data science from 2013 to 2016.

During her studies at the ENSAE, Marie worked as a research assistant in several research institutes: the Center of Socio-Political Data (CDSP) of Science-Po Paris in 2014, the Laboratory of Quantitative Sociology (LSQ) in 2015, and the Center Maurice Halbwachs (CMH) in 2016. Her research focused on social stratification, gender and labour market inequalities.

In 2017, Marie graduated *Cum Laude* from the Research Master program Interdisciplinarity in Social Sciences at the *École Normale Supérieure* (ENS) and *École des Hautes Études en Sciences Sociales* (EHESS) in Paris. During this program, she conducted ethnographic fieldwork on contemporary women's movements, exploring the links between feminism, conservatism and religion.

From 2017 to 2021, Marie completed her PhD at the Faculty of Arts and Social Sciences of Maastricht University under the supervision of Prof. Dr. Maarten Vink and Prof. Dr. Mark Levels. Her PhD study, which analyses the relation between citizenship and education among the children of immigrants in the Netherlands, was part of the ERC-project "Migrant Life Course and Legal Status Transitions" led by Prof. Dr. Maarten Vink. For this research, she was associated with the Maastricht Centre for Citizenship, Migration and Development (MACIMIDE) and the International Migration, Integration and Social Cohesion in Europe (IMISCOE) network.

As of September 2021, Marie Labussière works as a postdoctoral researcher at the Sociology department of the University of Amsterdam.