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Anticipating the citizenship premium: before and after effects of immigrant naturalisation on employment

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ABSTRACT

Can citizenship improve the economic integration of immigrants, and if so, how? Scholars traditionally understand a citizenship premium in the labour market, besides access to restricted jobs, as the result of a positive signal of naturalisation towards employers. While we do not discard these mechanisms, we argue that explanations should also take into account that migrants anticipate rewards and opportunities of naturalisation by investing in their human capital development. We thus expect to observe improved employment outcomes already before the acquisition of citizenship. We use micro-level register data from Statistics Netherlands from 1999 until 2011 ($N = 94{,}320$) to test this expectation. Results show a one-time boost in the probability of having employment after naturalisation, consistent with the prevalent notion of positive signalling. However, we find that the employment probability of naturalising migrants already develops faster during the years leading up to citizenship acquisition, even when controlling for endogeneity of naturalisation. We conclude that it is not just the positive signal of citizenship that improves employment opportunities, but also migrants' human capital investment in anticipation of naturalisation.

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Introduction

Research consistently shows that migrants are at a disadvantage compared to natives in the labour market when it comes to return rates on their level of education and labour market experience (Heath and Cheung 2007; Lancee 2012; van Tubergen, Maas, and Flap 2004). Policy-makers of receiving countries have a strong incentive to facilitate the quick and successful incorporation of immigrants into the labour market, both to ensure migrants' self-sufficiency and independence from welfare benefits, and to promote their opportunities for full participation and integration. In this regard, acquiring citizenship of the destination country can potentially facilitate the process of economic integration (OECD 2011). This paper analyses how and to what extent citizenship is relevant for the labour market integration of immigrants in terms of employment.

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Many studies have found that there is a positive association between citizenship acquisition and labour market integration (e.g. Bakker, Dagevos, and Engbersen 2016; Fougère and Safi 2009; Helgertz, Bevelander, and Tegunimataka 2014; Steinhardt 2012), yet the mechanisms through which citizenship affects economic integration remain unclear. The established theoretical framework focusses on how citizenship acquisition facilitates access to the labour market, reduces administrative costs in the hiring process and functions as a positive signalling device, but these mechanisms fail to explain substantial empirical ambiguity. Indeed, an examination of the literature reveals that (a) the positive economic impact of citizenship is not observed for all migrant groups or (b) in all countries and (c) the extent to which naturalisation has an effect differs per migrant group and national context, and in some cases is even observed to be negative (Bratsberg and Raaum 2011; Engdahl 2011; Helgertz, Bevelander, and Tegunimataka 2014; Scott 2008). This ambiguous picture has so far been predominantly attributed to the methodological challenge of an analysis of the economic consequences of naturalisation. Individuals who naturalise may differ from those who do not in terms of non-trivial characteristics such as motivation or ability, which are hard to measure and control for, thus introducing the risk of overestimating the relevance of citizenship (Bratsberg, Ragan, and Nasir 2002, 581–582). However, even when accounting for this 'self-selection' bias using panel data, the contradictory findings persist, as some migrants enjoy a so-called citizenship premium, whereas others do not. As such, a substantial amount of literature suggests at least some effect of naturalisation, but there is still limited understanding in the literature as to *why*, *when* and *for whom* citizenship matters or not.

In this paper, we go beyond the signalling argument, and argue that better labour market outcomes prior to the moment of naturalisation are not solely due to self-selection, but also reflect a human capital investment by immigrants in order to meet the requirements of naturalisation. Moreover, immigrants anticipate the rewards and opportunities that citizenship will offer in the future. As such, we expect the probability of employment to increase before, and not only after naturalisation, even when controlling for endogeneity in the naturalisation process. This 'anticipation effect' manifests prior to the moment of naturalisation because it reflects the outcome of the decision to naturalise rather than citizenship acquisition. To empirically test this new theoretical approach, we initially follow the state-of-the-art empirical strategy as developed by Bratsberg, Ragan, and Nasir (2002), and subsequently adjust this strategy to analyse a potential anticipation effect in greater detail.

We use data from Dutch population registers and The System of Social Statistical Datasets, containing almost all registered first-generation immigrants in the Netherlands (N = 94,320), which allows us to track and compare the citizenship status and labour market performance of these immigrants over time. The paper is structured as follows: first, we briefly outline the Dutch context, followed by the theoretical framework and hypothesis. We continue by detailing the dataset, operationalisation and methodology. Subsequently, results from the analyses are presented, and finally we discuss the conclusions and implications of our findings.

Context: immigration and citizenship policy in the Netherlands

The Netherlands has been a country of net-immigration from the 1960s onwards (excluding 1976). The number of foreign-born individuals migrating to the Netherlands has

fluctuated over the last decades, from roughly 95,000 in 1998 and 71,000 in 2005 to 132,000 in 2011 (not accounting for emigration). Figures from Statistics Netherlands show that on January 2011, roughly 1,735,000 foreign-born individuals resided in the Netherlands, constituting 10.4% of the entire population.

Under the conditions of the revised Dutch Nationality Act of April 2003, migrants are eligible for citizenship acquisition when at least 18 years of age, having a residence permit for an undefined period of time and residing legally in the Netherlands for an uninterrupted period of 5 years. If an individual is the registered partner of a Dutch national for three consecutive years, only a non-temporary residence permit and principal residence in the Netherlands is required. Furthermore, migrants should renounce their original citizenship (although numerous exceptions to the renunciation requirement exist) and not constitute a danger to public order (i.e. have no criminal record). Being employed before or at the moment of naturalisation is not a requirement for citizenship acquisition. Migrants do have to pass a language and integration requirement by successfully completing a formalised naturalisation test. To pass this test, migrants have to be able to read, write and speak Dutch at level A2 of the Common European Framework of Reference for Languages, and possess sufficient knowledge of the Dutch society. These requirements constitute a significant hurdle to naturalisation, particularly for migrants who are most interested to naturalise (Peters, Vink, and Schmeets 2015). As such, citizenship acquisition is not simply an isolated and abrupt legal status transition, but rather a process that requires careful planning and preparation, starting the moment a migrant decides to naturalise in the future. In terms of formal benefits, Dutch citizenship provides a secure legal status and full voting rights, as well as access to a small number of professions that are restricted to non-citizens, namely jobs in the army and high-ranking positions in law and the public sector, such as judges and members of parliament.

Theoretical framework

Citizenship in the context of immigrant employment

Immigrants generally perform worse in the labour market than natives. These disadvantages are often explained in the framework of human capital theory (Becker 1964). Human capital, understood as an individuals' endowment of intrinsic ability in terms of capacities and skills, as well as educational qualifications and work experience, is generally poorer for migrants compared to natives for various reasons. Skills concerning the successful navigation of the labour market, as well as formal and informal credentials, are not equally relevant or valued across national contexts (Friedberg 2000). Migrants are also generally at a disadvantage with regard to mastery of the native language (van Tubergen and Kalmijn 2005). Furthermore, employers may be less inclined to hire a foreign-born job candidate due to the perceived risk of short-term emigration, or in the context of statistical discrimination (Arrow 1972).

Within this framework of labour market disadvantages of immigrants, citizenship acquisition is perceived by policy-makers as a potentially promising vehicle to mitigate at least some of these issues, and promote immigrant integration (OECD 2011). The literature has identified three mechanisms by which citizenship of the host country contributes to the labour market opportunities of immigrants (Liebig and von Haaren 2011).

First, naturalised migrants gain access to jobs that require citizenship of the host country, such as professions in the police force, the army or the public sector. Second, employers face administrative costs when hiring a foreigner, such as the verification of worker rights, which are not relevant to naturalised migrants. Third, citizenship may play an important role in the hiring process within the framework of statistical discrimination by functioning as a positive signalling device. Employers may assume naturalised migrants are positively selected, placating feelings of uncertainty with regard to hiring the foreign-born individual.

The ambiguous economic impact of citizenship

The above arguments constitute a common theoretical framework in the literature on citizenship and labour market integration. However, empirical findings do not universally support the notion of a citizenship premium. For instance, most longitudinal studies reveal some positive effects of naturalisation, but also show that the relationship is to a varying degree (and in some cases entirely) attributable to self-selection (Bratsberg, Ragan, and Nasir 2002; Engdahl 2014; Scott 2008; Steinhardt 2012). Moreover, the citizenship premium is sometimes only observed for particular migrant groups, such as those from economically less developed countries of origin (Fougère and Safi 2009). It is hard to compare these studies in the literature given notable differences in the types of data, methods and controls, but it is clear that there is substantial empirical heterogeneity between contributions, even when accounting for endogeneity in the naturalisation process (see Helgertz, Bevelander, and Tegunimataka [2014, 343] for an overview). Surprisingly, there is almost no theorising in the literature on potential explanations for these contradictory findings, which might answer why and for whom citizenship matters. Whereas most of the literature focusses on the relationship between naturalisation and wages, the main underlying mechanism – namely positive signalling – seems particularly relevant in the context of having employment or not. Hiring an immigrant implies risk due to potentially unfamiliar qualifications and possible short-term emigration. Employers thus look at indicators for motivation, commitment and the intention to stay. The naturalised status is an example of such an indicator, but so is being employed. Citizenship of the host country is therefore particularly relevant to non-employed migrants, since the current occupation of employed individuals has a positive signalling effect in its own right. Moreover, positive signalling matters most when employers have limited information on the basis of which they can assess the suitability of a migrant for a job. This will particularly be the case for immigrants who are still trying to secure their first job after migration, for whom no record of their occupational performance in the host country exists. In other words, signalling will particularly facilitate access to the labour market rather than occupational mobility. As such, there seems to be a mismatch between the prevalent object of study, namely earnings, and the main theoretical mechanism that explains the relationship between citizenship acquisition and labour market integration, which is particularly relevant in the context of acquiring employment.

Furthermore, the traditional mechanisms in the literature imply a causal relationship, where citizenship acquisition precedes positive labour market outcomes. However, many studies suggest an increase in economic integration already prior to naturalisation, even when controlling for endogeneity (Bratsberg and Raaum 2011,

198; Engdahl 2014, 20; Helgertz, Bevelander, and Tegunimataka 2014, 353). In that context, we argue for a more complex understanding of the mechanisms underlying the citizenship premium.

Anticipating naturalisation

The main mechanism through which citizenship is commonly expected to affect the economic integration of immigrants is positive signalling. As such, the literature considers the citizenship premium to be predominantly the product of employers' perception of immigrants, which is assumed to be more positive when citizenship is acquired. From this notion generally follows the assumption that citizenship should have a positive impact on the chances of having employment of immigrants *after* naturalisation (Helgertz, Bevelander, and Tegunimataka 2014, 344). Indeed, it is argued that the moment of naturalisation marks the threshold where employers are able to identify that a particular migrant is committed to stay and integrate into the host society. Given the inherently selective process of naturalisation, studies in this field of literature typically account for so-called self-selection. The assumption here is that migrants who naturalise perform better in the labour market even before naturalisation due to characteristics that are associated with both an increased propensity to naturalise and better labour market outcomes, but which are not explicitly linked to the moment of naturalisation itself. Figure 1 schematically illustrates this point, where migrants who naturalise already exhibit an advantage in the labour market (line d) compared to migrants who never naturalise (line e), even before the moment of naturalisation. This advantage remains equal over time, and is the result of

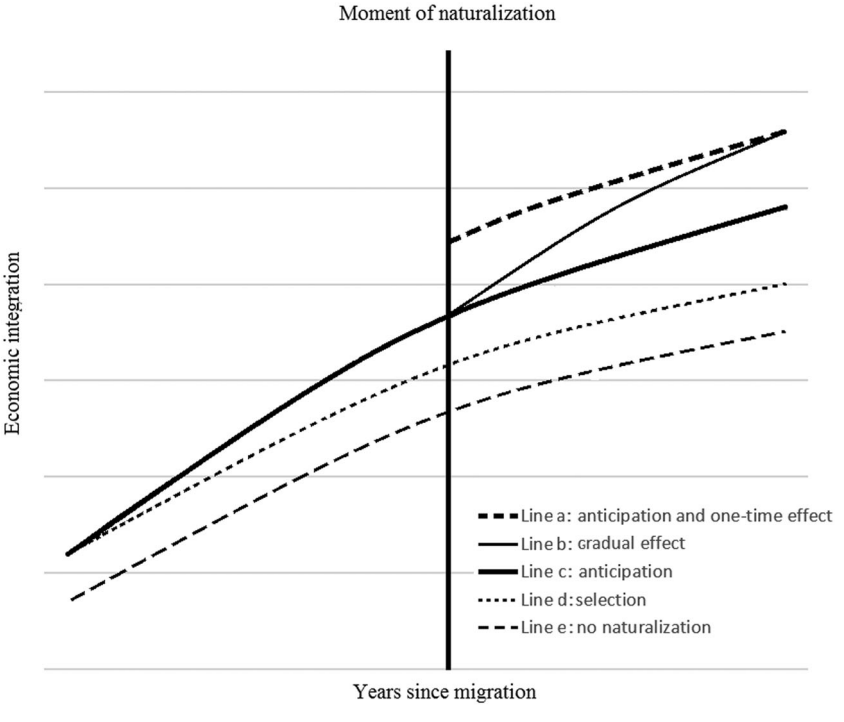

Figure 1. Schematic illustration citizenship premium.

endogenous characteristics such as motivation or ability (Bratsberg, Ragan, and Nasir 2002, 572–573). These characteristics are unrelated to the moment of naturalisation, even though they *are* related to the propensity to naturalise. The notion of the citizenship premium as traditionally understood in the literature then assumes that – besides the positive selection into naturalisation – the employability of immigrants increases after citizenship acquisition due to more positive outcomes of statistical discrimination.

However, citizenship acquisition is not an abrupt legal status transition, but rather a process that requires careful planning and preparation leading up to naturalisation. The decision to naturalise is typically understood as the result of a cost–benefit consideration. But qualitative research on motivations for naturalisation shows that what appears to be instrumental reasons for naturalisation can actually signal attachment and interest in full membership, and is conceptualised by immigrants as a logical step on the road towards building a life in the host country (Aptekar 2015, 65). Furthermore, immigrant lives do not exist in a vacuum. Plans and ambitions for the future are made in the context of the life course (Wingens et al. 2011). Important choices in the lives of immigrants, including the decision to permanently settle and naturalise, are embedded in a broader social and institutional framework. Countries can channel political incorporation through policies of diversity and newcomer settlement, facilitating structured mobilisation by friends, family, communities and local leaders (Bloemraad 2006). As such, citizenship acquisition takes place in a broader social and societal context in which the decision to naturalise in the future is not trivial. Furthermore, citizenship policies provide the opportunity structure under which citizenship acquisition is de facto possible. With regard to the latter, most European countries have formalised the conditions for eligibility into not only a minimum period of (legal) residence, but also obligatory language and civic integration requirements. These conditions imply that migrants need to invest in themselves, most notably in linguistic terms, if they wish to naturalise in the future. Moreover, migrants who have decided to naturalise in the future are likely to invest in host-country specific human capital to make use of the opportunities that citizenship acquisition will offer, such as unrestricted access to the labour market. Indeed, multiple studies show that migrants have an economic incentive to acquire citizenship of the host country, as naturalisation has the potential to increase earnings for some migrant groups (Helgertz, Bevelander, and Tegunimataka 2014, 353; Bratsberg, Ragan, and Nasir 2002, 582; Steinhardt 2012, 819). This human capital development in anticipation of acquiring citizenship will increase the probability of employment leading up to the moment of naturalisation. For instance, investment in mastery of the native language – which is a prevalent requirement for naturalisation in European countries – has often been shown to yield positive labour market outcomes (e.g. Kee and von Ophem 1996). This effect is illustrated in line c of Figure 1. What fundamentally separates this anticipation effect from what is traditionally perceived as self-selection (represented by line d) is the timing of the former. Migrants who naturalise differ from those who do not in terms of unmeasured capacities and skills that positively affect their probability of employment (line d and e). But these effects are not part of the naturalisation process. In other words, self-selection is related to the propensity to naturalise but not the act of naturalisation itself. In contrast, the anticipation effect reflects the consequences of the decision to naturalise, and is therefore intimately linked to the process of naturalisation. Finally, lines a and b of Figure 1 illustrate the traditional notion that the citizenship premium not only manifests as an anticipation

effect, but also as a one-time upward shift (line a) or gradual increase (line b) in the probability of employment following naturalisation. Our expectation is thus that under conditions where naturalisation requires demonstrable integration skills, citizenship acquisition has a positive effect on the probability of having employment of immigrants during the period leading up to the moment of naturalisation, even when controlling for endogeneity in the naturalisation process.

Data and methods

We use register data from Statistics Netherlands to analyse the relevance of citizenship for the probability of employment of immigrants in the Netherlands. These data provide information on almost all registered foreign-born residents of the Netherlands from 1999 until 2011, and is based on municipal population registers, complemented by information from The System of Social Statistical Datasets. We keep track of individuals per 6 months, starting from the moment of arrival in the Netherlands, and until they either emigrate or reach the end of the observation period (January 2012).

We focus on migrants who arrived in the Netherlands between 1999 and 2002 for two reasons. First, almost all migrants from these cohorts are eligible for citizenship under the same conditions. Second, we are interested in the labour market performance of immigrants before and after naturalisation. Given the fact that we only have employment data from 1999 onwards, we are unable to analyse the period before naturalisation in its entirety for migrants arriving before this point in time. We analyse cohorts no later than 2002 to be able to track immigrants of all cohorts for more than 9 years. The maximum period of observation is fixed at 10 years for all cohorts.

The analysis focusses on foreign-born immigrants who have not yet acquired Dutch citizenship before the observation period ($N = 94{,}320$). Hence, migrants born in Suriname before 1975, and those born in the Netherlands Antilles are excluded from the analysis, since these migrants are Dutch citizens by birth. We perform separate analyses for men and women to account for differing labour market orientations between genders, as well as potential gender discrimination in the labour market.

The dependent variable in the analysis is employment. The focus on employment as opposed to other forms of economic integration (such as earnings) is an explicit decision made for two reasons: first, the potential relationship between citizenship and wages is a fundamentally different research question, focusing on a different research population (namely migrants with employment). Second, the main mechanism explaining the relationship between citizenship and economic integration in the literature is predominantly relevant in the context of acquiring employment rather than wages. Indeed, the few studies focusing on both employment and income show that citizenship matters in terms of employment, but less so for annual earnings conditional on being employed (Engdahl 2011, 104, 115–118; 2014, 40, 42). We dichotomise between having employment in contrast to not being employed. Employed individuals are employees and the self-employed, whereas the non-employed are those who seek work and individuals who are inactive in the labour market by choice. Hence, the analysis focusses on the active labour force, complemented by those who are not active by choice, such as domestic workers or individuals who have become demotivated due to negative experiences in the labour market. While the latter, inactive group may not be seeking employment, we

include them for two reasons. First, we have no definitive way to distinguish between those who seek employment, and those who could, but choose not to. Second, we are interested in the role of citizenship to the probability of being employed, including for those migrants who are less active in the labour market, for instance due to demotivating experiences (Lancee 2012, 58–59). We exclude migrants who are inactive and clearly identifiable as such, namely students, retirees and individuals with health problems or disabilities that impede their participation in the labour market. In accordance with the literature (e.g. Helgertz, Bevelander, and Tegunimataka 2014, 347), we also exclude migrants younger than 20 and older than 50 years at the moment of arrival in the Netherlands. These boundaries were chosen to further focus the selection on those who could be active in the labour market, and who likely have similar incentives to integrate into the labour market (Engdahl 2014, 11).

The independent variables can be categorised as either individual or contextual characteristics. Individual characteristics include citizenship, age at the moment of migration, years since migration, the citizenship status of the potential partner and having young children in the household, while contextual characteristics include the level of economic development and EU-membership of the origin country. We keep track of changes in individual characteristics per 6 months, and in contextual characteristics per year.[1]

Our empirical strategy follows the state-of-the-art method developed by Bratsberg, Ragan, and Nasir (2002). In line with earlier research in this field of literature (Helgertz, Bevelander, and Tegunimataka 2014; Steinhardt 2012), we use (distributed) logistic individual fixed-effects regression, and distinguish between three parameters of interest that measure the relevance of citizenship. The first parameter (α_1) is an interaction between a time-invariant dummy (D_i) set to unity if a migrant naturalises within the observation period, and years since migration (X_{it}). As such, this parameter provides an indication of a potentially steeper slope of years since migration for migrants who naturalise (line c of Figure 1). Note that this effect is already present prior to naturalisation. The second parameter (α_2) captures any *additional* growth in the probability of employment surrounding the moment of naturalisation. This is an interaction between a dummy set to unity in the year that a migrant acquires citizenship and all subsequent years (N_{it}), and a variable for years since naturalisation ($X_{it} - X_{iN}$). The latter is a continuous variable that is negative prior to naturalisation, positive after naturalisation, and 0 in the year of citizenship acquisition. A positive coefficient thus indicates a steeper increase in the probability of employment after naturalisation (line b), whereas a negative coefficient is indicative of the slope after naturalisation being less steep compared to migrants who are not naturalised. Finally, the third parameter (α_0) is a dummy set to unity in the year a migrant is naturalised and all subsequent years (N_{it}), thus capturing a potential one-time shift in the probability of employment after naturalisation (line a). We include individual fixed-effects (u_i) in all our models to control for unmeasured time-invariant heterogeneity between individuals (the difference between line d and line e). Furthermore, we control for variables which feature substantial change over time, and thus are not captured by the individual fixed-effects (Z_{it}). First, we include the partner status, distinguishing between having no partner, a foreign-born foreign partner (a non-naturalised partner), a foreign-born Dutch partner (a naturalised partner) and a native partner. When a migrant has one or more children below the age of 18 in the household, we classify them as having children. Furthermore, given substantial differences in the propensity to naturalise between migrant groups

(Peters, Vink, and Schmeets 2015; Vink, Prokic-Breuer, and Dronkers 2013), we perform separate analyses for migrants from different origin contexts, focusing on the level of economic development and EU-membership of origin countries. Although most studies in the literature focus on origin regions (e.g. Bratsberg and Raaum 2011; Engdahl 2014; Helgertz, Bevelander, and Tegunimataka 2014), we argue that these predominantly measure different levels of development. The level of development of the origin country is measured through the Human Development Index (UNDP 2014). The Human Development Index (HDI) combines information on gross domestic product, indicators for life expectancy and general education levels, providing a scale between 0 and 1, where a higher score equals a higher level of development. We keep track of changes in EU-membership of origin countries over time. The main econometric equation is as follows:

$$Y_{it} = \alpha_0 N_{it} + \alpha_1 D_i X_{it} + \alpha_2 N_{it}(X_{it} - X_{iN}) + \gamma X_{it} + \delta Z_{it} + u_i + \varepsilon_t$$

Table A1 in the annex of the paper contains descriptive statistics for male and female immigrants, respectively. We observe a higher proportion of employed individuals among male immigrants. As expected, migrants who naturalise eventually perform better on the labour market, although this is not yet the case many years prior to the actual moment of naturalisation. Furthermore, the relevance of the additional individual and contextual characteristics corresponds to findings in the literature (Kogan 2011; van Tubergen, Maas, and Flap 2004).

To analyse these data in further detail, we use logistic individual fixed-effects regression, which is the method used in the state-of-the-art literature (Bratsberg and Raaum 2011; Bratsberg, Ragan, and Nasir 2002; Engdahl 2014; Helgertz, Bevelander, and Tegunimataka 2014; Steinhardt 2012). This method allows us to control for unobserved time-invariant heterogeneity between individuals. This includes characteristics of the country of origin and the migration motive, but also concepts that are difficult to measure, such as motivation or ability. Since fixed-effects regression focusses on differences within individuals over time, this implies that individuals who do not vary on the dependent variable are excluded from the model. Hence, migrants who always or never have employment during the observation period cannot be taken into account in the fixed-effects analysis. To increase transparency regarding potential selection bias resulting from omitted individuals due to non-variance, we perform a detailed comparison between the group with and without variance on the dependent variable. We discuss those analyses in the paragraph 'robustness analyses'.

Analysis

Table 1 contains the results of the logistic individual fixed-effects regression, providing estimates for the three parameters on citizenship outlined in the 'data and methods' section, as well as a number of control variables. Results show that immigrants who naturalise enjoy a one-time boost in the probability of employment after citizenship acquisition, constituting an increase of 12% and 13% for men and women, respectively, all else constant. This effect is consistent with the notion that naturalised migrants are attractive to employers due to reduced administrative costs and positive signalling, and in line with some earlier longitudinal research (Helgertz, Bevelander, and Tegunimataka 2014, 352). Furthermore, the interaction between years since migration and whether a

Table 1. Logistic individual fixed-effects regression on the probability of having employment of male and female immigrants, cohorts 1999–2002.

		Men			Women		
		Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.
Naturalisation	Yes	0.117	0.017	1.124***	0.123	0.016	1.131***
	No	Ref.	Ref.		Ref.	Ref.	Ref.
Years since migration * naturalisation during observation period		0.278	0.003	1.320***	0.230	0.003	1.259***
Years since naturalisation * naturalisation		−0.177	0.006	0.838***	−0.170	0.006	0.844***
Years since migration		0.095	0.001	1.100****	0.149	0.002	1.161***
Partner	No partner	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Foreign-born foreign partner	0.346	0.011	1.413***	0.334	0.013	1.397***
	Foreign-born Dutch partner	0.838	0.015	2.312***	0.516	0.017	1.675***
	Native-born Dutch partner	0.820	0.016	2.270***	0.766	0.013	2.151***
Children < 18 in the household	Yes	0.031	0.010	1.031**	−0.768	0.010	0.464***
	No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
		N = 48,969 Observations = 707,644 −2 Log-likelihood = 772,533			*N* = 45,351 Observations = 697,992 −2 Log-likelihood = 758,587		

Source: Statistics Netherlands.
**$p < .01$.
***$p < .001$.

migrant naturalises during the observation period indicates that migrants who naturalise integrate substantially faster in the labour market than their counterparts even before the moment of naturalisation, which is a common observation in the literature (e.g. Bratsberg and Raaum 2011, 196; Engdahl 2014, 18; Helgertz, Bevelander, and Tegunimataka 2014, 352). Finally, the coefficient of the interaction between years since naturalisation and whether a migrant is naturalised or not is negative for both men and women, indicating that the probability of employment develops faster for migrants who are not (yet) naturalised. This goes contrary to the traditional interpretation of the citizenship premium, although this pattern is frequently observed in the literature (e.g. Bratsberg and Raaum 2011, 196; Helgertz, Bevelander, and Tegunimataka 2014, 852; Scott 2008, 118). We hypothesise that the positive effects prior to naturalisation are due to the investment that migrants make in anticipation of acquiring citizenship. Citizenship acquisition is not an abrupt legal status transition, but a process that starts the moment migrants decide to naturalise. The formal linguistic and civic requirements for citizenship acquisition imply that migrants need to invest in themselves leading up to naturalisation. Moreover, migrants who have decided to naturalise may invest in host-country specific human capital to enjoy the economic benefits associated with naturalisation (Helgertz, Bevelander, and Tegunimataka 2014, 353; Bratsberg, Ragan, and Nasir 2002, 582; Steinhardt 2012, 819). The steeper slope prior to naturalisation provides empirical support for these assumptions. Furthermore, the diminishing returns after citizenship acquisition may be due to the fact that naturalised migrants have undergone an accelerated integration trajectory leading up to naturalisation, and that migrants who do not naturalise thus catch up afterwards. As mentioned, the hypothesised anticipation effect is fundamentally

different from self-selection. The generally high levels of motivation and commitment of migrants who naturalise results in a stronger baseline position for these migrants, but this endogeneity effect is unrelated to the act of naturalisation. The anticipation effect, however, is an integral part of the naturalisation process, reflecting the consequences of the decision to acquire citizenship of the host country.

The relevance of the other time-varying characteristics corresponds to the patterns from the descriptive statistics, as well as previous findings in the literature (Kogan 2011; van Tubergen, Maas, and Flap 2004). The longer migrants reside in the host country, the higher their probability of having employment. Having a partner is positively associated with the probability of having employment for both men and women. This is particularly true if the partner is native-born, in which case migrants are more than twice as likely to be employed compared to migrants with no partner. In accordance with earlier findings in the literature, the relevance of having a partner is more pronounced for men than for women (Kogan 2011). Having children in the household has a positive, but limited effect on the employment probability of male immigrants (an increase of 3%). As expected, this effect is strongly reversed for female immigrants, who are almost 54% less likely to be employed when having young children (Kogan 2011). Clearly, having children has dissimilar employment implications in the life course of men and women.

On the basis of these findings, we can conclude that citizenship matters. But are these findings driven by migrants from a particular origin context? In other words, to whom does citizenship matter? To answer this question, we perform separate analyses for migrants from more/less developed (Table 2) and EU/non-EU (Table 3) countries of origin. In terms of development, migrants have been categorised along the median of male and female immigrants respectively.[2]

We find some evidence of heterogeneity in naturalisation effects by descent. More specifically, the coefficient of the one-time effect of citizenship acquisition is higher for male migrants from more developed countries, and female immigrant from EU countries of origin. However, the discrepancy with the reference category is almost equal for female immigrants from more- and less-developed countries, and smaller for male immigrants from the EU. The slope for migrants who have not (yet) naturalised is steeper for those from less developed and non-EU countries of origin compared to their naturalised counterparts, with the exception of women from high-developed countries. Migrants from all origin contexts enjoy an accelerated integration trajectory already prior to naturalisation. A comparison between groups on the basis of these coefficients should be considered with care, since the baselines are not necessarily comparable across the origin groups. The results, therefore, do not allow for conclusions whether citizenship has a stronger effect for migrants from one origin context compared to the other. These findings do show that the results from Table 1 are not exclusively driven by migrants from a particular origin context.

Although these findings provide a first indication of an anticipation effect, the interaction between years since migration and whether a migrant naturalises during the observation period does not reveal the exact shape of the pattern before and after naturalisation. To analyse this in detail, we perform a distributed logistic individual fixed-effects regression in which we measure citizenship categorically, based on the amount of time between a given observation point and the moment of naturalisation. Since this analysis is specifically designed to illuminate *how* citizenship matters rather than whether it

Table 2. Logistic individual fixed-effects regression on the probability of having employment of male and female immigrants by development origin countries, cohorts 1999–2002.[a]

		Men						Women					
		Low development			High development			Low development			High development		
		Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.
Naturalisation	Yes	0.089	0.022	1.093***	0.247	0.031	1.280***	0.157	0.021	1.170***	0.152	0.027	1.164***
	No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Years since migration * naturalisation during observation period		0.204	0.004	1.226***	0.356	0.007	1.428***	0.159	0.004	1.172***	0.302	0.006	1.353***
Years since naturalisation * naturalisation		−0.200	0.008	0.819***	−0.158	0.010	0.854***	−0.173	0.007	0.841***	−0.176	0.009	0.839***
		N = 27,444 Observations = 354,690 −2 Log-likelihood = 386,173			*N* = 30,549 Observations = 352,954 −2 Log-likelihood = 377,385			*N* = 24,421 Observations = 361,440 −2 Log-likelihood = 388,280			*N* = 28,453 Observations = 336,552 −2 Log-likelihood = 364,081		

[a]Results include controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.
***$p < .001$.

Table 3. Logistic individual fixed-effects regression on the probability of having employment of male and female immigrants by EU-membership origin countries, cohorts 1999–2002.[a]

		Men						Women					
		Non-EU			EU			Non-EU			EU		
		Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.
Naturalisation	Yes	0.143	0.018	1.154***	0.116	0.082	1.123	0.169	0.017	1.184***	0.255	0.050	1.290***
	No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Years since migration * naturalisation during observation period		0.223	0.004	1.250***	0.343	0.019	1.409***	0.186	0.004	1.204***	0.180	0.013	1.197***
Years since naturalization*naturalisation		−0.176	0.006	0.839***	−0.126	0.028	0.882***	−0.166	0.006	0.847***	−0.046	0.018	0.955*
		N = 36,510 Observations = 551,522 −2 Log-likelihood = 594,491			*N* = 13,557 Observations = 156,122 −2 Log-likelihood = 173,169			*N* = 34,046 Observations = 511,706 −2 Log-likelihood = 551,863			*N* = 14,909 Observations = 186,286 −2 Log-likelihood = 200,561		

[a]Results include controls for years since migration, the partner status and having young children in the household.
Source: Statistics Netherlands.
*$p < .05$.
***$p < .001$.

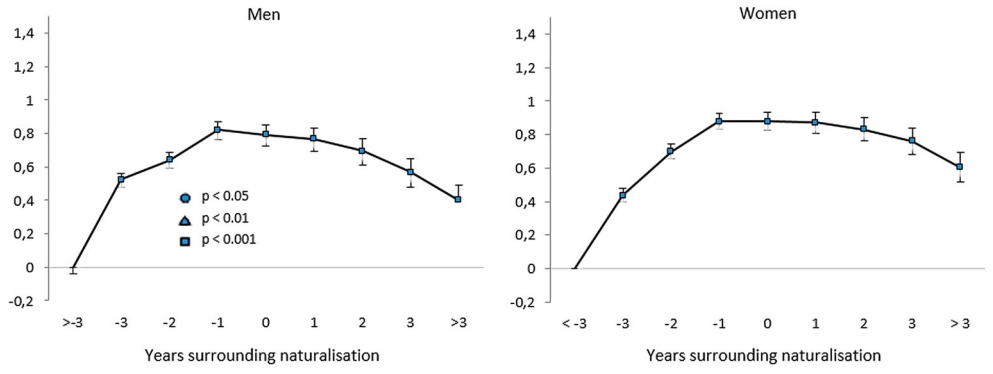

Figure 2. Distributed logistic individual fixed-effects regression on the probability of having employment of male and female immigrants, cohorts 1999–2002. Controls for individual fixed-effects, years since migration, the partner status and having young children in the household.

matters or not (which is the main focus of Tables 1–3), we focus on migrants who naturalise during the observation period. The reference group are migrants in the period more than 3 years prior to naturalisation.

The results in Figure 2 show that – in line with our expectation – the labour market performance of immigrants improves leading up to naturalisation (detailed coefficients of the figures are reported in Annex 2–4 of the paper). More specifically, the probability of employment of migrants who naturalise is lower more than 3 years prior to naturalisation compared to all subsequent time points. Consistent with the notion of anticipation, the labour market performance peaks in the year prior to naturalisation. At that point, both male and female immigrants are more than twice as likely to have employment compared to more than 3 years prior to naturalisation. Note that the coefficients are relatively large due to the focus on naturalising immigrants. After naturalisation, the coefficients start to drop, particularly for male immigrants, meaning that the additive effect of naturalisation eventually decreases. This may explain why the slope after naturalisation is less steep for naturalised migrants compared to their non-naturalised counterparts. Migrants who naturalise enjoy an accelerated integration trajectory rather than a systematic advantage (with the exception of the one-time effect after naturalisation, which is stable over time), allowing migrants who do not naturalise to eventually catch up.

To what extent is the pattern from Figure 2 driven by migrants from a particular origin context? Figures 3 and 4 provide the results of separate analyses by the level of development and EU-membership of origin country, respectively (see Table A3 and A4 in the annex for details). Again, the positive slope prior to naturalisation is apparent for immigrants from both more- and less-developed countries of origin. These findings thus show that the temporal pattern is similar between these origin groups. It is harder to derive conclusions from the separate analyses of migrants from EU and non-EU countries of origin, since the confidence intervals for EU migrants are substantial. The main reason for this is that migrants from the EU generally have a low propensity to naturalise and as such, the N of this group is smaller. In line with the findings from Figure 2, we observe an increase in the probability of employment leading up to the moment of naturalisation for both EU and non-EU migrants. We can conclude that the pattern from Figure 2 is not solely driven by migrants from a specific origin context.

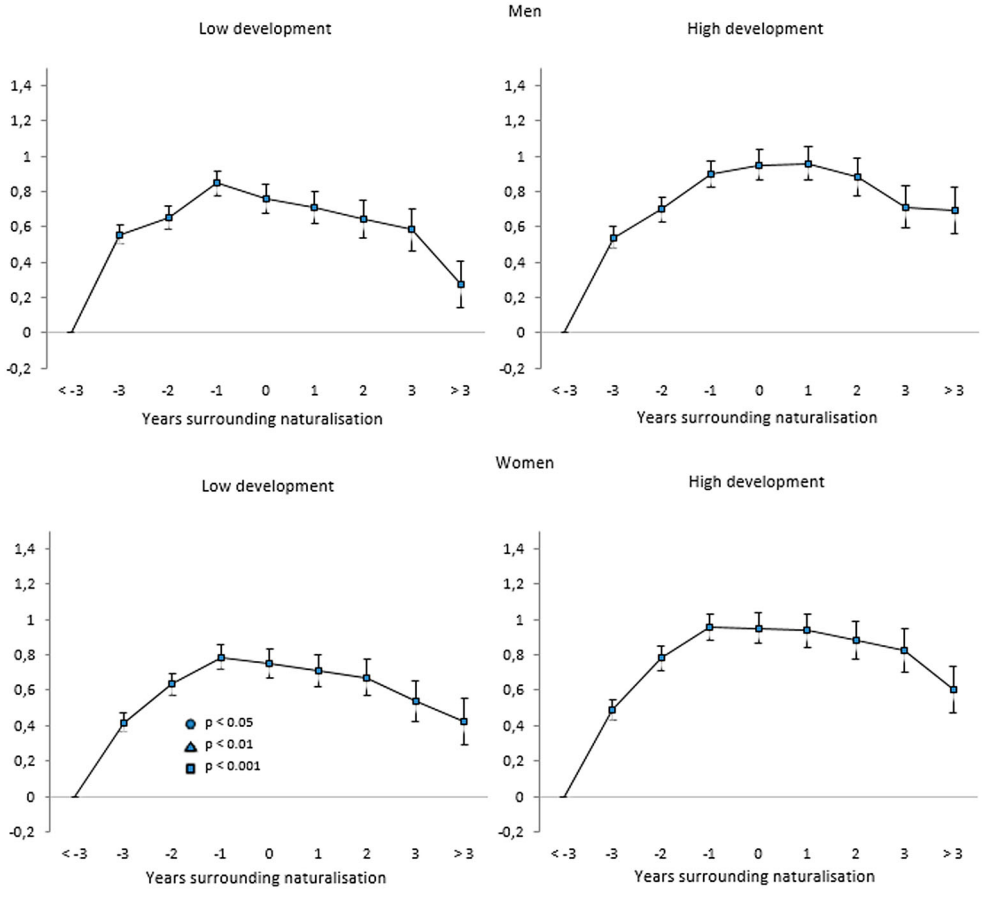

Figure 3. Distributed logistic individual fixed-effects regression on the probability of having employment of male and female immigrants from low-/high-developed countries who naturalise during the observation period, cohorts 1999–2002. Controls for individual fixed-effects, years since migration, the partner status and having young children in the household.

Speed of naturalisation: when does citizenship matter?

We observe an increase in the probability of employment leading up to the moment of naturalisation, but that does not necessarily imply that anticipation is the underlying factor that drives these results. The mechanism behind the anticipation effect is assumed to be investment in relevant skills and knowledge in anticipation of acquiring citizenship. Since migrants also gradually accumulate host-country specific human capital over time, this would imply that accelerated investment in these skills becomes less relevant the longer migrants reside in the host country. Investing in for instance language capabilities is more likely to matter after 4 years of residence than after 10 years. Therefore, if anticipation is one of the driving mechanisms behind the citizenship premium, then the effect of citizenship should be conditioned by the speed with which one naturalises. In other words, citizenship should particularly matter if migrants naturalise relatively quickly. In contrast, if the citizenship premium solely exists as positive signalling, then the speed with which one naturalises should not matter, since only the status

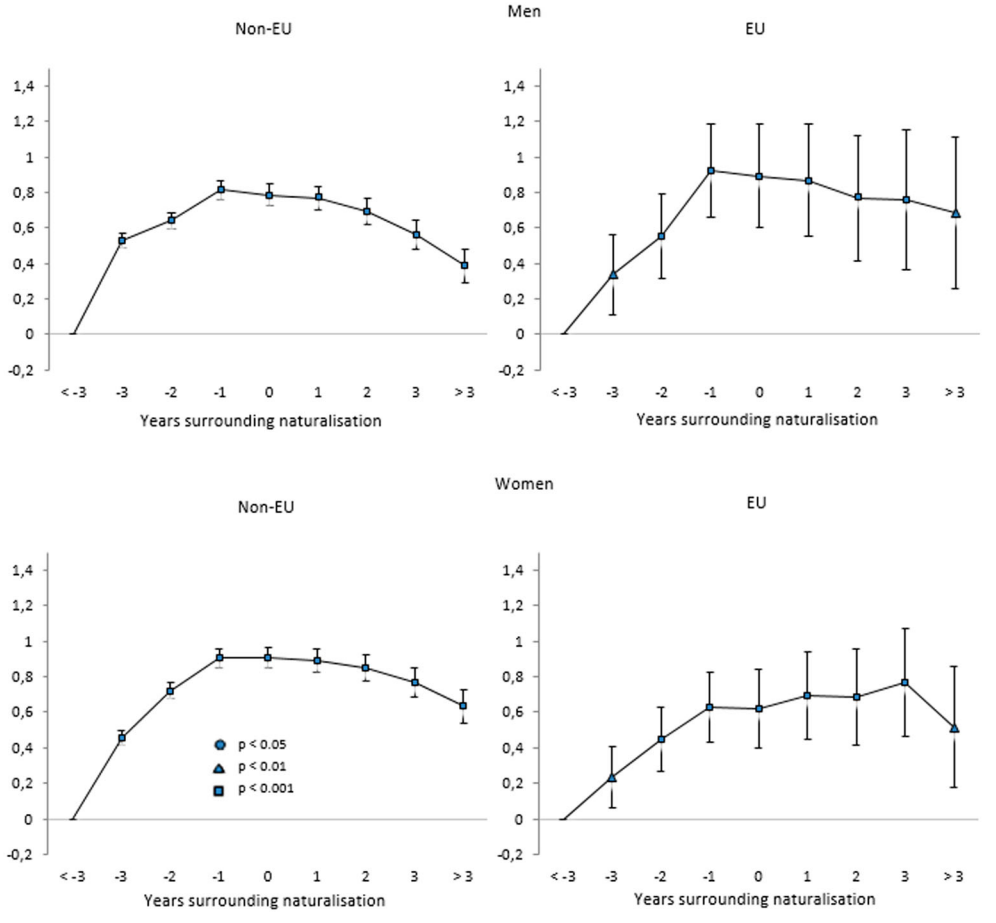

Figure 4. Distributed logistic individual fixed-effects regression on the probability of having employment of male and female immigrants from non-EU/EU countries who naturalise during the observation period, cohorts 1999–2002. Controls for individual fixed-effects, years since migration, the partner status and having young children in the household.

of citizen is relevant, rather than the way in which it is acquired. The same is true if the citizenship premium is principally attributable to self-selection, since endogeneity exists irrespective of whether a migrant naturalises quickly or not. As mentioned, self-selection is related to the propensity to naturalise, but not the naturalisation process, whereas anticipation is. To analyse this, we perform a distributed logistic regression in which the naturalisation variable is replaced by a time-invariant 'speed of naturalisation' variable (Table A5). To simulate the individual fixed-effects of the main analysis, we added a 1-period lag of the dependent variable to the model, which captures the relevance of unmeasured characteristics that affect the labour market performance within individuals. Although migrants normally become eligible for naturalisation in the Netherlands after 5 years of residence, migrants can naturalise earlier if they have a Dutch partner for 3 consecutive years, and reside in the Netherlands. We observe that the relevance of citizenship is comparatively higher as migrants naturalise earlier. In the sixth year of residence, when most migrants become eligible for naturalisation in the Netherlands, the probability of

employment is 24% and 36% higher for male and female immigrants, respectively compared to their counterparts who do not naturalise during the observation period. For migrants who naturalise in the eighth year or later, this relative advantage has decreased to 10% for both men and women. Note that, as expected, immigrants who naturalise in the first 3 years of residence perform slightly worse than their counterparts who naturalise in the fourth year. We assume that for these migrants, not enough time has passed to fully invest in oneself, and enjoy an anticipation effect to the same degree as those who naturalise after 4 years. In general, these findings show that the speed of naturalisation matters, and that the relevance of citizenship varies in accordance to our expectations in the context of anticipation. This gives further credence to the notion of an anticipation effect, since the manner in which citizenship is acquired is assumed to be irrelevant in the traditional causal interpretation of the citizenship premium in the literature.

The effect of employment on naturalisation

An alternative explanation for the increased probability of employment in the period leading up to naturalisation is that being employed increases the likelihood of naturalisation. Employment may provide the means to meet the financial costs associated with naturalisation such as the fee, as well as costs of the language and integration course and exam. Moreover, having employment may improve skills and knowledge – notably language capabilities – required for citizenship acquisition. The employment effects prior to naturalisation could thus be the motivator of the decision to naturalise rather than its consequence. To analyse this alternative mechanism, we compare migrants who became eligible for citizenship acquisition before and after a restriction in citizenship policy in the Netherlands, namely the introduction of a naturalisation test in 2003. More specifically, we compare migrant cohorts 1996–1997 and 2001–2002. In light of the residence requirement of 5 years, migrants from the former cohort group became eligible for citizenship acquisition prior to the policy change, whereas the latter group had to perform the naturalisation test (see Peters, Vink, and Schmeets [2015] for a similar approach). If the increasing coefficients prior to naturalisation are principally due to the fact that employment provides the ability to meet the financial requirements, than we would not expect the positive labour market outcomes prior to naturalisation to differ before and after the introduction of the naturalisation test. Indeed, these mechanisms should be stable over time. However, if the effect prior to naturalisation is principally due to improving (linguistic) skills, then we would expect a stronger effect under the institutional conditions where these skills are a requirement for naturalisation. Both anticipation and employment arguably have the potential to improve linguistic capabilities, but this strategy does allow us to disentangle specific employment mechanisms such as financial means. In other words, we expect a steeper slope prior to naturalisation for cohort 2001–2002 than cohort 1996–1997 if the development of language capabilities is an important underlying mechanism, and no difference if only financial means matter. Since we only have labour market information from 1999 onwards, we can only observe migrants from the early cohort group after their initial years of residence. However, the vast majority of these migrants will not yet be eligible for naturalisation in 1999 in light of the residence requirement. Results in Table A6 reveal a steeper slope prior to naturalisation than afterwards for all migrant cohorts, but the discrepancy

between the slopes is more pronounced for the later cohorts (under the more restrictive institutional conditions) than for the earlier cohorts (under the more liberal conditions). These results are thus consistent with the notion that our previous findings prior to naturalisation are not solely due to employment-specific effects.

Robustness analyses

In this paragraph, we perform a number of robustness analyses to assess the stability of our findings. First, as is common in this field of literature (e.g. Bratsberg and Raaum 2011; Engdahl 2011, 2014), one of the consequences of performing a fixed-effects regression is that individuals with no variation on the dependent variable drop out of the analysis. These omitted individuals introduce the risk of selection bias, as migrants who remain in the analysis are not necessarily representative of the population. In that context, we compared migrants with and without variance on the dependent variable. Table A7 in the appendix shows the results of a logistic regression without fixed-effects for all immigrants (both with and without variance on the dependent variable), again with a 1-period lag of the dependent variable to simulate the fixed-effects, and additional controls for time-invariant characteristics. In accordance with the main analyses, we observe a rising probability of employment leading up to naturalisation, consistent with anticipation. However, the coefficients of naturalisation are generally smaller compared to the main analysis. Detailed analyses reveal that this is due to the 1-period lag, which serves the same function as the individual fixed-effects (controlling for omitted variable bias), but does so in a different way. Indeed, this variable also captures changes over time in relevant unobserved characteristics. However, both the main analysis and these robustness analyses clearly show an increase in the probability of employment leading up to naturalisation. As such, we have no reason to assume that the anticipation effect is attributable to omitted individuals as a result of the fixed-effects.

Second, we follow immigrants from all cohorts for a maximum period of 10 years. When migrants emigrate before this point in time, they drop out of the data set from that point onwards. However, it could be argued that migrants who emigrate do so in many cases because of, for instance, negative experiences in the labour market. Since these unsuccessful migrants are unlikely to acquire citizenship *and* tend to perform worse in the labour market, the observed relevance of citizenship in our main analysis could be driven by these emigrating individuals. In light of this, we performed an analysis for men and women who remain in the Netherlands for the entire observation period. Table A8 shows that 1792 male and 1462 female individuals drop out of the data set due to right censoring. However, the results of the analyses for migrants who remain in the Netherlands are highly similar to those in the main model, including the relevance of citizenship. As such, we conclude that our findings are not driven by unsuccessful migrants who emigrate during the observation period.

The differentiated analysis of migrants naturalising under liberal or restrictive institutional conditions shows that the positive labour market outcomes prior to naturalisation are not solely due to employment-specific effects such as increased financial means. But that still does not confirm that the accelerated integration trajectory prior to naturalisation is due to investment in anticipation of acquiring citizenship rather than employment increasing the propensity to naturalise. To analyse this in further detail, we employ an instrumental

variable (IV) approach. More specifically, we include an alternative measurement for 'naturalisation during the observation period' that is strongly related to the propensity to naturalise, but not to the potential source of bias (in our case, employment). Doing so enables us to disentangle the effects of investment in anticipation of acquiring citizenship on the one hand, and effects resulting from having employment on the other hand. We follow the approach of Just and Anderson (2012, 499) by using the geographical distance between the host country and the origin country as an instrument for naturalisation. Literature suggests that migrants from more distant origin countries are more likely to naturalise due to increased costs associated with return migration (Yang 1994, 473). Conversely, a shorter distance provides more opportunities to maintain ties with the origin country, and disincentives migrants to fully integrate into the host country through naturalisation. Our data confirm this expectation with a positive and statistically significant bivariate correlation between geographical distance and naturalisation. However, we expect no association between geographical distance between the origin and host country and employment (holding time-invariant country characteristics such as economic development constant through the individual fixed-effects). As such, we argue that this is a suitable instrument to isolate potential bias resulting from the association between naturalisation and employment. We dichotomise distance in kilometres by the median of men and women, respectively. Results in Table A9 show that the findings with the IV approach are similar to the main model. Note that the one-time effect after naturalisation is stronger, and the discrepancy in the slope between migrants who are naturalised and those who are not is smaller. However, the coefficient measuring anticipation is still positive and statistically significant. Assuming that geographical distance between the origin and host country is a valid instrument, this confirms that the positive labour market outcomes prior to naturalisation are not solely attributable to employment increasing the propensity to naturalise.

Conclusion and discussion

Does citizenship acquisition matter for having employment or not? We observe a one-time boost in the probability of employment after naturalisation, consistent with the notion of positive signalling, and in line with some earlier findings in the Norwegian (Bratsberg and Raaum 2011, 196) and Swedish (Helgertz, Bevelander, and Tegunimataka 2014, 352) context. Second, we find confirmation for the prevalent empirical observation that migrants who naturalise are positively selected in terms of unobserved characteristics that affect both their propensity to naturalise and their labour market outcomes (e.g. Bratsberg, Ragan, and Nasir 2002, 572–573). This paper again highlights that isolating these characteristics is essential to avoid an overestimation of the citizenship premium. However, our most important conclusion is that the probability of employment develops faster prior to naturalisation than afterwards, even when controlling for the endogeneity of naturalisation. This too is a recurring observation in the literature that is commonly considered inconsistent with the notion of a citizenship premium (Helgertz, Bevelander, and Tegunimataka 2014, 344). By contrast, we argue that this effect is an integral part of the process of naturalisation, reflecting the consequences of the decision to acquire citizenship in the future. Migrants actively plan their lives and anticipate potential rewards and opportunities of naturalisation by investing in their own human capital development. Moreover, these investments will often be necessary in light of the formal linguistic and civic

requirements for naturalisation. Our results suggest that these investments result in an accelerated integration trajectory that already bears fruit in the labour market prior to naturalisation. Furthermore, citizenship matters most when acquired early in the settlement process, consistent with the notion that accelerated investment in host-country specific human capital loses its relevance after a longer period of residence in the host country. This provides further support for the mechanism of anticipation, since the manner in which citizenship is acquired is assumed to be irrelevant for the effects of both self-selection and positive signalling.

Further research is needed to assess the extent to which the anticipatory mechanisms apply for other forms of socio-economic integration. The focus on employment rather than wages in this paper is an explicit decision, since the traditional mechanisms underlying the citizenship premium are predominantly relevant in the context of having employment or not. Moreover, an analysis of wages implies a fundamentally different research design (focusing on migrants with employment). Since the mechanisms explaining the relationship between citizenship and employment likely differ from those of other forms of socio-economic integration, our results cannot necessarily be translated to other economic indicators.

Our findings raise important questions regarding the restriction of access to Dutch citizenship in the Netherlands over the last decades (van Oers, de Hart, and Groenendijk 2013), as well as the recent debate in the Dutch parliament to increase the residence requirement for citizenship acquisition. Since positive effects on the probability of employment manifest not only as a result of citizenship itself, but also due to the active investment migrants themselves make in anticipation of acquiring citizenship, the citizenship premium depends on a balance between requirements to incentivize migrants to invest in themselves, and the feasibility of these requirements to encourage migrants to naturalise. Restricting access to citizenship too much is likely to delay the accelerated integration process to a point where it becomes redundant. Indeed, citizenship particularly matters if acquired early in the settlement process. This will be particularly important for marginalised migrant groups for whom restrictive citizenship policies represent significant and daunting obstacles, such as those from less developed and politically unstable countries of origin (Peters, Vink, and Schmeets 2015; Vink, Prokic-Breuer, and Dronkers 2013). These are also the very migrants who generally hold a weak position in the labour market, and thus need citizenship most.

Notes

1. Due to the relatively small cohort selection, there is a strong relationship between years since migration and the observation years. Detailed analyses confirm multicollinearity when the observation years are added to the models (VIF > 7). For this reason, we refrain from including dummies for the observation years in our analyses.
2. Note that the sum of individuals of the separate groups does not exactly equal the aggregate number of individuals, whereas the number of observations does. The reason for this is that both the level of development and EU-membership of origin countries exhibit minor changes over time. As a result, some individuals have observations in both groups.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix

Table A1. Descriptive statistics on employment of male and female immigrants in percentages, cohorts 1999–2002.

		Men[a]	Women[b]
Naturalisation	No naturalisation	58.0	52.9
	>3 years prior to naturalisation	39.2	33.0
	3 years prior to naturalisation	54.7	44.3
	2 years prior to naturalisation	60.4	51.8
	1 year prior to naturalisation	66.5	57.9
	year of naturalisation	69.9	60.9
	1 year after naturalisation	72.3	63.3
	2 years after naturalisation	74.3	65.6
	3 years after naturalisation	75.5	67.2
	>3 years after naturalisation	76.3	68.0
Age at migration	20–24 year	60.0	50.7
	25–29 year	61.3	54.5
	30–34 year	57.2	52.0
	35–39 year	54.5	50.9
	40–44 year	52.6	51.8
	45–50 year	51.5	50.6
Years since migration	0–1 years	47.6	38.6
	2–3 years	53.3	50.1
	4–5 years	58.8	53.5
	6–7 years	67.0	59.7
	8–9 years	71.0	63.9
Partner	No partner	48.5	47.7
	Foreign-born foreign partner	59.2	49.0
	Foreign-born Dutch partner	70.6	45.3
	Native-born Dutch partner	71.9	61.7
Children < 18 in household	Yes	63.4	46.8
	No	54.9	58.0
Development country of origin	Lowest quartile	50.9	42.9
	Second quartile	55.4	48.8
	Third quartile	61.5	54.7
	Highest quartile	64.9	62.0
EU country of origin	Yes	64.9	63.3
	No	56.3	48.1
Total		58.2	52.2

Source: Statistics Netherlands.
[a]$N = 48{,}969$; Observations = 707,644.
[b]$N = 45{,}351$; Observations = 697,992.

Table A2. Logistic individual fixed-effects regression on the probability of having employment of male and female immigrants who naturalise during the observation period, cohorts 1999–2002.

		Men					Women				
		Coef.	Std. error	Exp coef.	95% conf. intervals		Coef.	Std. error	Exp coef.	95% conf. intervals	
Naturalisation	>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	3 years prior to naturalisation	0.524	0.020	1.689***	0.485	0.563	0.437	0.020	1.548***	0.398	0.476
	2 years prior to naturalisation	0.641	0.023	1.898***	0.596	0.686	0.698	0.022	2.010***	0.655	0.741
	1 year prior to naturalisation	0.819	0.026	2.268***	0.768	0.870	0.879	0.025	2.408***	0.830	0.928
	year of naturalisation	0.792	0.029	2.208***	0.735	0.849	0.878	0.028	2.406***	0.823	0.933
	1 year after naturalisation	0.768	0.033	2.155***	0.703	0.833	0.872	0.032	2.392***	0.809	0.935
	2 years after naturalisation	0.694	0.037	2.002***	0.621	0.767	0.832	0.036	2.298***	0.761	0.903
	3 years after naturalisation	0.568	0.042	1.765***	0.486	0.650	0.762	0.040	2.143***	0.684	0.840
	>3 years after naturalisation	0.400	0.046	1.492***	0.310	0.490	0.605	0.045	1.831***	0.517	0.693
Years since migration		0.282	0.004	1.326***	0.274	0.290	0.269	0.004	1.309***	0.261	0.277
Partner	No partner	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.		Ref.	Ref.
	Foreign-born foreign partner	0.237	0.019	1.267***	0.200	0.274	0.378	0.023	1.459***	0.333	0.423
	Foreign-born Dutch partner	0.971	0.023	2.641***	0.926	1.016	0.890	0.025	2.435***	0.841	0.939
	Native-born Dutch partner	1.139	0.029	3.124***	1.082	1.196	0.969	0.023	2.635***	0.924	1.014
Children < 18 in the household	Yes	−0.203	0.017	0.816***	−0.236	−0.170	−0.984	0.016	0.374***	−1.015	−0.953
	No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
				N = 14,623					*N* = 16,103		
				Observations = 253,810					Observations = 275,955		
				−2 Log-likelihood = 255,894					−2 Log-likelihood = 283,774		

***$p < .001$.

Source: Statistics Netherlands.

Table A3a. Logistic individual fixed-effects regression on the probability of having employment, male immigrants who naturalise during the observation period from low-/high-developed countries, cohorts 1999–2002.[a]

		Men					
		Low development			High development		
		Exp coef.	95% conf. intervals		Exp coef.	95% conf. intervals	
Naturalisation	>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	3 years prior to naturalisation	1.744***	0.501	0.611	1.716***	0.479	0.601
	2 years prior to naturalisation	1.919***	0.589	0.715	2.010***	0.631	0.765
	1 year prior to naturalisation	2.330***	0.775	0.917	2.455***	0.824	0.972
	year of naturalisation	2.140***	0.679	0.843	2.583***	0.865	1.033
	1 year after naturalisation	2.034***	0.618	0.802	2.604***	0.863	1.051
	2 years after naturalisation	1.904***	0.538	0.750	2.411***	0.774	0.986
	3 years after naturalisation	1.795***	0.465	0.705	2.040***	0.593	0.833
	> 3 years after naturalisation	1.317***	0.146	0.404	2.006***	0.565	0.827
		N = 8,736 Observations = 131,217 −2 Log-likelihood = 132,876			*N* = 8,900 Observations = 122,593 −2 Log-likelihood = 121,020		

[a]Controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.
***$p < .001$.

Table A3b. Logistic individual fixed-effects regression on the probability of having employment, female immigrants who naturalise during the observation period from low-/high-developed countries, cohorts 1999–2002.[a]

		Women					
		Low development			High development		
		Exp coef.	95% conf. intervals		Exp coef.	95% conf. intervals	
Naturalisation	>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	3 years prior to naturalisation	1.517***	0.362	0.472	1.627***	0.428	0.546
	2 years prior to naturalisation	1.887***	0.574	0.696	2.181***	0.713	0.847
	1 year prior to naturalisation	2.195***	0.715	0.857	2.609***	0.885	1.033
	year of naturalisation	2.115***	0.669	0.829	2.586***	0.866	1.034
	1 year after naturalisation	2.034***	0.618	0.802	2.552***	0.841	1.033
	2 years after naturalisation	1.956***	0.567	0.775	2.413***	0.773	0.989
	3 years after naturalisation	1.713***	0.422	0.654	2.280***	0.704	0.944
	>3 years after naturalisation	1.523***	0.292	0.550	1.828***	0.470	0.736
		N = 10,021 Observations = 138,628 −2 Log-likelihood = 141,434			*N* = 9,862 Observations = 137,327 −2 Log-likelihood = 137,932		

[a]Controls for years since migration, the partner status and having young children in the household.
Source: Statistics Netherlands.
***$p < .001$.

Table A4a. Logistic individual fixed-effects regression on the probability of having employment, male immigrants who naturalise during the observation period from EU/non-EU countries, cohorts 1999–2002.[a]

		Men					
		Non-EU			EU		
		Exp coef.	95% conf. intervals		Exp coef.	95% conf. intervals	
Naturalisation	>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	3 years prior to naturalisation	1.696***	0.487	0.569	1.401**	0.110	0.564
	2 years prior to naturalisation	1.900***	0.597	0.687	1.735***	0.312	0.790
	1 year prior to naturalisation	2.252***	0.761	0.863	2.519***	0.661	1.187
	year of naturalisation	2.197***	0.728	0.846	2.442***	0.601	1.185
	1 year after naturalisation	2.147***	0.697	0.831	2.382***	0.550	1.186
	2 years after naturalisation	2.000***	0.619	0.767	2.155***	0.417	1.119
	3 years after naturalisation	1.751***	0.476	0.644	2.138***	0.368	1.152
	>3 years after naturalisation	1.473***	0.295	0.479	1.978**	0.255	1.109
		$N = 13{,}924$ Observations = 244,522 −2 Log-likelihood = 246,168			$N = 821$ Observations = 9,288 −2 Log-likelihood = 9580		

[a]Controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.
**$p < .01$.
***$p < .001$.

Table A4b. Logistic individual fixed-effects regression on the probability of having employment, female immigrants who naturalise during the observation period from EU/non-EU countries, cohorts 1999–2002.[a]

		Women					
		Non-EU			EU		
		Exp coef.	95% conf. intervals		Exp coef.	95% conf. intervals	
Naturalisation	>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	3 years prior to naturalisation	1.576***	0.414	0.496	1.264***	0.060	0.408
	2 years prior to naturalisation	2.050***	0.673	0.763	1.567***	0.267	0.631
	1 year prior to naturalisation	2.467***	0.852	0.954	1.878***	0.432	0.828
	year of naturalisation	2.474***	0.847	0.965	1.852***	0.395	0.837
	1 year after naturalisation	2.433***	0.822	0.956	1.998***	0.447	0.937
	2 years after naturalisation	2.335***	0.774	0.922	1.984***	0.413	0.957
	3 years after naturalisation	2.149***	0.683	0.847	2.155***	0.464	1.072
	>3 years after naturalisation	1.881***	0.540	0.724	1.674***	0.176	0.854
		$N = 15{,}276$ Observations = 251,258 −2 Log-likelihood = 258,812			$N = 2{,}195$ Observations = 24,697 −2 Log-likelihood = 23,720		

[a]Controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.
**$p < .01$.
***$p < .001$.

Table A5. Logistic regression on the probability of having employment, male and female immigrants, cohorts 1999–2002.[a]

	Men					Women				
	Coef.	Std. error	Exp coef.	95% conf. intervals		Coef.	Std. error	Exp coef.	95% conf. intervals	
Speed of naturalisation										
No naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
1–3 year	0.274	0.028	1.315***	0.219	0.329	0.314	0.038	1.369***	0.240	0.388
4 year	0.460	0.017	1.584***	0.427	0.493	0.396	0.014	1.486***	0.369	0.423
5 year	0.291	0.015	1.338***	0.262	0.320	0.325	0.013	1.384***	0.300	0.350
6 year	0.216	0.016	1.241***	0.185	0.247	0.305	0.015	1.356***	0.276	0.334
7 year	0.178	0.018	1.195***	0.143	0.213	0.250	0.016	1.283***	0.219	0.281
8–10 year	0.097	0.012	1.102***	0.073	0.121	0.094	0.012	1.099***	0.070	0.118
Age at migration	−0.022	0.001	0.978***	−0.024	−0.020	−0.021	0.001	0.979***	−0.023	−0.019
Years since migration	0.013	0.001	1.013***	0.011	0.015	0.014	0.002	1.014***	0.010	0.018
Years since migration * naturalisation	0.014	0.003	1.014***	0.008	0.020	0.019	0.003	1.019***	0.013	0.025
Partner										
No partner	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Foreign-born foreign partner	0.527	0.009	1.693***	0.509	0.545	0.357	0.009	1.429***	0.339	0.375
Foreign-born Dutch partner	0.842	0.012	2.321***	0.818	0.866	0.206	0.011	1.229***	0.184	0.228
Native-born Dutch partner	0.971	0.012	2.641***	0.947	0.995	0.868	0.010	2.381***	0.848	0.888
Children < 18 in the household										
Yes	−0.034	0.008	0.967***	−0.050	−0.018	−0.550	0.007	0.577***	−0.564	−0.536
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
EU										
Yes	0.377	0.008	1.458***	0.361	0.393	0.441	0.008	1.554***	0.425	0.457
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
			N = 93,974 Observations = 1,053,315 −2 Log-likelihood = 684,781					*N* = 94,874 Observations = 1,203,208 −2 Log-likelihood = 675,266		

[a]Results include a control for unmeasured characteristics through a 1-period lag of the dependent variable. Source: Statistics Netherlands.
***$p < .001$.

Table A6. Logistic individual fixed-effects regression on the probability of having paid employment of male and female immigrants under differing institutional conditions, cohorts 1996–1997 and 2001–2002.

	Men						Women					
	Cohort 1996–1997			Cohort 2001–2002			Cohort 1996–1997			Cohort 2001–2002		
	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.
Naturalisation												
Yes	0.403	0.019	1.496***	0.305	0.028	1.357***	0.233	0.020	1.262***	0.180	0.023	1.197***
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Years since migration * naturalisation during observation period	0.234	0.006	1.264***	0.270	0.005	1.310***	0.146	0.006	1.157***	0.232	0.005	1.261***
Years since naturalisation * naturalisation	−0.214	0.007	0.807***	−0.262	0.011	0.769***	−0.160	0.007	0.852***	−0.191	0.009	0.826***
	N = 17,773 Observations = 243,291 −2 Log-likelihood = 279,052			*N* = 25,126 Observations = 351,778 −2 Log-likelihood = 384,418			*N* = 16,636 Observations = 234,474 −2 Log-likelihood = 262,673			*N* = 23,593 Observations = 352,267 −2 Log-likelihood = 384,480		

[a]Results include controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.
***$p < .001$.

Table A7. Logistic regression on the probability of having employment, male and female immigrants with and without variance on the dependent variable who naturalise during the observation period, cohorts 1999–2002.[a]

	Men					Women				
	Coef.	Std. error	Exp coef.	95% conf. intervals		Coef.	Std. error	Exp coef.	95% conf. intervals	
Naturalisation										
>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
3 years prior to naturalisation	0.200	0.020	1.221***	0.161	0.239	0.121	0.020	1.129***	0.082	0.160
2 years prior to naturalisation	0.219	0.021	1.245***	0.178	0.260	0.212	0.021	1.236***	0.171	0.253
1 year prior to naturalisation	0.360	0.022	1.434***	0.317	0.403	0.325	0.021	1.384***	0.284	0.366
year of naturalisation	0.297	0.024	1.346***	0.250	0.344	0.324	0.023	1.382***	0.279	0.369
1 year after naturalisation	0.343	0.026	1.410***	0.292	0.394	0.409	0.024	1.505***	0.362	0.456
2 years after naturalisation	0.374	0.028	1.454***	0.319	0.429	0.483	0.026	1.621***	0.432	0.534
3 years after naturalisation	0.375	0.031	1.455***	0.314	0.436	0.492	0.029	1.635***	0.435	0.549
>3 years after naturalisation	0.423	0.029	1.526***	0.366	0.480	0.520	0.028	1.682***	0.465	0.575
			N = 19,264 Observations = 309,472 −2 Log-likelihood = 213,628					*N* = 26,411 Observations = 422,031 −2 Log-likelihood = 247,751		

[a]Results include a control for unmeasured characteristics through a 1-period lag of the dependent variable, and controls for age at the moment of migration, years of residence, the partner status, having young children in the household and EU-membership of the origin country. Source: Statistics Netherlands.

***$p < .001$.

Table A8. Logistic individual fixed-effects regression on the probability of having employment, male and female immigrants without right censoring who naturalise during the observation period, cohorts 1999–2002.

	Men					Women				
	Coef.	Std. error	Exp coef.	95% conf. intervals		Coef.	Std. error	Exp coef.	95% conf. intervals	
Naturalisation										
>3 years prior to naturalisation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
3 years prior to naturalisation	0.506	0.022	1.659***	0.463	0.549	0.408	0.021	1.504***	0.367	0.449
2 years prior to naturalisation	0.623	0.024	1.865***	0.576	0.670	0.688	0.023	1.990***	0.643	0.733
1 year prior to naturalisation	0.797	0.027	2.219***	0.744	0.850	0.868	0.026	2.382***	0.817	0.919
year of naturalisation	0.783	0.031	2.188***	0.722	0.844	0.898	0.030	2.455***	0.839	0.957
1 year after naturalisation	0.787	0.035	2.197***	0.718	0.856	0.900	0.033	2.460***	0.835	0.965
2 years after naturalisation	0.724	0.039	2.063***	0.648	0.800	0.864	0.037	2.373***	0.791	0.937
3 years after naturalisation	0.601	0.044	1.824***	0.515	0.687	0.789	0.042	2.201***	0.707	0.871
>3 years after naturalisation	0.414	0.048	1.513***	0.320	0.508	0.624	0.046	1.866***	0.534	0.714
Years since migration	0.285	0.004	1.330***	0.277	0.293	0.270	0.004	1.310***	0.262	0.278
Partner										
No partner	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Foreign-born foreign partner	0.237	0.021	1.267***	0.196	0.278	0.371	0.024	1.449***	0.324	0.418
Foreign-born Dutch partner	0.968	0.025	2.633***	0.919	1.017	0.899	0.026	2.457***	0.848	0.950
Native-born Dutch partner	1.137	0.032	3.177***	1.074	1.200	0.985	0.024	2.678***	0.938	1.032
Children < 18 in the household										
Yes	−0.194	0.018	0.824***	−0.229	−0.159	−0.998	0.017	0.369***	−1.031	−0.965
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
			N = 12,831 Observations = 232,050 −2 Log-likelihood = 230,660					*N* = 14,641 Observations = 258,786 −2 Log-likelihood = 263,864		

Source: Statistics Netherlands.
***$p < .001$.

Table A9. Logistic individual fixed-effects regression on the probability of having employment of male and female immigrants, cohorts 1999–2002.[a]

	Men			Women		
	Coef.	Std. error	Exp coef.	Coef.	Std. error	Exp coef.
Naturalisation						
Yes	0.644	0.015	1.904***	0.596	0.014	1.815***
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Years since migration * distance between origin and host country	0.154	0.002	1.166***	0.052	0.002	1.053***
Years since naturalisation * naturalisation	−0.011	0.005	0.989*	−0.021	0.005	0.979***
	$N = 48{,}969$ Observations = 707,644 −2 Log-likelihood = 775,729			$N = 45{,}351$ Observations = 697,992 −2 Log-likelihood = 763,054		

[a]Results include controls for years since migration, the partner status and having young children in the household. Source: Statistics Netherlands.

*$p < .05$.

***$p < .001$.