

1. Immigrant labor market integration across admission classes

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Abstract

We examine patterns of labor market integration across immigrant groups. The study draws on Norwegian longitudinal administrative data covering labor earnings and social insurance claims over a 25-year period and presents a comprehensive picture of immigrant-native employment and social insurance differentials by admission class and by years since entry. For refugees and family immigrants from low-income source countries, we uncover encouraging signs of labor market integration during an initial period upon admission, but after just 5–10 years, the integration process goes into reverse with widening immigrant-native employment differentials and rising rates of immigrant social insurance dependency. Yet, the analysis reveals substantial heterogeneity within admission class and points to an important role of host-country schooling for successful immigrant labor market integration.³

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- JEL code: J61, H20

1.1 Introduction

Rising rates of immigration over the past decade have spurred debates on immigration and integration policies in many destination countries, questioning the absorptive capacity of recipient economies. In the Nordic countries, two important developments have lifted immigration and integration issues to the top of the political agenda. The first is the 2004 and 2007 enlargements of the common European labor market, which triggered a massive inflow of labor migrants from Eastern Europe. The second is the recent refugee crisis, which culminated during the autumn of 2015 with historically high levels of asylum seekers in most European countries. At the same time, family immigration has brought fundamental change to the demographic make-up of the Nordic populations.

In a world with large cross-country productivity differences, there will potentially be considerable economic gains associated with unrestricted movement of persons across national borders, as open borders allow labor to flow towards its best use (Clemens, 2011; Kennan, 2013). With the ageing of European populations, immigration has also been hailed as a possible solution to the demographic and fiscal challenges facing these countries over the coming decades (Storesletten, 2000). However, for higher immigration rates to alleviate rather than to aggravate the fiscal challenges ahead, successful integration of immigrants in the host-country labor market is crucial. In order to assess the merits of integration policies, and, more generally, the economic and fiscal consequences of increased immigration, it is necessary to examine residential decisions as well as labor market behavior and social insurance claims over the long haul. In particular, studying the labor market performance of immigrants during their very first years in the host country provides little insight into the overall economic consequences of immigration, as, for example, labor immigrants by definition will have a job whereas refugees have had little chance of obtaining employment at this stage. This observation also implies that simple cross-sectional comparisons of, say,

employment rates between immigrants and natives may not be informative about the ultimate economic consequences of immigration. What we need is knowledge about how the labor market careers are likely to evolve over the potentially productive years spent in the host country.

In the present paper, we take advantage of population-based administrative register data, linked to detailed information of type of immigrant admission, and give a comprehensive account of the longitudinal labor market performance of the major immigrant groups that have arrived in Norway over the past 25 years. In particular, we distinguish between immigrants from the “old” and “new” EU, and, for immigrants from low-income source countries, those admitted for protection (e.g., given refugee or asylum status) and for family (re)unification, whether with an immigrant or a Norwegian reference person. Some of our findings are unsettling: For immigrants admitted for protection or family reunification, we find that the initially encouraging labor-market integration process comes to a halt already after five to seven years, for most groups at employment levels still well below those of similar natives. More surprisingly, the integration process then runs into *reverse*, with consistently widening immigrant-native employment differentials over time. Hence, apart from the first few years of residence, we find that the expected difference in labor market performance between immigrants and natives *increases* with years since migration, *ceteris paribus*. Our findings also contain some more encouraging results: There is substantial variation in labor market performance within origin country and admission class, and human capital investments, particularly through the Norwegian educational system, appear to make a big difference. Some immigrant groups reach employment rates that are similar to those of natives, at least over some years. Such heterogeneity in outcomes suggests that poor immigrant integration is not inevitable and that there is a genuine potential for higher and more stable employment.

Our results add to a body of empirical evidence indicating that humanitarian immigrants in Europe tend to be underrepresented in employment and/or overrepresented among claimants in social insurance programs (Husted *et al.*, 2001; Sarvimäki, 2011, 2017; Lundborg, 2013; Bratsberg *et al.*, 2014; Damas de Matos and Liebig, 2014; Schultz-Nielsen, 2017; Åslund *et al.*, 2017). Recent studies using cross-sectional EU labor force survey (EU-LFS) data from 2008 (Damas de Matos and Liebig, 2014; Dustmann *et al.*, 2016) and 2014 (Dumont *et al.*, 2016) document low employment rates among refugees in most destination countries. However, the EU-LFS based studies also indicate that the native-refugee employment gap in general

declines with the length of stay in Europe, similar to findings for refugee immigrants in the United States (Borjas, 1982; Cortes, 2004). According to the 2014 EU-LFS, refugees even catch up with natives after 15 years in five of out of nine member states included with reliable data for such comparisons (Dumont *et al.*, 2016; p. 21). Behind this average employment profile, refugee employment varies widely across destination countries. The study also points to large differentials by origin country, with Bosnian refugees being highly successful and refugees from the Middle East having significantly lower employment rates. A recent study using 2011 administrative data from Sweden finds an average employment gap to natives of 30 percentage points for humanitarian migrants (refugees) and 26% point for family immigrants (Luik *et al.*, 2016).

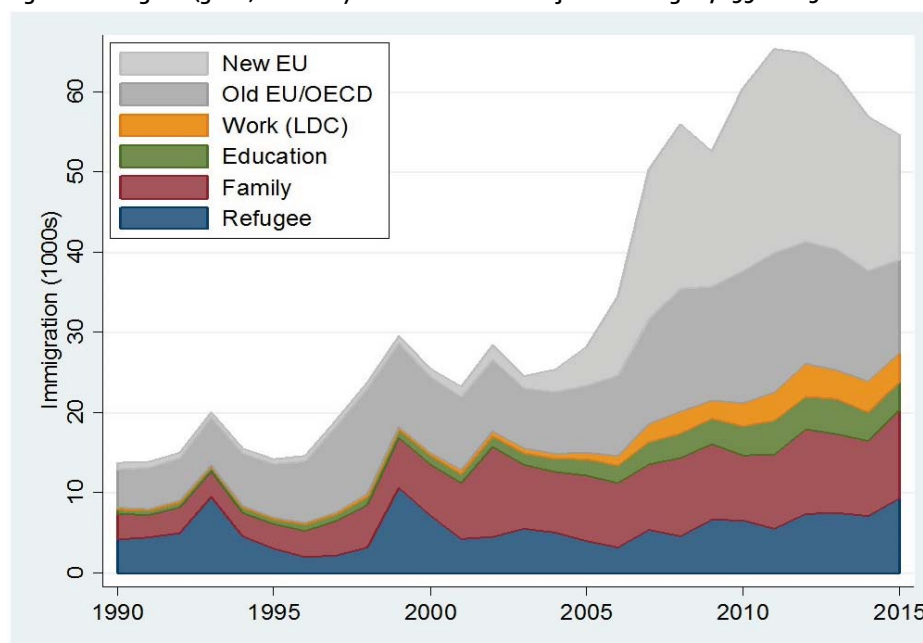
To our knowledge, along with Schultz-Nielsen (2017), the present paper is the first to present a comprehensive picture of immigrant-native employment and social insurance differentials *by admission class* and *by years since migration* based on panel data. While our findings may be viewed as a bit discouraging with respect to the ability of the Norwegian labor market to utilize the productive resources of immigrants over the long haul, it is also worth emphasizing that our results indicate considerable scope for improvement. The fact that immigrants' employment rates in many cases decline after just five years of residence suggests that there exists an underutilized labor supply potential. Paired with the finding of large employment differentials linked to Norwegian schooling, we argue that there is a case for increased early human capital investments in order to improve language skills and provide marketable qualifications. In view of the inexorable rise in social insurance program participation with time in the country, we also advocate a more activity-oriented social insurance system, with focus on finding and offering suitable paid work rather than merely securing family income.

1.2 Immigration to Norway

Figure 1 shows annual gross inflows of immigrants to Norway over the last 26 years. Migration flows from outside the EU and OECD are split into four admission classes; work, education (a category that includes au pairs), family (re)unification, and refugee

protection.⁴ The figure also distinguishes between inflows from countries that were included in the European Union following the 2004 and 2007 enlargements (“New EU”) and the old EU member countries in western Europe, the Nordic countries, and other OECD countries (for simplicity grouped together as “Old EU/OECD”). The visible spikes during the 1990s reflect waves of refugee arrivals and persons granted political asylum, the Balkans (early 1990s), and Iraq and Somalia (late 1990s). Over the last ten years, refugee arrivals have trended upwards although immigrants from the new EU countries have dominated overall inflows.

Figure 1: Immigrant (gross) inflows by admission class or major source region, 1990–2015



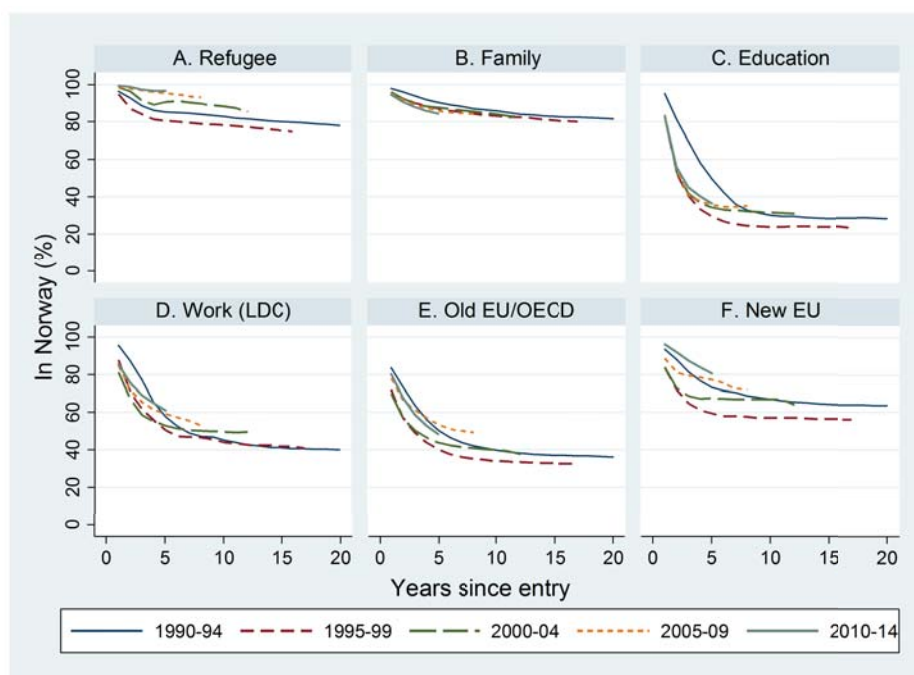
Until the EU enlargement in 2004, the vast majority of admissions from outside Europe were based on humanitarian motives and family reunification. Since the 1975 immigration freeze, work-related immigration from developing countries has been

⁴ Refugees include both resettlement refugees (typically through the United Nations High Commissioner for Refugees resettlement program) and those admitted following asylum application (who reached Norway by independent means before seeking asylum).

limited as such admissions have been restricted to the “specialist” or “seasonal worker” programs, which normally require that the applicant already has a job offer at the time of application. The immigration legislation gives citizens of countries with a labor agreement with Norway the right to enter and search for a job for up to six months. Important labor agreements in recent times include those between the Nordic countries since 1954 and the European Economic Area (EEA; i.e., the European Union and member states of the European Free Trade Association) since 1994. Although Norway has stayed outside the European Union, the 2004 and 2007 eastwards enlargements of the European Union opened the Norwegian labor market to citizens of accession countries owing to Norway’s EEA membership. As is evident from Figure 1, the EU enlargements triggered massive labor migration to Norway and account for the majority of the rise in immigration since 2004.

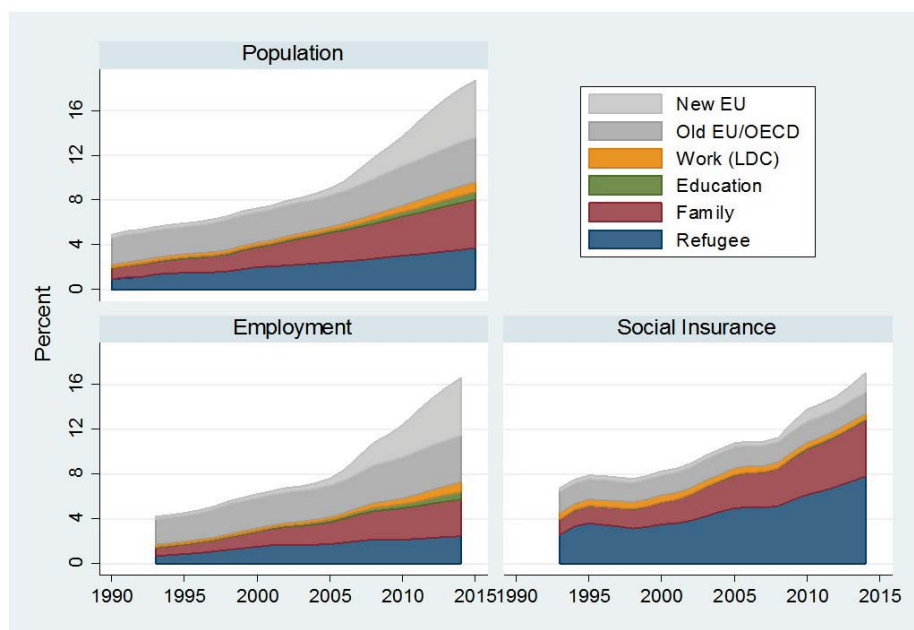
A considerable fraction of the immigrants leaves the country after just a few years. As illustrated in Figure 2, this is particularly the case for immigrants from the old EU and for students and work-related immigrants from developing countries. For these groups, fewer than 50% remain in the country 5 years after entry. For refugees and family migrants, the picture is very different, and around 80% appear to have settled permanently in the country. Immigrants from the new EU have a settlement pattern somewhere in between, with approximately 70% settled on a permanent basis. An implication of such differential outmigration patterns is that the long-term labor market performance of refugees and family immigrants is of particular economic and fiscal importance.

Figure 2: Fraction of immigrants still in Norway, by admission class, arrival cohort, and years since entry



The upper panel of Figure 3 shows how the varying rates of immigrant inflows and outflows by admission class, along with other demographic trends, have changed the composition of the adult (25–66) population between 1990 and 2015. In this population segment, the overall immigrant share increased from 4.9% in 1990 to 18.7% in 2015 – an increase by a factor of 3.8 over 25 years. While the share of immigrants from the old EU shows modest growth (from 2.5 to 4% of the population), the increase has been ensured by the steady rise in refugee and family immigration, and, in recent years, by the sharp increase in work-motivated immigration from the new EU. Following the 2004 EU enlargement, the fraction of immigrants in Norway has increased by a steady rate of approximately one percentage point per year.

Figure 3: Immigrant shares of population, employment and social insurance



Note: Population consists of those aged 25–66 and in Norway at end of each calendar year.

While the upper panel in Figure 3 displays immigrant population shares, the lower panels show immigrant shares among persons in the states of *employment* and *social insurance*, respectively. Both here and in the subsequent analyses we define the state of “employment” in a particular year as having employment or self-employment earnings as the most important (i.e., the largest) source of income in that year. Conversely, we define the state of “social insurance” as having social insurance and/or social assistance (welfare) as the most important source of income. Based on these definitions, there is a residual category, characterized by zero earnings *and* zero transfers, presumably supported by their families.

In total, the immigrant share of employment has developed roughly on par with its population share, i.e., from 2.9% in 1993 to 15.8% in 2014. (Although we can study population shares through 2015, data availability restricts the analyses of labor market and social insurance outcomes to the period between 1993 and 2014). The trends in population and employment shares varies considerably across admission classes, with

employment shares of refugees and family immigrants lagging their growth in population shares. In a welfare state, differential employment patterns are typically mirrored by the opposite structure of social insurance. During our data window, immigrant social insurance shares increased at a slower pace than their employment shares. However, here the shares of the various immigrant groups have developed very differently, with strongly increasing shares of refugees and family immigrants and roughly constant shares of labor immigrants. In 2014, refugees and family immigrants accounted for 12.8% of social insurance claims, compared to 5.7% of employment (and 7.7% of the adult population). In contrast, the two EU groups made up 9.3% of employment (and 8.8% of the adult population) but only 3.6% of social insurance claimants. Although these patterns do illuminate the immediate (short-term) fiscal impacts of immigration at each particular point in time, they are heavily influenced by each year's immigrant composition – in terms of age, years since migration, and admission classes – and therefore provide little information about long-term consequences and impacts of fiscal sustainability. To assess the latter, we need to focus on longer-term integration in the Norwegian labor market.

1.3 Data

In order to study employment and social insurance claim patterns over the entire time period spent in Norway, we follow adult immigrants entering Norway from 1990 onwards for as long as the data permit, i.e., until 2014 or until exit from Norway. The analysis will be made separately for each admission class. Owing to their relatively modest number and low stay rates we leave out the admission classes made up by students and labor migrants from less developed countries (see, however, Bratsberg *et al.*, 2010), and focus on labor migrants from new and old EU countries and on refugees and family immigrants from low-income countries. For family immigrants, we further distinguish between those married to a Norwegian born at the time of immigration and other family immigrants, presumably reunited with an immigrant reference person.

Table 1 shows some descriptive statistics for the resultant analysis samples, separately for men and women. While columns (1)–(5) report statistics for the five immigrant admission classes under study, column (6) lists the corresponding statistics for a native born comparison group consisting of a 10% random sample of the working age native population. For immigrant men, the sample average share in employment

(i.e., whose main source of income is work) ranges from 58% for refugees to 89% for EU immigrants, with family migrants somewhere between (around 80%). The average shares with social insurance as the main source of income ranges from only 4% for EU immigrants to as much as 38% for refugees. The corresponding shares for native men are 87% in employment and 12% with social insurance as their main income source. For women, the average shares in employment vary from 46% for refugees to 85% for new EU immigrants, whereas the average shares in social insurance vary from 5% for new EU immigrants to 42% for refugees. The corresponding rates for native women are 80% in employment and 17% with social insurance as their main source of income.

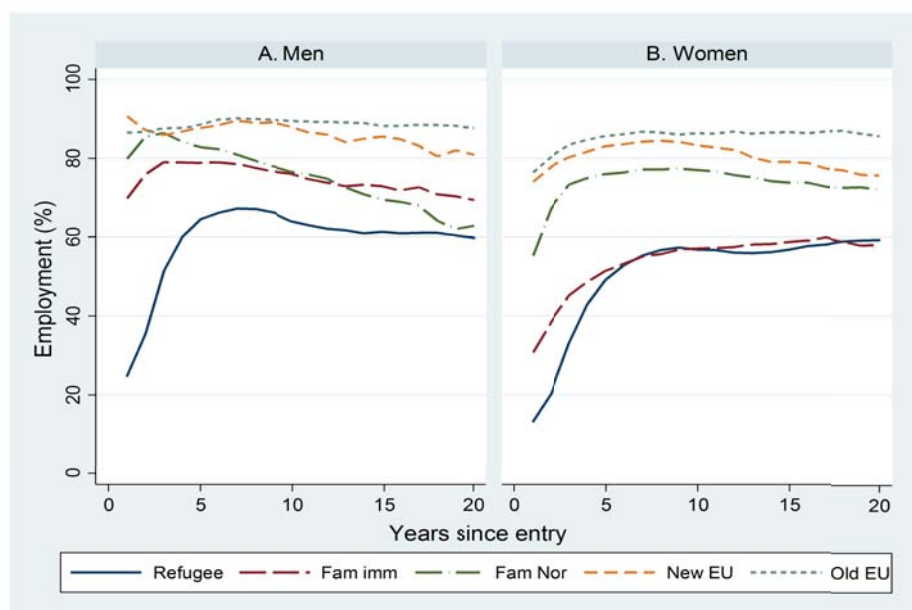
Table 1: Descriptive statistics, regression samples

	Refugee	Family to immigrant	Family to Norwegian	New EU	Old EU	Native
	(1)	(2)	(3)	(4)	(5)	(6)
A. Men						
Educational attainment						
Less than secondary	0.430	0.345	0.351	0.215	0.208	0.393
Secondary	0.248	0.169	0.202	0.579	0.302	0.345
Tertiary	0.229	0.190	0.212	0.169	0.422	0.257
Attainment acquired in Norway						
Less than secondary	0.192	0.159	0.179	0.014	0.026	
Secondary	0.052	0.033	0.047	0.006	0.020	
Tertiary	0.026	0.021	0.030	0.006	0.037	
Educ in Norway below highest	0.131	0.028	0.035	0.005	0.009	
Education missing	0.093	0.296	0.236	0.038	0.068	0.004
Educ imputed from occupation	0	0	0	0.371	0.188	0
Local unemployment rate	0.024	0.025	0.024	0.021	0.023	0.025
Age at entry	30.7	29.2	28.3	32.8	31.7	
Years since entry	8.58	7.52	7.98	3.62	6.55	
Age	39.3	36.8	36.3	36.4	38.3	43.8
Employment	0.581	0.768	0.799	0.883	0.890	0.871
Social insurance	0.379	0.164	0.149	0.050	0.046	0.120
Observations	366,136	109,390	75,442	322,823	402,884	2,093,261
B. Women						
Educational attainment						
Less than secondary	0.487	0.404	0.377	0.238	0.157	0.475
Secondary	0.227	0.143	0.154	0.298	0.223	0.227
Tertiary	0.181	0.174	0.288	0.417	0.558	0.295
Attainment acquired in Norway						
Less than secondary	0.174	0.181	0.134	0.062	0.031	
Secondary	0.053	0.033	0.044	0.022	0.021	
Tertiary	0.025	0.019	0.027	0.042	0.068	
Educ in Norway below highest	0.101	0.040	0.042	0.028	0.015	
Education missing	0.106	0.278	0.181	0.048	0.061	0.003
Educ imputed from occupation	0	0	0	0.188	0.115	0
Local unemployment rate	0.024	0.025	0.022	0.022	0.023	0.025
Age at entry	30.8	28.5	30.8	30.2	29.9	
Years since entry	8.66	7.95	7.06	5.12	7.09	
Age	39.4	36.4	37.9	35.3	37.0	44.1
Employment	0.463	0.508	0.733	0.803	0.846	0.803
Social insurance	0.416	0.213	0.102	0.064	0.050	0.168
Observations	231,710	301,878	214,786	191,564	291,723	1,963,026

Note: Samples are restricted to those 25–62 years of age, not in education, and in the country at the end of the observation year. Immigrant samples are further restricted to those 18–47 years of age at entry and who entered between 1990 and 2013. Observation period is 1993–2014. Native samples are 10% random population extracts.

Figures 4 and 5 give a more detailed picture of employment rates and social insurance dependency *by years since entry*. Not surprisingly, we see that refugees have very low employment rates – and correspondingly high rates of social insurance dependency – during their first years upon admission. They then catch up rather quickly during a five-year period, after which employment rates appear to stabilize (for women) or decline (for men). EU immigrants, on the other hand, have high employment rates to begin with, but for the new EU immigrants the employment rate tends to decline a bit after some years. For family migrants, the picture is quite different for men and women. Male family migrants have relatively high employment rates early in their stay, but the rates then decline relatively fast. Female family migrants, on the other hand, have very low employment rates to begin with, but they increase rapidly over the first five years in the country. With the exception of refugees, all the immigrant groups under study experience a quite sharp increase in their reliance on social insurance transfers over time.

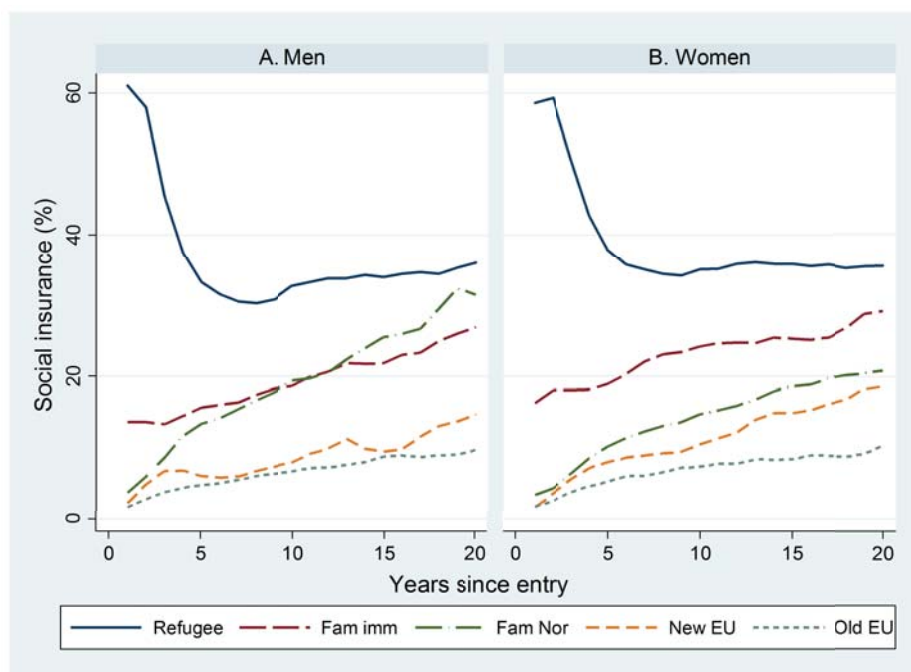
Figure 4: Share of immigrants whose main source of income is work, by gender, admission class, and years since entry



Note: Samples consist of immigrants aged 18–47 at entry and admitted between 1990 and 2013. Observation period is 1993 to 2014. Figure entry is the mean employment rate for those aged 25–62 and in the country at the end of the calendar year.

The descriptive statistics in Table 1 reveal substantial variation across the five immigrant admission classes in terms of age distribution, educational attainment, and years since migration during the observation window. As we return to below, they also differ with respect to origin country. There is also substantial variation in characteristics *within* each of the five classes, and particularly for the refugee and family immigrant groups, these differences correlate strongly with *years since migration*. This makes it difficult to interpret the employment and social insurance profiles displayed in Figures 4 and 5 directly, as they reflect both the impacts of sorting and causality.

Figure 5: Share of immigrants whose main source of income is social insurance transfers, by gender, admission class, and years since entry



Note: Samples consist of immigrants aged 18–47 at entry and admitted between 1990 and 2013. Observation period is 1993 to 2014. Figure entry is the mean social insurance rate for those aged 25–62 and in the country at the end of the calendar year.

For example, the fact that refugees from the Balkans dominated refugee arrivals during the early 1990s implies that these immigrants are strongly overrepresented among those we can follow for as much as 20 years. And, as we show below, since they turned out to have more successful labor market careers on average than other refugees, this will, if not controlled for, give the impression that employment rates rise more (or decline less) with years since migration than what we would find conditioned on country of origin. In order to establish employment social insurance dependency profiles that capture the structural impacts of years since migration, we need to control for relevant background characteristics. This will also facilitate an analysis of which characteristics – e.g., in terms of educational attainment, age at immigration, or country of origin – that are conducive for success in the Norwegian labor market.

1.4 Empirical model

To study the immigrant employment assimilation processes in more detail, we set up an empirical model built on the framework of Borjas (1995; 1999). Suppose the outcome (employment or social insurance as main source of income) of a person j belonging to immigrant group l observed in calendar year t can be represented by the following equation:

$$y_{jt}^l = X_{jt} \phi^l + \sum_a \delta_a^l A_{ajt} + \sum_m \alpha_m^l YSM_{mjt} + \sum_c \psi_c^l C_{cj} + \sum_e \theta_e^l E_{ej} + \sum_t \gamma_t^l \Pi_{jt} + \varepsilon_{jt}^l \quad (1)$$

while the outcome for a native is represented by

$$y_{jt}^N = X_{jt} \phi^N + \sum_a \delta_a^N A_{ajt} + \sum_t \gamma_t^N \Pi_{jt} + \varepsilon_{jt}^N \quad (2)$$

where y_{jt} is the outcome of person j in year t ; X is a vector of socio-economic characteristics (such as educational attainment); A is a vector of indicator variables for the age of the individual at the time of observation; YSM is a vector of indicator variables for the number of years the immigrant has resided in the host country; C is a vector of indicators for the country of origin; E is a vector of indicators for the age at the time of entry; and Π is a vector of indicators for the calendar year. Now, looking at Equation (1) in isolation, it is clear that because the model includes indicator variables

for age at entry, age in the year of observation, the number of years since migration, and the year of observation, we have a serious multicollinearity problem. In order to identify the model, we therefore need to impose restrictions across Equations (1) and (2); i.e., assume that some factors affect immigrants and natives the same way (Borjas, 1995; 1999). In our case, we need two such restrictions in order to identify the model, and we are going to assume that the pure cyclical variation captured by the calendar year dummies as well as the age effects are the same for immigrants and natives. Thus, we assume that $\delta_a^I = \delta_a^N \forall a$ and that $\gamma_t^I = \gamma_t^N \forall t$.

The equal year (period) effect assumption is, however, unlikely to hold as prior evidence from Norway (Barth *et al.*, 2004), Germany and the UK (Dustmann *et al.*, 2010), and the US (Bratsberg *et al.*, 2006) shows that immigrant wages (and employment) are more strongly pro-cyclical than those of natives. To relax this restriction, we follow Barth *et al.* (2004) and include the local unemployment rate, interacted with immigrant admission class, as extra covariates (in X) in order to allow for differential responses to cyclical fluctuations. Note, however, that this does not imply that we rely exclusively on cross-sectional variation in local unemployment to identify differences between immigrants and natives in cyclical sensitivity. As the calendar year dummy variables take the same coefficient for immigrants and natives, systematic differences in the responses to nation-wide unemployment fluctuations will be absorbed by the differential responses to local unemployment.

From the set of jointly estimated coefficients from equations (1) and (2) we predict the outcome differential between immigrants and natives, for different values of years since migration (YSM). The differential for admission class l and evaluated at $YSM=m$ reads

$$\Delta_m^I = (\hat{y}^I - \hat{y}^N)_{YSM=m} = \bar{X}^I (\hat{\phi}^I - \hat{\phi}^N) + \hat{\alpha}_m^I + \sum_c \hat{\psi}_c^I \bar{C}^I, \quad (3)$$

where \bar{X} is the mean of explanatory variables in the immigrant sample and age at migration is set to its reference value of 25–29.

1.5 Results

1.5.1 Immigrant-native employment and social insurance differentials

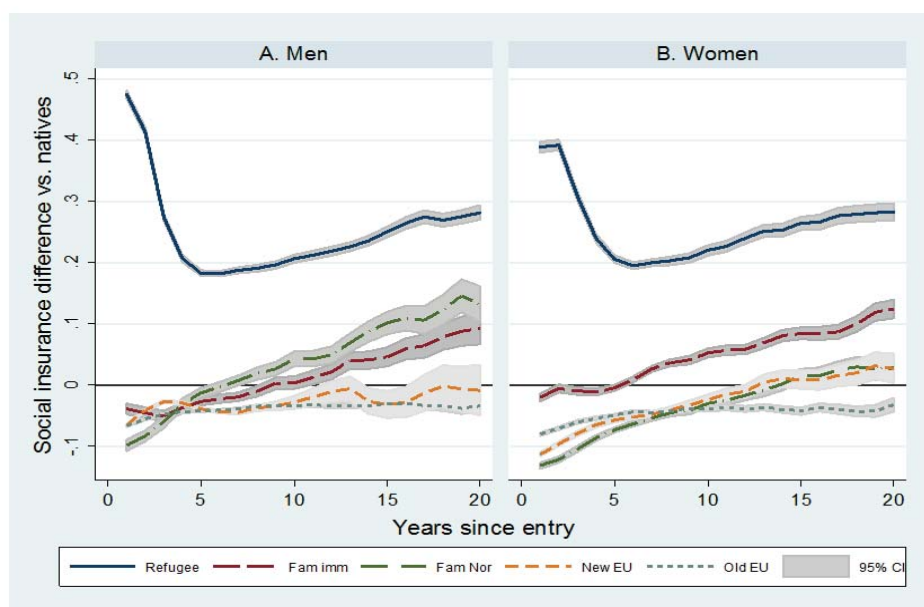
Figures 6 and 7 present the estimation results regarding the developments of the immigrant-native employment and social insurance differentials *by years since migration*, along with their 95% confidence intervals. The differentials given by Equation (3) are designed to capture the pure *impact* of years since migration, holding everything else constant. Immigrants age with additional years since immigration, but the effect of immigrant age will be captured by age at immigration and the set of age coefficients identified from the native control group. The *levels* of the resultant curves in Figures 6 and 7 obviously depend on the values at which everything else is being held constant, whereas the shape by construction is the same for all immigrants within an admission class.

Figure 6: Predicted employment differential between immigrants and natives, by gender, admission class, and years since entry



Note: Differentials are based on a regression model that controls for educational attainment, whether schooling is acquired in Norway, whether the highest attainment is from Norway, whether education information is missing, local unemployment, and age at entry – all interacted with the five admission categories. The regression further controls for age, county of residence, year of observation, and country of birth, as well as educational attainment and local unemployment interacted with native status. Differentials are evaluated at the weighted average educational attainment in each immigrant sample. See also Tables 2 and 3.

Figure 7: Predicted social insurance differential between immigrants and natives, by gender, admission class, and years since entry



Note: Differentials are based on a regression model that controls for educational attainment, whether schooling is acquired in Norway, whether the highest attainment is from Norway, whether education information is missing, local unemployment, and age at entry – all interacted with the five admission categories. The regression further controls for age, county of residence, year of observation, and country of birth, as well as educational attainment and local unemployment interacted with native status. Differentials are evaluated at the weighted average educational attainment in each immigrant sample. See also Tables 4 and 5.

The estimated employment and social insurance profiles deviate considerably from the descriptive patterns of Figures 4 and 5. In particular, for immigrants from low-income source countries we now observe a much clearer decline in employment after just a few years in Norway. The profiles estimated for refugees are particularly striking. For men, we find that the native-immigrant employment gap reaches its minimum value at 20 percentage points after five to six years of residence. The gap then starts to increase quite sharply again, and reaches 30 percentage points after 15 years. This development is mirrored by a corresponding increase in social insurance dependency. For female refugees, the employment differential reaches its minimum of 30 percentage points

after 5–9 years of residence. The subsequent decline is less dramatic than what we observe for men, but the differential stands at 35 percentage points 15 years after admission.⁵

Turning to the two family immigrant groups, our estimates reveal very different profiles for men and women. For male family immigrants, we generally observe an immigrant employment advantage to start with. After around five years, however, a negative employment differential builds up, and it increases faster for family immigrants with a Norwegian-born reference person than for those with an immigrant reference person. After 15 years of residence, the negative employment differentials are around 13 percentage points for the former, and 8 percentage points for the latter group. Again, these developments are mirrored by a corresponding rise in social insurance differentials. For female family immigrants, on the other hand, we estimate the employment differential to be very large during the first years in Norway. It then follows a pattern similar to that of female refugees, with rapid labor market integration during the first 5–10 years, and a moderate disintegration afterwards. As for males, there is a rather monotonous increase in social insurance differentials with years since entry (see Figure 7).

For immigrants from the old EU, the employment differential is slightly in favor of immigrants regardless of years since migration, and the social insurance differentials remain consistently negative. In other words, employment of old EU immigrants is almost indistinguishable from that of natives, and they are less likely to claim social insurance benefits. For immigrants from the new EU, a slight negative employment differential builds over time. The use of social insurance is moderate for this group, although there are some indications of a positive trend for women. It should be emphasized, however, that estimates of the long-term developments for immigrants from the new EU are based on a relatively small group of immigrants that migrated *prior* to the 2004 EU enlargement; hence their outcomes may not be representative for those who came after the enlargement. These results should therefore be interpreted with some care.

⁵Bratsberg *et al.* (2016c) find that, conditional on employment, annual earnings of refugees do not exhibit similar declines relative to those of natives.

1.5.2 Heterogeneity within and between origin countries

Even when we compare immigrants of the same age and length of stay in Norway, employment rates differ considerably across workers depending on educational attainment, age at entry, country of origin, and labor market conditions. In Tables 2 through 5, we focus on individual heterogeneity within admission class and origin country, controlling for age and years since admission. In terms of Figure 6 and 7, in this section we study factors that determine “the intercept” of the curves, or how the predicted immigrant-native differential varies across individuals according to their observed characteristics.

Table 2: Determinants of employment, men

	Refugee (1)	Family to immigrant (2)	Family to Norwegian (3)	New EU (4)	Old EU (5)	Native (6)
Educ attainment (ref=sec)						
Less than secondary	-0.061*** (0.002)	-0.049*** (0.004)	-0.040*** (0.004)	-0.017*** (0.001)	-0.011*** (0.002)	-0.132*** (0.000)
Tertiary	0.040*** (0.002)	0.020*** (0.004)	0.015*** (0.004)	0.039*** (0.002)	0.047*** (0.001)	0.039*** (0.000)
Attainment acq in Norway						
Less than secondary	0.056*** (0.002)	-0.023*** (0.003)	-0.037*** (0.004)	-0.097*** (0.005)	-0.109*** (0.003)	
Secondary	0.136*** (0.003)	0.067*** (0.006)	0.072*** (0.006)	0.063*** (0.008)	0.039*** (0.004)	
Tertiary	0.226*** (0.004)	0.101*** (0.007)	0.117*** (0.007)	0.007 (0.008)	0.004* (0.003)	
Norwegian schooling below highest attainment	0.042*** (0.002)	-0.025*** (0.006)	-0.061*** (0.007)	-0.135*** (0.008)	-0.102*** (0.005)	
Local unemployment rate	-5.673*** (0.070)	-3.311*** (0.136)	-4.022*** (0.157)	-1.839*** (0.090)	-0.971*** (0.065)	-1.164*** (0.011)

	Refugee	Family to immigrant	Family to Norwegian	New EU	Old EU	Native
	(1)	(2)	(3)	(4)	(5)	(6)
Age at entry (ref=25-29)						
18-24	0.038*** (0.002)	-0.007** (0.003)	0.006* (0.003)	-0.013*** (0.002)	-0.013*** (0.002)	
30-34	-0.034*** (0.002)	-0.048*** (0.003)	-0.015*** (0.003)	-0.005*** (0.002)	-0.009*** (0.001)	
35-39	-0.080*** (0.002)	-0.086*** (0.003)	-0.041*** (0.004)	-0.014*** (0.002)	-0.022*** (0.002)	
40-47	-0.160*** (0.002)	-0.149*** (0.004)	-0.086*** (0.006)	-0.010*** (0.002)	-0.041*** (0.002)	

Note: */**/**Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. Regression samples are restricted to those 25-62 years of age, not in education, and in the country at the end of the observation year. Immigrant samples are further restricted to those 18-47 years of age at entry. Native samples are 10% random population extracts; regression is weighted to account for the 10% extract. Regressions control for years since entry and education missing – interacted with admission class – and age, observation year, county of residence, and country of birth (for a total of 449 regressors).

Tables 2 and 3 reveal that employment rates vary considerably with educational attainment. The two top rows display the estimated differentials according to attainment from abroad, with completed upper secondary school (“high school”) as the reference category. Both immigrants and natives with tertiary education are more likely to be employed. The most severe employment penalty for not having completed secondary education appears for natives. In general, within admission class employment differentials across educational attainments are larger for women than for men.

Table 3: Determinants of employment, women

	Refugee	Family to immigrant	Family to Norwegian	New EU	Old EU	Native
	(1)	(2)	(3)	(4)	(5)	(6)
Educ attainment (ref=sec)						
Less than secondary	-0.092*** (0.003)	-0.083*** (0.003)	-0.019*** (0.003)	-0.001 (0.003)	-0.055*** (0.003)	-0.157*** (0.000)
Tertiary	0.094*** (0.003)	0.032*** (0.003)	0.045*** (0.002)	0.044*** (0.002)	0.042*** (0.002)	0.063*** (0.000)
Attainment acq in Norway						
Less than secondary	0.154*** (0.002)	0.144*** (0.002)	0.048*** (0.003)	-0.026*** (0.004)	-0.051*** (0.004)	
Secondary	0.273*** (0.004)	0.212*** (0.004)	0.153*** (0.005)	0.061*** (0.006)	0.016*** (0.05)	
Tertiary	0.259*** (0.006)	0.258*** (0.005)	0.167*** (0.005)	0.088*** (0.005)	0.021*** (0.003)	
Norwegian schooling below highest attainment	0.094*** (0.003)	0.093*** (0.004)	0.039*** (0.004)	-0.022*** (0.005)	-0.039*** (0.006)	
Local unemployment rate	-4.801*** (0.102)	-3.994*** (0.092)	-3.657*** (0.104)	-3.206** (0.123)	-1.454** (0.085)	-1.671*** (0.014)
Age at entry (ref=25-29)						
18-24	-0.003 (0.002)	0.035*** (0.002)	0.005* (0.002)	-0.003 (0.002)	-0.011*** (0.002)	
30-34	-0.025*** (0.002)	-0.028*** (0.002)	-0.013*** (0.002)	-0.031*** (0.002)	-0.039*** (0.002)	
35-39	-0.053*** (0.003)	-0.049*** (0.002)	-0.028*** (0.003)	-0.020*** (0.003)	-0.064*** (0.002)	
40-47	-0.119*** (0.003)	-0.066*** (0.003)	-0.014** (0.003)	-0.007** (0.003)	-0.067*** (0.002)	

Note: ***/**/* Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. See also note to Table 2.

The empirical model allows for additional differentials among immigrants when schooling is acquired in Norway. Rows three to five show the additional (interaction) coefficient when the highest attainment is from the Norwegian educational system. In Table 2, male refugees with upper secondary school from Norway have an average employment rate that is 13.6 percentage points higher than those with similar attainment from abroad. This differential is very large (27.3 percentage points) for women, see Table 3. For both genders, Norwegian education is associated with significantly higher employment rates across all admission classes, unless the attainment is basic (below completed upper secondary school). While male refugees

and all female immigrants from LDC countries seem to gain from Norwegian schooling even below secondary education, other immigrant groups with basic Norwegian schooling have lower employment rates than their fellow nationals who did not acquire education in Norway. A similar pattern appears for immigrants who have some education from Norway, but at a level below the pre-migration attainment.

This study cannot determine whether differentials across educational attainment reflect causal effects of schooling or sorting on unobserved characteristics. For the admission classes under study (recall that we exclude foreign students), acquisition of additional schooling in Norway is likely to be driven by factors that generate both positive and negative selection in terms of employment prospects. While school entry can be triggered by negative employment shocks or labor market barriers, immigrants with high labor market attachment will gain more in terms of improved job careers from additional human capital investments.

The state of the labor market affects employment rates of all six groups studied. When the municipal unemployment rate (in percent of the population) increases by one percentage point, the employment rate of male natives drops by a similar magnitude (1.16 percentage point). Except for western Europeans, immigrant employment rates are far more sensitive to labor market conditions. The employment rate of male refugees falls by more than five percentage points when the overall local unemployment rate increases by one. Similar patterns appear for women, see Table 3. The greater business cycle sensitivity of refugee employment may reflect a more precarious attachment to the labor market, with more marginal and less secure jobs. Moreover, given that the last-in-first-out principle largely governs downsizing processes in Norway, immigrant employees (who tend to have shorter than average tenure) are typically harder hit by adverse employer shocks and reorganization processes.⁶

Immigrants differ widely in age at the time of admission. Young immigrants will have a longer time horizon for host country human capital investments and bring short foreign experiences from both within and outside the labor market. We find significant heterogeneity according to age at arrival for refugees and family immigrants from low-income countries; see Tables 2 and 3, columns (1)–(3). Immigrants arriving after they turn thirty seem to have much lower employment rates, conditional on age and years

⁶ Last-in-first-out is stated as a guiding downsizing principle in the "Basic Agreement" (Hovedavtalen) between the major employer and employee associations in Norway. According to the Working Environment Act (Arbeidsmiljøloven), the selection of layoffs during downsizing processes should be justifiable, with short tenure often referred to as a valid criterion.

since entry. The largest “penalty” appears for male refugees arriving in their forties. For immigrants from (old and new) EU countries, there is less age at immigration heterogeneity in employment.

Table 4: Determinants of social insurance, men

	Refugee	Family to immigrant	Family to Norwegian	New EU	Old EU	Native
	(1)	(2)	(3)	(4)	(5)	(6)
Educ attainment (ref=sec)						
Less than secondary	0.063*** (0.002)	0.053*** (0.003)	0.024*** (0.004)	0.011*** (0.001)	0.023*** (0.001)	0.130*** (0.000)
Tertiary	-0.042*** (0.002)	-0.028*** (0.003)	-0.026*** (0.004)	-0.010*** (0.002)	-0.025*** (0.001)	-0.041*** (0.000)
Attainment acq in Norway						
Less than secondary	-0.051*** (0.002)	0.017*** (0.003)	0.048*** (0.004)	0.110*** (0.005)	0.114*** (0.003)	
Secondary	-0.127*** (0.003)	-0.070*** (0.006)	-0.060*** (0.006)	-0.026*** (0.007)	-0.013*** (0.004)	
Tertiary	-0.224*** (0.004)	-0.091*** (0.007)	-0.093*** (0.007)	-0.029*** (0.008)	-0.005* (0.003)	
Norwegian schooling below highest attainment	-0.033*** (0.002)	0.028*** (0.006)	0.055*** (0.006)	0.146*** (0.008)	0.105*** (0.005)	
Local unemployment rate	4.488*** (0.067)	2.302*** (0.131)	3.040*** (0.152)	1.011*** (0.086)	0.742*** (0.062)	1.162*** (0.011)
Age at entry (ref=25–29)						
18–24	-0.044*** (0.002)	0.003 (0.004)	-0.006* (0.003)	0.001 (0.002)	-0.006*** (0.002)	
30–34	0.035*** (0.001)	0.034*** (0.003)	0.007** (0.003)	0.002 (0.002)	0.011*** (0.001)	
35–39	0.083*** (0.002)	0.063*** (0.003)	0.020*** (0.004)	0.006** (0.002)	0.019*** (0.002)	
40–47	0.151*** (0.002)	0.091*** (0.003)	0.005 (0.006)	0.002 (0.002)	0.019*** (0.002)	

Note: ***/***Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. See also note to Table 2.

Individual characteristics of immigrants also influence the probability of receiving social insurance. Among men, nearly all non-employed receive social insurance and the differentials in Table 4 are basically similar to those in Table 2, but with the opposite sign. For female family immigrants, we uncover some cases where short schooling from Norway is associated with higher rates of both employment *and* social insurance. Local

labor market conditions are less important for social insurance claims among women than among men.

Table 5: Determinants of social insurance, women

	Refugee (1)	Family to immigrant (2)	Family to Norwegian (3)	New EU (4)	Old EU (5)	Native (6)
Educ attainment (ref=sec)						
Less than secondary	0.082*** (0.002)	0.037*** (0.002)	0.008*** (0.003)	0.015*** (0.003)	0.043*** (0.002)	0.146*** (0.000)
Tertiary	-0.055*** (0.003)	-0.038*** (0.003)	-0.030*** (0.003)	-0.018*** (0.002)	-0.021*** (0.002)	-0.055*** (0.000)
Attainment acq in Norway						
Less than secondary	-0.088*** (0.002)	-0.009*** (0.002)	0.022*** (0.003)	0.042*** (0.004)	0.072*** (0.004)	
Secondary	-0.213*** (0.004)	-0.108*** (0.004)	-0.076*** (0.004)	-0.010* (0.006)	0.010** (0.005)	
Tertiary	-0.224*** (0.005)	-0.128*** (0.005)	-0.091*** (0.005)	-0.057*** (0.005)	-0.005* (0.003)	
Norwegian schooling below highest attainment	-0.050*** (0.003)	0.008** (0.004)	0.015*** (0.004)	0.047*** (0.005)	0.063*** (0.006)	
Local unemployment rate	0.111 (0.095)	0.768*** (0.087)	1.825*** (0.098)	1.158*** (0.115)	1.103** (0.080)	1.403*** (0.013)
Age at entry (ref=25–29)						
18–24	-0.015*** (0.002)	-0.022*** (0.002)	0.000 (0.002)	-0.001 (0.002)	-0.007*** (0.002)	
30–34	0.028*** (0.002)	0.026*** (0.002)	0.014*** (0.002)	0.014*** (0.002)	0.014*** (0.002)	
35–39	0.055*** (0.002)	0.059*** (0.002)	0.018*** (0.003)	0.018*** (0.002)	0.018*** (0.002)	
40–47	0.101*** (0.002)	0.056*** (0.003)	0.021** (0.003)	0.021*** (0.003)	0.014*** (0.002)	

Note: ***/***Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. See also note to Table 2.

Destination country outcomes tend to differ significantly across individuals from various origin countries. These differentials may reflect a multitude of factors such as culture, tradition, language distance, past political/military conflicts, and transferability of human capital acquired in the home-country labor market or educational system, in turn influenced by school quality. Among refugees, the three largest origin countries in our samples are Bosnia, Iraq, and Somalia. Table 6 shows large employment and social insurance differentials across these source countries, with reported coefficients

interpreted as average differences across origin countries relative to the mean overall outcome of the group of refugees. All coefficients are from the regression model and hold educational attainment, age, years since entry, age at immigration, county of residence and local labor market conditions constant. As the table shows, refugees from Bosnia do well in the Norwegian labor market, with employment rates 11.1 (men) and 16.0 (women) percentage points above the gender-specific average for refugees. The employment difference between refugees from Bosnia and Somalia is fully 22.2 percentage points for men and 37.7 points for women. Other male differentials are smaller, typically plus/minus 5 to 8 percentage points, with men from Afghanistan and Kosovo also having employment rates above the mean. Among female refugees from the seven major source countries include in the table, only Bosnians have employment rates significantly above the average among female refugees.

Table 6: Country of birth effects, main source countries in refugee samples

	Men			Women		
	Percent of sample (1)	Employment (2)	Social insurance (3)	Percent of sample (4)	Employment (5)	Social insurance (6)
Afghanistan	0.051	0.078*** (0.009)	-0.055*** (0.009)	0.033	-0.115*** (0.014)	0.112*** (0.014)
Bosnia	0.147	0.111*** (0.008)	-0.099*** (0.007)	0.225	0.160*** (0.009)	-0.165*** (0.009)
Eritrea	0.031	-0.052*** (0.010)	0.053*** (0.010)	0.044	-0.006 (0.013)	0.127*** (0.012)
Iran	0.081	-0.044*** (0.010)	0.055*** (0.010)	0.074	-0.048*** (0.012)	0.043*** (0.012)
Iraq	0.206	-0.066*** (0.008)	0.064*** (0.007)	0.079	-0.133*** (0.012)	0.066*** (0.012)
Kosovo	0.081	0.047*** (0.009)	-0.051*** (0.008)	0.095	0.009 (0.011)	-0.080*** (0.010)
Somalia	0.122	-0.111*** (0.008)	0.082*** (0.008)	0.142	-0.217*** (0.010)	0.232*** (0.010)

Note: ***/***Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. Regression coefficient gives the differential from the weighted average country of birth effect in the refugee sample. See also note to Table 2.

Social insurance reflects non-employment and origin country differentials tend to have the opposite sign, but similar magnitude as the employment coefficients; see Table 6. Among women, there are some exceptions with less social insurance claims than expected from the observed employment differential (e.g., Kosovo), while others (e.g., Eritrea) have higher social insurance rates than suggested by employment alone.

Origin country effects for family immigrants with an immigrant reference person are reported in Table 7. The origin country differentials are even more dispersed than for refugees. Among men, the largest groups are family immigrants from Pakistan and Turkey, the main source countries of the immigrant wave of the 1970s. Family migrants from Somalia and Iraq have low employment and high social insurance rates, among men as well as women. Family immigrants from Sri Lanka, on the other hand, are more likely to be employed and relatively few claim social insurance. Table 7 also reveals a distinct gender differential among Pakistanis. While men have high employment rates, few women work. For female family immigrants from Pakistan, even social insurance uptake is significantly below average suggesting widespread traditional female household responsibilities.

Table 7: Country of birth fixed effects, main source countries in samples of family immigrants with immigrant reference person

	Men			Women		
	Percent of sample	Employment	Social insurance	Percent of sample	Employment	Social insurance
	(1)	(2)	(3)	(4)	(5)	(6)
Iran				0.043	-0.009 (0.012)	0.027*** (0.010)
Iraq	0.039	-0.152*** (0.018)	0.142*** (0.017)	0.101	-0.149*** (0.010)	0.094*** (0.008)
Morocco	0.044	0.004 (0.017)	0.016 (0.016)			
Pakistan	0.151	0.080*** (0.011)	-0.063*** (0.010)	0.100	-0.180*** (0.010)	-0.070*** (0.008)
Somalia	0.065	-0.291*** (0.016)	0.208*** (0.015)	0.054	-0.304*** (0.010)	0.252*** (0.011)
Sri Lanka	0.042	0.105*** (0.014)	-0.078*** (0.012)	0.090	0.120*** (0.010)	-0.035*** (0.008)
Turkey	0.118	-0.013 (0.012)	0.020* (0.011)	0.067	-0.058*** (0.011)	0.027*** (0.010)
Vietnam	0.045	0.016 (0.017)	-0.002 (0.016)	0.070	0.124*** (0.011)	-0.032*** (0.009)

Note: ***/***Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. Regression coefficient gives the differential from the weighted average country of birth effect in the sample of immigrants with an immigrant reference person. See also note to Table 2.

Employment and social insurance differentials among family migrants with a Norwegian born reference person are shown in Table 8. Note that this admission class will include immigrants reuniting with both ethnic Norwegian reference persons and Norwegian-born children of immigrant parents, and that this will vary across family immigrant source countries. In this admission group, men from Pakistan and Kosovo have the highest employment rates, while North African men are less likely to be employment and more frequently receive social insurance. The origin country mix of female family migrants with a Norwegian-born reference person is quite different from that of men, dominated by immigrants from Thailand and the Philippines who have above average employment rates when compared to other female family immigrants. Yet, even after adding the estimated five-percentage points advantage, the employment rate after 10–15 years is significantly below that of native women (see

Figure 6). Again, Pakistani women have very low employment rates, although, unlike for other groups, low employment is not mirrored by high rates social insurance dependency. In general, the heterogeneity with respect to origin country is relatively modest among family immigrants with a Norwegian-born reference person.

Table 8: Country of birth fixed effects, main source countries in samples of family immigrants with Norwegian reference person

	Men			Women		
	Percent of sample (1)	Employment (2)	Social insurance (3)	Percent of sample (4)	Employment (5)	Social insurance (6)
Algeria	0.032	-0.101*** (0.027)	0.121*** (0.025)			
Brazil				0.045	-0.032*** (0.012)	0.021*** (0.009)
China				0.020	-0.038*** (0.016)	-0.006 (0.010)
Gambia	0.027	-0.073*** (0.028)	0.052** (0.026)			
Kosovo	0.033	0.060*** (0.018)	-0.029* (0.017)			
Morocco	0.123	-0.053*** (0.015)	0.057*** (0.014)			
Pakistan	0.115	0.069*** (0.013)	-0.054*** (0.012)	0.024	-0.307*** (0.017)	0.008 (0.011)
Philippines				0.169	0.025*** (0.009)	-0.024*** (0.007)
Russia				0.130	0.017* (0.010)	0.005 (0.007)
Thailand				0.329	0.045*** (0.009)	-0.013** (0.006)
Tunisia	0.033	-0.117*** (0.024)	0.121*** (0.022)			
Turkey	0.200	0.004 (0.011)	-0.003 (0.010)			
Ukraine				0.027	-0.009 (0.014)	0.017* (0.010)

Note: */**/** Statistically significant at the 10/5/1 percent level.

Standard errors, clustered within individual, are reported in parentheses. Regression coefficient gives the differential from the weighted average country of birth effect in the sample of immigrants with a Norwegian reference person. See also note to Table 2.

1.5.3 *On the roles of education and selective outmigration*

Perhaps the most striking finding of the empirical analysis is that the employment gap between natives and refugees/family immigrants widens after some years of residence, mirrored by a comparable rise in immigrant reliance on social insurance. The analysis also shows that acquisition of education in Norway is associated with substantial employment gains. The years of residence (YSM) profiles in Figures 6 and 7 are drawn, however, holding educational attainment constant. For an immigrant who acquires schooling after admission, there will be a predicted boost in employment from that year onwards, not captured in the profile. For example, among refugees and family immigrants with ten years of residence, around one in three have acquired their highest educational attainment in Norway. Over the next eight years, an additional ten percentage points upgrade their education. (Detailed statistics are available upon request.) If host-country schooling is an outcome of the integration process, such post-admission educational attainment may be a “bad control” in the analysis. In particular, a concern is that the finding of widening employment gaps might be the result of such model specification issues.

Table 9: Estimates of change in immigrant-native employment and social insurance differentials between 9 and 18 years since admission, using pre-admission educational attainment and low-education native reference groups

	Men			Women		
	Refugee (1)	Family to immigrant (2)	Family to Norwegian (3)	Refugee (4)	Family to immigrant (5)	Family to Norwegian (6)
A. Employment						
1. Baseline (Fig 6)	-0.092*** (0.004)	-0.091*** (0.008)	-0.128*** (0.011)	-0.055*** (0.006)	-0.035*** (0.006)	-0.080*** (0.009)
2. Fix educ pre-admission	-0.074*** (0.004)	-0.086*** (0.009)	-0.123*** (0.011)	-0.033*** (0.006)	-0.005 (0.006)	-0.056*** (0.009)
3. Drop educ from model	-0.070*** (0.005)	-0.079*** (0.010)	-0.115*** (0.011)	-0.024*** (0.006)	0.008 (0.006)	-0.039*** (0.009)
4. Low educ ref	-0.063*** (0.006)	-0.089*** (0.012)	-0.126*** (0.013)	-0.036*** (0.007)	-0.027*** (0.007)	-0.070*** (0.010)
B. Social insurance						
1. Baseline (Fig 7)	0.071*** (0.004)	0.080*** (0.009)	0.096*** (0.010)	0.077*** (0.006)	0.062*** (0.006)	0.070*** (0.008)
2. Fix educ pre-admission	0.056*** (0.004)	0.082*** (0.009)	0.097*** (0.010)	0.062*** (0.006)	0.059*** (0.006)	0.067*** (0.008)
3. Drop educ from model	0.050*** (0.004)	0.077*** (0.009)	0.089*** (0.011)	0.053*** (0.006)	0.045*** (0.006)	0.049*** (0.008)
4. Low educ ref	0.043*** (0.005)	0.088*** (0.011)	0.100*** (0.013)	0.060*** (0.007)	0.074*** (0.007)	0.076*** (0.010)

Note: ***/**/*Statistically significant at the 10/5/1 percent level.

Standard errors are reported in parentheses. Regression coefficients give the change in immigrant-native differential between 9 and 18 years since entry. Specification 1 is identical to that underlying Figures 6 and 7; specification 2 restricts attainment at pre-admission levels for immigrants and age 30 for natives; specifications 3 and 4 drop all educational attainment terms from the regression model; and specification 4 further restricts the native reference group to those without completed upper secondary education at age 30.

To address this concern, in Table 9 we report results from a number of sensitivity checks, focusing on refugees and family immigrants and the span of residence years where we observe widening employment gaps for both males and females (i.e.,

between 9 and 18 years after admission). First, row A₁ lists the predicted change in the immigrant-native employment differential over the time interval based on the model underlying Figure 6, showing, for example, that the employment gap between male refugees and natives increases by 9.2 percentage points between 9 and 18 years since entry. Next, row A₂ shows the predicted change from an alternative model specification that ignores any post-admission educational attainment. Compared to the predictions in Figure 6, the widening of the employment gap is slightly lower, and more so for women, but the overall patterns are very similar. Even when we drop any information on educational attainment from the empirical model, results show a widening employment gap, at least for men (see row A₃). Recall that this exercise focuses on the *change* in the gap over a nine-year period, and not the predicted size of the gap, which grows larger when the specification ignores differences in educational attainment between immigrants and natives. Finally, in row A₄, we report the estimated change in the employment gap when the native reference group consists of those without completed upper secondary education. Again, while the estimated change in the employment gap is attenuated (by approximately one third) for refugees, the predictions are very similar to those in Figure 6 for other groups. Finally, in Panel B we repeat the same checks for the social insurance outcome. As the panel shows, the qualitative finding of more rapid increase in social insurance uptake among refugees and family immigrants, relative to natives, is not sensitive to specification or model inclusion of educational attainment, nor to the use of low-education native control groups.

A general concern in studies of immigrant assimilation is that employment profiles over years since entry, like those in Figures 6 and 7, may be impacted by selective outmigration. In our context, one might worry that the widening employment gap is an artifact of positively selected outmigration, whereby immigrants with better employment prospects are more likely to leave the country over time. Again, focusing on refugees and family immigrants, Table 10 reports various checks that all *reject* the notion that the estimated decline in employment is caused by selective outmigration.

First, panel A shows that a fairly small fraction (about 6% for most groups) leaves the country between 9 and 18 years after entry, limiting the scope for bias from selective outmigration. Second, when we examine the employment careers of outmigrants and stayers during their first nine years in the country, we find that the probability of staying for another nine years correlates positively with early employment success (see panel A, row labelled "Coeff of average employment years 1–

9"). The implication is that any selection is the exact opposite of what could have generated a declining employment rate in the unbalanced sample. Third, when we re-estimate the full model based on the sample of individuals present after both 9 and 18 years (see panel B, "balanced panel"), the relative employment drop and social insurance uptake over the nine-year period are comparable to those presented Table 9 (rows labelled "baseline"). There is indeed a tendency for the estimated employment drop to become a bit smaller in the balanced panel, but given the results in panel A, this is more likely to result from the considerable changes in cohort composition implied by the requirement of at least 18 years stay in Norway than from selective outmigration. The central conclusion to be drawn from Table 10 is in any case that the significant increase in the immigrant-native employment differential after nine years of residence is a highly robust result.

Table 10: Accounting for outmigration, samples of refugees and family immigrants

	Men			Women		
	Refugee	Family to immigrant	Family to Norwegian	Refugee	Family to immigrant	Family to Norwegian
	(1)	(2)	(3)	(4)	(5)	(6)
A. Prob(remain in Norway between 9 and 18 yrs since entry)						
Stay rate	0.932	0.936	0.902	0.948	0.934	0.952
Coeff of avg empl yrs 1–9	0.084*** (0.009)	0.158*** (0.020)	0.169*** (0.029)	0.059*** (0.009)	0.073*** (0.009)	0.071*** (0.012)
Observations	8,004	1,868	1,401	5,917	6,251	2,838
B. Change in immigrant native difference between 9 and 18 yrs since entry						
Balanced panel						
Employment	-0.088*** (0.005)	-0.074*** (0.012)	-0.094*** (0.014)	-0.067*** (0.007)	-0.016** (0.008)	-0.037*** (0.011)
Social insurance	0.058*** (0.005)	0.056*** (0.012)	0.061*** (0.013)	0.067*** (0.007)	0.058** (0.007)	0.041*** (0.011)
Observations	135,900	26,678	22,022	101,371	93,742	42,138

Note: ***/***Statistically significant at the 10/5/1 percent level.

Standard errors are reported in parentheses. Samples in Panel A are restricted to those who entered before 1998 and who remained in Norway at least 9 years. The coefficient of the average individual employment rate stems from a regression of an indicator variable for whether or not the immigrant remained in Norway 18 years after entry on the average employment rate yrs 1–9 and the individual regressors listed in note to Table 2. Regression coefficients in Panel B give the differential between 18 and 9 years since entry in the balanced panel of immigrants included the regression sample at least 18 years since entry.

1.6 Discussion and concluding remarks

The main message coming out of our longitudinal analyses is that the labor market integration of immigrants from low-income countries tends to lose steam after just a few years in Norway, and that the integration process then goes into reverse. After five to ten years of residence, virtually all immigrant groups from low-income countries – regardless of gender and admission class – experience declining employment rates and increasing social insurance dependency rates relative to natives with shared characteristics. At first sight, this stands in sharp contrast to recent European cross-sectional evidence suggesting that the immigrant-native employment differentials are *reduced* with years since migration (Dustmann *et al.*, 2016; Dumont *et al.*, 2016). However, given the large heterogeneity in integration patterns and employment levels across different immigrant groups, particularly related to origin country, gender, and admission class, these apparently contradictory results are not necessarily incompatible. In cross-sectional data, the empirical association between labor market success and years since migration will not only capture the impacts of time spent in the host country, but also any differences in the composition of arrival cohorts. For example, if – for some reason – cohorts that arrived 10–20 years ago are more successful than more recent cohorts, this will show up in a cross-sectional analysis as a sign of improved labor market integration over time. Hence, we will argue that it is difficult to assign a particular causal interpretation to findings based on cross-sectional data, and that in order to identify the causal impacts of years since migration, it is necessary with longitudinal data that follow the same immigrants over time. This general point does of course not rule out that there are important differences in the labor market integration processes between Norway and other European countries, and that the disintegration tendencies we have identified after a few years of residence are specific to Norway.

To the extent that immigrants from low-income countries really are subjected to a labor market disintegration process after just a few years in the host country, the big question is why this happens? While our study cannot provide fully satisfactory answers to this question, our findings do point us in some specific directions. First, it is clear that business cycles play a very important role, as the impact of local labor market conditions on individual employment propensity is an order of magnitude larger for immigrants than for natives. This is not only a reflection of the fact that newcomers in the labor market in general are more sensitive with respect to labor demand

fluctuations. Recent empirical evidence shows that already employed immigrants from low-income countries are heavily overrepresented in precarious firms (firms with a high probability of downsizing or closing down in the near future), and that the subsequent consequences of job loss in terms of future non-employment are also much more severe for immigrants than for their native co-workers (Bratsberg *et al.*, 2016a).

Second, we have found that human capital is a very strong predictor for labor market success, and that additional education acquired in Norway can be of great value, particularly for refugees and female family immigrants, even when it is below their highest educational attainment from abroad.

Third, we have shown that declining employment rates are almost fully mirrored by increasing reliance on social insurance transfers, particularly for male immigrants. Since the major social program behind this pattern is that of disability insurance, this suggests that poor and deteriorating health is an important driver behind labor market exit. Alternatively, it may reflect that immigrants are overrepresented in jobs that are physically and/or mentally demanding, such that a given health problem become a greater barrier for immigrants than for natives. Existing empirical evidence from Norway has shown that there is a considerable grey area between unemployment and disability, and that disability insurance claims frequently are triggered by job loss (Rege *et al.*, 2009; Bratsberg *et al.*, 2013). The high and rapidly increasing rates of social insurance dependency among immigrants from low-income countries can also to some extent be explained by the fact that these groups on average have higher social insurance replacement ratios, and respond more strongly to these incentives than other immigrants and natives (Bratsberg *et al.*, 2016b). The higher replacement ratios among LDC immigrants result from a combination of a progressive social insurance system (with a relatively high floor and additional allowances for children) and poor labor market opportunities (with low wages and presumably also relatively poor working conditions). The larger behavioral responses result from a higher fraction of immigrants being in a situation where there is a small overall utility difference between the states of employment and non-employment; see Bratsberg *et al.* (2016b) for a discussion.

There is of course no reason to believe that the employment and earnings potentials among immigrants are exactly the same as those of natives. After all, most of the immigrants from low-income countries are admitted on humanitarian grounds, many have poor language skills and low (marketable) education, and a considerable fraction has been through traumatic events and arrive in the host country with serious health impediments. There also exists empirical evidence indicating that there is a

tendency for Norwegian employers to discriminate against job applicants with foreign-sounding names (Birkelund *et al.*, 2014). However, while these factors can explain why employment rates may never reach parity with natives, they cannot readily explain why employment rates decline after just a few years in the country. This latter finding indicates that potentially productive resources are underused, and thus that there is scope for policy to improve on the outcomes.

Given the much higher employment levels found among immigrants with secondary or tertiary education acquired in Norway, more intensive human capital investment is an obvious policy candidate. Although rapid introduction to the labor market probably is of great value for many immigrants, our study also illuminates that finding a first job is not sufficient to ensure labor market participation over the long haul. These first jobs are apparently often short-lived, and in order to obtain a more solid foothold in the labor market, more adaptable human capital may be necessary, including a minimum level of education and command of the majority language. In fact, steps have already been taken in this direction, e.g., through the establishment in 2004 of the introduction program targeted at newly arrived humanitarian immigrants. The program is designed as a two-year education/work program, which from 2016 also facilitates full-time secondary education.

As our study also indicates a major role for social insurance programs, a second policy candidate is to reform these programs in order to improve work incentives. One possibility is to make them less attractive by reducing the benefit levels. However, an undesirable side effect of this strategy could be to increase inequality and raise poverty in immigrant families, potentially with adverse consequences for the second generation. Alternatively, the social insurance programs could be designed in a more job-oriented fashion, e.g., by encouraging combinations of graded disability insurance and adapted full-time work; i.e., spending public money on subsidizing employment rather than non-employment.

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Appendix

Table A1: Estimated difference in immigrant-native employment differential relative to that at 9 years since entry under alternative education specifications; refugee samples

Years since entry	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	-0.330*** (0.003)	-0.365*** (0.003)	-0.362*** (0.003)	-0.368*** (0.004)	-0.320*** (0.004)	-0.393*** (0.004)	-0.396*** (0.004)	-0.372*** (0.005)
2	-0.220*** (0.003)	-0.252*** (0.003)	-0.250*** (0.003)	-0.256*** (0.004)	-0.261*** (0.004)	-0.330*** (0.004)	-0.333*** (0.005)	-0.314*** (0.005)
3	-0.074*** (0.003)	-0.099*** (0.003)	-0.098*** (0.003)	-0.104*** (0.004)	-0.162*** (0.005)	-0.223*** (0.005)	-0.226*** (0.005)	-0.210*** (0.005)
4	0.000 (0.003)	-0.020*** (0.003)	-0.018*** (0.003)	-0.023*** (0.004)	-0.079*** (0.005)	-0.129*** (0.005)	-0.131*** (0.005)	-0.119*** (0.005)
5	0.024*** (0.003)	0.009** (0.003)	0.009** (0.003)	0.006 (0.004)	-0.037*** (0.005)	-0.075*** (0.005)	-0.076*** (0.005)	-0.067*** (0.005)
6	0.023*** (0.003)	0.012*** (0.003)	0.012*** (0.003)	0.010* (0.004)	-0.013** (0.005)	-0.039*** (0.005)	-0.040*** (0.005)	-0.033*** (0.005)
7	0.016*** (0.003)	0.009** (0.003)	0.009** (0.003)	0.008* (0.004)	-0.005 (0.005)	-0.020*** (0.005)	-0.021*** (0.005)	-0.016** (0.005)
8	0.008* (0.003)	0.005 (0.003)	0.005 (0.003)	0.005 (0.004)	-0.002 (0.005)	-0.009 (0.005)	-0.008 (0.005)	-0.006 (0.006)
9 (ref)								
10	-0.012*** (0.003)	-0.010** (0.003)	-0.010** (0.003)	-0.010* (0.004)	-0.003 (0.005)	0.002 (0.005)	0.002 (0.005)	-0.001 (0.006)
11	-0.023*** (0.003)	-0.018*** (0.003)	-0.018*** (0.003)	-0.016*** (0.004)	-0.007 (0.005)	0.002 (0.005)	0.003 (0.005)	-0.001 (0.006)
12	-0.032*** (0.003)	-0.026*** (0.003)	-0.025*** (0.003)	-0.022*** (0.004)	-0.021*** (0.005)	-0.011* (0.005)	-0.008 (0.005)	-0.014* (0.006)
13	-0.044*** (0.003)	-0.037*** (0.003)	-0.035*** (0.004)	-0.031*** (0.004)	-0.038*** (0.005)	-0.025*** (0.005)	-0.021*** (0.005)	-0.028*** (0.006)
14	-0.060*** (0.004)	-0.051*** (0.004)	-0.049*** (0.004)	-0.044*** (0.004)	-0.045*** (0.005)	-0.030*** (0.005)	-0.025*** (0.005)	-0.032*** (0.006)
16	-0.088*** (0.004)	-0.074*** (0.004)	-0.070*** (0.004)	-0.066*** (0.005)	-0.050*** (0.006)	-0.033*** (0.006)	-0.025*** (0.006)	-0.036*** (0.007)
17	-0.095*** (0.004)	-0.078*** (0.004)	-0.074*** (0.004)	-0.069*** (0.005)	-0.053*** (0.006)	-0.034*** (0.006)	-0.025*** (0.006)	-0.038*** (0.007)
18	-0.092*** (0.004)	-0.074*** (0.004)	-0.070*** (0.005)	-0.063*** (0.006)	-0.055*** (0.006)	-0.033*** (0.006)	-0.024*** (0.006)	-0.036*** (0.007)
19	-0.093*** (0.005)	-0.074*** (0.005)	-0.068*** (0.005)	-0.060*** (0.006)	-0.050*** (0.006)	-0.026*** (0.006)	-0.015* (0.007)	-0.027*** (0.007)
20	-0.099*** (0.005)	-0.078*** (0.005)	-0.072*** (0.005)	-0.063*** (0.006)	-0.047*** (0.007)	-0.019** (0.007)	-0.005 (0.007)	-0.017* (0.008)
Comment	Baseline	Fix educ pre-migr	Drop educ	Low-educ reference	Baseline	Fix educ pre-migr	Drop educ	Low-educ reference

Note: */**/** Statistically significant at the 10/5/1 percent level.

All estimates are relative to the predicted immigrant-native differentials at nine years of residence.