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Immigrants in Denmark: Access to Employment, Class Attainment and Earnings in a High-Skilled Economy

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ABSTRACT

This study examines employment access, class attainment, and earnings among native-born and first-generation immigrants in Denmark using Danish administrative data from 2002. Results suggest large gaps in employment access between native-born Danes and immigrants, as well as among immigrant groups by country of origin and time of arrival. Non-Western immigrants and those arriving after 1984 are at a particular disadvantage compared to other immigrants, a finding not explained by education differences. Immigrants are more likely to be employed in unskilled manual jobs and less likely to be employed in professional and intermediate-level positions than native-born Danes, although the likelihood of obtaining higher-level positions increases as immigrants' time in Denmark lengthens. Class attainment and accumulated work experience explain a significant portion of native-immigrant gaps in earnings, but work experience reduces native-immigrant gaps in class attainment for lower-level positions only. The Danish "flexicurity" model and its implications for immigrants living in Denmark are discussed.

INTRODUCTION

The surge in immigration is one of the most important changes in Western labour markets in the past half century. Although important differences exist across countries (e.g., time of arrival, intensity of influx,

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and motivation for migration), a common characteristic is the poor labour market performance of many immigrants relative to natives. Denmark is no exception, reporting one of the largest native-immigrant gaps in participation and unemployment rates among OECD countries (European Commission, 2003; OECD, 2007a). In 2004, for example, the employment rate was 81.1 per cent for native-born Danes compared to 72.9 per cent for immigrants from OECD countries and 59.5 per cent for immigrants from non-OECD countries (Liebig, 2007). At the same time, the unemployment rate was almost four times higher for immigrants from non-OECD countries than for native Danes (Liebig, 2007). Not surprising, the resulting deficit in work experience is a key factor driving the persistent native-immigrant gap in earnings (Husted et al., 2001; Skyt Nielsen et al., 2004).

Explanations for differences in labour market performance between immigrants and native-born Danes often centre on individual-level characteristics. For example, immigrants who migrated to fill low-end jobs as guest workers, to reunite with their family members, or to seek asylum or refuge brought varying levels of education, work experience, and expectations for their future to Denmark. Research on immigrants' integration in general, however, points to the importance of structural factors in addition to immigrants' human capital (e.g., Kogan, 2007; Portes, 1995; Reitz, 2003). Denmark is an advanced service economy characterized by a high proportion of professional occupations and high requirements for industry- and job-specific skills obtained through vocational education and on-the-job training. This characteristic of the Danish economic structure reduces the demand for low-skilled labour as well as for general skills, potentially placing immigrants at a disadvantage relative to native-born Danes.

The present study focuses on three different but interrelated labour market outcomes – employment access, class attainment, and earnings – and examines variation by country of origin, time of arrival, and gender. Compared to native-born Danes, we expect immigrants to be less successful in the labour market and to be at a particular disadvantage when competing for jobs that require specialized skills and training. By stressing the importance of access to particular classes of jobs across different immigrant groups, this study brings both supply- and demand-side factors to the forefront of research on immigrants' integration into the labour market.

BACKGROUND

Migration History and Legislation

In response to labour market shortages in the 1960s, Denmark permitted companies to recruit a significant number of workers from abroad, mostly from Turkey, Yugoslavia and Pakistan (OECD, 2003). The primary increase in the number of immigrants, however, occurred after the guest-worker policy ended in 1973, when family reunification and asylum became the two major channels of legal immigration to Denmark. In particular, the year 1985 marked the beginning of a surge of refugees and asylum seekers from non-Western countries. The annual growth rate of first-generation immigrants from non-Western countries reached 15 per cent in 1986, with the majority of asylum seekers migrating from Iran and the Occupied Palestinian Territories. Ten years later, the annual growth rate of non-Western immigrants rose to 17.4 per cent, with asylum seekers migrating predominantly from the Balkan states, Afghanistan and Somalia (Danish Ministry of Refugee, Immigration and Integration Affairs, 2006; OECD, 2003). In 2006, immigrants constituted almost 10 per cent of the Danish population (Statistics Denmark, 2009), with immigration related to family reunification and asylum decreasing to approximately a third of all migration movements and persons moving under the free-movement regime of the European Economic making up the majority of new immigrants (OECD, 2008).

Under the Danish Aliens Act, Nordic nationals are allowed to enter and reside in Denmark without special permission, and European Union nationals can obtain a special residence certificate.¹ Foreign-born relatives of immigrants may also, under certain conditions, obtain residence permits. Finally, residence and work permits can be granted to asylum seekers, although they are not allowed to accept paid work during the examination of their cases. In 2001, the average duration of processing the applications was approximately two to three months for family reunification applications and six months for asylum applications. Once the refugee status has been approved, a residence permit is granted, which carries with it the right to work (Danish Immigration Service, 2001).

Immigrants in the Danish Labour Market

Prior research on the labour market performance of immigrants in Denmark suggests that the inability to secure stable work is the primary

obstacle hindering their long-term economic success (Hummelgaard et al., 1995; Liebig, 2007; Pedersen, 2005; Roseveare and Jorgensen, 2004; Schultz-Nielsen, 2000). Specifically, immigrants experience shorter periods of employment and longer spells of unemployment and welfare assistance than their Danish counterparts (Blume and Verner, 2007; Hummelgaard et al., 1995; Roseveare and Jorgensen, 2004). Immigrants from predominantly refugee-sending countries have even lower employment probabilities than other immigrants (Husted et al., 2001). Low rates of labour market participation of immigrants in Denmark have been a source of concern for researchers, policymakers, and commentators alike. For example, a popular hypothesis that emerged at the end of the 1990s was that high social benefits and, to a lesser extent, high wage compression, reduce low-income immigrants' incentive to work (Nannestad, 2004; OECD, 2002). This concern prompted the Danish government in 2001 to reduce social assistance for all immigrants residing in Denmark for less than seven of the past eight years and tighten entry requirements (Liebig, 2007). These measures followed a much larger labour market activation package put forward by the Ministry of Refugee, Immigration and Integration Affairs. Most activation measures were enacted after 1999 and included the introduction of three-year integration programmes offering financial incentives to the municipalities to promote labour market integration of resident immigrants (Husted et al. 2007; Liebig, 2007).

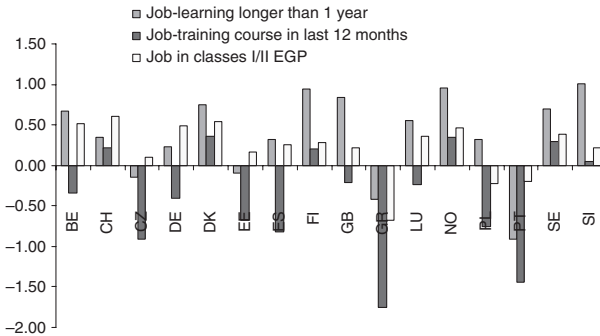
Despite providing the intellectual motivation for policy change, the extent to which welfare generosity reduces the labour market participation and employment rates of immigrants is unclear. Welfare generosity has not deterred the labour market participation of native-born Danes, whose activity rates are among the highest of all OECD countries (OECD, 2007c). Further, there is no conclusive evidence that immigrants respond differently to welfare provision than natives (Liebig, 2007; OECD, 2008). As such, research needs to explore other individual and structural-level factors that might explain differences in labour market outcomes between immigrant and native-born Danes. Examining the unique structure of the Danish labour demand is an important next step in advancing our understanding of the specific challenges faced by this population.

Danish Occupational Structure and Implications for Immigrants

The Danish occupational structure is characterized not only by a comparatively high proportion of professional occupations but also high rates of job and firm-specific training across all occupational levels (Hall

FIGURE 1

JOB-SPECIFIC SKILL STRUCTURE IN SELECTED COUNTRIES: COUNTRY LOGIT FOR THE PROBABILITY OF EMPLOYMENT IN JOBS REQUIRING LEARNING PERIODS LONGER THAN 1 YEAR, ATTENDING A JOB-TRAINING COURSE IN THE LAST 12 MONTHS AND EMPLOYMENT IN PROFESSIONAL OCCUPATIONS



Source: Authors' own elaboration from European Social Survey (2004).

Note: Reference Category is Austria. $n = 33,760$ for the job-learning-period model; $n = 34,088$ for the job-training-course model; $n = 29,730$ for the professional-class-attainment model.

and Soskice, 2001). For example, compared to their European counterparts, Danish workers are often more likely to hold professional-level jobs and engage in job learning and training (see Figure 1).² This high-skill bias of the Danish economic structure potentially disadvantages immigrants in three primary ways. First, the predominance of relatively high-level occupations, in combination with high minimum wages, results in a shortage of low-skill jobs, which often serve as entry points for the newly-arrived in other countries (Nee and Sanders, 2001). It may also increase competition between natives and the foreign born over remaining “good” jobs, for which immigrants are often less qualified (Benner and Bundgaard Vad, 2000). Second, immigrants in Denmark face another obstacle if they lack necessary vocational training that native-born Danes obtained as part of their education. In the Danish labour market, vocational qualifications acquired through schooling are often required for entry-level jobs that then provide further industry- and firm-specific skills (Hall and Soskice, 2001). Unfortunately, first-generation immigrants typically lack vocational qualifications which, in turn, hinders both their short- and long-term economic prospects. Third, if immigrants lack language and cultural-specific skills, then employers may favour Danes over immigrants in recruitment and promotion processes (Pedersen, 2005), particularly in the “flexible” Danish labour market in which employers enjoy high levels of managerial discretion.

Thus, labour markets with high proportions of professional-level jobs and jobs requiring high levels of training may generate specific barriers to migrants. The transferability of immigrants' general skills is limited, and acquiring essential work experience requires vocational qualifications and communicational skills more likely held by natives. As such, immigrants may have difficulty accessing employment and accumulating relevant work experience, which has severe consequences for their earning potential (Husted et al., 2001; Skyt Nielsen et al., 2004).

The standard earnings assimilation literature assumes that rewards in the labour market are mainly linked to individuals as bearers of human capital (Borjas, 1985; 1995; Chiswick, 1978). Accordingly, low earnings in the Danish labour market can be attributed to personal characteristics of immigrants (e.g., lower levels of education than native Danes). This literature, however, often overlooks the fact that wages are determined not only by personal characteristics of individuals but also by characteristics of the jobs they occupy and the labour market in general (Goldthorpe, 2000; Polavieja, 2005). For example, if the structure of the Danish labour market reduces immigrants' access to particular classes of jobs, then individuals with similar levels of human capital (e.g., education level) may experience different levels of returns (e.g., earnings). In this light, examining individuals' access to different classes of jobs (and not just their personal characteristics) is critical for understanding earning differences between immigrants and native-born Danes.

The Present Study

The combination of labour market flexibility, active employment policies and welfare protection defines the "golden triangle" of the Danish "flexicurity" model (see e.g., Madsen, 2003). This model is often touted as an ideal by researchers and politicians in other Western countries (Campbell and Pedersen, 2007; Esping-Andersen, 1999; Gallie and Paugam, 2000; OECD, 2007c). Yet, the Danish labour market might be viewed as a paradigmatic case of what Kesler (2006) calls low "complementarity" between native-born and immigrants because opportunities for unskilled workers and those possessing general skills only are limited (OECD, 2001). Difficulty obtaining jobs that require specific skills negatively impacts the participation, employment, and earnings of immigrants in such contexts. Hence, the unique characteristics of the Danish occupational structure, with its relatively high demand for specific skills (and not just the generosity of the welfare system), potentially play an

important role in explaining observed gaps in labour market outcomes between natives and immigrants in Denmark.

The present study examines three interrelated labour market outcomes among native-born and immigrants in Denmark – employment access, class attainment and earnings – and pays special attention to country of origin, time of arrival and gender. We expect immigrants to be less successful in the Danish labour market than native-born Danes and to be at a particular disadvantage when competing for skilled jobs. Consistent with prior research, we also expect recent arriving immigrants and those from refugee-sending countries to face more challenges in the labour market than other immigrants. By examining the labour market outcomes of various immigrant groups, especially their access to particular classes of jobs, this study contributes to research on labour market inequalities and ethnic penalties in Denmark.

METHOD

Data and Sample

To maintain consistency with other articles in this thematic cluster, we use cross-sectional Danish administrative register data from 2002. The data is based on a 10 per cent representative sample of the Danish population and 100 per cent of first-generation immigrants. The sample design allows us to investigate not only immigrant-native gaps in labour market outcomes but also within-immigrant differences by country of origin and time of arrival. Although the Danish Labour Force Survey and the administrative data are highly consistent with respect to employment and unemployment rates, the advantage of using administrative data as opposed to Labour Force Survey data is that the former is based on the total population of registered immigrants (as opposed to a sample) and thus is more reliable for estimates among small groups such as immigrants (Statistics Denmark, 2008). For this reason, comparative research often draws on administrative register data for analysing immigrants' performance in the Danish labour market (see for example OECD, 2007b). This study's sample is restricted to individuals aged 15 to 64. Consistent with immigrant research, including studies in this special issue, we exclude migrants younger than seven years of age at time of immigration because they are typically considered second-generation migrants. We also exclude full-time students and other second-generation migrants, resulting in a final sample of 551,339.

Key Measures

Labour market outcomes

As discussed we examine differences between immigrants and native-born Danes using three labour market outcomes: employment access, class attainment and earnings. First, we measure individuals' access to employment and distinguish between individuals participating in the labour market (1 = active in the labour market; 0 = inactive) and employed individuals (1 = employed; 0 = unemployed). The administrative data measures labour force status using different population registers (e.g., the Salary Information Register and the Register for Labour Market) and distinguishes between three main groups according to the International Organization for Labour (ILO) guidelines: employed, unemployed and outside the labour force. The first group comprises individuals who are either employees, self-employed or assisting spouses. Individuals are defined as unemployed if they receive payments from the unemployment insurance fund or cash benefits from job centres. Second, we measure class attainment using the five-category Goldthorpe class schema (Erikson and Goldthorpe, 1993; Goldthorpe, 2000), distinguishing among professional (Goldthorpe's classes I and II condensed), intermediate (IIIa), self-employment/owning a small business (IV), skilled manual (V and VI condensed), and unskilled manual (IIIb and VII condensed). Third, we define earnings as the natural logarithm of gross hourly wages.

Immigrant status

Individuals are classified as first-generation immigrants if they are born abroad and both parents are non-Danish, if one parent is non-Danish and one is of unknown nationality, or if both parents are of unknown nationality. Danes include individuals who were born in Denmark and have Danish citizenship, as well as those who, regardless of their country of birth, have Danish citizenship and at least one native-born parent. To account for length of time immigrants have resided in Denmark, we distinguish between six arrival cohorts (prior to 1973; 1974-1984; 1985-1989; 1990-1994; 1995-1998; 1999-2001). About 60 per cent of "old" migrants (arriving prior to 1985) and 80 per cent of "new" migrants (arriving after 1984) are from non-Western countries. Less than half of old migrants arrived before 1973, and they have almost the same average amount of work experience in Denmark as native Danes (15 years versus 16 years for men, 12 years versus 14 years for women). New migrants are distributed almost evenly across the four arrival cohorts:

1985-89, 1990-94, 1995-98, and 1999-2001. They have accumulated little work experience in Denmark (3 years for men, 2 years for women), and they are more likely to be married or cohabiting and more likely to have children younger than 15 years of age in the household than Danes (see Table 1 for descriptive statistics).

Performance over time

Measuring immigrants' improvement in labour market outcomes with length of time in Denmark is a particular challenge in cross-sectional data because year of arrival and years since migration add up to current

TABLE 1
DESCRIPTIVE STATISTICS FOR SELECTED STUDY VARIABLES

	Danes	West-Old	Non West-Old	West-New	Non West-New
Female	0.49	0.52	0.46	0.44	0.52
Active	0.83	0.73	0.62	0.74	0.54
Employed	0.79	0.69	0.55	0.70	0.47
Age	40.9	52.5	46.4	36.7	34.9
Child<15 in household	0.28	0.18	0.38	0.35	0.49
Couple	0.50	0.64	0.73	0.50	0.69
Arrival cohort					
1999-2001	0.00	0.00	0.00	0.30	0.22
1995-1998	0.00	0.00	0.00	0.28	0.32
1990-1994	0.00	0.00	0.00	0.23	0.23
1985-1989	0.00	0.00	0.00	0.18	0.24
1973-1984	0.00	0.48	0.61	0.00	0.00
<1973	0.00	0.52	0.39	0.00	0.00
Education					
Lower secondary	0.32	0.18	0.39	0.09	0.33
Upper secondary-general	0.08	0.06	0.08	0.09	0.12
Upper secondary-vocational	0.36	0.38	0.22	0.24	0.20
Lower tertiary	0.04	0.07	0.04	0.07	0.04
Intermediate tertiary	0.13	0.18	0.08	0.12	0.07
Higher tertiary	0.05	0.10	0.05	0.12	0.05
<i>SUM tertiary</i>	<i>0.22</i>	<i>0.35</i>	<i>0.18</i>	<i>0.31</i>	<i>0.16</i>
Missing/incomplete	0.03	0.03	0.13	0.27	0.18
Number of observations	315,280	29,992	39,531	33,948	132,588
Education (excluding missings)					
Lower secondary	0.33	0.18	0.45	0.12	0.41
Upper secondary-general	0.08	0.06	0.09	0.13	0.15
Upper secondary-vocational	0.37	0.39	0.26	0.33	0.25
Lower tertiary	0.04	0.08	0.05	0.09	0.05
Intermediate tertiary	0.13	0.19	0.09	0.17	0.09
Higher tertiary	0.05	0.10	0.06	0.16	0.05
<i>SUM tertiary</i>	<i>0.22</i>	<i>0.37</i>	<i>0.20</i>	<i>0.42</i>	<i>0.20</i>

Source: Danish administrative data, 2002.

year (in this case 2002). As discussed, we distinguish several arrival cohorts to measure time spent in Denmark and to capture the economic context at arrival. Further, we measure years of work experience accumulated in Denmark for all employed individuals. We treat work experience and arrival cohort as alternative measures of time because they are highly collinear in the Danish data. In a cross-sectional framework, a positive effect of these variables on immigrants' occupational attainment and earnings can only be interpreted as indication of labour market improvement over time if there are no significant differences in the "quality" of immigrants arriving at different points in time (Borjas, 1985; 1995). Also, improvements over time are not synonymous with assimilation because the reference group for the former is the individual herself and for the latter is the native population. Although assimilation cannot be measured directly in cross-sectional data, a comparison of native-immigrant gaps before and after controlling for work experience allows us to infer whether immigrants "catch up" with their native counterparts as they accumulate work experience in Denmark. Again, this interpretation requires the assumption that there are no unobserved "quality" differences among immigrants with different amounts of work experience.

Education

We measure education with six dummy variables: lower secondary, upper secondary (general and vocational), and tertiary (lower, intermediate, and higher). We also include a category for individuals missing on the educational measure (10% of "old" migrants and 20% of "new" migrants).³ Of those with valid educational information, 55 per cent of non-Western immigrants, 40 per cent of Danes, and 25 per cent of Western immigrants hold a lower secondary or an upper secondary-general school degree. These levels of educational attainment do not qualify individuals for access to particular occupations in the Danish labour market. For example, although an upper secondary general degree qualifies individuals for further study, it does not qualify them for skilled employment. About 60 per cent of Danes hold a qualifying (vocational or tertiary) degree in contrast to approximately 45 per cent of immigrants from non-Western countries. These averages, however, mask large differences among immigrants from different countries of origin. For those arriving after 1973, the proportion of immigrants with lower secondary schooling only ranges from 70 per cent for Turks, 60 per cent for Lebanese, approximately 50 per cent for Pakistani, Somali, and Vietnamese, about 40 per cent for immigrants from Morocco, Iran,

Afghanistan, and former Yugoslavia, and below 20 per cent for those from Iraq, Eastern Europe and EU-15. This suggests there is no consistent pattern in educational attainment among immigrants from predominantly refugee-sending countries such as Somalia, who have relatively low levels of education, and those from Iraq, who attain more education (not presented in table).

Analyses

Our first goal is to examine access to employment among labour market participants in Denmark. To do so, we use a two-step Heckman *probit* selection model. The decision to participate in the labour market and the probability of employment are assumed to be jointly and sequentially determined. We use the number of children under age 15 living in the household and marital status as exclusion restrictions. Parameter estimates from the two-step Heckman selection model are then compared to standard *probit* estimates that do not account for selection into employment. Both models control for age (centred) and its square term, educational level, and the rate of unemployment of respondents' municipality. These and all subsequent analyses are run separately for men and women.

To address our second goal, the investigation of class attainment, we use the five-category Goldthorpe class schema. Goldthorpe classes are unranked categories based not only on employees' skill levels but also on their occupational positions that cannot be ranked (e.g., employee, employer, self-employed). Following standard practice in stratification research, we model class attainment by fitting multinomial regression models to the Goldthorpe class schema (see for example, Breen, 2004; Heath and Cheung, 2007). Further, multinomial models are appropriate given the unranked nature of our outcome variable. We estimate the odds of employment in a professional class (Goldthorpe's classes I and II condensed), intermediate class (IIIa), self-employment/owning a small business (IV) and employed in a skilled manual class (V and VI condensed) relative to employment in unskilled manual occupations (IIIb and VII condensed). As before, we control for age and its square term, educational level, and the rate of unemployment in the respondent's municipality. We also control for work experience (centred) and its squared term as well as type of industry (agriculture; manufacturing; energy and water; construction; trade and hotel; transport and communications; finances; public administration and service; and missing values). We are unable to control for these variables in our models of

access to employment because this information is available for employed individuals only.

Finally, we use standard OLS regression techniques to address our third goal: the examination of earnings across employed immigrants and native-born Danes. Consistent with prior models, we control for age, education, municipality unemployment rate, work experience, and industry. We also include controls for type of sector (public versus private) and Goldthorpe's classes to assess whether class attainment explains immigrant-native gaps in earnings.

All models are fitted for both the full sample including Danes and all immigrants as well as for a sample of immigrants arriving after 1973 only. This allows us to estimate native-immigrant gaps as well as differences *within* immigrants depending on country or region of origin and time of arrival (available for immigrants arriving after 1973 only). Additionally, our full sample models estimate separate coefficients for immigrants arriving from Western versus non-Western countries. The former include those immigrants from Norway, Iceland, Liechtenstein, Luxembourg, Monaco, Andorra, San Marino, Switzerland, Vatican, Canada, USA, North America, Australia, New Zealand, and EU-15 countries. Also, we distinguish between those arriving before and after 1985, as this year marks a substantial influx of asylum seeking immigrants to Denmark.

RESULTS

Participation and Employment

In Table 2, we begin by examining labour force status by gender for native Danes and selected immigrant groups. In line with previous research, we find that immigrants have lower employment rates than Danes, with only about 50 per cent of new immigrant men from non-Western countries being employed. A closer look at the immigrant sample indicates that employment rates are lowest among immigrants from refugee-sending countries (e.g., Somalia, Iran, Afghanistan, and Lebanon). Although employment rates appear to be related to refugee status, the data suggest that unemployment rates are driven more by educational attainment than refugee status.

Table 3 presents probabilities for avoiding unemployment by gender. The first four columns show results using the Heckman *probit* selection

TABLE 2
LABOUR FORCE STATUS OF DANES AND IMMIGRANTS IN DENMARK,
2002, BY GENDER

	Employed		Unemployed		Students		Inactive	
	Men	Women	Men	Women	Men	Women	Men	Women
Danes	79.5	73.5	3.1	3.2	3.2	3.9	14.2	19.4
West-Old	71.9	65.5	4.4	3.6	0.2	0.4	23.6	30.5
Non West-Old	59.3	49.7	7.1	6.2	0.8	1.3	32.8	42.9
West-New	69.9	61.0	3.4	2.9	5.0	7.8	21.8	28.3
Non West-New	51.7	39.1	7.3	5.7	3.9	4.4	37.1	50.8
Immigrant sample								
EU-15	72.8	65.4	3.8	3.2	2.4	4.2	21.0	27.3
West	66.7	62.1	3.0	3.0	7.8	9.2	22.5	25.7
Eastern Europe	65.0	52.9	3.5	3.6	5.5	8.1	26.0	35.3
Poland	64.1	61.8	5.9	5.8	4.2	3.0	25.8	29.5
Yugoslavia	57.1	43.5	7.5	6.7	4.2	4.7	31.2	45.1
Morocco	62.6	30.5	8.9	6.0	0.9	1.7	27.6	61.9
Somalia	24.6	10.0	8.0	3.9	6.1	4.7	61.3	81.5
Afghanistan	32.6	15.6	3.6	2.5	5.0	5.3	58.9	76.7
Vietnam	65.8	52.4	7.5	7.2	3.3	2.7	23.3	37.7
Iran	31.9	13.1	5.5	3.1	3.4	5.2	59.2	78.7
Iraq	55.1	39.5	7.8	5.3	3.2	6.1	34.0	49.1
Lebanon	36.0	13.0	9.4	6.4	1.8	2.5	52.7	78.1
Pakistan	63.7	27.2	8.1	6.4	1.1	1.5	27.0	65.0
Turkey	67.0	40.3	10.2	8.9	1.2	1.7	21.7	49.0
Asia	60.8	53.3	6.1	5.4	4.0	3.2	29.1	38.1
Africa	59.6	48.2	7.4	5.4	3.0	4.3	30.0	42.1
Other	57.1	50.3	6.1	5.5	4.5	4.9	32.3	39.3

Source: Danish administrative data, 2002. *Definition:* West-Old: Western migrants who arrived before 1985; Non West-Old: Non-Western migrants who arrived before 1985; West-New: Western migrants who arrived between 1985 and 2001; Non-West New: Non-Western migrants who arrived between 1985 and 2001. The immigrant sample consists of immigrants who arrived after 1973. West includes: EU-15 countries, plus Norway, Iceland, Liechtenstein, Luxembourg, Monaco, Andorra, San Marino, Switzerland, Vatican, Canada, USA, Australia, and New Zealand. Eastern Europe includes: EU-27 countries that are not part of EU-15, plus the former Soviet Union, Russia, and Belarus. Asia and Africa refer to geographical entities. Other includes: Central and South America, Oceania, stateless, and missing values.

method of estimation. In the employment equation, we find that immigrants have lower probabilities of avoiding unemployment (i.e., higher unemployment and lower employment probabilities) than native-born Danes, conditional on participation and net of age, age squared, education and rate of unemployment in respondents' municipality. The sole exception is Western-migrant women who arrived after 1984. Employment probabilities are generally lower for non-Western immigrants and for those arriving after 1984. Note also that educational qualifications

TABLE 3
 HECKMAN PROBIT MODEL PREDICTING EMPLOYMENT (EMPLOYMENT EQUATION) CONDITIONAL ON LABOUR FORCE PARTICIPATION (SELECTION EQUATION) AND PROBIT MODEL PREDICTING EMPLOYMENT, BY GENDER

	Heckman selection model				Probit employment model			
	Employment equation		Selection equation		(1)		(2)	
	Men	Women	Men	Women	Men	Women	Men	Women
Danes (ref.)	-0.18***	-0.09***	-0.15***	-0.15***	-0.20***	-0.11***	-0.20***	-0.11***
West-Old	-0.43***	-0.32***	-0.61***	-0.59***	-0.50***	-0.45***	-0.56***	-0.46***
Non West-Old	-0.10***	-0.01	-0.52***	-0.58***	-0.15***	-0.10***	-0.16***	-0.11***
West-New	-0.52***	-0.33***	-1.08***	-1.12***	-0.66***	-0.58***	-0.73***	-0.61***
Non West-New			0.05***	-0.31***			0.11***	-0.14***
Child<15 in HH			0.40***	0.15***			0.22***	0.16***
Couple			278,261	273,078	215,448	187,901	215,448	187,901
No. observations			62,813	85,177				
No. censored obs.			-0.38***	-0.53***				
Rho								

* $p < .10$; ** $p < .05$; *** $p < .01$.

Source: Danish administrative data 2002. Note: All models control for age, age squared, level of education and unemployment rate in municipality. The sample used in the probit model includes individuals who are active in the labour market only. Please refer to definition in Table 2.

do not substantially reduce native-immigrant gaps in employment probabilities (not presented but available upon request).

In the selection equation, we find significant differences in participation probabilities between native-born and immigrants. In general, participation gaps are larger than employment gaps with the exception of Western immigrant men who arrived before 1985. These gaps are especially large for non-Western immigrants arriving after 1984. Surprisingly, gender differences in participation gaps are not large. As in the case of employment, education does little to reduce native-immigrant gaps in participation. In summary, our results suggest lower employment and participation probabilities for immigrants, especially those from non-Western countries, a finding in line with previous research (Liebig, 2007).

Additionally, results from the Heckman selection model suggest that unobservable factors influencing participation and employment are negatively correlated and that estimates of employment probabilities would be biased without correction for selection into participation. Negative correlation implies that if an unobserved characteristic is negatively related to the decision to participate in the labour market, then it is positively related to employment (i.e., individuals are negatively selected into employment). As such, our results suggest that an increase in immigrants' participation would reduce immigrant-native employment gaps because the immigrants who choose not to participate in the labour market would have higher employment probabilities (i.e., lower unemployment risks) than those currently active.

We conduct two additional analyses to check the robustness of our findings. First, we estimate employment probabilities using a standard *probit* model that does not account for selection into the labour market. The sample is restricted to individuals who were participating in the labour market. The last two columns of Table 3 present these estimated employment probabilities. Comparing the standard *probit* estimates to those obtained with the Heckman procedure suggests that accounting for selection reduces native-immigrant gaps in employment for non-Western immigrants, both men and women, as well as for female immigrants from Western countries who arrived after 1985. Furthermore, selection into labour market accounts for the largest reduction in employment gaps for non-Western immigrants arriving after 1985, most of whom are refugees. This suggests that negative selection into employment is especially strong in these immigrant groups. Importantly, these findings are robust to controls for partnership status and presence of

children in the household in the *probit* model. In fact, gap reductions due to selection are larger after these family variables are introduced in the *probit* employment equation (see employment model 2 in Table 3). Second, we regress labour force participation on an interaction between immigrant group and level of education. We find that native-immigrant participation gaps are indeed larger for highly-educated immigrants, providing additional support that the Heckman selection model captures negative selection into employment (results available upon request).

Table 4 presents the same models as above for immigrants arriving after 1973. Here, we distinguish among five arrival cohorts and 17 countries or regions of origin. The employment equation shows significantly higher employment probabilities for those arriving between 1999 and 2001, conditional on participation in the labour market. The estimated parameter may be picking up an effect of activation policies introduced after 1999 to increase the employment rates of recent arrivals. This suggests that these policies may be having the desired effect on immigrants' employment. Yet, participation probabilities for this group (those arriving between 1999 and 2001) are the lowest among those arriving after 1973.⁵ Otherwise, differences in participation and employment probabilities among arrival cohorts are small.

In contrast, we find large differences in employment and participation by country of origin. Migrants from EU-15 countries have significantly higher employment probabilities than other immigrants, net of age, education and unemployment rate of municipality, with the exception of immigrants from other Western countries. Among men, the lowest employment probabilities are found for immigrants from Turkey, Somalia, Lebanon, Morocco, and Pakistan. Conditional on participation, employment probabilities are generally higher for women. This is consistent with women's higher propensity to choose inactivity over unemployment. Interestingly, we find that differences in employment probabilities between women from EU-15 and those from Somalia and Iran are small. Yet, in the selection equation estimates, participation probabilities are lowest for women from Somalia, Iran, Lebanon, and Afghanistan. We also find low participation among men from these countries. Importantly, this suggests that refugee status may be linked to lower participation. The standard *probit* estimates strengthen the interpretation of the importance of selection discussed above. The employment gap between EU-15 and other countries is substantially larger in the final models which exclude inactive immigrants, especially those from refugee-sending countries such as Somalia, Iran, Afghanistan and Lebanon.

TABLE 4
 HECKMAN PROBIT MODEL PREDICTING EMPLOYMENT (EMPLOYMENT EQUATION) CONDITIONAL ON LABOUR FORCE PARTICIPATION (SELECTION EQUATION) AND PROBIT MODEL PREDICTING EMPLOYMENT FOR IMMIGRANTS ARRIVING AFTER 1973 ONLY, BY GENDER

	Heckman selection model				Probit employment model			
	Employment equation		Selection Equation		(1)		(2)	
	Men	Women	Men	Women	Men	Women	Men	Women
Arrival cohort								
1999–2001	0.19***	0.39***	-0.78***	-1.00***	0.01	0.04	0.00	0.01
1995–1998	-0.11***	0.00	-0.46***	-0.60***	-0.23***	-0.24***	-0.23***	-0.26***
1990–1994	-0.10***	-0.06**	-0.27***	-0.33***	-0.18***	-0.21***	-0.18***	-0.21***
1985–1989	-0.08***	-0.05**	-0.11***	-0.11***	-0.12***	-0.11***	-0.12***	-0.10***
1974–1984 (ref.)								
Region of origin								
EU-15 (ref.)								
West	0.05	-0.02	-0.10***	0.04*	0.04	-0.01	0.04	0.00
Eastern Europe	-0.05	-0.13***	-0.21***	-0.25***	-0.08	-0.18***	-0.08	-0.20***
Poland	-0.21***	-0.21***	-0.35***	-0.19***	-0.28***	-0.27***	-0.28***	-0.28***
Yugoslavia	-0.31***	-0.31***	-0.38***	-0.37***	-0.39***	-0.45***	-0.41***	-0.45***
Morocco	-0.39***	-0.25	-0.45***	-0.96***	-0.49***	-0.67***	-0.51***	-0.67***
Somalia	-0.50***	-0.09*	-1.33***	-1.54***	-0.93***	-1.00***	-0.95***	-0.99***
Afghanistan	-0.22***	-0.12*	-1.06***	-1.13***	-0.50***	-0.69***	-0.54***	-0.65***
Vietnam	-0.28***	-0.26***	-0.33***	-0.31***	-0.35***	-0.37***	-0.37***	-0.38***
Iran	-0.29***	-0.07	-1.14***	-1.36***	-0.62***	-0.78***	-0.64***	-0.77***
Iraq	-0.32***	-0.21***	-0.64***	-0.73***	-0.47***	-0.46***	-0.47***	-0.47***
Lebanon	-0.48***	-0.25	-1.20***	-1.55***	-0.82***	-1.16***	-0.85***	-1.17***
Pakistan	-0.38***	-0.29***	-0.38***	-1.04***	-0.46***	-0.78***	-0.50***	-0.79***
Turkey	-0.51***	-0.45	-0.33	-0.66***	-0.58***	-0.74***	-0.62***	-0.75***
Asia	-0.22***	-0.20***	-0.41***	-0.28***	-0.31***	-0.28***	-0.33***	-0.30***
Africa	-0.34***	-0.23	-0.42	-0.44***	-0.43***	-0.38***	-0.44***	-0.38***

Class Attainment

We continue our analysis of labour market outcomes by examining class attainment for immigrants and native-born Danes. Table 5 presents results from multinomial regression models by gender. The first model includes the standard set of controls, the second model adds education, and the third model includes both education and work experience. In line with expectations, native-immigrant gaps in class attainment are generally higher for non-Western immigrants, as well as for those arriving after 1984. Beginning with men, the largest native-immigrant gaps are found in the relative probabilities of employment in the professional (I/II) and the intermediate (IIIa) classes relative to employment in an unskilled job (IIIb/VIIa). Controlling for education in model 2 increases the gap between natives and Western immigrants in accessing classes I and II. In contrast, it *reduces* the gap between natives and all immigrants in accessing skilled manual work (relative to unskilled manual work). This latter finding may be driven by educational differences among groups. The proportion of male Western immigrants holding a high or intermediate tertiary degree is higher than that of Danes (approximately 30 per cent versus 18 per cent), whereas the proportion of Danish men holding the vocational qualifications necessary for skilled manual work is higher (43 per cent among Danes, 41 per cent among old Western, 30 per cent among new Western, and 26 per cent among old and new non-Western immigrants).

Adding work experience in model 3 for men does not reduce gaps between immigrants and natives for professional and intermediate classes. Contrary to expectations, accounting for work experience increases all native-immigrant gaps in access to professional occupations. In contrast, controlling for work experience reduces gaps between natives and immigrants arriving after 1984 in access to skilled manual jobs. In fact, the coefficient for non-Western immigrants arriving after 1984 becomes positive and significant after introducing work experience, suggesting that this group is more likely to access skilled manual jobs with accumulated work experience.⁶ Controlling for work experience does not reduce gaps in access to skilled manual jobs between natives and immigrants arriving before 1985. In summary, our findings suggest that male immigrants face substantial barriers to accessing professional and intermediate jobs in Denmark.

Turning to women, we find that the patterns of native-immigrant gaps in class attainment differ from those found for men. Net of education,

TABLE 5
REGRESSION COEFFICIENTS FROM MULTINOMIAL LOGISTIC MODELS PREDICTING LIKELIHOOD OF ENTERING HIGHER SOCIAL CLASSES, BY GENDER

	(1)	(1-edu)	(1-edu-exp)	(2)	(2-edu)	(2-edu-exp)	(3)	(3-edu)	(3-edu-exp)	(4)	(4-edu)	(4-edu-exp)
	I / II	I / II	I / II	IIIa	IIIa	IIIa	IV a b c	IV a b c	IV a b c	V / VI	V / VI	V / VI
Men												
Danes (ref.)	0.05	-0.19***	-0.21***	0.03	-0.08	-0.01	0.01	0.01	-0.18***	-0.31***	-0.26***	-0.25***
West-Old	-0.65***	-0.59***	-0.71***	-0.97***	-0.82***	-0.76***	0.14***	0.21***	-0.26***	-0.19***	-0.02	0.03
Non West-Old	0.18***	-0.15***	-0.54***	-0.20***	-0.26***	-0.34***	0.53***	0.58***	-0.25***	-0.49***	-0.34***	-0.08**
West-New	-0.83***	-1.00***	-1.47***	-1.19***	-1.16***	-1.26***	0.07**	0.12***	-0.78***	-0.23***	-0.06***	0.20***
Non West-New	0.17	0.24	0.25									
Pseudo R2												
Women												
Danes (ref.)	0.27***	-0.03	0.12***	0.10***	0.03	0.16***	0.28***	0.27***	-0.09	0.05	0.09	0.09
West-Old	-0.84***	-0.87***	-0.70***	-0.88***	-0.77***	-0.56***	-0.02	0.02	-0.61***	0.39***	0.42***	0.41***
Non West-Old	0.57***	0.22***	0.27***	-0.01	-0.02	0.27***	0.96***	0.98***	-0.24***	0.05	0.25***	0.23***
West-New	-1.10***	-1.32***	-1.26***	-1.37***	-1.32***	-1.00***	0.29***	0.32***	-1.00***	0.29***	0.35***	0.34***
Non West-New	0.14	0.27	0.29									
Pseudo R2												

* $p < .10$; ** $p < .05$; *** $p < .01$.

Source: Danish administrative data 2002. Note: Reference outcome: Unskilled manual work (IIb, VIIa, VIIb). All models control for age, age squared, industry dummies and unemployment rate in municipality. Level of education included in specifications (1-edu) to (4-edu). Work experience included in specification (1-edu-exp) to (4-edu-exp). Number of observations: 168,747 (men), 149,542 (women). Class schema: Professional (I, II); intermediate (IIIa); self-employment/owning a small business (IVa, b, c), skilled manual (V, VI), and unskilled manual (IIb, VIIa, b).

gaps between native and immigrant women are significant for non-Western immigrants' access to professional and intermediate classes only. These gaps are largest for women arriving after 1984. Introducing work experience reduces these gaps, but they remain statistically significant. Moreover, Western immigrant women are more likely to access professional and intermediate classes than natives, after accounting for work experience. In contrast to the findings for men, we find a higher propensity for all immigrant women to be employed in skilled manual jobs (V/VI) as opposed to unskilled jobs (IIIb/VIIa) compared to native-born Danes. One explanation for this finding is that men and women's occupational structures differ in important ways. For example, a lower proportion of women are employed in skilled manual jobs (less than 10% of women versus about 30% of men), while a higher proportion hold intermediate (about 10% versus 5%) and unskilled jobs (about 40% versus about 20%). In summary, our findings suggest that whereas female immigrants from non-Western countries face barriers in accessing professional and intermediate jobs in Denmark, those from Western countries are in fact more likely than native-born Danes to access these types of jobs.

Interestingly, we also find that the probability of self-employment/owning a small business relative to being employed in unskilled manual work is higher for both male and female immigrants (compared to Danes) prior to introducing work experience. Once experience is included, however, immigrants are significantly less likely than Danes to access this class. One possible explanation for this finding is that self-/small-business employment might act as an entry point for skilled immigrants with little work experience in Denmark. If so, immigrants would not remain in this class position as long as their native-born counterparts (see, for example, Andersson and Wadensjö, 2004; Blume et al., 2009).

In Table 6, we find that class attainment varies by arrival cohorts, particularly for classes I/II and IIIa. Among men in general, cohorts that arrive later are less likely to be found in professional, intermediate and skilled-manual classes compared to immigrants arriving between 1974 and 1984. This is also true for women with the exception of access to skilled-manual jobs where we find no significant differences. In general, the likelihood of self-employment does not vary by arrival cohorts for men. In contrast, immigrant women arriving after 1989 are more likely to be self-employed than women arriving between 1974 and 1984. Overall, these findings may indicate an improvement in class attainment over time for both men and women, assuming no changes in cohort "quality".

TABLE 6
REGRESSION COEFFICIENTS FROM MULTINOMIAL LOGISTIC MODELS PREDICTING
LIKELIHOOD OF ENTERING HIGHER SOCIAL CLASSES FOR IMMIGRANTS ARRIVING
AFTER 1973 ONLY, BY GENDER

	(1) I / II	(1-edu) I / II	(2) IIIa	(2-edu) IIIa	(3) IV a b c	(3-edu) IV a b c	(4) V / VI	(4-edu) V / VI
Men								
Arrival cohort								
1999–2001	-0.13**	-0.29***	-0.87***	-0.96***	0.05	0.09	-0.35***	-0.31***
1995–1998	0.01	-0.27***	-0.23**	-0.42***	0.13**	0.13*	-0.02	-0.01
1990–1994	-0.08*	-0.23***	-0.24**	-0.34***	-0.01	-0.01	-0.03	-0.02
1985–1989	-0.08*	-0.13***	-0.13	-0.18*	-0.01	0.00	0.11**	0.11**
1974–1984 (ref.)								
Region of origin								
EU-15 (ref.)								
West	0.30***	0.23***	0.09	0.07	-0.23***	-0.21**	-0.02	-0.01
Other Europe	0.12	0.00	-0.57***	-0.62***	-0.74***	-0.72***	0.12	0.16
Poland	-0.39***	-0.48***	-0.61***	-0.67***	-0.30**	-0.28**	0.16	0.18*
Yugoslavia	-1.69***	-1.46***	-0.82***	-0.68***	-0.52***	-0.50***	0.48***	0.49***
Morocco	-1.96***	-1.85***	-1.76***	-1.63***	-0.43***	-0.37***	-0.05	0.01
Somalia	-2.05***	-1.90***	-1.07***	-0.91***	-2.13***	-2.07***	-0.09	-0.04
Afghanistan	-0.80***	-0.83***	-0.85***	-0.80***	-1.27***	-1.25***	0.39***	0.43***
Vietnam	-0.65***	-0.51***	-1.33***	-1.22***	-0.95***	-0.94***	0.31***	0.30***
Iran	-0.34***	-0.30***	-0.86***	-0.79***	0.01	0.04	0.40***	0.45***
Iraq	0.13**	0.03	-0.35**	-0.39***	-0.43***	-0.40***	0.07	0.14*
Lebanon	-0.51***	-0.33***	-0.75***	-0.59***	-0.17	-0.13	0.35***	0.39***
Pakistan	-0.84***	-0.58***	-1.63***	-1.47***	0.19**	0.26***	0.28***	0.34***
Turkey	-0.99***	-0.66***	-1.94***	-1.66***	-0.24***	-0.21***	0.42***	0.44***
Asia	-1.04***	-0.89***	-1.16***	-1.03***	-0.50***	-0.47***	0.06	0.09
Africa	-1.57***	-1.59***	-1.08***	-1.07***	-0.89***	-0.85***	-0.26***	-0.20***
Other	-0.91***	-0.92***	-0.49***	-0.48***	-0.60***	-0.57***	-0.13	-0.09
Pseudo R2	0.21	0.24						
Women								
Arrival cohort								
1999–2001	-0.36***	-0.58***	-1.11***	-1.12***	0.23**	0.25**	-0.17*	-0.11
1995–1998	-0.14***	-0.44***	-0.53***	-0.63***	0.26***	0.24***	0.01	0.06
1990–1994	-0.25***	-0.41***	-0.54***	-0.57***	0.21**	0.21**	0.04	0.09
1985–1989	-0.20***	-0.28***	-0.46***	-0.49***	0.13	0.13	-0.04	-0.01
1974–1984 (ref.)								
Region of origin								
EU-15 (ref.)								
West	-0.10**	-0.12**	-0.29***	-0.29***	-0.46***	-0.46***	0.17	0.18
Other Europe	-0.63***	-0.82***	-0.73***	-0.82***	-0.84***	-0.84***	0.01	0.08
Poland	-1.10***	-1.11***	-0.85***	-0.89***	-0.62***	-0.62***	0.42***	0.50***
Yugoslavia	-1.98***	-1.56***	-1.33***	-1.16***	-1.23***	-1.16***	0.31***	0.32***
Morocco	-2.71***	-2.28***	-2.55***	-2.34***	0.07	0.15	-0.11	-0.08
Somalia	-2.28***	-1.76***	-1.84***	-1.56***	-0.81**	-0.71**	0.21	0.22
Afghanistan	-1.24***	-0.99***	-0.94***	-0.82***	-0.77*	-0.70	0.59	0.58
Vietnam	-1.13***	-0.67***	-1.69***	-1.46***	-0.92***	-0.84***	0.35***	0.35***
Iran	-0.90***	-0.72***	-1.36***	-1.25***	-0.66***	-0.58**	-0.06	0.01
Iraq	-0.51***	-0.55***	-1.03***	-1.03***	0.35**	0.38***	-0.48**	-0.34
Lebanon	-1.03***	-0.63***	-0.58***	-0.37**	0.08	0.15	-0.61*	-0.57
Pakistan	-1.94***	-1.49***	-2.18***	-1.95***	-0.21	-0.13	0.27	0.28
Turkey	-2.58***	-2.01***	-2.75***	-2.43***	-0.76***	-0.65***	0.78***	0.76***
Asia	-1.96***	-1.66***	-1.72***	-1.57***	-0.72***	-0.66***	0.34***	0.34***
Africa	-2.11***	-1.82***	-2.00***	-1.89***	-0.90***	-0.85***	-0.45***	-0.43***
Other	-1.26***	-1.21***	-1.08***	-1.06***	-1.07***	-1.03***	-0.21	-0.15
Pseudo R2	0.22	0.27						

* $p < .10$; ** $p < .05$; *** $p < .01$.

Source: Danish administrative data 2002.

Note: see Table 5. Number of observations: 47,397 (men), 37,694 (women).

In Table 6, we find that the likelihood of accessing professional classes is particularly low for immigrant men from Somalia, Morocco and other African countries, and former Yugoslavia. This is also true for women but includes Pakistan, Turkey, and Asian countries. Compared to immigrants from EU-15 countries, other immigrants are as likely or more to access skilled-manual work (*vis-à-vis* employment in unskilled manual occupations), with the exception of African women and men. This may be because very few EU-15 nationals migrated to Denmark to work in blue-collar jobs.

In summary, these findings suggest that immigrants experience significant difficulties in gaining access to employment in professional and intermediate class positions, and such difficulties are more pronounced among non-Western immigrants. Immigrant penalties in class attainment likely have implications for immigrants' employment security, the accumulation of work experience and essential skills, and their earning potential.

Earnings

Table 7 reports OLS parameter estimates for our final outcome, hourly earnings, by gender.⁷ All three models include the standard set of controls, including education. The second model adds Goldthorpe's class schema, and the third adds work experience in Denmark. Net of education, we find significant native-immigrant gaps in earnings for both men and women, although these gaps tend to be larger for non-Western immigrants and men. For example, among non-Western immigrants arriving after 1984, men earn about 17 per cent less per hour than their Danish male counterparts, while women earn 12 per cent less than their Danish counterparts. Controlling for class attainment reduces the native-immigrant gaps by about half. These gaps become positive, however, after controlling for both class and work experience, with the exception of men arriving before 1985. The sample size used in model 1 differs from that used in models 2 and 3. To check the robustness of our findings to differences in sample size, we re-estimated model 1 analyses using the smaller sample. The results are almost identical to those presented in Table 7. In summary, the findings suggest that differences in earnings between Danes and immigrants can to a large extent be attributed to differences in class attainment and experience.

In Figure 2, we graph coefficients for models discussed above (first four bars) and for models with immigrants arriving after 1973 (remaining

TABLE 7
OLS REGRESSION MODELS PREDICTING EARNINGS, BY GENDER

	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Age	0.01***	0.01***	0.00***	0.01***	0.01***	0.00***
Age 2/100	-0.06***	-0.06***	-0.05***	-0.04***	-0.04***	-0.03***
Danes (ref.)						
West-Old	-0.04***	-0.03***	-0.01***	-0.01**	0.00	0.02***
Non West-Old	-0.13***	-0.08***	-0.04***	-0.06***	-0.03***	0.01***
West-New	-0.07***	-0.04***	0.07***	-0.03***	0.01	0.08***
Non West-New	-0.17***	-0.10***	0.01***	-0.11***	-0.06***	0.02***
Education						
Lower sec.(ref.)						
Upper sec.-general	0.14***	0.07***	0.09***	0.10***	0.04***	0.05***
Upper sec.-voc.	0.12***	0.10***	0.09***	0.09***	0.07***	0.06***
Lower tertiary	0.20***	0.10***	0.12***	0.19***	0.09***	0.10***
Intermediate tertiary	0.31***	0.13***	0.15***	0.26***	0.12***	0.12***
Higher tertiary	0.47***	0.30***	0.34***	0.48***	0.33***	0.37***
Missing/incomplete	0.12***	0.09***	0.12***	0.08***	0.07***	0.09***
EGP						
I / II (ref.)						
IIIa		-0.19***	-0.18***		-0.14***	-0.14***
IV a, b, c		-0.22***	-0.22***		-0.15***	-0.13***
V / VI		-0.29***	-0.29***		-0.20***	-0.19***
IIIb, VII a, b		-0.29***	-0.28***		-0.23***	-0.21***
Experience			0.01***			0.01***
Experience 2/100			-0.03***			-0.02***
Constant	5.18***	5.44***	5.35***	4.98***	5.18***	5.12***
Observations	153,655	135,407	135,407	135,767	122,165	122,165
R-squared	0.27	0.36	0.38	0.25	0.35	0.37

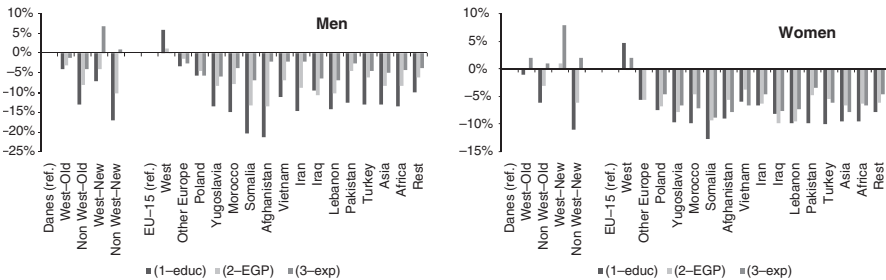
* $p < .10$; ** $p < .05$; *** $p < .01$.

Source: Danish administrative data 2002.

Note: All models control for industry and public sector.

bars; coefficients available upon request). Differences by country or region of origin follow a similar pattern to that observed for employment access and class attainment, with the same groups generally showing the largest (or smallest) relative gaps. The results also suggest that earning gaps are significantly higher for male and female immigrants arriving after 1984 (not graphed). After accounting for class attainment, however, arrival cohort gaps and most origin gaps are substantially reduced. Including work experience (but removing arrival cohorts to avoid collinearity) reduces origin gaps further, although more so for men than women. Net of class and experience, the largest earning gaps among immigrants are found between Somali and EU-15 nationals (7% less per hour worked for Somali men and 9% less for Somali women). In summary, our findings suggest that the bulk of observed differences

FIGURE 2
PREDICTED WAGE GAPS, BY GENDER



Source: Danish administrative data 2002. Note: Figure presents regression coefficients from Table 7 (first four bars) and coefficients from models based on immigrants arriving after 1973 only (remaining bars).

in earnings between native-born Danes and immigrants can be attributed to differences in class attainment and work experience.

DISCUSSION

The current Danish economic model, often referred to as the “flexicurity” model, is considered an attractive goal by researchers and politicians of other Western countries. The combination of high levels of welfare provision, active employment policies, wage compression, and low hiring and firing costs likely contributes to high participation rates, low unemployment, and high levels of income redistribution in Denmark (but see Benner and Bundgaard Vad, 2000, for a discussion on the economic downturn in the early 1990s). Yet, some of the very institutional features that account for Denmark’s labour market success may act as a barrier to its immigrants. For example, it is often argued that generous welfare provision and high wage-compression reduce immigrants’ incentive to participate in the labour market and to invest in their own human capital (Kesler, 2006; Nannstad, 2004; OECD, 2002). Without ruling this possibility out, we argue that the high-skill bias of the Danish occupational structure may also negatively impact immigrants’ integration into the labour market. The shortage of unskilled jobs or those requiring general skills only places immigrants at a disadvantage because they are often less qualified and have fewer language and culture-specific skills compared to their Danish counterparts and because the transferability of their general skills is more difficult in the Danish context. Moreover,

in the case of jobs requiring firm-specific skills, employers might consider investing in immigrants as opposed to Danes a greater risk, which could further reduce immigrants' chances of being hired for or promoted into "good" jobs.

Clearly, problems faced by immigrants in Denmark are not unique to the country. What is unique, however, is the proportion of "good" jobs relative to "bad" jobs (i.e., the structure of labour demand) in combination with relatively high managerial discretion. Whether these characteristics cause poor labour market outcomes among immigrants in Denmark cannot be determined using cross-sectional data. Consistent with other articles in this special issue, our results are more descriptive of immigrants' labour market experiences. Yet, our findings do suggest that immigrants in Denmark are at a significant disadvantage with regard to employment access, class attainment and earnings.

With regard to employment access, we find lower employment and participation probabilities for immigrants (especially those from non-Western countries and those arriving after 1984) compared to native Danes, after accounting for differences in education and other demographic factors. Among immigrants participating in the labour market, we find that those arriving between 1999 and 2001 are more likely to be employed than earlier arrival groups. One explanation for this finding may be the introduction of activation policies that were implemented in 1999 to increase the labour market participation of newly arrived immigrants.⁸

Additionally, our results provide evidence for the existence of negative selection into employment among immigrants, especially for non-Western immigrants arriving after 1984. This finding could be explained by the composition of the immigrant population in Denmark. A high percentage of immigrants are refugees whose participation rate is not only low but also varies little by education. For example, the participation rate of non-Western immigrants arriving after 1984 (the majority of whom were refugees) was 52 per cent among those with lower secondary education and 60 per cent among those with higher levels of education (upper secondary and tertiary). In contrast, the participation rate of Danes was 72 per cent for the former educational group and 90 per cent for the latter. In other words, the difference in participation rates between those with the lowest educational credential (lower secondary) and all other groups is 8 percentage points for non-Western immigrants versus 18 points for native-born Danes. Furthermore, the largest

participation gap between newly arrived non-Western immigrants and natives (30 percentage points) is among those with tertiary levels of education. This supports the notion that weak associations between participation and education among immigrants may partially explain negative selection effects. If this is true, then finding ways to increase the participation of refugee immigrants from non-Western countries may significantly reduce the immigrant-native employment gap.

Obviously, refugees may differ from other immigrants in important ways (e.g., more mental health problems as a result of traumatic experiences in their home countries), and this must be taken into consideration when examining their labour market performance. In addition to these possible barriers related to “supply”, the above-mentioned barriers related to “demand” could also play an important role given that the preferred occupational destination for educated refugees should be intermediate and professional-level occupations. Yet, we find the largest immigrant-native attainment gaps in precisely these classes, especially for non-Western immigrants and immigrants arriving after 1984.

Although immigrants appear to attain higher class positions over time, this process is restricted to the bottom of the occupational structure. Our analyses show that native-immigrant gaps in accessing professional occupations cannot be attributed to differences in working experience. Moreover, we find that class attainment and access to employment (and thus accumulation of essential work experience) explain, to a large extent, the lower earnings of immigrants.

Although this study contributes to our understanding of immigrants’ labour market experiences in the context of Denmark, it is not without limitations. First, while our findings appear consistent with a skill-based theory of rewards, we cannot rule out the explanatory importance of discrimination, social capital, or welfare disincentives. It is likely that all of these factors jointly contribute to immigrants’ poor labour market outcomes. Thus, only with comparative research could our skill-based explanation of native-immigrant gaps in the Danish labour market be rejected. We refer the reader to the introduction of this special issue for a comparison of native-immigrant gaps in labour market outcomes among different European countries included in this collective research project. Second, we are limited by our measures of educational attainment and skill-specificity. As discussed, educational data is less precise for immigrants than native Danes, a problem inherent in data drawn from population registers. Therefore, we may be underestimating level

of education for some immigrants, especially those who earned degrees in Denmark lower than those held in their country of origin. We have measured skill-specificity using EGP occupational classes. This is a crude measure since intra-class variation in skill-specificity is to be expected (Polavieja, 2005). Future research should therefore attempt to find better measures of education as well as measures of skill-specificity that are closer to the level of jobs. This will allow for a more careful examination of job-matching processes in immigrant populations. Third, although we treat immigrants from the same country of origin as a homogeneous group, we recognize the potential for important differences among them. For example, Turkish immigrant women in Denmark vary across sending contexts (e.g., rural versus urban, social class, and gender-role attitudes) as well as receiving contexts (e.g., isolated versus densely populated areas and existence or absence of contact with their ethnic community), and these contexts are key predictors of integration outcomes (Mirdal, 1984). Thus, an important next step for future research is to examine variation in labour market outcomes within immigrant groups using survey data. Finally, to allow for cross-country comparability with other studies in this special issue, we use cross-sectional data only. As a result, we can only infer improvements in immigrants' labour market outcomes over time under the assumption that the cohort "quality" has not changed.

In summary, immigrants in Denmark are less likely to find employment or choose employment in the first place than native-born Danes. Should they be able to secure work, they are more likely to work in unskilled jobs or to choose self-employment compared to natives with similar levels of education. As such, their employment may be less secure and provide fewer opportunities to acquire industry and firm-specific skills, constraining their upward mobility and reducing their earning potential in the Danish labour market. Although finding ways to increase immigrants' participation may improve their overall economic standing, our findings suggest that immigrants will remain at a disadvantage if they cannot obtain the necessary skills for acquiring higher status jobs in Denmark.

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NOTES

1. Free mobility between Nordic countries was formally granted in 1954. Nordic nationals are nationals of Finland, Iceland, Norway and Sweden. Denmark entered the EU in 1973.
2. Figure 1 has been calculated using data from the second wave of the European Social Survey (ESS). The authors wish to thank the Norwegian Social Science Data Services (NSD), the data archive and distributor of the ESS. The ESS Central Co-ordinating Team (CCT) and the producers bear no responsibility for the use of the ESS data, or for interpretations or inferences based on these data.
3. Information on the level of home country education was not available in the Danish register data until 1999, when Statistics Denmark undertook a survey asking immigrants who had not received a qualifying education in Denmark about their educational background. The response rate was less than 50 per cent and Statistics Denmark imputed information for a fraction of the remaining 50 per cent. Immigrants who upgraded their education in Denmark were not asked to participate in the survey. Consequently, level of education is underestimated for these immigrants.
4. The 'quality' of different cohorts can differ either because of varying levels of human capital upon arrival or survival bias. Survival bias occurs when sample attrition is linked to immigrants' human capital. For instance, if the most (least) successful immigrants return to their home countries or move to other host societies, the remaining cohort will have *ceteris paribus* lower (higher) average human capital.
5. Liebig (2007) also argues that in addition to this positive impact on employment, the 2001 reform increased the risk of marginalisation for unemployed immigrants by reducing their social assistance. Thus, the net effect of the reform is debatable. An alternative explanation of the observed cohort effect is that it captures a change in unobserved characteristics of migrants. The increased restrictiveness of immigration policy after 1999 may have impacted unobserved characteristics linked to higher employment rates
6. A certain degree of caution is recommended when interpreting this latter finding, given low levels of working experience among newly arrived immigrants.
7. Mean hourly wages (in Danish Kroner) are 202 (Danes), 198 (Old migrants), and 177 (New migrants) for men, and 159 (Danes), 162 (Old migrants), and 145 (New migrants) for women.
8. Recent developments in the Danish labour market appear consistent with this interpretation. Since 2002, the participation rate of immigrants has increased remarkably – reaching 80 per cent in 2006 – while the immigrant-native unemployment gap steadily reduced to 4 percentage points in the same year. This figure can be compared to 7 percentage points in Sweden, Germany, and the Netherlands (OECD, 2008). That unemployment gaps are reduced as immigrants' participation rate increases is precisely what we would have predicted based on this study's negative selection findings using

2002 data. Similarly, the rapid increase in participation and employment rates of immigrants observed after 2002 is consistent with our interpretation of the 1999-2001 cohort effect. More research is needed to understand the extent to which activation policies implemented at that time impact employment and whether this has been achieved at the expense of larger occupational attainment gaps.

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