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The Effects of the 2008 Labour-Migration Reform in Sweden: An Analysis of Income

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Abstract

In 2008, Sweden changed its labour-migration policy in order to facilitate more labour migration from countries outside the EU. The unique design of the new law meant abandoning most state ambitions to shape labour migration. Under the new regulation, there are no labour-market tests or any consideration of the level of human capital. Instead, policy-makers trusted employers to select workers. We adopt a difference-in-differences approach and apply a series of OLS regressions on register data to assess the effects of the policy change on non-EU labour migrants' labour-market outcomes, as measured by income. The effects of the policy change are substantial. Non-EU labour migration increased and its composition changed after the reform, resulting in a significant decrease in mean incomes. The regression analysis shows that, despite the favourable economic cycle during the post-reform period, moving to Sweden as a third-country labour migrant following the 2008 labour-migration reform had a negative effect on the migrants' annual income. However, this effect became marginal after controlling for occupational level. We conclude that changes in their occupational composition were the main drivers of the income drop for non-EU labour migrants. In sum, the new non-selective labour-migration policy lowered labour migrants' mean income by opening the door to unskilled labour.

JEL Codes: J15, J21, J30, J61

Keywords: Migration policy, effects, 2008 reform, labour migration, income, Sweden

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Introduction

Most theories of labour-migration policy-making suggest that a country like Sweden, with its coordinated market economy, would prefer a highly selective labour-migration policy focusing on the highly skilled (Devitt 2011; Menz 2011). This was also the case until labour migration drastically changed the selection criteria for non-EU labour migration. In the 2008 Bill (2007/08:147) there are no labour-market tests nor any consideration of the level of human capital. Instead, policy-makers trusted employers to select workers. The introduction of this *laissez-faire* labour-migration policy provides an excellent framework in which to study what happens when state control is withdrawn to a minimum and employers and potential employees are left to regulate the migration flows.

We take this opportunity to treat the 2008 labour-migration reform as a natural experiment and investigate the effects of the policy change on post-reform labour migrants' employment conditions in Sweden (Bill 2007/08:147). The main change introduced by this reform is that the state reduced its ambition to control and manage labour migration and left the decision of who can migrate to individual employers. The rationale behind the new policy is that the employers know best what skills are needed in the labour market. The reform was also guided by the principles of equality and openness: it welcomed labour migrants regardless of their education and skill level. While the goals of the policy were not clearly stated in the bill, where the principles behind the reform seemed to be more important than the goals, it can be understood from the promotion material that the new policy aimed, in the short term, to fill labour shortages and, in the long term, to increase the labour supply to counteract demographic challenges (Government Offices of Sweden 2008). Based on register data and a difference-in-differences approach, we analyse the effects of this policy reform on the income of non-EU labour-migrant cohorts who arrived immediately before or immediately after the implementation of the new bill.

This article contributes to current academic debates about the state selection of labour migrants and, more specifically, to the literature about labour-migration policy effects, an area of research where knowledge is lacking, especially outside traditional labour-migration countries (Rinne 2012). Although the 2008 migration-policy reform in Sweden has caught the interest of a few scholars (Bevelander et al. 2014; Emilsson 2016; Emilsson and Irastorza 2019), this article differs from previous studies by applying causal statistical methods on longitudinal data to analyse the income effects of the policy change.

Selecting labour migrants

The most common way to categorise labour-migration policies is to differentiate between two models for selecting labour migrants: supply-driven and demand-driven (Chaloff and Lemaître 2009; Papadimitriou and Sumption 2011). In supply-driven models, the state selects labour migrants with the knowledge and skills that are expected to be needed in the medium and long term. Typically, a points system is designed in which different forms of human capital – such as education level, age, work experience and language skills – are assessed. The first points system for selecting labour migrants was introduced in Canada in 1976. Australia introduced a similar points system in 1989 and, shortly thereafter, New Zealand followed in 1991. In contrast, a demand-driven model is based on employers' immediate need for labour. Almost all demand-driven models start with specific employers initiating the recruitment process by asking for permission to hire a person from a third country. Most demand-driven labour-migration models set up several criteria for granting such a request, a so-called labour-market test which can, for example, examine whether there is available domestic labour or stipulate whether the work requires certain qualifications or provides a particular salary. Labour-market tests can also include shortage lists where only some occupations are opened up for recruitment. European countries, as well as the United States, have traditionally used demand-driven models (Facchini and Lodigiani 2014).

Today, most countries have abandoned strict supply- or demand-driven models and opted for a combination of both – so-called hybrid models (Kolb 2014; Kosłowski 2014). The supply-driven models in Canada, Australia and New Zealand have been adjusted to take greater account of the labour-market demand, trying to find the right balance between human-capital requirements and labour shortages (Desiderio and Hooper 2016; Hawthorne 2005, 2011). In this way, the models try to ensure not only that labour migrants are highly skilled but also that their particular skills are valued on the labour market. The fact that many countries in Europe also developed hybrid models for selecting labour migrants is implying a convergence of labour-migration policies between traditional settler countries and European countries (Finotelli and Kolb 2015). For example the UK, Austria and Denmark have all introduced or experimented with variations of the points system, combining demand- and supply-driven selection mechanisms (OECD 2013; Somerville 2013). The EU blue card is another example, where member states accept highly skilled labour migrants with an employment offer over a minimum income threshold.

The main driver for hybrid systems seems to be to increase the selectiveness of labour migrants so that they are both highly skilled and attractive for potential employers, thereby

reducing the influence of migrant self-selection and migration network effects. The importance of state selection is, according to Tani (2014), more important for countries with a relatively high average income compared with the home country, a compressed income distribution and a comprehensive welfare system for its low-income earners. Keeping out low-skilled migrants in favour of highly skilled ones therefore emerges as a tool with which to ‘protect’ the host country’s welfare system and address its domestic employers’ needs.

Labour migration policies in Sweden: a brief historical note

The Swedish models for labour migration during the postwar years can be divided into three periods: from the end of World War II until the early 1970s, from 1972 until the new law was introduced in 2008 and the period under the current system of labour migration.

The first period, from the end of the World War II to the beginning of the 1970s, allowed employers to recruit labour without much state control. During the 1950s and 1960s, the state was involved in the collective transfer of foreign workers – primarily skilled workers to industry and the hotel and restaurant sector – which was organised through bilateral agreements or cooperation between Swedish companies, the public employment service and foreign employment agencies (Lundh and Ohlsson 1999). When the demand for manual labour in the expanding manufacturing sector grew in the mid-1950s, this was provided from two sources. Many labour migrants came from other Nordic countries (mostly Finland) as a result of the joint Nordic labour market that was created in 1954. The other large group during the 1960s and early 1970s came from Mediterranean countries – especially Yugoslavia and Greece. After the successive phasing out of visa requirement for immigrants from non-Nordic countries as well as a liberalisation of praxis in cases involving applications for residence and work permits, it became possible to travel to Sweden on tourist visas and apply for a job once there (Lundqvist 2002). An offer of employment made it possible for migrants to apply for a work permit. In 1967 the rules for non-Nordic labour immigration were tightened due to demands from the trade-union movement. From then on, non-Nordic citizens who wanted to work in Sweden were required to arrange work permits and housing *before* entering the country. A labour-market test was implemented to ensure that no residents of Sweden were available before a work permit could be granted (Lundqvist 2002). Despite the new rules, non-Nordic labour immigration continued to be relatively substantial until the recession in 1971 and 1972 when the Swedish Trade Union Confederation (LO) issued a circular to its unions calling for a more-restrictive policy regarding the approval of work permits for non-Nordic citizens (Lundh and Ohlsson 1999).

In the second period, 1972–2008, labour migration was governed by the guidelines issued in the 1968 and 1984 legislations (SOU 2005:50). Labour migration was demand-driven and required a job offer from an employer. Just like today, the wages and employment conditions had to be equivalent to those applicable to native labour. Work permits would normally be given before entering Sweden but exceptions existed. As in the previous period, the Employment Service did a labour-market test to see if there were available workers in Sweden or other EU/EEA member states before a work permit was granted. The relevant trade unions were consulted on both the conditions of employment and the general labour situation in the industry involved. The Migration Board then took the decision based on a concrete job offer. The system was highly restrictive due to the influence of labour unions and ambitions to mobilise domestic labour in full; this led to low non-Nordic labour immigration until Sweden's entry into the EEA in 1994 and the EU in 1995. The highly selective labour-migration policy during this period was, thus, in line with what could be expected in a country like Sweden, with its coordinated market economy (Devitt 2011; Menz 2011). It is, though, a misconception that the opportunities for labour migration were closed before December 2008. The labour-market test was flexible and the Employment Service could, within the scope of the law, change the guidelines for work permits according to labour-market needs. This happened, for example, on 01 January 2005 when the tests were placed earlier in the application process and it was emphasised that the most important aspect of them was to check the availability of manpower closer to home. They also stressed that filling labour shortages was more important than the level of education for decisions regarding the issuing of permanent residence permits. As a result, more permanent residence permits were granted between 2005 and 2008.

The 2008 reform: openness and equality

In sum, from 1972 until 2008, Sweden's labour-migration policy was one of the most restrictive in Europe. With the 2008 reform, this shifted overnight and the country became one of the most liberal and open regimes (Cerna 2014; OECD 2011). If the old policy was based on state-controlled selection with labour-market tests, the new policy put the employers in charge of labour selection. Under the new law, there are no restrictions with regard to skills, occupational categories or sectors and there are no quantitative restrictions in the form of quotas. The only condition for obtaining a work permit is an offer of employment with a liveable wage, in line with applicable collective agreements and general insurance conditions. In practice, a labour migrant must have a high-enough job income to not be eligible for welfare benefits. Thus, while there is no minimum income level in Sweden, the effective minimum wage above welfare is

estimated to be SEK 13,000/month (about EUR 1,300) – a level below the lowest collective agreement and only acceptable for part-time employment.

While work and residence permits must normally be arranged prior to leaving the country of origin, in certain cases they may also be granted from Sweden. The precondition is that the application is done during the visa-free period (90 days after entering Sweden) and the employment relates to occupations in which there are documented labour shortages. Foreigners who enter Sweden for reasons other than work might also apply for work and residence permits under specific conditions. For example, visiting students who have completed studies for one semester are entitled to apply for a work and residence permit from within Sweden. Likewise, asylum-seekers whose application has been rejected may also be granted a permit if they have worked for six months with a one-year offer of continued work.

The initial residence and work permit is granted for no more than two years and can be extended one or more times. A permanent residence permit is granted if the person has worked for an aggregate period of four years during the previous five. The work permit is linked to the same occupation and employer for the first two years; after this, if the work contract gets extended, the permit is also extended to an occupation – but not necessarily to the same employer – for two more years. However, there is some degree of flexibility in the system. For instance, if an individual would like to change employers during the first two years, he or she is allowed to apply for a new work permit from Sweden. Equally, those who lose their jobs have three months to find new employment before their residence permits are revoked.

Finally, a labour migrant basically enjoys the same rights as any other residents of the country when working and living in Sweden. Family members are entitled to accompany the employee from day one and are granted a work permit regardless of whether or not they have a job offer when leaving their country of origin. Table 1 provides a summary of the main aspects of the reform introduced in 2008.

[TABLE 1 NEAR HERE]

It is useful to highlight here the main differences between the Swedish labour-migration model and other migration regimes worldwide in order to better understand later discussions of the effects of the 2008 law and the generalisation of the research findings to other settings.

First, the Swedish regulations on entry and rights are the same for all labour migrants, regardless of their skill level. Ruhs (2015) has noted that all countries, with the exception of Sweden, use different labour immigration programmes for admitting migrants for employment

in low-, medium- and high-skilled jobs. Before 2008, the Swedish labour-migration policy was separated into five different streams, which also gave migrants different rights. For example, highly skilled migrants whose skills were assessed to have long-term value were granted permanent residence permits, while other categories of labour migrants received temporary work permits.

Second, there is no obvious trade-off between numbers and rights in Swedish labour-migration policy, as there is in other countries (see Ruhs 2008). There are no numerical quotas and labour migrants are given quite extensive rights: they can bring family members if their stay is expected to be over six months, they all have a clear pathway to permanent residency and citizenship and they are included in the welfare state system.

Third, the Swedish model allows migrants who enter Sweden as asylum-seekers to ‘change track’ and become labour migrants (for details on such processes, see the previous section).

Last but not least, Sweden has a ‘pure’ demand-driven model with no elements from supply-driven systems. There is no selection based on human capital, as it is the employers who are responsible for migrants’ selection. Furthermore, there is no sectorial or occupational focus. Migrants can be hired for any occupation without having any particular skills. In sum, Sweden is not following the international trend toward hybrid labour-migration policies.

The basic objective of most labour-migration regimes is to cover shortages of labour while trying to avoid the potential adverse effects of labour migration on the employment of previous residents of the country (OECD 2009). This objective is achieved by deciding who and how many labour migrants to admit and for which jobs (Chaloff 2014). By not deciding on any of these aspects and opting for a ‘pure’ demand-driven labour-migration policy, Sweden goes against almost all international trends. It also defies the trend of balancing numbers versus rights and the closely related tendency to adopt more-selective labour-migration policies.

Previous studies on labour migration policy and its effects

The effect of any immigration policy can be deconstructed into a size and a composition effect (Bianchi 2013; Czaika and de Haas 2013). Given immigrants’ self-selection, any immigration policy affects not only the size but also the skill composition of the migration flow. It is well known that well-developed, large, migrant networks reduce migration costs and translate into negative self-selection patterns (see, for example, Bertoli and Rapoport 2015 for a literature review). Subsequently, in the long term, a less-selective migration policy should reduce the

overall level of human capital among labour migrants and lead to lower productivity among them.

Despite recent policy experiments in many countries, the empirical evidence on the effects of labour-migration policy reforms is scarce (Rinne 2012). The few studies made have mostly involved traditional settler states, such as New Zealand, Canada and Australia, with elaborate systems in place for selecting immigrants (Bedford and Spoonley 2014). What these studies generally find is that more-careful screening and selection improves the overall human capital of labour migrants which, in turn, usually improved labour-market outcomes.

Green and Green (1995) found that the introduction of the Canadian points system in 1967 had a strong effect on the occupational composition of new immigrants. Cobb-Clark (2003) compared two cohorts of immigrants in Australia in 1993–1995 and 1999–2000 who arrived under different migration policies and found that tighter selection criteria implemented in 1997 had improved the short-term labour-market outcomes for immigrants. Hawthorne (2005) found similar positive results about the effect of the 1997 Australian labour-migration reform. Unlike these studies, Tani (2017) investigated the same policy reform and found that, while the average skill level of immigrants increased, it led to no detectable positive impact on their employment rates, wages or occupational status. Only women experienced a modest short-term positive impact. Tani (2017) concludes that migration policy is an inefficient tool with which to influence migrants' labour-market outcomes. Chemin and Sayour (2016) studied a 2001 change in the Quebec points system with the objective of increasing the number of French-speaking immigrants while, at the same time, securing their overall labour-market performance. The policy largely achieved its goals, showing that points systems can be used to shape the immigrant workforce according to a country's policy goals.

Evidence from Canada and Australia suggests that points systems have the ability to select highly skilled labour migrants or a different target group of migrants. This result is also supported by a study by Czaika and Parsons (2017), who combined bilateral data on highly skilled labour-migrant flows for 10 OECD destination countries between 2000 and 2012. They found that points-based systems are much more effective in attracting and selecting highly skilled migrants compared to demand-driven systems with selection criteria such as the requirement of a job offer, labour-market tests and labour-shortage lists.

However, skill levels do not always translate into good labour-market outcomes (see, for example, Tani 2017). In order to reduce the miss-match between immigrants' educational level and the skills that are needed in host labour markets – and, therefore, also improve their labour-

market outcomes – many countries have added demand-driven selection criteria to their points systems with some success.

Van de Ven and Voitchovsky (2015a, 2015b) have studied the policy change in Australia from a supply-driven model that favoured independent general skilled migrants, to a hybrid model that balances supply-driven migration against employer-sponsored demand-driven migration. They found that the hybrid selection model substantively improved labour-market outcomes amongst skilled migrants. According to van de Ven and Voitchovsky, more-binding conditions on English language and work experience were important in driving the positive effects of the policy reform for skilled-migrant employment outcomes.

Lindsay Lowell and Avato (2014) studied labour-market outcomes in the US for different categories of highly skilled workers. They found that foreign students and migrants initially with a temporary work permit earn, on average, less than natives and permanent immigrant workers. They attribute the lower incomes of temporary workers to the fact that their permits are tied to a specific employer. They also conclude that the selectivity of foreign science and engineering students is not as great as that of new workers admitted from abroad.

In Europe, evaluations of migration-policy reforms are much scarcer. A points-based system for attracting highly skilled migrants was implemented in Denmark in 2007. Visas were given to highly skilled foreigners if they moved to Denmark and searched for jobs. The results were disappointing as the majority of them found jobs in lower-skilled occupations (Beskæftigelsesministeriet 2014; Ramböll 2010). Most newcomers had found employment through personal contacts and language was pointed out as one of the main barriers to accessing professional positions. In 2015, new policy initiatives, including an increase in the minimum income requirement, were implemented to improve the employment outcomes of labour migrants. The effect of such initiatives was minimal and the policy was abandoned in 2016.

The Swedish 2008 labour-migration policy change caught the interest of many researchers and there seems to be some consensus on the main consequences of the reform. Most of this body of research has focused on specific topics such as the exploitation of workers (Axelsson et al. 2013; Woolfson, Thörnqvist and Herzfeld Olsson 2011), particular occupations like berry-pickers (Hedberg and Fuentes-Monti 2013; Kamoltip Kallstrom 2011, Wingborg 2014) or labour migrants at high- or low-skilled occupational levels (Frödin and Kjellberg 2018; Krifors 2017). Some research on the overall consequences of the policy outcomes has been produced (Emilsson 2014; Emilsson et al. 2014; OECD 2011; The Sweden National Audit Office 2016). However, to our knowledge, only two exploratory papers have tried to analyse

the labour-market outcomes of pre- versus post-reform labour-migrants' outcomes (see Emilsson 2016; Emilsson and Irastorza 2019).

One of the early follow-up studies by the OECD (2011) shows that there has been no substantial increase in the number of work permits; this may be due to the economic crisis and the newness of the law. The report also notes that the reform has provided opportunities for recruitment to businesses and professions that were previously excluded, resulting in half of the work permits and most of the longer permits being granted for occupations which have no labour shortage. Later studies found that not only did the number of labour migrants increase with the new policy but they did so mostly in lower-skilled occupations (Emilsson 2014, 2016; Calleman and Herzfeld Olsson 2015).

The Sweden National Audit Office (2016) did an audit of how the labour migration system was implemented and whether the objectives of the reform were met. Their overall opinion was that more efforts should be made to reduce the time for processing work permits and to improve the control of the conditions. The audit office concluded that labour migrants constitute a significant element in a smaller number of professions and industries. Approximately 70 per cent of the labour migrants are concentrated in just ten professions, some of which have a shortage of labour while others have a surplus.

One of the main findings in the evaluation article by Emilsson (2016) was that the policy change *did* affect the labour-market status of labour migrants – those arriving after the policy change more often worked in occupations where there was already a surplus of workers and had, on average, lower salaries than those who worked under the old labour-migration law. He concludes that the 2008 labour-migration policy has not achieved its main goal of increasing labour migration to shortage occupations. Actually, the outcome has been the opposite – that is, an increase in the number of labour migrants who are employed in occupations where there is a surplus of workers.

Based on a descriptive longitudinal analysis of register data, Emilsson and Irastorza (2019) compare the size, composition and employment of labour-migrant cohorts who arrived in Sweden both before and after the 2008 reform. They show that non-EU post-reform labour migrants did not perform as well as their pre-reform counterparts, a result which they relate to the lower education and the greater education-to-occupational-level miss-match of post-reform labour migrants.

A few studies and evaluations of the reform also suggest that there were examples of fraud and violations of working conditions after the reform. The low-income levels that labour migrants declared in surplus occupations are a strong indicator that many of them work under

worse conditions than natives. Emilsson et al. (2014) show that, in some occupations in the private service sector, the average income is as low as 10,000 SEK (*circa* EUR 1,000) per month. A case study on Chinese restaurant workers concluded that the new labour-migration policy has not succeeded in establishing conditions for workers in the restaurant sector that conform to the Swedish Migration Board's guidelines or comply with Swedish labour and employment law (Axelsson et al. 2013). In the summary of their anthology on the 2008 reform, Calleman and Herzfeld Olsson (2015) note that all the evidence suggests that immigrant workers often receive a lower salary than that specified in the employment contract and have worse working conditions than native employees. Finally, Emilsson and Irastorza (2019) conclude that the migration controls introduced in 2011 and 2012 to prevent abuses in the system actually improved labour-market outcomes for labour migrants.

Data and method

This paper analyses the effect of the 2008 labour-migration policy reform on the annual job income of non-EU labour migrants. Since the reform was enforced on 01 December 2008, in our empirical analysis we consider 2008 as a pre-reform year and, therefore, 2009 as the first year after the reform.

Swedish register data (STATIV) covering the entire adult population of non-EU labour migrants who moved to Sweden between 2007 and 2010 were used to conduct the empirical analysis. STATIV is a longitudinal database for integration studies that contains administrative information on all individuals registered in Sweden and is updated every year. Our sample is composed of all EU and non-EU migrants who moved to Sweden for work during that time period. The total sample size in 2011 was 23,852 individuals, out of whom 41 per cent arrived as non-EU citizens (for more detailed subsample sizes, refer to Table 2).

Our three main independent variables of interest are: 'NonEU', 'PostReform' and the interaction between these two. 'NonEU' is equal to 1 when the individual arrived as a citizen of a third country and 0 when he or she arrived as a citizen of an EU or a non-EU Nordic country.¹ 'PostReform' takes the value of 0 when the individual arrived within the two years *prior* to the reform (2007 or 2008) and of 1 when he or she arrived within the first two years *after* the reform (2009 or 2010). Finally, the interaction variable 'NonEU*PostReform' equals 1 for individuals who migrated to Sweden as non-EU and non-Nordic citizens after the reform, and 0 for the rest of the people included in the sample.

The employment variables were re-coded to fit the purpose of this study and require further explanation. The variable 'Employed' includes 18–64-year-old individuals, both

employed and self-employed, whose yearly income before tax was equal to or higher than the so-called '*prisbasbelopp*' or basic price level (see Bratsberg, Raaum and Røed 2006; Irastorza and Bevelander 2017). This figure is a yearly amount calculated by Statistics Sweden for estimating social benefits. By applying this selection we make our cohorts more comparable over time as we adjust to changes in price levels and exclude individuals who did not have steady employment.² The same criteria were applied when recoding the rest of the employment-related variables: annual job income, occupation and job qualification.

The variable 'Occupation' includes nine occupational levels from managers to elementary occupations. This variable is then recoded into 'Job qualification' by classifying the nine occupational levels in four groups according to the average required qualifications for each occupation. This classification is based on the International Standard Classification of Occupations (ISCO) and the STATIV documentation provided by Statistics Sweden. Finally, a third variable is computed based on 'Job qualification' in order to only include occupations that require the highest level of qualifications, namely managers and professionals ('HighestJobQualification'). This variable was included in the regressions to account for the effect of the occupational level on income.³

Our dependent variable is the natural logarithm of the annual job income for employed individuals whose yearly income before tax was equal to or higher than the basic price level as measured the year after arrival.

We treat the policy reform as a natural experiment by adopting a difference-in-differences (DID) approach to assess the effect of the reform on the annual income of non-EU labour migrants. As explained by Blundell and Costa Dias (2009), DID is used when a change in policy makes a certain group eligible for some treatment but keeps a similar group ineligible. The difference between the two groups before and after the policy shift is then compared. In this study, the policy change is the 2008 labour-migration policy reform, which should affect non-EU but not EU migrants.

DID is suitable for longitudinal or repeated cross-sectional data where samples are drawn from the same groups both before and after the intervention or policy reform (Blundell and Costa Dias 2009). We first select four cohorts by year of arrival from the period 2007–2010: up to two years before the reform (cohorts 2007 and 2008) and up to two years after the reform (cohorts 2009 and 2010). We then identify the same individuals the year after arrival (2008–2011) and collect data on education and employment, as these are not provided for all individuals in the year of arrival.⁴ Finally, we merge the yearly data into one file, corresponding to the year of analysis, 2011. A set of OLS regressions is then conducted on the annual income

(as measured the year after arrival) of EU and non-EU individuals who arrived two years before and after the reform and were still in Sweden in 2011.

Since the 2008 labour reform only targeted individuals from whom a work permit was previously required (that is, citizens of non-EU and non-Nordic countries), these individuals form our treatment group, while EU migrants who moved to Sweden for work (from now on ‘EU labour migrants’) are included as a comparison group. We expect that the treatment (as measured by the variable ‘PostReform’) will have an effect on non-EU labour migrants’ income but not on that of EU migrants. If this hypothesis is confirmed, the effect of the interaction variable ‘NonEU*PostReform’ should be statistically significant.

Finally, additional explanatory variables are added stepwise to different models in order to assess whether our basic model, including the three variables described above, remains consistent or not after controlling for key variables – such as education, occupational level, age, gender and municipality or residency – affecting income.

Findings

Table 2 provides descriptive statistics for our four subsamples as classified by time of arrival (before or after the 2008 reform) and country of citizenship (EU versus non-EU). We focus on three sets of variables describing the size, composition and employment outcomes for EU and non-EU labour migrants who moved to Sweden within the two years before and after the reform.

[TABLE 2 NEAR HERE]

The size of the cohorts increased for non-EU labour migrants after the reform: three times more arrived within the first two years after the reform (2009–2010) than within the two years prior to the reform (2007–2008). Interestingly, EU labour migrants show the opposite trend: 1.4 times fewer arrivals were registered among this group after the reform.

The gender composition of non-EU or EU migrants did not change notoriously after the reform: the proportion of men increased from 75 to 78 per cent among non-EU labour migrants while it decreased from 71 to 68 per cent among their counterparts. The educational attainment of non-EU labour migrants is significantly different between pre- and post-reform arrivals: the share of university graduates shifted from 79 to 57 per cent while the share of immigrants with primary education increased from 6 to 16 per cent. Once again, we observe the opposite trend for EU labour migrants, among whom the share of university graduates increased from 53 to 62 per cent within the same time period. There was a considerable decrease in the number of

non-EU labour migrants arriving from Asia, North America and Oceania after the reform and an increase in the number of those born in Middle Eastern countries – namely, Turkey (3 to 11 per cent), Iraq (0.5 to 5.5. per cent), Syria (1 to 4.5 per cent) and Iran (1 to 3.5 per cent).

Post-reform employment rates also changed, in opposite directions, for the two groups of comparison: they decreased slightly for EU labour migrants (by 2.7 percentage points) whereas they increased for non-EU labour migrants (7.8 percentage points). As a result of these developments, the employment rates of non-EU labour migrants became slightly higher than those of EU migrants after the reform. Changes in their annual income after the reform are more remarkable for both groups. Post-reform EU migrants earned 100,000 SEK (EUR 10,000) more as an average than their pre-reform counterparts. Among non-EU labour migrants the tendency is the opposite: the annual mean income of those who arrived after the reform was almost 100,000 SEK (EUR 10,000) lower than the income of pre-reform EU migrants. EU migrants' income development is more in line with GDP growth in Sweden – which was negative in 2008 (-0.6 per cent) and 2009 (-5.2 per cent) but positive in the two following years (6 and 2.7 per cent) – and the steady increase of the average salary in Sweden during the four years analysed (see Figure 1). It is interesting to find that, despite these positive developments, non-EU migrants' income decreased to such an extent after the reform. Finally, after the reform the share of individuals working as managers or professionals – occupations that require the highest level of qualifications in Sweden – decreased substantially among non-EU labour migrants (from 60 to 24 per cent) whereas it increased among EU labour migrants (from 33 to 43 per cent). At the same time, there were more non-EU migrants after the reform working in occupations that required a low level of qualification (Levels 1 and 2), while the opposite trend is observed among EU labour migrants.

[FIGURE 1 NEAR HERE]

In sum, our descriptive statistics show that yearly arrivals increased among non-EU labour migrants after the reform, while they decreased for EU labour migrants. Furthermore, the educational level, employment rates and job conditions (as measured by income and occupational level) also had opposing developments for EU and non-EU labour migrants after the reform: they improved among EU labour migrants whereas they became worse among non-EU labour migrants. Next we test the effect of some factors affecting these contrasting trends.

We ran eight sets of regression analysis, the results of which are presented in Table 3 and Appendices 1 and 2. Our base model (Model 1) includes the two main variables of interest –

non-EU and PostReform – plus their interaction term. We find that coming after the reform has a positive effect on income for EU labour migrants. Not only was the economic cycle more favourable in the two years following the reform but salaries continued to grow steadily between 2008 and 2011, trends that are probably reflected in this coefficient. Moving to Sweden as a non-EU labour migrant (as opposed to coming for work as an EU citizen) also has a positive effect on their annual income for those who moved to Sweden before the reform. Finally, the coefficient of the interaction term (-0.43) indicates a negative effect of the reform on non-EU migrants' wages. These findings are statistically significant and consistent in all models. However, their effects on income decrease when we add other variables like education and level of occupation.

[TABLE 3 NEAR HERE]

Model 2 replicates our base model and includes one more variable: university education. As expected, the predicted effect of education is positive and it increases income by 37 per cent. In order to capture the effect of having a university education on the annual income of non-EU labour migrants who arrived in Sweden after the reform, our Model 3 includes an additional interaction variable combining these three variables. Interestingly, having a university education has a negative effect on the salaries of non-EU labour migrants who came after the reform.

Additional variables describing the occupational level and the interaction term of this with coming as a non-EU citizen after the reform are added to the next two models. Not surprisingly, the predicted effect on income of working in an occupation with the highest requirement for qualifications (that is, being a manager or a professional) is positive and increases wages by 68 per cent (see Model 4). Furthermore, the coefficients for our main variables of interest (non-EU, post-reform and the interaction between these two) decreased significantly in this model. While the effect of entering Sweden as a non-EU labour migrant after the reform is still significant and negative, its predicted effect equals zero after adding the main effects of the two variables that form this variable (non-EU and post-reform). In other words, after controlling for education and occupational level, moving to Sweden from a non-EU country as a labour migrant after the reform does not have an effect on income. The triple interaction variable describing post-reform non-EU university graduates is not significant in this model. Model 5 also includes the interaction of entering Sweden as a non-EU citizen after the reform and working as a manager or a professional. The effect of this variable on income is

also positive. This finding is not surprising considering that the income range within each occupation for a starting position is quite narrow in Sweden.

In Model 6 we added socio-demographic variables. Living in any of the three major cities (as opposed to the rest of the municipalities) has a positive effect on income and the same is true for older age. Surprisingly, being a woman also has a positive effect. Further analyses exploring the differences in occupational level between men and women as well as the interaction of gender with the variables ‘non-EU’ and ‘post-reform’ are needed in order to explain this finding.

The last model presented in Table 3 includes country of origin fixed effects (the complete model is available from the authors upon request). About half of the variables on the country of origin are statistically significant and their effect on income is negative in comparison to EU-born migrants. US migrants, for whom the effect is positive, constitute an exception to these findings. It is noteworthy that the interaction variable describing non-EU labour migrants who arrived after the reform and work as managers or professionals became statistically non-significant in this model. The effect of this variable is probably being captured by some of the variables on source countries.

To sum up, the regression analyses show that, despite the favourable economic cycle during the post-reform period, moving to Sweden as a citizen of a third country after the 2008 labour-migration reform had a negative effect on the migrant’s annual income. However, this effect became marginal after we added a variable illustrating the occupational level.

Concluding discussion

Based on register data and a difference-in-differences approach, we have investigated the effects of the Swedish 2008 policy change on non-EU labour migrants’ labour-market outcomes, as measured by average income. The effects of the policy change are substantial. In contrast to EU migration, non-EU labour migration and the employment rates among this group increased. The educational level, job income and occupational level also present opposing trends for EU and non-EU labour migrants after the reform: they improved substantially among EU labour migrants but worsened conspicuously among non-EU labour migrants. The number of labour migrants from Asia, North America and Oceania decreased after the reform while the number of labour migrants born in the Middle East increased. Our regression analyses confirms what we see in the descriptive statistics: the 2008 policy change had a negative effect on third-country labour migrants’ annual income, with changes in occupational composition being the main drivers of the income drop. Our results indicate that a free labour-migration system

without labour-market tests and human-capital considerations may increase labour migration primarily to low-skilled occupations.

The new labour migration flows to lower-skilled jobs in the private service sector are to a large extent dependent on established transnational networks where small companies owned by co-nationals recruit the majority of the low-skilled labour migrants (Employment Service 2012). In a study of 500 restaurant and cleaning workers who were granted work permits in Stockholm in 2012, many had an ethnic link between migrant and employer, especially in smaller firms and for those applying for a work permit from abroad (Frödin and Kjellberg 2018). This confirms earlier research that emphasises the importance of migration intermediaries in shaping recruitment, selection and placement, thereby in part determining labour-market outcomes for particular groups of migrant workers (Van den Broek, Harvey and Groutsis 2016). Labour migration in lower-skilled occupations also has strong ties to the asylum system. In the study of lower-skilled labour migrants in Stockholm, more than four out of ten labour migrants ‘switched track’ from asylum-seekers, students or family connection (Frödin and Kjellberg 2018). The absence of state interventions such as labour-market tests, income thresholds and educational requirements means that both self-selection and social networks today have a large influence on who does migrate to Sweden under the current regime, with lower incomes as a result.

Notes

1. Note that the EU had 27 member states during the time period included in this study. However, our data only allow us to classify countries based on an EU-28 membership. Therefore, people coming from Croatia – which joined the EU in 2013 – are misplaced in the group of EU citizens. While we ignore the exact number of people migrating from Croatia between 2007 and 2010, we do know that it is low and, therefore, do not expect this to alter our results significantly. We plan to correct this in the next version of this paper after we receive a new variable based on previous EU memberships.
2. The original employment variable included in STATIV described whether an individual worked for a minimum of two hours during the third week of November or not. Therefore, additional criteria based on income needed to be applied to filter out people who do not have steady employment.
3. For more information on ISCO, see: <http://www.ilo.org/public/english/bureau/stat/isco/press1.htm>. For more information on STATIV variables, see: <https://www.scb.se/vara-tjanster/bestalla-mikrodata/vilka->

mikrodata-finns/longitudinella-register/stativ--en-longitudinell-databas-for-integrationsstudier/

4. Note that the process of checking and registering foreign credentials takes time and, therefore, the data on education are missing for some individuals for the year after arrival.

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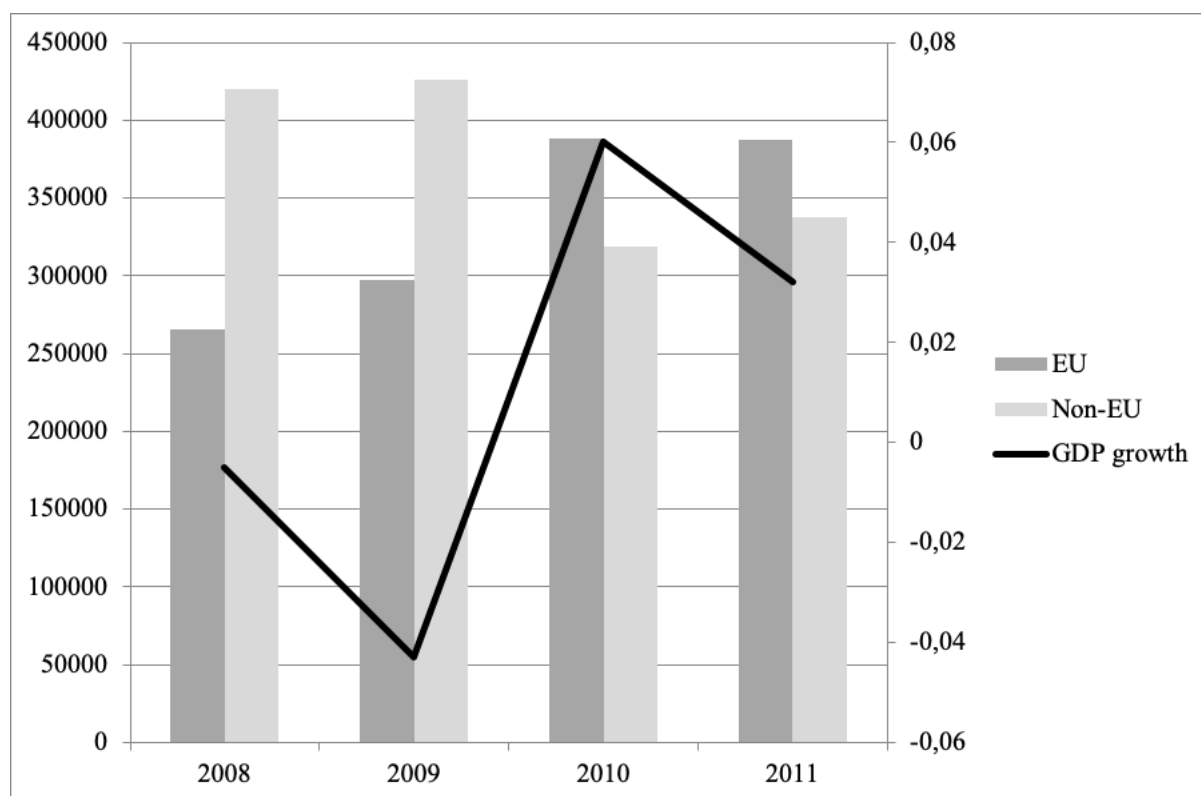
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Figure 1. Annual mean income and GDP growth the year after arrival for 2007-2010 cohorts



Source: Swedish register data World Bank. Own adaptations.

Table 1. The regulatory framework of labour migration before and after December 2008

	Assessment criteria	Time	Family	Categories
Old labour migration policy	Permanent residence permit for labour-market reasons	No limitations	Yes	Not specified, determined by the long-term needs of the labour market
	Temporary labour-market shortage	18+6 months	Yes	Skilled and experienced professionals for short-term shortages
	International exchange	Maximum 4 years	Yes	Managerial employees/specialists in international corporations
		18 months	Yes	Trainees
		12 months	Yes	<i>Au pairs</i>
	Seasonal workers	Maximum 3 months	No	Workers in agriculture, horticulture and forestry
2008 policy	Minimum wage according to occupational standards	2+2 years, then permanent	Yes	Same regulation for all categories

Source: SOU 2005:50, p. 212 and own adaptations.

Table 2. Descriptive statistics

	EU citizens				Non-EU citizens			
	Pre-reform: cohorts (N = 8,299)		Post-reform: cohorts (N = 5,858)		Pre-reform: cohorts (N = 2,285)		Post-reform: cohorts (N = 7,410)	
	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)
Age	34.7	8.8	34.8	9.5	33.6	8.0	33.6	8.3
Annual job income	279,209	244,700	387,744	598,836	423,347	413,753	330,557	492,635
Gender								
Male	5,889	71.0	3,986	68.0	1,711	74.9	5,767	77.8
Female	2,410	29.0	1,872	32.0	574	25.1	1,643	22.2
Education								
Primary	340	6.0	229	5.7	80	5.7	708	15.8
Secondary	2,077	36.4	1,102	27.5	169	12.0	969	21.7
Some post-secondary	286	5.0	205	5.1	51	3.6	228	5.1
University	3,008	52.7	2,465	61.6	1,105	78.6	2,569	57.4
Employed								
Yes	5,773	73.1	3,812	70.4	1,739	65.4	5,716	73.2
No	2,125	26.9	1,603	29.6	918	34.6	2,095	26.8
Occupation								
Managers	114	2.6	132	4.4	55	5.2	298	4.5
Professionals	1,334	30.2	1,169	39.1	578	54.3	1,295	19.6
Technicians and associate professionals	358	8.1	332	11.1	156	14.6	537	8.1
Clerical support workers	148	3.3	69	2.3	19	1.8	165	2.5
Service and sales workers	256	5.8	175	5.8	165	15.5	1,823	27.6
Skilled agricultural, forestry/fishery worker	123	2.8	70	2.3	5	0.5	99	1.5
Craft and related trades workers	1,039	23.5	490	16.4	38	3.6	927	14.1
Plant/machine operators and assemblers	403	9.1	124	4.1	12	1.1	180	2.7
Elementary occupations	648	14.7	432	14.4	37	3.5	1273	19.3

Table 2. Descriptive statistics (continued)

	EU citizens				Non-EU citizens			
	Pre-reform: cohorts (N = 8,299)		Post-reform: cohorts (N = 5,858)		Pre-reform: cohorts (N = 2,285)		Post-reform: cohorts (N = 7,410)	
	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)
Job Qualification (%)								
Level 1 (lowest)	648	14.6	433	14.4	37	3.5	1,275	19.3
Level 2	1,970	44.5	931	31	239	22.4	3,204	48.4
Level 3	358	8.1	332	11.1	156	14.6	537	8.1
Level 4	1,450	32.8	1,304	43.5	635	59.5	1,598	24.2
Country of birth								
Afrika					102	4.5	419	5.7
Asia					763	33.4	1,856	25.1
Bosnia and Herzegovina					21	0.9	87	1.2
Chile					13	0.6	36	0.5
Denmark					1	0.0	1	0.0
Eritrea					1	0.0	2	0.0
Ethiopia					4	0.2	13	0.2
EU28 except Nordic countries					13	0.6	32	0.4
Europe except EU28 and Nordic countries					275	12.0	899	12.1
Finland					0	0.0	1	0.0
Iraq					8	0.4	405	5.5
Iran					18	0.8	261	3.5
Iceland					0	0.0	0	0.0
Yugoslavia					5	0.2	4	0.1
China					401	17.6	976	13.2
Lebanon					17	0.7	81	1.1
North America					75	3.3	171	2.3
Oceania					106	4.6	177	2.4
Unknown					0	0.0	2	0.0
Poland					1	0.0	1	0.0

Table 2. Descriptive statistics (continued)

	EU citizens				Non-EU citizens			
	Pre-reform: cohorts (N = 8,299)		Post-reform: cohorts (N = 5,858)		Pre-reform: cohorts (N = 2,285)		Post-reform: cohorts (N = 7,410)	
Country of birth (continued)	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)	Mean (No.)	SD (%)
Romania					0	0.0	2	0.0
Somalia					1	0.0	4	0.1
Soviet Union					15	0.7	8	0.1
Great Britain and Northern Ireland					3	0.1	3	0.0
South America					97	4.2	307	4.1
Syria					19	0.8	327	4.4
Thailand					114	5.0	263	3.6
Turkey					75	3.3	799	10.8
Germany					8	0.4	9	0.1
Hungary					0	0.0	0	0.0
USA					128	5.6	261	3.5

Source: Swedish register data. Own calculations.

Table 3. OLS regressions on logged annual job income

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
(Constant)	12,3***	0,0	12,2***	0,0	12,2***	0,0	12,2***	0,0	12,2***	0,0	11,4***	0,1	11,3***	0,1
NonEU	0,3***	0,0	0,3***	0,0	0,3***	0,0	0,0**	0,0	0,0**	0,0	0,01**	0,0	0,2***	0,0
PostReform	0,2***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0
NonEU*PostReform	-0,4***	0,0	-0,4***	0,0	-0,3***	0,0	-0,1***	0,0	-0,2***	0,0	-0,1***	0,0	-0,1***	0,0
University			0,4(***)	0,0	0,4***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0	0,1***	0,0
NonEU*PostReform*University					-0,1***	0,0	0,0***	0,0	0,0	0,0	0,0	0,0	-0,1*	0,0
HighestJobQualification							0,7***	0,0	0,6***	0,0	0,6***	0,0	0,6***	0,0
NonEU*PostReform*HighestJobQualific.									0,1***	0,0	0,1**	0,0	0,0	0,0
Stockholm											0,1***	0,0	0,1***	0,0
Gothenburg											0,01**	0,0	0,1**	0,0
Malmö											0,01**	0,0	0,1*	0,0
Age											0,0***	0,0	0,1***	0,0
Age ²											0,0***	0,0	0,0***	0,0
Male											-0,2***	0,0	-0,2***	0,0
Country Fixed effects	No		No		No		No		No		No		Yes	
N	18 707		18 707		18 707		13 735		13 735		13 735		13 735	
Sig.	0,00		0,00		0,00		0,00		0,00		0,00		0,00	
R ²	0,02		0,08		0,08		0,26		0,26		0,31		0,32	

Notes: *** $P \leq 0.001$; ** $P \leq 0.01$; * $P \leq 0.05$. Reference categories are: EU, Pre-reform, Non-university, Lower job qualifications, Other municipalities and Female. *Source:* Swedish register data. Own calculations.