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Who cleans my house if the government pays? Disadvantaged labor market groups in the tax-subsidized domestic service sector

IZA Policy Paper, No. 171

Provided in Cooperation with:
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Suggested Citation: Rickne, Johanna (2021) : Who cleans my house if the government pays? Disadvantaged labor market groups in the tax-subsidized domestic service sector, IZA Policy Paper, No. 171, Institute of Labor Economics (IZA), Bonn

This Version is available at:
https://hdl.handle.net/10419/243457

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ABSTRACT

Who Cleans My House If the Government Pays? Disadvantaged Labor Market Groups in the Tax-Subsidized Domestic Service Sector*

Many European countries have implemented policies to revive their domestic service sectors. A common goal of these reforms has been to create employment for disadvantaged groups on the labor market. I study Sweden, where a 50% tax deduction on labor costs for domestic services was introduced in 2007. I use detailed administrative data to report the shares of three disadvantaged groups among small business owners and employees in tax-subsidized firms. I then compare these shares to all private firms and to firms in two industrial subsectors with a predominance of elementary occupations. I find that the shares of refugees and long-term unemployed are of similar sizes in the subsidized firms as in the private sector as a whole. For the third group—people with a low level of education—I find a larger share in the subsidized firms compared to the average private firm, but a smaller share compared to the other industries with elementary occupations. An extended analysis suggests that labor immigration to the subsidized sector from other EU countries may have crowded out the disadvantaged groups. EU immigrants operate half of all subsidized firms in Sweden's largest cities and employ mainly other EU immigrants in their businesses.

JEL Classification: J21, J23, J61, H2

Keywords: domestic services, tax deduction, employment, refugee immigrants

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* The author thanks Olle Folke, Anders Forslund, Katinka Hort, Pernilla Josefsson, Håkan Selin, and seminar participants at the Hertie School of Government, the Centre for Business and Policy Studies, the Swedish Ministry of Finance, the Swedish Trade Union Federation, and the Annual Congress of the International Institute of Public Finance. This work was supported by the Swedish Research Council for Health, Working Life and Welfare [grant numbers 2016-00363 and 2019-01251], and the Knut and Alice Wallenberg Foundation [Wallenberg Academy Fellow Grant, 2017 cohort].

1. Introduction

The employment prospects for people with low qualifications have been in decline in the labor markets of high-income countries. Globalization has moved jobs abroad, structural transformation has shrunk the size of the agricultural and industrial sectors, and digitization and automation have replaced routine jobs with machines. While elementary service jobs have been harder to globalize or automate, they have faced another threat, as decreasing income inequality has reduced the ability of high-income people to buy services from well-paid service workers. A case in point is the domestic service sector, which declined to the point of near extinction in Western European economies over the course of the 20th century.

In the 1990s, the idea to create employment for disadvantaged groups by reviving the domestic service sector took hold in Western Europe. Encouraged by the EU Commission and national lobby groups, many countries introduced policies that invested public money to lower the price of these services (Carbonnier and Morel 2015, Morel 2015). Variations in policy designs include service checks (France, Belgium, Germany, and Austria), cuts to social security premiums (The Netherlands, Germany), and tax deductions for labor costs (Sweden, Denmark, and Finland). But despite the ubiquity of these policies, few studies have assessed the degree to which disadvantaged groups are actually employed in the subsidized sector. The available evidence also suggests some cause for concern. Raz-Yurovich and Marx (2018) document a national-level increase in the employment rate for women with low education that coincides with the reform, but also cite survey evidence of growing inflows to the subsidized sector of workers from Eastern Europe, and reduced inflows from domestic unemployment.

I study the employment of disadvantaged groups in Swedish firms that receive public money from a generous tax deduction for domestic services. The analysis considers three

groups that most countries with similar policies have targeted with their reforms: refugee immigrants, people with a low level of education, and the long-term unemployed.

My analysis relies on population-wide employer-employee data in 2010—2015. Companies claim the tax deduction from the Swedish Tax Authority, which gives a complete record of these firms. I then use individual- and business tax records to identify any person who receive wages or business income from these firms and all other private firms in each calendar year. Administrative data provides high-quality data for the socio-demographic traits of these persons, and the panel dimension of this data lets me identify the entry to a firm from long-term unemployment.

I use the straightforward empirical method of comparing the shares of the disadvantaged groups in subsidized firms and other firms. The first comparison is with all firms in the private sector. If the subsidization policy was successful at providing jobs for the disadvantaged groups, subsidized firms should have higher shares than the full private sector. A second comparison considers two industrial sectors: the commercial cleaning sector and the restaurant sector. These sectors provide the largest number of elementary jobs in the Swedish labor market. This makes them a useful benchmark to analyze if the subsidized sector employs more or less of the disadvantaged groups compared to Sweden's pre-existing large sectors of elementary jobs.

Overall, the results show that the subsidized firms have low shares of people from the disadvantaged groups, both among their wage-earners and small business owners. The share of refugees and long-term unemployed is barely higher in the subsidized firms compared to the full private sector. And while subsidized firms are more likely than the average private firm to employ people with a low level of education, they are still less likely to do so than those in the commercial cleaning and restaurant sectors. Taken together, the findings show an employment structure in subsidized firms that is barely more favorable to disadvantaged groups than that of

the full private sector. It is also substantially less favorable to these groups than the employment structure in other sectors with a predominance of elementary jobs.

My analysis of immigrant groups in subsidized firms provides a possible explanation for the low shares of disadvantaged workers. EU immigrants account for 35–45% of the workers in subsidized firms, nearly five times their share in the overall Swedish working-age population. I extend this analysis to discuss two mechanisms whereby the dominance of EU immigrants may have had direct crowd-out effects. First, I document a high level of co-ethnic recruitment: firms operated by EU immigrants tend to employ 80% EU immigrants, while employing smaller shares of refugees and low-educated workers than other subsidized firms. Second, firms managed by EU immigrants are concentrated in Sweden's largest cities. EU immigrants manage nearly half of the subsidized firms in the country's three largest cities, where refugee immigrants are also more likely to live.

I conclude that policies to revive the domestic services sector are unlikely to favor disadvantaged groups in the domestic labor market in a meaningful way. Policy makers may need to look elsewhere, or at least be mindful of the potential pitfalls. As in other countries with similar policies, the Swedish policy does not regulate who is employed to carry out the subsidized services in people's households.[1] This situation creates the opportunity for an inflow of EU immigrants to the subsidized sector, which seems closely linked to the policy's failure to favor disadvantaged groups in the domestic labor market. If a country is part of a larger administrative area with the free movement of labor, such as Sweden's membership in the European Economic Area (EEA), workers and entrepreneurs can cross borders to take advantage of the labor demand created by policies in other countries. Co-ethnic hiring in these firms may then directly crowd out other groups, a problem that seems most acute for refugee

[1] Such restrictions are common for payroll tax cuts, for example by restricting the target population by age (see, e.g., Huttunen et al. 2013).

immigrants. These results make a broader academic point about refugee integration: competition for elementary jobs between refugees and EU immigrants in specific industries may help explain refugees' weak outcomes in Western European labor markets (e.g. Åslund et al. 2017, Fasani et al. 2018; reviewed by Brell et al. 2020).

A second conclusion relates to the policy's broader impacts on inequality. In Section 5, I describe the socioeconomic profile of the consumers of subsidized domestic services using administrative data. These consumers have higher-than-average incomes and education levels, a pattern also observed in other countries (Flipo et al. 2007, Marx and Vandelannoote 2015). Recent research has also shown that the consumption of subsidized services allows highly educated, high-income women to spend more time in paid labor (Halldén and Stenberg 2014, Raz-Yurovich and Marx 2019). These impacts, when analyzed alongside the findings about the recruitment of disadvantaged groups in the main analysis, suggest that the policies likely amount to an investment of public money to raise the relative life quality and incomes of already affluent households, without improving the relative employment chances of the lowest-income workers in the labor market.

2. The policy

In 2007, a center-right Swedish government introduced a tax deduction for domestic services (*RUT-avdrag*). The policy entitles buyers to a 50% tax deduction on the labor cost when they buy a domestic service covered by the policy.[2] The tax deduction applies to the wage and social contributions for the service worker, as well as the company's profits and Value-Added Tax (VAT), but not to costs for materials, equipment, or commuting. The policy quickly became near-synonymous with household cleaning services, which accounted for more than 90% of the

[2] Total annual deductions per person were capped at 50,000 SEK (5,300 euros), which applied jointly to the *RUT-avdrag* and another tax deduction for heavier renovation work.

total subsidies in 2010 and 83% in 2016 (Swedish Tax Agency 2011, skatteverket.se). Gardening became the second most popular service. While other services like laundry and cooking were eligible for tax deductions under the policy, few households claimed them for these services.[3]

Like in other countries with similar policies, the Swedish reform aimed to create jobs for people with short education and in long-term unemployment (Prop. 2006/07:94). It also sought to regularize the informal sector and to expand the labor supply of professional women. Refugee immigrants were not part of the original policy motivation, but came to play a key role in subsequent years (Peterson 2011:205, Nyberg 2015). Refugee immigration stood at a relatively high rate in Sweden throughout the 2010s, and refugees' pace of entry into the paid labor force was relatively slow. This observation generated a vivid debate about the need for more "elementary jobs". A lack of low-wage, elementary jobs was said to be a key barrier to refugees' economic integration. The tax deduction for household services became a poster child for the growing policy push to tax-subsidize the creation of new "elementary jobs" that would fit refugees' (perceived) skill profile.[4] Expanding the *RUT-avdrag* became a centerpiece of the center-right coalition's agenda for refugee integration, and politicians and pundits commonly referred to the policy as an "engine of labor market integration" for refugee immigrants.[5]

[3] The exact services included in 2007 were household cleaning, laundering clothes and other home textiles, cooking, snow removal, hedge and lawn cutting, weeding, and child care. Tutoring was added in 2013 and removed in 2015, and cooking services were removed in 2016. More recently (after the study period of this paper), repair of household appliances, IT services and moving services were also included in the scheme.
[4] This debate generally defined an "elementary job" as occupations requiring only a primary level of education, corresponding to group 9 in the first-digit occupation code (in the Swedish SSYK codification as well as in the ISCO-08 codification). Cleaning services is the largest elementary job on the Swedish labor market.
[5] Examples include the Center Party's 2019 budget proposal explaining how the subsidy creates employment and business opportunities for refugee immigrants who otherwise have a hard time "getting a foot in the door" in the Swedish labor market (https://www.riksdagen.se/sv/dokument-lagar/dokument/motion/centerpartiets-budgetmotion-2019_H6022610/html); op-eds by the Conservative Party arguing that an "increased tax subsidy for domestic services improves the labor market integration" https://www.na.se/artikel/moderaterna-hojt-rutavdrag-underlattar-integrationen (July 15, 2019); and policy statements from the Swedish Enterprise Board (https://www.svensktnaringsliv.se/fragor/enkla-jobb/). In more recent policy developments, an expansion of the *RUT-avdrag* played a prominent role in the grand bargaining between Swedish political parties to address the 2015 refugee crisis (*Migrationsöverenskommelsen*). After the 2018 election, coalition bargaining resulted in an

All taxpayers aged 18 or over are eligible for the tax deduction as long as the amount of income taxes they paid exceed the deductions claimed during the calendar year. In the original version of the policy, the consumer would buy the service from a company, save the receipt, and claim the deduction as part of their annual tax returns. A regulatory change in July 2009 significantly reduced this administrative burden by shifting the filing responsibility from the consumer to the company. After selling the service, the firm now reports the number of service hours, labor costs, and the consumer's personal ID code to the Tax Agency. All firms that are registered to pay corporate taxes, including small home-service companies and people who are self-employed, are eligible to report in this way.[6] Notably, the Swedish scheme does not regulate who the firm hires to perform the household services, the wages of these workers, or what type of labor contract they have. Unlike some countries that have implemented service vouchers, Sweden does not regulate the price of the services on the market.

3. Expected employment chances of disadvantaged groups

Subsidy schemes for domestic services gained popularity in Western Europe in the 1990s with the active encouragement of the European Commission and national lobbying groups. Carbonnier and Morel (2015) give insightful accounts of these policy debates across Europe and document their common goal of providing jobs for disadvantaged groups.

Domestic services like cleaning or laundry are quintessential elementary occupation. In Figures 1 and 2, I use data from the O*NET database for occupational traits to document the low requirements on formal education and language skills of such jobs.[7] In Figure 1, the black squares denote the demands for language skills for "Maids and Housekeeping Cleaners"

agreement to raise the cap and extend the list of services included in the scheme, once again motivated by a desire to improve refugee immigrants' labor market integration.

[6] For direct employment in a household, which is highly unusual in Sweden, the tax deduction is just 15% of the cost of wages and social contributions.

[7] The O*NET database is sponsored by the U.S. Department of Labor, Employment & Training Administration and updated annually based on data collected by the non-profit organization RTI International. It contains data on skill requirements across occupations, which is based on assessments by experts and employee surveys.

relative to all other jobs in the database (N=965). As seen from the placement of these dots, the demands are clearly lower than for the average job. Figure 2 uses the same comparison to show the low demands on formal education. Domestic service jobs also require low levels of previous labor market experience, and the capital requirements for starting a business are smaller than in most other sectors.

Given the skill profile of domestic service jobs, it is straightforward to assume that this sector offers relatively more employment opportunities for disadvantaged groups. For example, more low-educated people are likely to hold these jobs since they require less formal education. Similarly, refugee immigrants have both lower-than-average education levels and weaker qualifications in terms of language skills and work experience in the domestic labor market. People who have been unemployed long term also have less work experience because of their time out of the workforce, and all three groups could be assumed to benefit from the relatively low capital requirements for starting a small business in the sector.

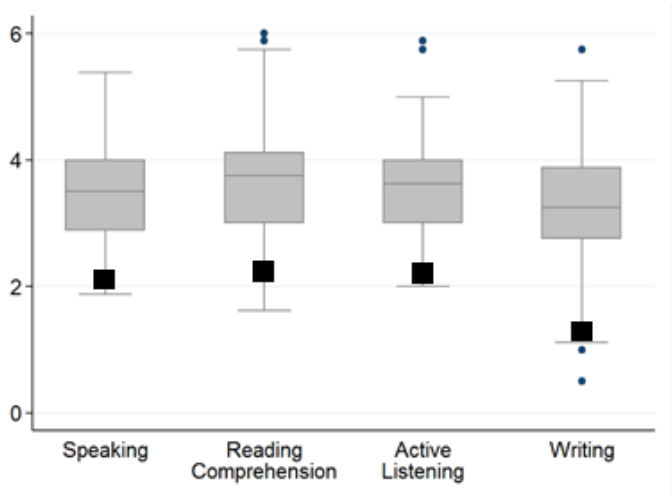

Figure 1: Expert judgments for skills needed among maids and housekeeping cleaners (black squares) relative to all jobs (box plots).

Notes: The figure compares the skill requirements for maids and household cleaners (marked as black squares) to the distribution of skill requirements for other jobs in data from the O*NET database. The gray boxes represent 50% of the values of each variable, from the first to the third quartiles, and the horizontal line in the box shows the median. The whiskers mark the min and max of the variable, and outliers are marked with black dots.

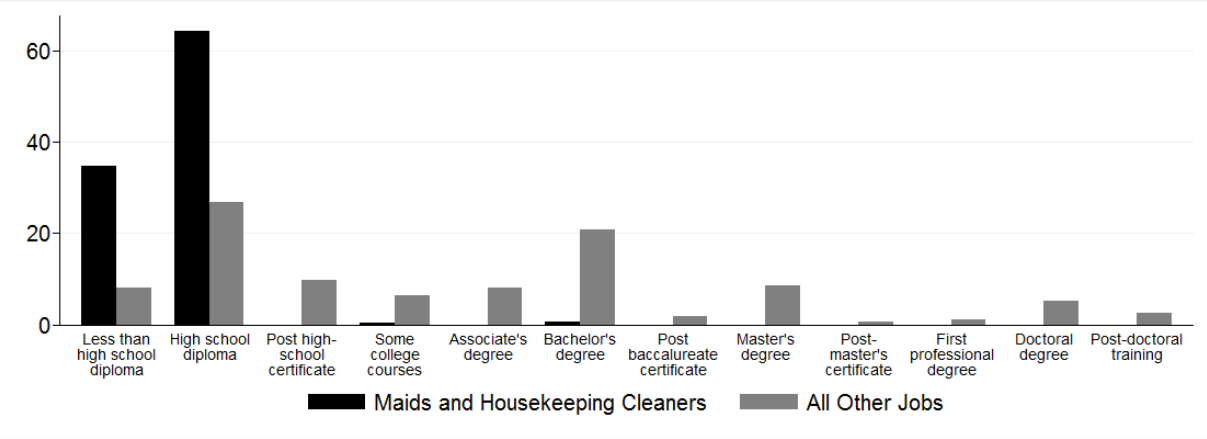

Figure 2: Distribution of educational requirements for maids and housekeeping cleaners compared to all other jobs in the U.S. labor market.

Note: The figure shows the distribution of educational requirements as reported in the O*NET database (www.onet.com).

There are also several factors that make it less likely that disadvantaged groups will benefit from the *RUT-avdrag* policy. One is the hands-off approach to who is employed in the subsidized jobs. Like in other European countries, the Swedish reform allows companies to hire freely for the service jobs. Compared to other types of labor market policies that provide subsidized employment for specific socio-economic groups, this policy design allows employers and customers to make discriminatory decisions on who they employ (Becker 1971, Bohnet 2016). In Sweden, households frequently request that service providers send workers with a Caucasian appearance to clean their homes (Kvist 2013, authors' interviews with domestic service providers).

A second factor is immigration. In Europe, inflows of immigrants from other EEA countries may grow in response to an increased demand for labor such as that created by the *RUT-avdrag* policy.[8] In a sector that requires relatively low language skills and labor market experience, immigrants from other European countries may be better positioned to exploit these opportunities than disadvantaged groups. For example, female refugee immigrants may have

[8] After the EU expanded in 2004 to include countries in Eastern Europe with significantly lower wages, Poland became one of the top sending countries of labor immigrants to Sweden (Hobson et al. 2018).

significant barriers to entering the labor market, such as weaker networks, or traditional gender norms that disincentivize employment (Akerlof and Kranton 2000, Grönkvist and Niknami 2012, Brell et al. 2020).

Third, as immigrant groups establish firms in the subsidized sector, they may also prefer to hire workers with an immigrant background similar to their own (Guiliano et al. 2009, Åslund et al. 2014, Hammarstedt and Miao 2020). A strong presence of EU immigrants who favor other EU immigrants could crowd out the employment of people from disadvantaged groups. Qualitative research and journalistic accounts of the domestic service sector in Sweden have documented how family ties and friendship networks between EU immigrants play an important role in structuring the gradual in-migration to work in the sector (Kvist 2013, *Kommunalarbetaren* 2019). This phenomenon has been largely observed for urban centers rather than rural communities, which could further hurt refugee immigrants who are over-represented among those urban residents.

This paper is interested in the *composition* of employment in the subsidized sector rather than the *number* of jobs created. Economists have argued that subsidies directed at the domestic service sector should be more likely to create jobs than subsidies to other sectors (Kleven et al. 2000, Flipo et al. 2007). As I show below, there are strong indications that the Swedish policy led to a meaningful number of new firms and jobs. It caused a large drop in the price of household cleaning services, and a significant number of households started buying these services rather than cleaning their own homes. In addition, many of the subsidized firms that operated in 2010–2015 did not exist prior to the reform. A detailed analysis of the number of

new jobs, or of the average cost of those jobs to taxpayers is, however, beyond the scope of this paper.[9]

4. Data and methods

Defining the subsidized sector. Since July 2009, Swedish companies have been able to claim the tax deduction by submitting information to the Swedish Tax Authority. Statistics Sweden aggregates these data to the firm-year level, which gives me a complete list of the organizational ID codes for all firms that received some nonzero deduction in each year, as well the total amount of annual deductions. The first full calendar year for which this information is available is 2010, and my dataset ends in 2015. There are 96,968 firm-year observations during this period.

I define the subsidized sector as firms for which total tax deductions in a year comprise a relatively large share of their total sales of goods and services.[10] To measure sales, I use the variable *Net Sales*, which captures the firm's total annual sales minus rebates and VAT. Statistics Sweden cleans the data used to calculate this variable before making it available for research, but faulty reporting by firms still results in some missing or erroneous values, especially for small companies (authors' conversations with Statistics Sweden). Net Sales data are available for 86% of my sample (83,431 of 96,968). For the remaining firms, I use the annual sum of wages and business income as an alternative variable for total sales (I describe the source of these income data below). After adding this second measurement, only 8,540 firm-year observations remain with missing data, and they account for only 1.3% of the total tax deductions in 2010–2015.

[9] For discussions of the issue of jobs in Swedish-language reports, see Tillväxtanalys (2019), and Riksrevisionen (2020).
[10] Since subsidized firms register under a variety of industry codes, this variable cannot be used to define the sector.

I use thresholds of the ratio of tax deductions to total sales to define two groups of subsidized firms. I define a firm as *subsidized* if the tax deduction was applied to at least 20% of its total yearly output, and *highly subsidized* if it was applied to more than 50%.[11] Methodological details for this calculation are available in Section W1 of the Web Appendix. Since this classification is performed at the firm-year level, it is possible (but unlikely) for a firm to belong to different groups in different years.

The group of firms that I classify as *subsidized* account for 80% of the total amount of tax deductions in 2010–2015. *Highly subsidized* firms, which are a subset of the previous group, account for 61%. We should think of these firms as specializing in domestic services, most commonly household cleaning. Firms that receive non-zero subsidies but which I do not define as *subsidized* are mostly selling other services (or goods), such as a construction company that sometimes cleans apartments or households. The average share of economic activity in the firms covered by the tax deductions is low, at 4.6%.

Comparison sectors. I compare the employment composition in the subsidized sector to three other groups of firms: all private firms, the commercial cleaning industry, and the restaurant industry. Private ownership is defined by a firm's Ownership Code, an administrative variable based on tax records. The restaurant and commercial cleaning industries are defined by their 5-digit industry codes.[12] About half of the firms in the subsidized sector have commercial cleaning as their industry code. I keep these firms in the category of subsidized firms. The commercial cleaning sector is defined as all other firms that have the industry code for commercial cleaning.

[11] This method draws on previous policy evaluations by the Swedish Tax Authority (Skatteverket 2011) and the Danish Ministry of Industry, Business, and Financial Affairs (Erhvervsministeriet 2001).
[12] 8129 (General cleaning of buildings) and 56100 (Restaurants and mobile food service activities) in the Swedish system of industry codes, which corresponds to the Nomenclature of Economic Activities (NACE), Revision 2.

To answer the paper's research question, I use the straightforward method of comparing the presence of disadvantaged groups among people who receive either wage income or business income from the subsidized sector and the comparison sectors. If the presence of the groups is similar in the subsidized sector as full private sector, the policy has clearly failed to favor these groups on the labor market. As the commercial cleaning and restaurant sectors provide the most elementary jobs in the Swedish labor market,[13] their employment composition is another useful benchmark for the performance of subsidized firms. If the subsidized sector has the same probability of employing disadvantaged groups as these industries, the policy has created an equally favorable employment structure for these groups as a typical sector with a predominance of elementary jobs on the Swedish labor market. If the subsidized sector outperforms these sectors, perhaps by having *even* lower demands for formal education, training or language skills, this would be a particularly positive finding for the policy.

Defining employment by income threshold. I define employment in a sector as having a total amount of annual wages and business income from that sector that exceeds a threshold amount. Income data come from the Job Register (*Jobbregistret*), which is based on tax records and lists all payments of wages and business income that exceed 99 SEK in a calendar year (~11 USD). I use the organizational ID code for the source of each payment to match it to the subsidized sector and the comparison sectors. My income data include all people with a Swedish ID code as well as all temporary workers in the country, whose incomes are registered under a temporary ID code (*samordningsnummer*).

In the main analysis, I define employment as having a total annual income of at least 6 monthly wages for the median cleaner in the private sector.[14] I use two other cutoffs, a lower

[13] Calculated by the author, using the definition of elementary jobs in footnote 5 for the 2010–2015 period.
[14] Swedish occupation codes closely approximate the ISCO08 code 911 for "Domestic hotel and office cleaners and helpers". Wage data come from the Swedish Salary Statistics and cover all large private firms and a stratified random sample of small and medium-sized firms. I compute the median wage for full-time workers in

one at 1 monthly wage and a higher one at 12 monthly wages, throughout the paper as a sensitivity check. Because wage and business income have separate entries in the Job Register, I can also define people as either wage earners or small business owners based on their total annual income from either of these sources. Throughout the paper, I use "employment" to refer to people whose combined total income from wages and business income exceeds the threshold.

My data are not precise enough to determine which individual workers in subsidized firms carry out the subsidized services. Most of the firms are small and not sampled in Statistics Sweden's surveys on occupations. I sidestep this data problem by studying the composition of all employment in the subsidized firms, conditional on being above the income threshold. One potential drawback of this approach could be that the income threshold excludes precisely the employment from disadvantaged groups that I am interested in. However, this does not appear to be the case, since the descriptive results are robust to including people with very low annual incomes (the 1 monthly wage threshold). Another potential critique is that I include employees who hold higher-level jobs within the subsidized firms. Yet I argue that including these people is appropriate, because the tax subsidy also contributes to employment more broadly within firms, such as marketing jobs or low-level coordination jobs for domestic service workers in the field.

A third critique concerns missing information on informal employment. Although informal employment is less common in Sweden than in most other countries, it has been observed among (mainly) foreign-born labor immigrants in the domestic service sector (Hobson et al. 2018). Based on this research, the employment in subsidized firms in my data would likely

cleaning jobs in the private sector in each year, and multiply this sum by 6 to get the threshold value. The median monthly wage for a cleaner in the private sector was 19,536 SEK in 2010 and 22,869 in 2015.

include (even) higher proportions of non-refugee immigrants from inside and outside of Europe if these informal workers had been included in the analysis.

Disadvantaged groups: education, immigration, and labor market status. Socio-demographic variables for sex at birth, region of birth, year of birth, education level, and latest year of immigration come from the Longitudinal Integrated Database for Health Insurance and Labour Market Studies (LISA, according to its Swedish acronym). Immigrants' education level is recorded as part of the immigration process, and Statistics Sweden also carries out regular surveys to supplement missing data for this group. Among people with temporary ID codes, approximately 30% have socioeconomic data on geographic region of citizenship, age, and sex at birth.

Refugees are identified from data on residence permits in the Longitudinal Database for Integration Studies (STATIV, according to its Swedish acronym). I count people as refugees if they have held a residence permit with refugee status at any point since their arrival in Sweden. Following standard practice, I count six types of residence permits as "refugee status": refugees according to the Geneva convention, quota refugees, humanitarian refugees, refugees according to temporary legal frameworks, other refugee permits, and family reunification immigrants to persons with refugee status.[15] The earliest year for which residence permit data are available is 1985. Refugees whose permits were granted so long ago that they had expired by then, for example by gaining Swedish citizenship, are (erroneously) not included in my definition.

EU and non-EU immigrants are defined based on being born either inside or outside EU28 countries. Notably, being defined as a refugee overrides these two categories. Of people born outside of Sweden in another EU28 country, 18% are defined as refugees; and of people born outside of EU28, 47% are defined as refugees.

[15] In Swedish: Konventionsflyktingar; Skyddsbehövande; Synnerligen ömmande omständigheter; Tillstånd enligt tillfällig lag; Övriga tillstånd, flyktingar m.fl.; Flyktinganhöriga.

Low education is defined as all people who have not completed upper secondary education, following the international standard (OECD 2019).

Long-term unemployment, unemployment, and non-employment are measured using data on income sources in each year (following work by Andersson and Brännström 2009). A person is defined as *unemployed* if their largest source of income is from unemployment benefits and/or active labor market programs. A little over 3% of the sample falls into this category, a figure that is biased downward because people may be actively looking for work despite not receiving benefits or participating in a program. *Non-employment* is defined as meeting one of two conditions: 1) having a total labor income less than 1 monthly wage for a cleaner in the private sector or 2) having a combined total income from sickness insurance, disability pension, worker injury insurance, rehabilitation insurance, and basic income support that makes up the person's largest source of income in that year. *Long-term unemployment* is defined as being unemployed in the current year and either unemployed or non-employed in the previous year. People currently enrolled in higher education and 18 year olds with zero labor income are dropped from all three variables.

5. Descriptive statistics for firms, workers, and consumers

This section reports basic descriptive statistics for the number of firms, wage earners, and small business owners in the subsidized firms and comparison sectors. I also report basic descriptive statistics for the policy's expansion over time, including the number of consumers of subsidized services and the total deduction amount paid by the government. A natural starting point for understanding these developments is the dramatic price drop for domestic services that occurred immediately after the policy was introduced in 2007. The price of household cleaning services fell by nearly the size of the entire tax deduction (50%) and remained at this lower level in the following years (see Web Appendix Figure W1). This indicates that the policy had a maximal

impact on service demand, which would not have been the case if companies had instead pocketed part of the subsidy as profits and kept consumer prices at a higher level.

Figure 3 shows time trends in the total yearly deduction amount, the annual number of consumers who used the deduction, and the number of subsidized firms. In 2015, the total amount reached 4.8 billion SEK (0.6 billion USD) and the number of people who used the policy was 649,720 persons (8.3% of the eligible population). The number of firms with non-zero subsidies was 17,000 and among these, 7,917 were *specialized* and 5,263 *highly specialized* in producing the subsidized services. Using additional variables from the administrative business register, I observe that only 0.1% of the specialized firms are foreign owned, compared to 2% of all private sector firms. Specialized firms are also less likely to be stock corporations (17% vs. 32%) or limited liability partnerships (17% vs. 32%), and are more likely to be sole proprietorships (75% vs. 62%).

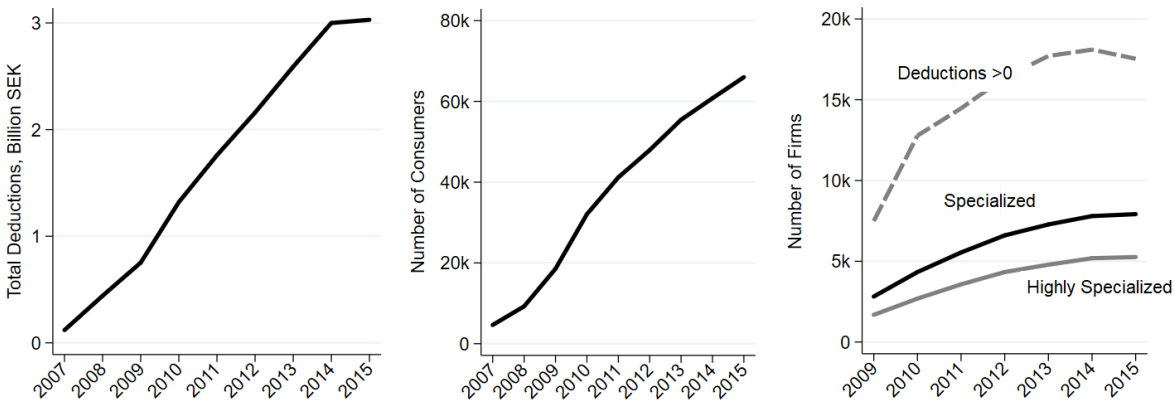

Figure 3: Total annual tax deductions, number of consumers, and number of subsidized firms.

Notes: The figure shows time trends in the total tax deductions (left), the number of consumers with non-zero deductions (center) and the number of firms in three categories of specialization (as defined in Section 4).

Web Appendix Figures W2 and W3 show the socio-demographic profiles of the consumers of subsidized services. People with high incomes, high education, and couples with children under 18 in the household are over-represented in this group compared to the Swedish population. In 2015, almost two-thirds of all deductions went to households in the top quartile

of the income distribution. This skew toward richer households is even more prevalent among high-intensity consumers, who I define as people who purchase at least one hour of domestic cleaning services per week (6% of all consumers in 2015).

Number of employed. Figure 4 shows time trends for employment numbers in the subsidized sector compared to the commercial cleaning and restaurant sectors. Trends are shown separately for the three threshold values for employment in terms of annual income from the sector (at least 1 monthly wage, 6 monthly wages, or 12 monthly wages for a full-time cleaning job).

Employment in the subsidized sector grew consistently over the 2010–2015 period. In 2015, the subsidized firms together employed 11,967 and the highly subsidized firms employed 7,128 people according to my main definition. Splitting these groups according to whether people have income from wages or business income shows a relatively high rate of self-employment in the subsidized sector compared to the comparison sectors (Figures W4 and W5 in the Web Appendix). In subsidized and highly subsidized firms, 29% and 32% of employees are self-employed, respectively, compared to 18% in the restaurant sector and 9% in the commercial cleaning sector.

Figure 4 also contains an interesting observation about the income structure of subsidized firms. Relative to the two comparison sectors, a larger proportion of employees and small business owners have low yearly incomes. Section W2 in the Web Appendix explores this issue further and briefly discusses job quality by computing rates of in-work poverty, defined as having a total disposable income below 60% of the population median. The rate of in-work poverty in the subsidized sector is higher than in the commercial cleaning and restaurant industries, and much higher than in the full private sector.

Subsidized firms have a small proportion of temporary foreign workers, which means that missing demographic data will not be an important source of measurement error in the analysis.

Of people with at least 6 months of wages, fewer than 1% are temporary foreign workers, which is similar to the proportions in the commercial cleaning and restaurant sectors (1.4% and 0.7%, respectively). The low number of temporary workers may be due to the benefits of registering as a permanent citizen in Sweden. The process is quite simple for people who have the right to work in the country, for example migrants from EEA countries and their relatives. Having an ID code may be worthwhile even for shorter periods of work since it facilitates access to medical care and financial services.

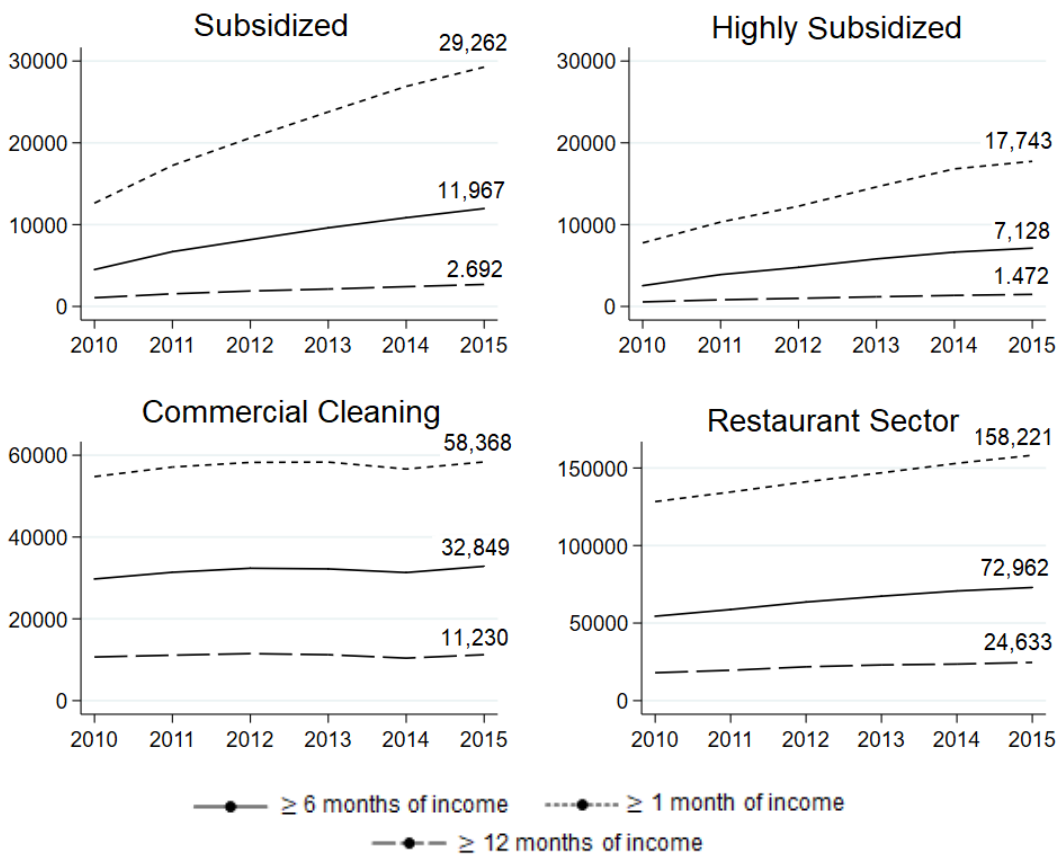

Figure 4: Employment numbers.

Notes: The figure shows annual counts of people whose annual labor earnings from a specific sector surpass three thresholds for total yearly labor earnings. Subsidized and highly subsidized firms are defined in Section 4. All income data are from Swedish tax records and cover all sources of annual earnings above 11 USD.

New jobs and firms? As previously described, this paper does not distinguish between new employment created by the tax deduction and formal or informal jobs that existed before the reform. Nevertheless, various statistics strongly indicate that a substantial share of the

employment observed in the subsidized firms is mostly new jobs. In an anonymous survey of 5,000 users of the tax deduction in 2010, only 6% reported having previously purchased the services on the informal market, while 65% had either done the chores themselves, not done them at all (7%), or been helped by a relative (3%) (Swedish Tax Agency 2011). Based on interviews with 201 business owners in the domestic service sector, Kvist (2013) describes a rapidly expanding market of consumers, firms and workers. In my data, the registration dates of the subsidized firms show that many were created after the reform. Only one in three subsidized firms (32%) and one in five highly subsidized firms (19%) exists in the 2006 business register, one year before the policy was introduced.

6. Disadvantaged groups in subsidized employment

Refugees and other immigrants. Refugee immigrants make up 7% of the Swedish working-age population, and represent one of the most disadvantaged groups in the labor market. One-fourth are non-employed, 7% are unemployed, and 5% long-term unemployed. All three shares exceed those of the full working-age population (11% non-employed, 3% unemployed, and 2% long-term unemployed). While these three variables show similar rates of labor market integration for men and women refugees, women refugees are more likely than men to be absent from the labor market due to parental leave and other full-time care work (10% vs. 1%). In contrast to refugees, the other two immigrant groups—EU immigrants and non-EU immigrants—are not disadvantaged in the Swedish labor market according to my measurements.[16]

The left side of Figure 5 compares the shares of refugees across sectors. The results demonstrate that the subsidized sector has not stood out as a "motor of integration" for refugee

[16] EU immigrants have a 13% non-employment rate, a 4% unemployment rate, and a 2% long-term unemployment rate; non-EU immigrants have a 12% non-employment rate, 5% unemployment rate, and a 3% long-term unemployment rate.

immigrants. The share of refugees in subsidized firms barely surpasses the share in the full private sector, and is only half as large as in the restaurant and commercial cleaning industries. Despite offering jobs with low requirements for language skills and labor market experience, subsidized firms have not been more likely to employ people with a refugee background than the average private firm, and have been substantially less likely to do so than other sectors with a predominance of elementary jobs. The analysis of job entrants later in this section returns to the issue of immigration by showing that most refugee immigrants who enter the subsidized sector in a particular year have not recently arrived in the country.

Non-EU immigrants have more positive employment prospects in the subsidized firms. Their share of the employment of these firms is larger than in the private sector as a whole (10% vs. 4%) but lower compared to the two comparison industries (20%).

I find the most striking results for EU immigrants. This group makes up more than one-third of the employment in the subsidized firms, and nearly half of the employment in highly subsidized firms. These high numbers correspond to five times the proportion of EU immigrants' employment in the private sector and about twice the proportion in the two comparison industries. Section 7 extends the analysis of EU immigrants to discuss how their dominance in the subsidized sector could be crowding out employment opportunities for disadvantaged groups.

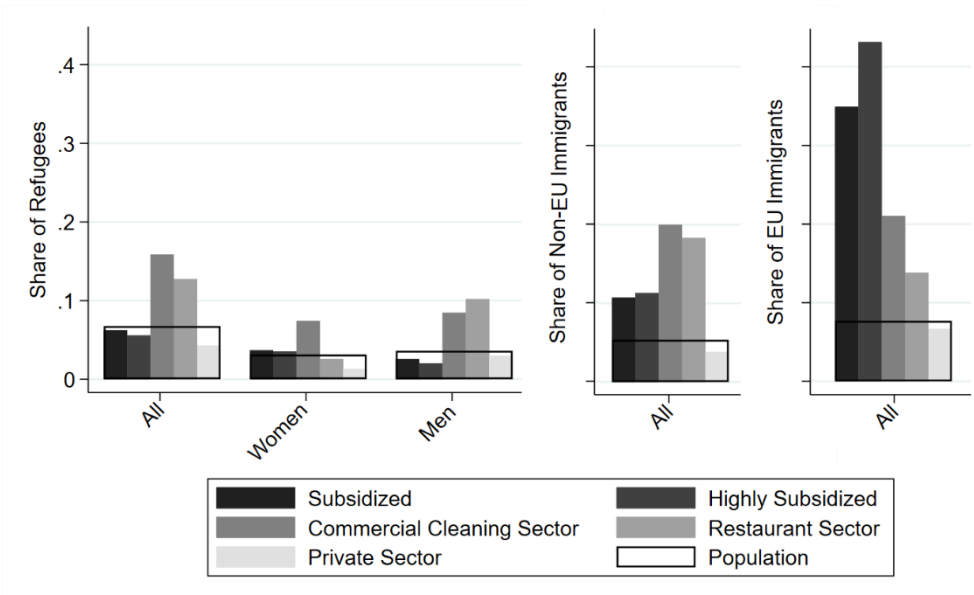

Figure 5: Shares of refugees, EU immigrants and non-EU immigrants across sectors.

Notes: The figure shows the shares of people with different immigration backgrounds among people whose annual income from the sector exceeds 6 monthly wages for an average cleaner.

The Web Appendix contains some sensitivity checks for the results in this subsection. Figure W6 replicates Figure 5 for the year 2015 and splits total employment into wage earners and small business owners. Figure W7 replicates Figure 5 for the lower and higher cutoff values for employment, at least 1 monthly wage for a cleaning job, and at least 12 monthly wages. The findings related to refugees' poor employment prospects and the strong dominance of EU immigrants are not sensitive to these alternative ways of structuring the comparison.

Low education. In 2010–2015, people with a low level of education (defined as less than upper-secondary education) made up about 15% of the Swedish working-age population. Like in other Organisation for Economic Co-operation and Development (OECD) countries, they constitute a disadvantaged group in the labor market (OECD 2019). During the study period their average non-employment rate was 27%, unemployment rate 5%, and long-term unemployment rate 3%, compared to 11%, 3%, and 2%, respectively, in the full working-age population.

Figure 6 shows the shares of people with low education across sectors. Starting with total employment, the subsidized sector employs a larger share of people from this group than the private sector as a whole, but a smaller share than the two comparison industries. For highly specialized firms, the positive gap compared to the private sector is smaller, and the negative gap against the comparison industries is larger.

When we break the sample down into wage earners and small business owners, we can see that the subsidized sector is relatively successful at employing low-educated people as wage earners, but less so for small business owners. For wage earners, subsidized firms employ a higher share of low-educated people than the full private sector, a similar share as the restaurant industry, and a smaller share than the commercial cleaning sector. For small business owners, the share is lower than in the private sector as a whole and just half that of the two comparison industries. While low-educated people comprise approximately 30% of the small business owners in these other industries, they are less than 15% of the small business owners among subsidized firms, and 10% among the highly subsidized firms. This is remarkable given the relatively low capital requirements for starting a business in the domestic service sector.

Splitting the sample by sex shows that the revival of the domestic service sector has provided employment primarily for women with low education. Their share of the employed is nearly three times as large as in the full private sector, and twice as large as in the restaurant industry. For men, the opposite is true: the subsidized sector employs just half the share of low-educated men compared to the private sector and the two comparison industries.

Figure 6: Share of employed with low education.

Notes: The figure shows the shares of people with a low level of education among those with an annual income from the sector that exceeds 6 monthly wages for an average cleaner.

In the Web Appendix, I show that the descriptive results for low-educated workers are not sensitive to the income threshold for defining employment (Figure W8) or to restricting the data to the last year in the study period (Figure W9).

Entry from non-employment, unemployment, and long-term unemployment. I now compare the labor market statuses before job entry. An entrant is defined as a person with at least 6 months of wages from a specific sector in the current year, and zero income from that sector in the previous year (Web Appendix Figure W10 repeats the analysis for the threshold of 1 month of wages). I drop observations for people who enter a sector when they are 18 or 19 years old, because they lack an observable labor market status in the two years prior to entry.

Among the entrants to different sectors, I compare the shares who were previously unemployed, non-employed or long-term unemployed. As described in Section 4, these definitions are based on the person's income sources in the year before entry (for unemployment and non-employment) and in the two previous years before entry (for long-term

unemployment). In addition to these three categories, I also measure entry shortly after immigration. This is important because new immigrants represent a large share of the subsidized sector and may create measurement error in the analysis. A person who arrives in the same year as they enter a sector does not have observable income data in the Swedish administrative records in the two years before entry. A person who arrives in one year and enters the sector in the next may also erroneously be defined as previously non-employed simply because they were only present to earn money in Sweden for part of the year prior to entry. To sidestep these concerns, I define entrants as recent immigrants if they immigrated in either the same year as they entered the sector or the year before. I also split recent immigrants by their region of birth or refugee status (non-EU immigrants are not reported in the figure to save space). To be clear, this immigration definition over-rides the three labor market statuses.

Figure 7 refutes the idea that the subsidized sector is a particularly efficient way for long-term unemployed individuals to enter the Swedish labor market. The share of sector entrants who come out of long-term unemployment is similar in the subsidized sector, the full private sector, and the restaurant industry, but it is somewhat larger than in the commercial cleaning industry. The same pattern holds for entrants who come out of unemployment. For non-employment, the subsidized sector has a smaller share than the private sector and the restaurant industry, and a similar share as the commercial cleaning sector.

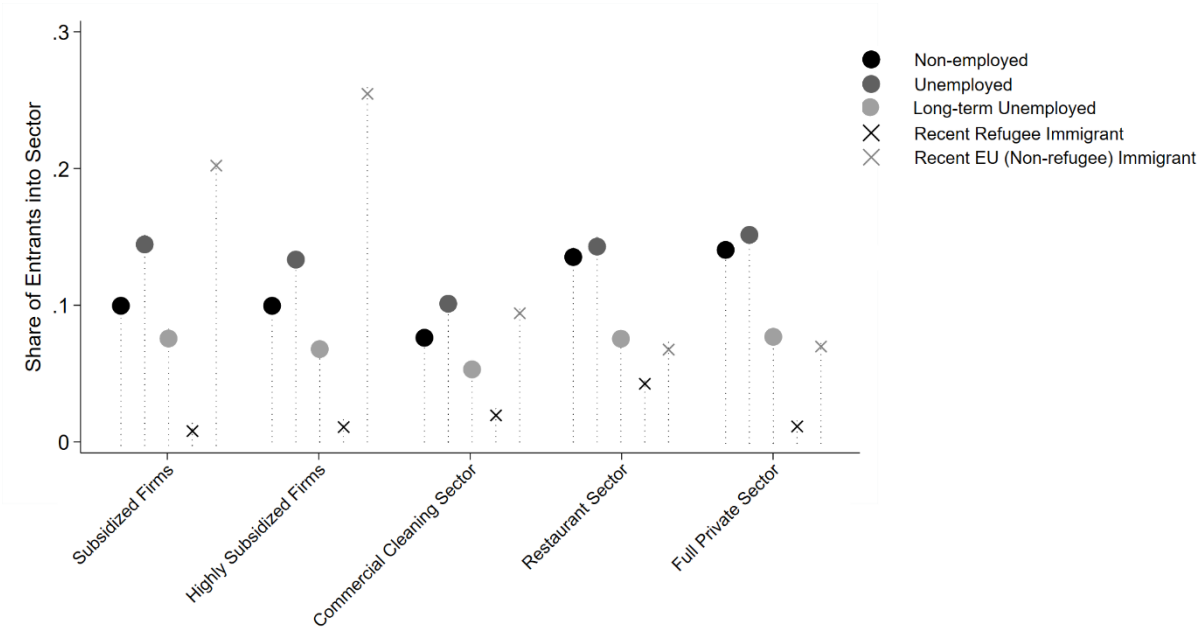

Figure 7: Profile of previous labor market statuses of sector entrants.

Notes: The figure shows the labor market and immigration statuses of entrants into sectors in 2011–2015. Non-employment and unemployment are measured in the year prior to entry. Long-term unemployment is defined as unemployment in the year prior to entry, and either unemployment or non-employment before that. Recent immigration is defined as immigration in the two years before entry. People can be counted as both unemployed and long-term unemployed, and the definition of recent immigration, i.e. within the last two years, over-rides the labor market status.

The Xs in Figure 7 show which sectors act as entryways to the Swedish labor market for newly arrived immigrants. All sectors have low shares of recent refugee immigrants among their entrants, around 1.5% of the total entrants in all sectors except for the restaurant sector, where the figure is 4.5%. There is no evidence that the domestic service sector has been more successful than other sectors at providing an entryway into the Swedish labor market for recent refugee immigrants.

The subsidized sector has a very large share of recent EU immigrants. One in five entrants in subsidized firms, and more than one in four entrants in highly subsidized firms, immigrated to Sweden from another EU country in the two years prior to entering this sector. These rates are about three times as high as for the entrants into the private sector as a whole. Web Appendix Figures W11 and W12 illustrate the exact number of years since immigration. They show that most EU entrants in the subsidized sector arrived recently, while most refugee entrants did not.

In sum, the subsidized sector is about equally likely as the comparison sectors to employ people coming out of long-term unemployment or unemployment, and less likely to employ people who were previously non-employed. The subsidized sector also has a substantially larger share of recent EU immigrants among its entrants. This means that the large share of EU immigrants previously observed among the employed have likely immigrated with the explicit purpose to work in the subsidized sector. Their moves also seem to be at least semi-permanent, as the vast majority are permanent residents with Swedish ID codes.

7. An extended analysis of EU immigrants

This section extends the analysis of EU immigration in two ways. First, I describe the dominance of Eastern Europeans in this group and show the stability of this dominance over time. Second, I argue that two factors—co-ethnic hiring patterns and the geographical concentration of firms operated by EU immigrants in Sweden's largest cities—are potential mechanisms via which this group directly crowds out employment of refugee immigrants and low-educated people in the subsidized sector.

The EEA's open labor market allows people to freely cross borders to work and start businesses. While these flows may be welfare enhancing in various ways, they may also undercut the efficiency of policies designed to benefit disadvantaged groups in specific countries. As richer countries enact policies to develop a sector by increasing the number of elementary jobs, people from other, lower-income countries can immigrate to take advantage of the increased labor demand caused by these reforms.

I define Eastern Europe as the difference in membership between EU28 and EU15, which includes Bulgaria, Czechia, Hungary, Poland, Romania, and Slovakia, as well as the Baltic states of Estonia, Latvia, and Lithuania, and the four small Southern European countries of

Slovenia, Malta, Croatia, and Cyprus. It does not include Moldova, Ukraine, or Russia, which instead fall into the category of non-EU immigrants.

As reported above, EU immigrants make up 35% of the employees and small business owners in Sweden's subsidized sector for domestic services. More than two-thirds of these immigrants are Eastern European. Focusing on small business owners only, the number is even more striking: EU immigrants comprise 39% of small business owners, 80% of whom are from Eastern Europe.[17]

Figure 8 plots time trends in the over- or under-representation of immigrant groups in the subsidized sector over time. The Y-axis shows the immigrant group's share in the subsidized sector divided by its share of the working-age population. A value of 1 on this scale indicates that the group has the same size in both the subsidized sector and the population. The dashed line represents Eastern European immigrants, who are strikingly over-represented by 12–15 times in the subsidized sector, and 18 times in heavily subsidized firms. Pooling all EU immigrants, the over-representation is smaller at 5 times the population share. Neither of these rates of over-representation has any positive or negative time trends. For refugee immigrants, the ratio remains less than 1 for the whole period.

To analyze co-ethnic hiring, I identify the manager or owner of subsidized firms and categorize them by birth region or refugee status.[18] The shares of refugees, EU immigrants and

[17] Just like EU immigrants, immigrants from Eastern Europe are not disadvantaged on the Swedish labor market according to my measurements. Compared to the working-age population, unemployment is 3% in both groups, long-term unemployment is 2% in both groups, and non-employment is 10% among Eastern European immigrants and 11% in the population.

[18] I use a step-wise procedure to find these managers. For two-thirds of the firm-year observations, the firm has a manager in the LISA data and using Statistics Sweden's CEO variable (Andersson and Andersson 2009). Of the remaining 13,321 observations, another two-thirds represent sole proprietorships for which the owner/manager can be identified because the personal ID code is the same as the firm's organizational ID code. Of the remaining 4,569 observations after that step, 39% have a person in the LISA or job register who receives business income from the firm. If several people receive business income, I chose the one with the highest amount in the year as the owner/manager. This procedure identifies the manager for 93% of the firm-year observations in 2010–2015, leaving only 4,568 observations unmatched. Changing the steps of the procedure to, for example, select managers first on sole proprietors rather than CEOs does not alter the descriptive findings.

non-EU immigrants among these managers are highly similar to their proportions among all employees of these firms (recall Figure 6). I then compare the composition of employment in subsidized firms after excluding the manager or owner.[19] A reliable analysis of entrants from unemployment or non-employment is not possible at this level of disaggregation.

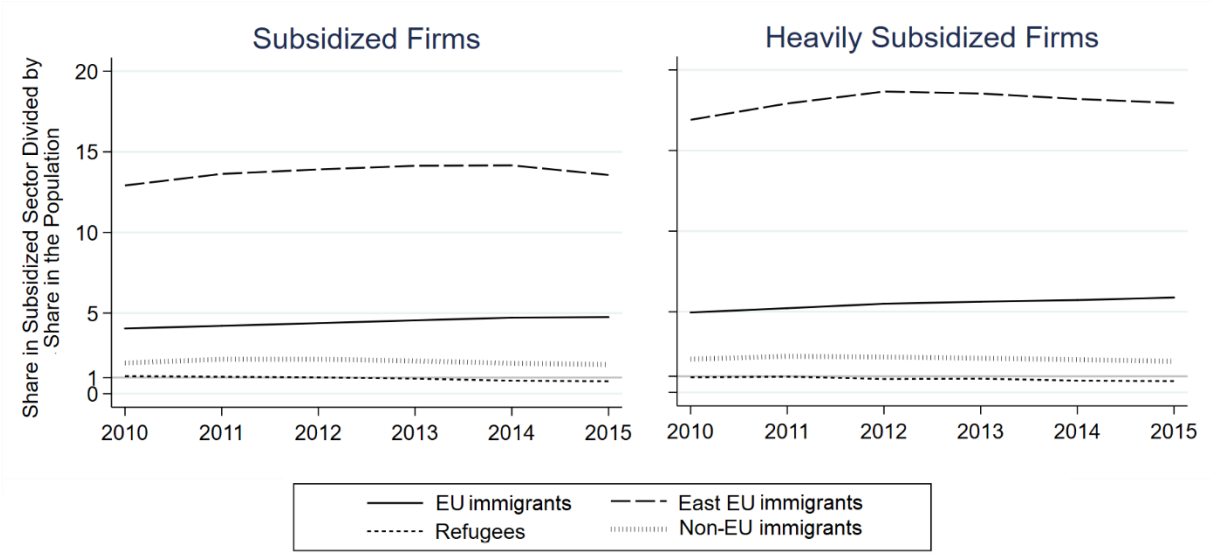

Figure 8: Ratios of employment shares to population shares for immigrant groups.

Notes: The figure shows time trends in the ratio between the employment share and population share of immigrant groups. Population shares are for the full Swedish population of permanent residents aged 18–65.

Table 1 shows the composition of employment in firms managed by people from different immigrant groups. It is immediately apparent that all groups employ a larger fraction of people from their own background. Firms managed by EU immigrants have 77% EU immigrants among their employees. This correspondence is even higher in firms operated by Eastern European immigrants, where 88% of employees are from Eastern Europe and 91% from any EU country. The share of refugees is very low in these firms, just 3% and 2%, respectively. In contrast, firms managed by a refugee have 24% refugees among their employees, and those managed by non-EU immigrants have 13%.

[19] For this analysis I need to identify employees as individuals who have a certain firm as their main source of labor income in the year, using LISA. To arrive at a similar definition as in the main analysis, I only include people in the description if that income is above the threshold of 6 months of wages from a typical cleaning job.

The bottom row in Table 1 shows the share of low-educated employees. It is smaller in firms managed by an EU immigrant (14%) or an Eastern European immigrant (11%) than those run by a refugee (22%) or a non-EU immigrant (25%). Firms managed by a Swedish-born person also employ a significantly higher share of low-educated people (22%) than those managed by EU immigrants. Taken together, the results in Table 1 suggest that co-ethnic hiring, combined with a strong dominance of EU immigrants, is directly crowding out employment for refugee immigrants and low-educated people in the subsidized sector.

Table 1: Composition of employees by the manager's country of origin for subsidized firms.

	Owner/Manager (% of firm-year observations)				
Employees	EU immigrants (32%)	Eastern European immigrants (23%)	Refugees (5%)	Non-EU immigrants (8%)	Swedish born (55%)
EU immigrants	**0.77**	0.91	0.34	0.10	0.23
Eastern European immigrants	0.68	**0.88**	0.16	0.06	0.16
Refugees	0.03	0.02	**0.24**	0.13	0.05
Non-EU immigrants	0.06	0.02	0.29	**0.57**	0.10
Swedish born	0.14	0.04	0.15	0.20	**0.62**
Low-educated	0.14	0.11	0.22	0.25	0.22

Notes: The table shows the shares of employees by immigrant group and education in firms subsidized under the Swedish policy for promoting domestic services. The owner/manager is found in administrative data for CEOs, personal ID codes for the owners of sole proprietorships, and data on business income from the firm (detailed in Footnote 17). A person counts as an employee if the firm is their largest source of labor income in that year.

Moving to the geographical location of firms, I create a dummy variable for people who live in one of Sweden's three largest cities: Stockholm, Gothenburg, or Malmö. People with low education are not more likely than others to live in these urban areas, but refugee immigrants are significantly more likely to do so. One in three refugees live in the largest cities, compared to just one in five people in the full working-age population. I apply the same binary categorization to the location of the subsidized firms using information from the business register. Nearly half (48%) of the subsidized firms located in the three largest cities are run by

an EU immigrant, and 37% by an Eastern European immigrant.[20] Combined with the co-ethnic hiring patterns discussed above, this location data may help us understand refugee immigrants' weak employment prospects in the subsidized sector. Despite having a skill profile that is relatively well matched to the jobs in these firms, refugee immigrants often live in cities—where the sector is largely operated by EU immigrants, who are much less likely than subsidized firms managed by people from other groups to employ people with a refugee background.

8. Conclusions

In this paper I examined the employment of disadvantaged groups in Swedish firms that receive public money from a tax deduction policy for the domestic service sector. I conclude that the employment in subsidized firms has mostly failed to favor disadvantaged groups. For refugee immigrants and the long-term unemployed, employment patterns were no more beneficial than those in the average private sector firm. For people with low education, the employment patterns were more favorable than in the private sector as a whole, but worse than in the commercial cleaning and restaurant industries.

Why has the subsidized sector not been a larger source of employment for the disadvantaged groups? My results suggest that the efficiency of the Swedish policy in this regard was undercut by a large inflow of EU immigrants to the sector. EU immigrants, who are not a disadvantaged group in the Swedish labor market, account for 35% of employment in the subsidized sector, and nearly 45% in heavily subsidized firms. The dominance of this group is apparent when comparing the shares of EU immigrants in the subsidized sector and in the full

[20] Firms state their locations when registering the business and this information is available for 95% of the subsidized firms.

Swedish working-age population. EU immigrants are over-represented in the subsidized sector by a factor of 5 relative to their population share, and Eastern European immigrants by factor of 15 (!). Data on years since immigration give the added insight that a sizeable share of these immigrants moved to Sweden expressly to take up work in the subsidized sector.

The dominance of EU immigrants naturally leaves fewer jobs for domestic workers. I also document how co-ethnic hiring and firms' geographic locations may have played a role in directly crowding out employment opportunities for disadvantaged groups. More than 80% of employees in firms managed by EU immigrants are other EU immigrants, while the share of refugee workers is very low. They also employ half as many people with a low level of education as other subsidized firms. Looking at firms' geographical locations, nearly half of all subsidized firms in Sweden's three largest cities are run by EU immigrants, and these urban areas are also home to a disproportionate share of the country's refugee population.

I conclude that the efficiency of a public policy to create low-end jobs in one EU country is likely to be affected by immigration responses other EU countries. Such jobs in a relatively high-income country offer relatively attractive employment prospects to people from lower-income countries in the EEA. This insight has important policy implications. Western European policies to subsidize domestic services have, like the Swedish one, used public money to lower the price of certain services, but have not regulated who is employed to carry them out. Instituting requirements to employ people from disadvantaged groups is not an obvious solution, however, since it would likely hurt labor demand and might introduce harmful and self-reinforcing social hierarchies by ethnicity or social class. Still, such requirements might be able to address inefficiencies in the current design. In the Swedish case, public money subsidizes the employment of five EU immigrants for each refugee immigrant, and nearly eight for every refugee in highly subsidized firms. One policy option could be to provide subsidized

domestic services within the public sector to increase the government's control of both employment numbers and labor market backgrounds.

My results also offer insights about the likely impacts of subsidy policies for domestic services on inequality. I replicated the pattern from other countries that the consumption of these services is concentrated among people in high-income households. The results regarding the employment of disadvantaged groups show that this increase in inequality is not balanced out by a relatively large employment impact on marginalized workers. Future research could study additional aspects of inequality by exploring the over-time development of the incomes and careers of domestic service workers. One area of further inquiry could be whether these jobs offer skill enrichment and a passage to higher-paid occupations or higher education, or if they are more accurately described as dead ends on the labor market. As more data become available, these and other questions should be studied to obtain a fuller picture of how reviving the domestic service sector affects the labor market and overall inequality.

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