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Abstract

In many OECD countries, the employment rate of non-western immigrants trails well behind that of other groups of immigrants with comparable background. In the period between 2017 and 2018, eleven Danish municipalities implemented the so-called Industry Packages programme for non-western immigrants with poor prospects on the labour market. The programme entails a structured sequence of job training internships that provides participants with skills relevant for local industries with labour shortages. Using various types of matching and exploiting rich administrative data, we examine the causal effect of the Industry Packages programme on participation in employment services and on regular employment. Results indicate that the Industry Packages programme has a small positive effect on employment of non-western immigrants—mainly driven by increased female employment. Moreover, the programme increased employment in 'traditional' immigrant industries such as 'other business services' but also in 'non-traditional' industries such as manufacturing.

Keywords: Immigrants, Refugees, Unemployment, Integration, ALMP
JEL classification

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1. Introduction

War, famine, poverty, and in the coming years most likely also deteriorating climate conditions, are all various types of crises that may provide people with the impetus to flee across national borders. After the wars in e.g. Syria, Afghanistan and Eritrea that generated substantial flows of refugees in the 2010s, the recent war in Ukraine reminds us that the causes for migration and flows of migrants are unlikely to disappear any time soon. As German sociologist Frank Kalter states, migration–along with fertility and mortality– is one of three phenomena that constantly changes societies and "has always been a significant social phenomenon" (2022, p. 135). As such migration has many different, wanted and unwanted, effects on the sending societies, the migrants themselves, and the host society. Low levels of labour market participation and low employment rates among immigrants are among those concomitant effects that both immigrants and the host society typically seek to avoid. In a European context immigrants from the Middle East and North Africa have particularly low employment rates. The OECD finds that in 2020 immigrants from those two regions compared to other immigrants still had the greatest difficulties in accessing the labour market in the EU. Just over half were in employment compared to approximately two-thirds of immigrants as a whole and to approximately seventy percent of persons born in EU28+EFTA countries (OECD, 2021, p. 54-55).

The adverse effects from low employment rates among immigrants are increasingly well-known. Unemployment has a negative impact on the economic self-sufficiency and well-being among affected groups, including refugees (Kennedy and McDonald, 2006; Lindert et al., 2009). Unemployment among immigrants may give rise to mental health problems, social exclusion, poverty and deprivation (Andersen et al., 2018). Moreover, economic deprivation among immigrants is likely to affect the performance on language test among immigrants' children and their years of schooling negatively (Andersen et al., 2019). As to the host country, low employment rates among large groups of immigrants may strain public finances (OECD, 2021), and poor integration of immigrants may give rise to social tensions (Bauer et al., 2000). Externally, immigration and its feared negative consequences may spur rifts between different countries (Cichocki and Jabkowski, 2019). Well-functioning labour market integration of immigrants brings economic benefits both for the individual household and at the aggregate country level (Danzer, 2011), while the converse likely entails problematic economic and social consequences. Therefore many governments devise policies and interventions to improve the match between immigrants and labour markets. Nonetheless, the evidence base that may help politicians choose and design the most efficacious policies with likely positive middle- and long-term effects, especially for women, is relatively poor as we describe below.

This study provides empirical evidence to help build up our knowledge base concerning effective interventions to further immigrants' labour market participation. Hence we estimate the effects stemming from so-called Industry Packages, a labor shortage-based integration policy that many Danish municipalities have implemented during recent years (LG-Insight, 2019). The backbone of Industry Packages is the collaboration between municipal employment services and local labour market demand, this leading to job vacancy oriented training schemes for unemployed non-western immigrants. Industry packages is a combination programme developed by consultancy firms and Danish municipalities jointly that targets immigrants and refugees with limited skills on the margin of the labour market with the aim of providing the most direct route into a regular job (Simic et al., 2018; Thomassen, 2019). The starting point is an identified local demand for labour in industries where immigrants with appropriate training have good chances for obtaining a job. This demand constitutes the springboard for collaboration between local employers and municipalities on setting up relevant training schemes in these industries for immigrants and refugees with limited education, work experience and host country language proficiency. The aim is that an individual who follows this scheme gradually acquires skills relevant for fulfilling specific job functions in these industries. Hence, to all involved parties, including not least the immigrants and the refugees themselves, the aim of Industry Packages is to lay out a meaningful and realistic path to a job viable for members of this vulnerable target group.

Foged et al. (2022) exploits the roll-out of the Industry Packages in Denmark to investigate the intention to treat (ITT) on employment probability for newly arrived refugees. Results indicate that the availability of Industry Packages at municipal jobcentres increases the fraction of employed refugees by 5-6 percentage points 1 year after arrival. Due to low programme compliance, these estimates imply a large treatment effect on the treated of the Industry Packages programme.[3] In this article, we exploit individual information on participation in the Industry Packages in eleven Danish municipalities between 2017 and 2018 and investigate the average treatment effect on the treated (ATT) on regular employment within 2.5 years after programme starts. From these municipalities we received information on date of programme start for all participants (476 individuals), mostly newly arrived refugees. We complement this data set with information on all working age untreated non-western immigrants with residence in the selected municipalities (7,367 individuals). We deselect insured unemployed and part-time employed in order to improve covariate overlap, such that our analysis sample includes 386 treated individuals and 2,797 untreated individuals. We take advantage

[3] See section 2.

of a large administrative set of pre-treatment covariates and a large pool of potential participants for the construction of a control group.[4] Additionally, our dataset includes precise information on individuals' participation in all municipal employment services, this enabling us to examine programme effects on different types of training. Finally, we decompose the contribution of the Industry Packages programme to the hiring of immigrants across different industries; hence providing information on the success of the programme in relation to specific parts of the labour market.

Our estimates provide a more accurate measure of the economic meaningfulness of the Industry Packages programme compared to the impact of policy availability but rely on the unconfoundedness assumption. As our data alone cannot tell us whether such identification assumption is true, we provide evidence on the plausibility of unconfoundedness (Imbens, 2015) and on the robustness of our estimates to violations of unconfoundedness (Masten and Poirier, 2018; Masten et al., 2023). Results yield two broad findings. The general picture is that individuals participating in the Industry Packages programme are exposed to more intense training. Our estimates indicate that participation in the Industry Packages programme results in a 25% increase in the number of weeks exposed to on-the-job internships in the first year of the programme. Additionally, our results show that participation in the Industry Packages programme results in a 20% increase in the number of weeks exposed to off-the-job training in the first quarter of the programme.

Despite the more intensive training, the contribution of the Industry Packages programme to employment is limited. Results indicate that, the average rate of regular employment of programme participants increases from a fairly low level around 11% to a slightly higher level around 14%. Recent evidence tends to support positive effects of on-the-job-training programmes on male immigrants but not on females (Bolvig and Arendt 2020; Arendt, 2022; Foged et al., 2022). In contrast with this literature, our estimates indicate an impact on employment rate twice as large for females as for males. Finally, we do not find any evidence that participation in the Industry Packages programme may crow out employment from industries not targeted by the intervention.

2. Related literature

A growing literature investigates employment effects of labour market policies for refugees and immigrants from low-income countries. Foged et al. (2022) provides the first causal evidence on the

[4] Approximately 14 percent of non-western immigrants receiving social assistance participated in the programme between 2017 and 2018 in the 11 Danish municipalities in our data set.

role of Industry Packages programme for employment. By focussing on the period 2013-2018 where 30 Danish municipalities gradually rolled out the new programme, Foged et al. finds that refugees newly arrived to municipalities which had added the programme to their employment services, had a 5-6 percentage points higher employment rate than refugees who were granted a residence permit at least 1 year before the programme was available in their municipality. Results in Foged et al. indicate that the effects on employment are present only for males. Due to restricted participation in the Industry Packages programme, and the fact that a majority of refugees participate in their second year in Denmark, the results in Foged et al. (2022) imply quite large ATT.[5] Foged et al. (2022) adds to the compelling evidence that the municipality of residence has a profound influence on labor market outcomes of immigrants (see also Damm, 2009; Damm and Rosholm, 2010). However, it is unclear whether the ITT in Foged et al. (2022) isolates the causal effect of the Industry Packages from other differences in employment services or from time-varying differences in local labor market conditions across municipalities. Additionally, refugees in control municipalities will eventually be exposed to the availability of the new policy, and consequently the estimates reported in Foged et al. can be interpreted as the impact of earlier availability of the Industry Packages programme.

Few other studies have also analysed effects from interventions for immigrants that focus on the demand side of the labour market. Dahlberg et al. (2021) evaluates, based on a RCT, an intensive integration programme in Sweden, which like the Industry Packages programme involves the demand side of the labour market in designing the program. The intervention includes intensive language training, work practice, job search assistance, and extended cooperation between the local public sector and firms. Dahlberg et al.'s results indicate a large impact on employment probability among recently arrived refugees during the first year after completion of the programme.

Looking at other types of interventions targeting refugees, Joona and Nekby (2012) found in Sweden that a reduced caseload among caseworkers implied possibilities for intensified coaching and counselling that improves immigrants short-term employment chances. From Germany, Battisti et al. (2019) have found that better job matching service improves the chances of immigrants finding a job, especially among lower educated refugees. Hence, their results suggest that personalised job search assistance can improve labour market integration of these refugee groups by alleviating labour market frictions. Finally, Marbach et al. (2018) document a long-term employment effect of removing employment bans on asylum seekers in Germany.

[5] In our sample, 60 percent of refugees and immigrants reunited to refugees participate in the Industry Packages programme in their second year in the host country.

Although the literature on causal effects from ALMPs targeting refugees and immigrants (e.g. integration programmes) is far less encompassing than the literature on ALMP effects generally (Card et al. 2018), some results stand out. One common finding is that wage subsidies tend to have positive effects for some immigrant groups. A systematic review from 2014 on the effects from classroom training, job search assistance, and wage subsidies for immigrants concluded that only wage subsidies at private firms had positive employment effects (Butschek and Walter, 2014). Similarly, Clausen et al. (2009) merely found a positive effect from wage subsidies at private firms when estimating effects from six different active labour market programs for recently arrived immigrants. More recently, Hardoy and Zhang summing up effect estimates over 30 years from Norwegian ALMPs targeting refugees found no effects from wage subsidies on the employment among immigrants and modest effects from work internships (Hardoy and Zhang, 2019).

In general, recent studies have found inconclusive evidence on the role of work internships in Denmark. More recently, Danish policies introduced in 2016 require that refugees initiate job search and on-the-job-training programs (typically work internships, but also subsidized employment) within one month of settlement in a Danish municipality. Arendt (2022) finds that this policy increased labour market entry for men, but not for women. Bolvig and Arendt (2020) find short-term positive effects for men—but also that such effects gradually diminish to become insignificant after two years.

Collectively, the existing literature indicates that on-the-job training programmes tend to have positive employment effects for different groups of unemployed non-western immigrants, especially among men and newly arrived refugees. Concerning the size of the effects of such programmes, the evidence is inconclusive. Moreover, very few studies identify positive employment effects from such programmes on female immigrants.

3. Institutional setup

3.1 Control policy

In this section, we briefly outline the Danish legal and institutional set-up pertaining to integration of refugees and family reunified, since such background information is useful for understanding the immigration policy and labour market context in which the Industry Packages concept was initially developed, and later implemented in the specific project this article evaluates. Since 1999, when Denmark had its first law on integration, the Danish municipalities are responsible for the integration programme targeting recently arrived refugees and family reunified (Joona, 2019; Schultz-Nielsen,

2017). Currently, the integration programme lasts from one to five years depending on the needs of the participants who may stay in the programme until they become employed or enrol in education. Participation in the programme is mandatory, and refugees and family reunified risk losing their public integration benefits if they fail to take part in the activities ordained by the programme. It is important to underline that participation in meetings in the jobcentre as well as in programmes and other activities, e.g. on-the-job training activities, that the jobcentre may initiate is also mandatory among other types of unemployed benefits recipients, e.g. cash benefits recipients, in Denmark. Likewise, these benefits recipients may also be sanctioned (e.g. lose benefits for a short or longer period) if they fail to live up to the requirements in Danish employment legislation. A study shows that cash benefits recipients with a non-western ethnic minority background are more likely to be sanctioned than similar recipients with an ethnic Danish background (Pedersen et al., 2018). Nevertheless, such ethnic discrimination cannot be a potential cause for bias in our study since both treatment and control group consists in refugees and immigrants with a non-western ethnic minority background.

Denmark has a refugee dispersal policy based on quotas calculated based on the number of non-western immigrants already living in the municipality. This policy implies that refugees may be located in one of the 98 Danish municipalities across the country irrespectively of where their chances of integrating into the labour market are greatest. After arrival in the municipality, refugees sign an integration contract that specifies the objectives of the integration process and the activities the refugee should take part in. The main activities in the programme consist in language training, civic orientation and labour market counselling and training.

Overall, the Danish integration programme has a strong focus on bringing refugees into employment. Job counselling and the use of unpaid on-the-job training in public or private work places have been stables in the programme for many years. In terms of the employment objective as well as the main components of the programme (language training, civic orientation and labour market activities), Denmark resembles other Nordic countries like Norway and Sweden, although regular education and subsidized employment are less used integration tools in Denmark and Norway than in Sweden (Joona, 2019). A reform in Denmark in 2004 heightened the employment focus in the integration programme. This focus was reinforced even more by the reform in 2016 that inter alia encouraged municipalities to initiate labour market activities, including job search counselling and on-the-job training, within two weeks after a refugee has been settled in the municipality and required these activities to start no later than one month after arrival (Law of integration, §16, 6.,7.).

Moreover, the law requires a 'continuous workplace-oriented programme' implying that the municipalities are allowed a maximum six weeks gap between each of these work-oriented activities (Law of integration, §17a). Hence, the work-first approach inherent in the 2016 reform shifted the balance from an integration programme with an "initial human capital investments through language training and later job search and on-the-job training to a programme that emphasizes immediate job search and on-the-job training simultaneously with language training" (Arendt, 2022, p.175).

On-the-job training constitutes a core component in the Danish integration programme as in Danish ALMPs targeting unemployed benefits recipients generally (Immervoll and Scarpetta, 2012). On-the-job training can be either a subsidized job or (more commonly) unpaid internships in a private or public workplace lasting up to thirteen weeks. In the case of an unpaid internship the participant continues to receive publicly funded integration benefits. As part of the integration programme each internship lasts up to four weeks for refugees who are job ready and up to thirteen weeks for refugees without work experience, affected by long term unemployment or having difficulties finding subsidized employment (Law of integration, §23b, 4.). The purpose of on-the-job training is to assess or develop a persons' professional, social or linguistic competencies in order to bring this person closer to a job by providing an opportunity to carry out concrete work tasks and take part in a community of co-workers (Law of integration, §23b, 1, 2.). The already-mentioned 2016 reform affected all Danish municipalities, including the eleven municipalities involved in the specific Industry Packages programme we evaluate.

3.2 The Industry Packages programme

Industry packages arise out of the Danish employment and integration policy context described in the previous section where the municipalities and their job centres play a key role, and where on-the-job training, especially unpaid internships, for a long time has been the most important instrument to help unemployed immigrants (as well as several other categories of unemployed benefits recipients) find a job. The concept was created around 2013 jointly by Danish Vejle Municipality and the consultancy firm LG Insight based on previous experience concerning how to help refugees find their first job (Simic et al., 2018). During the period 2014-2017, 46 percent of all 98 Danish municipalities had implemented the concept fully or partially in their employment services. The programmes targeted mainly recently arrived refugees but have also been widely used to assist other non-western immigrants with long-term unemployment spells find a job (LG-Insight, 2019). The programme primarily targets unemployed refugees and immigrants with no formal education aiming at providing

a path to their first job within industries with good job opportunities given an unfulfilled demand for unskilled labour.

The point of departure of the concept is the local labour market and the managers and caseworkers in the local municipal jobcentre who identify a demand for labour with limited or no professional qualifications and work experience among the local employers (Thomassen, 2019). This demand is the basis for collaboration between the municipal jobcentre and local businesses on building training schemes for specific job positions within these industries. Typical private enterprises are cleaning services, super markets, hotels, restaurants, and storehouses, while typical public workplaces are elder care homes, homes to persons with disabilities or canteens. When the refugee or immigrant follows the training scheme, s/he will gradually acquire relevant skills, knowledge and vocabulary increasing sector-specific employability and making progress toward employment within the targeted type of workplaces. In terms of activities provided for in *Law on Integration* and the *Act on an Active Employment Effort* the unpaid on-the-job internships lasting up to 13 weeks are the main building block of the training schemes. The ideal typical sequence consists in a series of three of such internships each building new formal and informal skills on-top of those previously acquired while also providing the participants with gradually more extensive first-hand knowledge of and social networks within the targeted industry. The internships can take place in the same firm or in different firms, but within the same industry. Caseworkers within the local job centre monitor the sequence of internships. The local language school may also be involved potentially focussing on teaching participants in an industry package programme relevant sector-specific vocabulary.

Prior to the initiation of the series of workplace internships one or more meetings between case workers in job centre and the refugee guide the latter concerning choice of industry-specific path based on available employment options in the local labour market and prepares her/ him for participation in the programme. Within the jobcentre, the integration caseworker (exerting legal authority) and the business consultants (typically responsible for facilitating the training activities in collaboration with the local enterprises) are key brokers building a bridge between the refugee and the local employers and their requirements. Counselling in the jobcentre is an essential part of the concept to increase the refugees' awareness of concrete employment options and their job motivation. A 'dogmatic' rule within the concept is that all elements in an industry package must be relevant for making progress towards employment and must be understood and experienced by the

refugees as meaningful. Hence, relevance, meaningfulness and motivation are seen as essential elements in the mechanism behind the concept and its potential success.

The specific industry package project this article evaluates took place in eleven Danish municipalities starting late 2016 and continuing through the first quarter of 2019. These eleven municipalities received financial support from the Danish Agency for International Recruitment and Integration (SIRI) for implementing the concept in the employment-oriented activities targeting refugees and other unemployed non-western immigrants within the integration section of their jobcentre. The overall purpose of this specific initiative launched by Danish SIRI was to test the causal effects from an implementation of the industry package concept in a number of typical Danish municipalities. Five of the participating municipalities received organizational support from LG Insight and The Association New Dane to implement the project while the six municipalities implemented the concept on their own. VIVE was by SIRI appointed supervisor and evaluator of the initiative and followed the eleven municipal projects throughout their duration while also evaluating in a Danish report short-term causal effects from the eleven municipal project as a whole after completion (Thuesen et al., 2020). Moreover, VIVE organized in each of these municipalities a start-up seminar with the participation of the municipal project manager and typically two to four integration caseworkers and business consultants to facilitate their internal discussions on the best local implementation of the concept and on its target groups, local employment options, means and aims (Thuesen et al., 2020).

Throughout the project period, the municipalities provided VIVE with information on the participants, including their social security number (for more details, see next section), allowing VIVE to link each participant to anonymized demographic, socio-economic and employment micro-data available to researchers through the registries of Statistics Denmark. This information allowed VIVE during the project period to provide the eleven municipalities as a group with a total of four status memoranda. These memoranda summarised key figures relevant to the projects as a whole including inter alia figures on average share of time spent among male and female participants in on-the-job internships during the project compared to one year prior to enrolment based on individual start dates. The memoranda also included average employment degree among participants during the project—equally compared to the average employment degree one year prior to individual enrolment. Hence, VIVE followed the projects closely and maintained throughout a dialogue with the municipal project managers on implementation and progress.

4. Data

Our data set provides participation start dates for all non-western immigrants enrolled in the Industry Packages programme between January 16 2017 and October 1 2018 in the 11 municipalities.[6] These records have been merged at the person level to other administrative records containing longitudinal information covering the period January 1 2015–June 30 2021 on personal characteristics such as age, education, and family composition, information about employment, earnings, public transfers, information about country of origin, years since migration, type of residence permit, membership to an unemployment insurance fund, caseworker meetings, caseworker job readiness assessment, use of public hospitals, crime, partner's years since migration, and partner's employment. Hence, we are able to follow the development in employment rate up to 2.5 years after the start date of the program for all participants.

The same information is obtained for a 100% sample of all non-western immigrants aged 19-63 years with residence in one of the 11 municipalities between January 16 2017 and October 1 2018, which was not recorded for participation in the Industry Packages programme. This sample is used to construct an untreated group, which includes hard-to-employ non-western immigrants who have not been selected into the programme.

This initial data set comprises 448 treated individuals and 7,367 untreated individuals.[7] As part-time employed and insured unemployed have very low, but not zero, probability to participate in the programme, we exclude from the final sample, 45 treated individuals with positive ordinary employment during the last month before treatment and 17 programme participants with an unemployment insurance. We also exclude, from the control group, 4,570 untreated individuals with positive ordinary employment or with an unemployment insurance.[8] Thus, we focus our analysis on unemployed uninsured non-western immigrant workers. Table 1 provides pre-treatment covariates of the individuals in the analysis sample. Table 1 indicates that individuals participating in Industry Packages include a higher proportion of refugees (87%), a higher proportion of individuals from Syria (58%), and individuals with five years shorter residence in Denmark than untreated individuals. Unsurprisingly, treated individuals have a lower employment rate as measured during the last year

[6] Participants of the following municipalities are included in our data set: Egedal, Faxe, Fredericia, Haderslev, Høje-Taastrup, Kerteminde, Odder, Ringsted, Rudersdal, Thisted, and Aabenraa.

[7] See Table A1 in the appendix.

[8] We assign placebo participation start dates to untreated individuals based on a model linking start dates and characteristics of treated individuals.

prior to programme participation, but the differences in terms of pre-treatment labour market participation are minor. Contrasting with the small differences in employment, treated individuals were exposed to much more intensive employment services before their recruitment for the Industry Packages programme—probably reflecting their more recent arrival to the host country.

Table A2 in the appendix provides covariate means for individuals participating in the programme in different municipalities. This table highlights that program selection changes across the eleven municipalities. All municipalities, with the exception of Høje-Taastrup, mainly recruit newly arrived refugees. Table A2 also indicates that in some municipalities female participants are overrepresented (Egedal, Fredericia, Høje-Taastrup and Aabenraa/Kerteminde).

Table 1: Descriptive statistics of the analysis sample

	Treated		Untreated		Treated vs. untreated	
Covariate	Mean	SD	Mean	SD	*t*-stat	ND (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Programme start in 2017 (%)	58	49	56	50	0.76	4
Male (%)	42	49	45	50	-0.95	-5
Age (years)	35	10	37	11	-4.6	-26
Years since migration (years)	4	7	9	10	-9.38	-57
Syria (%)	58	49	39	49	7.03	38
Eritrea (%)	12	33	5	21	6.04	27
Turkey (%)	6	24	11	31	-2.89	-17
Refugee (%)	63	48	52	50	4.23	23
Reunited to refugee (%)	24	43	16	37	3.91	20
Employment rate, year -1 (%)	2	6	3	3	-1.56	-10
Reduced social assistance rate, year -1 (%)	80	35	45	46	14.64	87
Off-the-job training, year -1 (%)	90	30	59	49	12.18	77
On-the-job internship, year -1 (%)	62	49	38	48	9.20	50
Number of observations	386		2,797		3,183	

Notes: The first set of columns presents means and standard deviations of characteristics for our selected sample of treated individuals, while the second set of columns shows the same descriptive statistics for our selected sample of untreated individuals. The column entitled *t*-stat presents the *t*-statistic for testing the null hypothesis that the differences in covariate means between treated individuals and untreated individuals are zero. Finally, the last column shows the normalized difference in covariate means between treated individuals and untreated individuals.

The primary outcome of this study, 'employment rate', captures the proportion of time spent in regular employment in different observation periods.[9] This information is only available for researchers through Statistics Denmark and stems from the number of work hours registered by the Danish tax authorities. A quarterly employment rate equal to 1 is equivalent to the standard full time in Denmark, 37 hours, on a weekly basis. We complemented our primary outcome with two other measures of employment. 'Full-time employment' indicates the average number of quarters during which the individual has been employed for at least 390 hours in the quarter. 'Employment probability' is a dummy variable indicating that the individual has been regularly employed in particular period of time. Additionally, we document the impact of participating in the Industry Packages programme on the probability of participating in 'off-the-job training', this including counselling, training and ordinary education, and unpaid 'on-the-job internships' during the first year of programme participation.

5. Econometric approach

The objective of this paper is to estimate the effect on participation in employment services and regular employment that individuals experience as a consequence of their enrolment in the Industry Packages programme. To do this, ideally, an experiment should be run where a group of persons are randomly exposed to the intervention while subsequently their outcomes are compared to those of the individuals in the control group. Unfortunately, we do not have access to data from such an experiment. However, we exploit that only few unemployed immigrants were selected for the programme within each municipality (similar to a waiting list design) leaving at any time a large pool of potential participants for a control group. With the availability of rich administrative data, and the plausibility of unconfoundedness in our context,[10] we employ the matching method to estimate the ATT, see e.g. Heckman and Vytlacil (2005). More specifically, all our results have been obtained with propensity score matching kernel based on the Epanechnikov kernel. The propensity score is estimated with a logit model, the bandwidth is selected with pair-matching and we use exact matching on municipality of residence.

[9] Participation in regular employment excludes wage subsidized employment. However, the participation in this type of supported employment is extremely low in our sample.

[10] See section 6.2.

Consider the counterfactual framework as a starting point for defining ATT where in this context having started participation in Industry Packages is the treatment, and individuals who did so are the treated. The process of acceding to this programme typically starts with a meeting in the job centre. A caseworker screens an individual's potential readiness after training for available jobs in the municipality and allocates the individual to Industry Packages support, or to other available programmes. For unconfoundedness to be credible it is necessary to rule out individuals selecting themselves in the programme. Given participation in the Industry Packages programme is highly dependent on the availability of internship vacancies at caseworker meetings, we deem very plausible that many individuals potentially eligible for the programme end up not participating in Industry Packages program. The crucial aspect of Industry Packages assignment is that individuals have very limited ability to influence their participation in such program. First, the local employers' specific labour shortages (not the immigrants' job preferences) and willingness to collaborate with the jobcentre constituted the point of departure of the Industry Packages programmes and, in practice, a relatively narrow framework within which the jobcentres had to operate. Second, the jobcentres had to roll out the implementation of the programme, including selection of participants, within a relatively limited timeframe. Third, integration and cash benefits recipients in Denmark are required by law to participate in the activities organized by the jobcentre. Therefore, we regard the risk that the participants self-selected into the programme as very limited.

Under the unconfoundedness assumption, we assume that the only source for differences between observations is differences in confounding covariates. Thus, the choice of covariates is crucial. In practice, the covariate set has to be selected. Unfortunately, there is no formal guide for choosing the covariates; in particular there is no justification for selecting variables based on a goodness-of-fit criterion (Heckman and Navarro-Lozano, 2004). In the previous section we saw that the characteristics of the treatment group were quite different from those of individuals in the untreated group, and that the characteristics of programme participants vary across municipalities. Such selection mechanism suggests that balancing the covariates in terms of municipality is extremely important in our context. Therefore our matching algorithm matches exactly on the municipality of residence. Additionally, our descriptive statistics indicate that some municipalities select relatively more females than males. Since the labour market participation rates among the immigrants in our treatment and control groups are strongly associated with gender, we allow for gender specific propensity scores, and we use the LASSO approach (Tibshirani, 1996) to select which covariates should be included in the propensity score.

In order to consider what variables should be potentially included in the potential set of covariates, we consider, besides the standard framework applied in labour market evaluation programs, that caseworkers may be choosing program participants with a particular path in terms of employment services. The performance by individuals in the labour market is determined by the local labour market conditions, the joint inputs of human capital and health capital (Grossman, 1972), and is also influenced by an individual's own risk behaviour and family resources. Apart from variables indicating previous labour market attachment, level of human capital, crime and health capital, variables capturing specific characteristics of non-western immigrants are also included. Specifically, we include country of origin, years since migration, and type of residence permit. We include quarterly employment rates covering two years prior to program start. Lagged measures of labour market outcomes are highly correlated with unobservable confounding variables, and controlling for the individual employment path aims at indirectly dealing with unobservable factors (Card and Sullivan, 1988). In addition to controlling for the previous dynamics in employment, we include a large number of controls for participation in public transfers and labour market programs at different time periods prior to programme participation. Specifically, indicators for participation in social assistance, reduced social assistance, internships, ordinary education, wage subsidy, job readiness, and prior caseworker meetings are included. We also include controls for age and for the number of children in the household that the individual belongs to. Finally, it should be noted, that we also control for partner's participation in the labour market and partner's years since migration.

The propensity score is estimated using a logit model giving the probability of starting Industry Packages participation between January 16 2017 and October 1 2018 as a function of individual socio-economic characteristics.[11]

Next we assess if the common support requirement for the treatment and control group is satisfied. Figure 1 shows the kernel density of the estimated propensity scores. Generally, the support of the control group appears to overlap with the support of the treatment group. However, there is some lack of overlap in the distribution of propensity scores for treatment and control units with high values of the propensity score or with very low values of the propensity score.[12] Concretely, based on our matching algorithm we deselect 24 individuals in the treatment group and 1 individual in the untreated group with predicted propensity higher than 0.60, and 134 individuals in the untreated

[11] The estimated parameters of the propensity score are presented in Table A3.

[12] Concretely, 5 individuals in the treatment group had higher estimated values of the propensity score than the individual in the control group with highest estimated propensity score.

group with predicted propensity very close to zero.[13] Due to the high sensitivity of inverse probability weighing to the presence of observations with poor overlap or very small predicted propensity of participation, we chose matching as our preferred method of estimation (Busso et al., 2014; Frölich, 2004; Imbens, 2015).

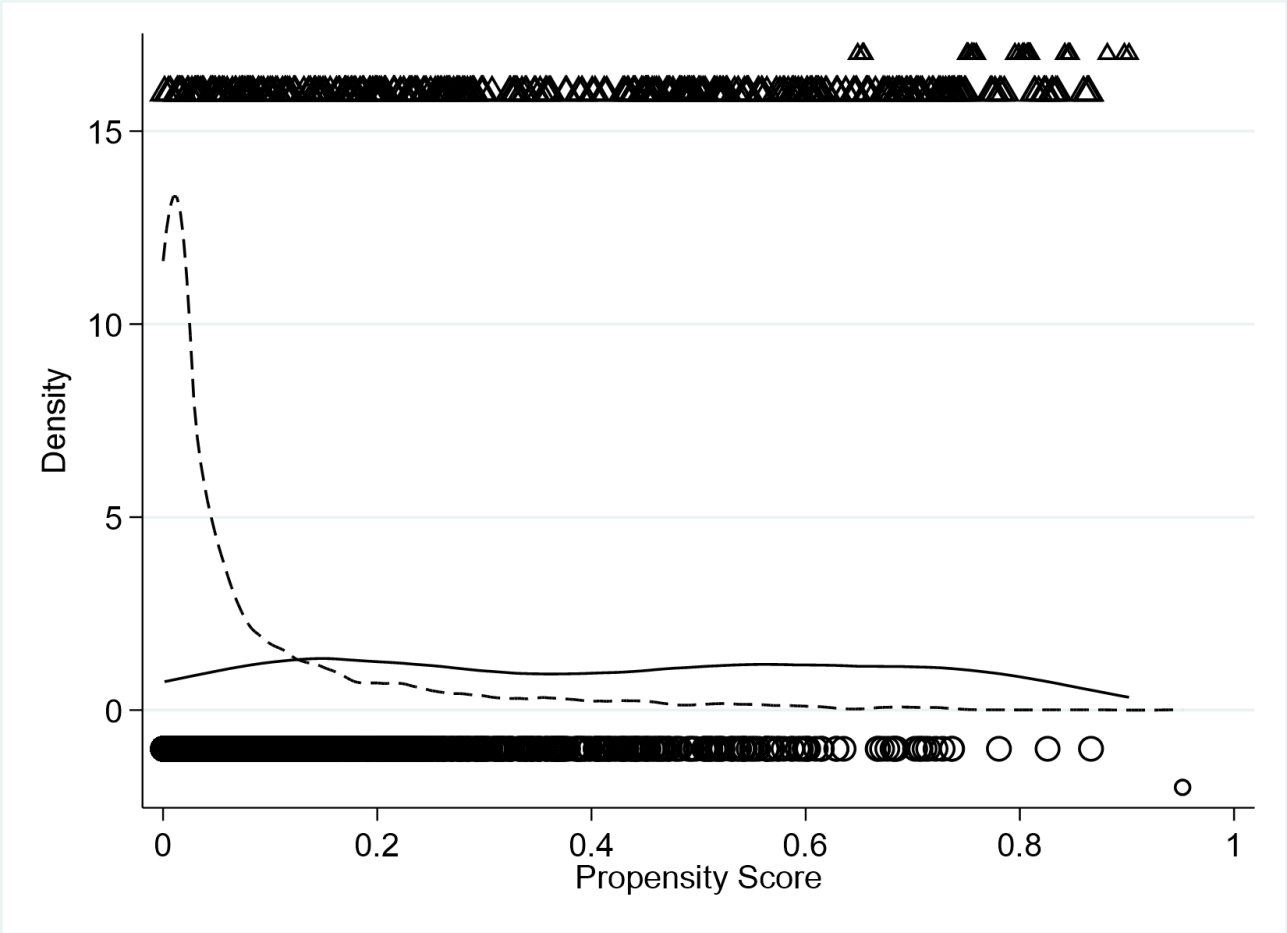

Figure 1: Industry Package programme propensity score conditional density

Note: The figure presents an overlap plot for the sample of non-western immigrant social assistance recipients. The solid line is a kernel density estimate of the conditional density of the propensity score among treated units. The dashed line is for the conditional density among control units. Large hollow triangles give propensity scores values for matched treated units, medium hollow triangles give propensity scores values for unmatched treated units, large hollow circles give propensity score values for matched untreated units and medium hollow circles give propensity score values for unmatched untreated units.

[13] Observations are deselected from the analysis with propensity score kernel matching with exact matching on municipality of participation. The propensity score is estimated with a logit model (see Table A3). The type of kernel is Epanechnikov and the selected bandwidth with pair-matching is 0.075.

6. Results

This section presents results from estimating the ATT of Industry Packages programme on 386 uninsured non-western immigrants that participated in this programme between 2017 and 2018. First, we assess the ability of the matching estimator to balance covariates, and we assess the plausibility of the unconfoundedness assumption. Second, we estimate the ATT of Industry Packages programme on the participation in employment services. Third, the overall effects on employment are presented. Fourth, we investigate effect heterogeneity by gender. Finally, we provide evidence on the robustness of our results to the matching method and to deviations from unconfoundedness.

6.1 Balance and plausibility of unconfoundedness

We now assess whether our estimation procedure has balanced the covariates. We compute the normalized difference (ND) before and after the matching algorithm is implemented on our data. Results presented in column (2) of Table A4 of the appendix shows substantial differences between the characteristics of treated individuals and untreated individuals for our analysis sample of uninsured unemployed non-western immigrants. The results on ND after matching is presented in column (3). If ND is above 20 percent then the bias is large (Rosenbaum and Rubin, 1985). However, for none of the covariates the ND exceeds 15 percent, and only for few covariates (out from 137) ND is 10-11percent after matching reduces mean covariate imbalance with respect to the average SD.

Next, we assess the plausibility of the unconfoundedness assumption. To do so, we use two groups of pseudo-outcomes (Imbens, 2015). We first exclude, from the propensity score, all covariates related to participation in employment services, and estimate ATT for participation in off-the-job training and on-the-job internship during the year prior to participation in the Industry Package programme. Then we exclude, from the propensity score, all covariates related to regular employment, and estimate impacts on employment rate, full-employment and employment probability the year prior to participation in the Industry Packages programme. Table 2 presents the results. In all five cases, the estimates are not statistically significant at the 5 percent level indicating that unconfoundedness may be an acceptable assumption in our setting.

Table 2: Estimates of ATT for pseudo-outcomes

Outcome	Quarters –4 - –1 with respect programme start		
	All	Males	Females
	(1)	(2)	(3)
Off-the-job training	0.044 (0.024) [0.860]	0.046 (0.032) [0.832]	0.042 (0.032) [0.895]
On-the-job internship	0.016 (0.019) [0.185]	0.010 (0.024) [0.175]	0.029 (0.029) [0.199]
Employment rate	0.005 (0.005) [0.013]	-0.001 (0.004) [0.009]	0.012 (0.009) [0.019]
Employment probability	0.034 (0.031) [0.133]	0.012 (0.024) [0.069]	0.065 (0.061) [0.219]
Full-time employment	0.000 (0.003) [0.003]	-0.002 (0.003) [0.003]	0.002 (0.005) [0.004]

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment services and regular employment measured within 1 year before programme start. Estimates of ATT for pseudo employment services are obtained by excluding from the propensity score the set of covariates measuring pre-programme participation in employment services. Estimates of ATT for pseudo regular employment are obtained by excluding from the propensity score the set of covariates measuring pre-programme regular employment. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

6.2 Results for employment services

As municipal caseworkers assign individuals not participating in the Industry Packages programme to similar employment services, it is crucial for the interpretation of employment effects to understand the changes in training as a consequence of the Industry Packages programme during the first year. Table 3 provides, in square brackets, the estimates of potential participation in employment services in absence of the Industry Packages programme. Note that, without this intervention, 72% of the treated individuals would have participated in off-the-job training, and 45% of treated individuals would had been exposed to on-the-job internships. The effects on employment services reported in Table 3 confirm that the treatment policy increase the intensity of employment services. Participation in the programme increases both types of training. Results indicate an estimated effect on off-the-job training about 15% during the first year, driven mainly by much higher participation in such employment service upon the start of the programme (see quarter 0). Most importantly, our results also show that the fraction of treated individuals participating at workplace internships increased in from 45% to 70% during the first year. Hence, relatively to the control group the treatment group spent 56% more time in a workplace internship during the first year.

Table 3: Estimates of ATT for employment services

	Quarters with respect programme start				
Outcome	0	1	2	3	0 - 3
	(1)	(2)	(3)	(4)	(5)
Off-the-job training	0.189***	0.041	0.079	0.025	0.147***
	(0.040)	(0.044)	(0.042)	(0.043)	(0.037)
	[0.612]	[0.489]	[0.390]	[0.356]	[0.715]
On-the-job internship	0.202***	0.255***	0.153***	0.090**	0.252***
	(0.042)	(0.040)	(0.037)	(0.032)	(0.044)
	[0.309]	[0.220]	[0.181]	[0.162]	[0.447]

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment services. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

6.3 Results for regular employment

We now turn to the contribution of the Industry Packages programme to regular employment. Results are presented in two steps. First, the estimated ATT for our primary outcome, employment rate, and for two additional employment outcomes are presented. Second, we estimate the contribution of this programme to different industries.

In Table 4, we present our main results for participation in regular employment. We report estimates for the first seven quarters, for the last four quarters, and for the whole observation period. We do so in order to detect the presence of potential lock-in effects. The first row of Table 4 shows estimates for employment rate, our primary outcome. The overall employment rate of individuals in the treatment group, without the intervention is extremely low (11%). In this context, we find that that participation in Industry Packages programme increases regular employment rate by 3 percentage points in the initial period, and by 6 percentage points between 1.5 and 2.5 years after the start of the programme. The estimate for the whole period is 4 percentage points, and represents a 39% increase with respect the very low level of potential employment rate achieved during our observation period.

The second row of Table 4 shows that 46% of individuals participating in the Industry Packages programme would had found some kind of regular employment without the help from the Industry Packages programme. In this context, we find that participation in Industry Packages programme increases employment probability by 14 percentage points, which represents a 30% increase with respect to the potential outcome.

Finally, the third row of the table shows results for the average number of quarters with full-employment. Results reveal that participation in the Industry Packages programme provides a very limited contribution to full-time employment.

Overall, our main results indicate that participation in the Industry Packages programme generates small significant effects on employment.

Table 4: Estimates of ATT for employment

Outcome	Quarters with respect programme start		
	0 - 6	7 - 10	0 - 10
	(1)	(2)	(3)
Employment rate	0.029*	0.064*	0.042*
	(0.014)	(0.027)	(0.017)
	[0.079]	[0.160]	[0.108]
Employment probability	0.119**	0.110*	0.137**
	(0.044)	(0.045)	(0.045)
	[0.376]	[0.407]	[0.465]
Full-time employment	0.029*	0.060**	0.040**
	(0.011)	(0.021)	(0.013)
	[0.029]	[0.073]	[0.045]

As labour-shortages may affect industries which traditionally do not employ non-western immigrants, it is relevant to determine to which extent the contribution of the Industry Packages programme to regular employment is spread out across different types of jobs. Additionally, the small significant effects may hide a reduction of immigrant employment in industries not targeted by the Industry Packages programme.

We measure industry employment with a dummy indicator determining whether an individual has been employed in a specific industry or not some time during the entire observation period. Table 5 presents effects for the three selected industries with statistically significant effects.[14] Results reveal that the program increased regular employment in a 'traditional' immigrant industry 'Other business services' but also generated employment in 'Manufacturing etc.', where non-western immigrants are underrepresented. The fraction of non-western immigrants employed in 'Manufacturing etc.' increased by 5 percentage points (81% increase with respect the potential employment in absence of the Industry Packages programme) and the fraction of non-western immigrants employed in "Other business services" raised by 7 percentage points (36% increase with respect the potential employment in such industry). Additionally, results also indicate a very small effect on employment in the 'Real estate' industry.

[14] Table A5 presents employment effects for all industries.

Table 5: Estimates of ATT for selected sectors of employment

Outcome	Quarters 0 - 10 with respect programme start (1)
Manufacturing, mining and quarrying, and utility services	0.052[#] (0.027) [0.064]
Real estate	0.018* (0.009) [0.004]
Other business services	0.071[#] (0.038) [0.197]

Notes: Coefficients estimate the ATT of the Industry Packages programme for sector of employment for all and by gender. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: [#], *, **, and ***, which indicate $p<0.10$, $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

6.4 Heterogeneity

This section presents estimates of ATT on employment services and regular employment for males and females. These estimates are obtained with the same matching method as the main results. Table 5 shows that the effects on workplace internships are practically the same for both genders, but male participants were exposed to a more intensive increase in off-the-job training than female participants. The estimated ATT for off-the-job training for males is 25%, roughly twice as large as the estimate for females.

Table 5: Estimates of ATT for employment services, by gender

Outcome	Quarters with respect programme start				
	0	1	2	3	0 - 3
	(1)	(2)	(3)	(4)	(5)
A. Males					
Off-the-job training	0.265***	0.047	0.106	0.068	0.254***
	(0.066)	(0.072)	(0.067)	(0.069)	(0.063)
	[0.568]	[0.447]	[0.355]	[0.330]	[0.650]
On-the-job internship	0.169*	0.252***	0.201***	0.112*	0.286***
	(0.070)	(0.066)	(0.053)	(0.050)	(0.072)
	[0.324]	[0.197]	[0.133]	[0.132]	[0.458]
B. Females					
Off-the-job training	0.184***	0.083	0.091	0.053	0.104**
	(0.044)	(0.051)	(0.053)	(0.053)	(0.037)
	[0.598]	[0.472]	[0.397]	[0.336]	[0.730]
On-the-job internship	0.236***	0.293***	0.164***	0.112*	0.255***
	(0.047)	(0.047)	(0.048)	(0.045)	(0.050)
	[0.286]	[0.210]	[0.182]	[0.158]	[0.413]

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment services by gender. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

Existing evidence on job-training programmes tend to support positive employment effects on male immigrants but not on females (Arendt, 2022; Arendt and Bolvig, 2020; Foged et al., 2022). Contrasting with this literature, our estimates in Table 5 show that employment effects for female participants are higher than for males. Moreover, the lower potential employment of females in the control group implies that participation in the Industry Packages programme had a relatively much higher impact on female employment than on male employment. None of the estimated effects on male employment are statistically significant; in contrast, all estimates for female employment are higher in magnitude and statistically significant. The results presented in panel B show that participation in the Industry Packages programme increases the employment rate of female participants by 5 percentage points between quarter 0 and 10, this implying a 86% increase with respect the potential employment rate among females (which is very low). The second and third row

of Table 6 highlight that female non-western employment created by the intervention is mainly part-time. Again, results show proportionally much higher effects on employment probability than on employment rate or on full-time employment.

Table 6: Estimates of ATT for employment, by gender

Outcome	Quarters with respect programme start		
	0 - 6	7 - 10	0 - 10
	(1)	(2)	(3)
A. Males			
Employment rate	0.008	0.078	0.033
	(0.025)	(0.048)	(0.031)
	[0.128]	[0.241]	[0.169]
Full-time employment	0.020	0.078	0.041
	(0.020)	(0.041)	(0.026)
	[0.047]	[0.113]	[0.071]
Employment probability	0.083	0.122	0.113
	(0.073)	(0.074)	(0.070)
	[0.577]	[0.558]	[0.637]
B. Females			
Employment rate	0.049**	0.063*	0.054**
	(0.017)	(0.026)	(0.019)
	[0.045]	[0.096]	[0.063]
Full-time employment	0.040**	0.046*	0.042**
	(0.013)	(0.022)	(0.015)
	[0.016]	[0.051]	[0.029]
Employment probability	0.159**	0.134**	0.183***
	(0.048)	(0.050)	(0.052)
	[0.211]	[0.259]	[0.305]

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment by gender. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

Next, we estimate the impact of the Industry Packages programme on employment at different industries for males and females. Interestingly, table 7 shows that the employment effect in 'Manufacturing etc.' is driven by female employment. The table also shows that the Industry Packages programme contributes to the employment among male participants in jobs within 'Trade and transport etc.' Moreover, we find weaker evidence on effects for males in 'Real estate' and 'Other business services'.

Table 7: Estimates of ATT for selected sectors of employment, by gender

Outcome	Quarters 0 - 10 with respect programme start	
	Males	Females
	(1)	(2)
Manufacturing, mining and quarrying, and utility services	0.002 (0.020) [0.040]	0.115* (0.051) [0.096]
Trade and transport etc.	0.072* (0.030) [0.075]	0.094 (0.077) [0.412]
Real estate	0.015# (0.009) [0.004]	0.014 (0.015) [0.005]
Other business services	0.065# (0.035) [0.106]	0.109 (0.082) [0.288]

Notes: Coefficients estimate the ATT of the Industry Packages programme for sector of employment for all and by gender. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: #, *, **, and ***, which indicate $p<0.10$, $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

6.5 Robustness

To check the robustness of our findings we have tried two different paths. First, we assess the sensitivity of our estimates for males and females to different matching methods.[15] An important challenge associated with reporting small-sample estimates based on unconfoundedness is that results can be sensitive to small changes in the matching algorithm. In tables A8 and A9, we assess the

[15] The AIPW estimator combines regression-adjustment and IPW method, and has the double-robust property.

robustness of our results for males and females to altering different dimensions of our selected matching method. The analysis of the sensitivity of our estimated effects for males and females can be considered as stronger evidence than the robustness checks on the overall sample.[16] Table A8 and Table A9 testify for the robustness of our results to the matching algorithm. Results obtained with different matching methods generate quite similar result. Additionally, the exclusion of individuals with residence in the municipality of Høje-Taastrup, the only municipality that does not primarily recruit recently arrived refugees (see Table A2), or restricting our analysis sample to refugees only do not essentially change the main conclusion of our analysis.

Second, as our identification assumption heavily relies on unconfoundedness, we analyze the sensitivity of treatment effect estimates to relaxations of the unconfoundedness assumption (Masten et al., 2023). We first estimate the breakdown point, defined as the maximum level of selection on unobservables under which our conclusion of positive effects still holds. The estimated breakdown points in the overall sample and the female sample are 0.053 and 0.082, respectively. Next, we compare the size of the breakdown points to the variation in the estimated propensity score resulting from excluding a single covariate, denoted W_k:

$$\Delta_k = \left| p_{BOT|W}(W_{-k}, W_k) - p_{BOT|W_{-k}}(W_{-k}) \right|$$

Table A8 shows, for the whole analysis sample, that the estimated breakdown point is larger than the variation in leave-out-variable-*k* propensity score Δ_k for all but one of the covariates corresponding to the indicator 'Female x Programme in Høje-Taastrup'. For this covariate, a very small proportion of mass of the density of Δ_k have values larger than 0.053. However, the estimated effects without including such variable presented in last columns of Table A8 indicate that the consequences of omitting this covariate from the analysis on our estimates are negligible. Finally, Table A9 shows that for none of the covariates included in the propensity score the variation in leave-out-variable-*k* propensity score is higher than the breakdown point (0.082). This indicating that the conclusion that ATT is nonnegative for females (i.e. that the Industry Packages programme has a positive impact on their employment) is robust to our identification assumption.

[16] The estimated effects for the overall sample are very robust to the matching algorithm. Results are available upon request.

7. Conclusion

While there has been much research on the role of ALMP's in enhancing the employment of immigrants at risk, relatively little is known about the effectivity of labour shortage-oriented policies, and for which groups of immigrants this policy is effective. In this study, we use programme participation and administrative data from 11 Danish municipalities along with limited programme selection to address these questions. Results indicate that participation in the Industry Packages substantially increased participation in employment services. However, the impact of the programme on regular employment is relatively small and driven by part-time job creation.

Moreover, results indicate, contrasting with existing literature, that employment effects are higher for females than for male participants. We find an increase in the female employment propensity of 18 percentage points in our study period. This is a 60% increase relative to the potential employment probability of female non-western participants in absence of the Industry Packages programme. Unfortunately, such large effect on the extensive margin does not manifest in terms of the intensive margin.

Finally, we find that the program increased regular employment in traditional "immigrant" industries such as 'Other business services' but also generated employment in industries in 'Manufacturing etc.' where non-western immigrants are underrepresented. Collectively, our results provide useful insights regarding the role of labour shortage-oriented policies in shaping the integration of hard-to-employ non-western immigrants in a western country, and which groups of immigrants and industries may gain most by such policies.

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Appendix

Table A1: Descriptive statistics of the initial sample

Covariate	Treated		Untreated		Treated vs untreated	
	Mean	SD	Mean	SD	*t*-stat	ND
	(1)	(2)	(3)	(4)	(5)	(6)
Programme in 2017 (%)	54	50	52	50	1.13	6
Male (%)	46	50	53	50	-3.02	-15
Age (years)	35	10	38	10	-6.54	-32
Years since migration (years)	5	8	13	11	-15.64	-86
Syria (%)	55	50	22	41	16.47	73
Eritrea (%)	12	32	3	17	9.76	34
Turkey (%)	10	29	21	41	-5.95	-33
Refugee (%)	62	49	36	48	11.44	55
Reunited to refugee (%)	21	41	9	28	8.67	35
Employment rate, year -1 (%)	3	9	41	44	-18.16	-119
Reduced social assistance rate, year -1 (%)	75	38	20	37	30.02	144
Off-the-job training, year -1 (%)	88	32	29	46	26.94	144
On-the-job internship, year -1 (%)	62	49	20	40	21.06	149
Number of observations	448		7,367		7,815	

Notes: The first set of columns presents means and standard deviations of characteristics for our sample of all treated individuals, while the second set of columns shows the same descriptive statistics for our sample of all untreated individuals. The column entitled *t*-stat presents the *t*-statistic for testing the null hypothesis that the differences in covariate means between treated individuals and untreated individuals are zero. Finally, the last column shows the normalized difference in covariate means between treated individuals and untreated individuals.

Table A2: Means of the treatment sample, by municipality

Covariate	Municipality of residence									
	Egedal	Faxe	Fredericia	Haderslev	Høje-Taastrup	Odder	Ringsted	Rudersdal	Thisted	Aabenraa; Kerteminde
Programme in 2017 (%)	100	59	26	100	33	41	64	33	70	81
Male (%)	0	53	16	47	29	47	57	71	52	29
Age (years)	38	34	31	25	44	36	33	32	39	32
Years since migration (years)	2	2	1	1	19	1	1	2	3	1
Syria (%)	53	71	68	82	0	91	47	60	48	90
Eritrea (%)	21	14	10	12	0	0	40	11	0	0
Turkey (%)	0	0	0	0	45	0	0	0	0	0
Refugee (%)	71	76	29	76	12	62	79	91	74	62
Reunited to refugee (%)	21	23	61	21	10	38	21	9	22	33
Employment rate, year -1 (%)	1	3	0	0	4	1	2	2	2	0
Reduced social assistance, year -1 (%)	89	93	87	99	7	88	95	94	87	86
Off-the-job training, year -1 (%)	91	91	97	94	80	91	100	82	91	86
On-the-job internship, year -1 (%)	74	53	81	62	35	62	55	87	48	86
Number of observations	34	66	31	34	51	34	47	45	23	21

Notes: This table presents an overview of the means of covariates for selected treated individuals across the different municipalities.

Table A3: Estimated parameters of propensity score

Covariate	Estimated Coefficient
Male	-2.473*
Male x Programme in 2017	-0.623**
Male x Programme in Aabenraa or Kerteminde	-1.891***
Male x Programme in Faxe	2.073***
Male x Programme in Fredericia	-0.576
Male x Programme in Høje-Taastrup	2.655***
Male x Programme in Odder	1.147**
Male x Programme in Ringsted	1.754***
Male x Programme in Rudersdal	1.097**
Male x Programme in Age	-0.027*
Male x Residence with other families	0.412
Male x Children between 0-11 years old	0.159
Male x Children between 12-18 years old	-0.062
Male x Origin from Syria	-0.424
Male x Origin from Turkey	0.654
Male x Origin from Somalia	-1.641
Male x Origin from Iran	0.528
Male x Origin from Afghanistan	-1.044
Male x Reunited to refugee	1.418*
Male x Upper secondary education	-0.548
Male x Hospitalized, year -1	-0.840*
Male x Crime, year -1	-0.512
Male x Integration programme	0.248
Male x Job readiness quarter 1 year -1	0.369
Male x Counselling and training, semester -1	-1.830
Male x Reduced social assistance, semester -2	1.826***
Male x Ordinary education, semester -2	0.848
Male x On-the-job training, semester -2	0.633
Male x Counselling and training, semester -2	1.449
Male x Employment rate, semester -2	1.033
Male x On-the-job internship, week -5	-0.008
Male x Counselling and training, week -8	-0.980
Male x Counselling and training, week -6	-1.195
Male x Counselling and training, week -5	-1.622
Male x Counselling and training, week -4	2.310**
Male x Ordinary education, week -1	0.554*
Male x Social assistance, week -1	1.984**

Male x Reduced social assistance, week -4	0.904
Male x Reduced social assistance, week -1	1.290
Male x Number of training hours, year -1	0.019
Male x Employment rate, month -1	-3.909**
Female x Programme in semester 1	-0.344
Female x Programme in Aabenraa or Kerteminde	-0.664
Female x Programme in Egedal	1.458**
Female x Programme in Faxe	1.804***
Female x Programme in Fredericia	1.306**
Female x Programme in Haderslev	0.258
Female x Programme in Høje-Taastrup	3.372***
Female x Programme in Odder	1.249*
Female x Programme in Ringsted	2.190***
Female x Programme in Rudersdal	0.203
Female x Residence with other families	0.430
Female x Children between 0-11 years old	0.142*
Female x Years since migration	-0.059**
Female x Origin from Eritrea	0.164
Female x Origin from Somalia	-0.251
Female x Origin from Iran	-0.771
Female x Origin from other country	-0.283
Female x Crime, year -1	-1.496
Female x Partner from same country	-0.181
Female x Partner's employment rate	-0.765
Female x Partner out of the labor market	0.508
Female x Integration programme	0.342
Female x Job readiness quarter 1	0.877***
Female x Reduced social assistance, semester -2	1.113*
Female x Ordinary education, semester -2	-0.597
Female x On-the-job training, semester -2	-0.137
Female x Counselling and training, semester -2	-1.196
Female x On-the-job internship, week -11	-0.249
Female x On-the-job internship, week -7	0.099
Female x On-the-job internship, week -4	0.366
Female x On-the-job internship, week -2	0.690
Female x Counselling and training, week -8	-0.509
Female x Ordinary education, week -11	-0.366
Female x Ordinary education, week -10	-0.035
Female x Ordinary education, week -7	-0.232

Female x Ordinary education, week -1	1.711***
Female x Social assistance, week -6	1.818***
Female x Reduced social assistance, week -11	1.464**
Female x Number of training hours, year -1	0.009
Female x Employment rate, month -3	0.986
Intercept	-5.679***

Notes: The table presents the coefficients of the propensity score estimated using a logit model. Statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$.

Table A4: Normalized difference before and after matching

Covariate	Mean for treated before matching	ND (%) before matching	ND (%) after matching
	(1)	(2)	(3)
Programme in 2017 (%)	58	4	-3
Programme in semester 1 (%)	41	-19	-4
Programme in Aabenraa or Kerteminde (%)	5	-56	0
Programme in Egedal (%)	9	9	0
Programme in Faxe (%)	17	37	0
Programme in Fredericia (%)	8	-11	0
Programme in Haderslev (%)	9	-8	0
Programme in Høje-Taastrup (%)	13	-5	0
Programme in Odder (%)	9	21	0
Programme in Ringsted (%)	12	26	0
Programme in Rudersdal (%)	12	6	0
Age	35	-26	0
Male (%)	43	-5	-5
Main family member (%)	79	11	6
Single (%)	37	5	3
Residence with other families (%)	23	-2	-3
Children of age between 0-11 years old	1.4	27	-4
Children of age between 12-17 years old	0.2	-14	10
Years since migration	3.8	-57	-1
Origin from Syria (%)	58	38	-6
Origin from Eritrea (%)	12	27	2
Origin from Turkey (%)	6	-17	2
Origin from Africa (Somalia and Eritrea excl.) (%)	3	-3	1
Origin from East Asia (%)	7	-27	-2
Origin from Somalia (%)	2	-8	1
Origin from Iran (%)	4	-5	4
Origin from Iraq (%)	3	-16	2
Origin from Afghanistan (%)	3	-18	-11
Other country of origin (%)	3	-24	1
Refugee (%)	63	23	1
Reunited to refugee (%)	24	20	-4
Missing information on residence permit (%)	7	-29	2
Under upper secondary education (%)	68	11	0
Upper secondary education (%)	14	-14	-5

Short higher education (%)	11	2	3
Hospitalized, year -1 (%)	10	-5	2
Crime, year -1 (%)	3	-33	-2
Partner from same country (%)	62	-4	-4
Partner is not immigrant (%)	1	-23	1
Partner's employment rate, year -1 (%)	5	-36	-1
Partner is not active on the labor market (%)	3	-10	0
Participation in the integration programme (%)	82	79	2
Job readiness (%)	72	73	4
Number of caseworker meetings	0.7	11	5
Social assistance, semester -1 (%)	11	-32	-1
Reduced social assistance, semester -1 (%)	82	82	1
Ordinary education, semester -1 (%)	42	64	0
On-the-job training, semester -1 (%)	24	28	-2
Counselling and training, semester -1 (%)	3	-27	3
Social assistance, semester -2 (%)	12	-39	-4
Reduced social assistance, semester -2 (%)	79	87	3
Ordinary education, semester -2 (%)	42	53	-3
On-the-job training, semester -2 (%)	22	29	8
Counselling and training, semester -2 (%)	4	-12	-8
Number of training hours	9.7	47	-2
Employment rate, semester -1 (%)	3	-6	4
Employment rate, semester -2 (%)	4	2	11
Male × Programme in 2017 (%)	25	-3	-2
Male × Programme in Aabenraa or Kerteminde (%)	2	-42	-3
Male × Programme in Faxe (%)	9	30	-3
Male × Programme in Fredericia (%)	1	-21	2
Male × Programme in Høje-Taastrup (%)	4	-8	1
Male × Programme in Odder (%)	4	14	1
Male × Programme in Ringsted (%)	7	22	-9
Male × Programme in Rudersdal (%)	8	15	-1
Male × Age	15.0	-9	-3
Male × Residence with other families (%)	14	1	-7
Male × Children between 0-11 years old	0.4	5	-10
Male × Children between 12-18 years old	0.1	-13	6
Male × Origin from Syria (%)	24	10	-11
Male × Origin from Turkey (%)	3	-11	0
Male × Origin from Somalia (%)	1	-9	1
Male × Origin from Iran (%)	2	1	5

Male × Origin from Afghanistan (%)	1	-20	0
Male × Reunited to refugee (%)	2	7	10
Male × Upper secondary education (%)	4	-19	-6
Male × Hospitalized, year -1 (%)	3	-8	-3
Male × Crime, year -1 (%)	3	-28	-2
Male × Integration programme (%)	38	31	-3
Male × Job readiness quarter 1 year -1 (%)	34	29	-2
Male × Counselling and training, semester -1 (%)	1	-23	-3
Male × Reduced social assistance, semester -2 (%)	36	35	-2
Male × Ordinary education, semester -2 (%)	20	32	-6
Male × On-the-job training, semester -2 (%)	12	15	7
Male × Counselling and training, semester -2 (%)	2	-1	-11
Male × Employment rate, semester -2 (%)	3	6	-11
Male × On-the-job internship, week -5 (%)	9	4	5
Male × Counselling and training, week -8 (%)	0	-24	-3
Male × Counselling and training, week -6 (%)	0	-24	-2
Male × Counselling and training, week -5 (%)	1	-22	-1
Male × Counselling and training, week -4 (%)	2	-11	0
Male × Ordinary education, week -1 (%)	21	41	-2
Male × Social assistance, week -1 (%)	4	-21	1
Male × Reduced social assistance, week -4 (%)	38	32	-3
Male × Reduced social assistance, week -1 (%)	38	32	-3
Male × Number of training hours, year -1	4.6	26	-5
Male × Employment rate, month -1 (%)	0	-18	-3
Female × Programme in semester 1 (%)	22	-15	5
Female × Programme in Aabenraa or Kerteminde (%)	4	-33	3
Female × Programme in Egedal (%)	9	25	5
Female × Programme in Faxe (%)	8	21	3
Female × Programme in Fredericia (%)	7	2	-1
Female × Programme in Haderslev (%)	5	-7	-3
Female × Programme in Høje-Taastrup (%)	9	-1	-1
Female × Programme in Odder (%)	5	15	-1
Female × Programme in Ringsted (%)	5	14	10
Female × Programme in Rudersdal (%)	3	-9	1
Female × Residence with other families	10	-4	4
Female × Children between 0-11 years old	1.0	25	4
Female × Years since migration	2.3	-37	0
Female × Origin from Eritrea (%)	4	16	7
Female × Origin from Somalia (%)	2	-3	1

Female × Origin from Iran (%)	1	-8	0
Female × Origin from other country (%)	2	-19	0
Female × Crime, year -1 (%)	0	-17	-1
Female × Partner from same country (%)	42	3	2
Female × Partner's employment rate (%)	4	-32	-2
Female × Partner out of the labor market (%)	3	-8	0
Female × Integration programme (%)	44	46	5
Female × Job readiness quarter 1 (%)	38	50	7
Female × Reduced social assistance, semester -2 (%)	43	49	5
Female × Ordinary education, semester -2 (%)	22	31	3
Female × On-the-job training, semester -2 (%)	10	24	3
Female × Counselling and training, semester -2 (%)	2	-15	-1
Female × On-the-job internship, week -11 (%)	14	31	4
Female × On-the-job internship, week -7 (%)	14	29	5
Female × On-the-job internship, week -4 (%)	13	25	7
Female × On-the-job internship, week -2 (%)	13	22	6
Female × Counselling and training, week -8 (%)	1	-17	2
Female × Ordinary education, week -11 (%)	21	28	1
Female × Ordinary education, week -10 (%)	21	28	1
Female × Ordinary education, week -7 (%)	22	33	1
Female × Ordinary education, week -1 (%)	30	54	9
Female × Social assistance, week -6 (%)	9	-17	1
Female × Reduced social assistance, week -11 (%)	45	47	5
Female × Number of training hours, year -1	5.1	30	2
Female × Employment rate, month -3 (%)	1	1	4

Notes: Mean absolute normalized difference before matching 25%; Mean absolute normalized difference after matching is 3.2%.

Table A5: Estimates of ATT for all sectors of employment

Outcome	Quarters 0 - 10 with respect programme start		
	All	Males	Females
	(1)	(2)	(3)
Agriculture, forestry and fishing	0.009 (0.008) [0.007]	0.004 (0.005) [0.001]	0.014 (0.018) [0.018]
Manufacturing, mining and quarrying, and utility services	0.052# (0.027) [0.064]	0.002 (0.020) [0.040]	0.115* (0.051) [0.096]
Construction	0.014 (0.016) [0.030]	0.004 (0.005) [0.001]	0.019 (0.049) [0.078]
Trade and transport etc.	0.067 (0.041) [0.231]	0.072* (0.030) [0.075]	0.094 (0.077) [0.412]
Information and communication	0.003 (0.005) [0.003]	0.004 (0.005) [0.001]	0.003 (0.007) [0.004]
Financial and insurance	-0.001 (0.002) [0.001]	-0.002 (0.003) [0.002]	-0.001 (0.001) [0.001]
Real estate	0.018* (0.009) [0.004]	0.015# (0.009) [0.004]	0.014 (0.015) [0.005]
Other business services	0.071# (0.038) [0.197]	0.065# (0.035) [0.106]	0.109 (0.082) [0.288]
Public administration, education and health	0.030 (0.025) [0.078]	0.065 (0.040) [0.106]	-0.007 (0.024) [0.032]
Arts, entertainment and other services	-0.008 (0.026) [0.094]	0.033 (0.028) [0.071]	-0.064 (0.050) [0.129]

Notes: Coefficients estimate the ATT of the Industry Packages programme for sector of employment for all and by gender. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: #, *, **, and ***, which indicate $p<0.10$, $p<0.05$, $p<0.01$, and $p<0.001$. Square brackets provide estimates of potential outcomes for individuals participating in the Industry Packages programme in the hypothetical absence of this intervention. The details of the sample, inference and the selected outcomes are described in the main text.

Table A6: Robustness of estimated ATT to matching method for males

Matching method	ND		ATT			
	Max.	Max.	Off-the-job training, Quarters 0 - 3	On-the-job internship, Quarters 0 - 3	Employment probability, Quarters 0 - 10	Employment rate, Quarters 0 - 10
Logit Propensity score Epanechnikov kernel with bandwidth selected with pair-matching and exact matching on municipality for observations from 11 municipalities	4.0	11.4	0.254*** (0.065)	0.286*** (0.070)	0.113 (0.070)	0.033 (0.031)
Bandwidth selected with cross validation	4.1	13.0	0.250*** (0.062)	0.291*** (0.069)	0.111 (0.070)	0.032 (0.030)
Probit Propensity score	3.7	17.2	0.270*** (0.063)	0.252*** (0.069)	0.120 (0.066)	0.036 (0.028)
Uniform kernel	3.7	10.7	0.271*** (0.061)	0.271*** (0.066)	0.122 (0.066)	0.036 (0.031)
Ridge kernel	4.6	14.3	0.217** (0.072)	0.280*** (0.072)	0.090 (0.074)	0.028 (0.033)
Exact matching on years since migration	4.6	20.5	0.277*** (0.059)	0.238*** (0.066)	0.073 (0.054)	0.020 (0.029)
No exact matching	4.1	18.3	0.210** (0.065)	0.212** (0.071)	0.037 (0.068)	0.008 (0.030)
Høje-Taastrup excluded	3.7	14.6	0.243*** (0.072)	0.277*** (0.077)	0.114 (0.077)	0.055 (0.033)
Non-refugees excluded	2.0	8.5	0.280*** (0.067)	0.235** (0.073)	0.110 (0.074)	0.050 (0.032)

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. The details of the different matching algorithms are described in the main text.

Table A7: Robustness of estimates of ATT to matching method for females

Matching method	ND		ATT			
	Mean	Max.	Off-the-job training, Quarters 0 - 3	On-the-job internship, Quarters 0 - 3	Employment probability, Quarters 0 - 10	Employment rate, Quarters 0 - 10
Logit Propensity score Epanechnikov kernel with bandwidth selected with pair-matching and exact matching on municipality for observations from 11 municipalities	3.2	9.7	0.104** (0.036)	0.255*** (0.048)	0.183*** (0.052)	0.054** (0.019)
Bandwidth selected with cross validation	4.0	14.2	0.091* (0.036)	0.247*** (0.048)	0.192*** (0.051)	0.059** (0.020)
Probit Propensity score	2.5	9.6	0.098** (0.038)	0.259*** (0.046)	0.184*** (0.052)	0.054** (0.020)
Uniform kernel	3.4	9.4	0.119** (0.037)	0.266*** (0.048)	0.181*** (0.052)	0.054** (0.019)
Ridge kernel	3.0	10.3	0.067 (0.039)	0.229*** (0.055)	0.184** (0.057)	0.056** (0.020)
Exact matching on years since migration	5.9	15.4	0.109** (0.041)	0.239*** (0.052)	0.187*** (0.053)	0.060** (0.018)
No exact matching	3.2	10.9	0.067 (0.043)	0.254*** (0.053)	0.209*** (0.055)	0.065*** (0.019)
Høje-Taastrup excluded	4.6	16.0	0.069 (0.040)	0.264*** (0.058)	0.221*** (0.058)	0.075*** (0.021)
Non-refugees excluded	2.5	6.2	0.062 (0.039)	0.268*** (0.053)	0.221*** (0.055)	0.075*** (0.020)

Notes: Coefficients estimate the ATT of the Industry Packages programme for employment. Standard errors computed with 500 bootstrap replications are in parentheses, and statistical significance is indicated by: *, **, and ***, which indicate $p<0.05$, $p<0.01$, and $p<0.001$. The details of the different matching algorithms are described in the main text.

Table A8: Robustness of estimates of ATT to unconfoundedness

Excluded Covariate	Variation in leave-out-variable-*k* propensity score (Breakpoint = 0.053)			ATT_k			
	50pctile	75pctile	90pctile	Off-the-job training, Quarters 0 - 3	On-the-job internship, Quarters 0 - 3	Employment probability, Quarters 0 - 10	Employment rate, Quarters 0 - 10
Male	0.003	0.009	0.019	0.162	0.247	0.132	0.041
Male x Programme in 2017	0.001	0.004	0.025	0.130	0.236	0.147	0.050
Male x Programme in Aabenraa or Kerteminde	0.001	0.006	0.029	0.159	0.254	0.147	0.043
Male x Programme in Faxe	0.002	0.006	0.027	0.136	0.260	0.157	0.045
Male x Programme in Fredericia	0.000	0.001	0.004	0.150	0.250	0.141	0.043
Male x Programme in Høje-Taastrup	0.002	0.006	0.023	0.154	0.248	0.146	0.044
Male x Programme in Odder	0.000	0.002	0.012	0.149	0.259	0.141	0.040
Male x Programme in Ringsted	0.001	0.004	0.021	0.150	0.242	0.164	0.057
Male x Programme in Rudersdal	0.000	0.002	0.020	0.162	0.232	0.128	0.039
Male x Age	0.002	0.006	0.018	0.162	0.237	0.138	0.045
Male x Residence with other families	0.001	0.002	0.013	0.143	0.238	0.132	0.044
Male x Children between 0-11 years old	0.000	0.002	0.012	0.159	0.241	0.133	0.040
Male x Children between 12-18 years old	0.000	0.000	0.001	0.148	0.246	0.140	0.042
Male x Origin from Syria	0.000	0.001	0.011	0.136	0.252	0.125	0.041
Male x Origin from Turkey	0.000	0.000	0.004	0.148	0.249	0.147	0.044
Male x Origin from Somalia	0.000	0.001	0.006	0.143	0.257	0.134	0.044
Male x Origin from Iran	0.000	0.001	0.004	0.152	0.246	0.145	0.040
Male x Origin from Afghanistan	0.000	0.001	0.003	0.146	0.256	0.132	0.040
Male x Reunited to refugee	0.000	0.001	0.005	0.149	0.254	0.137	0.041
Male x Upper secondary education	0.000	0.001	0.009	0.145	0.247	0.135	0.040
Male x Hospitalized, year -1	0.000	0.001	0.012	0.138	0.226	0.161	0.055
Male x Crime, year -1	0.000	0.002	0.006	0.147	0.250	0.134	0.041
Male x Integration programme	0.000	0.001	0.002	0.148	0.254	0.135	0.040
Male x Job readiness quarter 1 year -1	0.000	0.001	0.011	0.141	0.249	0.145	0.048
Male x Counselling and training, semester -1	0.000	0.001	0.004	0.137	0.251	0.138	0.044

Male x Reduced social assistance, semester -2	0.001	0.003	0.023	0.155	0.208	0.156	0.048
Male x Ordinary education, semester -2	0.000	0.001	0.014	0.147	0.235	0.151	0.046
Male x On-the-job training, semester -2	0.000	0.001	0.009	0.149	0.255	0.145	0.043
Male x Counselling and training, semester -2	0.000	0.001	0.008	0.151	0.244	0.132	0.042
Male x Employment rate, semester -2	0.000	0.001	0.007	0.151	0.231	0.148	0.044
Male x On-the-job internship, week -5	0.000	0.000	0.000	0.147	0.252	0.137	0.042
Male x Counselling and training, week -8	0.000	0.000	0.000	0.148	0.253	0.140	0.041
Male x Counselling and training, week -6	0.000	0.000	0.001	0.148	0.257	0.140	0.042
Male x Counselling and training, week -5	0.000	0.001	0.003	0.151	0.241	0.129	0.042
Male x Counselling and training, week -4	0.000	0.001	0.006	0.152	0.251	0.142	0.044
Male x Ordinary education, week -1	0.000	0.002	0.021	0.197	0.215	0.136	0.039
Male x Social assistance, week -1	0.002	0.006	0.019	0.151	0.240	0.123	0.039
Male x Reduced social assistance, week -4	0.000	0.001	0.003	0.147	0.256	0.136	0.041
Male x Reduced social assistance, week -1	0.000	0.001	0.004	0.149	0.253	0.137	0.045
Male x Number of training hours, year -1	0.000	0.001	0.012	0.147	0.242	0.148	0.046
Male x Employment rate, month -1	0.000	0.002	0.018	0.132	0.277	0.129	0.032
Female x Programme in semester 1	0.001	0.007	0.022	0.148	0.254	0.131	0.037
Female x Programme in Aabenraa or Kerteminde	0.001	0.003	0.008	0.150	0.259	0.139	0.042
Female x Programme in Egedal	0.002	0.006	0.016	0.149	0.240	0.140	0.044
Female x Programme in Faxe	0.002	0.008	0.019	0.149	0.225	0.133	0.043
Female x Programme in Fredericia	0.002	0.006	0.015	0.147	0.238	0.137	0.042
Female x Programme in Haderslev	0.000	0.001	0.003	0.149	0.251	0.137	0.041
Female x Programme in Høje-Taastrup	0.008	0.023	0.056	0.160	0.233	0.137	0.038
Female x Programme in Odder	0.001	0.005	0.011	0.144	0.256	0.141	0.043
Female x Programme in Ringsted	0.002	0.008	0.020	0.141	0.248	0.143	0.040
Female x Programme in Rudersdal	0.000	0.001	0.002	0.148	0.248	0.136	0.041
Female x Residence with other families	0.001	0.004	0.013	0.148	0.249	0.139	0.039
Female x Children between 0-11 years old	0.001	0.004	0.017	0.147	0.251	0.144	0.045
Female x Years since migration	0.002	0.006	0.017	0.140	0.250	0.136	0.041
Female x Origin from Eritrea	0.000	0.000	0.002	0.148	0.248	0.137	0.042
Female x Origin from Somalia	0.000	0.001	0.002	0.146	0.254	0.141	0.042
Female x Origin from Iran	0.000	0.001	0.006	0.138	0.262	0.152	0.045

Female x Origin from other country	0.000	0.001	0.002	0.146	0.258	0.144	0.043
Female x Crime, year -1	0.000	0.001	0.003	0.150	0.255	0.139	0.042
Female x Partner from same country	0.000	0.002	0.007	0.141	0.253	0.138	0.045
Female x Partner's employment rate	0.001	0.004	0.012	0.151	0.257	0.143	0.045
Female x Partner out of the labor market	0.000	0.002	0.007	0.144	0.248	0.134	0.044
Female x Integration programme	0.000	0.002	0.005	0.149	0.252	0.139	0.043
Female x Job readiness quarter 1	0.000	0.014	0.048	0.150	0.256	0.150	0.046
Female x Reduced social assistance, semester -2	0.001	0.005	0.018	0.151	0.242	0.141	0.045
Female x Ordinary education, semester -2	0.000	0.004	0.017	0.144	0.266	0.146	0.042
Female x On-the-job training, semester -2	0.000	0.001	0.003	0.147	0.253	0.137	0.042
Female x Counselling and training, semester -2	0.000	0.002	0.009	0.146	0.251	0.134	0.039
Female x On-the-job internship, week -11	0.000	0.001	0.003	0.149	0.249	0.136	0.041
Female x On-the-job internship, week -7	0.000	0.000	0.001	0.147	0.253	0.137	0.042
Female x On-the-job internship, week -4	0.000	0.000	0.002	0.146	0.262	0.140	0.043
Female x On-the-job internship, week -2	0.000	0.002	0.007	0.155	0.254	0.143	0.045
Female x Counselling and training, week -8	0.000	0.001	0.004	0.145	0.250	0.139	0.044
Female x Ordinary education, week -11	0.000	0.000	0.002	0.149	0.252	0.132	0.041
Female x Ordinary education, week -10	0.000	0.000	0.000	0.147	0.251	0.137	0.042
Female x Ordinary education, week -7	0.000	0.001	0.003	0.149	0.248	0.136	0.042
Female x Ordinary education, week -1	0.001	0.010	0.050	0.161	0.223	0.117	0.036
Female x Social assistance, week -6	0.004	0.011	0.028	0.153	0.260	0.139	0.041
Female x Reduced social assistance, week -11	0.002	0.007	0.018	0.146	0.251	0.149	0.047
Female x Number of training hours, year -1	0.000	0.001	0.007	0.149	0.256	0.141	0.046
Female x Employment rate, month -3	0.000	0.001	0.003	0.143	0.253	0.144	0.046

Note: Breakdown point for bound estimates of ATT for on-the-job internship include zero is not statistically significant is 0.133. Breakdown point for bound estimates of ATT for employment rates include zero is not statistically significant is 0.053.

Table A9: Variation in leave-out-variable-*k* estimates of propensity score and ATT for females

Excluded covariate	Variation in leave-out-variable-*k* propensity score (Breakpoint = 0.082)			ATT_k			
	50pctile	75pctile	90pctile	Off-the-job training, Quarters 0 - 3	On-the-job internship, Quarters 0 - 3	Employment probability, Quarters 0 - 10	Employment rate, Quarters 0 - 10
Programme in semester 1	0.007	0.019	0.034	0.104	0.239	0.184	0.054
Programme in Aabenraa or Kerteminde	0.001	0.006	0.016	0.104	0.265	0.185	0.054
Programme in Egedal	0.002	0.007	0.024	0.099	0.253	0.195	0.059
Programme in Faxe	0.002	0.007	0.031	0.092	0.239	0.191	0.061
Programme in Fredericia	0.002	0.007	0.019	0.097	0.233	0.188	0.059
Programme in Haderslev	0.000	0.000	0.000	0.104	0.255	0.183	0.054
Programme in Høje-Taastrup	0.014	0.037	0.079	0.099	0.223	0.178	0.057
Programme in Odder	0.001	0.005	0.014	0.095	0.252	0.198	0.061
Programme in Ringsted	0.003	0.010	0.027	0.090	0.243	0.173	0.054
Programme in Rudersdal	0.000	0.000	0.001	0.105	0.256	0.183	0.054
Residence with other families	0.003	0.008	0.017	0.098	0.257	0.191	0.056
Children between 0-11 years old	0.003	0.011	0.028	0.105	0.264	0.195	0.059
Years since migration	0.005	0.014	0.031	0.096	0.255	0.198	0.058
Origin from Eritrea	0.000	0.001	0.002	0.101	0.246	0.192	0.058
Origin from Somalia	0.001	0.002	0.004	0.103	0.253	0.182	0.054
Origin from Iran	0.001	0.004	0.009	0.070	0.251	0.194	0.064
Origin from other country	0.001	0.002	0.004	0.100	0.255	0.196	0.059
Crime, year -1	0.001	0.003	0.005	0.102	0.256	0.182	0.054
Partner from same country	0.002	0.007	0.015	0.096	0.254	0.195	0.060
Partner's employment rate	0.004	0.011	0.022	0.100	0.253	0.197	0.060

Partner out of the labor market	0.002	0.005	0.010	0.105	0.253	0.187	0.057
Integration programme	0.001	0.003	0.005	0.107	0.261	0.182	0.055
Job readiness quarter 1	0.012	0.036	0.072	0.099	0.241	0.207	0.062
Reduced social assistance, semester -2	0.004	0.012	0.028	0.103	0.236	0.196	0.058
Ordinary education, semester -2	0.003	0.011	0.031	0.111	0.265	0.181	0.053
On-the-job training, semester -2	0.000	0.002	0.005	0.099	0.246	0.194	0.059
Counselling and training, semester -2	0.002	0.006	0.016	0.095	0.245	0.190	0.056
On-the-job internship, week -11	0.000	0.002	0.005	0.091	0.257	0.181	0.054
On-the-job internship, week -7	0.000	0.001	0.002	0.099	0.261	0.186	0.055
On-the-job internship, week -4	0.000	0.001	0.003	0.100	0.253	0.190	0.058
On-the-job internship, week -2	0.001	0.004	0.013	0.111	0.258	0.188	0.055
Counselling and training, week -8	0.001	0.003	0.006	0.105	0.258	0.184	0.057
Ordinary education, week -11	0.000	0.001	0.004	0.099	0.261	0.187	0.055
Ordinary education, week -10	0.000	0.000	0.000	0.105	0.256	0.183	0.054
Ordinary education, week -7	0.000	0.002	0.005	0.098	0.236	0.193	0.059
Ordinary education, week -1	0.008	0.033	0.077	0.128	0.197	0.157	0.045
Social assistance, week -6	0.007	0.019	0.042	0.118	0.280	0.174	0.052
Reduced social assistance, week -11	0.004	0.012	0.028	0.100	0.268	0.181	0.050
Number of training hours, year -1	0.001	0.004	0.010	0.103	0.264	0.201	0.059
Employment rate, month -3	0.001	0.002	0.004	0.101	0.254	0.182	0.055

Note: Breakdown point for bound estimates of ATT for on-the-job internship include zero is not statistically significant is 0.221. Breakdown point for bound estimates of ATT for employment rates include zero is not statistically significant is 0.082.

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