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Boffi, G.

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# Temporary Employment of First-Generation Migrants in the Netherlands

Giacomo Boffi<sup>1</sup>

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## Abstract

The Netherlands is the European country that has undergone the highest increase in temporary jobs in the last decade. These occupations are characterized by a low level of job security and, in the case of older workers, may lead to social exclusion and higher welfare dependence. Using the LISS panel data (2008–2019) for the resident population of the Netherlands, this paper establishes an innovative link between migration background and temporary employment. First, it is investigated whether first-generation migrants (western and non-western) are more likely to be temporarily employed than Dutch-born natives. Besides, it is explored whether higher education, language problems, and active social contacts influence this relationship. The findings show that non-western migrants are more likely to be temporarily employed than both western migrants and Dutch-born natives. Language problems are the main moderator increasing migrants' probability of being temporarily employed, while higher education and active social contacts appear not to be significant.

**Keyword** Temporary employment · First-generation migrants · The Netherlands · Language problems

**JEL Classification** J15 · J61 · Z13

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✉ Giacomo Boffi  
g.boffi@law.leidenuniv.nl

<sup>1</sup> Department of Economics, Leiden University and Leiden University College, Kamerlingh Onnes building, Steenschuur 25, 2311 ES Leiden, The Netherlands

## Introduction

The Dutch labor market has been experiencing two contemporaneous phenomena: a growing number of workers in non-standard forms of employment (flexibilization<sup>1</sup>) and rising participation of people with a migration background to the labor force (OECD, 2019). This study contributes to the current literature on the integration of migrants in flexible labor markets by exploring whether and why first-generation migrants are more likely to be temporarily employed than Dutch-born natives.

Temporary forms of employment are characterized by weak employment protection legislation (EPL), and their adoption is increasing in high-income countries (Boeri et al., 2020; ter Weel, 2018). Temporary forms of employment allow both the employee and the employer to manage their work relationship with more flexibility. Ultimately, especially for the youth, they should work as a trampoline to more permanent jobs. However, if the employer has no interest in shifting to permanent employment, temporary forms of employment can create a more fragile labor market or even a dual labor market. In this situation, a considerable share of workers is trapped in a loop of temporary occupations, having little or no career perspectives (Barbieri and Cutuli, 2015; Boeri et al., 2020; Bolhaar et al., 2018).

In 2021, the Netherlands had the third highest share of temporary workers as a percentage of total employees in the European Union (EU) (19.4% compared to an EU-27 average of 11.4%) (Eurostat, 2022b). Most importantly, from 2008 to 2017, i.e., for most of the period considered in this study, the share of temporary workers versus permanent workers has been rising every year (CBS, 2018). This may be because the overall costs to hire and dismiss a permanent worker are higher than the ones for a temporary employee, which in turn may push employers towards heavy reliance on temporary jobs (Bolhaar et al., 2018; Hartog and Salverda, 2018; OECD, 2019).

In 2021, first-generation migrants (defined as Dutch residents born abroad) made up 14.0% of the resident population. Including second-generation migrants (defined as Dutch residents born in the Netherlands, with at least one parent born abroad), the percentage goes up to 25.4% (CBS, 2022). The present composition of the migrant population in the country is heavily influenced by the arrival in the 1960s–1970s of guest-workers from Morocco and Turkey, who were encouraged to come to work in the booming Dutch economy. From the 1980s to the 2000s, the Netherlands welcomed people from the former Dutch colonies (Dutch Caribbean and Suriname) and refugees from eastern European countries, the Balkans, Afghanistan, Iraq, and Somalia (Schröver, 2010).

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<sup>1</sup> The European definition of flexworkers is not uniform, so it is the case that EU countries categorize them differently and the data are difficult to compare. For this study, the definition provided by Statistics Netherlands (CBS) is adopted. Flexworkers are people who either are in temporary employment and/or have flexible working hours (CBS, 2019). This rather broad group comprises seven different subcategories: four for employees with temporary contracts, depending on the duration of their contract and whether or not they have a fixed number of hours of work, and three for employees with on-call contracts, workers hired through temporary employment agencies (also called temporary staffers) and permanent employees with flexible hours (CBS, 2019).

Because of its relatively long migration history, advanced economic development, and high quality of the available population data, the Netherlands provides a good case study on the determinants of the integration of migrants in the local labor market. Recent evidence shows that non-western<sup>2</sup> migrants are the ethnic group that, on average, needs the most time to transit from unemployment to employment, presents the lowest level of earnings, and has the most mismatches between profession and skills level (Bevelander and Veenman, 2008; Bolhaar et al., 2018; Hartog and Salverda, 2018; Quillian and Lee, 2023). Possible reasons for this disadvantaged position are low education, poor language proficiency, and lack of inter-ethnic social contacts (Chiswick and Wang, 2019; Hartog and Zorlu, 2009; Lancee, 2010; van Ours and Veenman, 2006; Veenman and Bijwaard, 2012).

The forementioned studies have researched the position of migrants in the Dutch labor market by looking at outcomes such as employment, hours of work, and wages. However, despite the fast-growing relevance of temporary employment in the Netherlands, the question of whether migrants are more likely to be temporarily employed remains unanswered. The present work investigates whether having a first-generation migration background increases the chances of temporary employment, and, besides, it examines some of the moderating factors found in the literature to possibly affect migrants' participation in temporary employment. The main hypothesis is that, for first-generation migrants, the lack of higher education (or its acquisition outside the Netherlands), language barriers, and lack of inter-ethnic social contacts reinforce the probability of temporary employment.

The individual data used for the empirical part of the analysis are extracted from a representative sample of the Dutch population provided by the Longitudinal Internet Studies for the Social Sciences (LISS) for the period 2008–2019. The analysis starts by estimating through probit the effect of having a first-generation migration background on the probability of being temporarily employed, while controlling for demographic characteristics, profession, sector of employment, and the three integration variables that may affect the labor market position of a worker: education, language problems, and active social contacts. In addition, the integration variables are interacted with migration background to study whether they influence the probability of being temporarily employed. For both stages of the analysis, migrants as a whole pool are first compared with native-born individuals and subsequently are divided between migrants with western and non-western backgrounds.

The findings show that first-generation migrants are, on average, almost seven percentage points more likely to be temporarily employed than natives, with a particularly strong effect for migrants with a non-western migration background. First-generation migrants who report having problems with reading and/or speaking Dutch are significantly more likely to be temporarily employed than those who do

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<sup>2</sup> Until 2022, Statistics Netherlands (CBS) defined Europe, North America, Oceania, Japan, and Indonesia, the latter being a former Dutch colony as western, Africa, Asia, and Latin America as non-western. From 2022 on, the CBS started gradually adopting a new classification. Greater emphasis is to be placed on where a person was born and less on where his/her parents were born.

not. Again, this effect is particularly strong for migrants with a non-western migration background.

The estimation of the effect of language problems is known to possibly suffer from endogeneity. For this reason, the impact of language problems is re-estimated by employing an instrumental variable technique initially proposed by Bleakley and Chin (2004, 2010) and later employed by others (Budria and Martinez de Ibarreta, 2021; Chiswick and Wang, 2019; Miranda and Zhu, 2013; Yao and van Ours, 2015). This method instruments language problems with an interaction between age at arrival in the Netherlands and a dummy variable for speaking non-Dutch during childhood. The IV estimates confirm the effect of language problems on the probability of being temporarily employed.

The contribution to the literature is threefold. To begin with, this is the first study of its kind to examine how different migration backgrounds influence the probability of temporary employment in the Netherlands. This moves beyond English-speaking countries, on which most of the temporary employment literature has been focused on and provides evidence from the EU country which has seen the highest increase temporary jobs in the last decade, with policy implications relevant also for others. For example, the over-exposure of migrants to temporary employment may translate into job insecurity, high job transitionally, and eventually social exclusion, which can put upward pressure on welfare expenditure. Second, it presents a broader picture of the labor market position of first-generation migrants, rather than focusing on a specific parameter like the wage level or the hours of work. Third, on the empirical side, it employs data from a high-quality 12-year panel, and it assesses the role of origin, personal characteristics, profession, sector of employment, education, Dutch language proficiency, and active social contacts.

The rest of the study is structured as follows. The “[Literature Review](#)” section provides an of the main studies on the labor market integration of first-generation migrants and the factors that might affect it. “[The Dutch Case](#)” section describes the specifics of migration and temporary employment in the Netherlands. The “[Empirical Analysis](#)” section presents the data, the methodology, the results, and the robustness checks. The “[Discussion](#)” section explores implications and limitations of the findings. The “[Conclusion](#)” section wraps up.

## Literature Review

The literature on the labor market integration of first-generation migrants has identified three important moderating factors, among others: education, language proficiency, and social contacts. Education is often regarded as one of the main tools through which immigrants can enrich their human capital and achieve professional success in the host country. However, the available empirical evidence on the labor market beneficial effects of migrants’ education supports this idea only partially. The little compatibility between different

educational systems and the difficulties in translating one own's knowledge into a foreign language are possible explanations for this discrepancy (Zorlu, 2013)<sup>3</sup>. It is also the case that second-generation migrants benefit from the host country's education much more than their parents from the home country's one (Gonzalez, 2003; Hartog and Zorlu, 2009; Piton and Rycx, 2021). Migrating at a younger age allows the individual to complete secondary education in the host country and greatly improves job prospects (Åslund et al., 2015; Chiswick and Miller, 1995; Chiswick and Wang, 2019).

Contrary to education, the benefits from high host country language proficiency are often found to be significantly positive also for first-generation migrants. Dustmann (1994) is among the earliest to find a positive correlation between host country language proficiency and earnings of migrants in Germany. Chiswick and Miller (1995) are the first to use an IV estimation technique to account for the potential endogeneity of language problems and estimate that, in Australia, the language premium on male first-generation migrants' earnings is more than 20%. Bleakley and Chin (20042010) improve this strategy by instrumenting language skills with the interaction between a dummy for arriving in the US as a child and one for being born in a non-English speaking country. Their approach is based on the assumption that non-language age-at-arrival effects are the same irrespectively of the country of origin.

The relevance of social contacts in the literature on the labor market integration of migrants has considerably grown since the publication of Bourdieu's (1986) theory of social capital. Putnam (1993) extended on the previous definition by applying the concept of social capital to collective bodies such as migrant communities. Migrants may increase their social capital through two different social interactions: bonding and bridging. Social capital comes from bonding when the individual strengthens his/her ties with his/her migrant community (intra-ethnic contacts) and from bridging when the social ties are made instead with the local community (inter-ethnic contacts) (Patulny and Svendsen, 2007). Inter-ethnic contacts are often found to improve migrants' employability and earnings (Chiswick and Wang, 2019; Lancee, 2010). Intra-ethnic contacts might instead have negative implications such as little integration in the host country's society, excessive trust in one own's inner circle, and restrictions imposed by leaders of the migrant community on others' professional choices (Portes, 2000, 2014; Sanders and Nee, 1996)<sup>4</sup>.

<sup>3</sup> The field of study can also have important consequences not only on the type and level of skills obtained by a migrant (before migrating), but also on the transferability/applicability of these skills in the host country (for recent European evidence, see Bevelander and Pendakur, 2014; Brücker and Jahn, 2011; Rosso and Gaeta, 2019). However, as explained above, the research interest with regard to education lies in whether having or not higher education at all moderates the chances of temporary employment for migrants. The impact of different fields of study on the probability of temporary employment is a promising avenue for future research.

<sup>4</sup> The strength of social ties is also another important determinant for migrants' labor market integration. For seminal work on the topic, see Granovetter (1973).

## The Dutch Case

Recent contributions to the literature on the integration of migrants in the Dutch labor market have found non-western migrants to be the ethnic group that faces the most labor market difficulties. Their participation rate is more than 5% lower than the one for western migrants and natives, whose rates are comparable (above 80%) (Hartog and Salverda, 2018). They are also the population group that, on average, takes more time to transit from unemployment to employment (Veenman and Bijwaard, 2012) and is less likely to be employed in jobs matching their skill level (Chiswick and Wang, 2019; Hartog and Zorlu, 2009; Quillian and Lee, 2023; Zorlu, 2013). Finally, they are the ones whose earnings benefit from naturalization the least (Bevelander and Veenman, 2008).

Attaining higher education in non-western countries appears to have no positive effect on employment prospects (Hartog and Zorlu, 2009). Instead, obtaining education in the Netherlands, the EU, or a former Dutch colony is found to have a significant positive effect on employment chances (Bevelander and Veenman, 2008; van Ours and Veenman, 2006). Language problems are found to have a major negative impact on the employability and earnings of migrants, especially when they come from non-western countries (Chiswick and Wang, 2019; Yao and van Ours, 2015). Regarding social contacts, the results are mixed. Inter-ethnic contacts seem to have a positive effect on migrants' job prospects, while intra-ethnic contacts do not (Chiswick and Wang, 2019; Lancee, 2010; Martinovic et al., 2009).

These difficulties may lead to temporary employment through several ways. First, migrants may be more employable in professions not requiring such capabilities. For example, migrants with language problems might pick up occupations in sectors that require limited interactions with the local population, like the transport and food logistics services, which in turn make large use of temporary employment. Statistics Netherlands (CBS) (2022) reports a higher percentage of migrants (especially of refugees, who often lack Dutch language proficiency) in these sectors. At the same time, migrants lacking higher education and having language problems will hardly be employable in the public sector, which makes large use of permanent jobs. Second, as previous evidence has showed, migrants in the Dutch labor market are often subject to skill mismatches, being employed in jobs below their skill level. In turn, low-skilled occupations are usually characterized by temporary forms of work (Bolhaar et al., 2018; Hartog and Salverda, 2018). It is reasonable to presume that these mismatches might be aggravated by one own's incapability to effectively communicate in Dutch or with no contacts with local employers. Finally, with no inter-ethnic social contacts and low language proficiency, migrants often recur to employment agencies, which make large use of temporary work arrangements.

In recent years, migrants coming to the Netherlands have had to adapt to rapid labor market changes as well. The CBS (2019) reports that the Netherlands has been the country with the highest increase in the number of flexworkers<sup>5</sup> in the period 2008–2017

<sup>5</sup> Flexworkers are defined as people who either are in temporary employment and/or have flexible hours (CBS, 2019). This category is therefore broader than just temporary employment, and EU countries rank differently in terms of flexibility than when considering temporary employment only. For more on the definition, see footnote 1.

(+4.7%). In 2019, the country had the third most flexible labor market in the EU (30% of all the workers), following Poland (33.3%) and Spain (33.1%) (CBS, 2019). This growth has been driven by a constant increase in temporary jobs relative to permanent ones (CBS, 2018). In 2018, i.e., at the end of our period of study, temporary workers made up 70% of the flexworkers in the Netherlands and 21% of all workers (CBS, 2018).

The Dutch rise in temporary jobs has several possible explanations. First, non-standard forms of employment are increasing in most developed countries as a result of the job polarization fostered by globalization and technological change (OECD, 2019). Being the Netherlands, one of the world's most advanced economies, it does not come as a surprise that it is the leading European country for growth in the number of flexworkers in the period 2008–2017.

Second, the Netherlands is a country with a high level of labor market dualism: the extent to which employment is divided between protected permanent contracts and fragile temporary contracts (Hartog and Salverda, 2018; OECD, 2019; ter Weel, 2018). In the Netherlands, an employer can terminate a permanent employment contract only by showing fair grounds for dismissal, proved that the employee cannot be moved to another position within the company (Bolhaar et al., 2018).

Although it is still weaker than in most other OECD countries, the stringency of Dutch employment protection legislation (EPL) for temporary employment increased from 2013 to 2018 (OECD, 2019). This rise was led by the 2015 introduction of the Work and Security Regulation (*Wet Werk en Zekerheid*). The law reduced the maximum period for successive fixed-term employment contracts with the same employer from 3 to 2 years. As a result of this, the regulation has increased the average contract's duration but has not provided a real incentive for switching from temporary to permanent work (Hartog and Salverda, 2018).

When strict EPL for permanent jobs is combined with more liberal one for temporary jobs, as in the Dutch case, firms react by substituting temporary workers for permanent ones (Boeri et al., 2020; Bolhaar et al., 2018; OECD, 2019).

## Empirical Analysis

### Data and Sample Composition

The dataset employed for this study is derived from the Longitudinal Internet Studies for the Social Sciences (LISS) administered by CentERdata (Tilburg University, The Netherlands)<sup>6</sup>. The LISS provides information on a wide array of topics including demographic characteristics, labor market position, and financial situation of households. Most importantly for this study, it contains information also on migration background, type of employment, education, language skills, and social

<sup>6</sup> The population of reference is the Dutch-speaking population regularly residing in the Netherlands, and the sample frame is the nationwide CBS address registry. The sampling and survey units are independent, private households, thereby excluding any form of collective household. When a household receives the request for participation to the survey, all the members older than 15 are invited to take part. Importantly, households in which no adult is capable of understanding Dutch are not included.

contacts. The dataset employed is composed of the waves covering the 12 years between 2008 and 2019.

Since the interest is in the working-age population, the sample is restricted to residents in the Netherlands between 15 and 64 years of age. To focus on the first generation, second-generation migrants (2,168) are excluded from the sample. Given that second-generation migrants are usually better integrated than their parents, pooling together the two groups would likely lead to an underestimation of the impact of having a migration background on the probability of temporary employment for just first-generation migrants<sup>7</sup>.

After deleting the observations of those who do not report information on their ethnic background (1,370) and their current or last type of employment (6,886), the final dataset consists of 32,406 observations from 8,252 individuals, who appear on average for 3.9 years each, from 5,776 unique households. Migrants make up 8.0% of the individuals in the sample (6.8% of the observations, meaning that they are slightly more likely than Dutch-born natives to leave the sample). This is lower than the percentage provided by the CBS (2022) for each year (9.2% in the sample compared to 12.5% in CBS statistics for 2019, for example).

The three-percentage point gap between the share of migrants in the sample and the one provided by the CBS has several possible explanations. First, the sample lacks all the migrants who are not active in the labor market (or at least do not fill their labor market position in the survey) or are first-time jobseekers<sup>8</sup>. Eurostat reports that in 2022, 40% of non-EU-born residents in the working age were not active in the Dutch labor market, compared to 15% of Dutch and EU-born residents (Eurostat, 2022a). Second, it is important to remark that migrants with no one in their household with a sufficient command of Dutch to fill in the survey are also not included. It is reasonable to presume that for the migrants who were not able to fill in the survey, language problems may constitute an even higher barrier to their labor market integration.<sup>9</sup>

### Temporary Employment Variable

A dummy variable for whether someone's current or last job is/was a temporary one is created from the survey question "*Are (In your last job) (were) you an employee*

<sup>7</sup> For more on the labour market integration of second-generation migrants in the Netherlands, see CBS (2016), Gracia et al. (2015), Sweetman and van Ours (2014), and van Elk et al. (2019).

<sup>8</sup> First-time jobseekers are beyond the scope of the analysis as for them, the probability of being employed has never become reality. It is also reasonable to assume that migration background has a different impact for them. The same applies to inactive individuals.

<sup>9</sup> The sample can still be considered representative of the overall migrant population residing in the Netherlands for three reasons. First, seasonal workers, who are the type of migrants with the lowest incentive to learn Dutch, are not included in the LISS as most of them do not register in the country and are out of the scope of the study. Second, migrants tend to have bigger households than Dutch-born natives (van Elk et al., 2019); therefore, it is likely that they will often have at least one household member able to help them filling in the survey. Third, the underrepresentation of migrants in the sample compared to CBS statistics is minor and likely due also to the lower activity rate of migrants, as discussed in the text, and not only to their level of Dutch language proficiency.

in *permanent or temporary employment*,” based on the CBS definition discussed in the “[Introduction](#)” section. The specification includes all the employees with temporary contracts, on-call employees, and temp-staffers, without any discrimination for the number of hours worked. Workers with a permanent contract and flexible working hours are not categorized as temporarily employed. The same applies to self-employed and independent professionals<sup>10</sup>.

### Migration Background Variables

The survey question asking respondents to disclose their ethnic background has five possible CBS categories as answer: Dutch-born native (born in the Netherlands by two parents born in the Netherlands), first-generation migrant with a western migration background (born outside the Netherlands by both parents, or just the mother, this is because the mother’s birth details are more likely to be known than those of the father, from a western country), first-generation migrant with a non-western migration background (born outside the Netherlands by both parents, or just the mother, from a non-western country), second-generation migrant with a western background (born in the Netherlands by both parents, or just the mother, from a western country), and second-generation migrant with a non-western background (born in the Netherlands by both parents, or just the mother, from a non-western country)<sup>11</sup>.

From this question, first, a dummy for whether someone has a first-generation migration background or not is created. Second, to study ethnic backgrounds separately, a categorical variable which takes value zero if the individual is native Dutch, one if the individual is a first-generation western migrant, and two if the individual is a first-generation non-western migrant is created. As said, second-generation migrants are excluded from the analysis.

### Control Variables

As control variables, the set included by Yao and van Ours (2015), who also use the LISS to study the labor market position of migrants in the Netherlands, is employed. These are age, gender, civil status, number of children at home, and whether someone is living in an urbanized area or not.

<sup>10</sup> As visible in Table 2, self-employed individuals and permanently employed ones present almost identical background characteristics. Therefore, including both groups under the specification for non-temporarily employed individuals does not produce any bias. As an additional form of check, the results of the main analysis have been replicated leaving out the self-employed and all the estimates (not reported) appeared with similar coefficient sizes and statistical significance to the ones presented in the “[Results](#)” section.

<sup>11</sup> Until 2022, Statistics Netherlands (CBS) defined Europe, North America, Oceania, Japan, and Indonesia, the latter being a former Dutch colony as western, Africa, Asia, and Latin America as non-western. From 2022 on, the CBS started gradually adopting a new classification. Greater emphasis is to be placed on where a person was born and less on where his/her parents were born.

In addition, profession and sector of employment are included as controls by using two other categorical variables (the full specification can be found in Table 1). The reasoning for including them in the analysis is because they can correlate with both type of employment and migration background. Without controlling for them, the estimation strategy would calculate the impact of having a migration background on the probability of being employed in a sector or profession which makes high use of temporary employment, rather than on the pure probability of being temporarily employed. In other words, their exclusion would likely lead to omitted variable bias.

### Integration Variables

To capture the moderating factors that may influence the probability of being temporarily employed, three variables are employed: level of education, whether someone has language problems or not, and the number of social clubs at which an individual is an active member. The latter is a proxy for active social contacts. Education is expressed in CBS categories: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Language problems are measured by a dummy variable that takes value one if the respondent reports to have problems in reading or speaking Dutch, and zero if not. The variable for active social contacts takes values zero to three for whether an individual is an active member of zero to three social clubs (sports clubs, culture/hobby clubs, and religious groups).

### Descriptive Statistics

Table 1 provides an overview of the summary statistics for the variables included in the analysis, split by origin, while Table 2 provides them across labor market statuses.

The three ethnic groups are heterogeneous when it comes to types of employment. Dutch-born natives show the highest share of individuals permanently employed (76.0%), western migrants are the population group most involved in self-employment (self-employed and independent professionals) (10.4%), and non-western migrants have the largest share of temporarily employed individuals (temporary contracts, on-call employees, and temporary staffers) (26.0%).

These statistics can be related to the ones for professions and sectors of employment, as different sectors and professions rely on different types of employment. In fact, Dutch-born natives and western migrants, whose numbers for permanent and temporary employment are rather similar, show also similar professional profiles, with the latter slightly more employed in high- or medium-skilled jobs (52.9% and 53.3%). Non-western migrants have instead a greater incidence in low-skilled professions (33.8%), which largely employ temporary jobs. Dutch-born natives are relatively more employed in sectors related to public services (38.7%) like healthcare, welfare, and education, all of which provide a high number of permanent jobs. Western migrants are relatively more present in the industrial production sector (17.1%) and in business services (8.4%), which might explain the relatively high number of

**Table 1** Summary statistics by ethnic background

|                                                            | Dutch native | Western migrant | Non-western migrant |
|------------------------------------------------------------|--------------|-----------------|---------------------|
| <b>Demographic variables</b>                               |              |                 |                     |
| Age                                                        | 44.0         | 44.5            | 43.5                |
| Female (%)                                                 | 53.0         | 52.4            | 47.0                |
| Civil status: % single                                     | 19.3         | 19.0            | 22.7                |
| Civil status: % unmarried partner, not living together     | 7.6          | 6.8             | 8.9                 |
| Civil status: % unmarried partner, living together         | 16.7         | 13.9            | 9.0                 |
| Civil status: % married                                    | 56.4         | 60.3            | 58.4                |
| No. of children at home                                    | 1.0          | 0.8             | 1.2                 |
| Urban domicile (%)                                         | 82.4         | 87.5            | 97.4                |
| <b>Integration variables (%)</b>                           |              |                 |                     |
| Level of education: primary education                      | 5.0          | 7.9             | 10.4                |
| Level of education: lower secondary education              | 19.8         | 9.9             | 18.5                |
| Level of education: intermediate secondary education       | 38.2         | 34.3            | 38.6                |
| Level of education: higher education                       | 37.0         | 47.9            | 33.0                |
| Language problems                                          | 11.1         | 40.8            | 45.4                |
| Active membership in social clubs                          | 27.2         | 29.5            | 29.6                |
| <b>Current/last type of employment (%)</b>                 |              |                 |                     |
| Permanent contract                                         | 76.0         | 73.4            | 68.1                |
| Temporary contract                                         | 9.9          | 11.3            | 16.5                |
| On-call employee                                           | 2.9          | 1.4             | 3.1                 |
| Temp-staffer                                               | 2.0          | 3.0             | 6.4                 |
| Self-employed/freelancer                                   | 6.9          | 9.3             | 4.6                 |
| Independent professional                                   | 0.9          | 1.1             | 0.1                 |
| Director of a limited liability or private limited company | 0.4          | 0.2             | 0.1                 |
| Majority shareholder director                              | 1.0          | 0.3             | 1.1                 |
| <b>Profession (%)</b>                                      |              |                 |                     |
| Higher academic or independent profession                  | 7.5          | 9.7             | 7.0                 |
| Higher supervisory profession                              | 7.7          | 8.7             | 6.9                 |
| Intermediate academic or independent profession            | 24.7         | 24.5            | 18.7                |
| Intermediate supervisory or business profession            | 13.0         | 11.4            | 6.4                 |
| Other mental work                                          | 24.2         | 18.2            | 20.5                |
| Skilled and supervisory manual work                        | 6.7          | 8.6             | 5.8                 |
| Semi-skilled manual work                                   | 6.6          | 10.5            | 12.4                |
| Unskilled and trained manual work                          | 7.5          | 6.1             | 17.7                |
| Agrarian profession                                        | 1.4          | 1.3             | 3.7                 |
| <b>Sector of employment (%)</b>                            |              |                 |                     |
| Agriculture, forestry, fishery, hunting                    | 2.1          | 0.4             | 1.7                 |
| Mining                                                     | 0.05         | 0.1             | 0.07                |
| Industrial production                                      | 9.2          | 17.1            | 9.9                 |
| Utilities production, distribution, and/or trade           | 0.8          | 0.9             | 3.6                 |
| Construction                                               | 4.2          | 4.1             | 3.0                 |

**Table 1** (continued)

|                                                      | Dutch native | Western migrant | Non-western migrant |
|------------------------------------------------------|--------------|-----------------|---------------------|
| Retail trade                                         | 8.3          | 8.9             | 6.6                 |
| Catering                                             | 3.6          | 3.5             | 6.8                 |
| Transport, storage, communication                    | 4.4          | 3.5             | 3.3                 |
| Financial                                            | 4.3          | 3.9             | 6.6                 |
| Business services (including real estate and rental) | 6.3          | 8.4             | 4.0                 |
| Government services, P.A., and social insurances     | 8.9          | 9.5             | 8.4                 |
| Education                                            | 9.0          | 8.0             | 7.7                 |
| Healthcare and welfare                               | 20.8         | 13.6            | 14.6                |
| Environmental services, culture, and other services  | 2.4          | 2.1             | 1.7                 |
| Other                                                | 15.8         | 15.7            | 22.3                |
| Individuals                                          | 7593         | 256             | 403                 |
| No. of households                                    | 5275         | 193             | 308                 |
| <i>N</i>                                             | 30193        | 902             | 1311                |

In an urbanized area, population density is above 1500 people per square kilometer. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. The categories for professions and sectors are taken from the LISS

self-employed individuals among them. Non-western migrants are relatively more employed in catering (6.8%), which is a sector that makes high use of temporary work arrangements, like on-call contracts.

Regarding the integration variables, non-western migrants are once again the most different population group from the other two. They are the ones with the lowest share of individuals with higher education (33.0%) and the highest one for individuals who report to have language problems in reading or speaking Dutch (45.4%). Western migrants show instead the largest share of individuals with higher education (47.9%) and a slightly lower number of people who report having language problems (40.8%). Regarding active social contacts, the three ethnic groups show similar statistics. All three have a share of individuals who are active members of a sports club, cultural/hobby association, or religious group slightly below 30%.

## Methodology

Equation 1 is used to estimate the influence of having a migration background on the likelihood of being temporarily employed:

$$TE_{it} = \beta_0 + \beta_1 MB_i + \beta_2' X_{it} + \beta_3 P_{it} + \beta_4 S e_{it} + \beta_5 E_{it} + \beta_6 LP_{it} + \beta_7 SC_{it} + \delta_i + \varepsilon_{it} \quad (1)$$

With  $P(TE_{it} = 1|\cdot) = \Phi(\beta_0 + \beta_1 MB_i + \beta_2' X_{it} + \beta_3 P_{it} + \beta_4 S e_{it} + \beta_5 E_{it} + \beta_6 LP_{it} + \beta_7 SC_{it} + \delta_i)$

**Table 2** Summary statistics by labor market status

|                                                        | Perm. empl. | Temp. empl. | Self-empl. | Unempl. |
|--------------------------------------------------------|-------------|-------------|------------|---------|
| <b>Demographic variables</b>                           |             |             |            |         |
| Age                                                    | 45.0        | 33.7        | 48.0       | 46.1    |
| Female (%)                                             | 50.5        | 61.6        | 50.0       | 59.3    |
| Civil status: % single                                 | 16.7        | 31.9        | 16.0       | 24.7    |
| Civil status: % unmarried partner, not living together | 6.1         | 16.2        | 5.5        | 9.7     |
| Civil status: % unmarried partner, living together     | 16.3        | 21.9        | 18.3       | 10.3    |
| Civil status: % married                                | 60.9        | 30.0        | 60.3       | 55.3    |
| No. of children at home                                | 1.0         | 1.2         | 1.1        | 0.9     |
| Urban domicile (%)                                     | 83.5        | 84.7        | 75.2       | 83.7    |
| <b>Integration variables (%)</b>                       |             |             |            |         |
| Level of education: primary education                  | 3.8         | 9.0         | 4.2        | 10.6    |
| Level of education: lower secondary education          | 18.6        | 16.9        | 17.1       | 29.     |
| Level of education: intermediate secondary education   | 38.5        | 41.3        | 33.7       | 35.1    |
| Level of education: higher education                   | 39.1        | 32.8        | 45.0       | 25.0    |
| Language problems                                      | 12.4        | 14.3        | 12.3       | 18.1    |
| Active membership in social clubs                      | 2.6         | 2.8         | 3.0        | 3.0     |
| <b>Origin (%)</b>                                      |             |             |            |         |
| Dutch-born native                                      | 93.8        | 90.9        | 94.3       | 90.8    |
| Western migrant                                        | 2.6         | 2.7         | 3.3        | 3.7     |
| Non-western migrant                                    | 3.6         | 6.3         | 2.3        | 5.5     |
| <b>Profession (%)</b>                                  |             |             |            |         |
| Higher academic or independent profession              | 7.6         | 8.2         | 15.8       | -       |
| Higher supervisory profession                          | 8.6         | 2.8         | 11.9       | -       |
| Intermediate academic or independent profession        | 25.9        | 21.3        | 24.6       | -       |
| Intermediate supervisory or business profession        | 13.6        | 7.6         | 15.8       | -       |
| Other mental work                                      | 24.4        | 25.7        | 12.2       | -       |
| Skilled and supervisory manual work                    | 7.3         | 4.2         | 6.4        | -       |
| Semi-skilled manual work                               | 6.7         | 10.0        | 2.7        | -       |
| Unskilled and trained manual work                      | 5.2         | 18.7        | 3.5        | -       |
| Agrarian profession                                    | 0.9         | 1.6         | 7.3        | -       |
| <b>Sector of employment (%)</b>                        |             |             |            |         |
| Agriculture, forestry, fishery, hunting                | 1.4         | 1.5         | 8.3        | -       |
| Mining                                                 | 0.0         | 0.0         | 0.3        | -       |
| Industrial production                                  | 10.6        | 5.9         | 2.9        | -       |
| Utilities production, distribution, and/or trade       | 1.0         | 1.1         | 0.5        | -       |
| Construction                                           | 4.4         | 0.025       | 5.9        | -       |
| Retail trade                                           | 7.7         | 8.8         | 11.2       | -       |
| Catering                                               | 2.2         | 9.4         | 3.8        | -       |
| Transport, storage, communication                      | 4.6         | 4.3         | 2.4        | -       |
| Financial                                              | 4.6         | 4.3         | 2.7        | -       |
| Business services (including real estate and rental)   | 6.4         | 4.9         | 10.9       | -       |

**Table 2** (continued)

|                                                     | Perm. empl. | Temp. empl. | Self-empl. | Unempl. |
|-----------------------------------------------------|-------------|-------------|------------|---------|
| Government services, P.A., and social insurances    | 10.5        | 5.4         | 1.1        | -       |
| Education                                           | 9.9         | 8.9         | 2.8        | -       |
| Healthcare and welfare                              | 21.2        | 19.9        | 16.9       | -       |
| Environmental services, culture, and other services | 2.0         | 2.7         | 5.2        | -       |
| Other                                               | 13.4        | 20.4        | 25.2       | -       |
| Individuals                                         | 4,958       | 1,154       | 527        | 1,613   |
| No. of households                                   | 3,556       | 728         | 394        | 1,095   |
| <i>N</i>                                            | 22,747      | 3,179       | 2,187      | 3,753   |

In an urbanized area, population density is above 1500 people per square kilometer. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club. The categories for origin are taken from the CBS. The categories for professions and sectors are taken from the LISS

$TE_{it}$  is the dependent dummy variable which takes value one if individual  $i$ 's last/current job is temporary and zero if not.  $MB_i$  is a dummy variable which takes value one if individual  $i$  has a migration background and zero otherwise.  $X_{it}$  is a vector containing a set of variables measuring background demographic characteristics (age, age squared, gender, civil status, number of children at home, and whether someone lives in an urbanized area or not).  $P_{it}$  is the variable for profession, and  $Se_{it}$  is the one for sector of employment.  $E_{it}$ ,  $LP_{it}$ , and  $SC_{it}$  are the three integration variables for the factors that may influence the probability of temporary employment enjoyed by individual  $i$  at time  $t$ : level of education, language problems, and number of active memberships in social clubs, respectively.  $\delta_t$  are the calendar year effects captured with the inclusion of year dummies, and  $\varepsilon_{it}$  is the error term.

The probit estimator is chosen because the dependent variable is binary, as a linear probability model (OLS) would unlikely yield robust and consistent estimates (Gourieroux, 2012). The standard errors are clustered at the household level to avoid correlation of the error term between observations of different individuals in the same household, as well as between different observations of the same individual over time. To estimate the impact of the three integration variables on migrants' probability of being temporarily employed, each of them is interacted with migration background, keeping the others as controls. For the sake of simplifying the interaction analysis, each integration variable is treated as a dummy (having or not higher education, having or not language problems, and having or not active social contacts)<sup>12</sup>.

<sup>12</sup> Interacting the three dummies for the integration variables among themselves would create nine possible combinations. In addition to being out of the scope of the study, this would produce a highly fragmented sample, with different sizes depending on the interaction considered and insufficient statistical power for the estimates of these interactions to be consistent. The same would happen if considering different fields of study separately.

## Results

Table 3 reports the probit average marginal effects resulting from Eq. 1. As columns 1 to 3 show, having a migration background always increases the chances of being temporarily employed, whether background variables and integration variables are included as controls or not. When including all control variables, an individual with a migration background is estimated to be, on average, 6.7 percentage points more likely to be temporarily employed than a Dutch-born native, significant at 1%. Column 4 shows that this result is driven by non-western migrants, who are 10.6 percentage points more likely to be temporarily employed than natives. Western migrants are “only” 3.2 percentage points more likely to be temporarily employed than natives, but this estimate is not statistically significant at 5%<sup>13</sup>.

The estimates for the background variables appear with the expected signs and effect sizes<sup>14</sup>: being 1 year older decreases the chances of being temporarily employed by 4.5 percentage points; age squared shows that the effect is increasing with age (+0.04 percentage points). Females are 3.4 percentage points more likely to be temporarily employed than males, while married individuals are 4.9 percentage points less likely to be temporarily employed than singles. Unsurprisingly, individuals in low-skilled professions (semi- or unskilled manual work and agriculture) are around 10 percentage points more likely to be temporarily employed than those in high-skilled professions.

The three integration variables, here included as controls and not interacted with the migration background dummy, do not yield estimates statistically different from zero.

The estimates for the impact of the three integration variables on migrants’ probability of being temporarily employed are presented in panels a and b of Table 4, Table 5, and Table 6. Language problems appear to be the only integration variable significantly affecting migrants’ likelihood of being temporarily employed. Migrants with language problems are estimated to be statistically different from migrants without language problems (the average marginal effect of an interaction term is not meaningful in a probit model) and, on average, 12.9 percentage points more likely to be temporarily employed than natives, significant at 1%. As shown in panel b of Table 4, these numbers are largely driven by non-western migrants. Being a non-western migrant with language problems increases the chances of temporary employment by 16.8 percentage points with respect to natives, significant at 1%.

Higher education and active social contacts appear to be not significant in affecting migrants’ temporary employment probability. Migrants with higher education or active social contacts are not statistically significantly different from those without, across both migration backgrounds.

<sup>13</sup> As additional checks, the results have been re-estimated with a linear probability model (OLS), with a logit estimator, with a Mundlak estimator, and by running separate regressions for males and females. The estimates obtained in these checks do not present major differences from the ones discussed in the “Results” and are available in Table 10, Table 11, Table 12, and Table 13 in the Appendix. A fixed effects estimator is not considered because migration background is time-invariant.

<sup>14</sup> To improve the readability, the estimates for the background variables and *year*-fixed effects are not displayed in Table 3. They are available upon request.

**Table 3** Probit estimates (average marginal effects)

| Variable                                     | (1)                  | (2)                | (3)                 | (4)                 |
|----------------------------------------------|----------------------|--------------------|---------------------|---------------------|
|                                              | Temporary employment |                    |                     |                     |
| Origin: western                              |                      |                    |                     | 0.0325* (0.0195)    |
| Origin: non-western                          |                      |                    |                     | 0.106*** (0.0199)   |
| Migration background                         |                      | 0.0666*** (0.0114) | 0.0673*** (0.0115)  |                     |
| Level of education: lower secondary          |                      |                    | 0.0129 (0.0128)     | 0.0122 (0.0128)     |
| Level of education: intermediate secondary   |                      |                    | 0.0186 (0.0119)     | 0.0182 (0.0120)     |
| Level of education: higher                   |                      |                    | 0.0117 (0.0134)     | 0.0121 (0.0135)     |
| Language problems                            |                      |                    | -0.000283 (0.00784) | -0.000597 (0.00787) |
| No. of active memberships in social clubs: 1 |                      |                    | -0.00382 (0.00523)  | -0.00406 (0.00522)  |
| No. of active memberships in social clubs: 2 |                      |                    | 0.0134 (0.0104)     | 0.0136 (0.0104)     |
| No. of active memberships in social clubs: 3 |                      |                    | 0.00312 (0.0232)    | 0.00264 (0.0232)    |
| Background variables                         |                      | Yes                | Yes                 | Yes                 |
| Year-fixed effects                           |                      | Yes                | Yes                 | Yes                 |
| Observations                                 | 32,406               | 32,406             | 32,406              | 32,406              |

Robust standard errors are clustered at the household level in parentheses. Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*Significant at the 10% level, \*\*significant at the 5% level, and \*\*\*significant at the 1% level

**Table 4** Higher education

| Variables                               | (1)<br>Temporary employ-<br>ment (coefficients) | (2)<br>Temporary employment (average<br>marginal effect when higher<br>education=1) |
|-----------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------|
| Panel a: no ethnic background           |                                                 |                                                                                     |
| Migration background                    | 0.763 <sup>***</sup> (0.0767)                   | 0.0710 <sup>***</sup> (0.0228)                                                      |
| Higher education                        | -0.00455 (0.0429)                               |                                                                                     |
| Migration background × higher education | -0.0295 (0.122)                                 |                                                                                     |
| Background variables                    | Yes                                             |                                                                                     |
| Year-fixed effects                      | Yes                                             |                                                                                     |
| Observations                            | 32,406                                          | 32,406                                                                              |
| Panel b: by ethnic background           |                                                 |                                                                                     |
| Origin: western                         | 0.112 (0.118)                                   | 0.0436 (0.0299)                                                                     |
| Origin: non-western                     | 0.478 <sup>***</sup> (0.0950)                   | 0.0992 <sup>***</sup> (0.0325)                                                      |
| Higher education                        | -0.0219 (0.0429)                                |                                                                                     |
| Western × higher education              | 0.106 (0.177)                                   |                                                                                     |
| Non-western × higher education          | -0.0301 (0.159)                                 |                                                                                     |
| Background variables                    | Yes                                             |                                                                                     |
| Year-fixed effects                      | Yes                                             |                                                                                     |
| Observations                            | 32,406                                          | 32,406                                                                              |

Robust standard errors clustered at the household level in parentheses. \*Significant at the 10% level, \*\* significant at the 5% level, and \*\*\* significant at the 1% level

## Robustness Check

The findings presented in the “[Results](#)” section point to language problems as the main moderator affecting migrants’ temporary employment probability. Migrants with language problems appear statistically significantly different from those without, and 12.9 percentage points more likely to be temporarily employed than natives. However, the estimation of the effects of language problems may suffer from endogeneity from three potential sources. These are omitted variables, reverse causality, and measurement error.

As for omitted variables, several unobserved characteristics are potentially correlated with both the type of employment and language problems. For example, migrants with more free time or higher motivation may have more possibilities and desire to learn Dutch and be more active in their job search. Regarding reverse causality, it is reasonable to assume that migrants with permanent jobs have a stronger incentive for learning Dutch. Additionally, measurement error may be an issue since the measure of language problems employed in this study is self-reported. If individuals tend to exaggerate their language problems, this will lead to an underestimation of the language proficiency effect. In the case of the present study, 11.1% of the Dutch natives in the sample report to have difficulties in reading or speaking Dutch. This is probably due to an exaggerated perception of one own’s struggles, rather than an objective linguistic barrier as the one that migrants may face.

**Table 5** Language problems

| Variables                                   | (1)<br>Temporary employ-<br>ment (coefficients) | (2)<br>Temporary employment (average<br>marginal effects when language<br>problems=1) |
|---------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------|
| Panel a: no ethnic background               |                                                 |                                                                                       |
| Migration background                        | 0.0538 <sup>***</sup> (0.0759)                  | 0.129 <sup>***</sup> (0.0240)                                                         |
| Language problems                           | -0.00115 (0.0460)                               |                                                                                       |
| Migration background × language<br>problems | 0.372 <sup>***</sup> (0.114)                    |                                                                                       |
| Background variables                        | Yes                                             |                                                                                       |
| Year-fixed effects                          | Yes                                             |                                                                                       |
| Observations                                | 32,406                                          | 32,406                                                                                |
| Panel b: by ethnic background               |                                                 |                                                                                       |
| Origin: western                             | 0.0852 (0.121)                                  | 0.0638 <sup>**</sup> (0.0312)                                                         |
| Origin: non-western                         | 0.285 <sup>***</sup> (0.0938)                   | 0.168 <sup>***</sup> (0.0326)                                                         |
| Language problems                           | -0.0731 (0.0460)                                |                                                                                       |
| Western × language problems                 | 0.233 (0.181)                                   |                                                                                       |
| Non-western × language problems             | 0.430 <sup>***</sup> (0.140)                    |                                                                                       |
| Background variables                        | Yes                                             |                                                                                       |
| Year-fixed effects                          | Yes                                             |                                                                                       |
| Observations                                | 32,406                                          | 32,406                                                                                |

Robust standard errors clustered at the household level in parentheses. \*Significant at the 10% level, \*\*significant at the 5% level, and \*\*\*significant at the 1% level

To correct for potential endogeneity, an IV strategy similar to the one proposed by Bleakley and Chin (2004, 2010) and subsequently used in other studies on the labor market position of migrants in the Netherlands is employed (Chiswick and Wang, 2019; Yao and van Ours, 2015). This method consists of instrumenting *language problems* with an interaction between two other variables: age at arrival in the Netherlands and a dummy indicating whether a migrant did not speak Dutch during childhood<sup>15</sup>.

Previous research has extensively shown that being born in a household from a country where Dutch is not spoken is associated with a worse command of it at adulthood, while early age at arrival in the Netherlands can compensate for this initial disadvantage (Chiswick and Wang, 2019; Sweetman and van Ours, 2014; Yao and van Ours, 2015). Given the interaction of the two, the identifying assumption is that non-language labor market effects of age of arrival are the same for migrants who spoke Dutch during childhood and those who did not. Because age at arrival should affect the language skills mostly of those immigrants who did not speak

<sup>15</sup> Given the colonial past of the Netherlands and that many individuals migrated to the country during their childhood, the share of first-generation migrants who grew up speaking Dutch is considerable. In the present sample, they constitute 45% of first-generation migrants.

**Table 6** Active social contacts

| Variables                                     | (1)<br>Temporary employment   | (2)<br>Temporary employment (average marginal effects when active social contacts=1) |
|-----------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|
| Panel a: no ethnic background                 |                               |                                                                                      |
| Migration background                          | 0.362 <sup>***</sup> (0.0681) | 0.0725 <sup>***</sup> (0.0208)                                                       |
| Active social contacts                        | -0.00189 (0.0272)             |                                                                                      |
| Migration background × active social contacts | -0.0224 (0.0971)              |                                                                                      |
| Background variables                          | Yes                           |                                                                                      |
| Year-fixed effects                            | Yes                           |                                                                                      |
| Observations                                  | 32,406                        | 32,406                                                                               |
| Panel b: by ethnic background                 |                               |                                                                                      |
| Origin: western                               | 0.184 <sup>*</sup> (0.0992)   | 0.0178 (0.0284)                                                                      |
| Origin: non-western                           | 0.471 <sup>***</sup> (0.0858) | 0.106 <sup>***</sup> (0.0285)                                                        |
| Active social contacts                        | -0.00209 (0.0272)             |                                                                                      |
| Western × active social contacts              | -0.0917 (0.145)               |                                                                                      |
| Non-western × active social contacts          | 9.24e-05 (0.122)              |                                                                                      |
| Background variables                          | Yes                           |                                                                                      |
| Year-fixed effects                            | Yes                           |                                                                                      |
| Observations                                  | 32,406                        | 32,406                                                                               |

Robust standard errors clustered at the household level in parentheses. <sup>\*</sup>Significant at the 10% level, <sup>\*\*</sup>significant at the 5% level, and <sup>\*\*\*</sup>significant at the 1% level

Dutch during childhood, the interaction between these two variables is used as the main identifying instrument and can be interpreted as a local average treatment effect (LATE) (Angrist and Pischke, 2009; Budria and Martinez de Ibarreta, 2021; Chiswick and Wang, 2019; Miranda and Zhu, 2013; Yao and van Ours, 2015).

To apply the IV strategy described above, the sample is restricted to first-generation migrants who report their age at arrival in the Netherlands and the language spoken during childhood and exclude Dutch-born natives from it. For these reasons, the number of observations drops to 1,471. To control for possible non-language assimilation effects of age at arrival, a dummy for having a non-western migration background is included. The estimator chosen to apply the IV strategy is a bivariate probit estimator. A single IV probit estimator cannot be used as the variable for language problems is binary (Han and Lee, 2019; Wooldridge, 2010). A bivariate probit estimator (or biprobit) is a maximum-likelihood two-step estimator that calculates a first probit model for the binary endogenous variable *language problems* regressing it on the instrument created from interaction between *age at arrival* and *not-speaking Dutch during childhood*. Then, it calculates a second probit model adding *language problem* estimated thought the first probit model as an additional explanatory variable for the probability of temporary employment.

Table 7 presents the estimates obtained with the biprobit estimator. As visible in Column 1, arriving one year later in the Netherlands increases the

**Table 7** Robustness check and bivariate probit (average marginal effects)

| Variables                           | (1)                                         | (2)                                             | (3)                                                                | (4)                                                                       |
|-------------------------------------|---------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|
|                                     | Language problems<br>(biprobit, first step) | Temporary employment<br>(biprobit, second step) | Language problems (biprobit with<br>double instrument, first step) | Temporary employment (biprobit<br>with double instrument, second<br>step) |
| Language problems                   |                                             | 0.175** (0.0774)                                |                                                                    | 0.214*** (0.0796)                                                         |
| Age at arrival × speaking non-Dutch | 0.0146**** (0.00138)                        |                                                 | 0.0108*** (0.00207)                                                |                                                                           |
| Age at arrival                      |                                             |                                                 | 0.00732*** (0.00259)                                               |                                                                           |
| Non-western background              |                                             | 0.0992*** (0.0322)                              |                                                                    | 0.0971*** (0.0314)                                                        |
| Background variables                | Yes                                         | Yes                                             | Yes                                                                | Yes                                                                       |
| Year-fixed effects                  | Yes                                         | Yes                                             | Yes                                                                | Yes                                                                       |
| Wald test of $\rho=0$ : $\chi^2$    |                                             | 1.245                                           |                                                                    | 2.337                                                                     |
| Observations                        | 1,471                                       | 1,471                                           | 1,471                                                              | 1,471                                                                     |

Robust standard errors clustered at the household level in parentheses. In column 2, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood. In column 4, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood, age at arrival in the Netherlands (not interacted). Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*Significant at the 10% level, \*\*Significant at the 5% level, and \*\*\*Significant at the 1% level

chances of language problems by an average of 1.5 percentage points for individuals who did not speak Dutch during childhood, significant at 1%. In turn, as visible in Column 2, language problems increase the probability of temporary employment by an average of 17.5 percentage points, significant at 5%. The increase in effect size from the 12.9 percentage points average marginal effect obtained in panel a of Table 5 suggests that the downward bias caused by measurement error is bigger than the upward bias caused by omitted variables and reverse causality. In Columns 3 and 4, the biprobit estimation from Columns 1 and 2 is re-run but now including *age at arrival* not interacted with *migration background* as an additional instrument. Although this implies the stronger assumption that age at arrival affects the labor market position of migrants only through language skills, it is now possible to calculate the *age at arrival* effects on *language problems* for immigrants who spoke Dutch during their childhood. The estimates show that the effect of language problems on temporary employment is robust to the inclusion of age at arrival as an additional instrument, and the coefficient size grows to 21.4 percentage points, significant at 1%. As reported in column 3, it is noteworthy that age at arrival increases language problems also for people who grew up speaking Dutch by an average of 0.7 percentage points, significant at 1%.

Table 7 reports also a coefficient (*rho*) which is the correlation coefficient between the residuals of each model in the two-step biprobit estimation. If the value of  $\chi^2$  for a Wald test of *rho* is statistically significantly different from zero, then the two steps should be estimated simultaneously, as correlation between the error terms of the two probits cannot be excluded. If not, estimating two probits one after the other is correct (Filippini et al., 2018). As visible in Table 7, the test result suggests that the error terms of the two probits are not correlated, and the two steps of the biprobit estimator can be correctly estimated one after the other in both IV specifications.

Unfortunately, to this date there is no unanimously accepted way of testing the strength of the instrument used in a bivariate probit estimator. For this reason, as Angrist and Pischke (2009) recommend in the case of non-linear estimations with endogenous binary explanatory variables, the estimates presented in Table 7 are checked by substituting the biprobit estimator with a two-stage least square (2SLS) estimator employing the same instrumental variable strategy. As visible in Table 8, the estimates obtained via 2SLS are almost identical to the ones obtained via biprobit in both coefficients' sizes and significance levels.

Given the 2SLS estimator, it is now possible to perform two tests. First, a relevance check is done by running an *F*-test on the significance of the instrument. Weak instruments provide biased and inconsistent estimates. As a rule of thumb, an *F*-statistic above 10 signals that the instrument is strong enough (Stock and Yogo, 2005). As reported in columns 2 and 4 of Table 8, the *F*-statistic is well above 10. Second, through a Hansen *J* test of overidentifying restrictions, it is tested whether the two instruments used the second IV specification in columns 3 and 4 of Table 8 (*age at arrival* interacted with *speaking not-Dutch during childhood* and *age at arrival* alone) are correlated with the error term. To be carried out, the test requires the presence of more instruments than endogenous

**Table 8** Robustness check, 2SLS

| Variables                           | (1)                                   | (2)                                       | (3)                                                          | (4)                                                              |
|-------------------------------------|---------------------------------------|-------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------|
|                                     | Language problems (2SLS, first stage) | Temporary employment (2SLS, second stage) | Language problems (2SLS with double instrument, first stage) | Temporary employment (2SLS with double instrument, second stage) |
| Language problems                   |                                       |                                           |                                                              |                                                                  |
| Age at arrival × speaking non-Dutch | 0.0153 <sup>***</sup> (0.00174)       | 0.161 <sup>**</sup> (0.0916)              | 0.0120 <sup>***</sup> (0.00116)                              | 0.189 <sup>***</sup> (0.0502)                                    |
| Age at arrival                      |                                       |                                           | 0.00735 <sup>***</sup> (0.00223)                             |                                                                  |
| Non-western background              | 0.0809 <sup>***</sup> (0.0406)        | 0.0890 <sup>***</sup> (0.0339)            | 0.0607 <sup>**</sup> (0.0248)                                | 0.0873 <sup>***</sup> (0.0209)                                   |
| Background variables                | Yes                                   | Yes                                       | Yes                                                          | Yes                                                              |
| Year-fixed effects                  | Yes                                   | Yes                                       | Yes                                                          | Yes                                                              |
| F-statistic                         |                                       | 77.1 <sup>***</sup>                       |                                                              | 160.1 <sup>***</sup>                                             |
| Hansen J-statistic                  |                                       |                                           |                                                              | 2.6                                                              |
| Constant                            | -0.289 (0.288)                        | 1.387 <sup>***</sup> (0.271)              | -0.203 (0.206)                                               | 1.395 <sup>***</sup> (0.217)                                     |
| Observations                        | 1,471                                 | 1,471                                     | 1,471                                                        | 1,471                                                            |
| Partial R-squared                   |                                       | 0.163                                     |                                                              | 0.180                                                            |
| R-squared                           | 0.352                                 | 0.234                                     | 0.365                                                        | 0.228                                                            |

Robust standard errors clustered at the household level in parentheses. In Column 2, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood. In Column 4, language problems = age at arrival in the Netherlands × speaking non-Dutch during childhood, age at arrival. To perform the test for overidentifying restrictions, the standard errors in column 4 are robust not-clustered. Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*Significant at the 10% level, \*\*significant at the 5% level, and \*\*\*significant at the 1% level

regressors<sup>16</sup>. Under the null hypothesis, both instruments are exogenous to the error term and 2SLS estimates are valid. The Hansen *J* test-statistic in Column 4 shows that the null hypothesis cannot be rejected at all significance levels. Therefore, the additional instrument does not invalidate the IV strategy.

## Discussion

The finding that non-western migrants are the ethnic group most likely to be temporarily employed is in line with previous evidence on their low employability and earnings in the Dutch labor market (Chiswick and Wang, 2019; Veenman and Bijwaard, 2012; Yao and van Ours, 2015; Zorlu, 2013). Two plausible explanations for the findings of this study come from factors difficult to capture in the estimation strategy: discrimination and preferences.

### Discrimination

Discrimination towards individuals with a non-western background (or just with non-western appearance) is a well-documented phenomenon in European labor markets (for the Dutch case see Andriessen, 2012; Quillian and Lee, 2023; Thijsen et al., 2021; Zorlu, 2003). Despite the aim of this study is not to precisely estimate it, when demographic characteristics, profession, sector of employment, education, language problems, and social contacts are controlled for, a part of the residual effect of migration background on the probability of being temporarily employed may be interpreted as the effect of racial discrimination.

Two additional aspects suggest that discrimination may play a role in the labor market outcomes of non-western migrants in the Netherlands. First, the Dutch population has the highest level of English proficiency among European countries that do not have English as a native language (CBS, 2018). This would limit the circumstances under which Dutch proficiency is essential for succeeding in the workplace. Second, western and non-western migrants do not report particularly different levels of language problems. Assuming that language problems have a major influence on the type of employment, when controlling for the other factors, western migrants should suffer a disadvantaged labor market position rather similar to the one of non-western migrants. However, the results do not show that, and this disparity might be interpreted as discrimination towards non-western migrants. It should also be considered that having language problems may mean different things for the two groups.

### Preferences

Temporary forms of employment are generally intended as a trampoline towards permanent employment, especially for the youth. It is often the case that young people look

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<sup>16</sup> The Hansen *J*-statistic follows a  $\chi^2$ -distribution with one degree of freedom.

for temporary jobs because they can be more easily combined with schooling and allow for more flexibility (CBS, 2018). Additionally, migrants could have a preference for temporary employment because of fewer job obligations and less bureaucracy in case of necessity to relocate again. Whether a migrant has the intention to stay long term in the host country influences the type of jobs he/she will look for, and the type of job he/she finds influences his/her attitude towards long-term stay (Bijwaard et al., 2014; Dustmann and Gorlach, 2016). For the Dutch case, recent evidence from Bijwaard and Wahba (2019) has showed that migrants' wage levels are different for those who decide to stay from those who decide to leave the Netherlands, after having migrated there in the first place. Wages tend to be over-estimated if considering only the long-term stayers and ignoring outmigration, while they tend to be under-estimated if considering only the leavers and ignoring permanent residence (Bijwaard and Wahba, 2019)<sup>17</sup>.

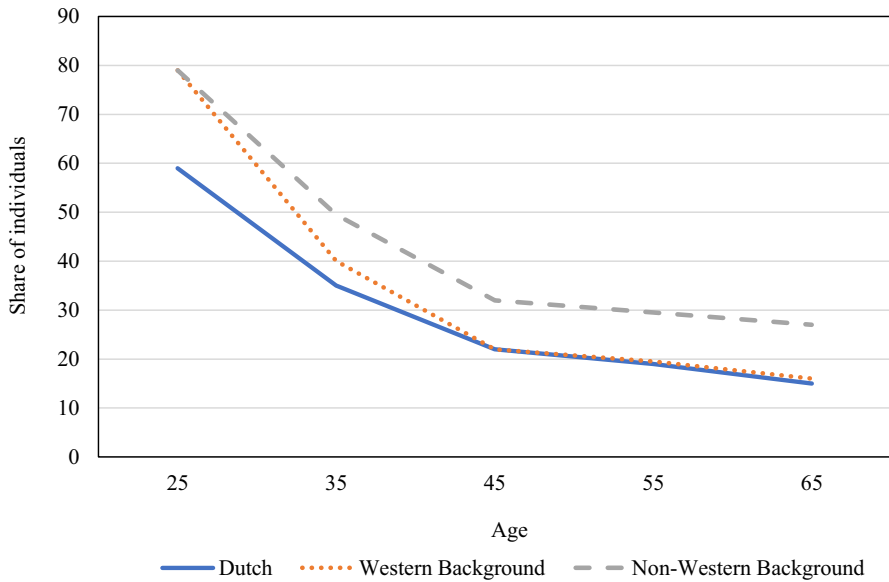
Therefore, it might be argued that, despite the population of reference of the dataset is the one of regular residents, the results of this study are endogenous and driven by a strong preference of (young) first-generation non-western migrants for temporary employment. This hypothesis is weakened by the fact temporarily employed non-western migrants in the sample report an average age of 39 years. It could be argued that, at almost 40 years of age, most people would prefer a permanent occupation rather than a temporary one<sup>18</sup>.

Despite there is no specific question in the LISS asking for a preference between a permanent and a temporary job, from the available data it is possible to derive some interesting insights about temporary employment across age groups, ethnic backgrounds, and career satisfaction levels. Figure 1 shows the percentage of individuals in temporary employment across ethnic groups, by age. The majority of 25-year-olds from all groups are employed in temporary jobs, even though the share for individuals with a migration background is 20 percentage points higher (reaching almost 80%). As the focus moves to older age groups, the share of temporary jobs for western migrants drops and converges with the one of Dutch natives. Interestingly, this does not happen for non-western migrants: individuals aged from 45 to 65 remain always 10% more likely to be temporarily employed than Dutch natives<sup>19</sup>.

<sup>17</sup> The sample has been checked to avoid that ignoring out-migration would bias the results. To do so, the main analysis has been replicated only for individuals who were present in the sample from their entrance until 2019. In other words, the analysis has been replicated for the long-term stayers to see if they were less likely to be temporarily employed than the overall group. The idea is to exclude the possibility that the results are driven by migrants taking up temporary employment and leaving after a couple of years. The effects of the different migration backgrounds on the probability of temporary employment for the subsample of long-term stayers resulted similar to the ones presented in the "Results" section (not reported).

<sup>18</sup> To further check the probability of temporary employment for individuals with considerable labor market experience, two additional estimations were performed (not reported). First, the main estimation was replicated only for individuals older than 40. Second, the main estimation was replicated only for individuals who appear for at least 8 years in the sample (two-thirds of the overall sample coverage), which are around 25% of the total. The estimates obtained in these checks did not present major differences from the ones discussed in the "Results" section.

<sup>19</sup> Given that most of the individuals in the sample appear only for three consecutive years, it is not possible to distinguish between cohort effects and age effects. To do so, it would be needed to observe the same individuals over a longer period.



**Fig. 1** Temporarily employed individuals over age, across ethnic groups. Source: author’s calculation from the data

Since 2016, the LISS includes two questions that allow for a preliminary analysis of temporary employment over time. The first asks respondents who have previously asserted to be employed with a temporary contract whether the current one is their first temporary contract in a row or not. The second asks whether they expect their contract to switch to permanent soon. From these, two dummies are created, one for consecutive temporary contracts and one for positive expectations towards future permanent employment, and alternatively substituted as dependent variables in Eq. 1.

As visible in Columns 3 and 4 of Table 9, having a non-western migration background increases the probability of consecutive temporary contracts by 13.4 percentage points, significant at 5%, and reduces the expectations for future permanent employment by almost eight percentage points. However, this latter estimate is not statistically significant. These findings are limited by the reduced period of availability, the small sample, and the fact that they do not consider the other forms of temporary employment included in the main analysis’ specification (on-call contracts and temporary staffer contracts). Nonetheless, they still provide useful preliminary evidence that non-western migrants, if currently temporarily employed, are more likely to be temporarily employed in the future well.

As pictured in Fig. 2, the professional patterns of non-western migrants are also associated with the lowest average levels of career satisfaction. The values are taken from a LISS question asking respondents their career satisfaction level on a scale from one to ten. Only 61.2% of people with a non-western migration background give a seven or more to their career, while 78.5% of Dutch-born natives do so. The lower average career satisfaction level among non-western migrants suggests that individuals with

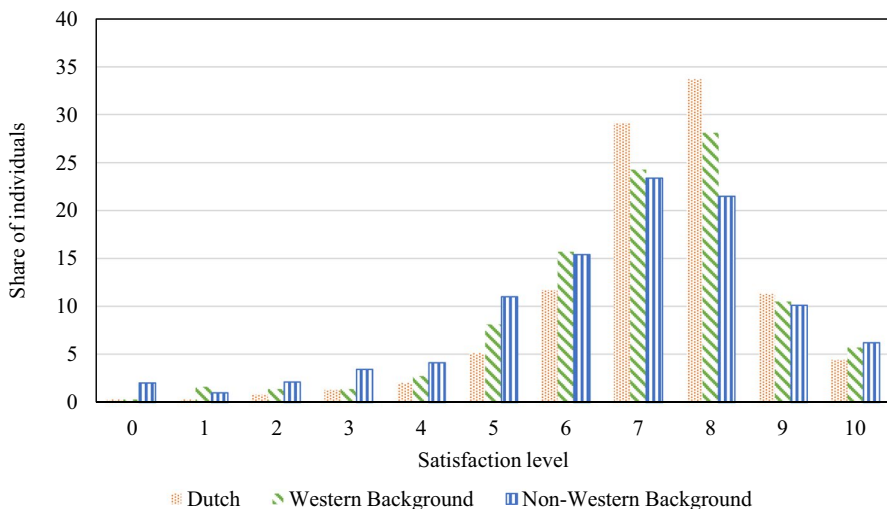
**Table 9** Temporary contracts over time, probit (average marginal effects)

| Variables            | (1)<br>Consecutive temporary contracts | (2)<br>Expected switch to permanent | (3)<br>Consecutive temporary contracts | (4)<br>Expected switch to permanent |
|----------------------|----------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------|
| Origin: western      |                                        |                                     | -0.00257 (0.103)                       | -0.116 (0.0996)                     |
| Origin: non-western  |                                        |                                     | 0.134** (0.0666)                       | -0.0883 (0.0822)                    |
| Migration background | 0.0901 (0.0595)                        | -0.0971 (0.0700)                    |                                        |                                     |
| Background variables | Yes                                    | Yes                                 | Yes                                    | Yes                                 |
| Year-fixed effects   | Yes                                    | Yes                                 | Yes                                    | Yes                                 |
| Observations         | 885                                    | 816                                 | 885                                    | 816                                 |

Robust standard errors clustered at the household level in parentheses. Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Because survey questions on the successive number of temporary contracts are available only since 2016, this estimation is limited to the years 2016–2019 included. \*Significant at the 10% level, \*\*significant at the 5% level, and \*\*\*significant at the 1% level

a higher probability of having temporary and low-skilled professions may feel more dissatisfied with their careers. This is supported also by Fig. 3, which shows that temporary employees, independently of their migration background, are considerably less satisfied with their career than permanent employees and self-employed individuals.

These statistics about job satisfaction would not represent an issue if non-western migrants were mostly young people who just entered the labor market but, as seen in Fig. 1, non-western migrants are the population group with the highest share of temporary professionals also in later age cohorts. For older individuals, temporary contracts

**Fig. 2** Career satisfaction levels, across ethnic groups. Source: author's calculation from the data



**Fig. 3** Career satisfaction levels, across types of employment. Source: author’s calculation from the data

can become a trap leading to social exclusion (Bolhaar et al., 2018; Buiskool et al., 2016). When the data on consecutive temporary jobs will be available for more years, it will be interesting to investigate whether individuals with a migration background and language problems tend to have labor market trajectories characterized by consecutive temporary occupations.

**Conclusion**

This study contributes to the literature on the integration of migrants in flexible labor markets. By using the LISS panel data for the resident population of the Netherlands from 2008 to 2019, it is researched whether individuals with a first-generation migration background are more likely to be temporarily employed than Dutch-born natives.

The findings show that having a migration background increases on average the probability of being temporarily employed by almost seven percentage points, with a stronger effect for individuals with a non-western migration background.

In addition, the impact of three integration variables on migrants’ chances of being temporarily employed is assessed: education, language problems, and active social contacts. Among these three, only language problems appear to significantly increase migrants’ probability of temporary employment. Non-western migrants with language problems are on average 16.8 percentage points more likely to be temporarily employed than Dutch-born natives. This finding is proved robust by the employment of an IV estimation technique to tackle potential estimation biases.

The higher probability of non-western migrants to end up in temporary jobs also at a later age is consistent with previous findings on their overall low employability and earnings. In addition to language problems, this could be explained also by racial discrimination and personal preferences, two factors that are hard to fully capture.

The findings are highly informative to policymakers as the over-exposure of non-western migrants to temporary employment may translate into job insecurity, high job transitionality, and eventually social exclusion, which in turn can put upward pressure on welfare expenditure. A promising avenue for future research is to investigate the persistence of temporary employment over time and its relationship with welfare spending.

## Appendix

**Table 10** Summary statistics for unemployed individuals, across ethnic backgrounds

|                                                        | Dutch native | Western migrant | Non-western migrant |
|--------------------------------------------------------|--------------|-----------------|---------------------|
| Demographic variables                                  |              |                 |                     |
| Age                                                    | 46.4         | 43.9            | 42.3                |
| Female (%)                                             | 58.3         | 69.6            | 68.0                |
| Civil status: % single                                 | 24.6         | 21.7            | 29.6                |
| Civil status: % unmarried partner, not living together | 9.9          | 4.3             | 9.7                 |
| Civil status: % unmarried partner, living together     | 10.1         | 0.138           | 12.6                |
| Civil status: % married                                | 55.5         | 60.1            | 48.1                |
| No. of children at home                                | 0.8          | 0.6             | 0.9                 |
| Urban domicile (%)                                     | 82.8         | 85.5            | 98.1                |
| Integration variables (%)                              |              |                 |                     |
| Level of education: primary education                  | 10.2         | 10.9            | 17.5                |
| Level of education: lower secondary education          | 30.7         | 10.9            | 17.5                |
| Level of education: intermediate secondary education   | 35.0         | 35.5            | 36.4                |
| Level of education: higher education                   | 24.1         | 42.8            | 28.6                |
| Language problems                                      | 15.0         | 45.7            | 51.9                |
| Active membership in social clubs                      | 29.5         | 38.4            | 39.8                |
| Individuals                                            | 1,450        | 57              | 106                 |
| Households                                             | 975          | 41              | 79                  |
| <i>N</i>                                               | 3,409        | 138             | 206                 |

In an urbanized area, population density is above 1500 people per square kilometer. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club

**Table 11** Summary statistics for permanently employed individuals, across ethnic backgrounds

|                                                        | Dutch native | Western migrant | Non-western migrant |
|--------------------------------------------------------|--------------|-----------------|---------------------|
| <b>Demographic variables</b>                           |              |                 |                     |
| Age                                                    | 45.0         | 45.4            | 44.8                |
| Female (%)                                             | 51.0         | 45.8            | 41.6                |
| Civil status: % single                                 | 16.5         | 17.8            | 20.4                |
| Civil status: % unmarried partner, not living together | 6.0          | 6.3             | 8.9                 |
| Civil status: % unmarried partner, living together     | 16.9         | 12.2            | 4.8                 |
| Civil status: % married                                | 60.6         | 63.7            | 65.9                |
| No. of children at home                                | 1.0          | 0.8             | 1.3                 |
| Urban domicile (%)                                     | 83.0         | 86.9            | 97.2                |
| <b>Integration variables (%)</b>                       |              |                 |                     |
| Level of education: primary education                  | 3.6          | 6.3             | 7.6                 |
| Level of education: lower secondary education          | 18.7         | 10.0            | 20.1                |
| Level of education: intermediate secondary education   | 38.6         | 34.4            | 38.1                |
| Level of education: higher education                   | 39.0         | 49.3            | 34.3                |
| Language problems                                      | 10.6         | 39.0            | 40.5                |
| Active membership in social clubs                      | 26.5         | 26.1            | 25.8                |
| Individuals                                            | 4,624        | 138             | 196                 |
| Households                                             | 3,297        | 105             | 154                 |
| <i>N</i>                                               | 21,320       | 590             | 817                 |

In an urbanized area, population density is above 1500 people per square kilometer. The categories for level of education are taken from the CBS: primary education, lower secondary education (VMBO), intermediate secondary education (HAVO/VWO/MBO), and higher education (HBO/WO). Active membership in social clubs defines individuals that in the last month have taken part in the activities of a religious group, sports club, and/or hobby club

Table 12 OLS estimates

|                                              | (1)                  | (2)                | (3)                | (4)                 |
|----------------------------------------------|----------------------|--------------------|--------------------|---------------------|
| Variable                                     | Temporary employment |                    |                    |                     |
| Origin: western                              |                      |                    |                    | 0.0307 (0.0194)     |
| Origin: non-western                          |                      |                    |                    | 0.108*** (0.0213)   |
| Migration background                         |                      |                    | 0.0761*** (0.0152) |                     |
| Level of education: lower secondary          | 0.0710*** (0.0167)   | 0.0762*** (0.0153) | 0.00486 (0.0155)   | 0.00438 (0.0156)    |
| Level of education: intermediate secondary   |                      |                    | 0.0162 (0.0150)    | 0.0161 (0.0151)     |
| Level of education: higher                   |                      |                    | 0.00660 (0.0160)   | 0.00710 (0.0161)    |
| Language problems                            |                      |                    | 0.000203 (0.00850) | -7.96e-05 (0.00851) |
| No. of active memberships in social clubs: 1 |                      |                    | -0.00201 (0.00534) | -0.00217 (0.00534)  |
| No. of active memberships in social clubs: 2 |                      |                    | 0.0167 (0.0104)    | 0.0169 (0.0104)     |
| No. of active memberships in social clubs: 3 |                      |                    | -0.000602 (0.0252) | -0.000881 (0.0252)  |
| Background variables                         |                      | Yes                | Yes                | Yes                 |
| Year-fixed effects                           |                      | Yes                | Yes                | Yes                 |
| Constant                                     | 0.147*** (0.00369)   | 1.134*** (0.0502)  | 1.127*** (0.0513)  | 1.133*** (0.0513)   |
| Observations                                 | 32,406               | 32,406             | 32,406             | 32,406              |
| R-squared                                    | 0.002                | 0.196              | 0.196              | 0.197               |

Robust standard errors clustered at the household level in parentheses. Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*Significant at the 10% level, \*\*significant at the 5% level, and \*\*\*significant at the 1% level

**Table 13** Logit estimates (average marginal effects)

| Variable                                     | (1)                  | (2)                | (3)                 | (4)               |
|----------------------------------------------|----------------------|--------------------|---------------------|-------------------|
|                                              | Temporary employment |                    |                     |                   |
| Origin: western                              |                      |                    |                     | 0.0335* (0.0194)  |
| Origin: non-western                          |                      |                    |                     | 0.108*** (0.0195) |
| Migration background                         | 0.0618*** (0.0128)   | 0.0675*** (0.0109) | 0.0681*** (0.0110)  |                   |
| Level of education: lower secondary          |                      |                    | 0.0134 (0.0126)     | 0.134 (0.131)     |
| Level of education: intermediate secondary   |                      |                    | 0.0195* (0.0117)    | 0.197 (0.123)     |
| Level of education: higher                   |                      |                    | 0.0128 (0.0132)     | 0.140 (0.139)     |
| Language problems                            |                      |                    | -0.000127 (0.00779) | -0.00478 (0.0765) |
| No. of active memberships in social clubs: 1 |                      |                    | -0.00367 (0.00527)  | -0.0388 (0.0522)  |
| No. of active memberships in social clubs: 2 |                      |                    | 0.0151 (0.0105)     | 0.145 (0.0956)    |
| No. of active memberships in social clubs: 3 |                      |                    | 0.00407 (0.0223)    | 0.0312 (0.214)    |
| Background variables                         |                      | Yes                | Yes                 | Yes               |
| Year-fixed effects                           |                      | Yes                | Yes                 | Yes               |
| Observations                                 | 32,406               | 32,406             | 32,406              | 32,406            |

Robust standard errors clustered at the household level in parentheses. Background variables include age, age-squared, gender, civil status, number of children at home, whether someone lives in an urbanized area or not, sector of employment, and profession. Year-fixed effects include all the years from 2008 to 2019. \*Significant at the 10% level, \*\* significant at the 5% level, and \*\*\* significant at the 1% level

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## Declarations

**Conflict of Interest** The author declares no competing interests.

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