

## Network explanations of the gender gap in migrants' employment patterns: Use of online and offline networks in the Netherlands

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### Abstract

**Objective:** We investigate the relationship between the use of online and offline personal networks and employment for male and female migrants in the Netherlands.

**Background:** Previous research indicated an alarmingly large gender gap in the employment patterns of migrants. Although social networks have been identified as being crucial for migrants' labour market participation, we know very little about how migrant men and women differ in terms of their social networks, and how these differences translate into varying employment opportunities.

**Method:** Drawing on the Dutch Immigrant Panel of LISS (Longitudinal Internet Studies for the Social Sciences) dataset, we used logistic regression analyses to examine the employment patterns of female migrants.

**Results:** Our analyses generated two major findings. Contrary to our expectations, we found that, on average, the migrant women were more connected with individuals who were employed and had a Dutch background, but were less connected with men; and that they tended to have a rather dense network structure. Our findings further indicated that the women's unemployment could not be significantly accounted for by their personal networks, but rather by their tendency to use LinkedIn that is less than the migrant men.

**Conclusion:** Our findings have implications for understanding how inequalities in networks affect the labour market participation of migrant women.

**Key words:** international migrants, gender, personal networks, online networks, employment, the Netherlands



## 1. Introduction

Migration studies that focus on the integration of newcomers have contributed extensively to our understanding not only of how migrants find their way into a new setting and adapt, but also of the barriers and opportunities they face (e.g., Alba & Foner 2015; Diehl et al. 2015; Heath & Cheung 2007; Kanas et al. 2012). While these studies have provided valuable insights, feminist scholars have criticised mainstream migration and integration research for neglecting the role of gender (Boyd & Grieco 2003; Curran et al. 2006; Kofman & Raghuram 2006). Only recently have scholars started to pay closer attention to the labour market experiences of female migrants. One of the main conclusions of the previous research on this topic is that there is a gender gap in the employment patterns of migrants (Anthias et al. 2013; Khoudja & Fleischmann 2015; Ala-Mantila & Fleischmann 2018). However, these previous studies neglected the potential impact of social networks on this gender gap. Thus, we currently know very little about the relationship between gender, networks, and labour market outcomes among migrants. Therefore, in this article, we examine some potential explanations for this gender gap.

It is well established that social networks are effective vehicles of information transmission about job opportunities (Burt 1992; Granovetter 1973, 1995). The positive effects of social networks on migrants' chances of integrating into the labour market have been widely demonstrated, mainly for migrants who have ties to the native population (usually defined as those who were born in a given country, and whose parents were born in that country). Such ties have been conceptualised as inter-ethnic ties or bridging ties, who know the rules of the game, and have useful information about the labour market (e.g., Kalter & Kogan 2014; Lancee 2010; Lancee & Hartung 2012). The majority of studies on the personal ties have investigated the extent to which face-to-face personal networks operate to lower the major labour market barriers for migrants. However, as far as we know, no previous research has investigated the role of online networks in migrants' labour market participation. This lack of attention to online networks is concerning, especially given that "being on the internet is associated with having both more friends and a greater increase in the number of friends over time [...] [because] the larger the network, the more ties that can pass along information. Moreover, people with more ties tend to connect to more networks. Larger, more diverse networks connect people to a greater variety of social milieus, providing a greater variety of information and social contacts" (Rainie & Wellman 2014: 130-132).

Against this background, we investigate the relationship between migrants' online and offline personal network composition and structure on the one hand, and the employment patterns of male and female migrants on the other. Our intention here is not to directly compare the effectiveness of online and offline networks, but rather to investigate to what extent these networks explain the gender differences in the labour market outcomes of migrants. We expect to find that part of the gender gap in the labour market among migrants can be attributed to the gendered nature of both the online and the offline networks in which the migrants are embedded. In doing so, we acknowledge that the relationship between networks and employment status is bi-directional, and that due to the limitations of the data, we cannot test the causal relationship between the impact of gendered networks and gendered labour market outcomes. However, with reference to

various contributions about the effect of social networks on employment outcomes (e.g., Drever & Hoffmeisster 2008; Lancee 2012; Kanas et al. 2011), we provide several arguments for why we believe it is very likely that there is a causal relationship between gender, networks, and employment outcomes.

Drawing on the Dutch Immigrant Panel of LISS (Longitudinal Internet Studies for the Social Sciences) dataset, we examine first- and second-generation migrants (N=368) who came from various countries, and who arrived in the Netherlands under different migration streams. This article makes two main contributions to the literature. First, we show that in addition to personal face-to-face networks, online networks play an important role in the employment levels of female migrants. The second key contribution of this study is that provides some potential explanations for the compositional and structural network properties of migrants' employment patterns.

The remainder of the article is organised as follows. In the next section, we review the relevant literature about (online and offline) social networks, and about the labour market participation of migrants from a gender perspective. In the following section, we outline our research design and the dataset we used. We then introduce our descriptive and multivariate analyses. In the concluding section, we discuss our findings in relation to the ongoing debates in the literature, while highlighting the main contributions of our study.

## 2. Theoretical framework

### 2.1 *Social networks and migrants' labour market participation*

Starting with Granovetter's pioneer work on the strength of weak ties (Granovetter 1973, 1995), multiple studies have examined the role of social networks in the successful integration of migrants into the labour market; meaning that the migrants' employment and occupational status match their skills and education (Aguilera & Massey 2003; Drever & Hoffmeister 2008; Griesshaber & Seibel 2014; Kanas et al. 2011; Lancee 2012; Portes & Sensenbrenner 1993; Seibel & van Tubergen 2013). According to this line of research, individuals' access to employment or mobility in the labour market depends not only on their human capital, but also on the social networks in which they are embedded, and the resources those networks provide (De Graaf & Flap 1988; Freitag & Kirchner 2011; Griesshaber & Seibel 2014; Seibel & van Tubergen 2013). In addition to offering job seekers motivational support and encouragement during their search (Freitag & Kirchner 2011), social networks can provide important information about employment opportunities, relevant job openings, application processes, and the labour market in general. This kind of information is not only transmitted and received more quickly through networks than through formal channels, it is also fairly easy to acquire, since it is mostly "obtained as a by-product of day-to-day relationships without much effort" (Freitag & Kirchner 2011: 392). Thus, social networks reduce the costs of searching for employment (Granovetter 1973; Montgomery 1992; Mouw 2003). At the same time, information obtained via social networks is also considered to be more trustworthy and detailed than information acquired through more official means (Franzen & Hangartner 2006; Granovetter 1973). Having

detailed information about a job reduces uncertainty about the requirements of a position, and can thus increase the likelihood of employment (Freitag & Kirchner 2011).

### 2.1.1 The relevance of offline networks

Recent research on the job search strategies of migrants has focused primarily on what we call offline networks; i.e., on networks consisting of personal relationships, such as relationships with family, friends, neighbours, or colleagues. Studies have shown repeatedly that migrants benefit strongly from their offline social networks when looking for employment (Lancee 2012a; Griesshaber & Seibel 2014; Seibel & van Tubergen 2013). However, not all ties are equally useful. For example, when migrants rely on social networks, they might end up taking a job with lower occupational prestige than they would have if they had found a job via formal job search channels, such as through advertisements (Seibel & van Tubergen 2013). These findings suggest that it is crucial to consider not only whether migrants use their social networks to search for employment, but also which networks are more beneficial.

Several studies have argued that it is important for migrants to have contacts with the native population, as natives are more likely than migrants to be employed, and are generally more familiar with the host country's labour market and the cultural norms relevant to the job-seeking process (e.g., how to behave or what to wear in a job interview). Drawing on the seminal works of Granovetter (1973, 1995) and Putnam (2000), migration scholars have made a distinction between inter-ethnic (bridging, weak) and intra-ethnic (bonding, strong) personal ties, noting that these ties have different roles when it comes finding paid employment. While Putnam (2000) distinguished between bonding and bridging ties on the basis of sameness and otherness in categories, migration scholars have tended to investigate ethnicity as the main category demarcating the in-group/out-group boundaries. They have generally found that having more bridging ties to the native population is associated with positive employment outcomes for migrants (e.g., Kanas et al. 2009, 2011; Lancee 2010, 2012a, 2012b). However, a closer look at this literature reveals that they have some shortcomings, such as a tendency to ethnicise and dichotomise migrants' personal ties based on the assumption that intra-ethnic ties are poor resources in the labour market (Bilecen in press; Dahinden 2016; Ryan 2011). While some personal ties can be similar in terms of ethnicity, they can also differ in many other dimensions, such as gender, social class, and shared interests. Thus, referring to a tie only in terms of ethnicity would be an oversimplification. In this study, we go beyond the sole focus on ethnicity on migrants' personal networks by also considering the gender and the employment situation of the ties in these networks. Our hunch here is that being connected to individuals who are already employed provides migrants with up-to-date information about labour market opportunities, and may inspire them to find jobs. In addition to looking at the composition of migrants' personal networks, we also investigate the structure of these networks. After all, it is not only to whom a person is connected that matters, but also how these connections are patterned in terms of resource flows, such as useful information about employment opportunities (Bilecen & Cardona 2018; Burt 1992; Marsden & Gorman 2001; Wellman & Berkowitz 1988).

### 2.1.2 The relevance of online networks

To the best of our knowledge, previous studies on migrants' experiences of finding employment have investigated only the role of personal, face-to-face, offline networks, while failing to take into account the growing impact of online networks. There are, however, clear indications that use of online social networks has been increasing steadily among migrants (Dekker et al. 2015; Faist & Bilecen, 2019). The networks migrants tend to join include not just Facebook and Twitter, which are generally used to share personal interests and connect with others; but also LinkedIn, which is used specifically for professional purposes. Globally, LinkedIn is the largest online social networking platform with work-related content (LinkedIn 2019; Papacharissi 2009). In the Netherlands at the beginning of 2020, there were around 10 million Facebook (De Best 2020) and 4.6 million LinkedIn users (Statista 2020). Recent research on the use of online social network platforms for job searches has shown not only that a large share of job seekers uses the internet, but also that the use of online platforms decreases the costs of information both for employers and job seekers (e.g., McFarland & Ployhart 2015). The use of online networks might increase employment opportunities for job seekers because these platforms make it easier for users to maintain relationships (Haythornthwaite 2002) and to have latent ties who are "technologically possible but not yet activated" (Haythornthwaite 2005: 137). Moreover, online networks enable users to maintain a more diverse network with valuable information (Fountain 2005). In a study based on nationally representative data for the US, Piercy and Lee (2018) found that the individuals who use online networks for their job searches tend to be relatively young and well-educated. By contrast, it appears that in the Netherlands, nearly all population groups use social media intensively (CBS 2018). Furthermore, a study based on a representative sample of the general Dutch population conducted by Utz (2016) showed that LinkedIn is the most commonly used professional platform in the Netherlands, with its users reporting that they receive more professional information from LinkedIn than from other social media platforms. However, most previous studies that have investigated migrants' use of online social networking sites have either focused on how migrants use these sites to stay in touch with their friends and families in their countries of origin, i.e., to maintain their transnational ties (Faist & Bilecen 2019); or on how the use of social media affects the identities of migrant youth (Dekker et al. 2015). While migrants' use of social media and internet and communication technologies (ICTs) has increased, none of these previous studies have looked at how migrants' use of online networks has affected their employment outcomes.

## 2.2 *Gender differences in social networks and their impact on female labour market participation*

### 2.2.1 Gender and the relevance of offline networks

Although the number of studies that have examined the impact of migrants' social networks on their labour market integration has increased, the research on gender differences in this association remains very limited. This is surprising, as previous research has suggested that the social behaviour and networks of men and women differ (Bott 1971; Fischer 1982;

Marsden 1988; Moore 1990), including in migrant populations (Hagan 1998; Curran et al. 2006; Martinović 2013). Various explanations for this gendered network-building have been proposed (Seibel 2020). First, the social behaviour of migrant women is often more strongly monitored by family members than the social behaviour of their male peers, particularly among migrant groups who hold rather “traditional” gender role attitudes (Parrado & Flippen 2005; Arends-Toth & van de Vijver 2009; Diehl et al. 2009; Röder & Mühlau 2014). Second, migrant women often have different opportunity structures for meeting people than migrant men. This is, of course, in part because women have lower labour market participation rates. For migrants, a workplace provides a social focus for meeting others and creating new personal ties with valuable resources (Feld 1981), such as with natives or individuals who are “successfully integrated” into the labour market. In addition, the decision of many migrant families to invest more in men’s than in women’s human capital – by, for example, providing male family members with more help with a job search or language acquisition (van Tubergen & Kalmijn 2008) – has major consequences for female migrants’ chances of establishing a diverse and possibly human capital rich network. Furthermore, migrants’ preferences in terms of social network building are likely to be gendered. In a study on gender differences in formal participation in associations, Inglehardt and Norris (2003) found that women tend to spend more time than men with their family and immediate relatives (strong ties). There is also evidence that women prefer to have small networks characterised by high levels of trust (Burt 1998). Translated to the context of migration, it may be assumed that migrant women generally prefer to have social interactions within female, kin-based, and trusted co-ethnic networks (Portes and Sensenbrenner 1993); whereas migrant men are more likely to form contacts outside of the family or co-ethnic community.

A critical question that remains open is whether such gender differences in networks have an impact on migrant women’s opportunities in the labour market. The literature has identified several strongly gendered characteristics of the composition of migrants’ networks that can affect their labour market access. Studies have, for example, shown that men benefit more than women from their networks because men’s networks provide more resources relevant for the labour market (McDonald 2011). One potential explanation for this gender gap is that men’s networks tend to be comprised of higher status connections than women’s networks. In addition, there is evidence that when male employees are hired as a result of referrals by their female ties, they tend to receive lower wages than their counterparts who used formal channels (Loury 2006). Given that men and women tend to interact more frequently and intensively with their own gender (Moore 1990), such gender-homophilous ties can create disadvantages for women on the labour market. The tendency to create ties with people of the same gender also affects migrant women’s chances of gaining access to ties with work experience, since migrant men are, on average, more active in the labour market than migrant women (Kogan, 2006). Some studies have also suggested that migrant women are less likely than migrant men to have contact with natives, particularly if they migrated from countries of origin with “traditional values” (Carol 2016; Seibel 2020). The lack of ties to Dutch natives might translate into disadvantages, since natives are considered key actors in providing information about the labour market (Griesshaber & Seibel, 2014; Kanas et al. 2009, 2011; Lancee 2010, 2012a, 2012b; Seibel & Van Tubergen 2013).

Networks also differ in their structure; i.e., in the degree to which the network members know each other (Coleman 1988). Although migration studies usually emphasise the benefits of closure and cohesion in terms of trust and social support (Dahinden 2005; Ryan et al. 2008), closed networks might be less beneficial for labour market integration. Women in particular have been shown to suffer from “closure penalty” (Lutter 2015). Drawing on a large-scale longitudinal dataset in the film industry over decades, Lutter (2015) found evidence that female actors were more disadvantaged than their male colleagues when they were affiliated within cohesive networks. This finding suggests that in the long run, being embedded in a closely-knit network might operate as a constraining mechanism for career advancement. This observation also relates to the gender composition of networks that we discussed above. Since women tend to create ties with women (Moore 1990), and female-dominated networks tend to be more closely knit than male-dominated networks, the flow of new information decreases for women (Burt 1992; Granovetter 1995). Hence, we expect to find that the gender gap in the labour market participation of migrants can be explained in part by migrant women’s lower likelihood of engaging in offline networks that have larger shares of men, employed people, and natives. In addition, we expect to observe that this gender gap in labour market participation is attributable in part to migrant women’s higher likelihood of engaging in closed networks.

### 2.2.2 Gender and the relevance of online networks

Finally, and most importantly, the literature has suggested that men and women differ in their use of online networks. Although we know very little about the use of online networks in migrant populations, we can draw some conclusions based on findings among natives. Previous research has suggested that women might benefit more than men from online networks. For example, Aten, DiRenzo, and Shatnawie (2017) showed that women’s online networks are characterised by greater gender heterophily than men’s networks. Hence, online networks can increase women’s opportunities to create ties to men, which can, in turn, positively affect women’s labour market integration. While women seem to use social network sites more frequently than men (Kimbrough et al. 2013), men seem to be more goal-oriented in their use of social network sites than women (Sanchez-Franco 2006), which might have implications for men’s and women’s use of labour market-related online networking sites such as LinkedIn. Moreover, previous research has suggested that women behave differently than men when using social networking sites. There is, for example, evidence that women are more likely than men to be concerned about how others perceive their online presence, which can prevent them from using professional networking sites (Donelan et al. 2009). Based on these findings, we expect to observe that gender differences in the use of online networks leads to migrant men and women having different labour market patterns.

### 2.2.3 Causality

It is important to keep in mind that the relationship between social networks and employment status is bi-directional. For example, a positive association between the two could indicate that knowing more people (whether online or in person) causes people to find paid employment; but it could also mean that because people are employed, their social networks are larger (for an extensive review, see Mouw 2006). Migrant women seem to be

especially likely to lack opportunities to build advantageous networks due to their limited participation in the labour market (Seibel 2020). The workplace is a crucial locus for migrants to create ties to the native population (Kalmijn 1998; Kalter & Schroedter 2008). Moreover, being in the workplace increases migrants' chances of forming relationships with other employed people (Oksanen et al. 2013). Hence, the lower labour market participation of migrant women might explain why these women have less access than their male peers to "open" networks with a larger share of natives and employed people. In addition, online networks such as LinkedIn might be particularly popular among employed migrants who wish to extend their online networks in order to improve their career chances (Utz 2016). However, there is also ample evidence of the causal effects of social networks, both offline and online, on employment outcomes (e.g., Drever & Hoffmeisster 2008; Lancee 2012; Kanas et al. 2011). Nevertheless, the bi-directional relationships between networks and employment status should be taken into consideration when interpreting the following results.

### **3. Research design, sample, and data**

#### *3.1 Data*

In our analyses, we use data from a joint project between LISS, MESS (Facility for Measurement and Experimentation in Social Sciences), CBS (Centraal Bureau voor de Statistiek), and the Department of Cross-Cultural Psychology of the Faculty of Social Sciences at Tilburg University (more information about the LISS panel can be found at: [www.lissdata.nl](http://www.lissdata.nl)). This panel study contains a sample of first- and second-generation migrants who were surveyed in 2010 and 2014. The migrants in this sample were mainly from Morocco, Turkey, Suriname, the Dutch Antilles, Indonesia, South Africa, and other non-specified countries of origin; but were mainly categorised as having a "Western" or a "non-Western" background. The sample was stratified by country of origin, and was weighted by household size. The data were collected using the following approach: one person from each household was interviewed, and, if the household agreed to participate, all of the household members were included in the study (LISS 2014). Initially, the respondents were selected from the population register of the Dutch central agency for statistics (CBS) via a stratified sampling method based on their ethnic background. If the chosen respondents did not respond, they were sent a reminder twice. While the specific number of non-response cases is unknown, the response rate was generally around 30 per cent for most groups, excluding those from Turkey, Morocco, and other "non-Western" countries. This was mainly due to language issues, although interviewers went to selected respondents' homes to provide further instructions (for information on further recruitment strategies, see LISS 2014). The final sample consisted of 2,629 respondents (both native Dutch and migrants) who took part in an online survey. However, the participation rate in the "Social Integration and Leisure" module (used for this study) was significantly lower, and no specific reason was mentioned for this low response rate. Drawing on the data from

the latest wave in 2014, our final sample consisted of 368 respondents with a migration background.

### 3.2 Variables and operationalisations

The respondents were asked about their *employment status*. A dichotomous variable was created, with a value of one being given to every respondent who indicated that s/he was in paid employment, working in a family business, or self-employed. A value of zero was given to those respondents who were searching for a job, performing voluntary work, receiving unemployment benefits, or taking care of the housekeeping. Respondents who were retired or attending school or university were excluded from the sample.

We also distinguished between offline and online network characteristics. *Offline network characteristics* were measured using a name-generator question. The respondents were asked to name up to five persons with whom they had discussed important matters within the last six months. The sizes of those trusted networks ranged from zero to five. The respondents were then asked several name-interpreter questions about each person they named (known as alters), including about the person's gender, employment status, and ethnic background. Moreover, to provide information on the structure of the networks, the respondents were asked how well each alter knew the others in the network. We first calculated the *share of male network members* by dividing the number of men in the network by the total number of members in the network. In addition, for each alter, we had information on whether this person was employed full-time, was employed part-time, or was not employed at all. If an alter was full- or part-time employed, s/he was assigned a value of one; but if an alter was not employed, s/he was assigned a value of zero. In addition, the respondents indicated for each alter whether this person was born in the Netherlands (1) or in another country (0). The *share of employed network members* was then measured by dividing the number of full- and part-time employed alters by the number of all alters in the network. Similarly, the number of all alters who were born in the Netherlands was divided by the total number of alters (regardless of the country of birth) in order to measure the *share of natives* in the network. Finally, we were interested in measuring the degree of *network closure*. As we mentioned above, the respondents indicated for each alter-alter relationship whether these two persons were very close, not close (but also not total strangers), or total strangers to each other; or whether the respondents did not know how close their network members were. Our aim was to determine how close all of the network members were to each other. We therefore dichotomised these variables, and distinguished between alter-alter ties that were very close to each other (one), and alter-alter ties that were not very close or were even strangers to each other (zero). The cases in which the respondents did not know the closeness of an alter-alter relationship were also summarised into the zero category, since we expect that the respondents would have been aware of it if these relationships had been very close. We then added together all of the alter-alter relationships that were very close, and divided this number by the total number of potential alter-alter relationships within one network ( $n(n-1)/2$ )<sup>1</sup>. Since all offline network

1 The formula  $n(n-1)/2$  was used for measuring network density in personal networks. However, in our case, the network closure was also addressed in the question by asking respondents the valued degree of closeness

characteristics indicated the share of specific alter characteristics in the whole network, their measurements ranged from zero to one.

*Online network characteristics* were accounted for by asking the respondents about their online presence and behaviour. For this study, we looked specifically at factors indicating online contact with others. We therefore accounted for whether the respondents reported having ever spent time a) chatting, video calling, or sending messages via social media such as Instagram, Skype, or similar services (yes=1, no=0); and b) visiting discussion forums and internet communities (yes=1, no=0). Moreover, the respondents were asked whether they c) ever spent time using social network sites such as Facebook, Twitter, LinkedIn, Google+, MySpace, and Tumblr. If the answer was yes, the respondents were asked specifically about their usage of each of these networking sites. As we were particularly interested in whether the respondents used the job networking site LinkedIn, we distinguished between those who did and did not report using LinkedIn (yes=1, no=0).

Finally, we controlled for the number of ties in the respondents' personal offline networks; the respondents' age in years (continuous variable); whether the respondents were married (1) or not (0); the respondents' highest level of educational attainment, ranging from primary education (1) to tertiary education (6); whether the respondents belonged to the first (1) or second generation (0); and whether the respondents had a Western (1) or a non-Western (0) background.

#### 4. Results

We first examine descriptively the extent to which migrant women and men differed in their network characteristics, and whether these differences can also be observed when we compare migrants who were and were not employed. Table 1 presents descriptive results of the migrants' offline network characteristics at the alter and network levels, as well as their access to online networks.

We observe that among both the unemployed and the employed migrants, men reported having a larger share of male contacts in their networks than women, which indicates that there were gender differences in the networks (e.g., Hondagneu-Sotelo 1994; Menjivar 2000). Interestingly, we see that that this gender difference was particularly large among employed migrants. This finding suggests that either the migrant women were using their female ties to acquire jobs, or that the migrant women who were in the workplace tended to network with other women rather than with men. We also observe that the employed migrants reported having a higher share of employed contacts than the unemployed migrants. More surprising is the finding that the unemployed female migrants reported having a larger share of employed ties in their network than the unemployed male migrants. One potential explanation for this result is that among migrant men, unemployment might be seen as a stigma (e.g., for the general population, Krug et al. 2019), which could lead them to build a network around this shared trait. Migrant women, by contrast, may have no paid employment for various non-stigmatised reasons, and might

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among their alters. Because we have dichotomised the alter-alter ties, the density measure estimated the share of ties within a network that were very close to each other.

therefore be less likely to seek contact with other unemployed individuals. Another potential explanation for this finding is that the unemployed women might have listed their husbands or children who were in the workforce. However, we also have to treat these findings with caution, since the unemployed male sample was small (N=18).

Furthermore, we observe that the employed migrants reported having larger shares of natives in their networks than the unemployed migrants, regardless of gender. We also find that the networks of the migrant women were more closed than those of the migrant men (and thus they reported having larger shares of contacts in their networks who knew each other). However, whereas among migrant women the closeness of their networks differed little depending on whether they were employed or unemployed; among migrant men, network closure occurred more frequently among those who were employed than among those who were unemployed.

*Table 1: Descriptives of offline and online network characteristics, by employment status and gender*

	Unemployed							
	Women			Men				
	Mean	SE	[95% Conf. Interval]	Mean	SE	[95% Conf. Interval]		
<i>Offline network characteristics</i>								
Male ties	0.39	0.04	0.32	0.47	0.48	0.08	0.30	0.66
Employed ties	0.52	0.04	0.44	0.59	0.35	0.08	0.18	0.53
Native ties	0.51	0.05	0.41	0.61	0.51	0.11	0.28	0.74
Closeness	0.36	0.05	0.26	0.46	0.22	0.08	0.06	0.39
<i>Online network characteristics</i>								
(Video) Chat	0.76		0.65	0.87	0.72		0.49	0.95
Discussion forums	0.10		0.02	0.17	0.11		-0.05	0.27
LinkedIn	0.19		0.09	0.29	0.28		0.05	0.51
N	63			18				

Table 2 presents the average marginal effects resulting from the logistic regression analysis of the relationship between gender, network characteristics, and employment status among migrants in the Netherlands. Not surprisingly, the results indicate that the migrant women were significantly less likely to be employed than the migrant men (model 1). One question that arises is whether this gender difference could be explained in part by differences in the network compositions of the migrant men and women. In model 2, we include four characteristics of offline networks: the share of male ties, the share of native ties, the share of employed ties, and the share of contacts who knew each other (closure measurement). Interestingly, we find that a larger share of male contacts was associated with a decreased likelihood of being employed (ame = -0.13, p-value < .05). However, we see in model 5 that this was the case for female migrants only, which is consistent with the pattern we observed in Table 1. A strong positive association is also observable between the share of employed contacts in the respondents' networks and their employment status (model 2) for both the female and the male migrants (models 5 and 6). Employed migrants had more employed ties in their networks. However, given the cross-sectional structure of the dataset, the direction of the relationship remains unclear. In other words, we cannot make a causal argument as to whether having more employed contacts led to higher chances of employment, or whether being employed led to having more contacts in the

workplace. However, given that the “share of employed” was most likely endogenous, since people tend to build relationships with their colleagues (Moore 1990), we estimated the same models without this variable. The results are presented in the appendix (Table A1). Interestingly, most of the results remained the same with one exception: the “share of natives” had a significant positive effect on employment status, particularly for female migrants. This finding supports the often stated notion that for migrants, the value of having contacts with natives lies in the natives’ greater human capital (Lancee 2012a, Seibel & van Tubergen 2013). Furthermore, we find that the associations between employment and the independent variables “share of natives” in migrants’ networks’ and “network closure” were not significant.

*Table 1:* Descriptives of offline and online network characteristics, by employment status and gender (continued)

	Employed							
	Women			Men				
	Mean	SE	[95% Conf. Interval]	Mean	SE	[95% Conf. Interval]		
<i>Offline network characteristics</i>								
Male ties	0.31	0.02	0.27	0.34	0.03	0.27	0.50	0.60
Employed ties	0.73	0.02	0.69	0.77	0.03	0.73	0.67	0.78
Native ties	0.63	0.03	0.57	0.69	0.03	0.61	0.54	0.68
Closeness	0.37	0.03	0.32	0.42	0.03	0.31	0.25	0.37
<i>Online network characteristics</i>								
(Video) Chat	0.81		0.74	0.87	0.00	0.80	0.74	0.87
Discussion forums	0.16		0.10	0.22	0.02	0.29	0.21	0.37
LinkedIn	0.32		0.25	0.40	0.02	0.48	0.39	0.57
N	154			133				

Next, we look at whether the gender effect changes between model 1 and model 2 in order to determine whether these offline measurements mediated the relationship between gender and employment. Interestingly, the gender effect indeed changed, but in the opposite direction than expected (from -0.21 to -0.23); meaning that the effect actually became stronger (and not weaker). Hence, the gender effect in model 1 was actually underestimated. To further examine whether offline network characteristics mediated the relationship between gender and employment, we first examine the effect of gender on the network characteristics (Table 3). Controlling for other network characteristics as well as demographic characteristics such as education, migration background, and age, we see that, on average, the migrant women had fewer male ties than the male migrants, but experienced more closure in their networks than the male migrants. No significant gender differences are found with regard to the ethnic composition in the network or the employment status of the network members. However, the KHB decomposition analysis shows that none of these offline network characteristics mediated the relationship between gender and employment significantly (KHB p-value = 0.195). Hence, the gender gap in employment cannot be attributed to gender differences in the offline network composition. In model 3, we include measurements of the usage of (video) chats, discussion forums, and LinkedIn in the online networks. We find that none of these online factors had a significant effect on employment for the migrant women (see model 5) or for the migrant men (model 6). This result is nevertheless interesting, as we can see in Table 2 that the migrant women

were indeed significantly less likely than the migrant men to use discussion forums and LinkedIn. Looking at the KHB decomposition analysis, we observe that part of the gender effect was, as expected, mediated via these online network characteristics. The differences in the usage of LinkedIn most likely explains why we observe more employed people in the male sample than in the female sample. As we discussed above, we cannot be sure about the causal direction between these variables.

*Table 2: Average marginal network effects on gender differences in employment*

	Whole sample				Female sample	Male sample
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Gender: Female	-0.21*** (-4.65)	-0.23*** (-5.22)	-0.19*** (-4.14)	-0.22*** (-4.90)		
<b>Offline network characteristics</b>						
Share of males		-0.13* (-1.99)		-0.14* (-2.04)	-0.22+ (-1.93)	0.01 (0.21)
Share of employed		0.36*** (6.58)		0.36*** (6.50)	0.46*** (5.39)	0.27*** (4.81)
Share of natives		0.08 (1.38)		0.07 (1.24)	0.11 (1.25)	0.03 (0.50)
Closeness		0.06 (1.07)		0.07 (1.19)	0.08 (0.87)	0.03 (0.44)
<b>Online network characteristics</b>						
(video) Chats			0.01 (0.21)	0.03 (0.69)	0.04 (0.57)	0.05 (0.99)
Discussion forums			0.08 (1.25)	0.08 (1.46)	0.10 (1.14)	0.08 (1.00)
LinkedIn			0.07 (1.36)	0.02 (0.36)	0.01 (0.13)	0.02 (0.34)
<b>Controls</b>						
Nr. of offline ties	0.03+ (1.88)	0.01 (0.95)	0.03+ (1.76)	0.01 (0.72)	0.03 (1.28)	-0.01 (-0.36)
Age	-0.00* (-2.20)	-0.00* (-2.09)	-0.00+ (-1.94)	-0.00 (-1.59)	-0.00 (-1.51)	-0.00 (-0.85)
Married	-0.08* (-2.08)	-0.06+ (-1.74)	-0.08* (-1.98)	-0.06+ (-1.71)	-0.13* (-2.47)	0.05 (1.11)
Education	0.04** (3.29)	0.03** (2.66)	0.04** (2.76)	0.03* (2.43)	0.06** (3.22)	-0.01 (-0.77)
First generation	-0.00 (-0.08)	0.04 (1.04)	-0.00 (-0.03)	0.04 (0.91)	0.03 (0.48)	0.07 (1.28)
Western Background	0.08+ (1.90)	0.04 (1.15)	0.08+ (1.79)	0.04 (1.12)	-0.00 (-0.03)	0.14** (2.77)
N	368	368	368	368	217	151
Pseudo R2	0.10	0.21	0.11	0.22	0.22	0.27

*Notes:* Average marginal effects; *t* statistics in parentheses; +  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 3: Impact of gender on network characteristics

	Offline network characteristics (linear regression analyses, beta-coefficient presented)				Online network characteristics (logistic regression analyses, odds ratio presented)		
	Share of male ties	Share of employed ties	Share of native ties	Network closure	Use of (video) chat	Use of discussion forums	Use of LinkedIn
Gender:	-0.21***	0.02	0.01	0.08*	1.23	0.43**	0.43**
Female	(-6.71)	(0.54)	(0.20)	(1.97)	(0.68)	(-2.57)	(-3.10)
N	368	368	368	368	368	368	368

Notes: *t* statistics in parentheses; +  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; controlled for all other network characteristics, age, marital status, education, generation, Western background

Table 4: KHB decomposition analysis: Significance (p-value) of the indirect effect of gender via network characteristics

Network characteristics	p-value
Offline network characteristics	0.195 (1.30)
Online network characteristics	0.070+ (-1.80)
N	368

Notes: *t* statistics in parentheses; +  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; controlled for all other network characteristics, age, marital status, education, generation, Western background

## 5. Conclusion and discussion

This study is among the first to examine the relationship between social networks and gender differences in labour market participation among migrants in the Netherlands. Moreover, we have contributed to the literature by investigating not only the personal contacts the migrants formed in offline spaces, but also the extent to which the gender differences in the migrants' online networks could explain the gender gap in their labour market participation levels. Using data from the Immigrant Panel of the LISS, we conducted logistic regression and decomposition analyses in order to shed more light on the question of why the labour market participation of migrant men and women differs. As well as looking at the differences between migrant women and men, we examined within-group differences by investigating the relationship between social networks and labour market participation for migrant women and men separately.

We hypothesised that part of the gender gap in labour market participation could be explained by the differences in the composition of the networks of migrant men and women. We expected to find that the migrant women had fewer ties to men, to natives, and

to employed people; i.e., the kinds of ties are considered most beneficial for labour market integration (Lin 2000). In addition, we expected to observe that the networks of the migrant women had higher levels of closure, while the networks of the migrant men were more open (Burt 1998). Thus, we anticipated that the migrant women would have less access to diverse social ties who might provide important and non-redundant job-related information, which would be detrimental for their chances of finding employment. We also expected to find that online, as well as offline, relationships played an important role. Increasingly, information about the labour market is exchanged not only between close and personal contacts, but also via social media sites that connect people of different backgrounds with each other (Rainie & Wellman 2014). We expected to observe that the migrant men and women differed in their access to and usage of these online networks, which would, in turn, affect their labour market chances. After all, given the increased use of online networks in our current digital era not only for personal, but for professional reasons, differences in online network use might result in gendered labour market outcomes.

Our results showed that the migrant women in our sample indeed had fewer ties to male alters than the migrant men, and that this was not the case with regard to employed and native alters. Moreover, as we anticipated, we found that the migrant women's social networks were more tightly knit than those of the men. However, none of these offline network characteristics explained the gender differences in labour market participation. When we looked at the migrants' online networks, we found that the migrant women indeed made significantly less use of social media platforms such as LinkedIn, which might also partially explain their lower presence in the labour market. Further research should investigate the gendered use of certain online networks and their consequences for employment.

This study is not without certain limitations. First, despite the panel structure of the Immigrant LISS Panel, we decided to analyse cross-sectional data for the year 2014 in order to prevent the loss of too many cases due to the high attrition rate among the respondents. As a consequence, we cannot make causal claims regarding the relationship between social networks and labour market participation. The significant association we observed between the use of LinkedIn and labour market participation could also be interpreted as indicating that the migrant women used LinkedIn less because they were less likely to be employed than the migrant men. However, we want to emphasise the novelty of this finding, because until now, online networks have not been taken into account in studies that examined the relevance of social networks for migrants' labour market participation.

Furthermore, due to the sampling design and the participation rates in the online survey, we had to aggregate first- and second-generation migrants from diverse backgrounds into a single category of "migrants". While our investigation gave us a general picture of the online and offline networks of migrants in the Netherlands, further research should consider the cultural and socialisation effects of migrants from diverse countries of origin. In addition, we have mainly focused on the network composition, and we did not account for the network size, which might have affected the gender-employment relationship. For example, a respondent who listed only two alters, one of whom was native Dutch, was considered to have a larger share of Dutch natives in her network than a respondent who named five alters, two of whom were of Dutch origin. An alternative

approach would have been to account for the number of alters with the respective characteristics. However, we were specifically interested in examining the network composition, which would not have been accounted for by such an approach. However, we did allow for this shortcoming by controlling for the number of ties in all models.

In addition, the dichotomised dependent variable of employment status could not fully capture the nuances across the different employment patterns. While the category of employed included respondents who had paid employment, worked in a family business, or were self-employed; the unemployed category included respondents who were searching for a job, performing voluntary work, receiving unemployment benefits, or were taking care of the housekeeping. Certainly, people who were engaging in voluntary work or unpaid labour may have also been searching for paid employment. Thus, future studies would benefit from taking a more nuanced approach to analysing employment status, while in this study, the low case numbers in the dataset prevented us from doing so.

Moreover, we could not strictly distinguish between online and offline networks. Offline networks were measured with the question of with whom the respondents had talked about important matters within the last six months (based on the classical US General Social Survey question). We then used the characteristics of the alters mentioned in order to assess the relevance of, for example, the share of male ties for gender differences in labour market outcomes. However, it could be argued that offline and online networks often overlap, and sometimes even reflect the same network (Haythornthwaite 2002). Migrants can ask a friend for help with their job search over a coffee, and might also have frequent chats with the same friend via WhatsApp. However, we assume that this kind of overlap is less likely when examining the use of discussion forums or LinkedIn, as we did in this study. Future research should look at the possible overlaps of migrants' online and offline personal networks that could play an important role in finding paid employment. Despite its limitations, our study is among the first to examine the extent to which gender differences in networks can explain female migrants' (dis)advantageous position in the labour market.

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All author names are in alphabetical order indicating equal authorship.

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## Appendix

Table A.1: Average marginal network effects on gender differences in employment (without “share of employment”)

	Model A	Model B	Model C	Model D	Model E	Model F
Gender: Female	-0.21*** (-4.65)	-0.22*** (-4.66)	-0.19*** (-4.14)	-0.21*** (-4.23)		
<b>Offline network characteristics</b>						
Share of males		-0.07 (-0.99)		-0.08 (-1.06)	-0.19 (-1.58)	0.09 (0.98)
Share of natives		0.13* (2.18)		0.12* (1.99)	0.17+ (1.92)	0.07 (1.05)
Closeness		0.06 (0.98)		0.07 (1.16)	0.07 (0.77)	0.06 (0.71)
<b>Online network characteristics</b>						
Use (video) Chats			0.01 (0.21)	0.03 (0.52)	0.04 (0.51)	0.04 (0.62)
Use discussion forums			0.08 (1.25)	0.07 (1.20)	0.07 (0.72)	0.08 (0.99)
Use LinkedIn			0.07 (1.36)	0.06 (1.23)	0.05 (0.73)	0.04 (0.66)
<b>Controls</b>						
# Offline ties	0.03+ (1.88)	0.02 (1.50)	0.03+ (1.76)	0.02 (1.28)	0.03 (1.29)	0.01 (0.40)
Age	-0.00* (-2.20)	-0.01** (-2.58)	-0.00+ (-1.94)	-0.00* (-2.22)	-0.01+ (-1.85)	-0.00 (-1.34)
Married	-0.08* (-2.08)	-0.07+ (-1.71)	-0.08* (-1.98)	-0.06 (-1.61)	-0.12* (-2.11)	0.03 (0.59)
Education	0.04** (3.29)	0.04** (2.96)	0.04** (2.76)	0.04** (2.61)	0.06** (3.09)	-0.00 (-0.18)
First generation	-0.00 (-0.08)	0.04 (0.93)	-0.00 (-0.03)	0.04 (0.89)	0.03 (0.44)	0.07 (1.35)
Western background	0.08+ (1.90)	0.05 (1.18)	0.08+ (1.79)	0.05 (1.15)	0.03 (0.41)	0.13* (2.04)
N	368	368	368	368	217	151
R2	.11	.13	.12	.14	.14	0.12

Average marginal effects; *t* statistics in parentheses

+ *p*<.10, \* *p*<.05, \*\* *p*<.01, \*\*\* *p*<.001

## Information in German

### Deutscher Titel

Netzwerk-Erklärungen der geschlechtsspezifischen Unterschiede in den Beschäftigungsmustern von Migranten: Die Nutzung von Online- und Offline-Netzwerken in den Niederlanden

### Zusammenfassung

**Fragestellung:** In diesem Beitrag untersuchen wir den Zusammenhang zwischen persönlichen Online- und Offline-Netzwerken und der Arbeitsmarktbeteiligung von Migrantinnen und Migranten in den Niederlanden.

**Hintergrund:** Frühere Forschungen deuten auf ein alarmierendes Geschlechtergefälle bei Migranten in ihrem Beschäftigungsverhalten hin. Obwohl soziale Netzwerke als entscheidend für die Arbeitsmarktbeteiligung von Migranten sind, ist wenig darüber bekannt, wie sich Männer und Frauen mit Migrationshintergrund in ihren sozialen Netzwerken unterscheiden und wie sich diese Unterschiede in verschiedenen Beschäftigungschancen widerspiegeln.

**Methode:** Auf der Grundlage des niederländischen Einwandererpanels des LISS-Datensatzes (Longitudinal Internet Studies for the Social Sciences) untersuchen wir mittels logistischer Regressionsanalysen die Beschäftigungsmuster von Migrantinnen.

**Ergebnisse:** Entgegen unseren Erwartungen hegen Migrantinnen eher Kontakt mit Personen, die selbst erwerbstätig sind, einen niederländischen Hintergrund haben und weiblich sind. Zudem sind Netzwerke von Migrantinnen eher durch eine hohe Netzwerkdicke gekennzeichnet als Netzwerke von männlichen Migranten. Die Ergebnisse deuten zudem darauf hin, dass weniger die persönlichen Netzwerke von Frauen signifikant für ihre Arbeitslosigkeit verantwortlich sind; vielmehr scheint Arbeitslosigkeit unter Migrantinnen mit ihrer verminderten Nutzung von LinkedIn im Vergleich zu Männern mit Migrationshintergrund verbunden zu sein.

**Schlussfolgerung:** Unsere Ergebnisse haben Implikationen für das Verständnis von Netzwerk-Ungleichheiten für Migrantinnen in ihrer Arbeitsmarktbeteiligung.

**Schlagwörter:** internationale Migranten, Geschlecht, persönliche Netzwerke, Online-Netzwerke, Arbeitsmarktbeschäftigung, die Niederlande

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