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Migrant women on the labour market: On the role of home- and host-country participation

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IZA DP No. 5817

**Migrant Women on the Labour Market: On the
Role of Home- and Host-Country Participation**

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June 2011

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ABSTRACT

Migrant Women on the Labour Market: On the Role of Home- and Host-Country Participation^{*}

The behaviour of migrant women on the labour market is influenced by a variety of factors, among which the culture of the home and host country. Part of the literature investigates the role of home-country culture. This study extends the literature by including a measure for the influence of host-country culture as an additional determinant of the participation of migrant women. The empirical model explains participation from demographics and educational attainment, and uses home- and host-country female participation as proxies for culture. Evidence on the basis of the Dutch Labour Force Survey 1996-2007 suggests that both differences in home-country female participation and the trend in native female participation, as a measure for host-country culture, affect the participation of migrant women. The results suggest that host-country participation is at least as important as home-country participation.

JEL Classification: J16, J22, J61

Keywords: female labour force participation, immigration, cultural transmission

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1. Introduction

Many migrants live in a country with a culture very different from their own. The habits prevailing in these cultures result from beliefs and preferences of individuals living together in a community or country. How do different ethnic groups behave when exposed to the same economic and institutional setting? An often studied example on the relation between individual behaviour and culture is female labour market behaviour. The frequently used epidemiological approach (Fernandez, 2010) explains variation in female participation between different groups of migrant women. This is done by using the participation rate of the home country as a proxy for culture. As Fernandez states, “culture is transmitted by more than parents only”. Several studies investigate how changes in beliefs and preferences lead to an increase in female labour force participation over time and over geographical areas. Furthermore, the level and speed by which female participation adjusts varies per country. Migrant women may be influenced by the local trends in their direct environment as well.

This study contributes to the literature by investigating the simultaneous effects of home- and host-country participation on the behaviour of migrant women. The epidemiological approach mostly uses home-country participation as a proxy for culture, and this approach is replicated in this study. The approach is extended by including a measure for the trend in host-country participation. Differences in the speed of adjustment between countries provide identification of the effect of native participation on migrant participation. In the country we focus on, the Netherlands, the rise in female participation started late and increased rather strong over generations until the generation born in the 1950s (Euwals *et al.*, 2011). Most developed countries experienced a much earlier increase in female participation, while most of the less developed countries experienced none so far. In this study, the trend over successive generations of native women is used as a proxy for host-country culture. The empirical model corrects, first of all, for demographic and educational attainment differences between ethnic groups. Some of the explanatory factors are related to both culture and participation, for example the fertility rate. The study investigates whether there is an additional cultural effect on female participation resulting from beliefs and preferences. This is done by using home- and host-country participation as a proxy for culture.

On the basis of the Dutch Labour Force Survey 1996 – 2007, we provide evidence for the hypothesis that culture affects migrant female participation. First of all, differences in demographics and educational attainment between ethnic groups explain part of the differences in participation. Second, our study confirms the results of the epidemiological approach as home-country participation also explains part of the differences in participation.

This suggests that home-country culture influences the behaviour of migrant women. Third, the results indicate that host-country participation impacts the participation of migrant women. Hence, the local trend in culture seems to affect participation. The results suggest that home-country participation is at least as important as host-country participation.

The policy relevance of the study lies in the fact that financial independence of women is an important policy goal in many countries. Policy aims to increase employment among migrant women and with that their financial independence. An important side-effect of such policy is that a higher employment rate increases the fiscal sustainability of the welfare state. The sustainability of the welfare state is at stake in many countries due to the ageing of society.

The study contributes to the literature on the significance of culture for social and economic behaviour. The paper is related to the work of Antecol (2000), Fernandez and Fogli (2004) and Fernandez (2007a), as it explains the participation behaviour of migrants by means of their home-country culture. Antecol (2001) proxies the effect of culture with the gender gap in participation in the home country. Fernandez and Fogli (2004) show that home-country culture influences educational attainment and fertility and participation behaviour of migrant women. Culture therefore has a direct and an indirect effect on participation. The indirect effect results from determinants of participation, like fertility. Fernandez (2007) additionally provides evidence on attitudes in the home country and their impact on participation. Our study also uses information on host-country culture. By doing this, the study relates to the literature on the patterns of rising female participation. In this literature, the rise of labour force participation of women is explained from dynamic adjustments in the perception of culture (Fernandez *et al.*, 2004, Goldin, 2006, Fernandez, 2007b, Fogli and Veldkamp, 2008). The idea is that women learn about the impact of working mothers on children by observing other working mothers. Information on ways to combine raising children with work and the impact on the development of children is gradually dispersed.

The remainder of the paper is organised as follows: Section 2 describes the labour market position of migrant women in the Netherlands and the participation rates in the home and host countries. Section 3 and 4 discuss the data and estimation strategy. Section 5 presents the empirical results and Section 6 concludes.

2. Migrant women in the Netherlands

First and second generation migrant women make up a significant share of the Dutch female population. About 20% of working age women, age 15 to 64, consists of first and second

generation migrants. About 9% originates from western countries, while another 11% originates from non-western countries.³ The largest migrant groups are Germans, Indonesian, Turks, Surinamese, Moroccans, Antilleans, Belgians and Brits. This section discusses the female labour force participation of these eight largest groups both in their home country and in the Netherlands. First, the reasons for migration for each of these groups are discussed.

2.1 Migration to the Netherlands

The Dutch population includes a substantial number of immigrants from non-western countries for two reasons. The first reason is the decolonization of former colonies and the second is the former guest worker programmes. Decolonization of Indonesia, which took place directly after the Second World War, induced a large inflow of Indonesian migrants. At a later instance, post-colonial migration also came from Surinam and the Antilles. The inhabitants of these countries were allowed to move to the Netherlands from 1954 onwards as they became Dutch citizens. The inflow from Surinam peaked at the independence in 1975.

The inflow of Turkish and Moroccan migrants started in the 1960s with guest worker programmes. At that time the Dutch economy was booming. To fulfil the high demand for low-skilled labour workers from Mediterranean countries were allowed to enter. Turkish and Moroccan men formed a significant share of these guest workers. Although the migration was intended to be temporary many of the Turkish and Moroccan immigrants stayed. As the Netherlands implemented a liberal family unification policy, wives and children migrated as well to the Netherlands during the subsequent decades.

The population in the Netherlands includes many citizens of the surrounding countries Germany, Belgium and the UK because of the free movement of labour within the European Union. Furthermore, mixed marriages lead to migration to and from these countries.

It should be noted that the different migration reasons causes some ethnic groups to be a biased selection from their home country. Especially the post-colonial migration is likely to be based on the search for better education and employment opportunities. This contrast with the migration of Turkish and Moroccan females which is more based on family unification.

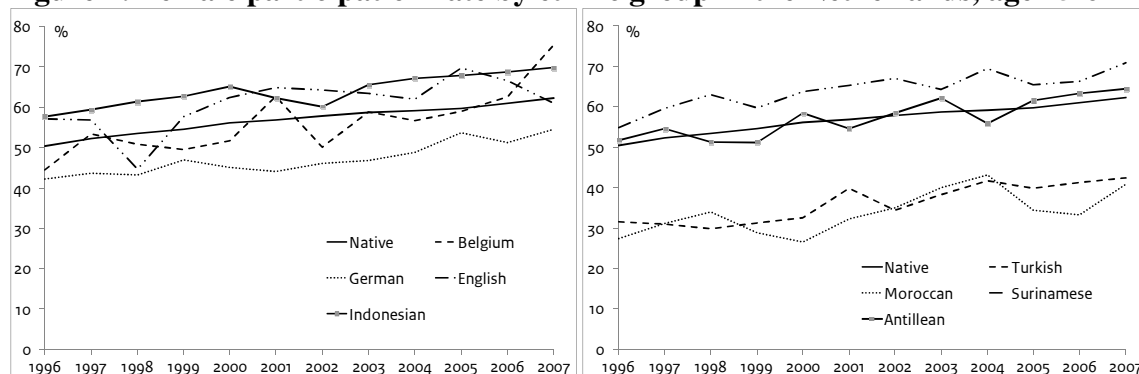
³ According to the Dutch official statistics, the western countries include countries in Europe (except Turkey), North America, Oceania, Japan and Indonesia. Indonesians are defined as western migrants since a substantial part of them has a Dutch background.

2.2 Participation in the host country

The participation rates of non-western women in the Netherlands vary. Surinamese women have a high participation rate and outperform native women (Figure 1). Antillean women have a participation rate similar to native women. Only Turkish and Moroccan women have a substantially lower participation rate. Participation rates of women from western countries also deviate from the rate of native women, but in general to a lesser extent.

The participation rates of all groups increase over time. The increase is substantial for native women, from 46% in 1996 to 57% in 2006. This increase is part of a substantial change in Dutch society, where female participation started to rise from a low rate of about 30% in the beginning of the 1970s. Euwals *et al.* (2011) show that the propensity to participate increased strongly over successive cohorts born from the 1930s to the 1950s, and remained stable for cohorts born after 1950. We exploit this exogenous variation to identify the impact of host-country participation on the migrant participation in the next sections.

Figure 1: Female participation rate by ethnic group in the Netherlands, age 15-64



Source: Dutch Labour Force Survey, Statistics Netherlands

2.3 Participation in the home country

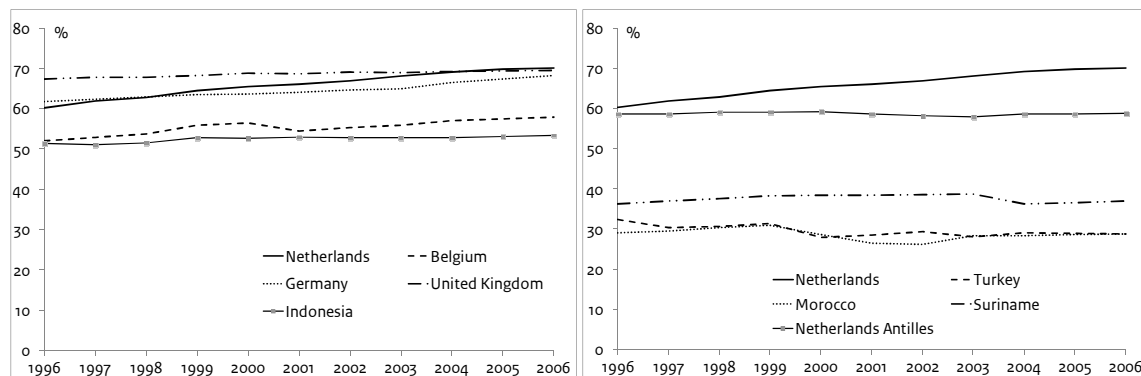
Female labour force participation is higher in the Netherlands than in the countries of origin, except for the United Kingdom (Figure 2). Female participation rates are generally low in non-western countries, with the Antilles as an exception. Participation may however be affected by macroeconomic circumstances. In particular in non-western countries the economic conditions may not be favourable. Antecol (2000) therefore considers the gender-gap in participation instead of the female participation rate, assuming that the economic conditions are gender neutral.

Figures 1 and 2 suggest a correlation between home- and host-country participation for the non-western countries. The ranking of the participation rates of non-western females

in the Netherlands is mirrored by the ranking of these rates in their home countries. The participation rates in Suriname and, to a lesser extent, Indonesia are exceptions however. This may be related to the motive to migrate. As discussed before, Surinamese and Indonesian women are more likely to migrate to gain better employment opportunities.

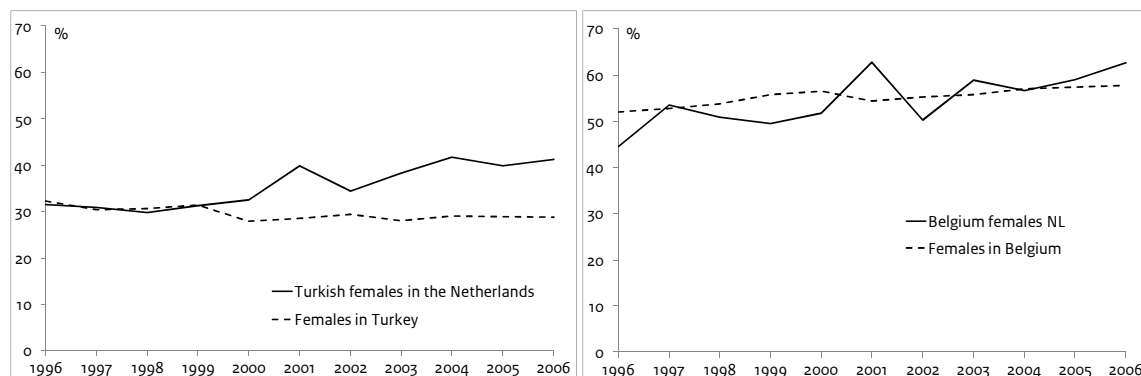
The participation rates in the non-western countries are stable over time. This suggests that although cultural background may play a role in migrant female participation, migrant women may follow a trend in native participation as well. The participation rates in the western countries show a slight increase. Figure 3 compares the participation trends for two countries. Turkish women participate on average similarly in Turkey and the Netherlands in 1996, but their participation in the Netherlands increases over time while participation in Turkey remains constant. The participation rates of Belgian women do not differ between Belgium and the Netherlands.

Figure 2: Female participation rate in country of origin, age 15-64



Source: World Bank

Figure 3: Female participation rate for home and host country, age 15-64



Source: Dutch Labour Force Survey, Statistics Netherlands and World Bank.

Table 1: Summary Statistics

	Native	Western immigrants	Moroccan & Turkish	Surinamese & Antillean
Years				
Age	43.7	44.9	37.0	40.8
Household type				
%				
Living alone	17.3	23.2	14.9	43.6
Living with partner	80.5	75.1	79.6	50.9
Living with parents	1.2	0.6	1.5	1.9
Other	0.6	0.5	2.3	2.3
Children				
One minor child	15.0	15.8	22.8	24.0
Two minor children	18.4	15.6	29.7	21.4
Three or more minor children	7.1	4.8	23.5	8.5
Age youngest child 0-3	13.8	11.9	31.2	16.4
Age youngest child 4-11	16.1	14.4	32.8	23.7
Age youngest child 12-17	10.7	10	12.2	13.7
Education level				
Primary	9.3	9.1	51.1	17.2
Lower secondary	26.5	23.1	20.7	24.1
Higher secondary	40.9	41	22.4	40.2
Tertiary	23.3	26.8	5.8	18.4
Migrant generation				
First generation		37.4	90.4	84.3
Second generation		62.6	9.6	15.7
Participation				
Total	59.4	59.6	33.8	66.7
First generation		55.6	30.8	65.0
Second generation		62.2	65.7	77.2
Number of observations	453,684	29,559	10,336	10,944

Weighted summary statistics, except the number of observations

Note: Natives are born in the Netherlands while also both parents are born in the Netherlands, migrants have a least one parent who is born outside the Netherlands. In this study, we include the eight major migrant groups in the Netherlands, whereby the western migrants include those from Germany, Belgium, Great Brittan and Indonesia. Indonesians are defined as western migrants since a substantial part of them has a Dutch background. We aggregate the migrants into three groups for convenience.

3. Data

The main data source of this study is the Dutch Labour Force Survey (DLFS) 1996 – 2007. Every year a one percent random sample is drawn from the population of Dutch inhabitants of 15 years and older. The survey exists of repeated cross-sections and contains detailed information on demographics and employment. It also contains information on migrant background from 1996 onwards. It does not contain information on migrant history and language ability. We select working age women, age 25 to 65, who are native or part of one of the eight largest ethnic groups.⁴ The selected sample contains about 570 thousand observations. The sample contains several thousands of observations for each ethnic group.

3.1 *Demographics and educational attainment*

The different ethnic groups show substantial differences in demographics and educational attainment (Table 1).⁵ The average age of native women in the sample is 43.7 years, whereby the average increases due to the ageing of society from 41.9 years in 1996 towards 45.3 in 2007. Non-western migrant women are younger on average, while western migrant women are older. Most women are married. Moroccan and Turkish have marriage rates that are similar to native women, whereby the fraction with and the number of children is much higher however. Surinamese and Antillean women have low marriage rates, but nevertheless the fraction with children is larger than for native women. Native and western migrant women on average have a high level of educational attainment, while in particular Moroccan and Turkish women are lowly educated in general. A large share of the non-western migrant women belongs to the first generation.

3.2 *Migrant participation*

The participation rates differ substantially between the ethnic groups. While Surinamese and Antillean women have a high participation rate, it is low for Moroccan and Turkish women. Second generation migrant women participate however more often on the labour market than the first generation. The difference between generations is especially large for Moroccan and Turkish women. The high participation rate of the second generation may be interpreted as evidence for cultural assimilation. The second generation is however also younger and better

⁴ The eight largest migrant groups provide more than sufficient observations for our analysis.

⁵ For convenience we distinguish four groups: (1) natives, (2) western-immigrant, including Germans, Belgians, Brits and Indonesians, (3) Moroccans and Turks and (4) Surinamese and Antilleans.

educated than the first generation, which may be part of the explanation of the higher participation rate. Section 5 disentangles the impact of demographics and educational attainment on participation.

3.3 *Native participation over successive birth cohorts*

The gradual but nevertheless strong increase in the fraction of women employed on the labour market affected the Dutch economy substantially during the last decades. The participation rate increases over age until about age 25 – 30, it is somewhat lower between 30 and 45 (the average child bearing years in the Netherlands) and starts to decrease from about age 45 onwards. The increase in the participation rate is the result of a strong increase of birth cohorts: at a given age the younger cohorts have a substantial higher participation rate. The increase over successive birth cohort is our proxy for the Dutch culture. The difference over birth cohorts remains after correction for observed characteristics such as demographics and educational attainment, see Subsection 5.3.

4. Empirical strategy

This section discusses the empirical strategy to disentangle the determinants of the participation for women from different ethnic groups within the Netherlands. The goal of the exercise is to identify the impact of home- and host-country participation. Three models are distinguished, each specifying the propensity to participate on the labour market.

The first model (Model I) is used to identify the differences in participation between ethnicities after correction for demographics and educational attainment:

$$p_{it} = \beta z_{it} + \gamma d_i + x_a(a_{it} | \theta_a) + x_c(c_i | \theta_c) + x_t(t | \theta_t) + \varepsilon_{it} \quad (1)$$

The endogenous variable p_{it} equals unity if woman i participates on the labour market on time t , and equals zero if she does not participate. The equation states that the propensity of woman i on time t to participate depends on a constant, a vector of control variables z_{it} which are potentially influenced by culture, a vector of dummy variables d_i representing ethnicity, and the exogenous variables age a_{it} , birth cohort c_i and year t . The corresponding transformation function of the exogenous variables is indicated by x . The vector $(\beta, \gamma, \theta_a, \theta_c, \theta_t)$ contains the corresponding parameters and ε_{it} represents the error term. We

specify the probability that a certain individual participates on the labour market by the use of a binary logit model, implying the assumption that ε_{it} follows a standard logistic distribution.

In the model, we emphasize the role of the cohort effect as the identification of the impact of host-country participation is based on the cohort effect of native women. A complication of the model is that not all parameters can be identified whenever the functions for age, period and cohort contain a linear term. The reason is that when both birth year and age of an individual are known, the current year is known as well. In other words, age, period, and cohort are linearly dependent. Several methods have been suggested to circumvent the problem. Some methods make a functional form assumption by putting a restriction on age, period, or cohort effect, for example by assuming that one effect does not contain a linear trend. To avoid arbitrary results the assumption should however be based on prior knowledge, for example from economic theory. In the current study, we assume the period effects to be determined only by the macroeconomic circumstances. Our hypothesis is that the probability of participation is low during a period of an economic downturn. As a measure for this we use the aggregate unemployment level by education group. The method is called the proxy variable approach; see Portait *et al.* (2002) and Kapteyn *et al.* (2005).

The next regression model (Model II) is designed to estimate the impact of home-country participation on the participation of migrant women. This is the so-called epidemiological approach (Fernandez, 2010), which is used by Antecol (2000), Fernandez and Fogli (2004) and Fernandez (2007a):

$$p_{it} = \beta z_{it} + \delta^{HC} r_{it}^{HC} + x_a(a_{it} | \theta_a) + x_c(c_i | \theta_c) + x_t(t | \theta_t) + \varepsilon_{it} \quad (2)$$

where the variable r_{it}^{HC} represents home-country participation for the country of origin of individual i in time t . The home-country participation rates replace the ethnic group dummies in Model I. To correct for the macro-economic situation, home-country participation is defined as the gender gap. This is measured by subtracting the females labour force participation rate from the males. Equation 4.2 measures the additional effect of home-country participation on participation in the host country, after correcting for demographic and education factors. Our main interest is the effect of the home-country participation gender gap r_{it}^{HC} .

The last model (Model III) is designed to estimate the impact of both the home- and the host-country participation. Home-country culture is likely to be transmitted by parents. As

Fernandez (2010) however claims, parents are not the only (nor necessarily even the most important) transmitters of culture; the relationship and institutions of the local environment also impacts individual behaviour. Several studies show that the local culture in female participation behaviour has changed rather fast (Fernandez *et al.*, 2004, Goldin, 2006, Fernandez, 2007b, Fogli and Veldkamp, 2008). Similar evidence for the Netherlands exists (Euwals *et. al*, 2011). Migrant women are expected to compare themselves with native women. So the following equation uses the local birth-cohort trend to identify the impact of host-country participation:

$$p_{it} = \beta z_{it} + \delta^{HC} r_{it}^{HC} + \delta^{GC} r_{it}^{GC} + x_a(a_{it} | \theta_a) + x_t(t | \theta_t) + \varepsilon_{it} \quad (3)$$

whereby $r_{it}^{GC} = g_c(c_i | \hat{\theta}_c^N)$ and $\hat{\theta}_c^N$ is a vector of parameters estimated from the sample of native women of the host-country (guest country). Hence, the cohort dummies for native women are used as a proxy for host-country culture and replace the birth-cohort dummies of migrant women in Model II. Equation 4.3 is used to test whether migrant women have a cohort effect that is similar to the cohort effect of native women.

5. The impact of home- and host-country participation

This section presents the empirical results of the models explaining the differences in participation rates between ethnic groups. The focus lies on the effect of the home- and host-country participation. First, the impact of variation in demographics and educational attainment is investigated.

5.1 Demographics and educational attainment

Do differences in demographics and educational attainment explain a large part of differences in participation rates between ethnic groups? Dummy variables for ethnic groups represent differences between groups. If the dummy variables are not significantly different, then the explanatory variables are able to explain the variation in participation among ethnic groups. The model is estimated in steps. The first step includes the ethnic dummy variables only; the second step additionally includes demographics and period information; the last step additionally includes educational attainment and other potentially endogenous variables.

Table 2: Participation, marginal effects (%) for native and migrant women

	D	D, X	D, X, Z
Native	Reference group		
Belgium	0.01 (0.08)	2.17*** (0.09)	0.62*** (0.10)
German	-9.06*** (0.05)	-1.33*** (0.05)	-2.89*** (0.05)
GB	4.00*** (0.10)	-1.97*** (0.12)	-4.83*** (0.12)
Indonesian	6.98*** (0.04)	5.35*** (0.04)	3.11*** (0.05)
Turkey	-24.21*** (0.05)	-27.85*** (0.06)	-19.25*** (0.07)
Moroccan	-27.66*** (0.05)	-32.70*** (0.06)	-23.06*** (0.08)
Surinamese	8.57*** (0.05)	7.02*** (0.06)	7.89*** (0.06)
Antillean	3.55*** (0.09)	-2.14*** (0.10)	0.35*** (0.10)
Position in the household			YES***
Children			YES***
Education			YES***
Age		YES***	YES***
Unemployment Year		YES***	YES***
Birth Cohort		YES***	YES***
Number of observations	504,523	504,523	504,523
Log likelihood	-32,252,903	-26,379,155	-24,698,569
Pseudo R2	0.0072	0.1880	0.2397

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level. The sample consists of native women and women from the eight largest migrant groups. The first model includes ethnic dummies (D) only; the second model adds exogenous variables (X); the third model adds potentially endogenous variables (Z).

The impact of the dummies for ethnicity changes when more explanatory variables are included, but even after correction the differences remain highly significant (Table 2). Except for Belgian and English women, the effect of ethnicity decreases. So the differences in participation are affected by demographics and educational attainment. The differences are however affected by more than demographics and educational attainment alone. A woman of Moroccan or Turkish origin has a significantly lower probability to participate than a native woman. The same holds for women with a German or English origin, though the difference is much smaller. A Moroccan or Turkish origin reduces the probability to participate with about 20%-points, while a German or English origin reduces the probability with 2 to 5%-points only. Interestingly, women of Surinamese or Indonesian origin have a larger probability to participate, this result holds for the uncorrected and the corrected difference. Selection probably plays a role, since many Surinamese women migrate to the Netherlands for better employment and education opportunities.

The marginal effects of the demographic and educational characteristics correspond to the effects found in earlier research (see Appendix A). Age, birth-cohort, and time period are highly significant. Furthermore, women with children are less likely to participate and women with a high level of educational attainment are more likely to participate. Note that wages are unobserved and the impact of education partly represents the wage effect.

5.2 *Home-country participation*

What is the effect of the participation in the country of origin? Growing up in a culture in which it is common for women to participate on the labour market positively affects the propensity of migrant women to participate. Section 2 showed a correlation between the participation rate of migrant women in the home- and the host-country. Model II contains the same explanatory variables as Model I, only the dummies for ethnic groups are replaced by a proxy-variable for the home-country culture. The proxy variable concerns home-country participation, namely the gender gap in the country of origin in the year of observation. The gender gap is calculated by subtracting the female from the male participation rate. By taking the gender gap we control for the macroeconomic situation of a country.

Table 3: Home- and host-country participation, marginal effects (%), migrant women

	Model II	Model III
Home-country participation	-0.31*** (0.00)	-0.31*** (0.00)
Host-country participation		0.88*** (0.01)
Position in the household	YES***	YES***
Children	YES***	YES***
Education	YES***	YES***
Age	YES***	YES***
Unemployment Year	YES***	YES***
Birth Cohort	YES	NO
Number of observations	50,971	50,971
Log likelihood	-3,319,236	-3,323,007
Pseudo R2	0.2151	0.2142

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5% or 1% level. The sample consists of the eight largest migrant groups. Models II and III are explained by equations (2) and (3).

The estimated coefficient on home-country participation is strongly significant and is, as expected, negative (Table 3).⁶ A high female participation rate in the home country leads to a small gender gap, and correlates with a high female participation rate in the host country. The size of this effect is non-negligible: 10%-points smaller gender gap in the country of origin leads to an increase of 3%-points in the probability to participate. The shift from a Moroccan origin (with a 54%-points gender gap) to a native origin (with 14%-points gender gap) increases the probability to participate with about 10%-point.

The home-country participation variable does not capture the complete differences in participation among the ethnic groups as the pseudo R² is lower than the one of Model I.

5.3 *Host-country participation*

Lastly, we test the impact of the local culture on the participation of migrant women. Native participation has changed considerably over successive generations in the Netherlands. In the

⁶ The marginal effects of the demographic and educational attainment variables do not change by introducing home-country participate, see Appendix B

empirical model we use the change over successive generations as a proxy for the local culture. To do this, we re-estimate the empirical model on a sample of exclusively native women (see Appendix C). We use the resulting marginal birth-cohort effects to generate a proxy for the change in native participation behaviour. Conditional on demographics and educational attainment, a native woman born in the period 1940 – 1944 has 33%-points lower probability to participate than a native woman born in the period 1960 – 1964. This marginal effect for the successive birth cohorts is used as the proxy for host-country participation for migrant women.

Model III includes both a proxy for home- and host-country participation (Table 3). Both proxies have a strongly significant effect on the probability to participate. The effect of the home-country gender gap is again non-negligible. The effect of the proxy for the local trend in participation is however larger. A 10%-point increase in host-country participation leads to a 9%-point increase in migrant participation. The substantial impact implies a cohort-effect among migrant women that is almost as large as for native women

5.4 Home- versus host-country participation

Migrant women are affected by both home- and host-country participation. To compare the importance of the factors we estimate the model several times: without any culture proxy (Model III-A), with a proxy for home-country culture (Model III-B), with a proxy for host-country culture (Model III-C) and with both proxies (Model III-D). Table 4 presents the results. To compare the models we present the pseudo R^2 . Including a culture proxy increases the explanatory power of the estimation. Host-country participation has more explanatory power than home-country participation; including both has the highest explanatory power. The results of Model III-B and III-C show the trend in host-country culture to explain a larger part of the variation in participation between ethnic groups.

5.5 Alternative specifications

Several alternative specifications are estimated to test the robustness of the results. First, the results are tested using different proxy variables for home- and host-culture (Table 5).

Model III-E replaces the initial proxy of home-country culture, the gender gap in participation, by the female labour force participation rate. The effect is positive and significant but slightly smaller than the effect of the gender gap. This indicates that the gender gap is a better measurement for the additional home-country culture than the female labour force participation rate.

Table 4: Home- versus host-country participation, marginal effects (%), migrant women

	Model III-A	Model III-B	Model III-C	Model III-D
Home-country participation		-0.36*** (0.00)		-0.31*** (0.00)
Host-country participation			0.99*** (0.01)	0.88*** (0.01)
Position in the household	YES***	YES***	YES***	YES***
Children	YES***	YES***	YES***	YES***
Education	YES***	YES***	YES***	YES***
Age	YES***	YES***	YES***	YES***
Unemployment	YES***	YES***	YES***	YES***
Birth Cohort	NO	NO	NO	NO
Number of observations	50,971	50,971	50,971	50,971
Log likelihood	-3,355,798	-3,338,418	-3,335,636	-3,323,007
Pseudo R2	0.2064	0.2105	0.2112	0.2142

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level. The sample consists of women from the eight largest migrant groups.

Model III-F replaces the initial proxy of the host-country culture, the birth-cohort effects of native women, by birth-cohort dummies. Hence, the Dutch birth-cohort effect is replaced by the migrant birth-cohort effect. The birth-cohorts dummies are highly significant and have a large impact on the propensity to participate. Figure 4 shows the size and pattern of the cohort dummies for native and migrant women to be similar. The impact of birth-cohorts is only slightly smaller for migrant women than for native women.

Table 6 presents the results for the two migrant generations separately. The effect of the home-country participation vanishes over generations, for the second generation migrants participation does not have a significantly negative impact. A low participation rate in the home country is not correlated with a low participation rate in the host-country. This result points at some kind of assimilation. The result is in line with US evidence (Antecol, 2000). The effect of the gender gap is positive for the second generation; an odd result for which we have no reasonable explanation. As expected, the impact of the host-country participation rate is larger for the second generation than for the first generation.

Table 5: Alternative specifications, marginal effects (%), migrant women

	Model III-E	Model III-F
Home-country participation	-0.14*** (0.00)	-0.20*** (0.00)
Host-country participation	1.10*** (0.01)	
Position in the household	YES***	YES***
Children	YES***	YES***
Education	YES***	YES***
Age	YES***	YES***
Unemployment	YES***	YES***
Birth Cohort	NO	YES***
Number of observations	50,971	50,971
Log likelihood	-24,787,530	-24,769,836
Pseudo R2	0.2370	0.2375

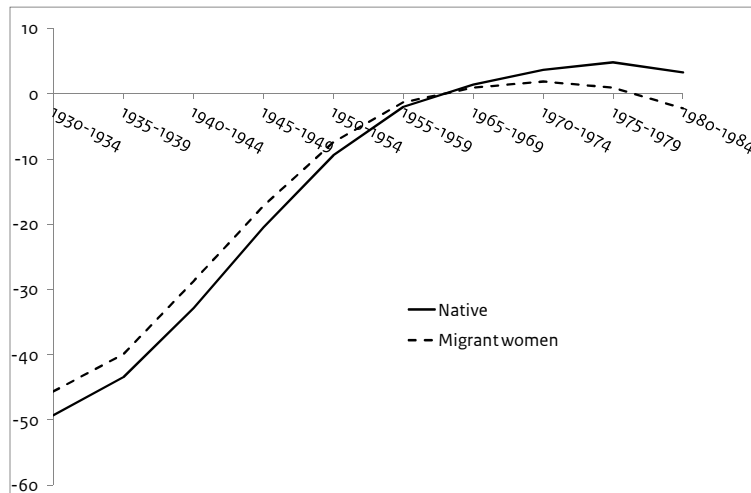
The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% level. The sample consists of the eight largest migrant groups. Model III-E uses the female participation rate, instead of the gender gap, as a proxy for home-country culture. Model III-F includes birth-cohort dummies instead of the proxy.

Table 6: Alternative specifications, marginal effects (%), migrant women by generation

	Model III - First generation	Model III - Second generation
Home-country participation	-0.43*** (0.00)	0.12*** (0.00)
Host-country participation	0.74*** (0.01)	1.07*** (0.01)
Position in the household	YES***	YES***
Children	YES***	YES***
Education	YES***	YES***
Age	YES***	YES***
Unemployment	YES***	YES***
Birth Cohort	NO	NO
Number of observations	29,626	21,206
Log likelihood	-2,083,804	-1,210,700
Pseudo R2	0.1963	0.2378

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level. The sample consists of women from the eight largest migrant groups. First generation migrant women are born outside the host-country, while second generation migrants are born in the host-country.

Figure 4: Birth cohort effect of native and migrant women, marginal effects (%)



6. Conclusions

The culture of the country of origin affects the participation behaviour of migrant women. In this study, we replicate the epidemiological approach (Fernandez, 2010). We explain migrant female participation from home-country culture, which is mostly measured by home-country participation. As culture is transmitted by more than parents, migrant women may also be influenced by trends in the local culture. This study extends the literature by additionally including a measure for the host-country culture. The difference in levels and speed of adjustment between countries provides identification of the effect of native participation on migrant participation. In our country of interest, the Netherlands, the rise in female participation started late and increased rather strong over generations until the generation born in the 1950s. This unique participation trend over successive generations of native women is used as a proxy for host-country culture.

The empirical evidence is based on the eight largest ethnic groups in the Netherlands using data from the Dutch Labour Force Survey 1996–2007. The empirical model corrects for demographics and education attainment. These factors might be affected by culture. The study tests whether there is an additional impact of culture on migrant participation, using home- and host-country participation as proxies for culture. The results show, first of all, that differences in demographics and educational attainment indeed explain part of the differences in participation. Second, home-country participation affects participation of migrant women in the Netherlands. This finding confirms the results of the epidemiological approach. Third, we provide evidence that the participation of migrants is affected by local culture as well. Our results suggest that the effect of home-country participation is at least as important as that of

host-country participation. Several robustness checks confirm the robustness of the results. First generation migrants are found to be more affected by the home-country culture than the second generation. This suggests cultural assimilation.

In many countries, policy aims at increasing the employment rate of migrant women. Our study suggests that besides demographics, educational attainment and culture in the country of origin, also culture in the host-country matters for participation. Of course culture is a phenomenon that is hard to measure. For this reason the size of the impact should be interpreted with care. Measurement problem may however lead to an underestimation of the importance of culture (Fernandez, 2010). So our results clearly indicate that both home- and host-country culture matter. Moreover, our results also suggest that culture is not a static characteristic of a particular generation of migrant women. Participation behaviour of migrant women moves together with changes in participation behaviour of native women

The evidence of the study is based on one measure for home-country culture for one particular culture. Considering the policy relevance of this study, extensions of this study are preferable. First, the number of host and home countries could be extended. The trend in female participation varies between countries and this would provide a stronger identification of the impact of both home- and host-country culture. Furthermore more measures for home-country culture may be considered, and in particular surveys on beliefs and attitudes may provide useful information.

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Appendix A: Marginal effects (%), native and migrant women

Model I	
D, X, Z	
Ethnicity	YES***
Living alone	Reference group
	5.89***
Living with partner	(0.07)
	0.38***
Living with parents	(0.10)
	2.92***
Other household type	(0.11)
	-9.31***
Two minor children	(0.03)
	-21.11***
Three or more minor children	(0.04)
	-34.46***
Age youngest child 0-3	(0.07)
	-27.15***
Age youngest child 4-11	(0.08)
	-17.27***
Age youngest child 12-17	(0.08)
	-6.07***
Only mature children	(0.03)
Primary education	Reference group
	19.31***
Lower secondary	(0.06)
	37.34***
Higher secondary	(0.05)
	42.32***
Tertiary	(0.05)
Number of observations	504,523
Log likelihood	-24,698,569
Pseudo R2	0.2397

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level.

Appendix B: Marginal effects (%), home- and host-country participation, migrant women

	Model II	Model III
Home-country participation	-0.31*** (0.00)	-0.31*** (0.00)
Host-country participation		0.88*** (0.01)
Living alone		
Living with partner	5.23*** (0.14)	5.39*** (0.14)
Living with parents	5.65*** (0.26)	5.55*** (0.26)
Other household type	-3.85*** (0.24)	-4.16*** (0.24)
Two minor children	-8.56*** (0.08)	-8.56*** (0.08)
Three or more minor children	-17.98*** (0.09)	-17.96*** (0.09)
Age youngest child 0-3	-31.22*** (0.17)	-29.27*** (0.17)
Age youngest child 4-11	-22.22*** (0.19)	-19.99*** (0.18)
Age youngest child 12-17	-13.64*** (0.19)	-11.26*** (0.19)
Only mature children	-3.66*** (0.10)	-3.73*** (0.10)
Primary education		
Lower secondary	21.14*** (0.15)	21.34*** (0.15)
Higher secondary	38.30*** (0.15)	38.57*** (0.15)
Tertiary	45.12*** (0.12)	45.17*** (0.12)
Number of observations	50,971	50,971
Log likelihood	-3,319,236	-3,323,007
Pseudo R2	0.2151	0.2142

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level.

APPENDIX C: Marginal effects (%), birth-cohort dummies, native women

Model I- Native Women	
Birth cohort	
Cohort 1930-1934	-49,35*** (0.12)
Cohort 1935-1939	-43,44*** (0.07)
Cohort 1940-1944	-32,85*** (0.07)
Cohort 1945-1949	-20,46*** (0.06)
Cohort 1950-1954	-9,46*** (0.06)
Cohort 1955-1959	-2,03*** (0.04)
Cohort 1960-1964	Reference group
Cohort 1965-1969	1,37*** (0.04)
Cohort 1970-1974	3,66*** (0.06)
Cohort 1975-1979	4,78*** (0.08)
Cohort 1980-1984	3,31*** (0.14)
Position in household	YES ***
Children	YES ***
Education	YES ***
Age	
Period	
Number of observations	453,684
Log likelihood	-21,408,631
Pseudo R2	0.2420

The dependent variable is a dummy variable indicating whether a woman participates on the labour market or not. Parameter values indicated with *, ** or *** are significant at the 10%, 5%, or 1% significance level.