FAMILY TYPES AND LABOUR SUPPLY OF NATIVE AND MIGRANT WOMEN IN SWITZERLAND: HUMAN CAPITAL AND HOUSEHOLD

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Among OECD countries Switzerland has one of the highest participation rates of its female population, but at the same time, one of the smallest full-time employment rates. The traditional male breadwinner model in Switzerland, with the joint taxation system for spouses and the poorly developed family policies, disincentives women to participate in the labour market or to extend the number of working hours. The aim of this paper is to assess the extent to which women's decision upon their level of participation in the labour market differs across origins in different family situations. As one of the primary effects of children on women's labor supply in Switzerland is through the number of hours worked, we are interested in differences between natives and migrant women in either to leave employment or to modify the amount of time devoted to paid work. Using pooled annual data from the Swiss Labor Force Survey for the period 2010-2013, we perform a double-hurdle model to decompose the effect of the socioeconomic determinants on (1) participation and (2) working hours. We expect these two outcomes to be distinguished processes and the impact of covariates on these respective outcomes to vary by origin.

In order to account for the more polarized pattern of migrant female population in terms of skills and occupations compared to the Swiss-born female population, and differences regarding household economic constraints, this analysis focuses particularly on the relative influence of women’s educational attainment and partner’s profile (educational level and earnings), upon the decision to “totally or partially leave the paid job”. Results reveal a slight gap in employment behaviour among childless groups of native and immigrant women. Having young children widen for the two outcomes of interest: while Swiss-born women tend to work part-time (effect on the amount decision), the foreign-born population choose rather to work full-time or to withdrawal from the labour market (effect on the participation decision). Moreover, the partner's profile is proven to be more influent in the participation decision for immigrant women, whereas effect on the amount of hours worked is found for native women.

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1. Introduction

In many European countries, foreign-born workers are essential for the economy, the labour market, and for the sustainability of the pensions systems. The shortfall in the working age population is central to many national debates regarding the recruitment and integration of immigrants (Del Boca 2009). This is particularly true for Switzerland who attracts an impressive number of migrants, in special highly qualified foreign workers, to counteract the national shortage of skilled workers (Département fédéral de l’économie, 2011). Accordingly to the Swiss Labour Force Survey (SLFS thereafter), more than a quarter (29.9%) of the Swiss workforce in 2013 consisted of foreign workers. However, on February 2014, Swiss citizens voted "against large-scale immigration" which aims to reintroduce annual quota for EU and EFTA nationals. Consequently, in the upcoming years, employers may face restrictions to recruit new workers outside the country. Nevertheless, despite an economic demand for foreign workers on the one hand and politic claims for restrictions on immigration on the other hand, a large part of the female resident-population remains on the margin of the labour market. According to the Swiss Labour Force Survey (2013) more than half of the working female-population in the country works part-time, compared to one man out of seven.

In spite of the fact that in Switzerland, legislative and educational progress has been made for gender equality, attitudes toward employment remain highly gendered (Bütler, 2011). Switzerland evolved from the pure male breadwinner model, to a ‘one-and-a-half-earner’ model that restructures women’s time while leaving men’s untouched (Steffen, 2007). The joint taxation system for spouses (Schwarz, 2012) and the scarce and highly expensive external childcare encourages mothers either to withdraw from employment or to work short part-time (Buchmann, Kriesi, Pfeifer and Sacchi, 2002). For immigrant mothers, Banfi, Farsi and Filippini (2009) concluded that participation may be specially determined by the family policies on the country, as immigrant families are more likely to benefit from external child care due to the absence of a family network.

Furthermore, although a large share of the Swiss female labour force is foreign-born (29.5% according to the Swiss Labour Force Survey 2013), quantitative analysis on differences in participation patterns and of time devoted to paid work between Swiss and foreign-born women is still poorly developed, with few exceptions as Wanner, Pecoraro and Fibbi (2005) or Liebig, Kohls and Krause (2012). However, to the best of
the authors’ knowledge, no study has looked at the specific role of educational level on the amount of working hours of women of diverse origins, neither the effect of partner’s employment and earnings has been examined. In order to overcome these limitations, the aim of this paper is to assess the extent to which women’s level of participation in the labour market differs across national origins in different family situations. Furthermore, we aim at analysing some of the main determinants of the employment behaviour of native and immigrant women, in particular the woman’s educational level and their partner’s income. Using pooled annual data from the Swiss Labour Force Survey for the period 2010-2014, we perform a double-hurdle model to decompose the effect of the socioeconomic determinants on (1) participation and (2) working hours. We expect these two outcomes to be two distinguished stages of the employment pattern, assuming that our covariates may impact differently the two stages. Concretely, we aim to answer the following research questions:

- To what extent there are differences in labour market participation and hours in paid employment between native and immigrant women in Switzerland in different family situations?

- To what extent the influence of women’s opportunity cost, measured through educational level, on women’s labour supply differs accordingly to national origin?

- To what extent the influence of partner’s profile (educational level and earnings) on women’s employment behaviour differs accordingly to national origin?

If the foreign-born women are positively or negatively selected in terms of human capital, or their returns to educational attainment are lower as a consequence of their migrant status, we should expect their labour supply to diverge of that of Swiss-born women. In this sense, analysis tests the effect of the human capital of native and immigrant women in their labour supply behaviour through different stages of the life course. Moreover, for women in partnership, our objective is also to find out differences between natives and immigrant women in their labour force participation as depending on their partners’ earnings capacity. This is to discriminate between women who would have the choice to modify their volume of working-time over their life course from
those constrained to maintain high level of participation because of household budgetary requirements, despite their preferences on living arrangement.

2. Literature review and research hypothesis

While they remain childless, young women today are on an almost equal plane with men in relation to education and employment (McDonald, 2013). However, following childbirth many families adopt gendered strategies to conciliate between the family and work (OECD 2011). Men typically increase the time they devote to paid work, while women decrease their paid working time or even exit the labour market (Blossfeld and Drobnic, 2001; Anxo et al., 2011). Highly educated women are more likely to remain in employment and work more hours when they become mothers than their equivalents with lower labour market oriented skills (Mincer, 1974; Becker, 1991; Blau and Kahn, 2007). Becker (1991) and Mincer and Polachek (1974) introduced the concept of the family as an economic decision-making unit, aiming to maximize household utility. Marriage provides individuals with greater flexibility for job changes because they can trust their spouse’s earnings potential regardless of her/him being in the labour market (Blau et al., 2002). Due to the existing gender wage gap, and traditional gender roles, the effect of husbands' wage rates on wives' labour supply should be negative, (Stier and Tienda, 1992). On the contrary, household budgetary constraints also act on women’s decisions to stay in the paid work force (Mincer and Polachek, 1974). Evertsson et al. (2009), argued that given marital homogamy, opportunity cost and the income effect could be two competing processes in predicting women's labour force participation. Empirical research aimed to demonstrate which effect predominates concludes, in general, a larger positive effect of women’s own education than of husbands’ income on women’s employment decisions (Cohen and Bianchi, 1999; Henz and Sundström, 2001).

However, also the institutional contexts shape women’s time allocation to employment. It has been broadly recognized the mediating effect on facilitating the mothers’ labour supply, and on lowering the dependence on partner’s income, of the availability of public or subsidized childcare facilities, certain parental leave arrangements, working-time regulations and the adaptation of school time schedules (Esping-Andersen, 1999; Gornick and Meyer, 2003; Van der Lippe, 2011), especially among women at the bottom of the socioeconomic hierarchy (Evertsson et al., 2009).
Systems of married couples’ joint taxation or household-based (like the German or Swiss one) could disincentive women’s to join the labour force (Schwarz, 2012).

The labour behaviour of immigrant mothers may differ from that of native women, due to intervening effects on the migration experience, group-specific transferability of their skills and gender ideologies, immigration policies, or selectivity associated with endogenous migration decisions among others (Borjas, 1987). The immigrant labour-market assimilation hypothesis predicts unfavourable labour-market integration in the early years in the host country due lack of local language skills and difficulties in the transferability of education and work experience. These barriers are expected to diminish with time spent in the country (Chiswick, 1978; Schoeni, 1998; Adsera and Chiswick, 2007). Other studies put the accent on family circumstances although their conclusions are not straightforward. The development of the ‘family migration decisions model’ (Mincer, 1978), ‘family investment model’ (Long, 1980; Baker and Benjamin, 1997) are some examples. The first hypothesizes that female tied family movers have poorer labour opportunities, lower earnings potential and lower labour supply than primary movers. On the contrary, the second postulates that wives will work more in the early years in the destination, mostly accepting lower prestigious and bad paid jobs, to finance their husband’s human capital investment. Thus, they progressively reduce their market participation as their husbands get better paid jobs. The ‘cultural approach’ (Reimers, 1985; Antecol, 2000; Blau et al., 2011) highlights the existing cultural differences in gender roles, which are not captured by observed human capital measures but by the existing gender employment gap in their country of origin. Other authors stressed segmentation and discrimination processes, especially towards women from immigrant countries with less perceived cultural proximity to destination, which favoured natives in obtaining employment and causes lower labour and economic returns to human capital for immigrants (e.g. Constant, 1999 and Constant and Massey, 2005 for Germany, Cobb-Clark and Connelly (2001) for Australia; Boyd, 2003 for Canada; Bevelander, 2005 for Sweden). Finally other migration-related variables also influencing the labour behaviour of immigrant women are the expected duration of migration (Dustmann and Schmidt, 2000), the reason for migration, the type of resident permit (labour or family based, refugees), or the fact of being in a mixed-married with a native-born men instead than of being with a foreign-born husband (Baker and Benjamin, 1997; Blau et al, 2011). González-Ferrer, A. (2011), showed that temporal sequence of migration and key family life-cycle events, as age of arrival or being
married prior or after to migration, may help us in explaining the post-migration employment patterns of migrants, especially that of females.

Several works have explored the differences in employment patterns between native and immigrant women. Stier and Tienda (1992), for the U.S confirmed that the labour force behaviour of Hispanic immigrant wives is highly responsive to their earning potential and, unlike that of U.S.-born white wives, is less constrained by their role as mothers (due to the higher incidence among immigrants of extended households, with non-working adults member helping women in childcare activities) and less responsive to husbands’ wages. Shoeni (1998) stress disparities in completed years of education to explain different labour market outcomes among groups in the US. Blau et al. (2011) found that the number of hours that married immigrant women work assimilate over time relative to US natives. Dustmann and Schmidt (2000) for Germany concluded that: “…migrants’ participation behaviour reacts less elastically to the number of children; however, it is similarly elastic to other household income for part-time jobs, and even more elastic for full-time jobs. Education increases participation probabilities of native more than those of migrant in both segments, which is compatible with the view that migrant’s educational achievements are only partly transferable to the host country,…” (Dustmann and Schmidt, 2000: 27). Constant and Massey (2005), confirmed also for Germany a high degree of occupational segmentation and the existence of disadvantaged conditions for female migrants. However, these authors confirmed that the higher number of hours worked for immigrant women compared to natives, compensated their disadvantaged occupational condition, shortening earnings differentials between native and immigrants. Bevelander and Groeneveld (2007) showed for the Netherlands a common effect of educational level on increasing working time for both populations. Moreover, they found that presence of children affect more the participation and working time of the native mothers, who work comparatively less often in full-time jobs, than ethnic minority women. Their interpretation is that the higher returns to education for native women could explain the higher share of part time work compared to ethnic minority women. Finally, they explain that immigrant women have to increase the amount of working hours to increase the household income, in order to compensate the relative income of their partners.

Switzerland is an interesting case with regard to native and immigrant female labour market participation. At first sight, the high proportion of women in paid work
seems indicate that Swiss women are highly integrated in the labour market. However, the most prevalent model in Switzerland is that the ‘one-and-a-half-earner’, where women are firstly caregivers and only secondary earners, mainly in part-time time, while leaving men’s working time untouched (Levy and Widmer, 2013). Studies for Switzerland highlight the negative impact of poorly developed institutional conciliatory policies, in particular the shortage and expensive childcare services on the labour supply of some sectors of the female population (Thoenen, 2010; Osterwald et al. 2005). Overall, the analysis identifies the importance of the availability of childcare services as a way to compensate women’s dependence on their partner’s salaries. Moreover, the statistical report of the situation of Swiss families (BFS, 2008) shows that mostly (51 percent) of childcare is done by relative, mainly by grandmothers. Banfi, Farsi and Filippini (2009), suggested that immigrant families are more likely to benefit from external child care services. Other research empathizes that residential location makes a significant difference for women’s labour supply, as more than one gender culture exists in Switzerland. Steffen (2007) point to the lower actual and potential demand for public facilities in German-speaking regions, whereas French and Italian-speaking parts of Switzerland offer better access to day care and amenable school schedules. Finally, Riaño et al. (2013), point to the greater facility coverage in urban than in rural areas. And last but not least, the case of Switzerland is interesting for its long history as immigrant receiving country (Piguet, 2004). According to the Swiss Federal Statistical Office, in 2014 29% of the resident population in the country was foreign-born, and women accounted for the 50,6% of immigrant population. The heterogeneity of this population is explained for the evolution of the migratory inflows in terms of national origin, purpose and skill composition (Wanner and Fibbi, 2002; Mahnig, 2005).

Research on the labour market characteristics of immigrant women in Switzerland are focused in their attainment in terms of occupational category and economic sector (Merz-Krobana, 1993), their higher risk of unemployment (Golder, 1999), or their disadvantaged position in terms of being overqualified for their jobs (Pecoraro, 2011). Fewer researches focus on differences between native and immigrant women regarding labour market participation and patterns of full-time or part-time work. Using the 2000 Swiss Census data, Wanner, Pecoraro and Fibbi (2005), found high heterogeneity in terms of female labour supply across national groups and revealed that Swiss women participate more frequently in the labour market only in the absence of children. Their results show that nationals from Southern Europe and from the former
Yugoslavia presented higher employment rates than Swiss women. Employment rates close to Swiss women were found among nationals from the neighbouring countries and most other member states of the EU as well as among women from Canada. On the contrary, lower rates were found among women from other non-European countries. However, they revealed that Swiss women participate more frequently in the labour market only in the absence of children. Even the relevance of these findings, the analysis focuses only on participation, neglecting the diverse patterns of labour market working time. Liebig, Kohls and Krause (2012) found that having children is associated with a much stronger decline in the probability to be in full-time employment for native-born women than for immigrant women. Their focus is on the interaction between origin and having children, controlling by educational level. Nevertheless, the household dimension was neglected in not including partner’s characteristics.

**Research hypotheses**

The aim of this paper is to assess the extent to which women’s level of participation in the labour market differs across national origins in different family situations. We are interested in differences between natives and migrant women in different family circumstances in whether to participate in the labour market and, for those who decide to participate, in the amount of time devoted to paid work. Overall, our premise is that the prevailing *one and a half earner* model in Switzerland is more rolled by native than for immigrant families. We also are interested in analysing to what extent the employment behaviour of native and diverse groups of immigrant women is more explained by the opportunity cost (educational level) or the income effect (measured by partner’s educational level, and earnings). Our analytical hypotheses are the following:

1. Whereas differences by origin are not significant when we consider childless women, distinct patterns of labour supply by origin are observed among women with children.
2. For women with children, while being Swiss-born is expected to have a positive effect on participation, it is presumed to have a negative effect on the number of hours given participation, compared to foreign-born groups.

3. We expect a strong positive relationship between women’s education and both, labour participation and the amount of hours worked. However, due to lower returns to human capital for immigrant women, we expect a small effect of educational level for foreign-born women compared to Swiss-born women.

4. We predict a general negative relationship between household income and women labour market involvement. More concretely, we expect labour supply of native women to be less conditioned on their partner’s characteristics (educational level and earnings) than that of immigrant women. On the one hand, natives receive greater returns to education. On the other hand, the Swiss-born women rely on the help of family network for childcare, which is not available for immigrant women with their families living abroad.

This analysis aims to account for the more polarized pattern of migrant female population in terms of skills and opportunity cost compared to the Swiss-born female population, as a determinant of labour force supply. Whereas Swiss-born women are more widespread through all educational levels, the human capital of the foreign-born female population is more polarised. This polarization is due to the heterogeneity of the national origin, and of the purpose of migration of foreign-born women in Switzerland. Therefore, women’s highest education achieved is a proxy of women’s opportunity cost/potential earnings, which may explain part of the observed differences among national groups in participation and working hours. However, returns to education are usually larger for native-born than for immigrant women, softening the influence of qualification in the employment behaviour of the latter group.

Moreover, female’s labour market participation is the result of a joint decision of a couple in order to achieve the optimal assignment to tasks and money among family members. Therefore, we adopt a household perspective and include in the analysis the partner’s profile (educational level and earnings) as a determinant of woman’s labour supply. This is to account for differences among women of diverse origins regarding financial constraints within households.
3. Data and Methods

The data used in this investigation is from the Swiss Labour Force Survey (SLFS) which is a representative household survey conducted every year by the Swiss Federal Statistical Office. It aims to provide detailed information on the behaviours of the permanent resident population aged 15 and more in the labour market. We pooled five years (2010 to 2014) of cross-sectional information allowing for the analysis of distinct patterns of employment by country of birth. With a design that oversampled the foreign-born population we obtain an overall dataset composed of 21,962 Swiss-born and 17,907 foreign-born women.

As detailed in previous section, contrary to men, women's patterns of employment are strongly sensitive to family circumstances, especially in countries with poor family supply. Graph 1 shows the employment rates and number of hours of men and women in different family types of (1) singles without children (2) couples without children, (3) couples with the youngest child under 6 years old, and (4) couples with the youngest child aged from 6 to 15 years old. Whereas employment rates and number of working hours of men are almost identical across family types, they are important variations among women. Swiss-born and foreign-born women living with a partner without children already show signs of differences with their male counterparts. But these employment patterns are even more distinct from men when they have young children. First, the participation rates of women with children under 6 years old are respectively of 68% and 57% for Swiss-born and foreign-born women. This level is below the 89% level of single women. Second, the number of hours which is also stable for men, drops from 38 for single women to 19 and 27 respectively for Swiss-born and foreign-born women with children under 6 years old. Therefore, in our empirical analysis, we distinguish between these four household stages that we believe are associated to different challenges that women face to conciliate work and family life.
Graph 1. Employment rate and number of hours in different family types, for the foreign-born and Swiss-born population

Source: SFLS2010-2014

We restrict our sample to women aged 20 to 50 years old. The lower age limit is chosen to consider the transition from exiting school to entry into parenthood where the working force is expected to be at its maximum. Individual who are currently at school are excluded from the sample. The upper limit aims to exclude those reducing their number of hour because of a progressive retirement and because it is unlikely for them to have young resident children. Additionally, we exclude from the sample an important and growing part of the population reflecting the diversity of family types (same-sex couples, single parents). This is motivated by the choice to focus our attention on the heterogeneity among origin groups rather that differences between diverse forms of family. Overall, our family typology include X% of women aged between 20 to 50 years old.

The dependent variables are whether women are observed in the labour force, and if they are, how many hours their work each week. Given this methodological design we identify employment patterns across origin, in different family types. Our results should be interpreted as the actual attitudes towards employment of sub-groups of singles, childless women and mothers, given their latent characteristics associated to fertility. Attention is given to the potential interaction effect of origin and women's own educational level, but also her partner's level of education and household income. Besides these key determinants, other control variables that pertain to women’ specific characteristics and household are included in the models specification. First, age is devised in six quinquennial groups in order to consider the age-profile difference within
different family types. Second, the marital status corresponds to whether the person is married or lives in a common law partnership. Third, we specify the number of additional resident children under 15 years old. Fourth, important predictor of employment participation for migrant is the length of stay in the country. We distinguish between those arrived within the last three years, from those who spend three to eight years in the country, and those who lived for more than eight years in Switzerland. Fifth, the citizenship variable specifies whether the person holds or not the Swiss nationality\(^1\).

As a decentralized federal state, Switzerland has many regional specificities in terms of family policies. Also, migrants are not homogenously distributed across regions. These specific environment characteristics are taken into account by distinguish individual living in rural or urban areas, but also those living in German, French and Italian speaking regions. However, information on language proficiency and on the ‘primary’ or ‘tied’ family migration status are not available in these dataset. These limitations should be kept in mind while interpreting the results, as they were shown to be important determinant of the economic integration process.

**Methodology**

The Tobit model is commonly used to deal with dependent variable that takes on many zeros - also referred to as a corner solution. However, it has been proven inadequate to capture the two processes that lead to participation in the labour market on the one hand and on the volume of working hours on the other hand (Zhang 2008). This model assumes that a single mechanism drives the participation and the amount decisions. Regarding our previous hypothesis, some covariates are expected to impact differently (in terms of magnitude or direction) the two stages of the decision. For example, while being Swiss-born is expected to have a positive effect on participation, it is presume to have a negative effect on the number of hours given participation, compared to foreign-born groups. This model is not suited to capture this dynamic.

Less restrictive generalizations of this model were proposed to overcome this limitation. Under the taxonomy of Jones (2000) these models can be regrouped as

\(^1\) Switzerland grants citizenship on a jus sanguinis basis, meaning that second or third generation immigrants do not automatically hold a Swiss-passport. Nowadays, X% of the Swiss-born population is not Swiss-citizen.
selectivity, two-part, and hurdle models. Contrary to Tobit, they include a two stages procedure with the possibility to include different covariates in the participation and the amount equations. The first stage (often called the selection equation) is common to these different propositions. It estimates the probability of reporting a positive outcome using a Probit model. The second stage models the amount decision conditional on participation. Different assumptions underlay the parametrization of this second process. Main differences concern their respective hypothesis on the correlation of the error terms in the two equations, but also on the sources of the zeros which determined whether one decision dominates the other (Madden 2008).

The double hurdle model proposed by Cragg was preferred to other models for theoretical, practical and statistical reasons (see Dow and Norton (2003) and Madden (2008) on this topic). Hurdle model is a generic term to deal with genuine zeros where choices are made by individual over certain constrains (Humphrey 2013). Modeling actual or potential values is a key difference between the hurdle and selectivity model. Potential realizations arise when we do not observe the outcome of a fraction of the population; all individual have a potential wage which is unknown unless the person is currently working. In our case we argue that zero number of hours is a decision corresponding to an optimal choice where zero is consider the best option for an individual or household. Hence, their number of hours, which are fully observed, are classified as actual values. Moreover, on its comprehensive econometric book Wooldridge (2010) also conclude that for the number of hours worked double hurdle model fit the data best.

Cragg (1971) suggested that two independent hurdles must be passed to observe a positive value: individuals choose whether to participate in the labor market and they also make a decision upon their preference on how much to work. This model imposed no constraint of dominance between the two equations neither on the correlation of the residuals. Likewise, identification in the double hurdle model is more straightforward as it allows - but do not restrict- to include different variables in the two equations. The first part is modeled using a probit equation, whereas the second part is estimated using a truncated equation. Marginal effects are reported for interpretation convenience. These effects are evaluated at the sample mean, with the exception of the length of stay in

\footnote{When analyzing actual values, Dow and Norton (2003) noticed that the Heckman procedure that was design to correct for selection bias often underperforms other two stages models.}
Switzerland, which is fixed to more than eight years\(^3\). One should interpret the results as the effect of one attribute, given that other independent variables take their mean value. As Burke (2009) pointed out, independence in estimation does not mean independence in interpretation. Following McDonald and Moffitt's (1980) decomposition procedure, the total marginal effect (or unconditional effect) is disaggregated into two parts: a partial effect for the participation decision, which is weighted by the expected value of market work, and a partial effect for the number of hours decision given participation, also weighted by the probability of being observed in the labor market (Robles 2012).

4. Descriptive findings

Table I presents the socio-demographic and family characteristics of the subsample of Swiss-born and foreign-born included in our analysis. Few differences are observed regarding the median age. Swiss-born women are among the youngest, whereas women from Italy, Spain and the EFTA, North-America and Oceania, are having older median ages. With respect to the household structure, Swiss-born is the group with the highest percentage of singles and childless, together with women from the neighbour countries and Spain. On the contrary, those collectives with larger percentage of children aged 0-14 are those from Portugal, Ex-Yugoslavia, Turkey, and Asia. However, not significant differences on the number of children are found across groups, if we consider only those women having children. Nevertheless, diverse patterns of external childcare have been found among them. Turkish (82.1%), Ex-Yugoslavian (76.1%), women from EFTA, North America and Oceania (73.7%), Other European (71.2%) and African (71%) are the collectives less relying on any kind of childcare external to the household members, compared with the large use of these resources by Swiss-born women or, in special, by women from the neighbour countries. It is relevant to highlight the amount of care dispersed by extended family members in the case of the Swiss-born. This resource is scarce for immigrant women, who either do not use any kind of external childcare, or bring their children to formal childcare services.

In relation to the characteristics of their partners, we could observe that their educational and income profile are clearly lower for Portuguese and Turkish and Ex-

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\(^3\) This is to account for the fact that we cannot attribute the mean value of the length of stay for the Swiss-born population.
Yugoslav than for partners of women from France, Germany, Other EU, EFTA, North-America and Oceania and Other Europe. These women are in partnership with more educated and better paid men. Figures in partners’ working time revealed long work schedules in all cases, although it is equally relevant the male unemployment of Ex-Yugoslavian, Turkish and African, explaining their lower mean wages.

Regarding their residence in Switzerland, immigrant are more concentrated the urban areas compared with Swiss-born women. Moreover, many immigrant collectives from not-neighbour countries tend to settle in the French linguistic regions, with the exception of Ex-Yugoslavian and Turkish, concentrated in the German part. Finally, the median years in Switzerland revealed longer settlement as well as larger percentage of women arrived at younger ages (aged 0-15) within the most traditional collectives in the country, in special Italian and Spaniards.

Women’s educational and labour distribution is displayed in Table 2. Whereas Swiss-born women are more concentrated in the medium educational level, the share of immigrant women who completed tertiary education is higher in general, in accordance of the high-skilled profile of immigration in Switzerland. On the contrary, many Portuguese, Ex-Yugoslavian and Turkish are the lowest qualified, whereas Latin-American, Africa and Asia present a dual educational distribution. The labour force participation and employment levels are high for the Swiss-born and the other EU women, compared with the rest of collectives. Temporality is in general low in all cases, whereas public employment is more common for Swiss-born women, as expected. In relation to the time devoted to paid employment it is relevant to mention the large share of native women working less than 50% (23.5%) and the small percentage working full-time (43.3%), only slightly higher than that of Turkish women. Finally, we could observe a dual profile of immigrant female population regarding their socio-professional category, in line of that observed in their educational profile. Women from the EU (with the exception of Portuguese), EFTA, North-America and Oceania and Other Europe are overwhelmingly concentrated in the higher position of the socio-professional scale, whereas Portuguese, Ex-Yugoslavian and Turkish are over-represented in the unskilled category.
Table I. Socio-demographic and family characteristics. Women aged 20-49

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<th>Single, childless</th>
<th>Childless couple</th>
<th>Couple with youngest children under 6-14</th>
<th>Couple with youngest children 6-14</th>
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<td>Median Age</td>
<td>35.9</td>
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<td>Household type (%)</td>
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<td>Married (%)</td>
<td>47.4</td>
<td>58.3</td>
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<td>Children 0-14</td>
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<td>Mean with partner and children 0-14</td>
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<td>External childcare (for children 0-14) *</td>
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<td>Partner's educational level (%)</td>
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<td>Partner's working time (%)</td>
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<td>Partner's wages (mean)</td>
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<td>Immigration characteristics</td>
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<td>Partner's education 15 or older (%)</td>
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<td>Residence in urban areas (%)</td>
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Source: SFLS 2010-2014
Table II. Educational and labour characteristics. Women aged 20-49

| Educational level (%) | Switzerland | Italy | France | Portugal | Spain | Ex Yugoslavia | Germany | Austria | Turkey | Other EU | EFTA & N. America & Oceania | Other Europe | Latin America | Africa | Asia |
|-----------------------|-------------|-------|--------|----------|-------|--------------|---------|---------|--------|----------|---------------------------|-------------|----------------|--------|
| Low                   | 7.9         | 25.2  | 11.0   | 64.2     | 24.7  | 46.9         | 3.1     | 8.0     | 57.9   | 8.0      | 5.5          | 12.4        | 32.3          | 35.1   | 30.2 |
| Medium                | 63.5        | 39.7  | 33.6   | 27.0     | 36.5  | 46.7         | 40.5    | 49.1    | 30.4   | 42.3     | 21.3         | 27.1        | 35.7          | 39.5   | 32.0 |
| Tertiary              | 28.6        | 35.1  | 55.4   | 8.8      | 38.8  | 6.4          | 56.4    | 42.9    | 11.7   | 49.7     | 73.2         | 60.5        | 31.9          | 25.4   | 37.7 |

| Employment status (%) | Switzerland | Italy | France | Portugal | Spain | Ex Yugoslavia | Germany | Austria | Turkey | Other EU | EFTA & N. America & Oceania | Other Europe | Latin America | Africa | Asia |
|-----------------------|-------------|-------|--------|----------|-------|--------------|---------|---------|--------|----------|---------------------------|-------------|----------------|--------|
| Employed              | 82.6        | 75.7  | 80.5   | 83.2     | 84.1  | 67.5         | 85.1    | 84.3    | 53.1   | 71.3     | 64.0          | 53.7        | 58.5          | 61.9   | 58.6 |
| Public employment     | 24.8        | 18.4  | 14.8   | 9.3      | 16.2  | 10.5         | 18.7    | 17.2    | 8.6    | 11.7     | 16.0          | 9.7         | 11.5          | 14.3   | 9.7 |
| Indefinite            | 90.2        | 90.3  | 89.8   | 90.6     | 89.4  | 93.7         | 90.3    | 91.8    | 93.3   | 90.2     | 83.7          | 91.1        | 86.5          | 86.2   | 88.2 |
| Unemployed            | 3.4         | 6.2   | 6.0    | 5.3      | 3.6   | 8.4          | 3.2     | 1.5     | 9.3    | 6.3      | 4.8          | 12.9        | 11.3          | 12.4   | 8.9 |
| Inactive              | 14.0        | 18.1  | 13.5   | 11.6     | 12.2  | 24.1         | 11.7    | 14.1    | 37.7   | 22.4     | 31.2          | 33.4        | 30.2          | 25.7   | 32.5 |

| Working time (%)      | Switzerland | Italy | France | Portugal | Spain | Ex Yugoslavia | Germany | Austria | Turkey | Other EU | EFTA & N. America & Oceania | Other Europe | Latin America | Africa | Asia |
|-----------------------|-------------|-------|--------|----------|-------|--------------|---------|---------|--------|----------|---------------------------|-------------|----------------|--------|
| Plein temps (>= 90%)   | 43.3        | 51.7  | 66.1   | 54.1     | 61.9  | 48.0         | 60.0    | 50.1    | 42.1   | 56.1     | 58.3          | 55.7        | 43.5          | 51.3   | 50.9 |
| Temps partiel I (50-89%) | 33.1   | 29.6  | 26.4   | 31.3     | 27.9  | 30.9         | 28.8    | 30.4    | 32.7   | 29.0     | 23.8          | 27.2        | 32.6          | 30.6   | 28.4 |
| Temps partiel II (< 50%) | 23.5   | 18.7  | 7.5    | 14.6     | 10.1  | 21.1         | 11.2    | 19.5    | 25.2   | 24.8     | 17.9          | 17.1        | 24.0          | 18.1   | 20.7 |

| Socio-professional category (%) | Switzerland | Italy | France | Portugal | Spain | Ex Yugoslavia | Germany | Austria | Turkey | Other EU | EFTA & N. America & Oceania | Other Europe | Latin America | Africa | Asia |
|---------------------------------|-------------|-------|--------|----------|-------|--------------|---------|---------|--------|----------|---------------------------|-------------|----------------|--------|
| Manager                          | 2.6         | 3.7   | 5.1    | 0.8      | 3.0   | 1.5          | 3.7     | 3.3     | 0.7    | 3.8      | 5.5           | 0.9         | 2.0          | 2.4    | 1.3 |
| Higher professional              | 17.3        | 22.7  | 35.5   | 5.3      | 23.1  | 4.9          | 37.1    | 26.2    | 7.8    | 31.6     | 49.4          | 33.6        | 15.8         | 16.5   | 17.7 |
| Lower professional and technical | 30.9        | 22.9  | 33.5   | 17.9     | 27.1  | 17.6         | 31.1    | 33.1    | 16.9   | 25.8     | 27.9          | 32.8        | 23.8         | 23.1   | 27.0 |
| Intermediate qualified (non-manual) | 38.6  | 26.5  | 16.2   | 17.4     | 23.3  | 32.6         | 23.5    | 29.1    | 23.4   | 29.0     | 13.0          | 18.5        | 27.0         | 26.5   | 23.1 |
| Intermediate qualified (manual)  | 3.4         | 3.2   | 2.3    | 2.5      | 1.9   | 5.8          | 1.9     | 4.1     | 3.9    | 3.1      | 0.4           | 1.9         | 2.7          | 3.0    | 3.9 |
| Unskilled worker                 | 3.8         | 20.5  | 6.8    | 54.7     | 18.6  | 35.5         | 1.6     | 3.6     | 44.8   | 5.9      | 3.0           | 10.5        | 24.5         | 26.3   | 23.2 |
| Trainee                          | 3.3         | 0.6   | 0.6    | 1.3      | 1.6   | 0.9          | 0.6     | 2.4     | 0.7    | 0.3      | 0.9           | 3.9         | 2.2          | 3.0    | 3.0 |
| Not classifiable                 | 0.1         | 0.0   | 0.0    | 1.5      | 0.5   | 0.1          | 0.0     | 0.0     | 0.2    | 0.4      | 0.8           | 0.3         | 0.1          | 0.8    | 0.8 |

| Number of observations (N), not weighted | 21,962 | 1,073 | 1,144 | 1,537 | 383 | 2,655 | 3,312 | 334 | 651 | 2,009 | 390 | 487 | 1,286 | 1,082 | 1,564 |
| %                                      | 55.1 | 2.7 | 2.9 | 3.9 | 1.0 | 6.7 | 8.3 | 0.8 | 1.6 | 5.0 | 1.0 | 1.2 | 3.2 | 2.7 | 3.9 |

Source: SFLS 2010-2014
5. Results

We first have a model including only the country of birth to see how migrant groups integrate the labour market compared to the Swiss-born population in different family types. Participation rates on the left hand-side represent the difference in the marginal effects of being from a specific origin compared to the Swiss-born population. The red line represents the level of the Swiss-born population, which is of 89% in this group of single women. We can already see differences between groups, especially for women born outside the European Union. Overall, EU-countries have similar employment rates to that of the Swiss-born population and the gap observed for non-EU countries does no exceed 10%. Turkey is an exception with its level that is 28% below the average of the reference group. The adjacent graph on the right hand-side represents the average weekly number of hours worked given participation. Values are almost identical for all groups -around 38- which is the average for the Swiss-born population.

Graph 2. Employment rates and number of hours (right) given participation (left) by country of birth, for single women aged 20 to 49

Source: SFLS 2010-2014
Graph 3. Employment rates and number of hours (right) given participation (left) by country of birth, for women aged 20 to 49 having their youngest child aged below 5 years

Graph 3 shows the two outcomes for the population of women having their youngest resident children aged below 5 years old. Differences between groups are more important for the two outcomes of interest. In average, Swiss born women are employed at 68%, which is above the level of most of the foreign-born groups except for the Portuguese. But this picture is really different for the number of hours worked. Indeed, when using this measurement of labour market attachment Swiss women have the lowest score, which is of 19 hours a week in average.

At this stage of analysis, we can already distinguished different patterns of labour market participation according to the country of birth. Some women show a strong attached to the labour market in terms of participation but work few hours, while others are more polarized as they either choose not to work or to maintain high number of hours. As mentioned, EU-countries are similar to the Swiss-born population in terms of participation, but they surpass them for the number of hours worked. French, Portuguese and Spanish work around 12 hours more every week, whereas Italian, Ex-Yugoslavian, Austria, German, and other EU-countries differ by 4 to 8 hours compared to Swiss women. For all other groups, we observe an employment rate that is 20% to 30% below the Swiss level. But for those in the labour force, their workload is elevated by 4 to 8 hours per week.
**Multivariate analysis**

In this section we analyse whether the participation and working time patterns differ according to the country of birth in different family types, while controlling for the women's individual, household and environmental characteristics. Marginal effects for the two outcomes are reported in table 3 and should be interpreted together. Results in the participation column represent the difference in employment rate (%) one group has compared to the reference group, when all other covariates take their mean value\(^4\). The second column expresses the difference in the average's number of hours between groups, given that individuals are working.

For the first category of single women, patterns of employment are rather similar across national groups. The observed differences are constrained within the participation equation, whereas the outcomes of the amount equation are almost the same across groups. In average, Turkish, African, and Other European, work less than comparable single Swiss-born women. On contrary, no statistical difference appears for women born in the European Union, with the exception of Portuguese women whose participation rate is 6% higher than that of Swiss women. Once women are working, they show only small differences in the amount of hours worked: at its largest, the workload is elevated by 2.4 hours for Spanish women.

The second group of women in a partnership without children does not display strong differences with the previous group of single women. Again, disparities between national groups in the participation decision are more pronounced than the gaps observed for the number of hours. Disadvantage in employment rates mainly concern none EU-countries, primarily Turkish, Other European, Latin American, African, Asian, and ex-Yugoslavian to a smaller extend. However, women born in Germany and Portugal, show a slight advantage compare to the Swiss-born population. At this stage, and given that they are working, foreign-born groups exert similar number of hours, which oscillates by three hours bellow and above the Swiss average.

\(^4\)With the exception of the duration of stay in Switzerland that is fixed at more than eight years.
Heterogeneous forms of participation and working time patterns are observed for the third group of women with pre-school children. Indeed, labour supplies vary greatly across origins for the two outcomes of interest. First, women from EU-countries prove to be more or equally active in the labour market compared to Swiss women. Statistical differences appear for France, Germany and Portugal, with an elevated participation rate of 15% at its maximum for the latter group. On contrary, women born outside the EU generally have smaller participation rates. This gap reaches 19% to 24% differences for women aged 20-49, 2010-2015
women born in Turkey, Latin America, Asia, Africa and other European countries. Second, distinctions are also important for the number of hours. When employed, all groups work more hours compared to the Swiss (with the exception of Austria). These variations are between 2.4 and 8.7 additional hours for women born in Latin America and Ex-Yugoslavia respectively. The contrast previously made between EU and non-EU countries does not stand for the outcome on the number of hours. This distinction is instead between the Swiss and all other migrant groups together.

These results are similar to that of the fourth group of women with children aged from 6 to 15 years old. Differences in employment rates are again at the advantage of some groups from the European Union (Portugal and Spain), while all none-EU countries have a negative effect on this outcome. Also, foreign-born groups still work more hours, with the exception of Italy, EFTA, and other European countries, for which the positive effect is no longer observed.

These divisions of employment patterns between countries of birth are more important when women have young children. Overall, the combination of both outcomes gives an interesting contrast between the Swiss, EU, and none-EU countries. Women from EU-countries are at the same time more present in the labour market and they also work more hours. Differently, none-EU countries seem more polarized: more women are observed not working when they have young children, but if they do, they keep working more hours. The part-time regime that prevails in the Swiss-born population is not widespread in other migrant groups. Importantly, these differences that remain between countries are not accountable for either individual, household or location specific characteristics that are included in the model.

With respect to the effects of the covariates, in the participation equation, age has a reversed U-shape. However, its effect for the number of hours does not hold across family type. The relation is negative for women without children, but is otherwise fluctuating across age groups. Married women are less inclined to participate or to work more hours, regardless of their motherhood status. This reduction if between 5% (3.6 hours) and 9% (5.5 hours) for women without children and women with children aged from 6 to 15 years, respectively. Similarly, there is an elevated risk of non-employment for additional children. For example, among the group of women with at least one resident child under 6 years old, the probability of participation is decreased by 9% and by 25% for those having one and two (or more) additional children. The
same trend is observed for the number of hours, which decreases by 4.2 and 7.7 weekly hours respectively.

The level of education proves to be a strong determinant of both outcomes for women; the more educated they are and the more likely to participate and to work more hours. These results are highly consistent with opportunity-cost economic postulates and with our research hypothesis.

The time since migration do not have the same impact in all family types. Among single women those recently arrived have an elevated participation rate of 3%. An important share of this group hold a resident permit that requires to have a job to stay in the country. Probably for this reason we do not observe the usual U-shape in this group of single women. For other groups of women living with a partner (with or without children) the effect whereby the longer you stay in the country the more economically integrated you are is observed. The effect of having a foreign nationality is rather small for the two outcomes but with opposite effects. While it decreases participation of 2% to 4% it also increases the number of hours for those in the labour market from 1 to 2.5 hours weekly.

The effect of the partner's level of education is not significant in this model, as it also includes the household income. It is the later characteristic that is strongly and negatively associated with the probability to participate in the labour market and the number of hours works. The magnitudes of these effects are even more pronounced in the groups of women with resident children. For women with pre-school children, the participation rate is decrease by 30% with a household income of more than 115 000 CHF, and by 18% with an income of 85 001-115 000, compared to those with an income below 60 000 CHF. And the effect on the number of hours for those working is of 6.4 hours in average and 7 hours respectively.

The participation rate of women living in Italian and French speaking areas is lower compared to women living in German speaking regions. This relation hold for all family types with the exception of those having children under 6 years old for whom the participation rate is 3% more in the French speaking area. The relation is different for the number of hours where women with children work more hours in Italian and French speaking regions. The German-speaking region reflects the part-time behaviours that prevail in the Swiss-born population.
**Interaction effects**

Additionally, and to test our second and third research hypothesis, we computed the marginal effect of the women's educational level, her partner's level of education and the household income by countries of birth.

The effect of education does not differ between the Swiss-born and the foreign born populations for women who are singles. In the three groups, women with low level of education are less likely to be employed. The more educated they are and the more elevated are their employment rates and hours worked. For women living with a partner without children, we found an interaction effect (sing. P<0.05) in the participation equation for the group of none-EU countries only. The effect of education is still positive for this group but to a lesser extent than Swiss women. Education also has a small positive differential impact (2 hours) on the number of hours for highly educated women born outside the EU.

For women with children, the difference in the effect of education is more pronounced between the three groups of interest. Again, its effect is positive and more important for the Swiss-born population. While the difference in employment rate is of 28% between low and high educated Swiss women, women from EU and none EU-countries gain 11% (p<0.05) and 14% (p<0.001) respectively. This relation is reversed for the number of hours but the effects are only marginally significant at the level of 10%. This gap in the effect of education on employment rate is increased when their children are aged from 5 to 15 years old: while the participation rate increases of 25% for highly educated Swiss women, it is almost flat for none EU-countries and varies only by 5% among EU-countries.

**Graph 4. Interaction woman’s level of education**
Graph 5. Interaction partner’s level of education

Source: SFLS 2010-2014
In table 3, we found no effect of the partner's level of education on the working patterns of women. Specific marginal effect by groups of countries does not prove to be statistically different for childless and women with at least one child under 5 years old. However, opposite effects by countries appear on the participation equation for women with one child aged between 5 and 15 years old. Whereas the level of participation rises of 7% for Swiss women, it decreases by 10% for the two foreign-born groups. On contrary, the number of hours for those employed is almost stable for EU and none-EU countries, and is diminished for Swiss women if there partner is highly educated.

The effect of the household income is consistent across family type with a clear decrease in participation and number of hours for the wealthiest household. But the magnitude of this variation does not apply to the same extent for all groups. For couples without children, the differences in the effects are manly observed for the participation equation. The margins for none-EU countries suggest that this group is more responsive to their household income: there is a gap of 18% in the probability to participate between the more and the less affluent household. Smaller but also statistically significant is the different effect on the number of hours. For this part of the equation, it is the women born in Switzerland that are the most affected. There is a difference of four hours between the two income extreme for this group and about two for the foreign-born groups. For couples with children aged under 15 years, differences for the participation equation is situated between Swiss and EU countries. The negative effect is more important for that later group of women. For the amount equation, again, it is Swiss-women that are more responsive to the family budget.

Source: SFLS 2010-2014
6. Conclusions and discussion

Our research on patterns of participation and working time of women residing in Switzerland, reinforce our initial premise that, when they have children, Swiss-born women are more adhered to the one and a half earner model than the rest of foreign-born women. Effectively, our results revealed that, although there are not significant differences among women of different national origin, diversity appears by together with the presence of children in the household. Overall, analysis brings to light interesting contrasts between the Swiss, EU and none-EU women. Women from EU-countries present higher levels of participation in employment and, they also work more total weekly hours. On the contrary, employment behaviour of none-EU women is more...
polarized. Their rate of employment is lower when they have young children, but if they work, they keep working more hours than natives. Finally, the part-time regime prevails in special for Swiss women. Whereas their employment levels are not affected, their notably reduce their working time in presence of young children in the household. Our models also are highly consistent with opportunity cost theoretical postulates, confirming our third hypothesis. The more educated is the woman, the more likely she is to participate and to work more hours, regardless her family situation. However, for those women with children the effect of educational level on the participation level is stronger for Swiss women than for women from outside the EU. For EU-women, although participation rates are equally high for the most skilled women, low educated women also present high rates. However, the correlation between education and working time is less obvious for Swiss women. Our interpretation is that the major access to extended family for childcare, together with greater returns to human capital and major share of employment in the public sector among these women explain the prevalence of part-time. Finally, regarding our forth research hypothesis we found a decrease in participation and number of hours in paid job for those whose partner present greater earnings. But, also according to our premises, the influence of partner’s income in the woman behaviour depends on the national origin. Effectively, whereas none-EU women are more responsible to household income, the amount of working time of the Swiss women is that most affected by their partners’ earnings.

In conclusion our analysis has revealed heterogeneity in the way that women in Switzerland adapt their labour supply to their family circumstances depending on their national origin. Nevertheless, we acknowledge that employment behaviour of natives and immigrant women are not directly comparable. Some relevant factors affecting the employment behaviour of the latter are endogenous to their condition of immigrants. Not only cultural or gender ideologies related to their country of origin, also the reason of migration and the sequence of migration of family member in relation to key life-cycle events are strong determinants of the family and labour strategies of foreign-born once in the country of destination. Similarly, other structural constrains could explain the labour supply patterns of immigrant women. For example, requirement of a job contract for accessing many resident permits could explain the high participation rates of single foreign-born. Or, on the contrary, the entrance in the country as a tied family member could explain a lower labour market attachment. Moreover, labour opportunities also differ between natives and migrants. On the one hand, recent arrived
immigrants possibly lack local language proficiency or the practical information regarding host labour market functioning. On the other hand, the existence of labour segmentation or discrimination dynamics towards workers from determinant national origin could difficult access for them to better job positions and be the cause of the lower returns on their human capital. Moreover, citizenship requirements could determine who have access to public employment, with more family-friendly schemes. Finally, natives usually count on the support of their extended family members, a precious childcare resource that is mostly inexistent for many immigrant women.

Consequently, although most of the mentioned factors couldn’t be included in the analysis due to data limitations, we should take them into account when reading our results. We interpret the major employment attachment of EU-women, both in terms of participation and working time, as the effect of their labour oriented migration and their mostprivileged position in the Swiss labour market due to their migrant status as EU members. Their employment pattern thus is much more responsive of their human capital than of their household income requirements. On the contrary, the dual behaviour of non-EU women could be the response to lower returns on educational credentials and more precarious family finances, which would explain lower participation rates together with longer working schedules in order to compensate lower wages and household economic constraints. Swiss born female population is less polarized in terms of human capital, opportunity cost and household economic situation. Therefore, it is not strange that statistically, they have more probabilities to follow the “one and a half earner model”.

As pointed out by Blau et Kahn (2013), it is true that high incidence of part-time entitlements could explain high participation rates, as it could encourage the labour permanence of less career-oriented women in stages in the life cycle when their family burden is higher. However, part time facilities is far from being a measure towards gender equality, as it reduces women’ salary as well as women’ probability of being in high level jobs.

7. References


