

Vikman, Ulrika

Working Paper

Paid parental leave to immigrants: An obstacle to labor market entrance?

Working Paper, No. 2013:4

Provided in Cooperation with:

IFAU - Institute for Evaluation of Labour Market and Education Policy, Uppsala

Suggested Citation: Vikman, Ulrika (2013) : Paid parental leave to immigrants: An obstacle to labor market entrance?, Working Paper, No. 2013:4, Institute for Evaluation of Labour Market and Education Policy (IFAU), Uppsala

This Version is available at:

<https://hdl.handle.net/10419/82293>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



IFAU

Institute for Evaluation of Labour
Market and Education Policy

Paid parental leave to immigrants: An obstacle to labor market entrance?

Ulrika Vikman

WORKING PAPER 2013:4

The Institute for Evaluation of Labour Market and Education Policy (IFAU) is a research institute under the Swedish Ministry of Employment, situated in Uppsala. IFAU's objective is to promote, support and carry out scientific evaluations. The assignment includes: the effects of labour market and educational policies, studies of the functioning of the labour market and the labour market effects of social insurance policies. IFAU shall also disseminate its results so that they become accessible to different interested parties in Sweden and abroad.

IFAU also provides funding for research projects within its areas of interest. The deadline for applications is October 1 each year. Since the researchers at IFAU are mainly economists, researchers from other disciplines are encouraged to apply for funding.

IFAU is run by a Director-General. The institute has a scientific council, consisting of a chairman, the Director-General and five other members. Among other things, the scientific council proposes a decision for the allocation of research grants. A reference group including representatives for employer organizations and trade unions, as well as the ministries and authorities concerned is also connected to the institute.

Postal address: P.O. Box 513, 751 20 Uppsala

Visiting address: Kyrkogårdsgatan 6, Uppsala

Phone: +46 18 471 70 70

Fax: +46 18 471 70 71

ifau@ifau.uu.se

www.ifau.se

Papers published in the Working Paper Series should, according to the IFAU policy, have been discussed at seminars held at IFAU and at least one other academic forum, and have been read by one external and one internal referee. They need not, however, have undergone the standard scrutiny for publication in a scientific journal. The purpose of the Working Paper Series is to provide a factual basis for public policy and the public policy discussion.

ISSN 1651-1166

Paid parental leave to immigrants: An obstacle to labor market entrance?^a

by

Ulrika Vikman^b

1st February, 2013

Abstract

This paper evaluates how access to paid parental leave affects labor market entrance for immigrating mothers with small children. Paid parental leave together with job protection may increase labor force participation among women but if it is too generous it may create incentives to stay out of the labor force. This incentive effect may be especially true for mothers immigrating to a country where having small children automatically makes the mothers eligible for the benefit. To evaluate the differences in the assimilation process for those who have access to the parental leave benefit and those who do not, Swedish administration data is used in a difference-in-differences specification to control for both time in the country and the age of the youngest child. The results show that labor market entrance is delayed for mothers and that they are less likely to be a part of the labor force for up to seven years after their residence permit if they had access to parental leave benefits when they came to Sweden. This reduction in the labor force participation is to some extent driven by unemployment since the effect on employment is smaller. But there is still an effect on employment of 3 percentage points lower participation rates 2–6 years after immigration.

Keywords: Immigrant assimilation, labor market entrance, paid parental leave benefit

JEL-codes: J13, J15, J21

^aI would like to thank Matz Dahlberg, Peter Skogman Thoursie, Rafael Lalive, Eva Mörk, Per Johansson, Sandra Black, Johan Vikström, Daniel Avdic, Caroline Hall and Oskar Nordström Skans as well as seminar participants at IFAU and participants at the 7th SUDSWec in Uppsala 2012 and 3rd National Conference for Swedish Economists in Stockholm 2012 for valuable comments and suggestions.

^bIFAU – Institute for Evaluation of Labour Market and Education Policy, UCLS and UCFS at Uppsala University. Address: IFAU, Box 513, S-752 20 Uppsala, Sweden, Email: Ulrika.Vikman@ifau.uu.se

Table of contents

1	Introduction	3
2	Institutional setting and parental leave benefit utilization.....	6
2.1	Parental leave benefits in Sweden	6
2.2	Immigrants' first time in Sweden	8
2.3	Parental leave utilization among immigrants	10
3	Sample and data description	13
3.1	Sample description	14
3.2	Data description	16
3.3	Language course	20
3.4	Labor force participation and employment	21
4	Econometric specification	25
5	Results	29
5.1	Main results	29
5.2	How to interpret the coefficient: What is the treatment?	31
5.3	Economic incentives	33
5.4	Sensitivity analysis	34
5.5	Heterogenous effects	38
5.5.1	By child age	38
5.5.2	By region of origin	40
5.5.3	By educational level	43
5.5.4	Singles and in couples	45
6	Discussion	46
	References	49
	Appendix A: Data	53
	Appendix B: Tables	55

1 Introduction

With an aging population in many countries, it is important to have high rates of labor force participation. Two groups among which labor force participation may be increased are women and immigrants. This paper studies labor force participation among immigrated women and how this is affected by a generous welfare system.

One way to increase female labor force participation is to have a flexible parental leave insurance together with job protection during leave, and then childcare availability after leave (Bennett and Tayler, 2006). However if the parental leave insurance is too flexible and generous it may create incentives to stay out of the labor force. This may be especially true for mothers with small but not newborn children, immigrating to a country where having children automatically makes the mothers eligible for the benefit.

In this paper I will evaluate how access to parental leave benefits (PLB) in Sweden affect labor market participation for immigrant women. Sweden has in general a very high female labor force participation rate¹. There is also a very generous PLB system, where parents get 480 days of paid parental leave to be used before the child's eighth birthday. Most parents use a majority of the days during the child's first two years, but since it is possible to claim the days until the child's eighth birthday, it is possible for immigrants coming with older children to claim the benefit. The access to this benefit may be a smaller problem if it only delays the labor market entrance, but it is more problematic if the delayed entrance excludes these mothers from the labor market for a long time. Such exclusion is likely if their experience in the first year in a country is crucial for later outcomes.

When parents receive paid parental leave, they are not allowed to work or participate in any introduction program or language courses. Treatment may thus be seen as a composite effect of financial incentives and missing or delayed program participation. The outcomes studied will be both labor force participation and employment.

I perform the evaluation by studying mothers immigrating to Sweden between 2000 and 2005 (Late immigrants), comparing the assimilation process for those who had ac-

¹In 2009 the labor force participation among women aged 15–64 was 77.7 percent in Sweden, compared to an average of 62.8 percent in the OECD countries.

cess to PLB when they received their residence permit (Treated group) with those whose youngest child was older than the age cut-off and therefore didn't have access to the benefit².

To be sure that the difference in labor force participation is not just due to differences in the age of the children, I control for the age of the children using an additional control group consisting of women immigrating to Sweden earlier and who give birth to all their children in Sweden. These women used most of their days of PLB during their children's first two years and will therefore not be able to stay home for long periods when the children are older, as can the treated group.

The identifying assumptions are that only the age of the child makes the treated group different from immigrants who come with somewhat older children, and that the effect of child age on labor force participation is the same for both Late immigrants and Earlier immigrants.

This paper contributes to two important strands of the literature: the effects of parental leave benefits and immigrant assimilation. Parental leave benefits have in many studies been shown to increase fertility (Lalive and Zweimüller, 2009; Milligan, 2005; Björklund, 2007) and paid parental leave together with job protection have made it easier for mothers to stay home with their newborns and then return to their earlier work (Baker and Milligan, 2008; Bergemann and Riphahn, 2010; Ruhm, 1998). But for parents who are not attached to the labor market and arrived in Sweden with somewhat older children, this system may prevent them from entering the labor market, an effect that is related to the other relevant literature about immigrant assimilation.

Starting with Chiswick (1978), the assimilation process among immigrants in different labor market outcomes, such as employment and earnings, have been studied by many economists. As pointed out by Borjas (1985, 1989), it is important to use panel data to evaluate immigrants assimilation patterns, since using cross-sectional data may capture

²The data only include information on when the individuals register at the tax authorities after they received their residence permit in Sweden, not when they actually arrived. It is not possible to claim any PLB before this registration, which is why this registration date is preferred. For simplicity, I will use the words immigration or date for residence permit even if more correct would be, date for registration at the tax authorities.

differences between immigrant cohorts. Where Chiswick (1978) and Borjas (1985, 1989) study the assimilation pattern for American immigrants, there have been studies for many different countries (Amuedo-Dorantes and de la Rica (2007) for Spain, Clark and Lindley (2005) for the UK, and Longva and Raaum (2003) for Norway). The main conclusions from these studies are that immigrants have lower employment rates and earnings the first years when they immigrate to a new country, assimilate over time, but never reach the participation or wage levels of natives. The assimilation, however, differs, depending on gender, education, and origin.

When it comes to Sweden, there are two different studies of employment assimilation. Nekby (2002) finds that employment convergence between immigrants and natives occurs during the first 10–15 years after immigration to Sweden, but a significant difference from natives still remains after 15 years. Lundborg (2007) studies labor force and non-labor force immigrants separately, and finds that the former face almost immediate employment assimilation, while it takes approximately 20 years for the non-labor force immigrants to reach the same employment status as natives.

The assimilation pattern when it comes to welfare use differs between countries. In the US, immigrants increase their welfare use over time (Borjas and Trejo, 1991, 1993) while immigrants in Sweden assimilate out of welfare (Hansen and Lofstrom, 2003), but after 20 years the share of immigrants receiving welfare is about the same in both countries. The difference between the countries is probably due to the difference in their institutions. In the US, as shown by Bertrand et al. (2000), welfare use is spread within social networks. Welfare use increases if there are many speaking the same language using welfare around an individual, and therefore it seem to be a behavior that can be learned. In Sweden, all refugees who receive a residence permit are offered social assistance for the first 18 months to be able to attend introduction programs and therefore get information about the welfare system, often before they have received a residence permit. After the large welfare reform in the US in the 1990s, immigrants were not allowed to collect welfare. This reform led to a sharp decrease in welfare recipients among immigrants in the US, but this reduction was only driven by California. In the rest of the country, many states offered state-funded programs to immigrants, or the immigrants became naturalized

citizens and then got access to the benefits (Borjas, 2002).

The results in this paper show that labor force participation for mothers who had access to PLB when they came to Sweden is 7.7 percentage points lower two years after residence permit, compared to mothers with older children that did not have access to PLB. The difference then decreases to 3.6 percentage points lower participation rates due to PLB in year six, before the effect disappears in year seven. The effect of PLB on employment is about 3 percentage points lower, two to six years after the residence permit and then reduces to no effect.

The effect is larger for mothers with their youngest child between two and four than for mothers with five and six year old children. When performing a heterogeneous analysis by region of origin, no negative effect is found for mothers from the Middle East and Africa when it comes to employment, since few mothers, irrespectively of the age of the children, find work.

This paper is organized as follows: Section 2 describes some institutional settings in Sweden and the parental leave utilization by newly arrived immigrants. Section 3 describes the sample, the data, and descriptives of the outcomes, before Section 4 presents the econometric specification. Section 5 show the results and sensitivity analysis, which are finally then discussed in Section 6.

2 Institutional setting and parental leave benefit utilization

2.1 Parental leave benefits in Sweden

Sweden has a very generous system of paid parental leave. When a child is born, the parents can claim 390 days of paid parental leave to be home with the child. Of these days, 60 days are quoted for each parent.³ The benefits correspond to about 80 percent of the parents' salaries up to a ceiling.⁴ In addition to these days, the parents can claim an

³For children born before 2002 the parents got 360 days. At that time only 30 days were quoted, making 330 days available for the mothers during the whole period.

⁴The ceiling increased from about 600 SEK (70 USD) per day in 2000 to 900 SEK (105 USD) per day in 2009.

additional 90 days for which they are only paid 60 SEK (7 USD) per day. The system is very flexible in the sense that the parents decide for themselves for which days they want to claim paid parental leave, or even part of a day, making it possible to extend the leave to a very long period. The only restrictions are that the parent is not allowed to work and benefits are only paid out until the child attains the age of eight or finishes his or her first school year.⁵ This is the basic structure but many workers have additional insurance in collective agreements. If a parent has no income or a very low income, the parent gets a fixed amount per day, which has been increasing over the years from 60 SEK (7 USD) before the year 2002 to 180 SEK (21 USD) from the year 2004 (Lindström, 2010).

Immigrants who come to Sweden with children aged below eight are eligible for the same benefits as those parents whose children are born in Sweden. This implies that even if the child is five years old when a family immigrates to Sweden, one of the parents is able to be at home and collect money from the parental leave system for over a year. Paid parental leave benefit days utilized in another country are removed from the potential days used in Sweden. Even if many countries in the world have some sort of paid parental leave, the number of days paid are seldom as many as in Sweden, except from mainly the other Nordic countries⁶. Most immigrants who have children when they come to Sweden and collect parental leave benefits get the fixed rate. The most obvious reason for why they get the fixed rate is that they don't have any employment and therefore no income the benefit could be based on. There is also an additional rule that makes it hard for immigrants to receive any higher payment for the first 180 days they collect benefits. According to this rule, the benefits for the first 180 days are only based on the current income if the parent had an income during the 240 days preceding the birth of the child.⁷ This rule makes it even harder for immigrants to get higher benefits than the fixed rate for the first 180 days.

⁵It's not possible to collect parental leave benefits if the child is in school or childcare.

⁶Immigrants from Nordic countries will therefore be excluded in the analysis.

⁷Only income in Sweden, other EU, or EES countries counts.

2.2 Immigrants' first time in Sweden

In Sweden the composition of the immigrant group has changed over the years. After World War II, immigrants coming to Sweden were mainly labor force immigrants, but during the 1970s, immigrants due to labor market reasons were replaced by refugees and immigrants due to humanitarian reasons. This change in immigrant composition makes the assimilation much slower today than earlier (Eriksson, 2010; Lemaître, 2007).

When immigrants receive a residence permit in Sweden, they have to register at the tax authorities and are then eligible for social security benefits of which the paid parental leave benefits are one part. All individuals with a residence permit in Sweden are also eligible for social assistance from the municipalities if they don't have any other possibility of supporting themselves. This implies that immigrants who arrive in Sweden can get social assistance if they have no job or assets. The municipalities may, however, require recipients of social assistance to participate in different activation programs. For refugees, this will be the introduction programs, see below. The main part of social assistance is called income support and consists of a standard plus the cost the individual has for housing. Although the municipalities are responsible for the social assistance system, the lowest level of the standard is decided by a national norm, which in practice has been the benefit level in many municipalities.⁸

During the studied period, however, the municipalities had another option when it came to refugees. Instead of paying social assistance to refugees, the municipalities could pay introduction benefits. The aim of these benefits was to encourage refugees to participate in introduction programs and increase the responsibility for their own finances. The motivation for the programs that was introduced in 1993 was that many refugees, instead of only receiving social assistance temporarily, stayed on benefits for many years. The idea with introduction benefits was that these should be somewhat higher than the social assistance and not means tested. In practice, even if many municipalities introduced introduction benefits to refugees, this was only by name and in reality these benefits worked in exactly the same way as social assistance in most municipalities (SOU 2003:75).

All municipalities in Sweden have introduction programs for newly arrived refugees

⁸The level of the norm for two types of families are shown in *Figure 8* in subsection 5.2.

who have received a residence permit. These programs mainly consist of language training courses (SFI) which also are available for all grown-ups that don't have a basic knowledge of the Swedish language. Normally, the introduction program should be two years and the refugee should start a program within one year after receiving a residence permit. But the program is not mandatory and the programs can be extended if it's necessary for the individual.

The access to PLB for immigrants with children is a potential problem for maternal labor market attachment, which has been discussed in Sweden. This discussion started with a report from The Expert Group on Public Economics (ESO) in the summer of 2011 (Olli Segendorf and Teljosuo, 2011). The purpose of the report was to draw conclusions about initiatives and measures to improve integration in Sweden. The report discussed how both general and targeted policies affect labor market entrance for the foreign-born. When it came to parental leave insurance, the authors concluded that this insurance reduces the incentives to work and creates lock-in effects.

The problem was then raised by many politicians and in October 2011 the government initiated an inquiry to investigate how labor market attachment among newly arrived female immigrants may increase. As a special part, the inquiry was to make a survey of the PLB claims of recently arrived women and men. The inquiry studied the claims from all parents who arrived to Sweden in 2006 with children aged below eight. Among the women who were born outside Europe, there were 40 percent who claimed PLB for at least 200 days the year after their arrival. Of those women who gave birth to additional children in Sweden and arrived from countries outside Europe, 25 percent claimed over 200 days of benefits for two consecutive years and 10 percent for three consecutive years. However, for the women born outside Europe who did not give birth to any more children in Sweden, 25 percent did not claim any PLB. Surprisingly, even 7 percent of those who gave birth to new children in Sweden did not claim any days. Some of these may have emigrated again (SOU 2012:9).

From questionnaires to the municipalities, who deal with social assistance, the inquiry also found that many municipalities require immigrants who need social assistance to claim PLB if they have days left to claim before they get social assistance. This means

that parents who are unemployed and therefore need social assistance get excluded from the labor force and have to take care of their children instead of joining language courses or searching for work⁹.

In September 2012 the Swedish government announced that they will propose a law change, putting a restriction on the parental leave insurance that 80 percent of the available days have to be utilized before the child's fourth birthday. The motivation for this law is to increase labor market attachment for newly arrived immigrant mothers.

2.3 Parental leave utilization among immigrants

As a first step in the analysis, this subsection describes the utilization of PLB by mothers immigrating to Sweden between 2000 and 2005.

The data used are mainly registers from The Swedish Social Insurance Agency and contains information about PLB utilization, such as which days a parent has claimed the benefit for and how much money the parents have been paid. By parent ID, it is possible to link the PLB data to some other register data to find the month of birth of biological children, and yearly data (available from 1985) containing individual characteristics such as country of birth and latest immigration year. With these data it is possible to find mothers immigrating to Sweden between 2000 and 2005 with children born outside Sweden, and where the children at immigration were between one and seven years old¹⁰.

It is not surprising that mothers of newborns stay home with them, which is why I choose to study PLB utilization by age of the youngest child at immigration and only show PLB utilization for mothers with their youngest child between one and seven. I only follow mothers until they give birth to a new child, for the same reason. Mothers who have a new child will be included in the main analysis since the decision to have a new child may be endogenous to access to the benefits.

Figure 1 shows the parental leave utilization for mothers immigrating to Sweden be-

⁹In July 2001 it became mandatory for municipalities to offer unemployed parents in Sweden childcare for at least 15 hours each week, but a majority of the municipalities offered childcare to unemployed even before this reform (Vikman, 2010).

¹⁰In my main analysis when I evaluate the effect of having access to PLB, the data come from another source with some variables in common, but the greatest difference is the immigration data where I have all registered in and out migration since 1985 giving me a somewhat different sample.

tween 2000 and 2005 with their youngest biological child between one and seven years old¹¹. The first figure shows the share of mothers (who have not given birth to a new child) utilizing the benefit in the year of residence permit (year 0) and the following two years. For example, looking at mothers who came to Sweden between 2000 and 2005, whose youngest children then were five years old, less than 20 percent claimed PLB during the year of immigration, but in year one, about 35 percent and in year two, 38 percent claimed the benefit.

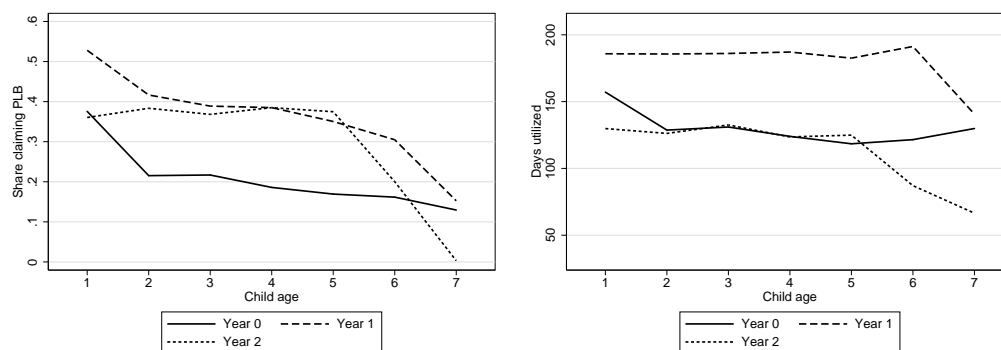


Figure 1: Share utilizing the PLB of late immigrants and the average days claimed, year of immigration and the following two years.

The second figure shows how many days on average the mothers claimed PLB (of those who utilized the benefit). For mothers coming to Sweden with five year old children, the figure shows that those who claimed PLB did it for 120 days on average in the year of immigration, 180 days in year 1, and 125 days in year 2.

As can be seen, a larger share of mothers with younger children claimed some benefit compared to mothers with older children all years and more mothers claimed the benefit in year 1 compared to year 0. In these figures it is not possible to see how many mothers who claimed PLB for just one year and how many claimed for several years but an overall measure is that of all these mothers there were 43 percent who claimed some PLB during the year of migration or the following two years for children they had when immigrating to Sweden.

For mothers coming to Sweden with their youngest child seven years old it shouldn't

¹¹ Mothers from other Nordic countries are excluded since they have access to many days of PLB in their home countries and the number of days they used in their home countries are taken away from the possible days to claim in Sweden.

be possible to collect any PLB in year 2, since the child turns eight in year 1, and as can be seen, almost no mothers of seven year old children utilized the benefit in year 2. An explanation to why this number is not exactly zero (easiest to see since there is a value for average days in the second figure) is that it is only possible to determine whether the mother has biological children and the birth month of those in the data but a mother may have non-biological children she claimed PLB for. This error may create some measurement errors in my main analysis if Late immigrant mothers with older children have younger non-biological children to use PLB for. This potential error, if it exists, causes attenuation bias.

The mean number may seem high since mothers are only able to collect 420 days in total for each child (480 days if they are single parents) but the mothers are able to claim parental leave benefit days for all children below the age of eight and may therefore collect benefits for several children.

Almost all mothers who utilized the benefit got the lowest fixed amount. In year 0, 98 percent of the mothers claiming PLB got the lowest fixed amount. In year 1 the share was 97 percent and in year 2 decreased somewhat to 85 percent.

Even if the benefits are for both parents and some part of the benefit is quoted for each parent, the share of immigrating fathers utilizing the benefit is lower (not shown). Among immigrating fathers coming to Sweden with their youngest child between one and seven years old, 24 percent claimed the benefit sometime during the year of immigration or the following two years.¹²

Table *Table 1* shows the utilization of the PLB for some of the mothers who will be used in the control group of Earlier immigrant mothers. Data on utilization is only available from 1994, which is why I am only able to show the utilization for mothers with children aged 2–6 years, even if those with older children also had access to the benefit since their children were born in Sweden. Since only the latest immigrating year is available in the parental leave data, I am only able to find about two-thirds of the control population of early immigrant mothers with children aged 2–6 years. As seen in

¹²Even if mothers use the PLB to a greater extent than fathers, the PLB may still have an effect on fathers' labor force participation. The analysis has also been performed on fathers but no clear effects could be found, mainly insignificant results, which is why this paper focuses on immigrant mothers.

Table *Table 1*, as expected, almost all used the benefits during the year of birth and the following two years, and about 47 percent got the fixed amount sometime during these years.

Table 1: Parental leave utilization among early immigrants with young children (aged 2–6)

	Year of birth	Year 1	Year 2	Years 0–2	<i>N</i>
Share collecting benefit	0.908	0.896	0.332	0.965	22038
Mean number of days	171	190	58	357	21269
Share receiving fixed amount	0.451	0.427	0.205	0.468	21269

To conclude this section, we have seen that far from all immigrating mothers who received a residence permit in Sweden with children aged below eight (i.e. eligible for PLB) used the benefits. Still there was a substantial share that used the benefits at least to some extent, and many immigrants who used it to such extent that it made it unlikely for them to be able to attend language courses or other introduction programs. Almost all mothers who immigrated between 2000 and 2005 and used the benefits recieved the low fixed amount.

3 Sample and data description

In this section, I start by describing how I define the sample (3.1) before the data that will be used in the analysis is summarized (3.2). I then continue, in subsection 3.3, by looking at the share of immigrants starting a language course within five years, in order to investigate whether participation differs depending on the age of the children. Finally, subsection 3.4 describes the outcomes that will be used and shows some first descriptive results.

3.1 Sample description

To evaluate how access to parental leave benefits (PLB) affect labor market entrance, I study two groups of women who have immigrated to Sweden. The first group is mothers who immigrated to Sweden between 2000 and 2005, whose youngest child then was between two and 15 years old, and who did not give birth to a new child within nine months after their immigration. I will call this group, *Late immigrants*. In the data the date immigrants register at the tax authority after they received a residence permit is available, not the date when they arrived. This registration makes it possible to claim the Swedish social insurance, of which the parental leave benefit is one part, and is therefore the date of interest, even if some mothers arrived in Sweden earlier and therefore had the opportunity to make contact with potential employers before they registered¹³. For simplicity, this date is referred to as the *date for immigration or residence permit*.

The reason why I do not include mothers with younger children is that municipalities do not offer childcare until a child has reached the age of one. Therefore there is no real alternative for one parent than taking care of the child until the child's first birthday and thereby, for some part of the year, at least one parent is not able to work. In the group of late immigrants, those with their youngest child between their second and sixth birthday in the year of immigration will be considered as *treated*, while those with older children (7–15) are used as the first *control group*. The reason why I cut between six and seven, even if mothers are able to claim the PLB if the child was up to eight years old, is that all children in Sweden start school the year they turn seven. So even if the mothers got access to the benefit, they were not able to collect it when the children were in school and were therefore able to attend language courses or search for work.

Since it is likely that the age of the child affects mothers' labor force participation, an additional control group is needed. This second group of women in my sample consists

¹³There would be a problem if the time waiting for a residence permit were different depending on the age of the children. This is, however, not the case.

of women who received a residence permit in Sweden between 1985 and 1995 and gave birth to their first child after they received their residence permit, referred to as *Earlier immigrants*. To make up a good control group I want to have a group of immigrants that have not spend a long time in Sweden, since I do not want them to be too different from Late immigrants. At the same time, they must have had time to have children in Sweden. The migration data are also much more detailed from 1985, before this year I only have latest immigration year. To have comparable mothers when it comes to age of the children, the Earlier immigrants have to have had their youngest children aged between 2–15 years between 2000 and 2005.

This construction of the sample implies that there is an inflow of Late immigrants with children between two and 15 in every year between 2000 and 2005, while for earlier immigrants, there is an inflow of mothers with their youngest child between two and 15 in 2000. Between 2001 and 2005 only Earlier immigrant women with a youngest child that is two enter the sample. The sample is summarized in table *Table 2*.

Table 2: Sample description

	Children Born:	Age of youngest child 2-6 7-15		Immigration Year
Late Immigrants	Outside Sweden	Treated group	Control	2000-2005
Earlier Immigrants	In Sweden	Additional Control		1985-1995 ^a

^a These year will be varied in the sensitivity analysis.

Two groups of immigrants are excluded from the analysis, immigrants from other Nordic countries and those who do not have any citizenship or where the Swedish government does not know the immigrant's origin. Since the other Nordic countries also

have many days of paid parental leave, mothers coming to Sweden from these countries are not treated since they had access to PLB even in their home countries, and days utilized in other countries are removed from the days available in Sweden. Unfortunately I am not able to see the specific country of origin in the data, since countries are grouped, and are not able to remove mothers from other countries who also pay many days of paid parental leave, e.g., Slovenia (Moss and O'Brien, 2006). What I have observed in the parental leave benefit data is that for all groups of countries, there are mothers that used the benefit. The second group which is excluded consists of immigrants where the origin is unknown, which is a very small group, and does not affect the estimations if included.

3.2 Data description

The data used in this paper are all drawn from population-wide registers in the IFAU database. The data mainly originate from Statistics Sweden but also unemployment records from the Public Employment Service (PES) are used.

More specifically, to pick out the sample, two main data registers were used. The first contains all registered migration data since 1985 and was used to find the initial immigration date. Even if this is far from a perfect register, since not all emigration is registered, the first time they come to Sweden will be included, since they need to register to get a Swedish ID to be able to have contact with the authorities or employers.

The second register is a multi-generation register linking all parents with their children and thereby providing me with the birth month of the children. It is not always the case that the Swedish authorities are able to get the exact birthday for all immigrants, which is seen in the data since many immigrants having January 1st or July 1st as their birthday. But even if the this date is not the exact birthday, the date given will be the date that controls when a child starts school and how long the parents are able to claim PLB. I also have access to a register with a rough categorization by country of birth, which makes it possible to exclude mothers who are born in Sweden but have given birth to their children in another country.

To get information about the background characteristics, an income and population wide register (Louise) was used. Louise contains yearly data of all transfers to individuals but also information about education and age, and it links individuals in the same household to each other. For the different outcomes, the Louise database and data from the PES register (Händel) were used. The PES register contains spell data of when unemployed register at the PES and why they leave (work, studying, other authorities etc.) but also what labor market programs they attend and for how long.

I also have records from the Swedish language course (SFI) showing how long a time it takes before immigrants start taking a language course, see subsection 3.3. I am not able to link the parental leave data, shown in subsection 2.1, to these other data registers, and therefore don't know which mothers claim PLB.

Mothers are followed until 2009, until they leave Sweden, or turn 65, which is the most common retirement age in Sweden.

The effect of having access to PLB when immigrating to Sweden is probably different for different mothers. Two groups who could be expected to be affected differently are refugees and other immigrants. Unfortunately, I don't know the reason why an individual received a residence permit in Sweden. Immigrants from Eastern Europe, Africa, and Asia are however more likely to have received residence permits as refugees¹⁴. As mentioned, the data, however, contains a rough categorization by country of birth, which makes it possible to divide the sample into different sub-populations depending on where the immigrants came from. This division will be Western Europe, Eastern Europe, the Middle East and North Africa, Sub-Saharan Africa, Asia, and the last group contains North and South America together with the South Pacific. Heterogeneous analysis will be performed by region of origin but also by child age, educational level, and for single mothers and cohabiting mothers separately.

There would be a problem for the analysis if many immigrants came to Sweden just

¹⁴This group is hereafter referred to as the *refugees* even if not all of them have received residence permits as refugees.

to claim PLB. *Figure 2* shows the distribution of immigrant mothers coming to Sweden between 2000 and 2005, by age of the youngest child. There are more mothers who immigrate to Sweden with younger children but reassuringly there are fewer mothers for each child age, even for older children, and no big jumps around age seven when the time to claim PLB ends.

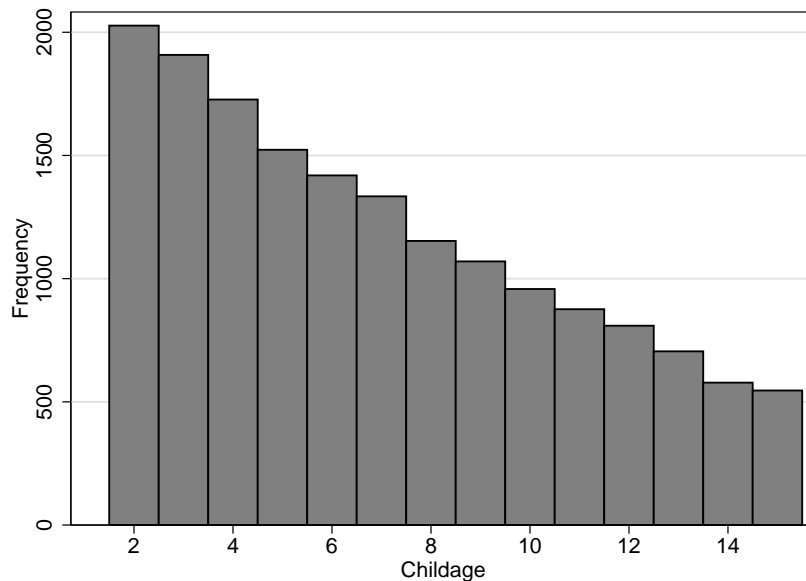


Figure 2: Distribution over child age for late immigrant mothers.

Table *Table 3* shows the descriptive statistics for mothers. Late immigrants are in the first two columns, and Early immigrants are in the last two columns.

As seen in Table *Table 3* the control group consisting of Earlier immigrant mothers has a lower mean child age, especially for mothers with older children, compared to Late immigrants. This difference is due to the restrictions put on this group, that they have to have had all their children after they received a residence permit in Sweden¹⁵.

¹⁵This restriction is because I do not want them to have been treated when they immigrated to Sweden, that is, have been able to collect parental leave benefit for a child born outside Sweden. However, the children may still have been born outside Sweden since I do not restrict them to have stayed in Sweden for the entire span of time since their first immigration, as this reduces the sample size. But even if there is a risk of them being treated, they immigrated to Sweden before their first child and therefore had the possibility of attaching themselves to the labor market before they gave birth to their children.

Table 3: Sample means for mothers

Age of youngest child	Late Immigrants		Early Immigrants	
	2-6	7-15	2-6	7-15
Age	32.4	38.3	32.0	37.8
Child's age	3.8	10.3	3.0	9.0
Number of children	2.2	2.0	1.9	1.6
New child	0.362	0.148	0.408	0.135
Year between child and new child	6.4	11.8	5.7	11.5
Number of new children ^a	1.3	1.2	1.3	1.2
Share emigrating from Sweden	0.174	0.110	0.066	0.060
Time to leaving Sweden in years ^b	3.4	3.3	4.3	4.1
Other censoring ^c	0.004	0.009	0.004	0.008
Less than compulsory school	0.141	0.149	0.101	0.103
Compulsory school	0.054	0.046	0.158	0.126
Up to 2 years of High school	0.079	0.091	0.192	0.221
Up to 3 years of High school	0.105	0.117	0.230	0.192
Tertiary, less than 3 years	0.121	0.124	0.120	0.147
Tertiary, more than 3 years	0.218	0.222	0.159	0.186
Doctoral studies	0.024	0.025	0.012	0.011
Western Europe	0.095	0.066	0.049	0.072
Eastern Europe	0.273	0.366	0.265	0.326
N. Africa and the Middle East	0.319	0.270	0.370	0.277
Sub-Saharan Africa	0.068	0.045	0.100	0.052
Asia	0.164	0.173	0.131	0.171
N. and S. America and the S. Pacific	0.080	0.080	0.086	0.103
<i>Descriptive statistics for mothers living with a partner first year^d</i>				
Share living with partner	0.791	0.677	0.791	0.651
Swedish-born partner	0.078	0.092	0.184	0.211
Partner immigrated:				
more than 5 years earlier	0.078	0.104	0.546	0.431
1–5 years earlier	0.209	0.157	0.058	0.006
same year	0.425	0.324	0.004	0.003
Observations	8604	8029	32429	7431

^a Of parents who have more children. ^b Of parents who emigrate from Sweden. ^c Including parents reaching the age of 65, dying, or leaving the register for unknown reason. ^d First year is the year of immigration for (late) immigrants and the first year of analysis for the control group with early immigrants.

For about 25 percent of the late immigrants, the highest completed education is miss-

ing in the data. This is also the case for some of the earlier immigrants. When people receive a residence permit in Sweden, Statistics Sweden sends mail to the newly arrived, asking for their education, but not all of them answer that mailing. The share of those who, in their first year of immigration, reported their education, is even less. To increase this share, I have, to replace the information that is missing in the first year, taken as the education that was reported in the year after immigration. What can be seen is that despite the missing information, the educational level reported is somewhat different from the control group. Earlier immigrants mostly have education in the middle of the distribution, while late immigrants have higher shares both in the bottom and the top of the distribution.

In all groups, most mothers are living with a partner and, as expected, these partners are more likely to have immigrated at the same time as the mothers.

Table *Table 3* also shows that a substantial part of the late immigrants leave Sweden within a few years. As discussed by Edin et al. (2000), the emigration of immigrants is probably not random, which causes bias in the estimates of assimilation. If those immigrants who have the least attachment to the labor market leave, assimilation will appear to be larger than it is. In this paper, when I am comparing the assimilation pattern for two groups, bias arises if the emigration pattern is different between these groups. Therefore a sensitivity analysis without those who leave will also be performed.

3.3 Language course

As mentioned in subsection 2.2, all refugees are offered language training courses when they come to Sweden and these courses are also available for all grown-ups that don't have basic knowledge of the Swedish language. In this subsection, figures of time to starting a language course is shown and I study if this differs depending on the age of their children. The reason for focusing on language courses is that Dustmann and Fabbri (2003) and Ferrer et al. (2006) show that language proficiency often is crucial for becoming established in the labor market. Immigrants who attend the language course in Sweden (SFI)

have 5 percentage points higher employment 10 years after immigration than comparable immigrants who didn't attend the language course (Kennerberg and Åslund, 2010).

Figure 3 shows the Kaplan–Meier estimates for language course participation, that is, the share who haven't started a language course after obtaining their residence permit, by age of children among late immigrants. The first figure is for all late immigrant mothers in the sample (a), while the second figure is for refugee mothers (b).

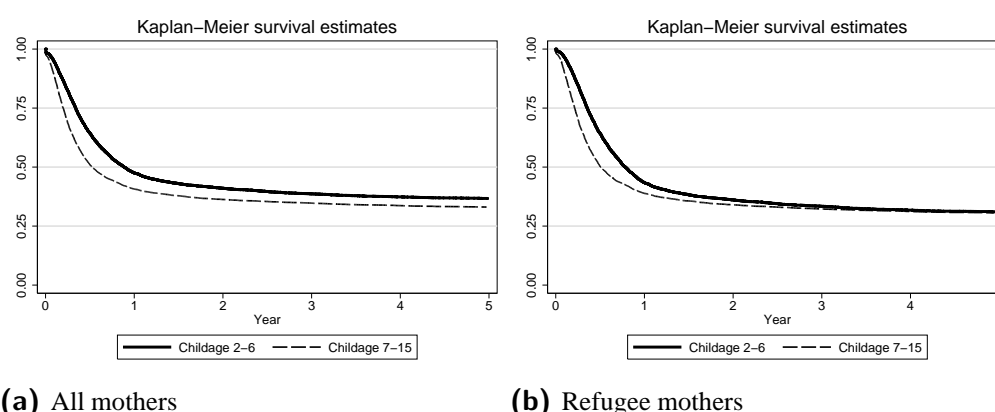


Figure 3: Survival until language course.

As seen in the figure, mothers with younger children begin the Swedish language course later and fewer attend the course, compared to those with older children (a). There may be several explanations for this difference, not only that those with younger children are able to stay home and collect parental leave benefits. Even in the absence of parental leave benefits in Sweden, the age of a mothers's child may still affect the participation rate.

For the sub-sample of immigrants that are more likely to be refugees, the patterns are a little bit different (b). After five years, about 70 percent have started a language course, irrespectively of the age of the youngest child, but those with younger children start later.

3.4 Labor force participation and employment

Many earlier studies of immigrant assimilation have studied earnings assimilation (Borjas, 1985, 1989; Clark and Lindley, 2005; Longva and Raaum, 2003; Edin et al., 2000). But

before an individual has employment, and thereby some earnings, the decision to enter the labor market has to be made; and not all who choose to try to enter the labor market find employment. Therefore I will study both labor force participation and employment in this paper. While labor force participation includes all individuals who want to work, employment show those who have been able to find work. Since many municipalities require recipients of social assistance to register at the PES, a labor force measure may also capture individuals without any possibility of finding work, why both labor force participation and employment is interesting to study.

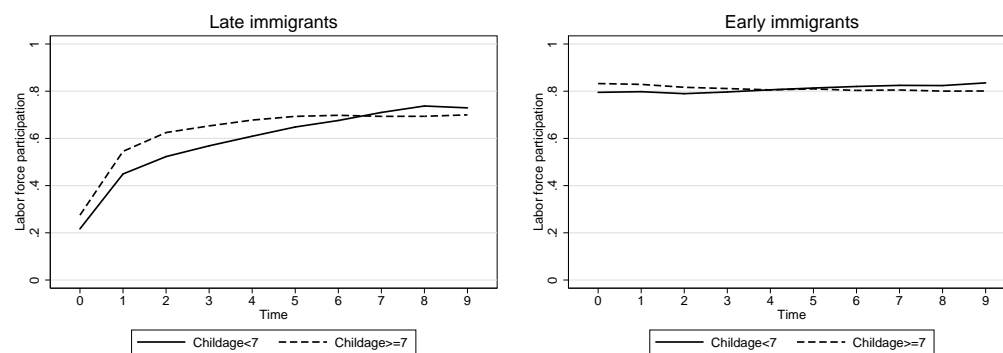
There are different ways of defining employment and labor force participation. In the data, yearly income from work and days registered at PES are available. But when should we consider an individual to be part of the labor force or employed? Is it enough to just earn a small amount of money during a year to be seen as employed that year, or is it necessary for the individual to earn enough to support themselves during the whole year to be considered as employed? The same considerations can be made when it comes to unemployment and thereby the definition of being a part of the labor force. Since many mothers in Sweden only work part-time, I will use rather low thresholds for employment and unemployment.

A mother will be considered as employed if she earns at least one month of minimum wage during a calendar year¹⁶. To be able to define labor force participation, I add a threshold for unemployment and this will be at least 30 days registered at the Public Employment Service (PES). But do all the unemployed register at the PES? There are several reasons to register at the PES. For the unemployed with a working history, this registration is mandatory to receive UI. Even if this is not a reason for newly arrived immigrants, they have to register to be able to take part in active labor market programs. If they need social assistance it is also in the municipalities' interest to require them to

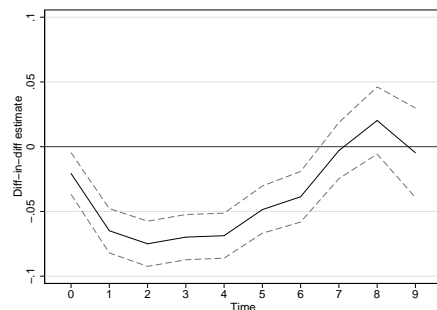
¹⁶The minimum wage is calculated as the 10th percentile in the overall wage data (monthly fulltime wages) using data from the Structure of Earnings Statistics and varies between 14275 SEK (\approx 1680 USD) in 2000 and 19403 SEK (\approx 2280 USD) in 2009.

register since the PES then can help them find work and be able to support themselves. Mörk and Liljeberg (2011) also show that a large share of recipients of social assistance in 2009 is registered at PES, which is especially true for immigrants and young people.

Figure 4 (a) and *Figure 5 (a)* show labor force participation and employment according to these definitions for Late and Early immigrant mothers each year of analysis, where year 0 is the year of residence permit. Mothers are also divided by age of youngest child in the beginning of the analysis.



(a) Labor force participation



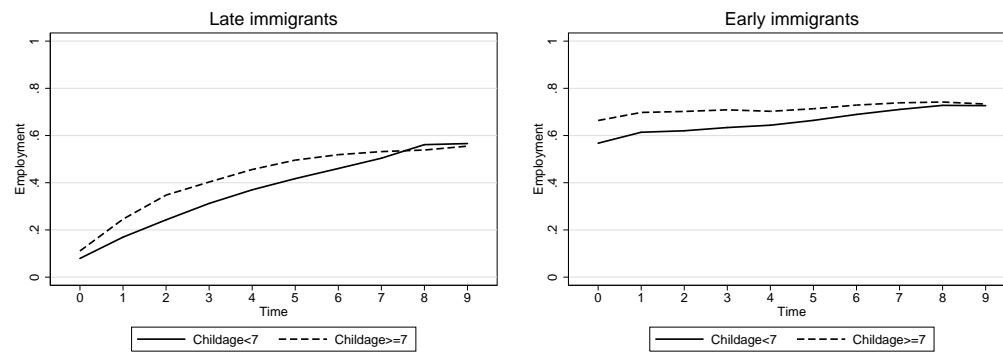
(b) Raw diff-in-diff estimates

Figure 4: Share in labor force and difference-in-difference figure.

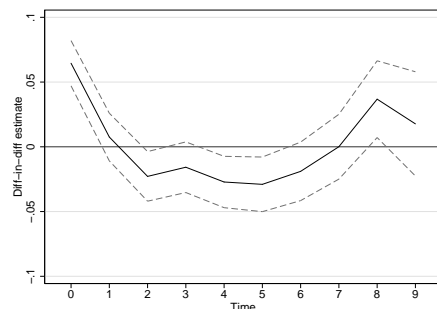
Starting with labor force participation in *Figure 4*, we see that Early immigrants have participation rates of about 80 percent. In the first years, mothers with older children participate to a greater extent, but from year 4 this changes. Late immigrant mothers have very low participation rates the year of migration (year 0), but after one year, the rates are much higher: around 50 percent, even if mothers with older children participate to a greater extent.

In *Figure 4* (b), a diff-in-diff estimate of the four groups in (a) for each year is shown, with 95 percent confidence intervals. These diff-in-diff estimates show a raw measure of what cannot be explained by immigration and the age of the children. The differences between these estimates and the results from the estimations later is that these mean values do not take different child age compositions and different years into account. These diff-in-diff estimates indicate that access to PLB reduces labor force participation for some years, but from year 7 no difference can be seen.

When it comes to employment in *Figure 5*, early immigrant mothers with younger children have lower employment rates at all times than mothers with older children. For late immigrant mothers, the employment rates are low for the first years and do not approach 40 percent until year 2 for mothers with older children.



(a) Employment



(b) Raw diff-in-diff estimates

Figure 5: Share employed and difference-in-difference figure.

The diff-in-diff estimates for employment, shown in figure *Figure 5* (b), are negative and significant between year two and six but smaller in magnitude than the diff-in-diff

estimates for labor force participation.

Mothers immigrating to Sweden seem to face obstacles to entering the labor market in their first years, irrespectively of whether they have access to PLB or not. Since the labor participation rates are so much lower in the year of immigration, Early immigrants may not be a good control group for that year, which is why estimates for the first year probably should not be given a causal interpretation. For employment, the same is true for the year of immigration and the first year after. The diff-in-diff estimates shown in *Figure 5* (b) are also large and positive in years 0 and 1, indicating that the effect shouldn't be seen as causal until year 2.

4 Econometric specification

To answer the question how access to PLB affects labor market participation it is clear from subsection 3.4 that it is not possible to simply compare the participation rates for mothers coming to Sweden with different ages of their children. The reason is that also the age of the individual's children affect the outcomes. The following difference-in-differences specification will therefore be used in the estimations¹⁷:

$$\begin{aligned}
 y_{it\tau} = & \sum_{\tau} \beta^{\tau} D(Time_{it} = \tau) + \sum_a \beta^a D(Childage_{it} = a) \\
 & + \sum_b \beta^b D(Year_t = b) + \sum_{\tau} \delta^{\tau} PLB * D(Time_{it} = \tau) \\
 & + \beta' X_i + \varepsilon_{it\tau}
 \end{aligned} \tag{1}$$

where $y_{it\tau}$ is the outcome variable of interest for individual i , year t , τ years after their residence permit.

¹⁷Since the treatment depends on the age of the children, some may think that a regression discontinuity approach would be appropriate. There are several reasons why an RD does not work. Treatment is not sharp at the age discontinuity, instead it is fuzzy in one direction since parents coming with seven year olds are not able to use all the days before the child turns eight. Since seven year olds also will attend school, it is even harder to say who will be treated.

$D(Time_{it} = \tau)$ is an indicator variable that equals one if it is τ years since individual i immigrated, and is always zero for individuals in the control group of earlier immigrant mothers. β^τ thereby captures the assimilation process for immigrants and shows how fast they assimilate to the control group already living in Sweden.

$D(Childage_{it} = a)$ equals one if the youngest child at immigration, or first year of analysis, is a years old in year t and thereby captures the effect the age of the child has on labor market participation. Since the decision to have more children is endogenous, controls for new children are not included in the main analysis, but to be sure that it is not immigrants who gave birth to new children that drive the results, additional controls for new children will be included in one of the sensitivity analysis.

$D(Year_t = b)$ equals one if it is year b , and hence captures the business cycle.

Finally, PLB equals one for those who have a child under the age of seven when they received their residence permit and therefore δ^τ , the parameter of interest, captures the difference in assimilation between those immigrants who have or had access to parental leave benefits at immigration, after controlling for the age of the child.

To investigate how much individual characteristics affect the results and to increase the precision of the results, some additional control variables will also be added (X_i) including seven dummy variables for education, five dummy variables for the number of children, nine dummy variables for the different age groups of the mother, six dummy variables for the region of origin, 21 dummy variables for the county the individual lives in during the first year of analysis, and four dummy variables for partner status the first year of analysis¹⁸. The variables used are defined in 6.

The identifying assumptions are that only the age of the child makes the treated group different from immigrants who come with somewhat older children and that the effect child age has on labor force participation is the same for both Late immigrants and Earlier immigrants.

¹⁸These include whether the partner was born in Sweden, immigrated more than five years earlier, immigrated 1–4 years earlier, and immigrated the same year.

Are there ways to examine whether these assumptions are plausible? The first assumption is connected to why people with children immigrate to Sweden in a certain year and whether the reasons depend on the age of the children. For refugees, there is less reason to expect that there is any difference between parents with younger and with older children. To receive a residence permit in Sweden for refugee reasons, it's the conditions in the home country that determines the decision, not the age of the child. For non-refugees however, the reason may be family connections or labor market reasons, since an older child probably has stronger connections to the home country there may be unobserved differences between immigrants with younger and older children. Since refugees are more likely to come from certain regions, a heterogeneity analysis will be performed by region of origin. Parents with younger children may also plan to come and work in Sweden for a few years and then return to their home country when it is time for the child to start school. These parents will then emigrate after a few years and, as mentioned above, emigration may then cause biased results if this emigration changes the composition of the groups. Therefore, also estimations without immigrants who leave Sweden will be performed in the sensitivity analysis.

It may be hard to find a good control group to control for child age and thereby fulfill the second assumption. Does the child's age affect labor force participation in the same way for those mothers coming to Sweden as those mothers already living in Sweden? Labor force participation among mothers differs in different countries. This may be due to both values being connected with raising a child and working in each country, but also if the various institutions in the country make it easier for mothers to combine work and family life. Values and institutions are probably correlated and affect each other. In Sweden many mothers work, facilitated by access to childcare and the possibility of working part-time when children are small. All mothers in Sweden naturally face the same institutions, irrespectively of when they immigrated. The family-work values may however differ, even if the mothers come from the same region and this will they compromise the

second assumption. Even if a mother wants to be home and take care of the household, she may be forced by the authorities to search for work if the family is not able to support themselves and needs to rely on social assistance. In that case, the Swedish institutions will probably affect the labor force participation more than the values of the mothers.

The effect of child age may be correlated with the degree of connection to the labor market. If the child's age has less effect on labor force participation when the mother already has some contact with an employer, the control group of earlier immigrants may not be able to fully control for child age and the estimates will be negatively biased.

There is also a constructional problem within the group of earlier immigrants. With the restriction that this group has to have immigrated before their first child but no later than 1995, the older the children are, the longer the immigrants have been in Sweden, creating stronger labor market attachment depending on the child's age. This may lead to a greater difference between mothers with older and with younger children than which is due to the age of their children. The early immigrant mothers will thereby overcompensate for the effect of the child's age and produce positive biased estimates. To reduce this specific constructional problem and to evaluate if the second assumption is fulfilled, two different sensitivity analyses will be done. The first is conducted with immigrants who have immigrated sometime before 1990. The second sensitivity analysis will be done with a control group consisting of Swedish-born mothers. If these estimations yields similar results it is less likely that the effect child age has on participation rates differs between different populations of mothers in Sweden.

Another problem when controlling for child age appeared when studying labor force participation and employment in subsection 3.4. Even if late immigrant mothers want to work, they may not have access to the labor market from the beginning. Controlling for child age may therefore overestimate the effect of access to parental leave if mothers among late immigrants are excluded from the labor market their first years in Sweden. The figures in subsection 3.4 suggest that for labor force participation, the group of early

immigrants is a good control group from year 1, while for employment, it is not until year 2 that the estimates should be given causal interpretations.

5 Results

In this section, the estimation results will be presented. First I will show (subsection 5.1) the main results for the effect of access to parental leave benefits (PLB) on both labor force participation and employment. The next subsection will discuss how the results should be interpreted (5.2). Subsection 5.3 will try to look at the effect of only the economic incentives. I then continue, presenting the results from a sensitivity analysis in subsection 5.4 and the results of the heterogeneous analysis in subsection 5.5. All subsections will begin by studying the labor force participation outcome before studying the employment participation outcome, since mothers first face the decision to enter the labor force.

5.1 Main results

Figure 6 shows the estimated effects of access to parental leave benefits (PLB) on labor force participation, with 95 percent confidence intervals, each year after immigration.¹⁹ This is δ^τ in equation (1), where τ goes from 0 to 9. Reassuringly, the estimates are similar both with and without the additional control variables, indicating that the earlier immigrants are good controls. The results show that the year after immigration, mothers who had access to PLB had a probability of being in the labor force about 6.5 percentage points lower than that of mothers immigrating at the same time but with older children. This gap then increases to about 7–8 percentage points in year 2, but then slowly decreases until year 7, when no differences can be seen. These results indicate that the PLB delays labor force participation for some years, but that these women later catch up with the women who immigrated at the same time but didn't have access to PLB. As mentioned before, the increasing gap in the beginning is probably due to the obstacles late immigrant

¹⁹For point estimates and standard errors see Table *Table 4*, first column.

mothers with older children face when they come to Sweden and are attending language courses instead of searching for work.

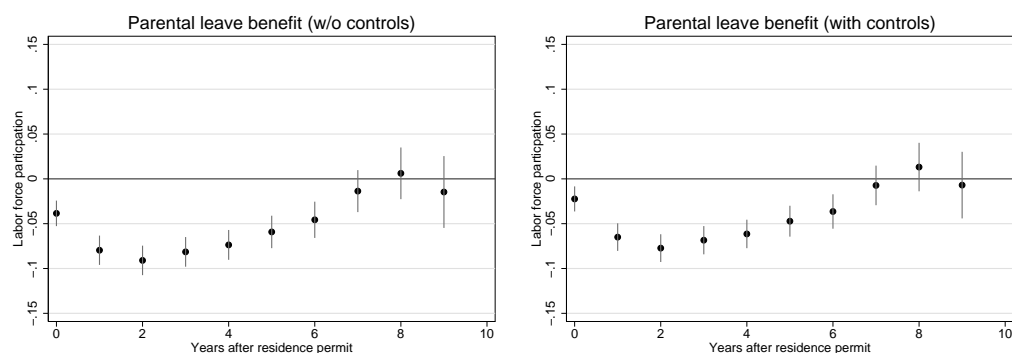


Figure 6: Estimated results: effect of access to parental leave benefits on maternal attachment to the labor force (without and with additional controls).

As with labor force attachment, the graphs displaying the effect of PLB on employment are very similar, independently of whether additional control variables are included, see *Figure 7*.²⁰ The labor force attachment results are to some extent driven by older mothers who are unemployed and registered at the PES since the estimates for employment are smaller than those for labor force attachment. Here the estimates for the year of immigration are positive but these are driven by the fact that very few mothers with older children have obtained employment in the first year. In years 2–6 the estimated effect of PLB on employment is about 3 percentage points lower employment rates.

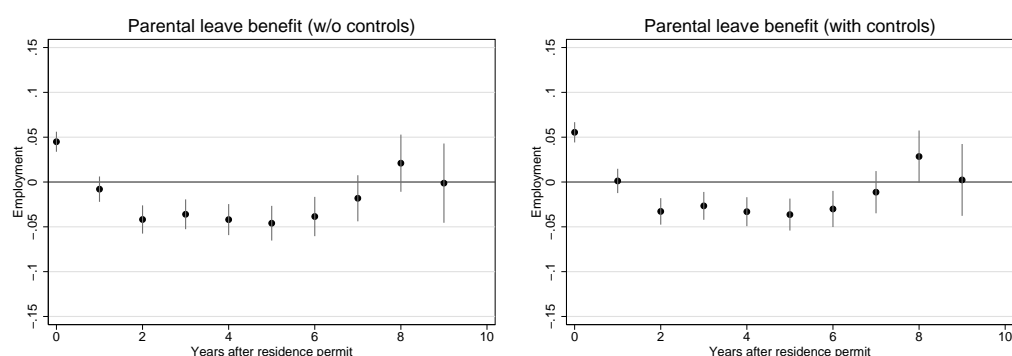


Figure 7: Estimated results: effect of access to parental leave benefits on maternal employment (without and with additional controls).

²⁰Point estimates and standard errors are shown in the first column of Table *Table 5*.

Table *Table B 1* in 6 show estimation results and standard errors for the effect of PLB, the assimilation process, and the estimated effect of child age on the different outcomes.

5.2 How to interpret the coefficient: What is the treatment?

To understand the results it is important to know what treatment is. Access to paid parental leave for these immigrant mothers may be seen as two things. First, the PLB is an economic incentive to stay out of the labor force. As seen in subsection 2.3, most mothers immigrating to Sweden between 2000 and 2005 and who claimed the PLB received the low fixed amount. For mothers claiming the benefit in 2000, this amounted to 60 SEK per day. The fixed amount was then increased to 120 SEK in 2002, 150 SEK in 2003, and finally 180 SEK for days claimed after January 1st 2004. Hence, the amount paid depended on which day the benefit was claimed for, not when the mother arrived or when the child was born. Is this enough money to create economic incentives? *Figure 8* shows the social assistance norm per month each year for two types of families. The first one consist of two adults and two children, aged four and seven, and the second family consists of a single parent with a child that is four years old. Families who receive these norms also get additional money for housing. The fixed amount is much lower than the social assistance

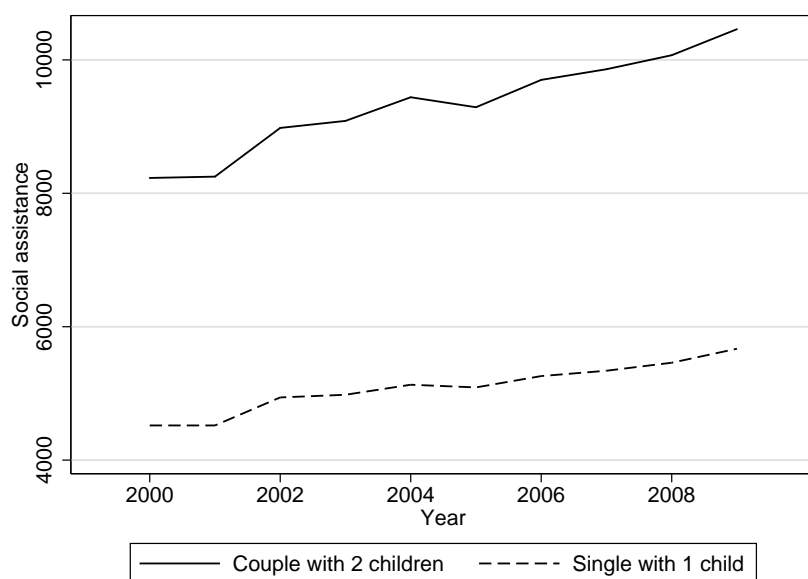


Figure 8: Social assistance norm in Sweden.

norm in Sweden, especially in the beginning of the period of analysis. In 2000, a mother claiming PLB received about 1800 SEK each month, compared to 8230 SEK and 4520 SEK plus costs for housing for a family of four and two, respectively, receiving social assistance. Even for a single mother with one child, the parental leave benefit is lower after 2004 when the additional social assistance for housing is taken into account (PLB gives about 5600 SEK and social assistance 5130 SEK without housing).

But the immigrants do not necessarily compare the parental benefits with the social assistance norm, for several reasons. If the husband works or if the family has other assets, they may not be eligible for social assistance and the PLB may then be a good complement. They may also compare the money to the income level in their home country.

The second way to see the treatment is as an interruption in the introduction program or language courses. Parents who claim the PLB are not allowed to work or study and are hence not able to participate in programs which would increase their human capital. As mentioned earlier, the governmental inquiry found in surveys to the municipalities that many municipalities actually require parents who need social assistance to first claim the PLB. If a woman with a four year old child takes a language course (SFI) and needs additional social assistance for support, four out of ten municipalities require that she drop the language course and claim PLB instead. Even two of ten municipalities will require a refugee mother to quit an introduction program if she needs additional support and instead claim PLB (SOU 2012:9).

The treatment is therefore a combined effect of both economic incentives and a potential interruption in introduction or language courses. One way to examine the incentive part is to use the change in the fixed amount. Even if those mothers arriving in Sweden in 2000 also got a higher fixed amount if they claimed days for 2002, it is possible to compare mothers who got a residence permit in 2002 with those who got one in 2000. The treatment in this case will then be having access to a benefit of 120 SEK per day the year of immigration and 150 SEK the year after immigration, compared to 60 SEK per

day in the control group. This analysis will be performed in the next subsection and may tell us something about how important the economic incentives are.

5.3 Economic incentives

Trying to only study the effect of higher benefits I here present results from a difference-in-differences estimation where mothers immigrating in 2002, when the lowest fixed amount was 120 SEK per day, are compared with mothers immigrating in 2000, when the lowest fixed amount was 60 SEK. The treated group are immigrating mothers with small children who got residence permit in 2002. Mothers with older children (immigrating in 2002) are still included to control for time of immigration, and mothers immigrating to Sweden in 2000 are used as the additional control group to control for age of the child. The treatment is thus having a higher parental leave benefit when immigrating as well as in the following years²¹. The results for each year are shown in *Figure 9* for labor force participation and in *Figure 10* for employment.

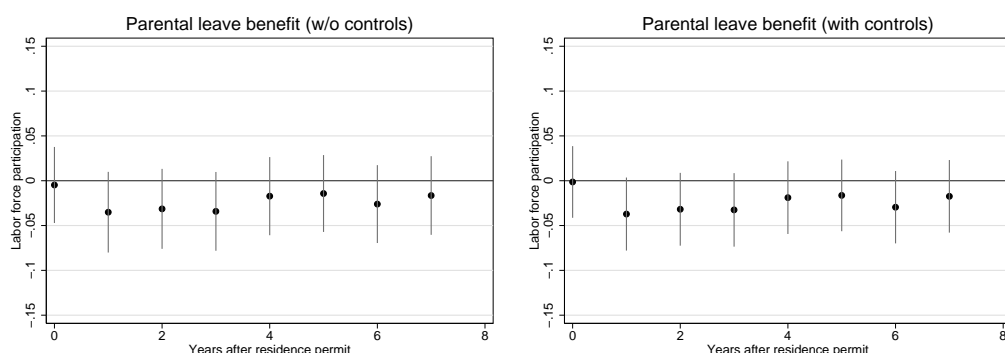


Figure 9: Estimated results: effect on maternal labor force attachment of access to 120 SEK instead of 60 SEK the year of migration (without and with additional controls).

All estimates for the effects on labor force participation are insignificant. The point estimates are negative but the confidence interval covers for example -7 to 1 percentage

²¹The use of PLB among immigrants with children has increased over the years. There may be two plausible explanations for this. The first explanation is that higher benefits have increased the economic incentive to use the benefit, which is why more immigrants used it. This is what I try to examine here. However, the higher benefits have also increased the incentive for the municipalities to require social assistance recipients to claim the PLB. If the municipalities' behavior has also changed, this would negatively bias the effect of the economic incentives.

points in years 1–3. When it comes to employment, in *Figure 10* the point estimate in year 2 is significant at the 10 percent level. But due to the large standard errors and the statistical probability that some of the estimates should be significant, there should be some caution regarding this result.

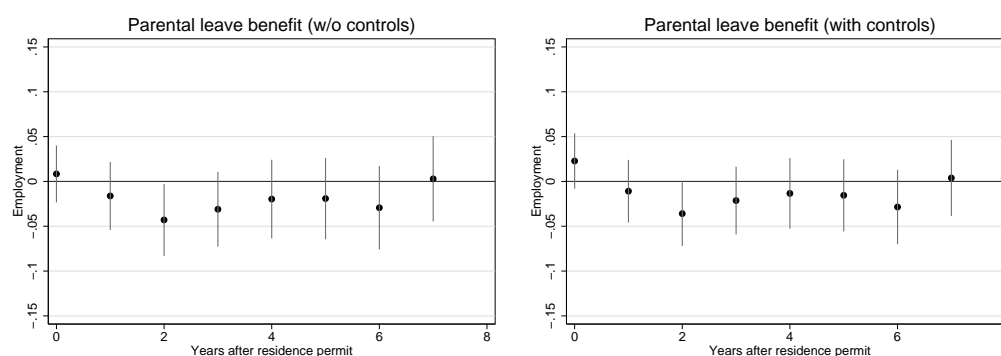


Figure 10: Estimated results: effect on maternal employment of access to 120 SEK instead of 60 SEK the year of migration (without and with additional controls).

The conclusion from this subsection is that the data do not allow drawing any firm conclusions about the effect of economic incentives. I therefore continue studying the total effect of access to PLB. It should be remembered that the effect evaluated in this subsection is the difference of 60 SEK per day, while many mothers received higher benefits in the main analysis.

5.4 Sensitivity analysis

Tables *Table 4* and *Table 5* show the estimations from different sensitivity analyses, evaluating the total effect of access to PLB. The first table is with labor force participation as the outcome, while *Table 5* has employment as the outcome. In all the estimations presented, the full model, with all additional control variables, is used. For easier comparison, the first column contains the main results from subsection 5.1.

Estimations without emigrants are displayed in the second columns (w/o Emigrants). As discussed earlier, immigrants who leave Sweden may bias the results if those who leave Sweden are differently affected by child age, for example if mothers with younger children come to Sweden to work for some years and then return to their home countries

when the child is about to start school. The results show all very similar results to the main analysis, giving no indication that emigration biases the results.

Table 4: Estimation results: sensitivity analysis, maternal labor force participation, earlier immigrants as control

	Main	w/o Emigrants	New Child	Early im. – 1990	Swedish born
<i>Access to PLB, each year since immigration:</i>					
0	-0.0224*** (0.00713)	-0.0181** (0.00774)	-0.0299*** (0.00714)	-0.00536 (0.0104)	-0.0322*** (0.00667)
1	-0.0650*** (0.00785)	-0.0613*** (0.00826)	-0.0713*** (0.00783)	-0.0559*** (0.0104)	-0.0665*** (0.00746)
2	-0.0772*** (0.00790)	-0.0705*** (0.00814)	-0.0758*** (0.00778)	-0.0759*** (0.0100)	-0.0715*** (0.00750)
3	-0.0684*** (0.00804)	-0.0652*** (0.00818)	-0.0644*** (0.00792)	-0.0692*** (0.00971)	-0.0571*** (0.00763)
4	-0.0614*** (0.00810)	-0.0626*** (0.00818)	-0.0568*** (0.00800)	-0.0635*** (0.00948)	-0.0428*** (0.00762)
5	-0.0472*** (0.00879)	-0.0499*** (0.00885)	-0.0446*** (0.00870)	-0.0506*** (0.00982)	-0.0207** (0.00830)
6	-0.0364*** (0.00979)	-0.0391*** (0.00983)	-0.0329*** (0.00971)	-0.0404*** (0.0106)	-0.00112 (0.00923)
7	-0.00731 (0.0113)	-0.00950 (0.0113)	-0.00552 (0.0112)	-0.0113 (0.0119)	0.0346*** (0.0106)
8	0.0132 (0.0138)	0.0107 (0.0138)	0.0119 (0.0137)	0.00817 (0.0142)	0.0608*** (0.0132)
9	-0.00697 (0.0190)	-0.00836 (0.0189)	-0.00573 (0.0188)	-0.0150 (0.0192)	0.0443** (0.0185)
<i>N</i>	463265	444240	463265	183547	7766157

All estimations also include controls for time since immigration, year, child age, and individual characteristics. Standard errors clustered on individual in parentheses,

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Mothers who came to Sweden with small children may have postponed the birth of another child when waiting for a residence permit. The results may thereby be driven by mothers having a new child. Since the decision to have another child is endogenous, a con-

trol variable for the age of a new child has so far been excluded. But in the third columns (New Child), estimations including indicator variables for the age of the youngest new child are presented. As expected, the negative estimates generally become smaller but only a little, and the results can therefore not only be explained by immigrants in the treated group having new children. I have also estimated the effect on fertility, having a new child each year as the outcome (results available upon request) and the effect is positive and significant in year 3 but the estimated effect is less than 1 percentage point.

Table 5: Estimation results: sensitivity analysis, maternal employment, earlier immigrants as control.

	Main	w/o Emigrants	New Child	Early im. – 1990	Swedish born
<i>Access to PLB, each year since immigration:</i>					
0	0.0554*** (0.00577)	0.0610*** (0.00612)	0.0484*** (0.00579)	0.0473*** (0.00919)	0.0268*** (0.00486)
1	0.00121 (0.00692)	0.00388 (0.00731)	-0.00577 (0.00691)	-0.00732 (0.00963)	-0.0173*** (0.00634)
2	-0.0328*** (0.00753)	-0.0301*** (0.00783)	-0.0321*** (0.00747)	-0.0463*** (0.00969)	-0.0463*** (0.00708)
3	-0.0266*** (0.00793)	-0.0249*** (0.00815)	-0.0219*** (0.00783)	-0.0408*** (0.00961)	-0.0366*** (0.00752)
4	-0.0331*** (0.00824)	-0.0333*** (0.00838)	-0.0272*** (0.00814)	-0.0466*** (0.00956)	-0.0355*** (0.00779)
5	-0.0363*** (0.00909)	-0.0388*** (0.00920)	-0.0319*** (0.00897)	-0.0505*** (0.0101)	-0.0305*** (0.00864)
6	-0.0301*** (0.0103)	-0.0319*** (0.0104)	-0.0248** (0.0102)	-0.0422*** (0.0111)	-0.0149 (0.00976)
7	-0.0114 (0.0120)	-0.0130 (0.0121)	-0.00799 (0.0119)	-0.0197 (0.0126)	0.0117 (0.0114)
8	0.0284* (0.0148)	0.0275* (0.0148)	0.0283* (0.0146)	0.0214 (0.0152)	0.0591*** (0.0142)
9	0.00233 (0.0204)	0.00167 (0.0204)	0.00450 (0.0203)	-0.00580 (0.0207)	0.0407** (0.0201)
<i>N</i>	463265	444240	463265	183547	7766157

All estimations also include controls for time since immigration, year, child age, and individual characteristics. Standard errors clustered on individual in parentheses,

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

As discussed in subsection 4, the construction of the group consisting of earlier immigrants may overestimate the effect of child age. Earlier immigrants with older children have to have immigrated to Sweden earlier than 1995 to be able to have older children born after the first immigration date. Mothers with older children may therefore have assimilated to the labor market more, which will be captured by the variables controlling for child age. Therefore the two last sensitivity analyses will try to deal with this potential problem.

The first one changes the population of earlier immigrants by requiring all earlier immigrants to have immigrated earlier. Column 5 (Early im. -1990) in Tables *Table 4* and *Table 5* therefore show estimations where the additional control group consist of earlier immigrants who received their residence permit before or in 1990 in Sweden. The estimates are somewhat more negative from year 3 for labor force participation (Table *Table 4*), and for employment (Table *Table 5*) the differences are somewhat larger, indicating that the composition of the group consisting of earlier immigrants overestimates the effect of child age, thus giving positively biased estimates. However, putting the limit for immigration earlier also reduces the sample and probably makes the earlier immigrants more different from the late immigrants.

The other way to remove the construction problem is to use Swedish-born mothers to control for the effects which child age has on labor force participation and employment. Estimation results with Swedish-born mothers are shown in column 6 of the tables. Even if Swedish-born mothers could be expected to have different values when it comes to children and work, the results are very similar, at least for the years 2–5.

Reassuringly, the estimated effects do not change much when performing these different sensitivity analyses, which reinforces the effect of PLB reducing labor force participation and employment up to six years after immigration.

5.5 Heterogenous effects

The results may differ for different mothers, which is why some heterogenous analyses are performed in this subsection. First, an analysis by child age is performed in subsection 5.5.1, before the mothers are divided by region of origin in subsection 5.5.2. In subsection 5.5.3 the analysis is performed for different educational levels and finally I study single mothers and mothers living with a partner in subsection 5.5.4.

5.5.1 By child age

To find the effect by child age, the age of the child has been interacted with the PLB variable. To investigate if the cut-off between ages six and seven is reasonable, even mothers with seven year old children have in these estimations been assigned a PLB variable equal to one.

Figure 11 shows the estimated results for labor force participation. The estimated effect is largest for mothers with children aged 2–4 years, while no effect is found for mothers coming to Sweden with children seven years old.

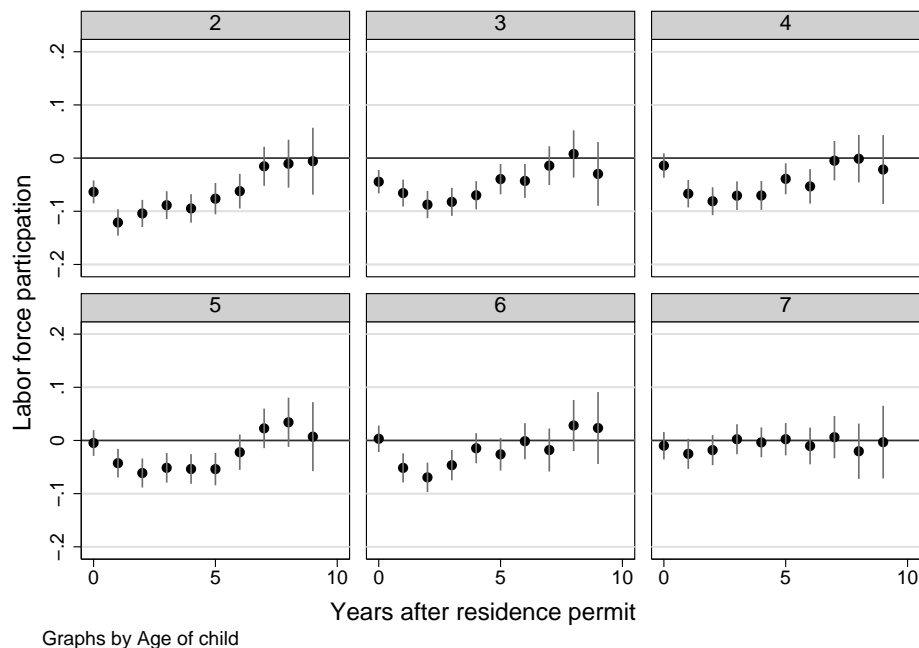


Figure 11: Estimated results: effect of access to parental leave benefits on maternal labor force participation, by age of youngest child.

For employment, smaller point estimates together with larger confidence intervals give fewer significant results (*Figure 12*). It seems to be the case that mothers with younger children have lower probabilities of being employed when they have access to PLB at immigration, after controlling for the child's age. Mothers of seven years old children do seem not seem to have been affected and, the estimates for mothers coming with children six years of age are almost all insignificant.

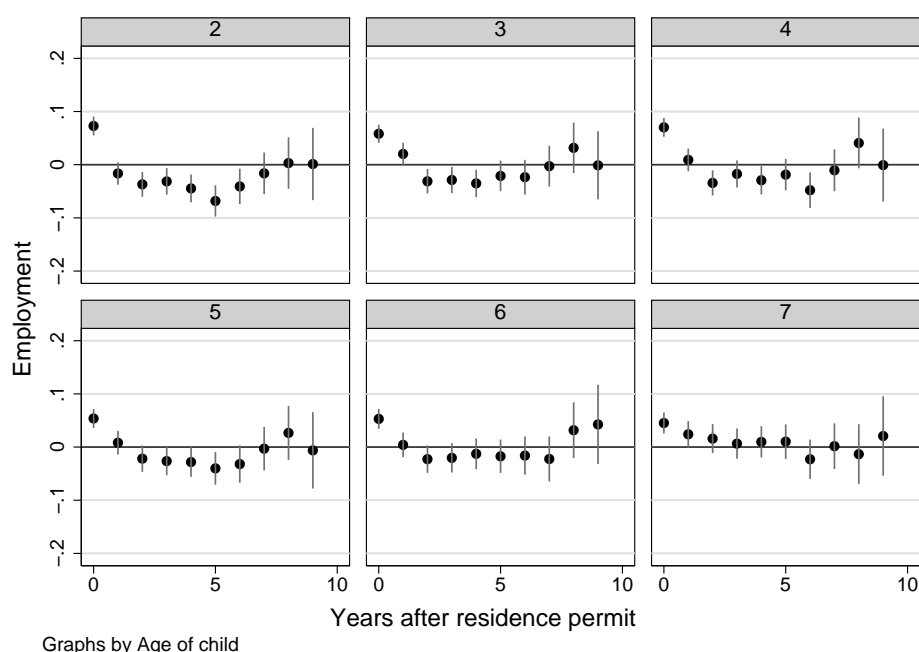


Figure 12: Estimated results: effect of access to parental leave benefits on maternal employment, by age of youngest child.

The access to pre-school classes and the municipalities' behavior may explain why there are small or no effects for mothers of children six years of age. As found by the inquiry appointed by the government to evaluate how the PLB affects labor market participation, many municipalities require immigrants who are able to claim PLB to do that before they can get social assistance (SOU 2012:9). This requirement implies that immigrants who want to search for work may be excluded from the labor market by the municipality. When the child is seven, the municipalities can not longer force mothers to claim PLB since the child then starts mandatory school. However, even mothers of six

year olds may not be required to claim PLB since most six year olds in Sweden attend pre-school classes. These classes aren't mandatory, but in 2001, 93 percent of all six year olds started this class (Swedish National Agency for Education, 2002).

5.5.2 By region of origin

Figure 13 and *Figure 14* show the estimated effect of PLB by region of origin. The sample is divided into sub-samples and the analysis is performed for each region separately. Dividing the sample reduces the sample sizes, making many of the confidence intervals include a zero effect. The point estimates are in many cases still large, of more than 5 percentage points, but the patterns differ to some extent from those found when all regions are estimated together.

The two top sub-figures are for regions where few or no immigrants received residence permits as refugees. Immigrants from Western Europe show a similar pattern as in the main analysis with an estimated negative effect the first years but this effect only lasts to year 3 before the estimates are close to zero for labor force participation and one year earlier in the employment estimation, even if all estimates are insignificant.

The second sub-figure, displaying the estimated results for immigrants coming from North and South America together with the South Pacific, show a negative effect on labor force participation of over 10 percentage points in year 2 after immigration. When estimating the effect of PLB on employment these estimates are somewhat smaller but still large and not until year 7 do the point estimates become close to zero, even if the estimates are smaller and insignificant from year 3. The results for these non-refugee regions indicate that there are effects for the first years but that this effect disappears or at least gets smaller earlier than when estimating all mothers together.

Mothers from Eastern Europe, mothers from Asia, and mothers from the Middle East and North Africa had lower probabilities of being in the labor force for some years if they had access to parental leave benefits when they came to Sweden. For mothers from Eastern Europe and Asia the same pattern is seen for employment. Mothers from Sub-Saharan

Africa show similar but smaller estimated effects of PLB on labor force participation and they are far from significant.

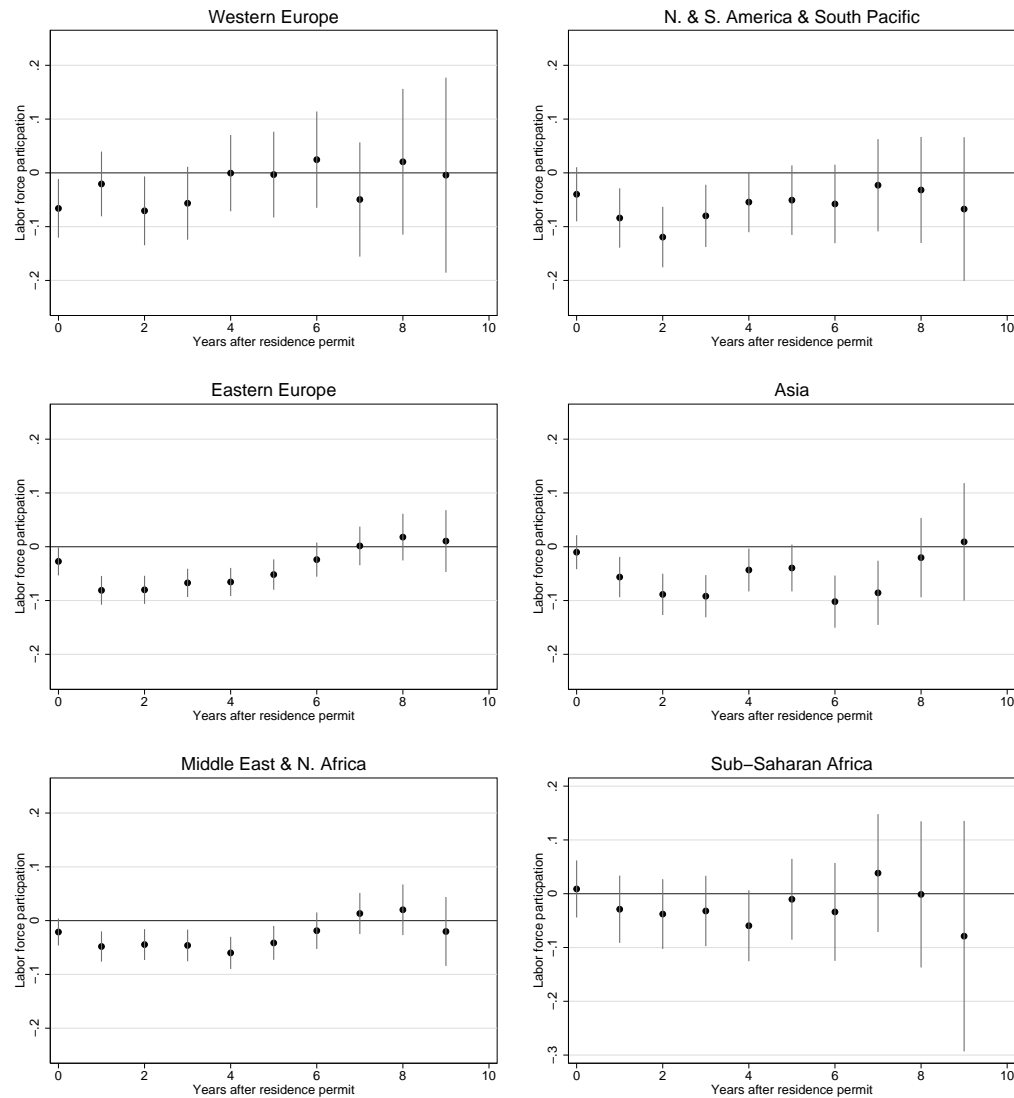


Figure 13: Estimated results: effect of access to parental leave benefits on maternal labor force participation, by region.

Mothers from the Middle East and N. Africa together with Sub-Saharan Africa stands out when it comes to employment. Mothers from these regions have a positive estimated effect of PLB for the first few years, that slowly reaches zero. The explanation for this is the low participation rates among these mothers (not shown in any tables). For mothers from N. Africa and the Middle East, the employment rates are lower than 10 percent

for the year of immigration, while the difference between the early immigrant mothers from the same region is 12 percentage points. Mothers from Sub-Saharan Africa have somewhat higher employment rates the first year (10.1 and 13.2 percent for the different child age groups) but they are still low compared to early immigrant mothers from this region (61.7 and 72.3 percent). Mothers from these regions seem to face other obstacles to entering into employment. These obstacles may be due to their both lacking country specific human capital, such as speaking Swedish, and discrimination in the labor market, but there may also be a decision made by the mothers.

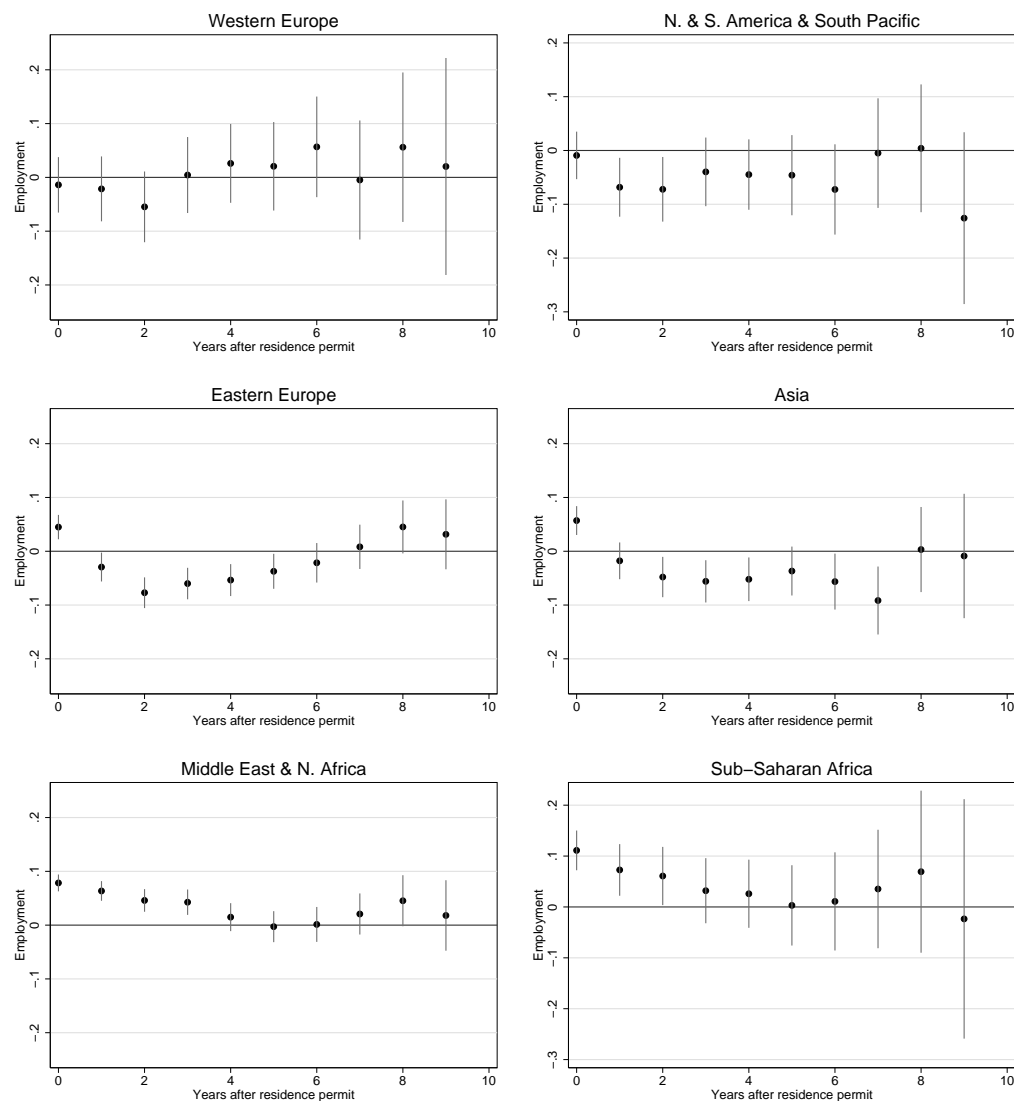


Figure 14: Estimated results: effect of access to parental leave benefits on maternal employment, by region.

Mothers from the four regions in the bottom sub-figures are all more likely to receive residence permits in Sweden as refugees. Even if all four groups of mothers show similar patterns when it comes to labor force participation, the effects do not carry over to employment for all groups. These differences are probably driven by late immigrating mothers with older children. Even if mothers with older children from the Middle East and Africa are registered at the PES, they are not able to find employment, which probably would be the case even for mothers with younger children if they didn't have access to PLB.

The estimated effects for labor force participation depend to some extent on where the mothers come from, but the patterns are similar for most of the regions, even if the point estimates are smaller and insignificant for Sub-Saharan Africa. When it comes to employment, the estimated effects are positive in the beginning for both Sub-Saharan Africa and the Middle East and North Africa, probably driven by obstacles to getting employment for the mothers from these regions.

5.5.3 By educational level

The estimated effect of PLB for mothers with different level of education are shown in *Figure 15* and *Figure 16*. Mothers least affected are those with at least some university education. University educated mothers have at most a 5 percentage points lower probability of being in the labor force if they had access to PLB. It may be easier for these mothers to find some employment, and therefore they may use the benefit to a lesser extent.

For mothers with less education, PLB causes the participation in the labor force to be 5 to 10 percentage points lower, depending on educational level, until about year 7. This is a result that carries over to the effect on employment for mothers with some high school education, even if the estimates have smaller magnitudes. For mothers with only compulsory school, the pattern changes, showing zero estimated effects the first years but from year 4 a negative estimated effect for some years of having access to PLB at

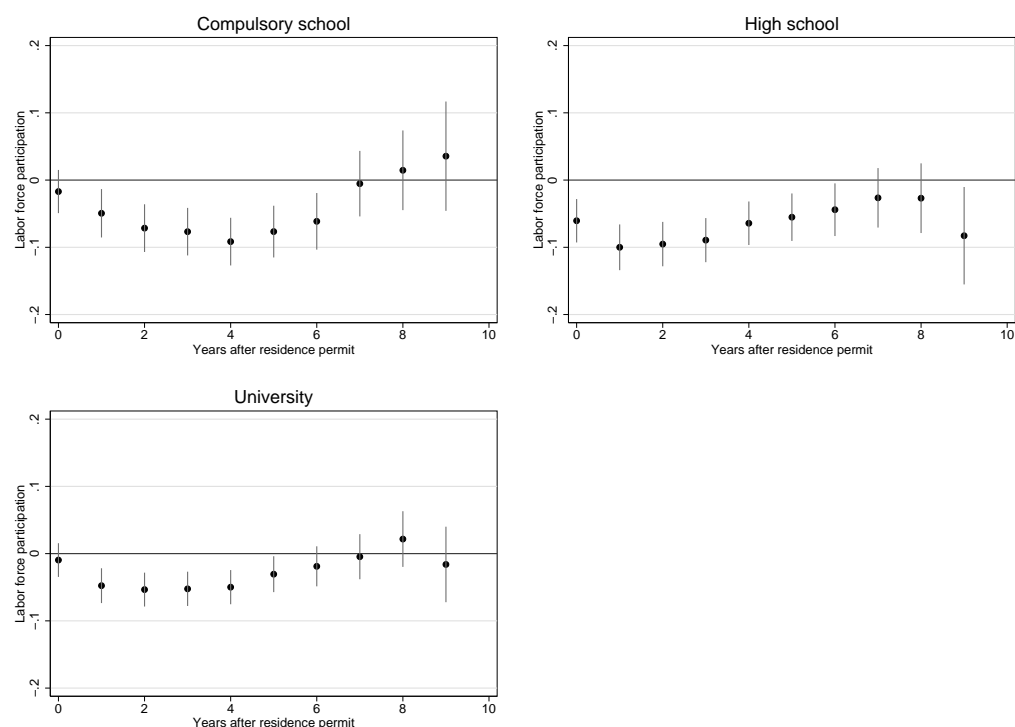


Figure 15: Estimated results: effect of access to parental leave benefits on maternal labor force participation, by educational level.

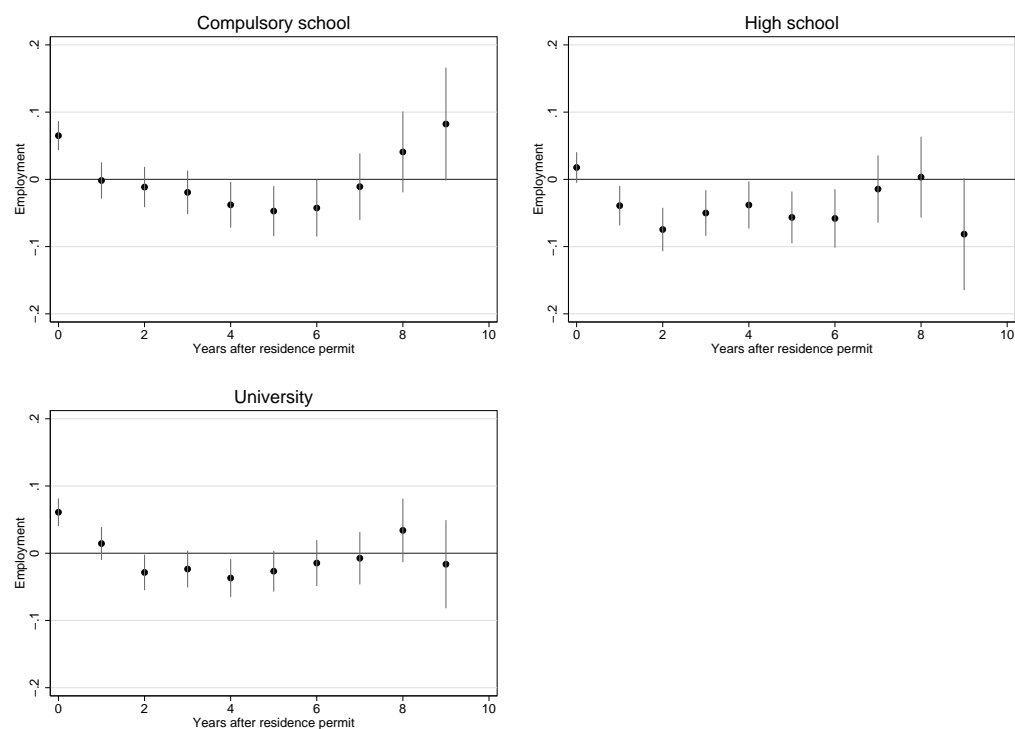


Figure 16: Estimated results: effect of access to parental leave benefits on maternal employment, by educational level.

immigration.

A possible explanation for the delayed effect could be if low-educated mothers with older children start labor market programs to increase their human capital and then get their first employment only after some years. Then for the first years, mothers with small children are able to stay on parental leave and mothers with older children attend different labor market programs, which is why no differences in employment can be seen.

5.5.4 Singles and in couples

The last heterogenous analysis is performed for single mothers as opposed to mothers living with a partner. Mothers may be affected differently if they have a spouse with which to share both the economic responsibility and the care for the children. The results from these estimations are shown in *Figure 17* and *Figure 18*. For single mothers the estimated effect on labor force participation is greater in year 2 than for mothers living in a couple, but single mothers seem to enter the labor market faster than mothers in couples. For single mothers, the estimates approaches zero in two steps. First, in year 4 the point estimate is about 5 percentage points lower for being in the labor force and then again in year 7 the point estimate drops even more. The reduction in year 4 when it comes to labor force participation does not carry over to employment, where single mothers have negative estimates of 3–5 percentage points until year 7, which is larger than that of mothers in couples.

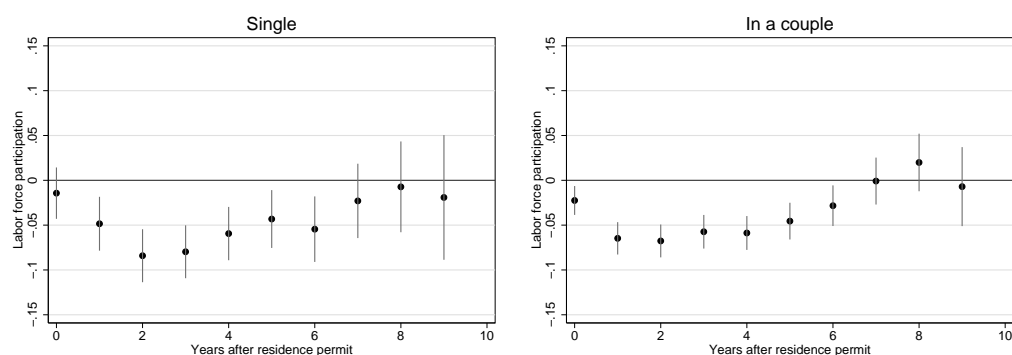


Figure 17: Estimated results: effect of access to parental leave benefits on maternal labor force participation of singles and mothers in couples.

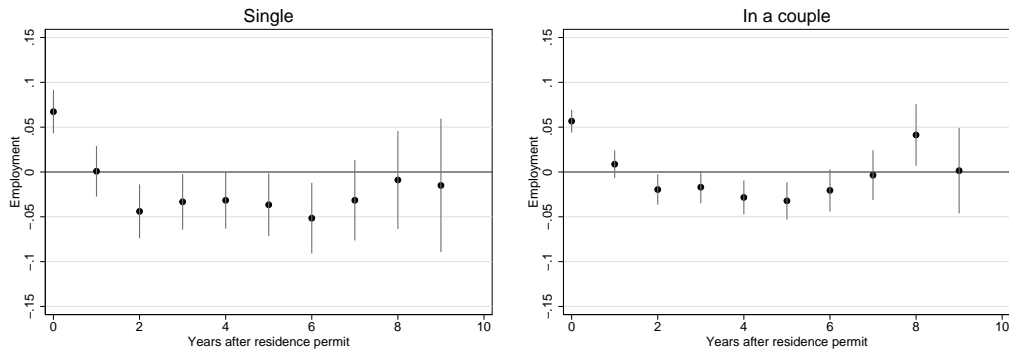


Figure 18: Estimated results: effect of access to parental leave benefits on maternal employment for singles and mothers in couples.

The results in this section indicated that single mothers are more affected the first year but some joined the labor force faster than cohabiting mothers. The differences between single mothers and cohabiting mothers is not statistically different.

6 Discussion

This paper has studied how access to paid parental leave (PLB) affects immigrating mothers' labor market assimilation. All parents who receive a residence permit in Sweden with children aged below eight get access to 480 days of PLB, making it possible for one parent to delay labor market entrance for some years. Many immigrating mothers use the benefit, but far from all. Among mothers immigrating to Sweden between 2000 and 2005 with their youngest child between two and six years old, 43 percent claimed at least some PLB for children they had when they immigrated during the year of immigration or the following two years.

To be able to answer the question, how does the access to PLB affect labor market participation, I have made two key assumptions in this paper. The first assumption is that the only thing affecting labor force participation, or employment, that differs between mothers immigrating to Sweden with children of different ages is the age of the child. To control for this "child age effect," an additional control group consisting of mothers who immigrated earlier to Sweden, and gave birth to their children after their immigration,

was added. The second assumption is that the effect which child age has on labor force participation and employment is the same for both mothers immigrating with children and mothers immigrating earlier and gave birth to their children in Sweden. If these assumptions are fulfilled, the estimated effects can be given casual interpretations.

The first assumptions is likely to be fulfilled. There is no reason that mothers with different ages of their children coming to Sweden should differ in any other aspects than the age of their children. The second assumption is however stronger. To check the robustness of this assumption I do sensitivity analyses using different groups of mothers, both mothers immigrating earlier and Swedish born mothers, to control for child age. The result from these estimations yields very similar results as in the main analysis indicating that the effect child age has on labor force participation do not differ to much between these groups of mothers.

The main results indicate that labor force participation is 7.7 percentage points lower two years after immigration due to access to PLB, going to zero effect seven years after immigration. For employment, the estimated effect of access to PLB is about 3 percentage points 2–6 years after immigration. This indicates that it is not only mothers who, without the benefits, would have been unemployed that are the ones who are affected.

Since access to PLB can be seen as a combined effect of economic incentives and an interruption or delayed start of introduction programs or language courses, subsection 5.3 showed the results when immigrant mothers facing different payment schemes were compared. Basically, the treated group had access to a benefit that was about 60 SEK per day higher each year after immigration compared to the control group. This analysis gave negative point estimates but they were insignificant. Sensitivity and heterogenous analyses were therefore conducted for the total affect of access to PLB. All sensitivity analyses were reassuringly very similar to the main estimations.

When studying heterogeneous effects, a few conclusions can be drawn. Mothers with their youngest child five or six years of age are somewhat less affected than mothers with

younger children. This difference isn't surprising since fewer of these mothers claim the benefit and they are able to use it for fewer years since their children turn eight earlier. Mothers coming from Sub-Saharan Africa seem to be less affected when it comes to labor force participation. For employment, both mothers from the Middle East and Africa have positive estimates the first years. This is, though, driven by low employment rates among mothers with older children, indicating that there are more obstacles to entering employment for mothers from these regions.

Is the access to PLB then a huge obstacle for labor market entrance for mothers immigrating with small children? During the six years studied, 1400 mothers on average immigrated each year to Sweden with children aged 2–6 years. If the estimations give the true effect of PLB on labor force participation, this corresponds to at most 100 mothers being out of the labor force in the second year after immigration, decreasing to zero in year 7. For employment, about 40 mothers of those immigrating during a year do not have employment due to access to the benefits 2–5 years after immigration. Looking at the number of individuals, it doesn't seem to be that many, even if this is per year. Since only about half of the immigrating mothers obtain employment after five or six years, the percentage effect is twice as large as the percentage point effect and substantial for this group of women. But still, the access to PLB can definitively not by itself explain the low employment rates among immigrant women. This is also clear when studying the participation rates for mothers with older children who do not have access to PLB.

References

- Amuedo-Dorantes, C. and de la Rica, S. (2007). Labour market assimilation of recent immigrants in Spain. *British Journal of Industrial Relations*, 45(2):257 – 284.
- Baker, M. and Milligan, K. (2008). How does Job-Protected maternity leave affect mothers' employment? *Journal of Labor Economics*, 26(4):655–691.
- Bennett, J. and Tayler, C. P. (2006). *Starting Strong II: Early Childhood Education and Care*.
- Bergemann, A. and Riphahn, R. T. (2010). Female labour supply and parental leave benefits – the causal effect of paying higher transfers for a shorter period of time. *Applied Economics Letters*, 18(1):17–20.
- Bertrand, M., Luttmer, E. F. P., and Mullainathan, S. (2000). Network effects and welfare cultures. *The Quarterly Journal of Economics*, 115(3):1019–1055.
- Björklund, A. (2007). Does a family-friendly policy raise fertility levels? Technical Report 2007:3, Swedish institute for European Studies Report.
- Borjas, G. J. (1985). Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics*, 3(4):463–489.
- Borjas, G. J. (1989). Immigrants and emigrant earnings: A longitudinal study. *Economic Inquiry*, 27(1):21–37.
- Borjas, G. J. (2002). Welfare reform and immigrant participation in welfare programs. *International Migration Review*, 36(4):1093–1123.
- Borjas, G. J. and Trejo, S. J. (1991). Immigrant participation in the welfare system. *Industrial and Labor Relations Review*, 44(2):195–211.

- Borjas, G. J. and Trejo, S. J. (1993). National origin and immigrant welfare reciprocity. *Journal of Public Economics*, 50(3):325–344.
- Chiswick, B. R. (1978). The effect of americanization on the earnings of foreign-born men. *Journal of Political Economy*, 86(5):897–921.
- Clark, K. and Lindley, J. (2005). Immigrant labour market assimilation and arrival effects: Evidence from the labour force survey. Sheffield Economic Research Paper Series No. 2005004, University of Sheffield.
- Dustmann, C. and Fabbri, F. (2003). Language proficiency and labour market performance of immigrants in the UK. *The Economic Journal*, 113(489):695–717.
- Edin, P.-A., Lalonde, R. J., and Åslund, O. (2000). Emigration of immigrants and measures of immigrant assimilation: Evidence from Sweden. *Swedish Economic Policy Review*, 7:163–204.
- Eriksson, S. (2010). Utrikesfödda på den svenska arbetsmarknaden. SOU 2010:88, Bilaga 4.
- Ferrer, A., Green, D. A., and Riddell, W. C. (2006). The effect of literacy on immigrant earnings. *The Journal of Human Resources*, XLI(2):280–410.
- Hansen, J. and Lofstrom, M. (2003). Immigrant assimilation and welfare participation: Do immigrants assimilate into or out of welfare? *Journal of Human Resources*, 38(1):74–98.
- Kennerberg, L. and Åslund, O. (2010). Sfi och arbetsmarknaden. Rapport 2010:10, IFAU.
- Lalive, R. and Zweimüller, J. (2009). How does parental leave affect fertility and return to work? Evidence from two natural experiments. *The Quarterly Journal of Economics*, 124(3):1363–1402.

- Lemaître, G. (2007). The integration of immigrants into the labour market: The case of Sweden. OECD Social, Employment and Migration Working Papers 48, OECD Publishing.
- Lindström, E. (2010). The effect of own and spousal parental leave on earnings. Workig paper 2010:4, IFAU.
- Longva, P. and Raaum, O. (2003). Earnings assimilation of immigrants in Norway - A reappraisal. *Journal of Population Economics*, 16(1):177–193.
- Lundborg, P. (2007). Assimilation in Sweden: Wages, employment and work income. Working paper 2007:5, SULCIS.
- Milligan, K. (2005). Subsidizing the stork: New evidence on tax incentives and fertility. *Review of Economics and Statistics*, 87(3):539–555.
- Mörk, E. and Liljeberg, L. (2011). Fattig, sjuk och arbetslös - en beskrivning av personer i kläm mellan stat och kommun. Rapport 2011:17, IFAU.
- Moss, P. and O'Brien, M. (2006). International review of leave policies and related research 2007. Employment Relations Research Series NO. 80, Department of Trade and Industry.
- Nekby, L. (2002). Employment convergence of immigrants and natives in Sweden. *Department of Economics Stockholm University Working Paper* 2002:9.
- Olli Segendorf, Å. and Teljosuo, T. (2011). Sysselsättning för invandrare - en ESO-rapport om arbetsmarknadsintegration. Rapport 2011:5, The Expert Group on Public Economics (ESO).
- Ruhm, C. J. (1998). The economic consequences of parental leave mandates: Lessons from Europe. *The Quarterly Journal of Economics*, 113(1):285–317.

SOU 2003:75 (2003). Etablering i sverige möjligheter och ansvar för individ och samhälle. Betänkande av Utredningen om flyktingmottagande och introduktion.

SOU 2012:9 (2012). Förmån och fälla - nyanländas uttag av föräldrapenning. Utredningen om ökat arbetskraftsdeltagande bland nyanlända utrikes födda kvinnor och anhöriginvandrare (AKKA-utredningen).

Swedish National Agency for Education (2002). Barnomsorg, skola och vuxenutbildning i siffror, 2002 del 2: Barn, personal, elever och lärare, rapport 214.

Vikman, U. (2010). Does providing childcare to unemployed affect unemployment duration? WP 2010:15, IFAU.

Appendix A: Data

Below the variables used in the regression estimations are described.

Outcome variables

- *Employed* equals 1 if individual i in year t earns more than the 10th percentile in the full-time wage distribution in Sweden.
- *Labor force attachment* equals 1 if individual i is *Employed* or registered at least 30 days at the Public employment Service.

Explanatory variables

- *PLB* equals 1 if the mother immigrated between 2000 and 2005 with a child who, in the year of immigration, turned 2–6 years old.
- $D(\text{Time}_{it} = \tau)$ equals 1 for Late immigrant mothers if year t is τ years after immigration. τ goes from 0 to 9.
- $D(\text{Childage}_{it} = a)$ equals 1 for a mother if the youngest child at immigration, or the first year of analysis, is a years old in year t . a goes from 2 to 20 where 20 includes ages 20–24.
- $D(\text{year}_t = b)$ equals 1 if the year is year b , where b goes from 2000 to 2009.

Additional control variables - \mathbf{X}_i

- $D(\text{Edu}=e)$ equals 1 if the educational level the first year of analysis is e , where e corresponds to
 1. less than compulsory school
 2. compulsory school
 3. up to two years of high school
 4. up to three years of high school
 5. tertiary, less than three years

6. tertiary, three years or more
 7. doctoral studies
- $D(\text{Number}=n)$ equals 1 if individual i had n children the first year of analysis. n goes from 1–6 where 6 also includes mothers with more than six children.
 - $D(\text{Age group}=g)$ equals 1 if individual i belongs to age group g , where each age group is a five-year interval.
 - $D(\text{region}=r)$ equals 1 if the region of origin is region r :
 1. Western Europe
 2. Eastern Europe
 3. Asia
 4. The Middle East and North Africa
 5. Sub-Saharan Africa
 6. North America, South America, and the South Pacific
 - $D(\text{County}=l)$ equals 1 if the individual lives in county l the first year of analysis. There are 21 counties in Sweden.
 - $D(\text{Partner}=p)$ equals 1 if the partner the first year of analysis immigrated at time p corresponding to
 1. being Swedish-born
 2. immigrated more than five years earlier
 3. immigrated 1–4 years earlier
 4. immigrated the first year of analysis

Appendix B: Tables

Table B 1: Estimation results: maternal labor force attachment and employment

	Labor force		Employment	
	(1)	(2)	(3)	(4)
<i>Access to PLB, each year since immigration:</i>				
0	-0.0385*** (0.00726)	-0.0224*** (0.00713)	0.0449*** (0.00570)	0.0554*** (0.00577)
1	-0.0796*** (0.00833)	-0.0650*** (0.00785)	-0.00797 (0.00722)	0.00121 (0.00692)
2	-0.0909*** (0.00839)	-0.0772*** (0.00790)	-0.0418*** (0.00803)	-0.0328*** (0.00753)
3	-0.0814*** (0.00844)	-0.0684*** (0.00804)	-0.0360*** (0.00848)	-0.0266*** (0.00793)
4	-0.0737*** (0.00848)	-0.0614*** (0.00810)	-0.0419*** (0.00883)	-0.0331*** (0.00824)
5	-0.0592*** (0.00923)	-0.0472*** (0.00879)	-0.0460*** (0.00987)	-0.0363*** (0.00909)
6	-0.0457*** (0.0103)	-0.0364*** (0.00979)	-0.0385*** (0.0112)	-0.0301*** (0.0103)
7	-0.0137 (0.0120)	-0.00731 (0.0113)	-0.0181 (0.0131)	-0.0114 (0.0120)
8	0.00618 (0.0147)	0.0132 (0.0138)	0.0210 (0.0163)	0.0284* (0.0148)
9	-0.0147 (0.0204)	-0.00697 (0.0190)	-0.00127 (0.0225)	0.00233 (0.0204)
<i>Each year since Immigration</i>				
0	-0.533*** (0.00555)	-0.467*** (0.00603)	-0.559*** (0.00457)	-0.497*** (0.00539)
1	-0.264*** (0.00615)	-0.200*** (0.00631)	-0.440*** (0.00568)	-0.377*** (0.00619)
2	-0.187*** (0.00611)	-0.121*** (0.00622)	-0.351*** (0.00621)	-0.285*** (0.00650)
3	-0.161*** (0.00612)	-0.0937*** (0.00624)	-0.309*** (0.00643)	-0.239*** (0.00666)
4	-0.137*** (0.00614)	-0.0695*** (0.00624)	-0.266*** (0.00662)	-0.193*** (0.00678)
5	-0.118*** (0.00677)	-0.0467*** (0.00677)	-0.233*** (0.00741)	-0.151*** (0.00738)
6	-0.110*** (0.00770)	-0.0306*** (0.00755)	-0.215*** (0.00844)	-0.122*** (0.00822)
7	-0.110***	-0.0273***	-0.205***	-0.107***
<i>Continue on next page</i>				

<i>Continued from last page</i>	Labor force		Employment	
	(1)	(2)	(3)	(4)
	(0.00911)	(0.00874)	(0.00995)	(0.00945)
8	-0.103***	-0.0252**	-0.198***	-0.102***
	(0.0114)	(0.0107)	(0.0124)	(0.0115)
9	-0.0916***	-0.0102	-0.170***	-0.0697***
	(0.0156)	(0.0144)	(0.0170)	(0.0154)
<i>Child age</i>				
3	0.00103	-0.000575	0.0301***	0.0262***
	(0.00268)	(0.00268)	(0.00298)	(0.00297)
4	0.00102	-0.00285	0.0370***	0.0285***
	(0.00312)	(0.00314)	(0.00353)	(0.00354)
5	0.00550*	-0.000545	0.0468***	0.0340***
	(0.00329)	(0.00335)	(0.00375)	(0.00382)
6	0.0127***	0.00446	0.0614***	0.0444***
	(0.00343)	(0.00355)	(0.00393)	(0.00406)
7	0.0191***	0.0105***	0.0780***	0.0587***
	(0.00362)	(0.00380)	(0.00423)	(0.00439)
8	0.0221***	0.0127***	0.0905***	0.0686***
	(0.00382)	(0.00405)	(0.00451)	(0.00472)
9	0.0260***	0.0153***	0.100***	0.0757***
	(0.00404)	(0.00432)	(0.00480)	(0.00505)
10	0.0256***	0.0131***	0.111***	0.0822***
	(0.00430)	(0.00463)	(0.00514)	(0.00541)
11	0.0253***	0.0117**	0.116***	0.0843***
	(0.00459)	(0.00496)	(0.00548)	(0.00580)
12	0.0286***	0.0128**	0.129***	0.0927***
	(0.00491)	(0.00532)	(0.00585)	(0.00619)
13	0.0199***	0.00357	0.129***	0.0905***
	(0.00521)	(0.00568)	(0.00616)	(0.00656)
14	0.0219***	0.00580	0.137***	0.0972***
	(0.00552)	(0.00604)	(0.00649)	(0.00697)
15	0.0172***	0.00201	0.139***	0.0979***
	(0.00591)	(0.00648)	(0.00687)	(0.00742)
16	0.0131**	0.000725	0.139***	0.0990***
	(0.00644)	(0.00702)	(0.00741)	(0.00799)
17	0.000288	-0.00908	0.132***	0.0928***
	(0.00711)	(0.00770)	(0.00809)	(0.00869)
18	-0.00841	-0.0144*	0.124***	0.0864***
	(0.00793)	(0.00853)	(0.00897)	(0.00957)
19	-0.0167*	-0.0180*	0.123***	0.0891***
	(0.00906)	(0.00955)	(0.0101)	(0.0106)
<i>Continue on next page</i>				

<i>Continued from last page</i>	Labor force		Employment	
	(1)	(2)	(3)	(4)
≥ 20	-0.0444*** (0.0118)	-0.0328*** (0.0120)	0.102*** (0.0129)	0.0757*** (0.0131)
Year effects	Yes	Yes	Yes	Yes
$\mathbf{X_i}$	No	Yes	No	Yes
<i>N</i>	463265	463265	463265	463265

All estimations also include controls for time since immigration, child age, year, and individual characteristics. Standard errors clustered on individual in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Publication series published by IFAU – latest issues

Rapporter/Reports

- 2012:20** Ulander-Wänman Carin "Flexibilitet – en dominerande diskurs i de anställningsvillkor som rör sysselsättningstrygghet för arbetstagare i kommun och landsting"
- 2012:21** Wikström Christina and Magnus Wikström "Urval till högre utbildning – Påverkas betygens prediktionsvärde av ålder?"
- 2012:22** Karimi Arizo, Erica Lindahl and Peter Skogman Thoursie "Effekter av föräldrapenning på arbetsutbud"
- 2012:23** Sibbmark Kristina "Arbetsmarknadspolitisk översikt 2011"
- 2012:24** Liljeberg Linus, Sara Martinson and Jonas Thelander "Vad innebär det att bli coachad? En utvärdering av jobbcoachningen vid Arbetsförmedlingen"
- 2012:25** van den Berg Gerard J., Petter Lundborg and Johan Vikström "De långsiktiga ekonomiska och sociala konsekvenserna av att förlora ett barn"
- 2012:26** Hägglund Pathric, Per Johansson and Lisa Laun "Rehabiliteringsgarantin"
- 2012:27** Engdahl Mattias and Olof Åslund "Ekonomiska drivkrafter och studieresultat – effekter av Sfi-bonus"
- 2012:28** Lindgren Karl-Oskar "Arbetsplatsstorlek och sjukfrånvaro"
- 2013:1** Olsson Martin "Anställningsskydd och föräldrarelaterad frånvaro"
- 2013:2** Angelov Nikolay, Per Johansson and Erica Lindahl "Det envisa könsgapet i inkomster och löner – Hur mycket kan förklaras av skillnader i familjeansvar?"
- 2013:3** Vikman Ulrika "Så påverkar föräldraförsäkringen nyanlända invandrades etablering på arbetsmarknaden"

Working papers

- 2012:20** Angelov Nikolay and Arizo Karimi "Mothers' income recovery after childbearing"
- 2012:21** Wikström Christina and Magnus Wikström "University entrance selection and age at admission"
- 2012:22** Karimi Arizo, Erica Lindahl and Peter Skogman Thoursie "Labour supply responses to paid parental leave"
- 2012:23** van den Berg Gerard J., Petter Lundborg and Johan Vikström "The economics of grief"
- 2012:24** Åslund Olof and Mattias Engdahl "The value of earning for learning: performance bonuses in immigrant language training"
- 2012:25** Collet Francois and Peter Hedström "Endogenous tie formation mechanisms in a directed network generated by employee mobility"
- 2012:26** Lindgren Karl-Oskar "Workplace size and sickness absence transitions"
- 2013:1** Nekby Lena, Peter Skogman Thoursie and Lars Vahtrik "Examination behavior – Gender differences in preferences?"
- 2013:2** Olsson Martin "Employment protection and parental child care"
- 2013:3** Angelov Nikolay, Per Johansson and Erica Lindahl "Is the persistent gender gap in income and wages due to unequal family responsibilities?"
- 2013:4** Vikman Ulrika "Paid parental leave to immigrants: An obstacle to labor market entrance?"

Dissertation series

- 2012:1** Laun Lisa "Studies on social insurance, income taxation and labor supply"