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Katharina Wolf and Michaela Kreyenfeld

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German Socio-Economic Panel (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: soeppapers@diw.de

MIGRANT FERTILITY IN GERMANY

AND THE EASTERN ENLARGEMENT OF THE EU

Katharina Wolf and Michaela Kreyenfeld[1]

ABSTRACT

This paper uses data from the Migrant Samples of the German Socio-Economic Panel to study the fertility behaviour of women who migrated to Germany between 1990 and 2015. Special emphasis is placed on the large groups of migrants who have moved to Germany from Central and Eastern European (CEE) countries since the 1990s. We find that CEE migrants had higher first birth, but much lower second birth rates than migrants from other European countries. Different from the pattern of African and Middle Eastern migrants, we do not find a spike in first birth rates after migration. We also examined differences within the group of migrants from CEE-countries. In particular, we examined whether Ethnic German migrants differed from migrants who moved as third country national or those who moved after their country became EU-members with the right to free movement of labor. We find that CEE-migrants who moved when their country was a member state of the European Union display strongly reduced first birth rates.

[1] Corresponding author, Hertie School of Governance (HSoG), kreyenfeld@hertie-school.org

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INTRODUCTION

Considerable attention has been paid to the sharp increase in the inflows of asylum-seekers and refugees to Germany, which peaked in 2016,when more than 700,000 asylum applications were filed with the Federal Office for Migration and Refugees (Bundesamt für Migration und Flüchtlinge 2017). By contrast, the immigrant flows that preceded this surge have been largely neglected in the scholarly and public debate. Since the collapse of communism in 1989, Germany had become a major receiving country for migrants from European countries, with migrants from Central and Eastern European countries (CEE) making up the largest homogeneous migration group over this period (Bundesamt für Migration und Flüchtlinge 2015). Despite the quantitative significance of this development, there are relatively few existing studies that have systematically investigated the birth dynamics of these migrants.

In our study, we use data from the IAB-SOEP migration samples to examine the fertility dynamics of women who migrated to Germany between 1990 and 2015. In particular, we seek to shed light on the behaviour of migrants from CEE countries by comparing their birth patterns with those of migrants from other European countries, Africa, the Middle East, and other regions. By applying event-history methods, we explore whether differences in first, second, and third birth rates can be attributed to the socio-demographic composition of the migrant populations. We also analyse how the patterns differed depending on whether the CEE migrants were citizens of an EU country when they migrated. Our study contributes to the literature in the following ways. *First*, we shed light on the behaviour of the large group of migrants from CEE countries. Although a significant body of existing research has examined the labour market

behaviour of migrants after the Eastern enlargements of the EU (Kogan 2010; Drinkwater, Eade, and Garapich 2009), we still lack an adequate understanding of how this increasing mobility has affected the family life and fertility behaviour of people who come from CEE countries. *Second*, we add to our current knowledge of the birth dynamics of migrants from low fertility settings. CEE countries saw sharp declines in total fertility after the collapse of communism. While period fertility has recuperated in CEE countries, most of these countries continue to report low fertility rates, and especially low rates of progression to second and higher order births (Sobotka 2011).Evidence that these fertility patterns are reflected in the fertility behaviour of migrants could challenge well-established findings indicating that migration has a positive effect on total fertility in Germany, as well as in most other western European countries (Sobotka 2008). *Third*, we add to our current understanding of migration policies on birth behaviour. In particular, we shed light on the question of how the birth patterns of CEE migrants changed after these countries became EU member states, and were granted full freedom of movement.

INSTITUTIONAL CONTEXT, PRIOR FINDINGS, AND HYPOTHESES

Institutional context and migration to Germany

For decades, Germany has experienced migration from the former labour recruitment countries, and particularly from Turkey. While Turks still represent the largest foreign population resident in Germany, migration from Turkey started to taper off during the 1980s. In recent decades, Germany has become a major receiving country for people from Central and Eastern Europe. In the years immediately after the fall of the Berlin Wall, a large share of the migrants entering Germany were ethnic Germans (*Aussiedler*), most of whom came from the post-Soviet states, Romania, and Poland. In 1990 alone, about 400,000 ethnic Germans entered the country (Bundesministerium des Inneren 2003). Ethnic Germans represent a distinct migration group. Until recently, German politicians tried to argue that Germany is not an "immigration country"; and a sharp distinction between "immigrants" (*Einwanderer*) and "migrants" (*Zuwanderer*) has

been made (Joppke 1999). Meanwhile, ethnic Germans were placed in a separate category of "permanent immigrants". These immigrants were given immediate access to German citizenship, offered language and integration courses, and were more likely than other types of immigrants to have their educational credentials recognised. During the 1990s, the levels of immigration of CEE citizens who were not ethnic Germans were rather moderate. The situation changed more than a decade later as a consequence of the Eastern enlargement of the European Union. While Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia, the Czech Republic, and Hungary joined the European Union in May 2004, the full freedom to enter Germany was not extended to these countries until May 2011. Romania and Bulgaria joined the European Union in January 2007, and were granted full freedom of movement from 2014 onwards. Since 2009, the numbers of migrants from Central and Eastern Europe who entered Germany have been increasing steadily (see Figure 1). These numbers grew more rapidly after the onset of the global financial crisis, which hit the previous destination countries of CEE migrants more heavily than Germany (Brücker 2015). Since 2007, migrants from the CEE countries, and particularly from Poland and Bulgaria, have made up the largest shares of EU migrants to Germany (see Figure 2).

Third-country nationals (TCNs) are commonly defined as migrants who come from neither the EU nor any of the privileged nations (see Table A2 for details). For these third-country nationals, the legal pathways for entering Germany have been rather restricted. They are permitted to immigrate on humanitarian or on family reunification grounds, under which a foreign resident's spouse and children up to age 16 are permitted to enter the country and reunite with their family. The number of migrants seeking to enter Germany on humanitarian grounds was relatively small until 2013. Among the TCNs entering Germany on humanitarian grounds in the period of interest (1990-2015), the two largest groups were those seeking refuge from the Yugoslav wars after 1991 and Kurds from Turkey. In addition, the Green and later the Blue Card initiative opened up new opportunities for high-skilled workers from third countries to enter Germany. Although Germany is pioneering the Blue Card scheme in the EU context, significant numbers of visas have been issued on these grounds since 2013 only (van Riemsdijk 2012; Eurostat 2012).[1] Same as in other

countries, the age structure of the migrants differs sharply from the resident population. More than 90% of the migrants who arrived in 2016 were below age 50, with very little variation by region. Most of the migrants were male. However, the ratio of female to male migrants has fluctuated between 36% and 43 % between 1990 and 2016 (Statistisches Bundesamt 2018).

[Figure 1& 2 about here]

Prior findings, theoretical arguments and hypotheses

Much of the previous literature on the birth dynamics of migrant population has contrasted the adaptation and socialization hypothesis (Scott and Stanfors 2011; Dubuc 2012; Milewski 2011; Kulu and González-Ferrer 2014). According to the socialization hypotheses the birth behavior of migrants is dominated by the prevailing attitudes and values that were acquired in the country of origin prior to migration. The alternative hypothesis postulates that with time elapsed, migrants' fertility gradually converges to the fertility of the majority population, suggesting that there is, similar as in labor market research, a "fertility assimilation profile". Apart from "adaptation" and "socialization", researchers have also discussed a "disruption hypothesis", according to which fertility declines around migration due to the disruptive nature of an international move (Hervitz 1985; Ford 1990; Stephen and Bean 1992). This latter hypothesis has often been contrasted with an "interrelation of event hypothesis" that stipulates that female birth rates increase around migration, because international moves of women are often related to partner reunion and/or marriage.

Prior literature has frequently found a strong spike of first birth rates in the years immediately following migration, which support the "interrelation of event hypothesis" (Andersson 2004; Singley and Landale 1998). Toulemon (2004) used French census data to examine birth probabilities by duration of stay. He found that migrants' birth probabilities increased after arrival. A comparison by gender showed that the increase was steep for women only, and that it peaked in the first year after arrival. This pattern of

interrelated events has also been observed among women migrating for family reasons (Mussino and Strozza 2012; Roig Vila and Castro Martín 2007). Using survey data from Italy, Ortensi (2015) distinguished between "first or independent migrants" and "family migrants". She found that compared to independent and first migrants, family migrants had more children and higher first birth intensities after migration. Other research for Germany has shown that immigrants from former recruitment countries, particularly Turkey, had elevated first, second, and third birth intensities in the period immediately after arrival (Milewski 2007; 2010). Wolf (2016) used data from the German Generation and Gender Survey that include an oversample of Turkish nationals. The migration, fertility, and union histories of both the anchor respondent and his or her current partner were surveyed. Based on this information, she divided the sample into two groups: those who married before either of the partners had migrated to Germany, and those who married after one of the partners had been living in Germany for a significant amount of time. The results showed that the latter group had especially elevated first and second birth rates in the years immediately following migration (Wolf 2016).

While a significant body of research addressed the role of duration of stay on birth behavior, there is also a fair amount of research on differences in migrant birth behavior by country of origin. As the UK – unlike Germany – had not imposed any restrictions on the free movement of labour after the Eastern enlargement of the EU, there is already also substantial work on migrants fertility from CEE countries for this country (Office for National Statistics 2016). Based on census data and birth registers, Dormon (2014) calculated the total fertility rate of non-UK born women in England and Wales, which was about 2.2;higher than the TFR of 1.8 of UK-borns. The analysis also uncovered large differences in fertility rates between the new EU member states. Across these countries, the TFR ranged from 1.3 in Slovenia to 2.9 in Romania (Dormon 2014). Other studies have shown that while Polish migrants to the UK have low birth rates shortly before migration, after they arrive in the UK their birth rates are higher than those of the non-migrant Polish population (Lübke 2014).Total fertility of Polish immigrant women is slightly above the England and Wales average (Robards and Berrington 2015). However, the birth rates of Polish immigrants are still lower than

the birth rates of other migrant groups, especially those of migrants from Bangladesh, Pakistan, and India (Waller, Berrington, and Raymer 2014).

For Germany, there is particularly research work on the birth dynamics of first and second generation migrants from former labor recruitment countries (Krapf and Wolf 2015; Wolf 2016; Milewski 2010; 2007). A consistent finding from this literature is that first generation migrants progress more radidly to the first child and a more likely to have a third child (Milewski 2010). Second generation migrants' fertility was found to compare to birth dynamics of natives without a migration background, if educational differences are accounted for (Krapf and Wolf 2015). Overall, fertility of foreigners is, apart from very recent developments in conjunction with the inflow of refugees in 2015/16, only moderately above fertility of German citizens (Pötzsch 2018). The latter includes ethnic German migrants asvital statistics and population data do not include information on whether a person is an ethnic German migrant. Also survey research provides wery little information on the fertility behavior of ethnic Germans or migrnats from other CEE countries.Exceptions are the studies on ethnic Germans from CEE countries who migrated starting in the early 1990s. Dinkel and Lebok (1997) used data from the Eastern European Institute at the University of Munich to investigate family size by duration of stay among ethnic German migrants. They found that upon arrival, ethnic Germans had more children than native-born Germans of the same age. At higher ages, however, the fertility of ethnic Germans dropped below that of native-born Germans. In a recent book chapter, Kreyenfeld and Krapf (2017) used micro-census data to compare birth rates of ethnic Germans and migrants with Turkish origin. It is found that female Turkish migrants accelerate fertility after migration, while this is not the case for the Ethnic Germans.

Hypotheses

Many of the prior studies that examined the "interrelation-of-events" hypothesis were based on the experiences of female migrants from Africa or the Middle East, most of whom migrated on the legal grounds of family reunification (Wolf 2016; Milewski 2007; Andersson 2004). It seems self-evident that migrants who enter the country on family reunification grounds will be more likely than other types of migrants to have children, because they are married, and may have been separated from their partner for some time. One could therefore expect to find that female migrants from Africa and the Middle East had increased first birth risks in the years immediately following migration. However, one would not expect to find the same pattern for European migrants, who were more likely to have migrated for various reasons, including to work or to study *(Hypothesis 1).*

For CEE migrants, the legal pathways for entering Germany have changed across time, especially with the Eastern enlargement of the European Union. Although seasonal labour migration was permitted before the enlargement, the right to free movement unleashed a process of short-term and circular migration (Favell 2008). This trend stands in stark contrast to the migration pattern of CEE migrants who entered the country as ethnic Germans, and who thus acquired German citizenship with the expectation of remaining in Germany permanently. The behaviour of CEE migrants who moved as refugees or asylum-seekers is difficult to predict. On the one hand, we could assume that the migration of refugees and asylum seekers is of a transitory nature, as these migrants may intend to return to their country of origin when the conditions improve. Most of the refugees and asylum-seekers from CEE countries who moved to Germany in the early 1990s were fleeing the Yugoslav wars. During our study period, many of these migrants had already returned to their respective country of origin. Thus, those who were still captured in our sample may have been a select group who intended to remain in Germany on a permanent basis. We therefore assume that the behaviour of CEE migrants will have varied depending on their legal grounds for migration. Due to the transitory nature of EU migration, we expect to find that the birth rates of CEE migrants who entered the country as a citizen of an EU member state were relatively low *(Hypothesis 2).*

Any effort to understand differences in behaviour between different migrant populations must account for compositional factors, and particularly for differences in educational endowment (Kahn 1988). Also religiosity and religious denomination is regarded as important determinants of the differences in fertility behaviour across countries (Nauck 2014). Most previous investigations that differentiated between the religious affiliations of various migrant groups have found that Muslim women and women from Muslim countries have elevated birth rates (Andersson 2004; Schmid and Kohls 2009). Like most migrants from Western Europe, CEE migrants come from a secularised society with a largely Christian heritage. Based on the aforementioned literature, we would thus have to control for major confounders, in particular education and religion if we compare fertility across different migrant populations.

DATA, VARIABLES, AND METHOD

Data and analytical sample

The data for this project came from the two Migrant Samples of the German Socio-Economic Panel (GSOEP) that were collected in 2013/2014 (M1) and 2015 (M2) (Brücker et al. 2014). Like the other subsamples of the GSOEP, the Migrant Samples are household surveys in which all of the respondents aged 17 and older who reside in the same household unit as the anchor respondent receive the core questionnaire. However, the sampling of the "anchor respondent" was done on the individual level. As a sampling frame, the "Integrated Employment Biographies", a scientific use file of the German employment registers, were used. It should be noted that while the employment registers include employees, unemployed individuals, and participants in government programmes; they do not include self-employed individuals and civil servants. We restrict the analysis to female respondents who were aged 15-44when they migrated. We also exclude respondents with invalid fertility and migration histories. The remaining sample contains 2,153 women (see also Table 1 for the composition of the sample).

Variables

The main variable of interest is the *region of origin*. We distinguish between migrants from Central and Eastern Europe (CEE)[2], Western Europe (including Western, Southern, and Northern European countries), and Africa and the Middle East (see Table A1 in the appendix for further details on the classification). Respondents from CEE countries are further distinguished based on their *legal status* at migration. We differentiate between ethnic Germans, migrants from EU countries, and third-country nationals (TCNs). The distinction between migrants from EU countries and from third countries is based on the country of origin and the year of immigration (see Table A2 in the appendix for details on the classification). Ideally, we would study all of the countries individually. In recent years, however, migrants' countries of origin have become more heterogeneous: whereas in previous decades the largest share of migrants came from Turkey, today many migrants come from a range of relatively small CEE countries. In our sample, we have respondents from 28 different CEE countries. Migrants from Poland and Russia constitute the largest group. However, the sample size is even for these countries too small to provide robust estimates by single country. Total fertility rates in CEE-countries were on a similar scale and followed a similar pattern in recent years, so that the grouping may be justified. However, there are still some pronounced differences. German vital statistics, for example, suggest strongly elevated birth rates of migrants from Kosovo, while the birth rates from Russia, Bulgaria or Poland is of similar magnitude (see Figure A1 in the Appendix).

One of the most important socio-economic control variables we apply is the respondents' highest *level of education.* We distinguish between women with a university degree ("high"), women with a vocational training degree ("medium"), and women who received neither of these qualifications ("low"). We also include a time-varying covariate that controls for educational participation, which was generated from the annual activity histories of the SOEP. In addition, we consider the *religious denomination*, and compare women of the following religious groups: "Islam", "Christian", "none", "other/missing".

The *age of the respondents* ("15-19", "20-24", "30-34", or "35-39") and the *duration of stay in Germany* ("year of arrival, "first year after migration", "second year after migration", "3-4 years after migration",

"five or more years after migration") are considered as time-varying covariates. Note that the information on time is recorded to the level of accuracy of the calendar year. For births that occurred in the same year as the migration, we are unable to assess whether the person migrated or gave birth first. This means, for example, that the category "year of arrival" may include some births that occurred before migration. An individual may have migrated to Germany several times over his or her life course. We only consider the time since the last date of migration, but report descriptive statistics on the age at the first and the last migration. We also control for whether the person had *previously migrated to Germany before*. This variable may indicate that the respondents have a history of circular migration. The models on second and third births also control for the *duration since previous birth* ("0-1 year", "2-3 years", "4-6 years", "7+ years"), and a time-constant dummy variable indicating whether the *first child was born before migration*.

Method and analytical strategy

In a first step of our analysis, we provide a detailed account of the composition of the study population by region of origin. Here, our main goal is to shed a light on the question of whether the socio-demographic characteristics of CEE migrants differed from those of other migrant populations. In a next step, we estimate event history models that control for the abovementioned covariates. We limit the analysis to the period after migration, so that the episodes are left-truncated (for a descriptive overview on the complete fertility process, independent of the time at migration, see the survival curves in Figure A1 in the appendix). As a method, we employ discrete-time regression models (Allison 1982). We estimate separate models by first, second, and third births. For the first birth, we also explore the question of whether the "arrival effect" differed by migrant group by estimating an interaction of the duration of stay in Germany and the migrant group. For higher order birth sample size was too small to conduct the same analysis, unfortunately. We also examine how the fertility patterns of CEE migrants differed depending on whether they were ethnic Germans, EU migrants, or third-country nationals (TCNs).

DESCRIPTIVE FINDINGS

Table 1 reports the summary indicators for the total analytical sample. As the unit of analysis are subjects, only the time-constant covariates are displayed here (see Table A1-A3 in the appendix for the descriptive statistics by birth order and person-years at risk). A large majority of the respondents were from a CEE country. Of this group, 71% were third-country nationals, 19% were ethnic Germans, and 10% were EU migrants. In line with previous research (Geis 2017), we find that CEE migrants had higher levels of education than migrants from Africa and the Middle East. However, the share of CEE migrants who were university-educated (30%) was lower than that of migrants from Western Europe (50%), while the share of CEE migrants with a vocational degree (25%) was much higher than that of migrants from the rest of Europe or from Africa and the Middle East. The results indicate that ethnic Germans and CEE migrants who entered Germany after their country of origin had joined the EU were especially likely to have vocational degrees; whereas third-country national migrants had a bimodal educational distribution, with large shares having either the lowest or the highest level of education. It should be noted that the share of women who reported that they were in education in the year of migration was especially large among the ethnic Germans. This pattern may be explained by the special integration and language courses that ethnic Germans had access to (Koller 1993). As expected, we observe large differences in religious affiliation between migrants from Europe and those from Africa or the Middle East. About 60% of the migrants from Africa or the Middle East said they are Muslim, while around the same share of migrants from Europe reported that they are some type of Christian. Substantial shares of migrants from Western European (36%) and CEE countries (22%) reported having no religion, whereas the shares of migrants from Africa and the Middle East who reported no religious affiliation was small (10%). Note that among the European migrants, the share who said they are Muslim was negligible; with the main exceptions being the CEE migrants who moved as a third-country national (13%).

The table also reports the number of children each respondent had at migration. We find that around three-quarters of the Western European migrants and somewhat more than 50% of members of the other migrant

groups were childless when they moved to Germany. There were, however, stark differences in these patterns among the CEE migrants: many ethnic Germans had a first or a second child at the time of migration, while most EU and TCN migrants were childless at the time of migration. Some of these differences may pertain to differences in the average age at migration, which was highest among Western Europeans. It should also be noted that a large share of the Western European migrants had moved to Germany several times. By contrast, except for those who migrated as a citizen of an EU member state, CEE migrants were less likely to have moved to Germany several times.

[Table 1 about here]

REGRESSION RESULTS

First birth

In the following, we discuss the results of the regression analysis. We employed a stepwise procedure. Model 1 in Table 2 shows the results of a first birth model that contains only the region of origin and the basic demographics (age and duration of stay in the country). The model reveals stark differences in patterns of fertility behaviour by region of origin. Migrants from Africa and the Middle East had a first birth rate that was elevated by 150% compared to migrants from Western European countries (who serve as a reference category). CEE migrants also differed from Western European migrants, as the first birth risk of the former group was elevated by 23%compared to the latter group. This result is in line with a pattern that is known as the East-West difference in European fertility behaviour. Despite an increase in first birth rates after the collapse of communism, the age at first birth has remained lower in CEE countries than in Western Europe. This East-West divide can also be observed among the European migrants in Germany. Model 2, which controls for whether the person has lived in Germany before, shows that those who did had a 30% lower first birth risk than other migrants, suggesting that circular migration lowers the transition the first child. Model 3 shows that education and educational participation had a very strong impact on the first birth

rates of migrants. However, the coefficient for the country of origin was barely affected by the inclusion of this additional control. Religious affiliation appears to be a much more important variable (Model 4), as Muslim women had first birth risks that were increased by 80% compared to those of Christian women. After the inclusion of the religion variable, the differences between the migrant groups declined substantially. Note, however, that it may be difficult to separate the effect of region and religion due to the small size of the sample and the strong correlation that exists between Muslim religion and country of origin,

In order to examine the arrival effect, Figure 3a displays the results from a model that includes age and an interaction term of duration of stay and country of origin. We find that women from Africa and the Middle East had particularly high first birth risks in the first and second years after their arrival in Germany. Such an arrival effect is not evident among migrants from Western or Central and Eastern Europe. Figure 3b is based on a similar model, but it includes additional socio-demographic confounders (previously migrated to Germany, education, religious affiliation). The results show that the arrival effect can partially be explained by the socio-economic differences in the migrant populations. However, stark differences between European migrants and migrants from Africa and the Middle East remain.

[Table 2 about here]

[Figure 3 about here]

Higher order births

Table 3 includes the results for second and third birth risks. Model 1 includes major socio-demographics (age, duration since last birth, birth before migration) and migration-related variables (duration of stay, previously migrated to Germany). Model 2 additionally controls for education and religious affiliation. In Model 1, which analyses second birth rates, the CEE migrants stick out. Relative to the other migrant populations, their second birth rates were much lower. Compared to the reference category of Western

European migrants, the second birth rates of CEE migrants were 41% lower. The low second birth intensities found in CEE countries (Sobotka 2003) seem to be reflected in the birth dynamics of CEE migrants in Germany. Interestingly, the second birth patterns of migrants from Africa and Middle East did not differ from those of Western European migrants. This finding can probably be attributed to the prevalence of a strong two-child norm in Western European countries (Sobotka and Beaujouan 2014). It should also be noted that respondents who have migrated to Germany before does not have a substantive or significant effect on higher order birth, in contrast to what we found for first birth behavior. Individuals who migrated several times in their life course may have been reluctant to form a family, but their higher order birth behaviour did not differ from that of other migrants. We find, however, that women who had a first birth before migration had second birth rates that were reduced by 20% compared to those of women who migrated nulliparous. These patterns remained stable after controlling for education and religious affiliation (Model 2); with the only exception being that migrants from Africa and the Middle East had lower second birth rates than Western Europeans. Note, however again, that the effects of religion and region of origin are difficult to separate.

Table 3 also reports the results for third births. Here, migrants from Africa and Middle East stick out, as their third birth rates were elevated by 60% compared to Western European migrants. Meanwhile, CEE migrants had lower third birth rates than Western European migrants, but the difference was not significant. After including education and religious affiliation, the differences between the migrants from Europe and Africa and the Middle East vanish. Again, it is difficult to isolate the effects of religion and region due to the very strong correlation between the two. However, religious affiliation appears to have a very large impact on third birth risks, as the risk of having a third child was increased by 118% among Muslims compared to Christians. Interestingly, the results also show that migrants who do not report a religious denomination were more likely than Christian migrants to have had a third child. We are unable to fully explain this result, but it may be related to selection; i.e., the small group who had a second child and did not report a religious affiliation may have been positively selected on their family values.

[Table 3 about here]

Migration policies and fertility of CEE migrants

In the next step of the analysis, we focus more narrowly on the behaviour of CEE migrants. In this investigation, we distinguish between ethnic Germans, TCN migrants, and EU migrants. Our main interest is in the Ethnic German migrants compared who are assumed to have been particularly mobile, and thus more reluctant to form a family. This hypothesis is largely supported by our findings. Model 1 in Table 4 reports the results for first birth. The findings indicate that the CEE migrants who immigrated after their home country became an EU member state had very different first birth patterns than other kinds of migrants. The EU migrants had the lowest first birth rates, while the ethnic Germans and the TCN migrants were much more likely to have had a first child. Compared to the first birth risks of EU migrants, the first birth risks of ethnic Germans were elevated by 147%, and the first birth risks of TCNs by 118%. However, we find no substantial or significant differences in the second and third birth risks of the three migration groups.

[Table 4 about here]

CONCLUSIONS

This paper has examined the birth behaviour of recent migrants to Germany. We particularly examined whether the "arrival effect" which has repeatedly found for international female migrants holds across all migrant populations. A main finding from this investigation is that there is only a minor "arrival effect" for European migrants, but a very pronounced one for female migrants from Africa or the Middle East. We interpret the finding against the background of Germany's restrictive migration policies. Marrying a man who is already living in Germany is simply one of the few ways that women from countries outside the EU have to migrate to Germany. As a result, migration, marriage and childbirth are closely interrelated events

in the lives of these women. While European migrants may also move to reunite with a partner or migrate as a ‘‘tied mover’’, they are just as likely to move to work or to study.

Another objective of our investigation was to examine more closely differences in birth behavior between European. Compared to Western European migrants, migrants from CEE-countries had their first child much more quickly after migration. However, we also found that CEE migrants had exceptionally low second birth rates. Overall, the fertility behaviour of the CEE migrants in Germany reflected the fertility behaviour of the populations of CEE countries after the collapse of communism. The low age at first birth and the slow progression to a second birth that characterised the birth behaviour of many CEE populations were also observed in the behaviour of CEE migrants in Germany.

We also attempted to shed light on the differences in fertility dynamics within the group of CEE migrants who have come to Germany starting in the 1990s on legal grounds that have changed over the years.CEE migrants who moved to Germany after their respective country of origin became an EU member, and thus had the right of free movement, had much lower first birth rates than those who migrated as a third-country national or ethnic Germans.

Our investigation has several implications. The results enhance our understanding of the contribution of migrant fertility to overall fertility in Germany. In the past, migrant fertility had a moderate, but positive impact on the German fertility rate (Sobotka 2008). Based on our investigation, we must conclude that the CEE migrants – and especially the growing group of migrants from CEE countries who are EU citizens – probably will not contribute to an increase in the German total fertility rate. Most importantly, however, our paper has highlighted the potential importance of the legal context in understanding the fertility behaviour of migrants. While prior research has often focused on socio-demographic and cultural differences when seeking to explain migrant fertility behaviour, very few studies have examined how the legal context of migration relates to birth dynamics. We used a very simplified way of finding an operational definition of the policy change, i.e. we grouped individuals depending on whether their country was an EU-

member or not. Obviously, there may be selection into the study population, most importantly by the reasons for migration. We were unable to control for these reasons, as they cannot be surveyed in a satisfactory manner, in particularly not retrospectively. Nevertheless, we controlled from major socio-demographic confounders as well as indicators for the prior migration history.

There are several limitations that we nevertheless grappled with in our investigation. One drawback that we share with many prior studies is that our survey included information on the behaviour of different migrant populations, but not on the behaviour of the "stayers" in the countries of origin. As a result, we were not able to account for the selectivity of the migrant population captured in the SOEP-data. Another challenge for our investigation was the growing heterogeneity of the migrants' countries of origin, which meant that the sample sizes for individual countries were too small to allow us to study the differences in behaviour within CEE countries. The most serious drawback is probably the growing mobility of recent migrants. Of the CEE migrants in our sample who were from EU countries, 20% had migrated to Germany several times in their life course. Among the Western European migrants, who had the freedom to move around the EU for a longer period of time, this share was40%. For EU migrants, the stay in Germany is often intended to be of a transitory nature. It is obvious that the prospect of being able to migrate or return to the country of origin is a powerful reason to defer family formation. With our analysis, we shed some light on the fertility patterns of the growing group of EU migrants. It is, however, clear that with conventional survey data, it is difficult to map the birth dynamics of this highly mobile population.

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APPENDIX

Table A1: Classification of countries by region

CEE	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Czech Republic, Croatia, Estonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyzstan, Lithuania, Latvia, Macedonia, Moldavia, Montenegro, Poland, Rumania, Russia, Serbia, Slovenia, Slovakia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan
Northern Europe	Denmark, Finland , Island, Norway, Sweden
Western Europe	Austria, Belgium, France, Ireland, Liechtenstein, Luxemburg, Monaco, Netherlands, UK (incl. European overseas territories), Switzerland
Southern Europe (excl. CEE)	Andorra, Cyprus, Greece, Italy, Malta, Portugal, San Marino, Spain, Vatican City
Africa & Middle East	Africa &Middle East (Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen)
Other	America, Asia (excl. Middle East), Oceania, stateless, from and to sea, unknown

Table A2: Classification of European countries by EU membership(including free movement of labour)

EU & privileged European nations	EG-12 (founding members of the EU): Belgium, Denmark, France, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, UK, and European overseas territories EU member since 1995 and privileged nation before: Austria, Finland, Sweden EU accession in 2004 and free movement since 2011: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia EU accession and free movement since 2004: Cyprus, Malta EU accession in 2007 and free movement since 2014: Bulgaria, Romania EU accession in 2013 and free movement of labour to be expected in 2020: Croatia Privileged non-EU countries: Andorra, Iceland, Liechtenstein, Monaco, Norway, Switzerland, San Marino, Vatican City
Non-EU	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria (if migrated before 2014), Czech Republic (if migrated before 2011), Croatia, Estonia (if migrated before 2011), Georgia, Hungary (if migrated before 2011), Kazakhstan, Kosovo, Kyrgyzstan, Latvia (if migrated before 2011), Lithuania (if migrated before 2011), Latvia, Macedonia, Moldavia, Montenegro, Poland(if migrated before 2011), Romania (if migrated before 2014), Russia, Serbia, Slovenia(if migrated before 2011), Slovakia(if migrated before 2011), Tajikistan, Turkmenistan, Ukraine, Uzbekistan

Table A3: Person-years (column %) and number of events by birth parity

	1st birth		2nd birth		3rd birth	
	Person-years	**Events**	**Person-years**	**Events**	**Person-years**	**Events**
Type of migrant						
Western Europe	14%	77	7%	63	9%	20
Africa + Middle East	11%	133	13%	131	17%	75
CEE	66%	426	74%	374	68%	143
Other	10%	71	7%	51	6%	17
Years since last birth						
0-1			13%	67	12%	41
2-4			22%	242	20%	74
5-6			20%	175	23%	78
7+			45%	134	45%	62
Age						
15-19	9%	37	12%	128	4%	30
20-24	26%	216				
25-29	31%	230	25%	189	16%	76
30-34	19%	151	27%	207	29%	84
35-49	15%	73	36%	95	52%	65
Duration of stay						
Year of arrival	19%	88	9%	26	6%	15
1 year	17%	181	10%	65	6%	23
2 years	14%	127	11%	79	6%	21
3-4 years	20%	133	21%	184	14%	46
5+ years	30%	178	49%	265	68%	150
First birth before migration						
No			49%	383	41%	110
Yes			51%	236	59%	145
Previously migrated to GER						
No	83%	612	87%	534	89%	226
Yes	17%	95	13%	85	11%	29
Education						
Low: no degree	29%	278	36%	281	44%	152
Medium: vocational	21%	134	22%	130	24%	48
High: university	42%	238	32%	156	21%	33
Other	9%	57	11%	52	11%	22
In education						
No	77%	645	95%	604	97%	250
Yes	23%	62	5%	15	3%	5

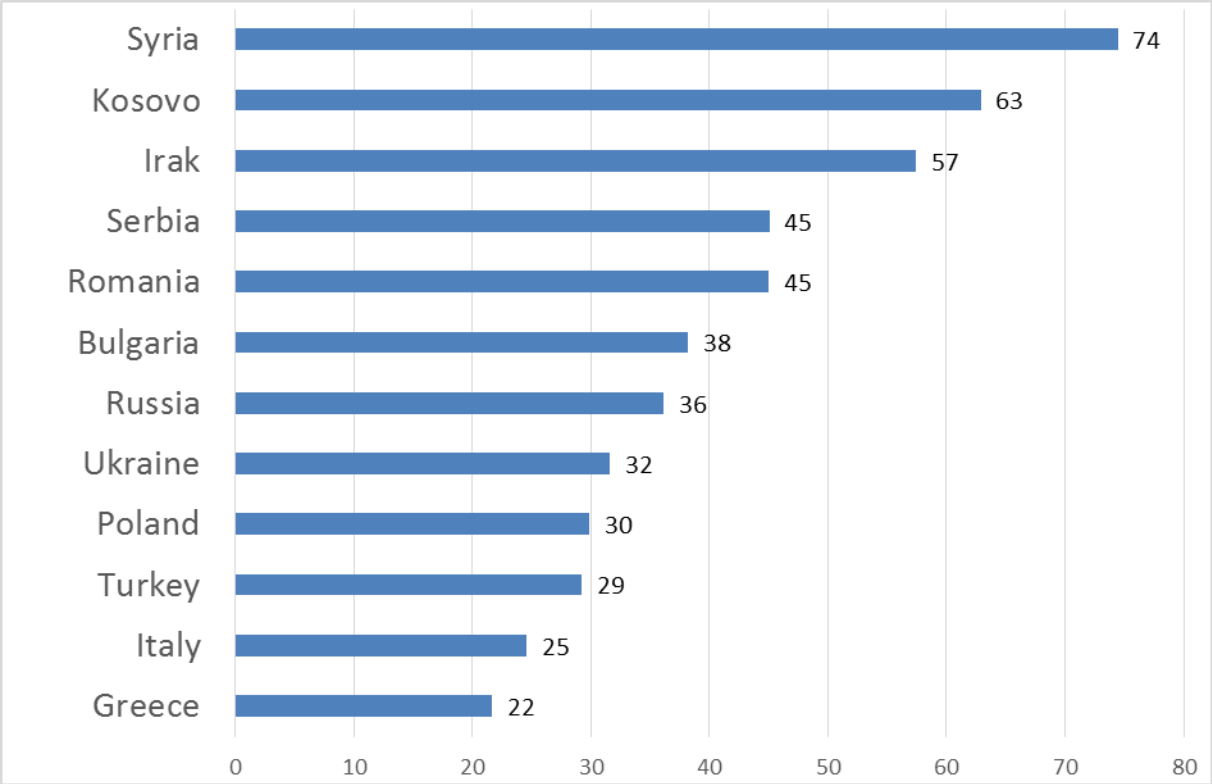
Table A3 (Continued): Person-years (column %) and number of events by birth parity

Religion						
Christian	54%	367	61%	315	57%	97
Islam	11%	163	14%	172	21%	103
None	29%	143	21%	100	17%	41
Other/ Missing	5%	34	3%	32	4%	14
Total	6,387	702	5,685	619	5,346	252

Table A4: Person-years (column %) and number of events by birth parity, CEE migrants by legal status

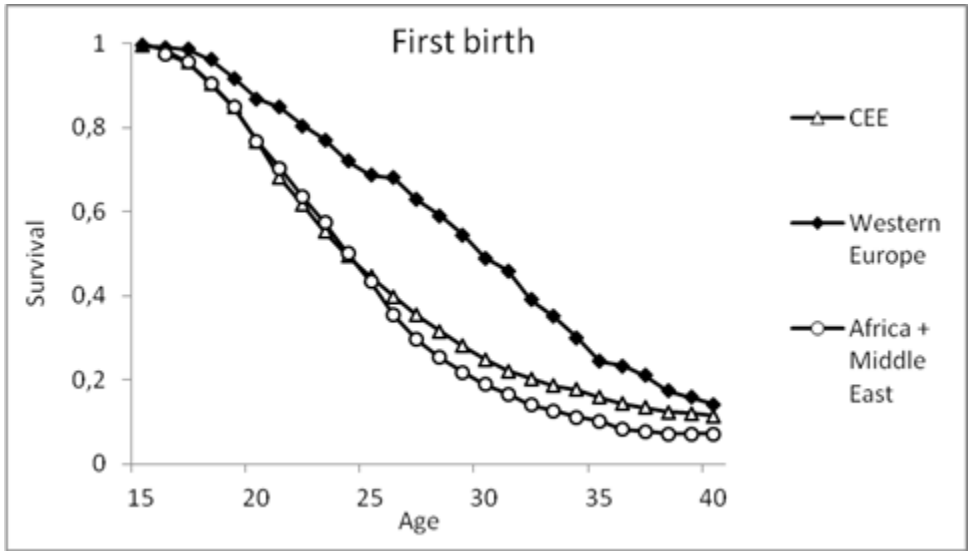
	1st birth		**2nd birth**		**3rd birth**	
	Person-years	**Events**	**Person-years**	**Events**	**Person-years**	**Events**
Type of migrant						
EU migrant	6%	16	4%	15	2%	3
Ethnic German	15%	63	25%	72	31%	39
Third country	79%	347	71%	287	66%	101
Total	4,187	426	4,213	374	3,608	143

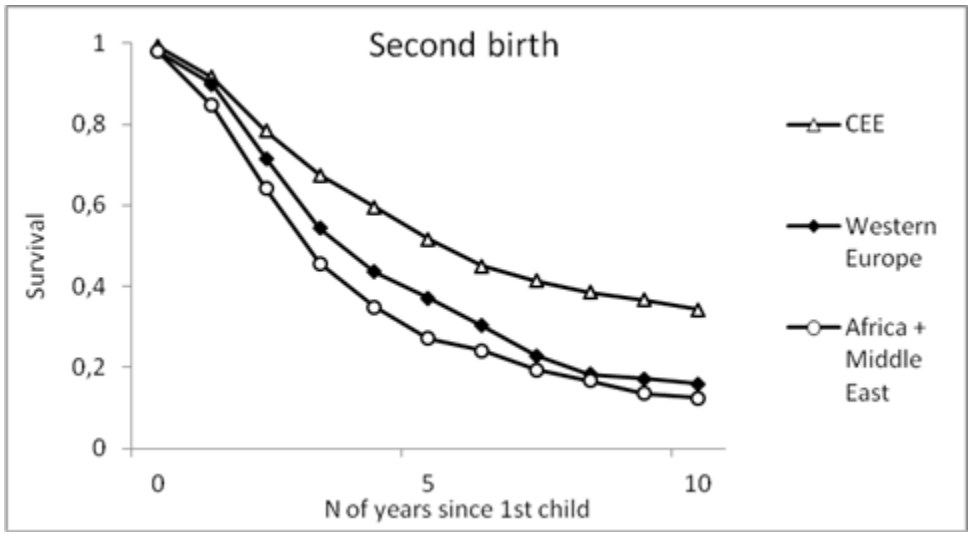
Figure A1: General fertility rate by major nationalities, 2017

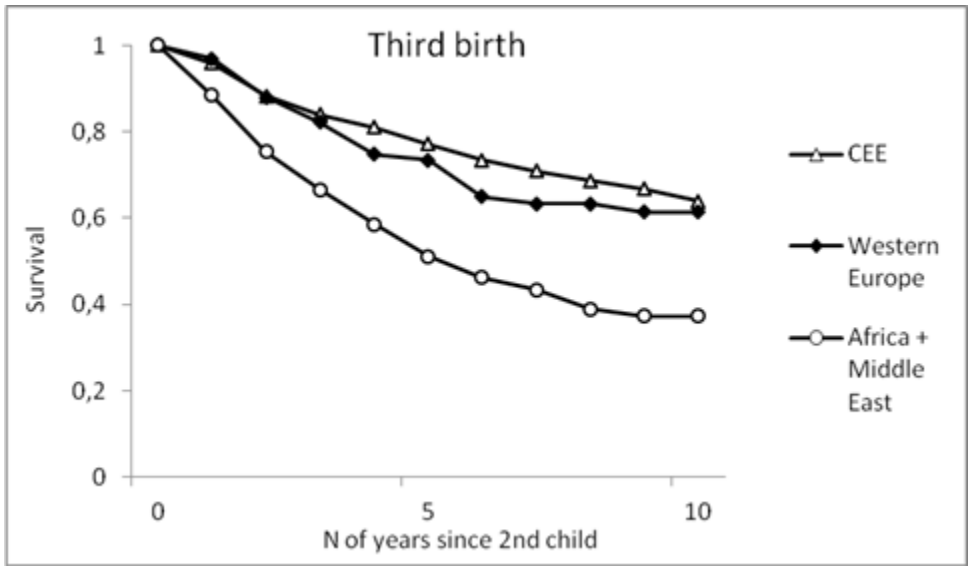


Source: German Statistical Office (AZR and birth register)

Figure A1: Survival functions to first, second, and third birth

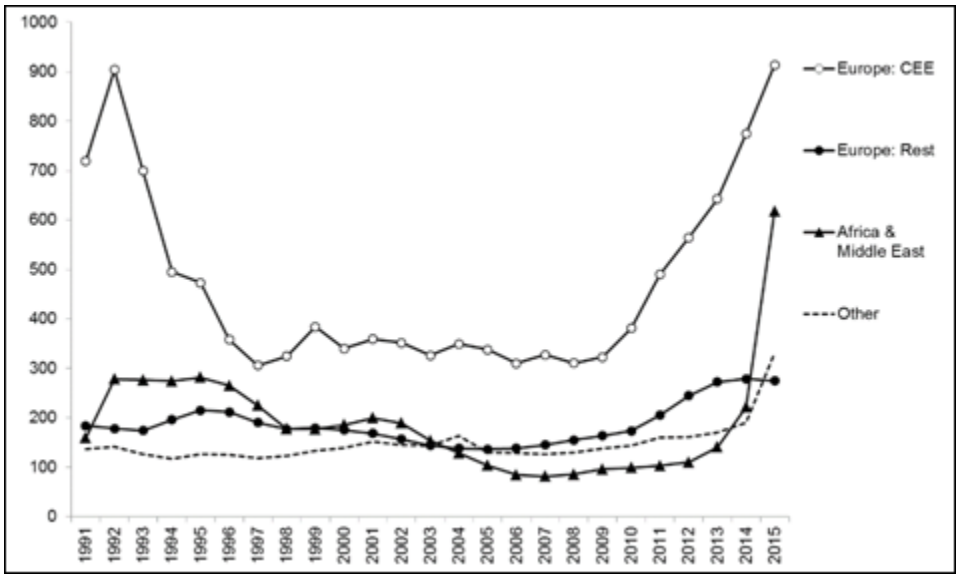






Graphs and Tables

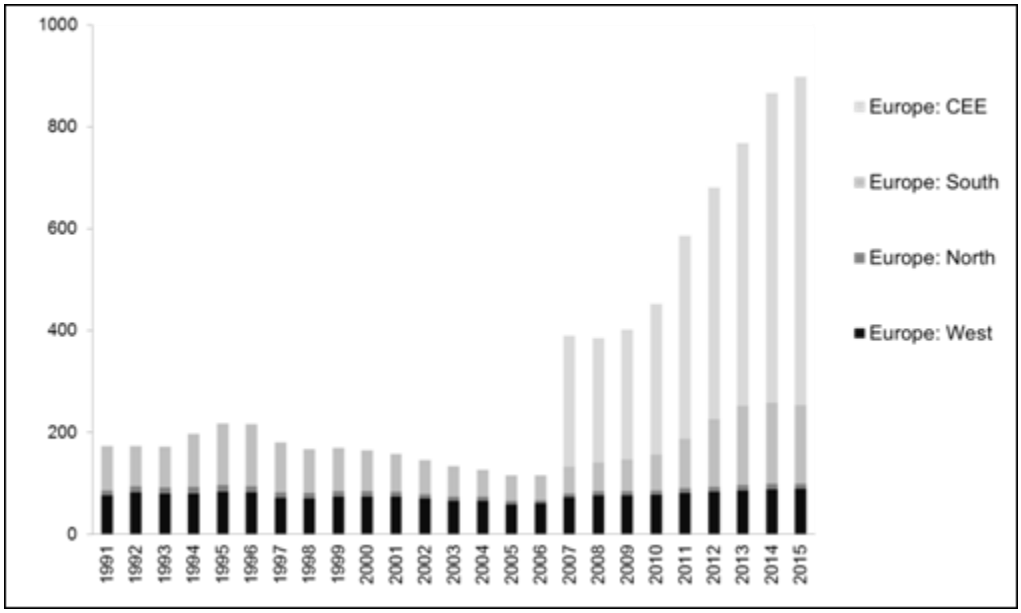
Figure 1: Inflow of migrants to Germany by region of origin, in 1000



Source: (Statistisches Bundesamt 2017b)

Note: The data is derived from the local registration office (Einwohnermeldeamt). The values may be inflated, if a person migrated multiple times per year.

Figure 2: Migration from EU countries to Germany by calendar year and region of Europe, in 1000



Source: (Statistisches Bundesamt 2017a)

Figure 3: Predicted first birth probabilities (average margins)

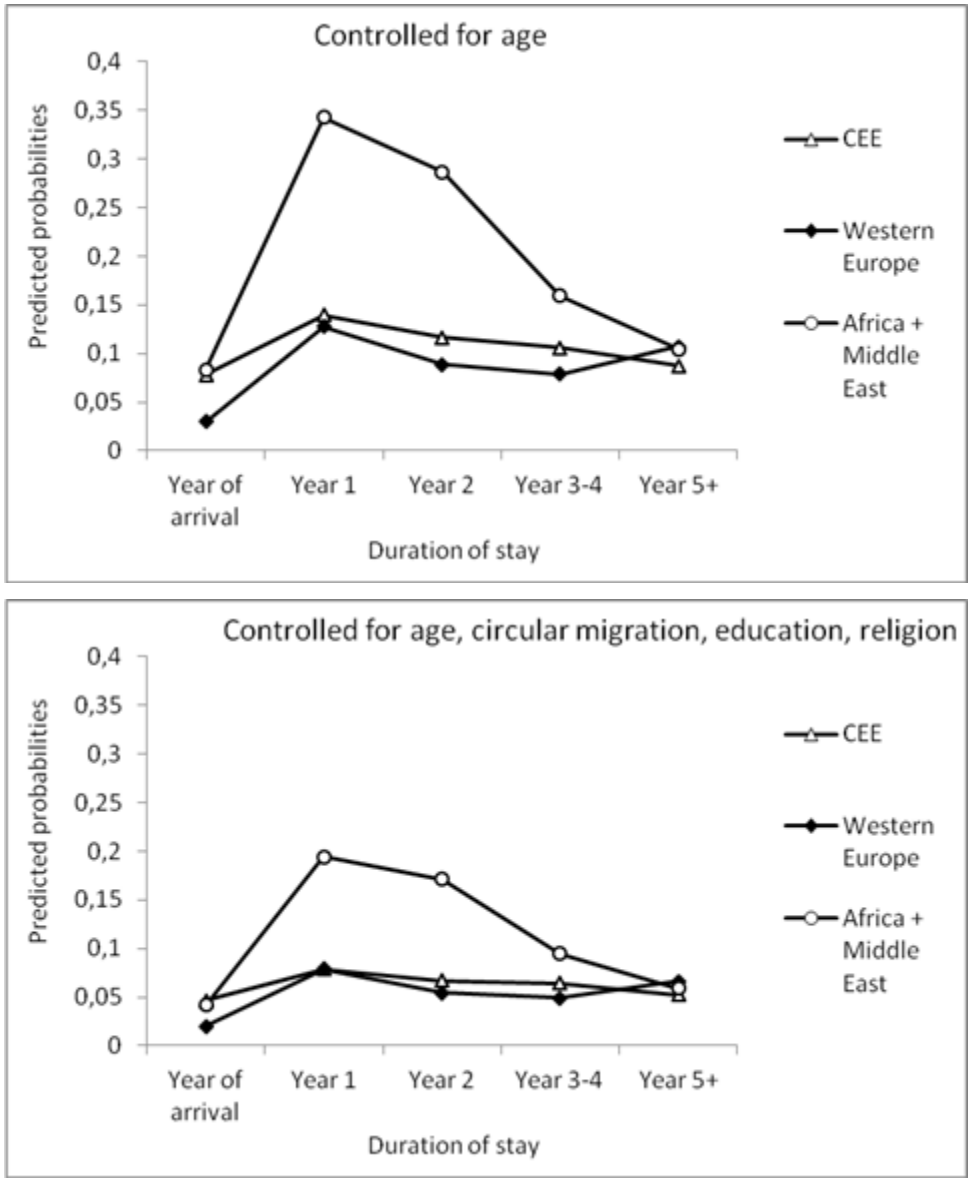


Table 1: Socio-demographic characteristics of analytical sample, column %

	All				CEE migrants		
	CEE	**Western Europe**	**Africa + Middle East**	**Other**	**Ethnic German**	**EU migrant**	**Third country**
Legal status							
Ethnic German	19				100		
EU migrant	10					100	
Third country	71						100
Highest level of education							
Low	35	31	69	42	31	36	36
Medium: vocational	24	15	12	9	33	34	20
High: university	30	50	16	46	20	28	33
Other	11	4	4	3	17	1	11
Religion							
Christian	66	59	19	32	80	77	61
Islam	9	3	60	17	0	0	13
None	22	36	10	31	19	21	24
Other/ Missing	2	2	11	20	1	1	3
No. of children at migration							
Childless	52	71	59	67	32	51	57
1 child	27	12	16	18	33	30	24
2 children	16	11	11	10	26	13	14
3 and more children	6	6	14	4	9	6	5
Migration history							
Age at first migration (mean)	26.28	23.76	25.41	25.01	28.49	26.74	25.63
Age at last migration (mean)	28.11	28.18	26.98	27.92	29.52	28.51	27.67
Years in Germany at censoring	10.08	8.63	10.50	7.84	14.38	3.08	9.86
Previously migrated to GER (%)	14	40	14	26	3	20	16
In education upon arrival (%)	19	22	14	22	16	20	20
Number of women	1433	233	303	184	275	137	1021

Note: The sample comprises women aged 15-44 who were aged 15-44 at migration.

Source: SOEP

Table 2: Results from a discrete event-history model with log-log specification. Hazard ratios of first birth

	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	0.06***	0.07***	0.11***	0.11***
Type of migrant				
Western Europe	Ref.	Ref.	Ref.	Ref.
Africa + Middle East	2.49***	2.30***	2.00***	1.35*
CEE	1.23*	1.15	1.15	1.05
Other	1.34*	1.27	1.27	1.26
Age				
15-19	0.47***	0.45***	0.60***	0.60***
20-24	Ref.	Ref.	Ref.	Ref.
25-29	0.95	0.97	0.86	0.89
30-34	1.05	1.10	0.89	0.92
35-49	0.61***	0.63***	0.47***	0.48***
Duration of stay				
Year of arrival	Ref.	Ref.	Ref.	Ref.
1 year	2.34***	2.33***	2.29***	2.33***
2 years	2.01***	2.00***	2.03***	2.11***
3-4 years	1.50***	1.48***	1.57***	1.68***
5+ years	1.32**	1.27*	1.36**	1.46***
Previously migrated to Germany				
No		Ref.	Ref.	Ref.
Yes		0.73***	0.77**	0.80*
Education				
Low: no degree			Ref.	Ref.
Medium: vocational			0.79**	0.85
High: university			0.73***	0.81**
Other			0.77*	0.80
In education				
No			Ref.	Ref.
In education			0.30***	0.31***
Religion				
Christian				Ref.
Islam				1.81***
None				0.71***
Other/ Missing				0.86
Person-years	6,387	6,387	6,387	6,387
Log likelihood	-2,149.51	-	-	-2,058.49

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: Results from a discrete event-history model with log-log specification. Hazard ratios of second and third birth

	Second birth		Third birth	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Constant	0.05***	0.05***	0.07***	0.05***
Type of migrant				
Western Europe	Ref.	Ref.	Ref.	Ref.
Africa + Middle East	0.99	0.71**	1.60*	0.97
CEE	0.59***	0.64***	0.80	0.79
Other	0.82	0.73	0.99	0.73
Years since last birth				
0-1	Ref.	Ref.	Ref.	Ref.
2-4	2.57***	2.53***	1.28	1.25
5-6	2.50***	2.44***	1.42*	1.40
7+	1.27	1.18	0.87	0.81
Age				
15-24	1.43***	1.38***	1.71**	1.57**
25-29	Ref.	Ref.	Ref.	Ref.
30-34	1.11	1.17	0.67**	0.74*
35-49	0.48***	0.50***	0.32***	0.38***
Duration of stay				
Year of arrival	Ref.	Ref.	Ref.	Ref.
1 year	2.40***	2.42***	1.63	1.69
2 years	2.41***	2.41***	1.36	1.39
3-4 years	2.59***	2.64***	1.22	1.24
5+ years	1.96***	2.15***	0.99	1.01
First birth before migration				
No	Ref.	Ref.	Ref.	Ref.
Yes	0.81*	0.90	1.13	1.21
Previously migrated to Germany				
No	Ref.	Ref.	Ref.	Ref.
Yes	1.02	1.15	1.18	1.24
Education				
Low: no degree		Ref.		Ref.
Medium: vocational		0.95		0.79
High: university		0.85		0.68*
Other		0.88		0.91

In education				
No		Ref.		Ref.
Yes		0.44***		0.75
Religion				
Christian		Ref.		Ref.
Islam		1.79***		2.18***
None		0.98		1.53**
Other/ Missing		1.42*		1.75*
Observations	5,685	5,685	5,346	5,346
Log likelihood	-	-	-	-2,058.49
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 4: Results from a discrete event history model with log-log specification, CEE migrants only. Hazard ratios of first, second and third birth among migrants from Central and Eastern Europe

	First birth Model 1	**Second birth Model 2**	**Third birth Model 3**
Constant	0.07***	0.04***	0.05***
Type of migrant			
EU migrant	Ref.	Ref.	Ref.
Ethnic German	2.47***	0.74	1.47
Third country	2.28***	0.82	1.09
Years since last birth			
0-1		Ref.	Ref.
2-4		2.44***	1.06
5-6		2.15***	1.17
7+		0.94	0.75
Age			
15-19	0.45***	1.35**	1.55
20-24	Ref.		
25-29	0.96	Ref.	Ref.
30-34	0.78	1.10	0.68*
35-49	0.40***	0.37***	0.40***
Duration of stay			
Year of arrival	Ref.	Ref.	Ref.
1 year	1.77***	2.37***	1.53
2 years	1.49**	2.37***	1.34
3-4 years	1.36*	2.55***	1.03
5+ years	1.10	2.31***	0.92
First birth before migration			
No		Ref.	Ref.
Yes		1.01	0.98
Previously migrated to Germany			
No	Ref.	Ref.	Ref.
Yes	0.80	1.03	1.15
Education			
Low: no degree	Ref.	Ref.	Ref.
Medium: vocational	0.76**	0.82	0.80
High: university	0.76**	0.83	0.63
Other	0.73*	0.89	1.10

In education			
No	Ref.	Ref.	Ref.
In education	0.34***	0.42***	0.47
Religion			
Christian	Ref.	Ref.	Ref.
Islam	1.52**	2.28***	3.03***
None	0.76**	0.93	1.44
Other/ Missing	0.72	1.44	1.60
Observations	4,187	4,213	3,608
Log likelihood	-1,295.69	-1,126.90	-555.48
Note:			*p<0.1; **p<0.05; ***p<0.01

[1]Major alternative pathways to migrate to Germany for TCNs are through student migration or seasonal work permits. Jewish individuals and their family members can also file for a residence permit.
[2]All of the post-Soviet states were classified as Central and Eastern Europe was well (see Table A1 in the appendix for further details.)