Analyzing the Labor Market Activity of Immigrant Families in Germany

Leilanie Basilio
Ruhr Graduate School in Economics

Thomas K. Bauer
RWI Essen, Ruhr-University Bochum and IZA Bonn

Mathias Sinning
RWI Essen and IZA Bonn

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Abstract. This paper analyzes whether immigrant families facing credit constraints adopt a family investment strategy wherein, upon arrival, an immigrant spouse invests in host country-specific human capital while the other partner works to finance the family's current consumption and the spouse's skill accumulation. Using data for West Germany, we do not find evidence for such a specialization strategy. We further examine the labor supply and wage assimilation of families whose members immigrated together relative to families whose members immigrated sequentially. Our estimates indicate that this differentiation is relevant for the analysis of the labor market activities of migrant households.

JEL-Classification: D10, F22, J22

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1 Introduction

Following the contributions of Chiswick (1978) and Borjas (1985), the literature on the economic assimilation of immigrants has focused predominantly on the analysis of migrants' individual labor market outcomes and its relation to the duration of residence in the host country. Most of this research considered immigrant males and females separately, neglecting that the labor market behavior and assimilation pattern may be affected by interacting responses within households.

Only a few studies analyzed the labor market performance of immigrants in a family context (Long, 1980; Duleep and Sanders, 1993; Baker and Benjamin, 1997; Blau et al., 2003; Cobb-Clark and Crossley, 2004), concentrating on the investigation of the "family investment hypothesis". This hypothesis is based on the assumption that newly arrived immigrants need to invest in host country-specific human capital as the skills they acquired in their countries of origin may not be entirely transferable to the requirements of the receiving country, and that the family may further be subject to credit constraints and hence may need to finance these investments by themselves. This leads to the conjecture that family members specialize: one spouse invests in human capital while the other works in dead-end jobs and forgoes investment in his or her own human capital in order to finance the family's current consumption and support the spouse's skills accumulation.

So far, the economic literature on the labor market activities of immigrant families has mainly used data for traditional immigration countries, such as Australia, Canada and the US. Empirical evidence for Germany, a major immigration country in the European Union, does not exist. Germany, however, represents an excellent case study for the investigation of immigrants' labor market behavior and the investment strategies within immigrant families. In the 1960s and early 1970s, a large number of so-called "guest-workers" – primarily male labor migrants from Southern Europe – were encouraged to migrate to Germany (Schmidt and Zimmermann, 1992; Bauer et al., 2005) as a reaction to a perceived shortage of unskilled labor. These immigrants were typically very different in education, cultural background and motivation to their higher-skilled European counterparts that migrated to Aus-

tralia, Canada and the US after the Second World War. The guest workers were considered to be short-term in nature and thus unlikely to be making longer-term investments in their host-country. Many of them, however, decided to stay in Germany permanently. Further restrictions limiting dual-nationality and complicating application for German citizenship may have restrained potential assimilation, in contrast to the integrative policies of traditional immigration countries (Antecol et al., 2003).

Due to the first oil price crises and the beginning of a recession in Germany, the recruitment of guest-workers was stopped in 1973. Family reunification, humanitarian immigration and the immigration of ethnic Germans from Eastern Europe became the major channels of legal immigration to Germany thereafter (Fertig and Schmidt, 2001; Bauer et al., 2005). These different immigration regimes generated different types of migrants, with sequential immigration of families being the predominant mode for guest-workers and their families, and the simultaneous immigration of families for ethnic Germans and immigrant families who entered Germany after the recruitment stop.

Departing from the empirical approach proposed by Baker and Benjamin (1997), we test whether a specialization of household members that affects the individual assimilation process exists. We use data from the German Socio-Economic Panel (GSOEP) that allow us to avoid several problems of the existing literature on the family investment hypothesis. First, due to data limitations, missing information about the cohabitation status of immigrant couples at the time of arrival might have caused biased estimates of the observed assimilation profiles in previous studies. This data problem is particularly severe if a large fraction of the observed couples started cohabiting after migration, which may particularly be the case for mixed couples and couples who did not migrate at the same time. Since the GSOEP provides information on the marital status of immigrant couples at the time of arrival, we can avoid this problem. Second, previous studies assume that immigrant household members migrated all at once. Often, however, migration starts as a singular process, in which one member moves to a new country alone and the rest of the family may follow later. Credit constraints and investment decisions of an

immigrant at several points over the course of the migration process may vary depending on whether the person initially moved with or without the family. Different to the existing studies on this issue, the GSOEP allows us to compare the behavior and adjustment of simultaneous and sequential immigrant families.

In contrast to Baker and Benjamin (1997), our results do not support the hypothesis of a family investment strategy for the case of Germany. We rather confirm the findings of Blau et al. (2003), who rejected the predictions of this hypothesis for the US. Immigrant husbands and immigrant wives both work less upon arrival than comparable natives. We further find assimilation in both labor supply and wages. Our results imply that immigrants tend to invest in their own human capital rather than to specialize. In addition, our results suggest that there is a significant difference in the adjustment pattern between immigrant husbands who migrated with their wives and those who arrived alone. We only observe assimilation of the labor supply of immigrant husbands who migrated with their spouse. In contrast to men, the labor supply of wives assimilates to that of comparable natives, irrespective of whether they arrive together with their husbands or whether they join him later.

2 The Family Investment Hypothesis

The existing literature on the family investment hypothesis has produced rather mixed results by either comparing labor market outcomes of native and immigrant couples (Long, 1980; Beach and Worswick, 1993; Worswick, 1996, 1999) or immigrant couples that were considered to be more or less likely to invest in human capital (Duleep and Sanders, 1993; MacPherson and Stewart, 1989). Long (1980) demonstrates that although immigrant women have higher earnings upon their arrival to the US than comparable native women, the earnings gap between immigrant and native women declines with the duration of residence in the US. Since these patterns are directly opposed to those of immigrant men, Long (1980) concludes that the observed profiles might indicate that immigrant wives are working to finance US-specific human capital investments of their husbands. Duleep and Sanders (1993) and Worswick (1999) provide further evidence in support of the family investment

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hypothesis. By comparing the labor market outcomes of immigrant couples from different countries of origin, Duleep and Sanders (1993) demonstrate that the labor force participation of married immigrant women depends on the husbands' investment in skills relevant to the US labor market. Worswick (1999) finds that credit constraints significantly affect the labor supply decisions of recently arrived immigrant families. In contrast to these studies, the findings of MacPherson and Stewart (1989) and Beach and Worswick (1993) do not confirm the predictions of the family investment hypothesis.

A major shortcoming of these studies has been the adoption of empirical approaches that do not allow to isolate the effects of credit constraints from other confounding factors such as the lack of skill transferability or the variation in preferences for work (Cobb-Clark and Crossley, 2004). In addition to native and immigrant couples, Baker and Benjamin (1997) consider mixed couples (in which one spouse is native-born and one spouse is foreign-born) that are assumed to be less credit constraint than immigrant couples, to account for both human capital investments and credit constraints. Using data from the Canadian Survey of Consumer Finances, they find that immigrant women married to immigrant men work more immediately after migration, have flatter wage profiles and a lower propensity to undertake human capital investments than immigrant women married to native-born men. Baker and Benjamin (1997) consider these patterns to be consistent with the predictions of the family investment hypothesis and rule out alternative explanations for the observed labor market outcomes of immigrants to Canada.

Blau et al. (2003) implement the specifications of Baker and Benjamin (1997) to examine the family investment hypothesis using data from the US Census of Population for 1980 and 1990. They find that both immigrant husbands and wives work and earn less than comparable natives upon arrival in the US. However, both spouses exhibit positive assimilation profiles of similar magnitude in labor supply and wages. The authors conclude that both husbands and wives seem to invest equally in their own human capital and reject the predictions of the family investment hypothesis for the US.

Both Baker and Benjamin (1997) and Blau et al. (2003) could not observe the

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year of marriage of immigrant couples in their data, raising the possibility that the observed profiles are the result of selectivity into marriage rather than the duration of migrants' residence in the host country. This limitation is severe if a large fraction of the observed couples got married after migration, which is likely to be the case for mixed couples and couples who did not migrate at the same time. Cobb-Clark and Crossley (2004) use data from the Longitudinal Survey of Immigrants to Australia (LSIA) that permit an identification of couples that were married when arriving in Australia. They extend the previous literature by using detailed information about visa categories to identify the primary and secondary worker in an immigrant couple, finding support for the family investment hypothesis only among families in which the primary worker is male.

Departing from the study of Baker and Benjamin (1997), we evaluate the family investment hypothesis for immigrants in Germany to test whether there exists some form of role specialization within the household that influences individual labor market assimilation. Since the marital status upon arrival is known in our data, we are able to concentrate our analysis on immigrants who were married at the time of migration, allowing us to disentangle the observed assimilation profiles from the effects of assortative mating.

Most importantly, however, we address inconsistencies in the empirical specification of existing empirical studies that aim to test the family investment hypothesis. The family investment model rests on the assumption that families migrate together, because credit constraints and investment decisions of an immigrant at several points over the course of migration may vary depending on whether the person moved with or is joined later by the family. Therefore, previous studies typically assumed that immigrant household members migrated all at once. Departing from this assumption, however, the typical empirical model used in the existing literature identifies the major parameters to test the family investment hypotheses using only households whose members migrated in succession. Only Cobb-Clark and Crossley (2004) restrict their analysis to the sample of immigrant couples who migrated together. However, they do not analyze immigrant couples who arrived successively. We address these inconsistencies and extend our analysis by comparing the behavior and

adjustment of couples arriving together and couples arriving sequentially.

3 Data and Empirical Strategy

In examining the labor market assimilation of immigrants in Germany, we rely on a pooled sample drawn from the German Socio-Economic Panel (GSOEP) for the years 1984 to 2005.[1] By using several cross-sections of nationally representative data, bias in the assimilation effects due to changing heterogeneity of cohorts can be reduced (Blau et al. 2003). Immigrants living in East Germany comprise less than two percent of the immigrant population. Thus, we restrict our analysis to West Germany. The initial sample is further restricted to married couples, natives and immigrants alike, aged 16 to 64 years. Self-employed as well as individuals who are in the military or civil services are dropped from the sample. This set of sample specifications are analogous to those of Baker and Benjamin (1997) and Blau et al. (2003), thus making our results comparable to the existing evidence for Canada and the US.

After excluding observations with missing values for relevant variables, the working sample for our empirical analysis comprises of 7,606 couples (60,844 couple-year-observations), of which 69 percent are native families (i.e. both husband and wife are native born), 24 percent are immigrant families (both husband and wife are immigrants), and seven percent are mixed families (couples comprising one immigrant and one native). Since we aim to examine the adjustment of immigrants as family units, we concentrate our succeeding analyses on couples where both the husband and the wife are immigrants vis-à-vis native households.

Unlike most other studies that investigate the family investment hypothesis, we are able to identify whether an immigrant is married at the time of migration. This allows us to avoid a potential bias in our estimation results due to assortative

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[1] The data used in this paper was extracted from the GSOEP Database provided by the DIW Berlin (http://www.diw.de/GSOEP) using the Add-On package PanelWhiz v1.0 (October 2006) for Stata®. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). The PanelWhiz-generated DO file used to retrieve the GSOEP data and any Panelwhiz Plugins are available upon request. Any data or computational errors in this paper are our own. Haisken-DeNew and Hahn (2006) describe PanelWhiz in detail.

mating after immigration (Cobb-Clark and Crossley 2004). Restricting our sample to immigrants that have been married at the time of immigration, we are left with 7,550 immigrant families, which constitutes about 15 percent of our total sample. These observations are weighted to represent the German population.

Members of immigrant families do not have to immigrate at the same time. In some cases, migration has been a chain process whereby a single member of the household migrates alone and is possibly joined by the family later on. This is common where explicit legal restrictions limit the entry of the family along with the principal immigrant (Kuhn 2005). Additionally, it could result from a household's collective response to costs and opportunities to secondary migrants in the receiving country (Mincer 1978). The immigration process in Germany, as in most European countries, has historically favored independent migration to prioritize meeting labor market needs (Zimmermann 2005). In our sample, almost 37 percent of immigrant males arrived ahead of their wives. For our purpose, it is interesting to examine whether the labor market behavior and assimilation of an immigrant who arrived with the spouse is different when compared to a married immigrant who arrived alone, or whether the spouse who arrived later is better able to adapt given the investments into the specific human capital of the receiving country already undertaken by the primary immigrant. In our empirical analysis, we differentiate *simultaneous* and *sequential* migrant couples, where we define the former as couples arriving in Germany in the same year and the latter as couples in which the husband migrates first and the wife arrives subsequently after a year or more.[2]

To analyze immigrants' labor supply behavior, we follow Baker and Benjamin (1997) by specifying a model that simultaneously identifies the effect of length of residence, cohort-specific effects and common period effects on hours of work, after controlling for demographic characteristics. The following hours equation is estimated on the pooled sample of married couples, separately for wives W and husbands H:

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[2]Husbands who migrated ahead of their wives comprise more than 70 percent of all couples migrating in succession. Therefore, we concentrate our analysis of sequential migration to this group.

$$h_{it}^g = \mathbf{X}_{it}\beta + \alpha_1 YSM_{it}^W + \alpha_2 YSM_{it}^{W2} + \delta_1 YSM_{it}^H + \delta_2 YSM_{it}^{H2},$$
$$+ \sum_{k=1}^{K} \gamma_{1k} C_{ik}^W + \sum_{k=1}^{K} \gamma_{2k} C_{ik}^H + \kappa_t + u_{it} \tag{1}$$

for $i = 1,...,N$, t $= 1,..., T$, and $g = W, H$, where h_{it} represents the annual hours worked in the previous year for an individual i in year t.[3] For both, foreign-born males and females, natives are used as reference groups.

This specification allows the assimilation profiles of an immigrant in annual hours worked to be affected not only by the individual's own length of residence in Germany, but also by his or her spouse's number of years since migration (YSM^W and YSM^H), respectively. The intercept is also allowed to vary according to own and spousal's cohort of arrival effects. The variables C^W and C^H are dummy variables for the period of arrival of immigrant wives and immigrant husbands, respectively. For instance, in the hours equation for husbands, $\gamma_{2,k}$ gives the cohort effects for men who immigrated in the kth period, while $\gamma_{1,k}$ is the cohort effects for having wives who arrived in period k. These cohort effects are usually interpreted as net "arrival effects".

One important drawback is adherent with this specification, that is, the coefficients of interest for the test of the family investment hypothesis (the parameters of the cross-effects of YSM, δ_1 and δ_2, and the parameters on the cross-cohort effects, γ_{1k} and γ_{2k}, respectively) can only be identified for couples that immigrated at different points in time. Otherwise the variables YSM^W and YSM^H as well as C^W and C^H are perfectly correlated with each other. Hence, a negative effect of the husbands' duration of stay on wives' labor supply, for example, does only support the family investment hypothesis if this hypothesis holds independent of whether the couple immigrated at the same time or at different points of time. As outlined

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[3]The GSOEP does not directly report data on annual hours of work. Instead, the variable was constructed for the Cross-National Equivalent File (CNEF) using information on employment status in the survey year, average number of hours worked per week, and the number of months worked in the previous year. The hours variable is generated by summing up estimated annual hours of full-time, part-time and short-time work (Lillard 2006).

above, however, this is not necessarily the case. We therefore estimate equation (1) separately for couples who immigrated together and couples who immigrated at different points of time without the respective cross-effect of YSM and cross-cohort effects.

We assign arrival cohorts according to the phases of immigration in Germany as proposed by Schmidt and Zimmermann (1992). They categorized immigration stages as follows: war adjustment (1945-1954), manpower recruitment (1955-1973), consolidation or restrained migration (1974-1988), and the dissolution of socialism and its aftermath (from 1989 to the present).[4] Due to the paucity of observations for those who immigrated before 1954, the first and second phases are merged. Therefore we identify three immigration cohorts, namely for the periods from 1949 to 1973, 1974 to 1988, and 1989 onwards. κ_t is a year-specific effect which is assumed to be the same for both natives and immigrants.

X_{it} is a vector of explanatory variables used to control for other determinants of labor supply. The variables included in this vector are summarized in the appendix together with some descriptive statistics. It includes own and spousal demographic variables including age, years of education, and a dummy variable for German language proficiency. The age of both the individual and the spouse enter the regressions as quadratic functions. The vector X_{it} further incorporates dummy variables for the individual's state of residence in Germany and the immigrant's region of birth. We classify countries of birth into regions that account for the most important regions of origin of Germany's migrant population, in particular Turkey, Central and Eastern Europe, former Yugoslavia, OECD and combined the rest into a heterogeneous composite group. Finally, X_{it} includes the number of children living in the household and a dummy variable for the presence of children under seven years old.

The log wage equation takes a similar form except that spousal YSM and cohort effects are omitted. Wages are defined as the annual labor earnings of the individual in the previous year divided by annual hours worked.

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[4]See Bauer et al. (2005) for details on phases of immigration in Germany.

4 Estimation Results

Following Baker and Benjamin (1997) and Blau et al. (2003), we test the family investment hypothesis by comparing immigrant husbands with native husbands and immigrant wives with native wives. According to the hypothesis, households would adopt a specialization strategy whereby one spouse permits the human capital investment of the other and provides for the current consumption of the family by working more upon arrival. The spouse performing this supporting role is then predicted to reduce the supply of labor in the latter stage of migration or after the investment period of the other is completed. That is, if the hypothesis holds, we expect to observe a convex labor assimilation profile for the supporting spouse. Furthermore, since investment in his or her own human capital is delayed, we also expect a flatter wage assimilation profile for the spouse who undertakes the supporting function.

The results of the estimating equations for hours of work and wages are presented in Table 1.[5] We begin by estimating our models for all couples including mixed families to render comparability with other studies. In a second step, we modify our sample to account for the issues discussed in the previous section, that is, to compare couples who immigrated together with couples who immigrated sequentially.

The estimation results suggest that an immigrant wife supplies more hours of work as her length of residence to Germany increases, while she tends to work less the longer the husband has remained in Germany. This assimilation pattern in labor supply is similar to the results of Baker and Benjamin (1997) for Canada. However, the wife's own assimilation effect dominates the cross effect of the husband's duration of residence, where the latter is statistically insignificant. Own cohort effects are all negative, implying that immigrant wives have lower levels of hours worked relative to comparable native wives regardless of the period of arrival. Husband's cohort effects on wife's labor supply are significantly positive indicating a relatively higher

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[5]The equations are estimated using Ordinary Least Squares (OLS) to foster comparability with previous studies. Recognizing that the hours variable is censored at zero, we also estimated the labor supply equations using a Tobit model. The results from this model do not differ significantly from those obtained by using OLS. Similar to Baker and Benjamin (1997) and Blau et al. (2003), the wage equations are estimated excluding non-participants. Using a Tobit model instead of simple OLS to estimate the wage equations does not alter the qualitative results either.

supply of labor for female immigrants having immigrant husbands.

The own- and cross-effects of years since migration on the labor supply of immigrant husbands have symmetric signs as those for immigrant wives, that is, positive for own length of residence and negative with respect to the wife's. Again, the influence of the spouse's duration of residence is insignificant. This symmetry extends to the cohort effects. The own cohort effects are statistically negative, indicating that immigrant men supply less hours of labor than comparable natives. Different to the females, however, the cross-cohort effects are statistically insignificant, indicating that the labor supply of immigrant men is not affected by the immigration status of their wife.

It is more insightful to consider the net assimilation profile of labor supply of married immigrants by summing up the own and the spousal effect of duration of residence (YSM) and the respective cohort effects. The combined effects of duration of residence and immigration cohort are summarized in Figure 1 for immigrant wives and Figure 2 for immigrant husbands. For illustration, we take an immigrant couple who hypothetically arrived anytime within the period 1974 to 1988, although results are qualitatively analogous for those belonging to other cohorts. Upon arrival, immigrant wives work on average about 230 hours less than comparable native wives, while immigrant husbands supply about 430 hours less than native husbands. Our results suggest that the number of hours worked by immigrant wives overtake those of comparable natives after about 10 years of residence. The labor supply of immigrant husbands, however, does not catch up to that of their native counterparts.

Overall, the patterns of labor supply of immigrant spouses in Germany suggest that upon arrival, they work less than natives with similar characteristics, and then gradually increase their labor supply as the duration of residence increases. Thus, the results do not support the family investment hypothesis, because we do not find any convex assimilation profile similar to those found by Baker and Benjamin (1997) using Canadian data. Our results are rather comparable to those found by Blau et al. (2003) for the US (see Figures 1 and 2).[6]

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[6]Estimation results in Baker and Benjamin (1997) are evaluated for immigrants who arrived in Canada in the period 1976-1980, while Blau et al. (2003) considered US immigrants who arrived in the period 1975-1979.

The estimation results for the wage equations are shown in the last two columns of Table 1, while Figures 3 and 4 display the immigrant-native gap in log wages for immigrant wives and husbands, respectively, together with the respective results obtained by Baker and Benjamin (1997) for Canada and Blau et al. (2003) for the US. The initial wage disadvantage upon arrival is much larger for immigrant husbands in Germany if compared to both, the US and Canada, while immigrant wives in Germany show an initial wage disadvantage that is considerably higher than the comparable wage disadvantage in the US, but similar to that in Canada. Looking at Figures 3 and 4, immigrant wives and immigrant husbands from cohort 1974-88 are observed to lag behind their native counterparts upon arrival by about 33 percent and 40 percent, respectively. Even though we observe an assimilation of the wages of immigrants to comparable German natives, they do not overtake nor catch up to those of the natives such as in Canada and the US. These findings are in line with existing studies on the wage assimilation of immigrants in Germany (see Bauer et al. (2005) for a review).

Table 2 shows the estimation results when augmenting the basic specification in order to account for the effects of wage earnings and non-labor income on labor supply. Wages for those who are unemployed are imputed by predicting log wages from a regression on a sample of individuals who worked less than 700 hours in the previous year separately for husbands and wives. Following earlier studies, we further estimated this model by two-stage least squares (2SLS) using the individuals' wage deciles as an instrument for their wages, to adjust for potential measurement error in the wage variable, assuming that the measurement error is likely to be smaller in measuring deciles than actual or predicted wages (Blau et al. 2003).

The estimation results indicate that while the wage and asset income effects are in general significant, assimilation effects previously observed are still significant in explaining the observed variation in hours worked. In fact, the assimilation patterns in labor supply remain unchanged even after controlling for earnings variables: hours worked increase with own years since migration while spousal duration of residence has insignificant effect; own cohort effects remain positive and spousal cohort effects are negative as before. Referring to the OLS results, the magnitudes of the effects

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are similar to those reported in Table 1. The OLS results from the augmented equations show that labor supply is decreasing in own and spousal wages, but are a lot more responsive to own earnings effect. Using either OLS or two-stage regression, husbands' employment level is shown to be hardly affected by a change in wives' labor earnings. Labor supply of both husbands and wives are increasing in household income from asset flows.

Overall, the assimilation profiles for immigrant husbands and wives do not provide evidence in favor of the family investment hypothesis. The symmetric patterns of hours of work for immigrant husbands and wives in Germany do not imply that there is a specialization into "investing" and "supporting" activities as suggested by the findings of Baker and Benjamin (1997). Similar to the findings of Blau et al. (2003) for the US, both labor supply and wages of immigrant husbands and wives increase with the number of years since migration. The results suggest that their patterns follow a simple process of human capital accumulation, that is, both immigrant husbands and immigrant wives start out with lower wages and lower levels of labor supply than comparable natives, but after some form of investment in host country-specific human capital, their labor market outcomes improve with years of residence.

4.1 Investment Activities of Immigrants

Since we do not find any support for the family investment hypothesis by looking at assimilation patterns of labor supply and wages, we investigate whether immigrants provide support for their spouses by delaying investment in own skills. If the family investment hypothesis holds, we might expect that immigrant spouses who were "chosen" to support the family in the early years of migration would postpone investments in their own skills. On the other hand, the spouses who were "designated" to initially invest in post-migration skills would reduce or withdraw from training in the latter course of migration in the new country. To test this hypotheses, we run a Probit model to explain whether an individual undergoes training, where *training* is defined as a dummy variable equal to one if the individual is receiving education or undergoing other forms of training. We relate training to the usual demographic

and assimilation variables of the individual and the spouse. The estimation results, which are reported in Table 3, show that the number of years since migration do not significantly affect the decision to take up formal training.

Another implication of the family investment hypothesis is that the spouse who undertakes the "supporting" role would choose to limit job mobility in the years shortly after arrival in order to not disrupt income flows for the household. This is done even if the individual's career opportunities and wage improvement on the aforesaid job are limited. In this sense, the family investment hypothesis predicts that the wage profile of the supporting spouse is flatter. In contrast, the spouse who is "investing" is allowed to explore the job market as the individual tries to find better career opportunities. The last two columns of Table 3 show that the job tenure of immigrant wives and immigrant husbands in Germany both increase as their duration of stay increases. This effect is accounted for by own assimilation for immigrant husbands, while the duration of stay of the wives does not have a significant effect on the job tenure of husbands. For immigrant wives, the assimilation effect is predominantly due to the cross-assimilation effect, while the own assimilation effect is insignificant. Again, these results do not support the predictions of the family investment hypothesis as an explanation for immigrant labor market behavior in Germany.

4.2   Assimilation of Immigrant Families

In the next step, we exclude immigrants who are married to natives from our analysis.[7] We do not expect substantial deviations from the patterns initially found

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[7]To fully implement the method used by earlier studies, we carried out estimations to take into account different types of families, i.e. pure immigrant families and mixed families. Regression results are available from the authors upon request. Baker and Benjamin (1997) argue that immigrant husbands are more likely to face credit constraints, thus their immigrant wives have a higher tendency to take up the borrowing function for the family. This would suggest that immigrant wives from immigrant families who are compensating for their husbands' lower work level would have higher employment levels than women from mixed families in earlier stages of migration, but they would reduce their employment and be overtaken by those from mixed families in the latter phase of migration. Our results provide no evidence for such a behavior. We rather find that immigrant wives from immigrant families assimilate in employment and work more than wives with native husbands throughout the migration cycle.

arising merely from this sample restriction, because mixed families comprise only seven percent of all couples. Nevertheless, this sample restrictions allows us to concentrate on the examination of the behavior of immigrants in the context of family migration, which is the underlying premise of the family investment model. Furthermore, since we have information on year of marriage and year of immigration, we are able to restrict the following analysis on immigrants who were already married to each other before immigrating to Germany. This restriction ensures that the assimilation effects that we capture are not affected by selectivity into marriage in the new country.

Results for the modified sample and the basic specification are presented in Table 4. The estimation results show that the overall assimilation patterns for labor supply and wages are very similar to those reported in Table 1 and Figures 1 to 4. Compared to the overall sample, the hours and wage assimilation for immigrants, after excluding those who are married to natives, are somewhat faster.[8] If credit constraints are stricter for pure immigrant families, as asserted by Baker and Benjamin (1997), which should result in higher incentives to specialize, we would have found one spouse working more so that the supported partner assimilates faster in wages. However, since the assimilation profiles are again symmetric, we cannot attribute the faster assimilation of one spouse to the support of the other. This permits the conclusion that immigrants with immigrant spouses adjust their labor supply faster, possibly because they are more pressed to contribute to household earnings and invest in own skills rather than necessarily back up the investment of the partner.

4.3 Simultaneous vs. Sequential Migration

Household members do not necessarily have to migrate all at the same time. In many cases, migration proceeds as a sequential process whereby one member moves to the new country and is eventually joined by the rest of the household. The case

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[8]We also estimated the models for immigrants who migrated at age 25 or above and looked separately at Turkish couples who comprise about 37 percent of immigrant couples. We find the same concavity profile in labor supply and no wage assimilation for Turkish immigrants.

of Germany's guest worker program is an excellent example of this phenomenon. From the mid-1950s to the early 1970s, Germany recruited guest-workers to meet a shortage of unskilled labor (Bauer et al. 2005). While the program was oriented such that foreigners would leave the country after terminal employment, some migrants routinely renewed their contracts and stayed longer than aimed by the recruitment policy. Those who stayed beyond 1973, when the recruitment of guest-workers has been stopped by the German government, subsequently earned the right to bring their families to Germany (Martin 2002). Based on this right, family reunification became the most important source of immigration from 1973 until the late 1980s. In our sample, about 37 percent of married immigrant males moved to Germany alone, leaving behind their spouses in the country of origin and bringing them to Germany later on.

We categorize immigrant families according to how family migration took course, namely simultaneously or sequentially, where the latter refers to the situation of the husband migrating ahead of the wife. We make this distinction for two reasons. First, we aim to clarify the coherence of the thesis of the family investment model and the specification used by Baker and Benjamin (1997). Second, we expect that upon arrival, immigrant partners migrating together may face a set of constraints and incentives different from those faced by households who migrated in succession. Spouses who migrated together are expected to require more capital in settling in the new country. In addition, these couples may have stronger incentives to stay permanently in Germany and thus a relatively higher motivation to invest in own or in spouse's skills suited to the German labor market. If the couple has greater incentives to stay and thus invest in skills but is faced with stricter constraint, adopting a household specialization strategy as suggested by the family investment hypothesis could be expected for couples who migrated simultaneously. On the other hand, husbands who immigrated alone may not have initially planned to stay in Germany permanently. Therefore they do have relatively weaker incentives to invest in country-specific human capital (Dustmann 1993) which leads to non- or weak assimilation in the labor market. We could think further that they may have more capacity to save while they stay alone in Germany, and when economic status

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becomes relatively stable they could decide to bring in their families.

Reviewing the thesis of Baker and Benjamin (1997), they posit that immigrant couples face credit constraints shortly after arrival. This implicitly assumes that couples migrated at the same time. However, as already noted in Section 3, in the econometric specification employed by Baker and Benjamin (1997) the effect of own and spousal years since migration and own and spousal cohort effects can be identified only for couples who migrated sequentially, because these variables will be perfectly collinear for couples migrating simultaneously. We therefore implement the model proposed by Baker and Benjamin (1997) only for the sub-sample of *sequential migrant couples*. The results of this model are presented in Table 5. While the signs for the assimilation effects are the same as before and the respective own effects still dominate those of spouses, we only observe significant assimilation in hours and wages for the wives. For the husbands who migrated alone, labor supply and wages are not significantly affected by the duration of residence. The latter result could provide support for the possibility of weaker incentives for skills accumulation for immigrant husbands who migrated independently.

To facilitate comparison between the two groups of immigrant families, we consider in a second step their assimilation profiles including only the individuals' own years since migration and cohort effects, while still taking into account other spousal and household characteristics. The results are presented in Tables 6a and 6b and summarized in Figures 5 and 6. Under the *simultaneous* mode of migration, both the wife and the husband experience significant assimilation in hours. Even if credit constraints are believed to be tighter for these couples, we do not find a specialization strategy in terms of labor supply over the phase of migration. Both the husband and the wife start out with low levels of employment which increase with the duration of stay in Germany. Table 6b shows that neither exhibits assimilation in wages. As discussed earlier, this is not surprising as previous studies also find evidence on weak assimilation of immigrant earnings in Germany.

When the wife arrives after the husband, only the wife's labor supply shows some significant assimilation. The husband who arrives alone does not experience significant assimilation in both, hours and wages, indicating that the assimilation

patterns captured in the previous estimations have been mainly driven by immigrant men who arrived together with their wives. This conclusion is verified by our results for sequential migrants shown in Table 5, where we find that indeed husbands under this mode of migration do not experience assimilation. Testing whether the labor supply profiles under the two modes of migration are different, we find that while wives who arrived later than their husbands tend to assimilate faster than immigrant women who migrated with their husbands, there is no significant difference between their profiles. However, we reject equality of the assimilation profiles for husbands in different migration groups.

Tables 4 and 6b indicate that only wives who arrive after their husband experience wage assimilation. This result suggests that the information and resources accumulated by the husband over the years while he was staying in Germany alone may help his wife's adjustment to the German labor market. Husbands may move ahead of the wife and find a stable job or establish networks that could assist the settlement of the rest of the family. Borjas and Bronars (1991) also claim that in the "chain of migration", the later links or those who migrated after a spouse could be more successful partly due to the transmission of information about labor market opportunities across family members.

We finally examined for couples who migrated sequentially whether or not the husband changes his labor supply when the wife arrives in Germany to see whether there exists an added worker effect. We therefore augment the specification of the regression model by including a dummy variable indicating whether the wife is staying or even working in Germany as well as the duration of stay of the husband while the wife is staying or working in Germany, respectively. Our results, which are reported in Tables 7 and 8, show that there is no significant modification in labor supply nor the assimilation pattern of the husband when his wife arrives, regardless of whether the wife is working or not.

5   Conclusions

This paper examines whether immigrant families in Germany adopt a family investment strategy in deciding on the level of the labor market activity of their household members. The family investment hypothesis posits that upon arrival, an immigrant spouse invests in host-country specific skills while the other partner works to finance the family's consumption and the human capital investments of the spouse. When the partner accumulates enough human capital, which could potentially improve his or her earnings capacity, the spouse who was initially supporting the family reduces his or her labor supply with increasing duration of residence.

Using panel data from the GSOEP, we do not find evidence for the prediction of the family investment hypothesis. Immigrant husbands and immigrant wives both work less upon arrival than natives with similar characteristics. Thus the evidence do not suggest spousal specialization into "investing" and "supporting" roles in the families' early years of migration. Both immigrant husbands and wives increase their labor supply as their numbers of years since migration increase, suggesting a standard process of human capital accumulation of individuals. Overall, we observe positive but weak assimilation of the wages of immigrants. Their wages further do not catch up to those of comparable natives in spite of their length of residence in Germany. This result is in line with earlier studies on the wage assimilation of immigrants in the German context.

The paper also analyzes the labor market behavior of immigrant couples who migrated together and those who migrated sequentially, recognizing the fact that circumstances, incentives and constraints may vary under different modes of migration. Husbands and wives who migrated simultaneously experience assimilation in labor supply but not in wages. On the other hand, for couples who migrated sequentially, we observe that wives who migrated after their husbands assimilate both in labor supply and wages. This finding could entail that the resources and information about the local labor market that husbands have accumulated over the years of unaccompanied migration could have helped the labor market adjustment of their wives.

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Appendix

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Table A1

Definition of Variables

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Variable	Description
Annual Hours	Number of hours worked in the previous year Sum of estimated hours of full-time, part-time and short-time work
Log (husband wage)	Hourly labor earnings of the male spouse (in log), includes wages and salary from all employment
Log (wife wage)	Hourly labor earnings of the female spouse (in log), includes wages and salary from all employment
HH Asset Income (per 100 euros)	Household's annual income from interest, dividend and rent
YSM, husband	Number of years since migration if respondent immigrated and is a male spouse; 0 otherwise
YSM, wife	Number of years since migration if respondent immigrated and is a female spouse; 0 otherwise
IM89up, wife	1 if respondent is a female spouse and immigrated within the period 1989 to 2005; 0 otherwise
IM7488, wife	1 if respondent is a female spouse and immigrated within the period 1974 to 1988; 0 otherwise
IM4973, wife	1 if respondent is a female spouse and immigrated within the period 1949 to 1973; 0 otherwise
IM89up, husband	1 if respondent is a male spouse and immigrated within the period of 1989 to 2005; 0 otherwise
IM7488, husband	1 if respondent is a male spouse and immigrated within the period of 1974 to 1988; 0 otherwise
IM4973, husband	1 if respondent is a male spouse and immigrated within the period of 1949 to 1973; 0 otherwise
Training	1 if respondent is receiving education or training in survey year; 0 otherwise
Job Tenure	Number of years of the respondent with the current employer

Table A2

	NATIVES		IMMIGRANTS	
	Mean	S.D.	Mean	S.D.
Husbands:				
Annual Hours	2035.900	873.743	1627.657	946.867
Log Wages	2.760	0.519	2.486	0.427
Age	45.220	10.593	48.112	9.543
Years of Education	12.142	2.663	10.124	2.337
Job Tenure	12.443	11.130	7.833	8.087
Training	0.005	0.067	0.003	0.050
Years since Migration			17.954	8.512
Year of Migration:				
1989-2005			0.285	0.452
1974-1988			0.156	0.363
1949-1973			0.559	0.497
German-language Proficiency			0.774	0.418
Region of Origin:				
Turkey			0.313	0.464
OECD			0.210	0.407
Central & Eastern Europe			0.154	0.361
Ex-Yugoslavia			0.125	0.331
Other regions			0.198	0.398
Wives:				
Annual Hours	871.535	891.851	844.588	919.233
Log Wages	2.305	0.674	2.177	0.525
Age	42.582	10.542	45.417	9.591
Years of Education	11.462	2.284	9.411	2.420
Job Tenure	5.508	8.129	3.977	6.408
Training	0.006	0.077	0.005	0.067
Years since Migration			17.453	8.235
Year of Migration: 1989-2005			0.256	0.436
1974-1988			0.292	0.454
1949-1973			0.453	0.498
German-language Proficiency			0.779	0.415
Region of Origin:				
Turkey			0.207	0.405
OECD			0.308	0.462
Central & Eastern Europe			0.155	0.362
Ex-Yugoslavia			0.120	0.325
Other regions			0.209	0.407

NOTE.– Unweighted sample. Sample excludes mixed families.

Table 1

Labor Supply and Wage Assimilation of Immigrants
(Including Mixed Families, 1984-2005)

	Annual Hours		Log Wages	
	Wives	Husbands	Wives	Husbands
YSM, wife	43.178**	-18.175	1.964*	
	(10.892)	(11.995)	(0.864)	
YSM^2, wife	-0.669**	0.233	-0.040*	
	(0.230)	(0.265)	(0.019)	
YSM, husband	-13.041	37.197*		1.266$^+$
	(12.129)	(15.145)		(0.674)
YSM^2, husband	0.046	-0.536$^+$		-0.017
	(0.237)	(0.291)		(0.014)
IM89up, wife	-567.033**	89.893	-0.470**	
	(88.317)	(97.647)	(0.075)	
IM7488, wife	-651.693**	268.392$^+$	-0.305**	
	(133.502)	(138.171)	(0.110)	
IM4973, wife	-490.625**	285.326	-0.232$^+$	
	(171.620)	(174.974)	(0.119)	
IM89up, husband	300.011**	-635.516**		-0.475**
	(95.919)	(130.935)		(0.057)
IM7488, husband	420.605**	-698.988**		-0.417**
	(133.903)	(196.366)		(0.086)
IM4973, husband	478.876**	-859.007**		-0.401**
	(177.114)	(232.752)		(0.090)
Constant	555.750**	-1790.595**	0.421*	0.618**
	(194.109)	(187.674)	(0.164)	(0.119)
R-squared	0.195	0.219	0.126	0.191
N	59276	59276	35509	52686

NOTE.–YSM and YSM^2 are multiplied by 100 for log wage equations. Weighted OLS using weights provided by the GSOEP. Standard errors, which are reported in parenthesis, are adjusted in order to take repeated observations into account. The regression further includes quadratic functions of the individual's age and the age of the spouse, individual and spousal years of schooling, information about German-language proficiency and German-language proficiency of the spouse, number of children in the household, presence of children under 7 years old, state of residence, region of origin, and year dummies. Immigrants with native spouses are included in the sample.

$^+$ $p < .10$.
* $p < .05$.
** $p < .01$.

Table 2

Labor Supply Equations Including Wage and Income Variables
(Including Mixed Families, 1984-2005)

	Wives		Husbands	
	OLS	2SLS	OLS	2SLS
Log (wife wage)	-13.356	271.193**	-66.873**	-49.264**
	(22.436)	(24.991)	(15.861)	(18.403)
Log (husband wage)	-182.213**	-220.368**	-578.275**	-585.121**
	(25.072)	(28.271)	(24.496)	(26.762)
HH Asset Income (per 100 euros)	0.428*	0.357$^+$	1.594**	1.593**
	(0.197)	(0.188)	(0.223)	(0.223)
YSM, wife	42.692**	40.809**	-19.332	-19.489
	(10.915)	(10.681)	(12.403)	(12.406)
YSM^2, wife	-0.665**	-0.647**	0.235	0.237
	(0.232)	(0.225)	(0.254)	(0.255)
YSM, husband	-9.835	-12.432	48.071**	47.984**
	(12.381)	(12.316)	(16.695)	(16.689)
YSM^2, husband	0.014	0.113	-0.654*	-0.649*
	(0.239)	(0.246)	(0.318)	(0.318)
IM89up, wife	-593.448**	-482.408**	91.726	98.560
	(88.805)	(86.719)	(106.610)	(106.747)
IM7488, wife	-667.879**	-593.641**	316.831*	321.246*
	(132.663)	(128.540)	(152.996)	(152.965)
IM4973, wife	-504.332**	-448.412**	341.057$^+$	344.135$^+$
	(171.046)	(163.852)	(192.570)	(192.635)
IM89up, husband	225.911*	215.446*	-950.826**	-953.655**
	(98.891)	(95.370)	(144.380)	(144.568)
IM7488, husband	353.009*	333.785*	-1003.120**	-1006.126**
	(138.942)	(133.795)	(223.380)	(223.365)
IM4973, husband	400.315*	364.574*	-1206.790**	-1211.170**
	(182.876)	(175.570)	(260.028)	(260.074)
Constant	754.986**	543.144**	-1128.612**	-1137.854**
	(196.246)	(192.374)	(178.225)	(178.827)
R-squared	0.205	0.181	0.319	0.319
N	59276	59276	59276	59276

Note.–Additional regressors as in Table 1. Wages are imputed for those who are un-
employed by predicting log wages from a regression on a sample of individuals who worked
less than 700 hours in the previous year (estimated separately by gender). Estimates for
2SLS were obtained with individuals' wage decile used as an instrument for their wages.

$^+$ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 3

Investment in Training and Job Stability
(Including Mixed Families, 1984-2005)

	Prob. of Training		Job Tenure	
	Wives	Husbands	Wives	Husbands
YSM, husband	-0.716	-4.206	31.862*	30.507*
	(2.912)	(2.559)	(12.690)	(13.313)
YSM^2, husband	-0.003	0.116*	-0.635**	-0.288
	(0.060)	(0.046)	(0.229)	(0.284)
YSM, wife	1.839	-1.523	16.509	4.494
	(2.675)	(2.580)	(14.180)	(13.272)
YSM^2, wife	-0.044	0.026	-0.254	0.086
	(0.060)	(0.058)	(0.323)	(0.345)
IM89up, husband	0.521$^+$	0.196	-3.228**	-9.238**
	(0.287)	(0.215)	(1.066)	(1.150)
IM7488, husband	0.188	0.418	-2.693$^+$	-7.901**
	(0.352)	(0.346)	(1.534)	(1.873)
IM4973, husband	0.280	0.298	-4.153*	-9.693**
	(0.437)	(0.428)	(2.020)	(2.133)
IM89up, wife	-0.008	0.209	-5.428**	-1.873$^+$
	(0.225)	(0.196)	(1.009)	(1.075)
IM7488, wife	-0.046	-0.040	-4.101**	-1.710
	(0.281)	(0.281)	(1.454)	(1.510)
IM4973, wife	-0.193	0.048	-1.700	-2.111
	(0.363)	(0.364)	(1.733)	(1.815)
Constant	-0.966$^+$	-0.194	2.516	-2.392

Note.–YSM and YSM^2 are multiplied by 100. Additional regressors as in previous tables.

$^+$ $p < .10$.
* $p < .05$.
** $p < .01$.

Table 4

Labor Supply and Wage Assimilation of Immigrants
(Excluding Mixed Families, 1984-2005)

	Annual Hours		Log Wages	
	Wives	Husbands	Wives	Husbands
YSM, wife	78.224**	-27.898	3.663*	
	(22.272)	(31.170)	(1.537)	
YSM^2, wife	-1.433**	0.630	-0.088*	
	(0.543)	(0.816)	(0.041)	
YSM, husband	-32.932	63.037*		1.689$^+$
	(22.468)	(31.330)		(0.986)
YSM^2, husband	0.253	-1.444$^+$		-0.027
	(0.533)	(0.786)		(0.025)
IM89up, wife	83.860	-862.837*	-0.497**	
	(324.859)	(362.041)	(0.115)	
IM7488, wife	-197.195	-680.403*	-0.390*	
	(254.559)	(277.371)	(0.153)	
IM4973, wife	-31.607	-680.956*	-0.243	
	(222.394)	(266.251)	(0.165)	
IM89up, husband	-371.025	188.503		-0.508**
	(295.898)	(326.642)		(0.071)
IM7488, husband	-34.210	124.385		-0.507**
	(201.676)	(203.432)		(0.097)
IM4973, husband				-0.450**
				(0.111)
Constant	781.051**	-2025.485**	0.380*	0.445**
	(220.163)	(212.516)	(0.180)	(0.136)
R-squared	0.195	0.225	0.128	0.194
N	48701	48701	29636	43134

NOTE.–YSM and YSM^2 are multiplied by 100 for log wage equations. Additional regressors as in previous tables. Immigrants were married at the time of migration. Immigrants with native spouses were removed from the sample.

$^+$ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 5

Sequential Migrants: Labor Supply and Wage Assimilation of Immigrants
(Excluding Mixed Families, 1984-2005)[a]

	Annual Hours		Log Wages	
	Wives	Husbands	Wives	Husbands
YSM, wife	113.685**	-39.912	6.762*	
	(26.642)	(28.205)	(2.876)	
YSM^2, wife	-2.890**	0.386	-0.162*	
	(0.741)	(0.854)	(0.070)	
YSM, husband	-77.687*	51.461		0.363
	(39.327)	(57.431)		(1.656)
YSM^2, husband	1.694*	-1.076		0.003
	(0.809)	(1.230)		(0.041)
IM89up, wife	-311.956	-595.211	-0.713**	
	(307.732)	(494.540)	(0.266)	
IM7488, wife	-514.824	-830.210	-0.469	
	(427.884)	(583.186)	(0.291)	
IM4973, wife	-354.287	-697.844	-0.489	
	(504.270)	(640.296)	(0.313)	
IM7488, husband	6.981	-169.953		-0.351*
	(358.694)	(381.816)		(0.178)
IM4973, husband	381.818	461.304		-0.164
	(459.646)	(447.655)		(0.181)
IM89up, husband				-0.319+
				(0.184)
Constant	836.036**	-2115.471**	0.366+	0.383**
	(235.503)	(231.020)	(0.194)	(0.148)
R-squared	0.199	0.223	0.129	0.190
N	44080	44080	26837	39347

Note.–See Note to Table 4.

[a] Baker and Benjamin (1997) specification.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 6a

	SIMULTANEOUS		SEQUENTIAL	
	Wives	Husbands	Wives	Husbands
YSM, wife	63.784**		83.541**	
	(20.771)		(24.672)	
YSM^2, wife	-1.885**		-2.031**	
	(0.560)		(0.600)	
YSM, husband		49.495*		26.279
		(22.093)		(56.094)
YSM^2, husband		-1.318*		-0.854
		(0.624)		(1.163)
IM89up, wife	-362.790*		-695.448**	
	(147.926)		(208.618)	
IM7488, wife	-341.987		-800.799**	
	(224.521)		(269.003)	
IM4973, wife	-77.547		-610.744+	
	(280.400)		(354.795)	
IM89up, husband		-809.180**		-592.547
		(158.763)		(494.583)
IM7488, husband		-515.058*		-895.893
		(213.499)		(668.476)
IM4973, husband		-876.256**		-377.271
		(296.462)		(672.735)
Constant	752.833**	-2084.603**	864.409**	-2086.525**
	(227.706)	(218.220)	(234.894)	(236.157)
R-squared	0.199	0.222	0.199	0.223
N	44894	44894	44080	44080

NOTE.–See Note to Table 4.

[a] Own assimilation variables only.

$^+$ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 6b

SIMULTANEOUS V SEQUENTIAL MIGRATION: WAGE ASSIMILATION OF IMMIGRANTS
(EXCLUDING MIXED FAMILIES)[a]

	SIMULTANEOUS		SEQUENTIAL	
	Wives	Husbands	Wives	Husbands
YSM, wife	0.603		6.762*	
	(2.040)		(2.876)	
YSM^2, wife	-0.002		-0.162*	
	(0.054)		(0.070)	
YSM, husband		0.511		0.363
		(1.599)		(1.656)
YSM^2, husband		0.007		0.003
		(0.045)		(0.041)
IM89up, wife	-0.293*		-0.713**	
	(0.145)		(0.266)	
IM7488, wife	-0.244		-0.469	
	(0.198)		(0.291)	
IM4973, wife	-0.064		-0.489	
	(0.215)		(0.313)	
IM89up, husband		-0.466**		-0.319$^+$
		(0.108)		(0.184)
IM7488, husband		-0.431**		-0.351*
		(0.134)		(0.178)
IM4973, husband		-0.423**		-0.164
		(0.154)		(0.181)
Constant	0.352$^+$	0.445**	0.366$^+$	0.383**
	(0.186)	(0.141)	(0.194)	(0.148)
R-squared	0.130	0.191	0.129	0.190
N	27782	40113	26837	39347

NOTE.–See Note to Table 4.

[a] Own assimilation variables only.

$^+$ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 7

LABOR SUPPLY AND WAGE ASSIMILATION OF IMMIGRANT HUSBANDS
CONSIDERING THE PRESENCE OF WIVES
(EXCLUDING MIXED FAMILIES, 1984-2005)

	WIVES PRESENT		WIVES PRESENT & WORKING	
	Annual Hours	Log Wages	Annual Hours	Log Wages
YSM, husband	74.127	1.885	61.011	1.072
	(84.622)	(2.105)	(62.765)	(1.734)
YSM^2, husband	-1.867	-0.053	-1.487	-0.012
	(1.890)	-0.401	(1.365)	(0.042)
YSM, wife	-46.235		-38.366	
	(29.415)		(27.244)	
YSM^2, wife	0.563		0.371	
	(0.881)		(0.813)	
IM7488, husband	-117.460	-0.425*	-121.176	-0.412*
	(398.382)	(0.208)	(375.410)	(0.183)
IM4973, husband	495.678	-0.225	561.117	-0.221
	(436.252)	(0.206)	(446.451)	(0.190)
IM89up, husband		-0.401$^+$		-0.368*
		(0.212)		(0.187)
IM89up, wife	-685.701		-649.255	
	(671.267)		(526.085)	
IM7488, wife	-964.774		-917.222	
	(723.888)		(627.968)	
IM4973, wife	-831.898		-750.818	
	(746.403)		(672.956)	
With wife in Germany	184.661	0.252	-712.935	0.838$^+$
	(1063.809)	(0.304)	(1369.239)	(0.498)
YSM with wife in Germany	-28.552	-0.034	17.419	-0.075
	(100.093)	(0.030)	(121.816)	(0.046)
YSM^2 with wife in Germany	0.973	0.001	0.276	0.001
	(2.195)	(0.001)	(2.517)	(0.001)
Constant	-2124.265**	0.382**	-2117.317**	0.375*
	(230.422)	(0.148)	(230.772)	(0.148)
R-squared	0.223	0.190	0.224	0.190
N	44080	39347	44080	39347

NOTE.–See Note to Table 4.
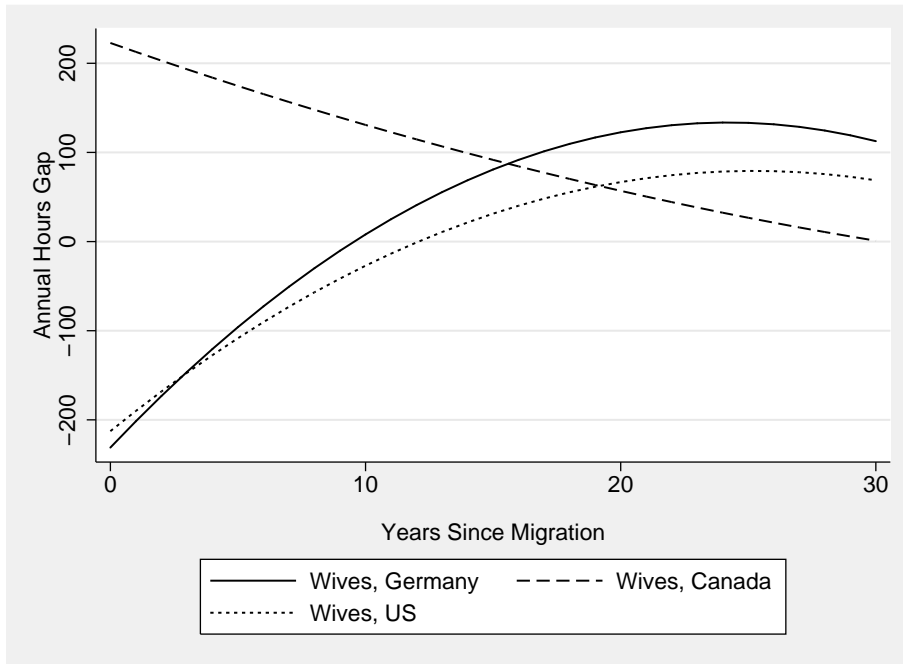$^+$ $p < .10$.
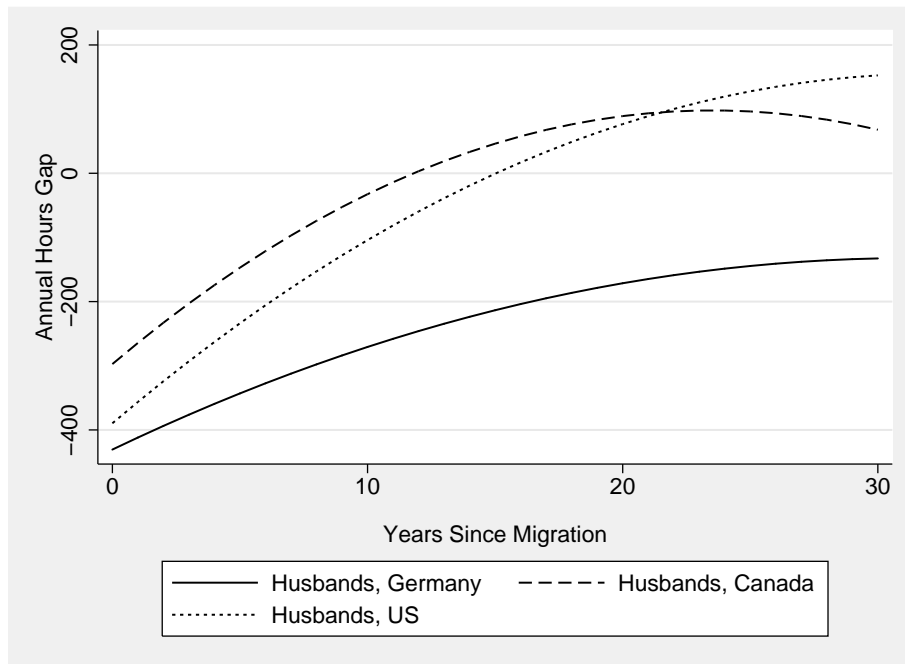* $p < .05$.
** $p < .01$.

Figure 1

HOURS PROFILES FOR IMMIGRANT WIVES RELATIVE TO NATIVE WIVES

NOTE.–The estimates for Canada were extracted from Baker and Benjamin (1997). The estimates for the US were taken from Blau et al. (2003).
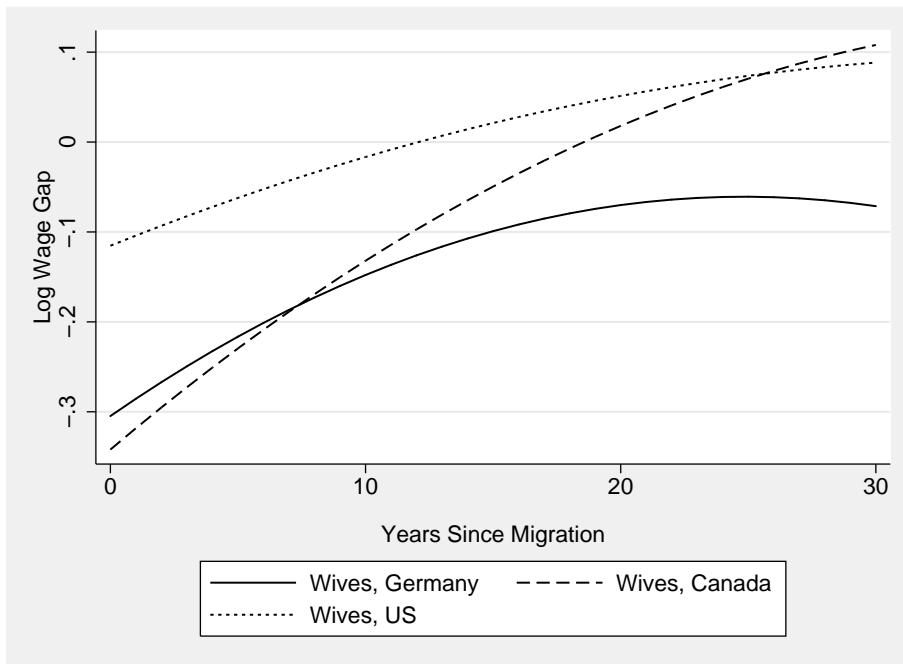
Figure 2

Hours Profiles for Immigrant Husbands Relative to Native Husbands
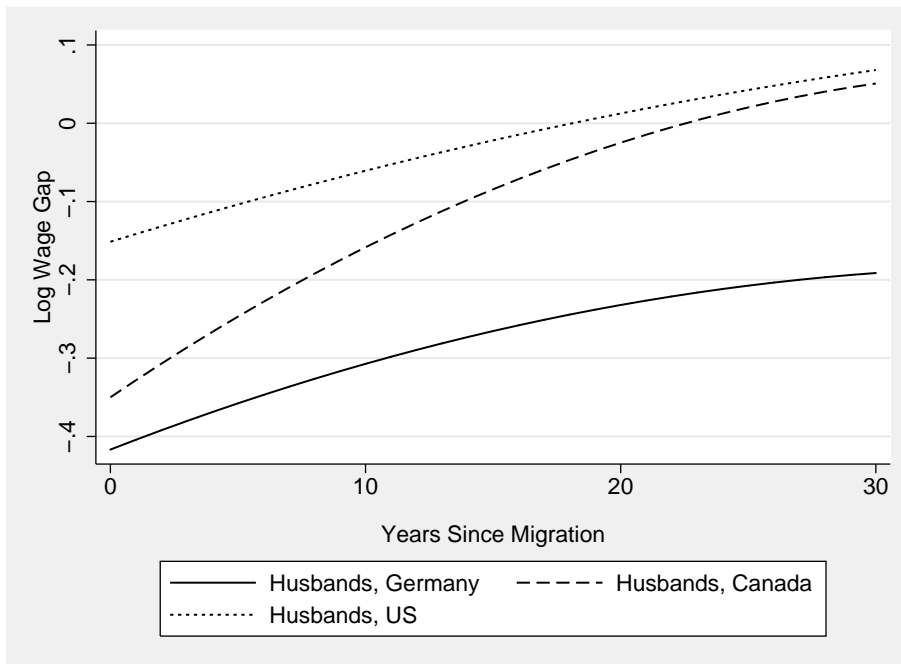

NOTE.–See Note to Figure 1.

Figure 3

LOG WAGE PROFILES FOR IMMIGRANT WIVES RELATIVE TO NATIVE WIVES

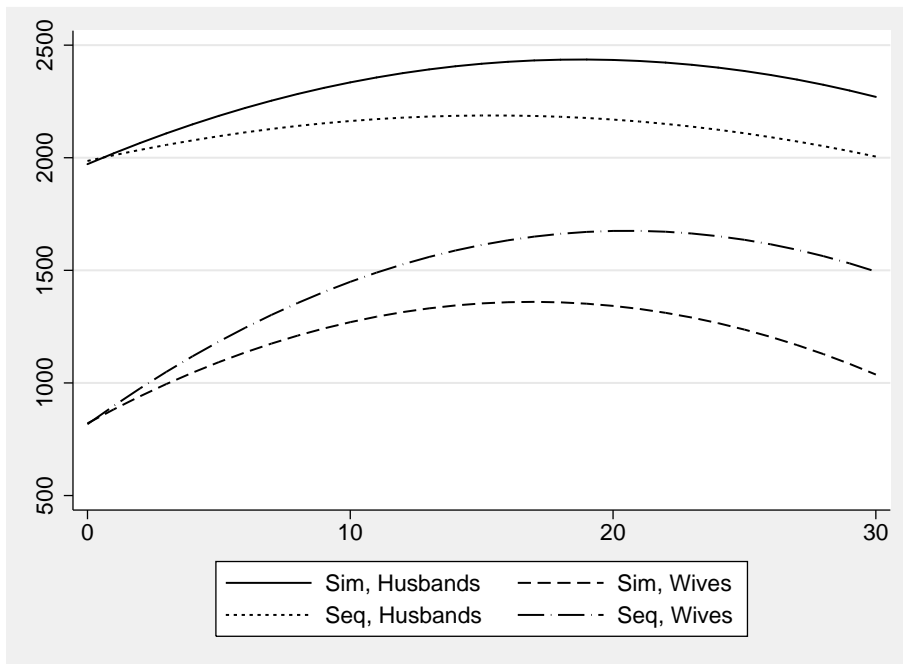NOTE.–See Note to Figure 1.

Figure 4

Log Wage Profiles for Immigrant Husbands Relative to Native Husbands

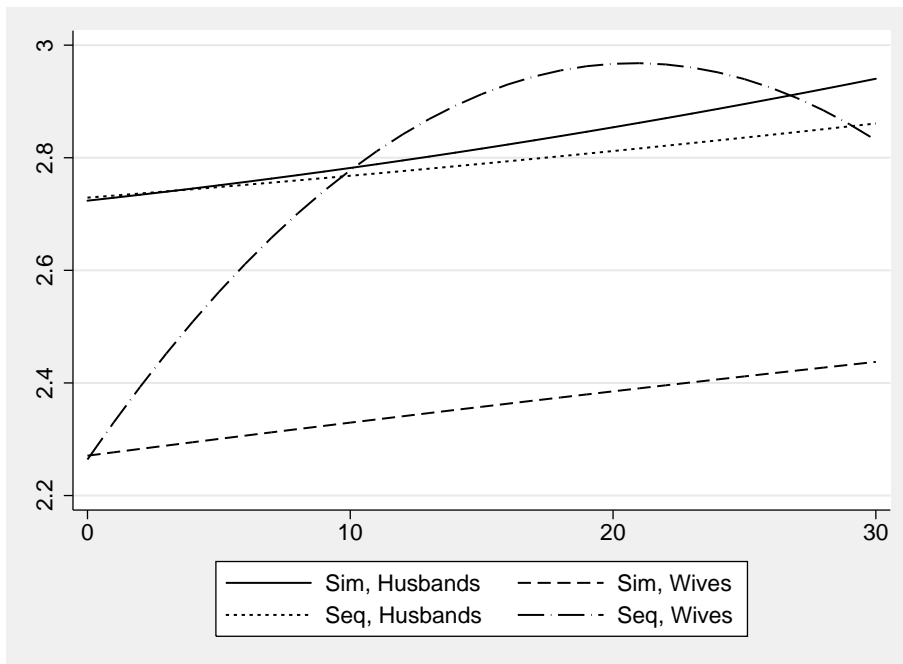NOTE.–See Note to Figure 1.

Figure 5

SIMULTANEOUS V SEQUENTIAL MIGRATION: HOURS PROFILES FOR IMMIGRANTS

NOTE.–The sample for Germany excludes immigrants with native spouses.

Figure 6

SIMULTANEOUS V SEQUENTIAL MIGRATION: LOG WAGE PROFILES FOR IMMIGRANTS

NOTE.–See Note to Figure 5.