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Human Capital and Labor Supply Decisions in Immigrant Families: An Alternative Test of the Family Investment Hypothesis

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Abstract

Immigrant households frequently face liquidity constraints upon arrival, which potentially hinders their long-term economic integration. The Family Investment Hypothesis (FIH) suggests that couples may respond to these constraints by coordinating their labor supply: one spouse works to finance the other's investment in local human capital. Previous studies have tested the FIH by comparing married immigrants to married natives, attributing differences in outcomes to financial constraints. However, this approach may conflate such constraints with other inherent differences between immigrants and natives. This paper introduces a novel identification strategy that compares the differences in labor market outcomes of married and single immigrants to those of their native-born counterparts, allowing for better isolation of the effects of liquidity. Applying this strategy to repeated cross-sectional data on immigrants from the Former Soviet Union who arrived in Israel during the 1990s, the analysis finds no supporting evidence for the FIH. One possible explanation for this finding is the substantial government support extended to these immigrants, which may have mitigated their financial constraints. Alternatively, the results may indicate that immigrant households do not systematically adjust their labor supply in accordance with the FIH framework. These findings highlight the importance of the institutional context in shaping household labor supply decisions.

Keywords: immigration; family investment model; labor supply; human capital; difference in differences

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1. Introduction

Economic decisions within households, particularly those involving labor supply and human capital investment, are often the result of a joint decision-making process. In the context of immigration, such decisions may be shaped by binding liquidity constraints and the need to adapt to the host-country labor market. The Family Investment Hypothesis (FIH) posits that immigrant families, facing such constraints, adopt a cooperative decision-making strategy whereby upon arrival one spouse enters the labor market to finance the other's investment in local human capital.[1]

This intra-household division of labor is a beneficial strategy for the family to deal with the initial financial hardship that immigrants usually face upon arrival to the new

country. This strategy is expected to generate observable differences in labor supply patterns between immigrant and native families. Any evidence that the secondary worker in the family, typically the wife, works longer hours and foregoes investment in human capital by initially taking better-paying but "dead-end" jobs, in comparison to her native counterpart, is considered in the literature as support for the FIH. Moreover, these patterns are viewed as evidence of credit market inefficiencies that hinder optimal investment among immigrants.

Despite its prominence for the family welfare, empirical evidence on the FIH remains inconclusive, in part due to challenges related to identification and data limitations. Many studies compare native and immigrant couples, implicitly assuming that the only potential source for difference in labor market outcomes between married natives and married immigrants is liquidity constraints. However, this assumption may not hold for various reasons. Our study proposes an alternative empirical approach that directly leverages variation across the marital status among immigrants to evaluate the FIH. Recognizing that only married immigrants may engage in intra-household financial transfers, while single immigrants must rely solely on their own resources, we compare the labor market outcomes of married and single immigrants—netting out potential inherent differences between immigrants and natives (such as habits for working, etc.).

To address potential selection between married and single immigrants, we use native married and single individuals—who are not supposed to face liquidity constrains—as a benchmark group and construct a difference-in-differences (DID) estimator. Our DID estimator nests the conventional comparison between native and immigrant couples. Specifically, our estimator extends the conventional immigrant–native comparison by differencing out systematic differences already present among singles, isolating the marriage-specific resource-sharing effect predicted by the FIH.

We implement the DID strategy using repeated cross-sectional data on immigrant couples from the former Soviet Union who arrived in Israel between 1989 and 2004. The Israeli data leads to a rejection of the FIH for these immigrants. This result may reflect the generous subsidies provided by the state of Israel to immigrants, which could eliminate liquidity constraints. Alternatively, it may indicate that immigrants to Israel do not behave according to the FIH.

The paper proceeds as follows: in Section 2, we review the literature on the FIH; in Section 3 we formally describe the Difference in Differences (DID) methodology and discuss identification issues of this estimator; Section 4 presents the Israeli data and the estimated equations; Section 5 presents the results and robustness checks; Section 6 reports a discussion of our results in the context of the existing literature; and Section 7 outlines our conclusions.

2. Literature Review

2.1. Immigration and Human Capital

Immigrants who arrive in a new country need to adapt the human capital they acquired in their source country to the new labor market requirements, especially in the case of immigration from less developed countries to developed countries. This may include improving their fluency in the local language, adapting their skills to local technology in the host country, etc.

The investment process involves forgone earnings during the acquisition period but leads to a better assimilation of the immigrants into the new labor market in the long run.

Duleep and Regets (1999) propose a theoretical model to account for the relatively high investment in human capital observed among immigrant males compared to native males. The model assumes that immigrants' imported human capital is initially valued

less in the host-country labor market relative to the local human capital. However, this imported capital can be substantially upgraded within a relatively short period by adapting the pre-migration skills to the local labor market requirements. Under the assumption that pre- and post-migration human capital are complementary in determining earnings, the combination of low initial opportunity costs and a brief adaptation period makes human capital investment particularly attractive for immigrants. This mechanism not only explains the higher levels of investment among immigrant males but also accounts for the faster post-arrival earning growth observed relative to that determined for natives.

The extent to which immigrants can invest in human capital upon arrival may be constrained by limited access to credit. During the adaptation period, immigrants must cover both living expenses and the costs associated with human capital investment. In a setting with perfect capital markets, these expenses could be financed through borrowing. However, in practice—particularly for immigrants originating from less developed countries—access to credit is often limited due to the lack of acceptable collateral. As noted by Bernhardt and Backus (1990), "...creditors do not generally honor human capital as collateral." Consequently, immigrants may be unable to invest at the optimal level, or at all, in post-migration human capital, despite the potentially high returns from such investment.

2.2. The Optimal Human Capital Investment Within Immigrant Families and Expected Labor Market Outcomes of Husbands and Wives

To overcome restricted access to credit markets, married immigrants can adopt, upon arrival, a household strategy to finance their post-immigration human capital investment. According to this strategy, one spouse invests in host country-specific human capital, while the other undertakes labor market activities to finance their current consumption. The allocation of work and human capital investment between spouses should be determined based on their respective comparative advantage, as formalized in Cohen-Goldner et al. (2009). Binding credit constraints thus create a link between the husband's labor supply and that of his wife. Whether this strategy exists among immigrant couples is known in the literature as the Family Investment Hypothesis (FIH).

A substantial body of literature has examined the FIH, producing mixed empirical findings across different contexts. Long (1980) was the first to demonstrate that immigrant women in the U.S. initially have higher earnings compared to native women but experience slower wage growth, which reflects a family decision to prioritize the husband's investment in local human capital. Similarly, Baker and Benjamin (1997) found that immigrant women married to foreign-born men in Canada work more upon arrival, have flatter wage profiles, and are less likely to invest in schooling compared to female immigrants married to native men. These patterns support the notion of intra-family resource allocation according to the FIH. However, other studies, such as Duleep and Dowhan (2002) and Blau et al. (2003), argue that the FIH does not hold in the U.S., where both spouses in immigrant families primarily invest in their own human capital.

Using Canadian data, Adserà and Ferrer (2014) found, in general, no evidence that immigrants' wives fit to the profile of secondary workers by comparing the labor market outcome of married immigrants and natives. Although this paper does not engage formally in the FIH, its results contradict the FIH. Ferrer et al. (2023) also did not find evidence that immigrants' wives behave as secondary workers in Canada. They found that over the period of 2006–2019, a significant fraction of married immigrant women made labor supply decisions (and faced barriers) similar to those of native-born married women.

In a recent work, Ferrer and Dhatt (2025) compared the job quality of Canadian native-born and immigrants who arrived in Canada between 2006 and 2019. They considered resilience to technological change as a measure of job quality. Regarding non-routine cognitive tasks, which are considered by the authors as the best jobs, the authors found that

men were more concentrated at lower levels of the scale, relative to women, among both Canadian-born and immigrant workers. Moreover, there has been a sustained increase in the requirement of nonroutine cognitive tasks among employed immigrants' women over years in Canada. These findings also do not support the notion that Canadian female immigrants act as secondary earners.[2]

Kim and Varanasi (2019) tested the FIH among low-skilled married immigrant women in the U.S., using a switching model that categorizes employment into three states: not working, working in low-skill jobs, and working in high-skill jobs. Drawing on U.S. data from the matched March Current Population Survey (CPS), the authors examined whether, over time, these women tended to exit the labor force or reduce their work hours. Their analysis controlled for various factors, including the spouse's occupation and earnings, household non-labor income, and demographic characteristics of both the woman and her spouse. The findings support the FIH: married immigrant women are more likely to transition from low-skill employment to non-employment when their husband's earnings rise. Additionally, while these women initially work more hours than native-born women, their labor supply declines over time.

For Australia, Derby et al. (2020) tested the FIH using longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) survey for the period from 2001 to 2014. They found no support for the FIH. Instead, they found that foreign-born husbands and wives shared similar labor market assimilation patterns in terms of hours worked and wages, suggesting that immigrant wives' labor market behavior is best explained by their own long-term career progression and labor market assimilation.

Liu and Hagiwara (2025) used large-scale census data to present some of the first evidence on the labor force participation (LFP) of married female immigrants to Japan. Their results indicate that the source-country culture plays an important role in determining female immigrants' LFP. However, after controlling for individual characteristics, they found that female migrants' LFP rates increased after five years in Japan, relative to the LFP rates in the first years after arrival. This pattern of LFP among immigrant wives does not support the FIH.

Other cultural traits that may influence the labor force participation of immigrants which was investigated by Kanas and Müller (2021) are religiosity and gender. Using the European Social Survey data and multilevel regression models, they found that religious immigrant women participate less in the labor market and work fewer hours than nonreligious immigrant women. In addition, the religiosity of the receiving country was found to have a weaker influence on the labor market outcomes of religious and gender-traditional immigrant women compared to their nonreligious and gender-egalitarian counterparts. According to the authors, these findings suggest that the economic benefits of residing in countries that support female employment are limited to immigrant women who are ready and positioned to embrace gender-egalitarian norms and values.

Salikutluk and Menke (2021) studied the gender gap in the labor market integration of a distinctive influx of migration, i.e., refugees. Between 2015 and 2016, a total of about 1.2 million refugees reached Germany. During their first five years in Germany, only 29% of female refugees managed to find employment, relative to 58% of male refugees. While some aspects of the gendered process of integration are indeed attributable to refugee women spending their time on unpaid care work within the family, others remain unexplained. Using data from the IAB-BAMF-SOEP Survey of Refugees who arrived in Germany between 2013 and 2016, the authors estimated the labor market participant of the refugees as a function of different measures of their human capital (such as education and experience in the labor market before migrating to Germany) and family structure.

By estimating a logistic regression model for their labor force participation in 2017 and 2018, the authors found that for both men and women, being in a partnership with an employed person increases the likelihood of labor force participation compared to having a non-employed partner. This result does not support the FIH, where upon arrival in the host country, each spouse specializes in either human capital investment or employment.

As can be seen in the aforementioned papers, much of the literature compares the labor market outcomes of immigrants to those of native-borns to test the FIH, assuming implicitly that the only potential source for differences in labor market outcomes between married natives and immigrants is liquidity constraints. However, as noted by other papers that we mentioned above, this assumption, in general, does not hold. This finding may have influence on the validity of the traditional comparison between married immigrants and their native-born counterparts.

Our study proposes an alternative framework for evaluating the FIH, focusing explicitly on how the marital status affects human capital and labor supply decisions among immigrants. Recognizing that only married immigrants can potentially engage in intra-household cross-subsidization, we argue that comparing married and single immigrants offers a more direct test of the FIH. In this context, being married is not just a demographic attribute but reflects a different decision-making environment with access to shared resources and joint planning. Nevertheless, to account for potential selection between married and single immigrants, we use native married and single individuals—who are not supposed to face liquidity constrains—as a benchmark group. Therefore, we implement a difference-in-differences (DID) strategy that exploits variation in labor outcomes among married and single natives—who do not face the same liquidity constraints—as a benchmark for isolating the role of family-based decisions among immigrants.

3. Methodology

3.1. The Difference in Differences Approach

Our DID estimator can be written as:

$$({Y_{IM}}^{m} - {Y_{IM}}^{s}) - ({Y_{N}}^{m} - {Y_{N}}^{s}), \tag{1}$$

where ${Y_{IM}}^{m}$ and ${Y_{IM}}^{s}$ denote the outcomes (labor supply or wage) for a married male immigrant and a single male immigrant at time t, respectively. The outcomes of their native counterparts are denoted by ${Y_{N}}^{m}$ and ${Y_{N}}^{s}$.[3] Rearranging the terms, Equation (1) can be written also as

$$({Y_{IM}}^{m} - {Y_{N}}^{m}) - ({Y_{IM}}^{s} - {Y_{N}}^{s}). \tag{2}$$

The first difference in (2), i.e., $({Y_{IM}}^{m} - {Y_{N}}^{m})$, represents the difference between native and immigrant married individuals, which is the conventional estimator used in the literature.

Our novelty lies in the addition of the second difference, the difference between native and immigrant singles. The intuition behind Equation (2) is that any inference on the FIH from the difference between native and immigrant couples should first difference out any differences that are already accounted for by single individuals, since they are obviously not a result of the FIH. Thus, the conventional estimator used in the literature can be viewed as a special case of our proposed estimator, where $(YIMs - YNs) = 0$.[4]

We then turned to check which predictions of the DID approach would be consistent with the FIH. Under the assumption that the primary worker is the husband, we would expect that once we control for the hours/wage gap between married and single native males, a married male immigrant would initially work (and earn) less but experience a higher growth rate in his hours and wage than a single male immigrant. The inverse

patterns should hold for a married immigrant wife.[5] Alternatively, since the estimator can also be written as $(Y_{IM}{}^{m} - Y_{N}{}^{m}) - (Y_{IM}{}^{s} - Y_{N}{}^{s})$, we would expect that the difference in the growth rates of work hours and wages between immigrant and native husbands would be larger than that between single male immigrants and single male natives, while the difference between married female immigrants and married female natives would be smaller than that between single female immigrants and single female natives.

3.2. Identification Issues

The validity of the DID estimator is based on the assumptions that (1) the selectivity for immigration does not depend on the marital status; (2) the selectivity for marriage among immigrants is similar to that among natives. Hereafter we provide suggestive evidence for the existence of these two identifying assumptions.

Regarding the first assumption that, conditional on all the observed traits, the selection for marriage among immigrants should be similar to that among natives, we showed based on wage regressions, that the assortative matching among natives and immigrants, as reflected in the correlation of the husband's residual with that of his wife, is almost identical.[6] Specifically, we ran four separate (log) wage regressions for married/single immigrants and for married/single natives. The explanatory variables in each regression included education, age, and age squared. We then sorted the residuals from each regression from the lowest to the highest and split them into quintiles. In order to trace the (unobserved) assortative matching mechanism among natives and immigrants, we asked the following question: given that the husband is in a certain quintile, what is the quintile of his wife? The results of this exercise are presented in Appendix A, Figure A1. As can be seen, the pattern of assortative matching as reflected in the wage residuals was almost identical for native and immigrant couples, as our DID estimator required.

Validation of the second assumption that, conditional on their observed traits, the selection for immigration is the same for married couples and singles, required data on Russian Jews in the Soviet Union during the relevant period. Unfortunately, we did not have such data. However, we were able to use some demographic statistics on Russian Jewry based on the Russian 1979 census, which are reported in Tolts (1992). According to Tolts (1992), the level of education of Russian male Jews was almost identical to the level of education of female Russian Jews. This similarity, which was found among Jews in Russia, was maintained in our data among immigrant Jews who migrated from Russia to Israel, as can be seen in Table A1 in Appendix A. Since the level of education is presumably correlated with (at least) some unobservable traits that affect the decision to migrate, the similarity between the data in Tolts (1992) and our data, led us to conclude that the selection for immigration was similar among married and single immigrants and held for both males and females. Furthermore, since the immigration from the FSU to Israel in the early 1990s was more similar in nature to a refugee migration, one could expect selection to be less of an issue (Cohen-Goldner et al., 2012).

Although we found no evidence for selectivity, it is important to note that our data was insufficient to directly test this assumption. To directly test for selectivity for immigration or marriage, we would have needed to compare single and married immigrants to their counterparts who remained in the FSU. However, our data only included observations for immigrants after their arrival in Israel.

Selectivity for immigration or marriage could affect our DID comparison, as the DID results may represent not solely the influence of credit constraints on labor market outcomes, but also the influence of unobserved traits of the immigrants on their labor market outcomes.

4. Data and Analysis

4.1. Descriptive Statistics

The analysis was based on Israeli repeated cross-sectional data from the matched Labor Force Survey (LFS) and Income Survey (IS) for the period 1991–2004. These surveys were conducted by the Central Bureau of Statistics.[7] An individual was classified as a native Israeli if he was born in Israel and as an immigrant if he was born in the FSU and arrived during the period 1989–2004 at age 16 or older. Other individuals were excluded from our sample.

We defined married immigrants as those who were married on arrival or got married within a year since their arrival. Hence, singles were defined as those who arrived in Israel unmarried and remained so when they were interviewed. We included only native Jews and immigrant couples in which both spouses were aged 16–64 years at the time of the survey and who lived together, while single natives and immigrants aged 21–64 were included.[8] We exclude self-employed individuals. Observations with missing data were also excluded from the data.[9]

Table 1 presents summary statistics for married and single immigrants and for married and single natives. The observed unconditional marriage premium for native males and females (64% and 37%, respectively) was substantially higher than the average premium (15%) for immigrant males and females. The relation between nativity/marital status and work hours was not conclusive. Among married individuals, female immigrants supplied more hours than their native counterparts, while male immigrants worked less than their native counterparts. Among singles, female immigrants worked less than native females, while male immigrants worked more than native males.

Table 1. Summary statistics: immigrants and natives by marital status.

	Females				**Males**			
	Married		**Single**		**Married**		**Single**	
	Native	**Immigrant**	**Native**	**Immigrant**	**Natives**	**Immigrant**	**Native**	**Immigrant**
Real hourly wage (NIS)	34.061	21.16	24.784	20.12	42.919	25.02	26.143	21.56
	(28.107)	(19.33)	(23.69)	(27.72)	(34.26)	(19.68)	(21.804)	(18.50)
Annual work hours	1137.74	1317.73	1155.49	961.97	2077.726	1955.58	1053.224	1144.78
	(953.70)	(1043.9)	(1033.82)	(1036.15)	(1082.51)	(1105.3)	(1166.67)	(1190.87)
Age	36.057	42.30	26.695	30.02	38.715	44.83	26.061	26.99
	(8.885)	(9.83)	(7.194)	(10.84)	(9.096)	(9.89)	(5.799)	(7.44)
Years since migration (YSM)		5.60		6.22		5.57		6.50
		(3.75)		(3.89)		(3.74)		(3.79)
Schooling distribution (%)	0.0004	0.00	0.003	0.008	0.001	0.002	0.005	0.00
No schooling	(0.019)	(0.03)	(0.054)	(0.089)	(0.023)	(0.041)	(0.068)	(0.097)
1–8 years of schooling	0.023	0.027	0.018	0.038	0.042	0.038	0.037	0.045
	(0.15)	(0.162)	(0.133)	(0.190)	(0.2)	(0.191)	(0.19)	(0.208)
9–11 years of schooling	0.106	0.174	0.047	0.161	0.149	0.208	0.106	0.230
	(0.308)	(0.379)	(0.211)	(0.368)	(0.356)	(0.406)	(0.307)	(0.421)
12 years of schooling	0.387	0.107	0.409	0.21	0.302	0.099	0.472	0.229
	(0.487)	(0.310)	(0.492)	(0.405)	(0.459)	(0.298)	(0.499)	(0.421)
Some college	0.152	0.197	0.245	0.255	0.142	0.158	0.207	0.248
	(0.359)	(0.398)	(0.43)	(0.436)	(0.349)	(0.364)	(0.405)	(0.432)
College graduates	0.206	0.357	0.2	0.260	0.183	0.329	0.126	0.191
	(0.404)	(0.480)	(0.4)	(0.439)	(0.387)	(0.470)	(0.332)	(0.393)
More than college	0.126	0.137	0.079	0.079	0.183	0.167	0.047	0.049
	(0.331)	(0.344)	(0.269)	(0.270)	(0.387)	(0.373)	(0.211)	(0.214)
Num. of Observations	16,561	6051	8950	1254	14,848	5929	11,271	1789

Source: Matched Labor Force Survey and Income Survey 1991–2004; authors' calculations.

Married immigrants (males and females) were about 6 years older than their native married counterparts.[10] While there was no significant difference between the average ages

of single male immigrants and single male natives, single female immigrants were about 3.3 years older than single female natives. With respect to education, FSU immigrants were on average more educated than natives. Among all natives, there was a high proportion (30–47%) of high school graduates, while among immigrants there was a high proportion of college graduates (19–36%).

4.2. Analysis

In order to analyze the labor supply of married and single immigrants and of married and single natives using the DID strategy, we estimated the following equation separately for females and males:

$$\begin{aligned} Y_{it} = \beta X_{it} + \sum \gamma C_i + \alpha_1 YSM_{it} + \alpha_2 YSM^2{}_{it} + \alpha_3 Married_i + \alpha_4 YSM_{it} \times Married_i + \\ \alpha_5 YSM^2{}_{it} \times Married_i + \alpha_6 immig_i \times Married_i + \alpha_7 Age_i \times Married_i + \alpha_8 Age^2{}_i \times \\ Married_i + \alpha_9 child_a_i \times Married_i + \alpha_{10} child_b_i \times Married_i + \alpha_{11} child_c_i \times \\ Married_i + \alpha_{12} child_a_i \times immig_i + \alpha_{13} child_b_i \times immig_i + \alpha_{14} child_c_i \times \\ immig_i + \alpha_{15} child_a_i + \alpha_{16} child_b_i + \alpha_{17} child_c_i + \delta K_t + u_{it} \end{aligned} \quad (3)$$

where Y is annual work hours (regular weekly number of hours multiplied by weeks worked) for individual i in year t, where t = 1991–1993 and 1995–2004, C_i is a set of immigrant cohort-of-arrival effects, and YSM is years since migration for immigrants (it equals 0 for natives). The sum of an individual i's cohort dummies in Equation (3) is identical to the immigrant dummy variable, *immig*, which therefore is not included separately in (3). The cohort-of-arrival dummy variables for FSU immigrants (whose coefficients are γ_s) were 1990, 1991, and a common dummy for 1992–2004.[11] The X vector includes quadratics in age for both husband and wife, dummies for years of schooling for both husband and wife, number of children aged 0–17 years (*child_a*), a dummy for the presence of children less than four years old (*child_b)*, and a dummy for having more than 4 children (*child_c*).[12] The reference group was single Israeli natives who were high school graduates with no children.

To further explore differences between single and married individuals (both natives and immigrants), Equation (3) includes a dummy for married individuals (*Married*) and interaction terms between it and the following variables: (1) years since migration (*YSM*); (2) years since migration squared (YSM^2); (3) a dummy for immigrants (*Immig*); (4) age (*Age*); (5) age squared (Age^2); (6) number of children aged 0–17 years (*child_a*); (7) a dummy for the presence of young children (*child_b*); (8) a dummy for having more than 4 children (*child_c*). We allowed the effect of the three variables related to the presence of children to differ between immigrants and natives by including the interaction terms of the immigrant dummy, *immig*, with *child_a*, *child_b*, and *child_c*, separately. The repeated cross sections and the assumption of a common time effect for immigrants and natives, K_t, made it possible to separately identify immigrant cohort and assimilation effects (Borjas, 1985); u is an error term.[13]

The logged hourly wage equations have a similar form to that of Equation (3), and the dependent variable (real wage) was expressed in Israeli new shekels (NIS), in 1997 prices.

5. Results

5.1. General Results

The estimation of (3) enabled us to identify for each gender the wage and labor supply profiles of immigrants and natives, conditional on their marital status. Table 2 presents the main coefficients from the wage and labor supply regressions for males and females. The positive coefficient of YSM and the negative coefficient of YSM^2 in all of the regressions imply that the wage and labor supply profiles for male and female immigrants since

their arrival in Israel have a concave shape, though the coefficient of YSM^2 in the wage regressions was not statistically significant.[14] The coefficient of the dummy for marriage indicated that married individuals, whether natives or immigrants, supplied more work hours and earned lower hourly wages than their single counterparts. Nonetheless, the negative coefficient of the interaction term between the dummy for marriage and the dummy for immigrants in all regressions suggests that the initial positive labor supply gap between married and single immigrants was smaller than the gap among natives, and the initial negative wage gap between married and single immigrants was larger, in absolute terms, than among natives. The gaps between married and single immigrants changed over time according to the coefficients of *Married*Ysm* and *Married*Ysm*^{2} and are illustrated below.

Table 2. Work hours and logged wage regressions.

Independent Variable	Annual Work Hours		Logged Wage	
	Females	Males	Females	Males
Ysm	163.8064 *	116.1209 *	0.042 **	0.0271 ***
	(25.463)	(24.9909)	(0.0196)	(0.0164)
Ysm^2	−9.5161 *	−6.8518 *	−0.0012	−0.0001
	(1.7925)	(1.7671)	(0.0013)	(0.0011)
Married	94.3498	1451.5 *	−0.1835	−0.3112 **
	(170.0844)	(198.1369)	(0.1149)	(0.1339)
Married*immig	−32.795	−565.7942 *	−0.3051 *	−0.5637 *
	(83.7688)	(85.5717)	(0.0692)	(0.0561)
Married*Ysm	56.1562 **	36.7458	−0.0077	0.0226
	(27.8824)	(28.0741)	(0.021)	(0.0178)
Married*Ysm^2	−2.2019	−0.8328	0.0008	−0.0014
	(1.9792)	(2.0034)	(0.0014)	(0.0012)

Standard error in parenthesis. * 1% significant. ** 5% significant. *** 10% significant. Note: Additional controls for all regressions are described in Section 4, Equation (3), and included a set of immigrant cohort-of-arrival effects, years since migration, years since migration squared, quadratics in age for both husband and wife, dummies for years of schooling for both husband and wife, number of children aged 0–17 years, a dummy for the presence of children less than four years old, and a dummy for having more than 4 children. Additional controls were a dummy for married individuals and interaction terms between this dummy and the following variables: (1) years since migration; (2) years since migration squared; (3) a dummy for immigrants; (4) age; (5) age squared; (6) number of children aged 0–17 years; (7) a dummy for the presence of young children; (8) a dummy for having more than four children. We allowed the effect of the three variables related to the presence of children to differ between immigrants and natives by including interaction terms of the immigrant dummy with (1) number of children aged 0–17 years; (2) a dummy for the presence of young children; (3) a dummy for having more than four children.

We chose to illustrate our results using the second form of the DID (Equation (2) above), since the profile of the difference between married natives and married immigrants was the one used in the literature and hence enabled us also to compare our results to those obtained for other countries and especially to assess whether the implicit assumption in the literature that there are no differences in the labor supply and wages patterns of single immigrants and natives held for each gender.

In our specification, the difference in the intercept between native and immigrant singles (females or males), was captured by the immigrant's own cohort dummy, while for married individuals, this difference was captured by the immigrant's cohort dummy and the coefficient of the interaction term *Married*Immig*, as explained in Section 3. The difference in slope between natives and immigrants, conditional on their marital status, was captured by *YSM* and its interactions with other variables, as specified in Equation (3).

5.2. Labor Supply (Work Hours) Results

To illustrate the cohort effect and the effect of years since migration (*YSM*) on the work hour assimilation profiles of married immigrants relative to married natives and of

single immigrants relative to single natives, Figure 1 (2) presents the predicted profiles for female (male) immigrants, who were high school graduates, arrived in Israel in 1990 with no children, and were 28 and 30 years old, respectively, upon arrival. They were compared to native females and males with the same characteristics (see note 14). According to this example, married female immigrants had positive work hour assimilation profiles relative to their native female counterparts, since they increased their labor supply relative to natives during their first 10 years in the country. Upon arrival, they worked about 517 h less than comparable natives, but this was reversed within four years. In the conventional testing of the FIH, this pattern contradicts the family investment model. The pattern is similar to that reported in Blau et al. (2003) for the U. S. but contrasts with the findings of Baker and Benjamin (1997) for Canada, where immigrant wives worked more than comparable natives upon arrival, and the gap narrowed over time.

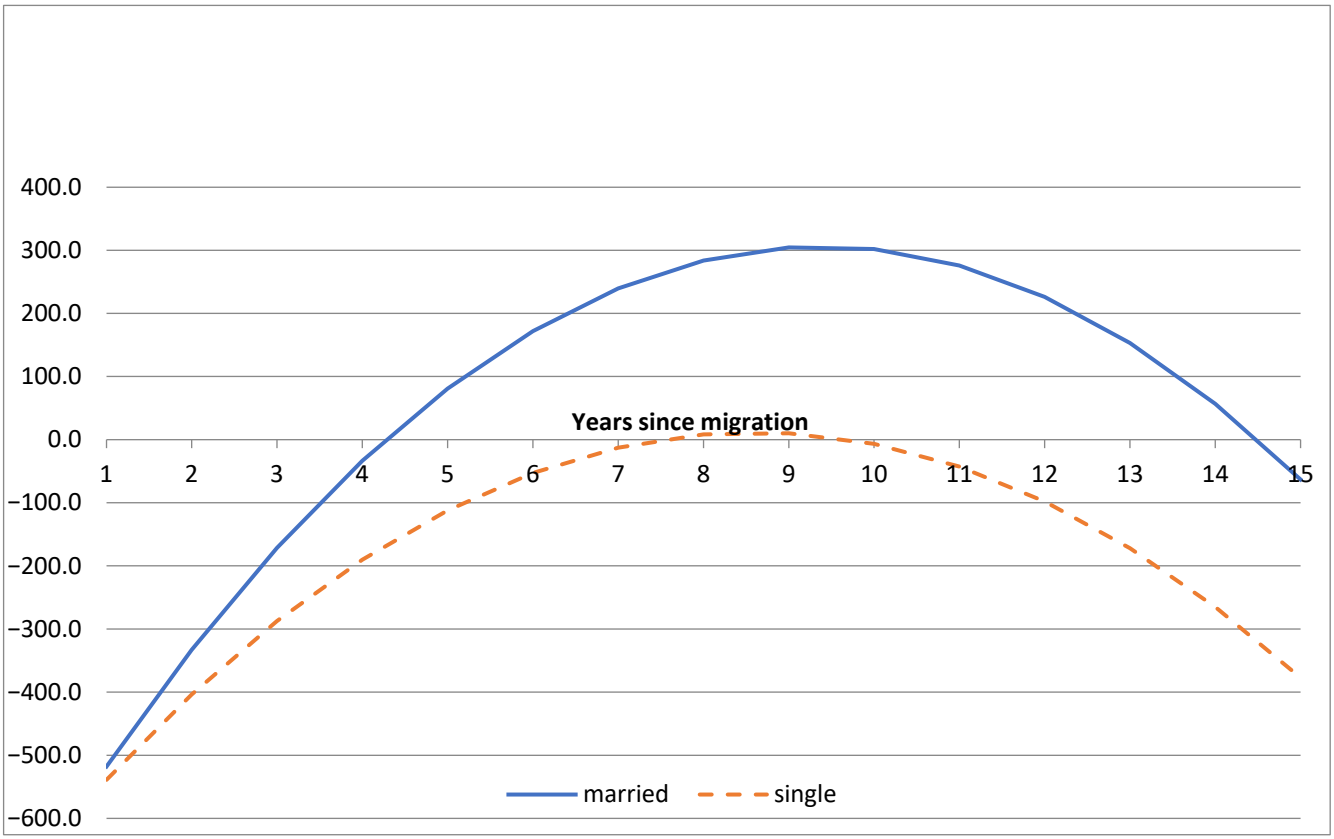


Figure 1. Immigrant-Native Differences in Annual Work Hours—Females by Marital Status.

The example for males is presented in Figure 2. Both married and single male immigrants had positive work hour assimilation profiles relative to their native male counterparts. Upon arrival, immigrant married males supplied almost 700 less work hours than comparable native married males; however, the gap decreased over time, such that after 10 years they supplied only 77 h less. This positive assimilation profile of labor supply was similar to the ones obtained for Canada (Baker & Benjamin, 1997) and the U. S. (Blau et al., 2003). Single male immigrants initially worked 160 less hours than comparable single male natives; however, their work hours increased over time, and eventually they overtook single male natives.

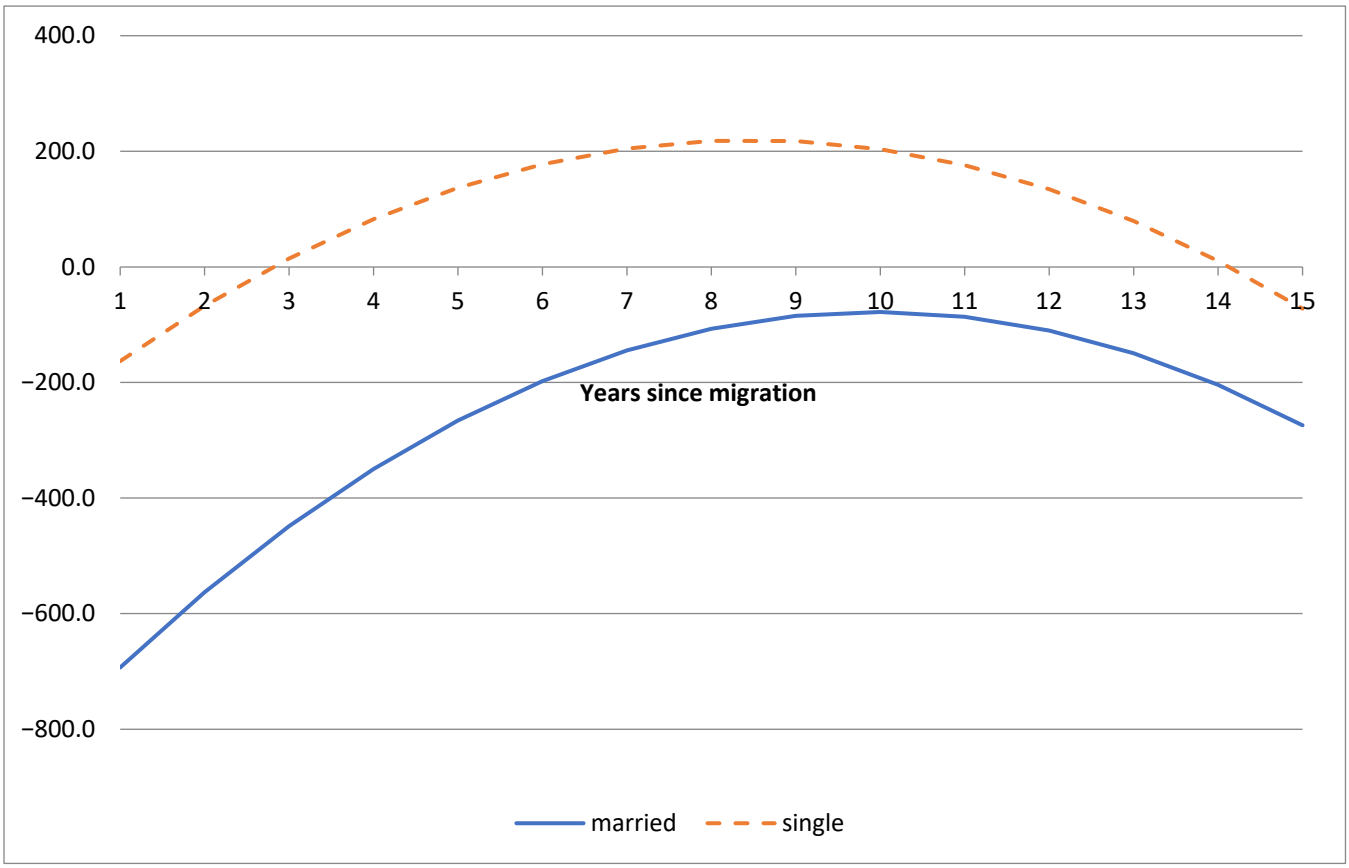


Figure 2. Immigrant-Native Differences in Annual Work Hours—Males by Marital Status.

We now turn to the novel part of the research, i.e., the comparison between single immigrants and single natives. Single female immigrants also initially worked about 538 h less than comparable single female natives and over time increased their work hours relative to natives, although in contrast to married female immigrants, they never overtook native single females in number of work hours. Nonetheless, it appeared that both married and single female immigrants initially increased their labor supply over time in Israel.

The resulting work hour profile from the DID estimator for females is presented in Figure 3. Controlling for the work hour gap between married and single female natives, we obtained that married female immigrants initially supplied slightly more work hours than comparable single female immigrants, and this gap widened over time. At the end of 10 years in Israel, married female immigrants worked approximately 300 h more than single female immigrants. This result implies that married female immigrants did not work more hours upon arrival in order to finance their husbands' investment in human capital.

Using the DID we obtained that after controlling for the work hour gap between married and single native males, the work hour assimilation profile of married male immigrants relative to single male immigrants was positive. Nonetheless, the example showed that even though married male immigrants increased their labor supply more rapidly than single immigrants over time, they never overtook them (Figure 3). Married male immigrants supplied about 530 less hours on arrival than comparable single male immigrants and after 10 years in Israel the gap narrowed to 280 h.[15]

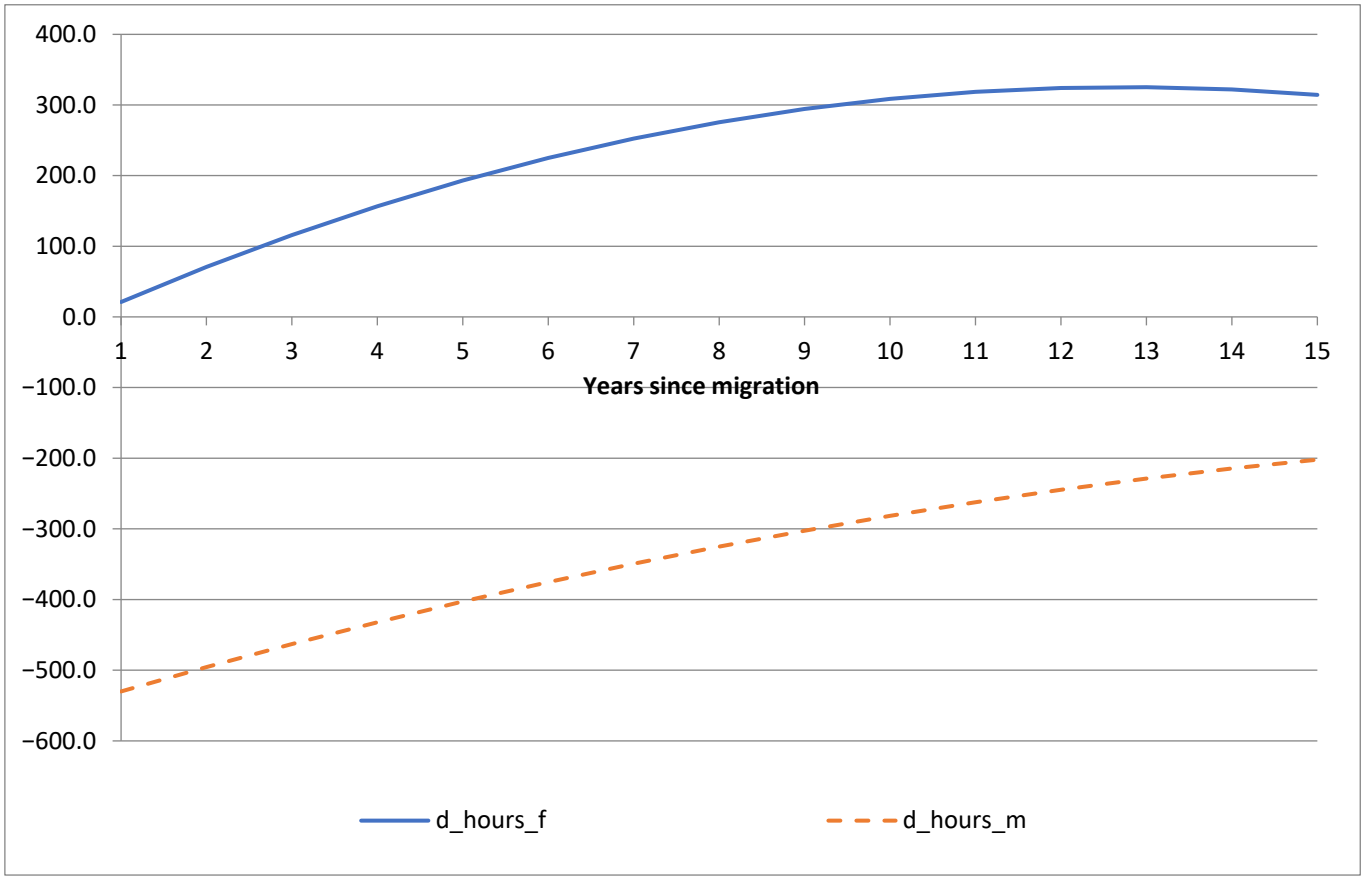


Figure 3. Annual Work Hours Dif-in-Dif Profiles—Males and Females.

5.3. Wage Results

The results for the wage estimations are presented in Figure 4 for females and in Figure 5 for males who arrived in Israel in 1990 at the age of 28 and 30 years, respectively. The *y*-axis measures the log hourly wage differences between immigrants and natives, conditional on their gender and marital status. The graphs show that all immigrants had a positive assimilation wage profile, regardless of gender and marital status. In other words, all immigrants initially earned less than comparable natives, with the gap narrowing over time. The log hourly wage profiles for married male and female immigrants are quite similar. Married female (male) immigrants initially earned about 75% (90%) less than their native counterparts. The gap narrowed over time, such that after 10 years in Israel, married female immigrants earned only 47% less, while married male immigrants earned 60% less. Baker and Benjamin (1997) and Blau et al. (2003) also found positive wage assimilation profiles for immigrant husbands and wives in Canada and the U.S., respectively. According to their findings, both husbands and wives earned less than their native counterparts on arrival but overtook them after between 10 and 25 years. These positive wage profiles suggest some investment by both immigrant husbands and wives in their own human capital, which is not consistent with the FIH.

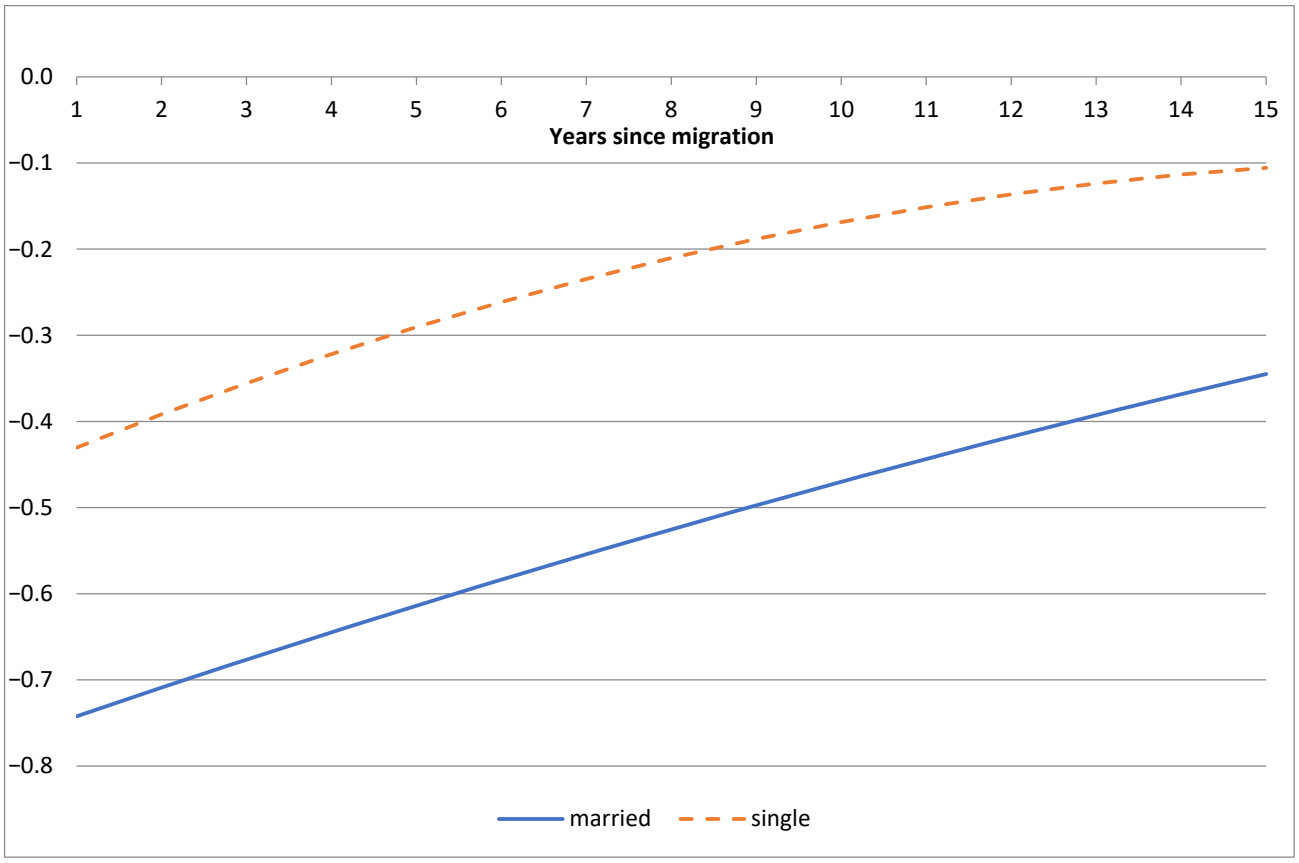


Figure 4. Immigrant-Native Differences in Logged Wage—Females by Marital Status.

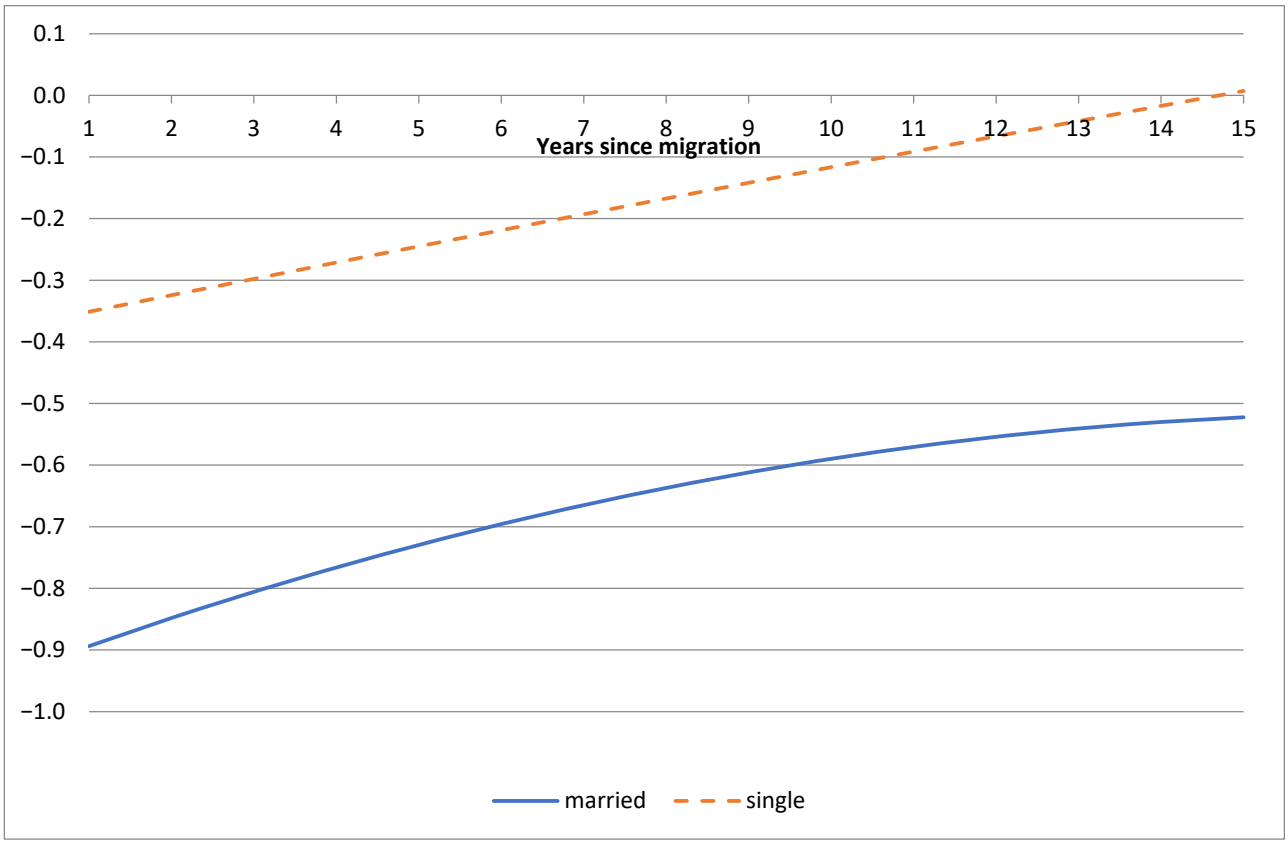


Figure 5. Immigrant-Native Differences in Logged Wage—Males by Marital Status.

The comparison between single immigrants and single natives also showed a positive wage assimilation profile for both females (Figure 4) and males (Figure 5). The initial wage gap between single immigrants and their native counterparts (either males or females) was smaller than the gap between married immigrants and married natives (Figures 4 and 5). Even though the gap between single immigrants and single natives decreased over time for both males and females, after 10 years in Israel single natives still earned more than their immigrant counterparts, though the wage of single male immigrants converged to that of single male natives after 14.5 years.

Figure 6 presents the wage profiles from the DID estimator for females and males in Israel. Controlling for the wage gap between married and single natives, both female and male married immigrants earned less than their single immigrant counterparts, which is in contradiction to the FIH, as married male immigrants were not able to initially invest more in human capital than their single counterparts. Thus, it seems that married female immigrants did not finance their husbands' investment in human capital, and the FIH was rejected.

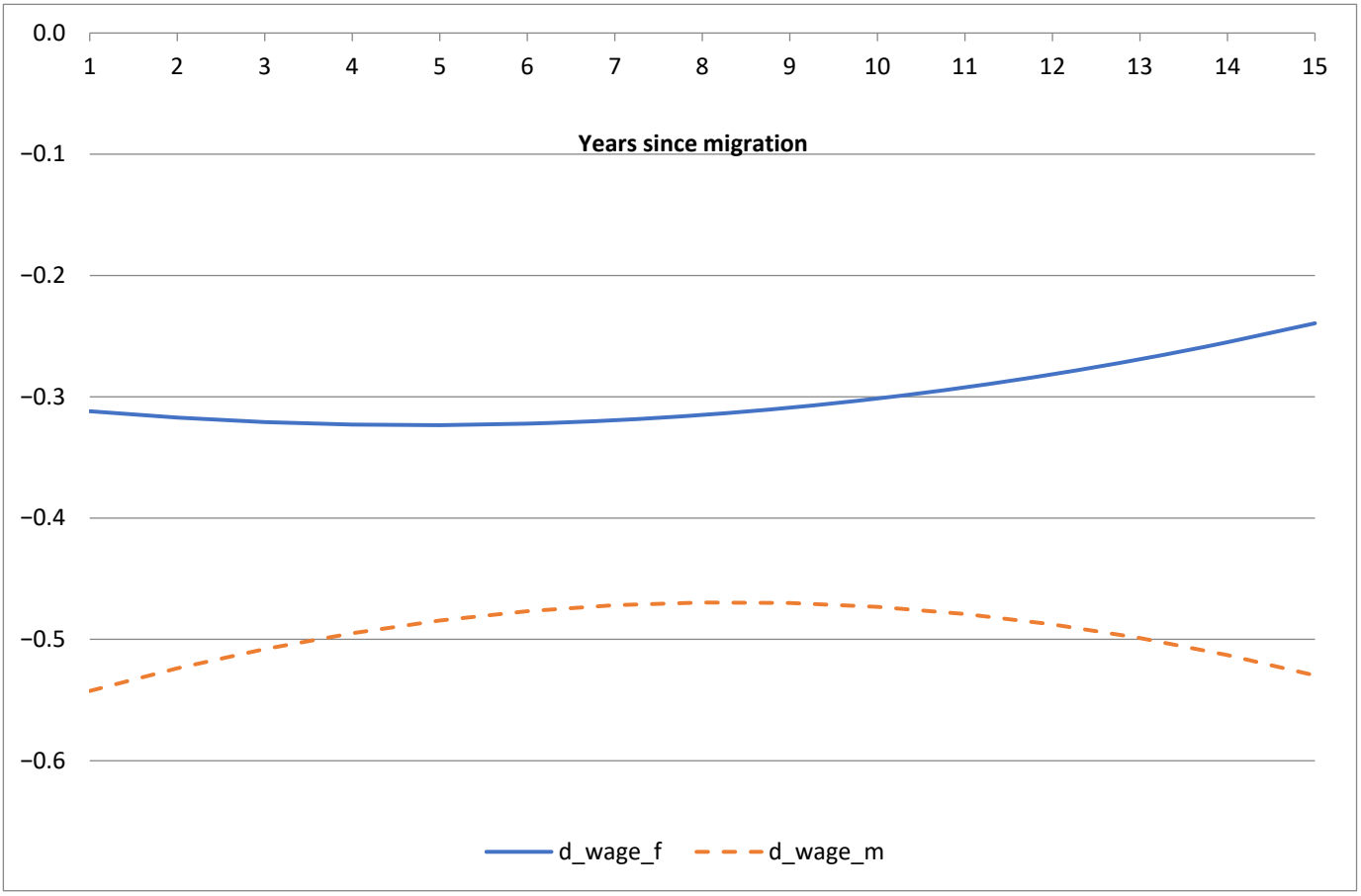


Figure 6. Dif-in-Dif Logged Wage Profiles—Males and Females.

5.4. Robustness Checks

The labor supply and wage patterns described above led to a rejection of the FIH in the case of immigrants from the FSU who arrived in Israel. To verify this conclusion, we ran three robustness checks: in the first, we added non-labor income as an additional control variable; in the second, the sample of immigrants was expanded to include immigrants who arrived from the FSU before 1989; and in the third, the wage predictions were based on the Heckman selection model for labor supply (Heckman, 1979). The main coefficients obtained in the three robustness checks are presented in Table 3, and the implied DID

projections are presented in Figure 7 (labor supply) and Figure 8 (wage). Overall, while some of the robustness checks led to changes in the DID estimates, the robustness checks confirmed the rejection of the FIH.[16]

Table 3. Work hours and logged wage regressions—robustness checks.

Independent Variable	Annual Work Hours		Logged Wage	
	Females	**Males**	**Females**	**Males**
	A. Controlling for Non-Labor Income			
Ysm	144.1241 *	101.5972 *	0.0374 ***	0.027
	(25.2245)	(24.5766)	(0.0196)	(0.0164)
Ysm^2	−8.304 *	−5.7702 *	−0.0008	−0.0001
	(1.7796)	(1.7423)	(0.0013)	(0.0011)
Married	388.1918 **	1823.539 *	−0.1617	−0.288 **
	(168.4383)	(194.6827)	(0.1151)	(0.134)
Married*immig	−105.0443	−571.8754 *	−0.3191 *	−0.5641 *
	(82.9447)	(83.9832)	(0.0693)	(0.0561)
Married*Ysm	61.1238 **	28.3091	−0.0049	0.0219
	(27.6086)	(27.6053)	(0.021)	(0.0178)
$Married*Ysm^2$	−2.5844	−0.4883	0.0006	−0.0014
	(1.9641)	(1.975)	(0.0014)	(0.0012)
	B. Including FSU immigrants who migrated prior to 1989			
Ysm	28.9728 *	14.1154	0.0333 *	0.0328 *
	(9.6197)	(8.9706)	(0.0065)	(0.0065)
Ysm^2	−0.3804	−0.5348 ***	−0.0006 *	−0.0006 *
	(0.3267)	(0.3086)	(0.0002)	(0.0002)
Married	98.9584	1348.695 *	−0.1441	−0.3223 **
	(167.5081)	(194.1738)	(0.113)	(0.1317)
Married*immig	−148.6004 **	−701.7089 *	−0.3571 *	−0.5437 *
	(61.4516)	(61.8044)	(0.0448)	(0.0402)
Married*Ysm	87.198 *	72.3773 *	0.0085	0.0105
	(10.9758)	(10.8254)	(0.0074)	(0.0072)
$Married*Ysm^2$	−3.1719 * (0.3936)	−2.1715 *	0.0002	0
		(0.3974)	(0.0002)	(0.0003)
		C. Heckman Correction ^		
Ysm			0.2635 *	
			(0.0354)	
Ysm^2			−0.0155 *	
			(0.0025)	
Married			−0.3897 ***	
			(0.2333)	
Married*immig			0.094	
			(0.1175)	
Married*Ysm			−0.0242	
			(0.0389)	
$Married*Ysm^2$			0.0032	
			(0.0027)	

Standard error in parenthesis * 1% significant. ** 5% significant. *** 10% significant. ^ The coefficient of rho is 0.8246, and its standard error was 0.0066988. Note: Additional controls for all regressions are described in Section 4 and in Table 2.

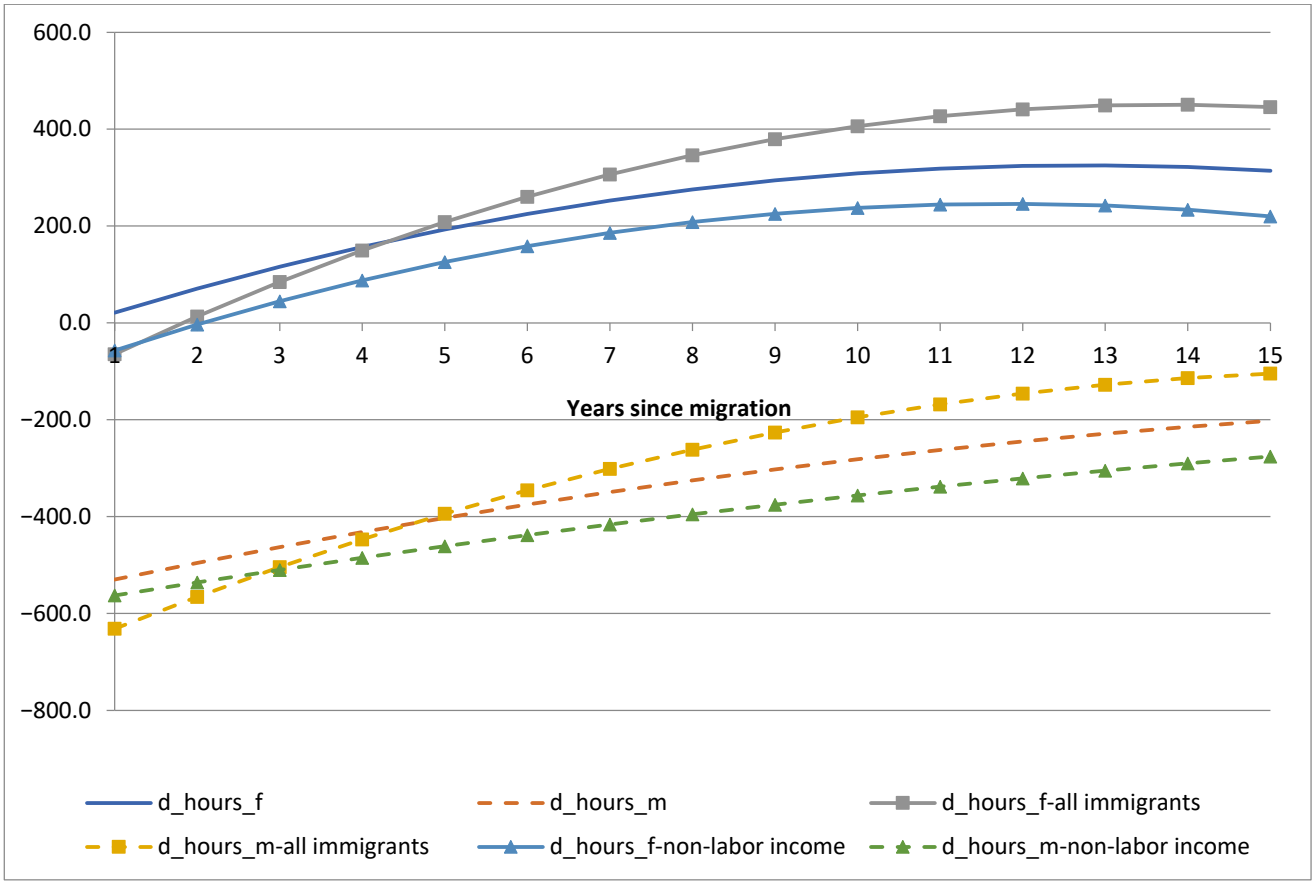


Figure 7. Annual Work Hours Dif-in-Dif Profiles—Males and Females Robustness Checks.

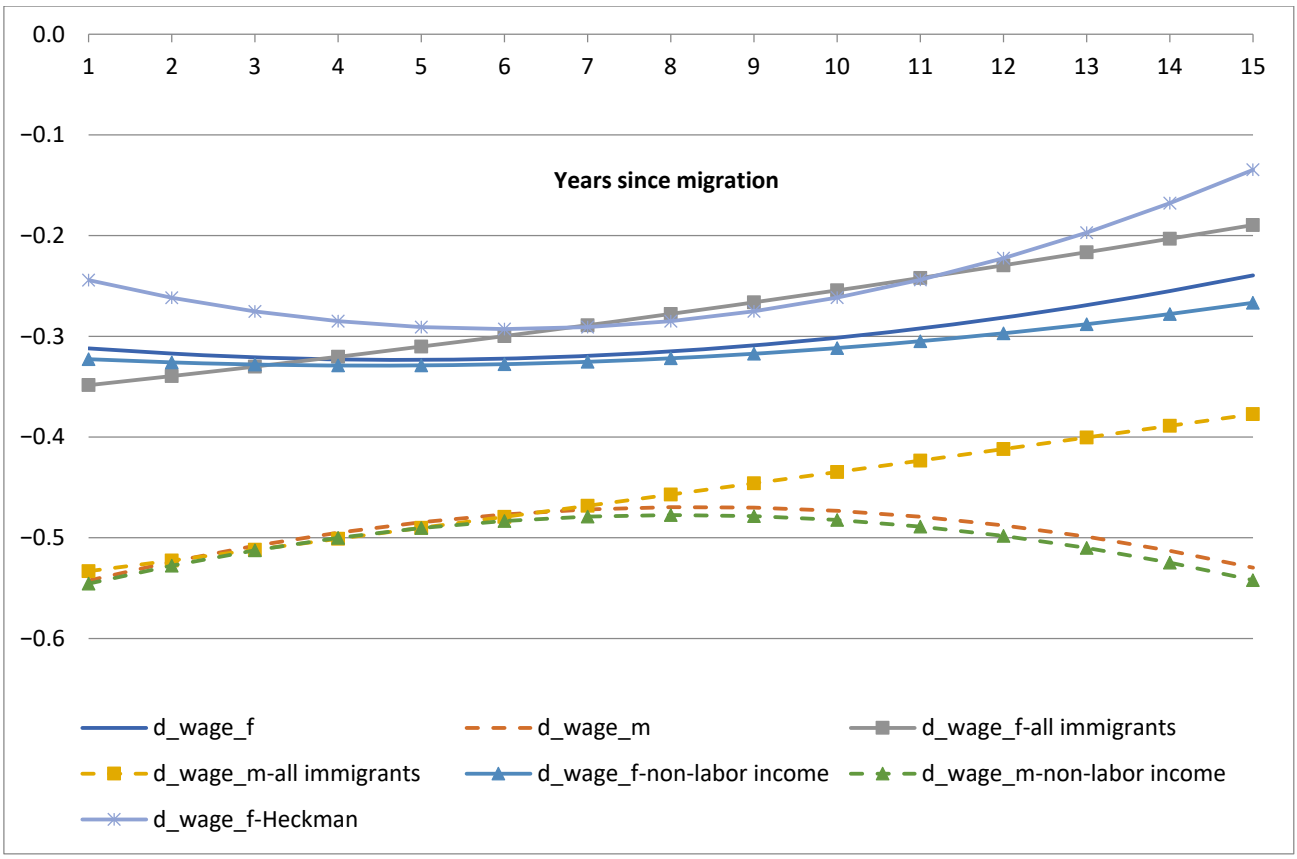


Figure 8. Logged Wage Dif-in-Dif Profiles—Males and Females Robustness Checks.

6. Discussion: Integration with the Literature

As can be seen above, our results do not support the existence of a strategic behavior in the Israeli labor market among the married immigrants from the FSU. This finding aligns with a major part of the literature, particularly, with the latest literature. For example, Duleep and Dowhan (2002) and Blau et al. (2003) found limited support for the FIH among immigrant couples who arrived in the U. S.; Derby et al. (2020), who tested the FIH for Australia using longitudinal data, found no support for the FIH; Salikutluk and Menke (2021) found that among refugees to Germany, for both men and women, being in a partnership with an employed person increased the likelihood of labor force participation compared to having a non-employed partner; and Liu and Hagiwara (2025) found that the labor force participation rates of married female immigrants to Japan increased after five years in Japan, relative to the participation rates in the first years after arrival. The patterns of labor force outcomes among immigrant wives do not support the FIH. On the other hand, research by Baker and Benjamin (1997) is among the few studies that found support for the existence of the FIH. However, the results of Baker and Benjamin stemmed from a direct comparison between married immigrants and natives and thus ignored the possible inherent differences between immigrants and native that correlated with the labor market outcomes—a potential shortcoming that can be solved by our DID approach.

7. Conclusions

This paper proposes an alternative empirical approach to evaluating the Family Investment Hypothesis (FIH) by focusing on the role of household decisions regarding labor supply and human capital investment. Specifically, we examined how the marital status shapes decision-making processes among immigrants facing potential liquidity constraints upon arrival in the host country.

The central idea behind our approach is that single immigrants must rely solely on their own resources when deciding whether to invest in local human capital, whereas married immigrants can potentially draw on joint household resources, making coordinated decisions within the family. However, simple comparisons between married and single (immigrants) may suffer from selection bias. To address this issue, we constructed a difference-in-differences (DID) estimator that leveraged variation in labor market outcomes among married and single natives—who are not supposed to face liquidity constraints—as a benchmark.

The underlined assumption using the DID approach was that the selection for marriage was the same for natives Jews in Israel and for Jewish immigrants. This assumption was supported by the data. Our empirical analysis, based on repeated cross-sectional data of Jewish immigrants from the Former Soviet Union (FSU) and native-born Israelis, found no evidence supporting the FIH. The patterns observed in both wages and labor supply suggest that married immigrant women did not significantly increase their labor supply upon arrival to support their husbands' human capital investment, nor did married men show signs of increased wage growth consistent with a delayed labor market entry for educational purposes. These findings align with Duleep and Dowhan (2002) and Blau et al. (2003), who also found limited support for the FIH. Moreover, our results suggest that public policies focused on providing liquidity assistance to immigrant households may have limited benefits, as reflected in the wage differences between immigrants and natives that showed no convergence in the wage profiles even 15 years after immigrants' arrival.

Our findings challenge the assumption that immigrant households make strategic decisions to allocate labor and income asymmetrically between spouses for the sake of long-term gains.

Furthermore, our analysis is robust thanks to several alternative specifications and controls, including non-labor income and sample extensions. Overall, the evidence indicates that labor supply and human capital investment among immigrant spouses are not shaped by the kind of joint decision-making process implied by the FIH.

It is important to emphasize that our DID approach rested on two key assumptions: (1) that selection for marriage among immigrants is similar to that among natives; (2) that selection for migration is independent of the marital status. Our data and previous research (Tolts, 1992) support these assumptions. However, without data on the Jewish population in the Soviet Union before 1989, we could not test these assumptions directly. Future research could extend this framework to explore simultaneous decisions related to migration, marriage, and labor market participation in order to further unpack the complex dynamics of immigrant household behavior.

Author Contributions: Conceptualization, S.C.G., C.G. and N.K.; methodology, S.C.G., C.G. and N.K.; software, S.C.G. and C.G.; validation, S.C.G. and C.G.; formal analysis, S.C.G., C.G. and N.K.; investigation, S.C.G. and C.G.; resources, S.C.G. and C.G.; data curation, S.C.G. and C.G.; writing—original draft preparation. S.C.G. and C.G.; writing—review and editing, S.C.G. and C.G.; visualization, S.C.G. and C.G.; supervision, S.C.G. and C.G.; project administration, S.C.G. and C.G.; funding acquisition, S.C.G. and C.G. All authors have read and agreed to the published version of the manuscript.

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Appendix A

Table A1. Average years of education by gender and marital status.

	Females	**Males**
All	13.63	13.50
	(3.15)	(3.15)
Arrived single	13.36	13.37
	(3.68)	(3.43)
Arrived single and remained single	13.08	13.00
	(3.90)	(3.49)

Source: Matched Labor Force Survey and Income Survey 1991–2004; authors' calculations.

Includes all immigrants who were 22 years old and above at arrival.
Standard deviation in parenthesis.
The percentages are equal to 100 in each husband's quantile.

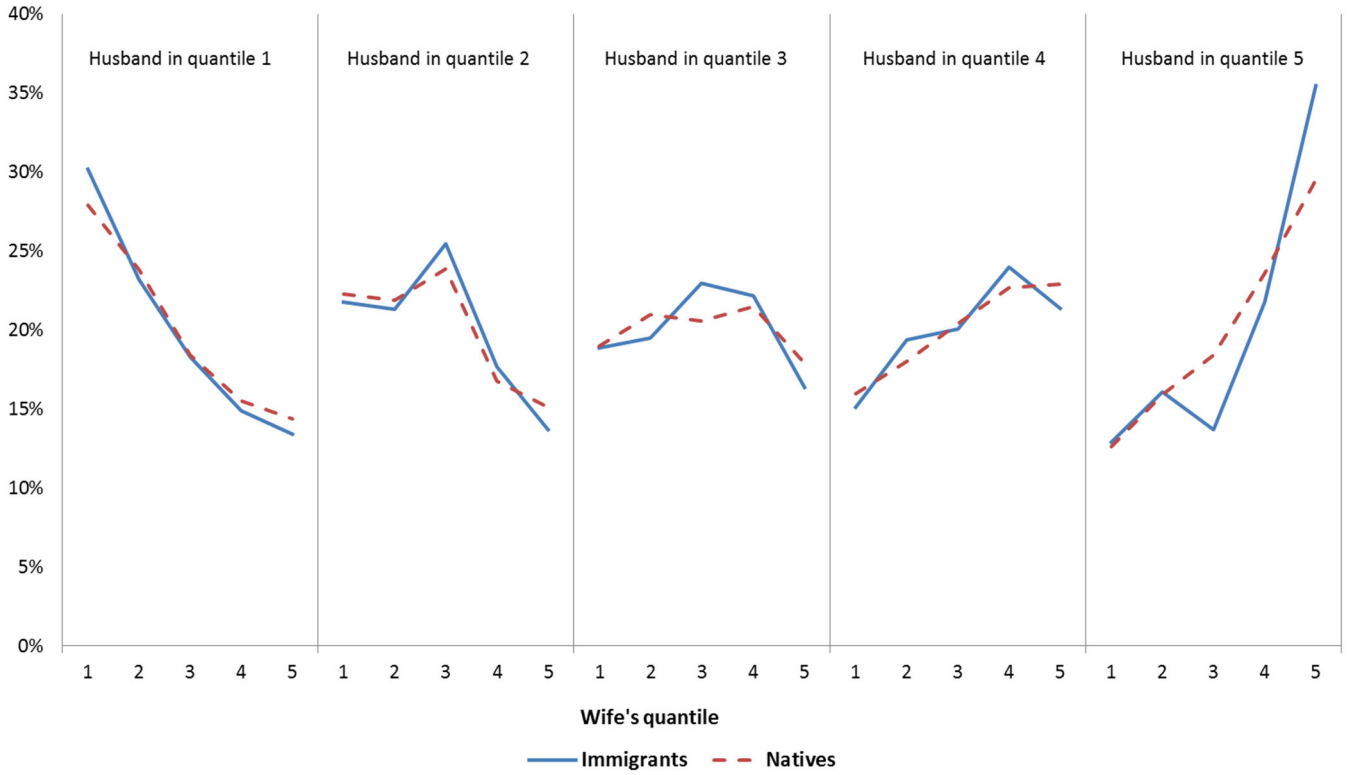


Figure A1. The Correlated Wage Residuals of Husbands and Wives among Immigrant and Native Couples.

Notes

1 On the contrary, rejection of the FIH does not necessarily imply that the local credit market for investment in human capital is efficient, since a rejection might imply that the decision making of the spouses is not cooperative.

2 Although this paper did not distinguish between married and single women, it seems that the data did not reveal any tendency of women to accept "dead-end jobs", as the FIH predicts.

3 For notational simplicity we omit in this section the individual index i and the time index t.

4 Identical estimators were constructed for females.

5 The patterns were reversed if the wife was the primary earner.

6 Jacquemet and Robin (2013) also used wage regression's residuals to assess assortative matching in the U.S.

7 The matched data from the LFS and IS for 1994 was not made available to us.

8 We excluded non-Jewish native Israelis, since their labor market characteristics differed substantially from those of Jewish native Israelis.

9 Each outlier observation was checked in order to assess its validity and include it or exclude it from our data accordingly. For example, for individuals with reported 20 years of education, we checked if their profession and age could contradict the reported education.

10 Married immigrants were older than married natives, in part due to our restriction which excluded married immigrants who got married after more than one year since their arrival in Israel.

11 In previous specifications, we used separate cohort dummies for each year of immigration (1989–2004), but the dummies for the years 1992–2004 were not statistically significant; so, we pooled them together. Hence, the pooled dummy for 1992–2004 was the reference group.

12 Duleep and Sanders (1994) found that when one does not control for previous employment, there existed large differences in the apparent effects of children on married women's labor supply between American-born white women and three ethnically distinct groups of newly arrived immigrants to the United States. Since we did not have panel/retrospective data, we used various indicators for children and allowed their impact to vary between natives and immigrants.

13 In order to follow the previous literature on the FIH, we estimated one equation on the pooled sample of all four types of individuals: married immigrants, married natives, single immigrants, and single natives (separately for males and females).

[14] In Figures 1–8 we measured, on the horizontal axis, years since migration (YSM) for immigrants whose age was 30 (males) and 28 (females) on arrival. For natives, each point on the horizontal axis should be associated with the age of the individual, where age equals 30 + YSM for native males and 28 + YSM for native females.

[15] This result may be consistent with the FIH if leisure was a normal good and a married male immigrant initially invested more than a single male immigrant and thus eventually earned a higher hourly wage. In any case, the results for female labor supply were not consistent with the FIH.

[16] The lack of significance of YSM2 in the wage regressions (Table 2) might be due to the low standard deviation of YSM in our sample. Once we added FSU immigrants who arrived in Israel in prior waves, then YSM2 became significant, mainly in the wage regressions (see Table 3, Panel B).

References

Adserà, A., & Ferrer, A. M. (2014). The myth of immigrant women as secondary workers: Evidence from Canada. *American Economic Review*, *104*(5), 360–364. [CrossRef] [PubMed]

Baker, M., & Benjamin, D. (1997). The role of the family in immigrants' labor market activity: An evaluation of alternative explanations. *American Economic Review*, *87*(4), 705–727.

Bernhardt, D., & Backus, D. (1990). Borrowing constraints, occupational choice, and labor supply. *Journal of Labor Economics*, *8*(1), 145–173. [CrossRef]

Blau, F. D., Khan, L. M., Moriarty, J. Y., & Souza, A. P. (2003). The role of the family in immigrants' labor market activity: An evaluation of alternative explanations-comment. *American Economic Review*, *93*(1), 429–447. [CrossRef]

Borjas, G. J. (1985). Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics*, *3*(4), 463–489. [CrossRef]

Cohen-Goldner, S., Eckstein, Z., & Weiss, Y. (2012). *Immigrants' labor market mobility: The large wave of immigration to Israel, 1990–2000*. The MIT Press.

Cohen-Goldner, S., Gotlibovski, C., & Kahana, N. (2009). The role of marriage in immigrants' human capital investment under liquidity constraints. *Population Economics*, *22*(4), 983–1003. [CrossRef]

Derby, S. J., Islam, A., & Smyth, R. (2020). Labour market and human capital behavior of immigrant couples: Evidence from Australia. *International Migration*, *58*(2), 118–142. [CrossRef]

Duleep, H. O., & Dowhan, D. J. (2002). *Revisiting the family investment model with longitudinal data: The earnings growth of immigrant and U.S.-born women* (IZA Discussion Paper No: 568). Institute for the Study of Labor (IZA).

Duleep, H. O., & Regets, M. C. (1999). Immigrants and human-capital investment. *American Economic Review*, *89*(2), 186–191. [CrossRef]

Duleep, H. O., & Sanders, S. (1994). Empirical regularities across cultures: The effect of children on woman's work. *Journal of Human Resources*, *29*(2), 328–347. [CrossRef]

Ferrer, A., & Dhatt, S. S. (2025). Immigrant gaps in job quality: Canadian immigrant women's resilience to automation. *Labour*. [CrossRef]

Ferrer, A., Pan, Y., & Schirle, T. (2023). The work trajectories of married canadian immigrant women, 2006–2019. *Journal of International Migration and Integration*, *24*(Suppl. S3), 697–716. [CrossRef]

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, *47*(1), 153–161. [CrossRef]

Jacquemet, N., & Robin, J. M. (2013). *Assortative matching and search with labour supply and home production* (No. CWP07/13). Cemmap Working Paper. Centre for Microdata Methods and Practice.

Kanas, A., & Müller, K. (2021). Immigrant women's economic outcomes in Europe: The importance of religion and traditional gender roles. *International Migration Review*, *55*(4), 1231–1264. [CrossRef]

Kim, S., & Varanasi, N. (2019). Labor supply of married foreign-born women in credit-constrained households. *Economic Modelling*, *81*, 411–421. [CrossRef]

Liu, Y., & Hagiwara, R. (2025). Does the labor force participation of married female immigrants decrease in a low female LFP host country? evidence from Japan. *Population and Development Review*. [CrossRef]

Long, J. E. (1980). The effect of americanization on earnings: Some evidence for women. *Journal of Political Economy*, *88*(3), 620–629. [CrossRef]

Salikutluk, Z., & Menke, K. (2021). Gendered integration? How recently arrived male and female refugees fare on the German labour market. *Journal of Family Research*, *33*(2), 284–321. [CrossRef]

Tolts, M. (1992). Jewish marriages in the USSR: A demographic analysis. *East European Jewish Affairs*, *22*(2), 3–19. [CrossRef] [PubMed]

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