# The Role of Firms and Job Mobility in the Assimilation of Immigrants: Former Soviet Union Jews in Israel 1990–2019*

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**Abstract**

We study how job mobility, firms, and firm-ladder climbing can shape immigrants' labor market success. Our context is the mass migration of former Soviet Union Jews to Israel during the 1990s. Once in Israel, these immigrants faced none of the legal barriers that are typically posed by migration regulations around the world, offering a unique backdrop to study undistorted immigrants' job mobility and resulting *unconstrained assimilation*. Rich administrative data allows us to follow immigrants for up to three decades after arrival. Immigrants experienced large initial wage gaps relative to natives—57% for men and 47% for women—and 12–20% of these gaps are explained by differential sorting across firms and differential pay-setting within firms. The wage gap closes only after 27–29 years, and much of this convergence is driven by immigrants' differential climbing of the firm ladder: immigrants are more mobile and experience faster upward moves, even in the long term. As such, firm-to-firm mobility is a key driver of these immigrants' long-run prosperity. Lastly, we quantify a previously undocumented *job utility gap* when accounting for non-wage amenities. Upon arrival, immigrants' non-pay amenities were lower by 0.38 (men) and 0.94 (women) native standard deviations. As such, amenities exacerbate immigrant-native disparities based on pay alone.

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# 1 Introduction

The last few decades have seen unprecedented growth in international migration towards developed countries. The integration of immigrants within their host country—i.e., immigrants' economic mobility and social inclusion—is a key aspect of this phenomenon and the object of contentious public debates. Immigrants' labor market success is a central dimension of integration since, beyond its obvious significance for immigrants themselves, has implications for host countries' aggregate productivity (Burchardi et al., 2020) and the design of fiscal and social insurance policies. Accordingly, a vast literature documents immigrants' labor market outcomes, their evolution over time, and convergence with natives (e.g., Chiswick, 1978; Lubotsky, 2007; Abramitzky et al., 2014; Albert et al., 2021).

Nonetheless, many potential drivers of immigrants' long-term prosperity and aspects of immigrants' labor market experiences have proved elusive to document, including questions about the importance of job mobility and firms. The firm ladder could play a large role in immigrants' integration as, over the last 25 years, mounting evidence has shown that the identity of one's employer matters a great deal due to firms' pay policies (Abowd et al., 1999; Card et al., 2018).[1] More specifically, firm-related channels could particularly matter for immigrants who (i) are more geographically mobile than natives (Abramitzky et al., 2021), and (ii) start climbing the firm ladder from its bottom rungs due to search frictions and their lack of experience in the host labor market. Additionally, differences in bargaining power, outside options, or discrimination could, in principle, lead to immigrant-native disparities in firms' pay policies.

In spite of its potential relevance, the degree to which immigrant-native wage gaps and convergence can be driven by firms and immigrants' climbing of the firm ladder is not yet well understood. This is due to limitations of institutional environments (e.g., regulations that limit immigrants' job mobility, thus masking latent economic forces) and data (e.g., administrative datasets failing to comprehensively capture immigrants' careers).

In this paper, we begin to fill in these gaps by studying a migration episode with unique institutional features and data availability. Our context is the mass migration of nearly one million former Soviet Union (FSU) Jews to Israel during the 1990s, following the unexpected lifting of Soviet emigration restrictions. This context presents three main advantages. First, these immigrants were granted Israeli citizenship upon arrival, thus facing no differential regulatory restrictions compared to natives.[2] We can then study what we call *unconstrained assimilation*—i.e., identify convergence patterns that are not distorted by regulations limiting immigrants' choices. Second, immigrant self-selection based on labor market prospects was not prevalent—especially among the earlier arrival cohorts—due to push factors related to the desire to escape Soviet persecution and political turmoil (Abramitzky et al., 2022; Arellano-Bover et al., 2025). Lessons from this setting allow us then to get at assimi-

[1] As well as for other outcomes beyond contemporaneous wages such as human capital accumulation (Arellano-Bover and Saltiel, 2021), intergenerational labor market outcomes (San, 2021), unemployment duration (Cingano and Rosolia, 2012), or non-pay amenities (Sorkin, 2018).

[2] FSU immigrants nevertheless encountered other barriers typically faced by immigrant groups, including poor skill portability, not speaking the local language, little wealth on arrival, and culture clash.

lation parameters not driven by self-selection and can speak to policy-relevant current and future large migration waves driven by conflict or climate change.[3] Third, we can study this episode using population-level administrative records featuring unusually good properties to track immigrants. These matched employer-employee data cover immigrants immediately since arrival, follow them for up to 29 years, and accurately record individuals' date of immigration to Israel.

Leveraging the strengths of the setting and data, we provide a detailed view into immigrants' job mobility dynamics and climbing of the firm ladder over the course of three decades. We characterize the firms that disproportionately employ immigrants and show how such *differential sorting*, combined with firm-specific pay premiums and differential job mobility, contribute to the initial immigrant-native wage gap and subsequent assimilation. Additionally, we precisely estimate immigrant- and native-specific firm pay premiums and quantify how within-firm, *differential pay-setting policies* shape immigrant-native gaps. Beyond wages, we provide a holistic characterization of immigrant-native *job utility* differentials, estimating gaps in a revealed-preference measure of employer desirability that accounts for non-wage amenities. Lastly, we provide granular analyses for relevant subgroups, assessing the differential experiences of immigrant men vs. women, early vs. late arrivals, and those who migrate older vs. younger.

We begin our empirical analysis documenting patterns of *employment assimilation*, which is typically hard to quantify in administrative datasets. We identify employment assimilation—the immigrant-native employment gap by immigrants' time since arrival in Israel—thanks to the accurate recording of arrival dates, unusually good coverage of FSU immigrants' early employment experiences, and low levels of out-migration. Male immigrants found jobs shortly after arrival and were *more* likely than natives to be employed one year after arrival. Female FSU immigrants, in contrast, experienced a substantial employment gap compared to natives for about five years, after which they converged to native female employment levels. The employment disparity between immigrant men and women highlights the importance of carrying out gender-specific analyses, which we do throughout.

FSU immigrants—who were more educated than natives but faced language and skill-portability barriers—experienced large monthly wage gaps on arrival. Compared to natives, male immigrants earned 57% less on arrival, while the equivalent gap for women was 47%. In spite of these large gaps, the *wage assimilation* process was steep, and FSU immigrants steadily narrowed the gap with natives as years went by. Yet it is not until the end of our sample, 27–29 years after arrival, that the immigrant-native gap is fully closed.[4]

[3]For instance, the ongoing war in Ukraine had, by February 2023, displaced about 14% of the Ukrainian population to other European countries (CReAM, 2023). In the medium term, environmental change could trigger large emigration waves from middle-income countries (Cattaneo and Peri, 2016; Hoffmann et al., 2020). Future potential European Union expansions, like those currently discussed for Ukraine and other Eastern European countries, could also lead to large waves of relatively unrestricted migration.

[4]Our 29-year panel implies that wage assimilation patterns are driven by within-person wage growth and changing immigrant composition in the labor market. For example, immigrants who arrived in Israel above a certain age are no longer in the labor force 29 years after arrival. We tease apart these two components with granular heterogeneity analyses by groups of immigrants according to their year of arrival and age at arrival in Israel. We also show that, in this setting, out-migration was not a relevant phenomenon and does not influence

Introducing firm fixed effects to the simple immigrant-native wage comparison reduces initial gaps by over 29%, yet this approach does not truly get at the role of firms because it confounds firm effects with worker selection. This challenge motivates our two-way fixed-effect method.

We lay out and estimate a wage determination framework that, building upon the AKM tradition of Abowd et al. (1999) and Card et al. (2018), allows for immigrant- and native-specific firm pay premiums in addition to unrestricted year-since-arrival effects for immigrants. The group-specific AKM framework represents the backbone of the main contributions of the paper—understanding how job mobility, heterogeneity in firms' pay policies, and the climbing of the firm ladder shape immigrants' labor market outcomes and convergence with natives. We can accurately estimate the parameters of this model, separately for men and women, thanks to the large number of immigrants in our data, their high degree of job mobility, and a long panel dimension of 29 years.

Following the estimation of the group-specific AKM model, we recover firm pay premiums for immigrants and natives. We are interested in *firm pay premiums assimilation*—the time-varying gap in the average pay premium received by immigrants vs. natives. Crucially, we show that the gap in firm pay premiums can be decomposed into a *differential sorting* component—the part of the gap explained by immigrants and natives being employed in different firms—and a *differential pay-setting* component—capturing within-firm differences in pay generosity for immigrants vs. natives. Separately quantifying each of these two firm-related channels is conceptually relevant; e.g., while *sorting* gaps likely arise from differences in search frictions, social connections, or access to job opportunities, *pay-setting* gaps could reflect differences in bargaining power, outside options, or discrimination.

Immigrants receive significantly lower firm pay premiums than natives, with the gap on arrival being equal to 0.17 log points for men and 0.08 for women. Firm pay premium gaps account for 12–20 percent of the wage gap on arrival and 17–24 percent over the first ten years since arrival. Over time, the pay premium gap narrows, is eventually overturned for women, and almost closed for men. The pay premium gap decomposition reveals that differential sorting and differential pay setting are *both* quantitatively important and present distinct dynamics. That is, the pay premium gap arises not only because of immigrants' and natives' employment across distinct firms but also because *within* firms, pay premiums awarded to immigrants are lower than those awarded to natives. The quantitative importance of the differential pay-setting channel is particularly meaningful and has implications for many labor market models assuming common pay premiums within the firm.[5]

Next, we provide a granular set of analyses illustrating the mechanisms behind immigrants' growth in firm pay premiums. As opposed to wage assimilation, firm pay premiums assimilation can only occur through *firm-to-firm mobility*. That is, pay premium convergence

assimilation estimates.

[5]We provide a detailed comparison of our results on differential sorting and differential pay setting with related studies (Card et al., 2016; Gerard et al., 2021; Dostie et al., 2023). These papers are typically summarized as featuring small roles for differential pay setting. However, as we show later, the pay setting channel is actually quite sizable and comparable to ours in Card et al. (2016) and Gerard et al. (2021) when focusing on college-educated workers (which many FSU immigrants in our context were).

must be sustained by immigrants changing jobs more often than natives and/or, conditional on changing jobs, taking greater steps up the firm ladder. Mobility is key for young labor market entrants' wage growth (Topel and Ward, 1992), making it plausibly important too for immigrants who are similarly new to the host country's labor market. However, immigrants' job mobility is commonly limited by regulations, making it difficult to quantify its potential relevance.[6] In this regard, our setting is uniquely well suited to study immigrants' job mobility, as *unconstrained assimilation* implies that FSU immigrants faced no regulatory barriers limiting their job search and job mobility.[7]

We find that firm pay premiums assimilation was driven by immigrants' ability to climb the job ladder often and in large steps. First, compared to natives, immigrants changed employers at greater rates. This was especially true shortly after arrival—consistent with initially low search capital—but the positive job mobility differential is not explained by lower wages and persistent (being present even after 29 years in Israel). That is, in terms of job search and job mobility, FSU immigrants do not fully converge to natives and remain more mobile in the long term. Second, immigrants also experienced large wage returns to mobility as, conditional on changing jobs, immigrants took greater steps up the firm ladder. The immigrant-native gap in the step length (origin-destination growth in firm pay premiums) ranges between 0.05 and 0.01 log points for at least 18 years since arrival. Third, we find no worker-firm assortative matching among recently arrived immigrants—i.e., high- and low-ability immigrants found initial jobs at similar firms. However, immigrant assortative matching grows sharply over time, reaching and even surpassing that of natives. As such, market forces eventually led high-ability immigrants to high-paying firms.

Lastly, we uncover evidence of previously undocumented *immigrant-native job utility gaps* by estimating assimilation patterns in a revealed-preference employer desirability measure constructed from observed worker flows (Sorkin, 2018). Using this procedure, we conclude that initial firm-desirability immigrant-native gaps are large, with non-pay amenities differentials amounting to 0.38 and 0.94 native standard deviations, for men and women, respectively. Immigrants are employed in firms providing lower utility in the form of non-wage amenities, *exacerbating* immigrant-native pay gap disparities. Gaps in non-pay amenities take 11–13 years to close and are particularly acute for immigrant women.

## Contribution to the literature

***Immigrants' labor market outcomes and integration.*** An extensive literature studies how immigrants fare in the labor markets of their destination countries and the degree of conver-

[6] Examples of regulatory-driven hindered mobility for immigrants include unauthorized immigrants, employment requirements for citizenship, or employer-sponsored visas that constrain job mobility. E.g., H-1B in the US, 457 in Australia, Temporary Foreign Worker Program in Canada, or the 2008 Swedish migration reform. For evidence on mobility constraints see Naidu et al. (2016), Wang (2021), Hunt and Xie (2019), and Depew et al. (2017).

[7] Throughout the paper, we do not mean to imply that FSU immigrants faced no labor market constraints or barriers whatsoever. Instead, when discussing *unconstrained* choices or assimilation, we refer to a particular yet important type of constraints, which are those set by regulation and applying differentially to individuals on the basis of their citizenship or immigration status.

gence with natives (e.g., Chiswick, 1978; Borjas, 1985; Lubotsky, 2007; Cohen-Goldner et al., 2012; Abramitzky et al., 2014; Dustmann and Görlach, 2015; Rho and Sanders, 2021; Albert et al., 2021; Adda et al., 2022; Kerr et al., 2024). We contribute to this literature on several fronts. First, underscoring the importance of firm-to-firm mobility for immigrants' success in a setting where immigration regulation did not interfere with root economic forces. While there exists work on immigrants' occupational mobility (e.g., Cohen-Goldner and Eckstein, 2008) and evidence on the importance of geographic mobility for immigrants' success (Abramitzky et al., 2021), firm-to-firm mobility—which is more prevalent than occupation or geographic mobility, and known to be a key source of wage growth (Postel-Vinay and Robin, 2002)—has so far been relatively unexplored for immigrants.

Second, we provide the most detailed evidence to date on the important role that the climbing of the firm ladder and firms' pay policies can have in immigrants' success.[8] Two prior papers study immigrant-native gaps using an AKM framework (Damas de Matos, 2017; Dostie et al., 2023). Damas de Matos (2017) assumes common firm effects for immigrants and natives, making Dostie et al. (2023) the most closely related to ours. Dostie et al. (2023) study immigrant permanent residents in Canada and quantify the role of firms' pay premia, differential sorting, and differential pay setting in pay differences with natives.[9] We add to this work by drawing insights from the unique Israeli *unconstrained assimilation* policy setting. Our context further stands out by the large and well-defined migration wave, the ability to observe immigrants in the data immediately since their arrival in Israel, and the decades-long follow-up period. While static wage gaps are the main focus in Dostie et al. (2023), our context allows us to pin down the key role of job mobility through firm-ladder climbing, and the long-run evolution of such gaps.

Third, we document a new, conceptually relevant immigrant-native gap: the *utility gap* arising from differences in employers' overall desirability and non-wage amenities. Our finding that immigrants sort into employers that provide fewer non-wage amenities has important implications for the integration of immigrants and for our understanding of immigrant-native inequalities. While there is evidence showing that women enjoy greater job amenities than men, reducing the job desirability gender gap relative to the pay gap (Sorkin, 2017; Morchio and Moser, 2023), we find that the opposite is true for immigrants and natives.

These three contributions are grounded on a unique combination of data and institutional-historical context. Our data are first in the literature to combine i) three decades of panel data on all immigrant arrivals regardless of the length of stay, ii) population-level coverage,

[8] Aydemir and Skuterud (2008) and Pendakur and Woodcock (2010) document differential sorting of immigrants into employers with lower pay premiums using Canadian survey data. Carneiro et al. (2012), Barth et al. (2012), and Amior and Stuhler (2022) find similar patterns in Portugal, Norway, and Germany, respectively. However, all these studies (most of which lack panel data) consider firm premiums that, unlike the AKM framework, do not account for unobserved worker characteristics. Lehmer and Ludsteck (2015) emphasize the role of search gains in the assimilation process, relying on employer observables instead of firm-specific pay policies. Åslund et al. (2023) quantify the role of firm productivity and productivity-wage pass-through in the Swedish immigrant-native pay gap.

[9] For one of their permanent residency granting cohorts, Dostie et al. (2023) additionally document the role of firm-ladder climbing for eight years of wage growth.

iii) precise date of immigration to the country, iv) knowledge of immigration status (citizenship on arrival), and v) immediately good coverage of immigrants' labor market outcomes. The institutional setting is especially well suited to study the role of job mobility across firms thanks to *unconstrained assimilation*, while the historical circumstances result in low out-migration and low levels of self-selection.

***Firms and wage inequality.*** We also add to the literature on firms' contribution to wage inequality (e.g., Abowd et al., 1999; Card et al., 2013, 2018; Goldschmidt and Schmieder, 2017; Song et al., 2019; Di Addario et al., 2023), and its subset using group-specific AKM models to study gender and racial gaps (Card et al., 2016; Sorkin, 2017; Gerard et al., 2021). Relative to the gender and racial gaps—where group membership is time-invariant by nature—the rich *dynamics* by time since arrival we document are a novel feature of the immigrant-native wage gap. Moreover, the sizable *differential pay setting* channel we find suggests that the standard AKM assumption of common pay premiums might not hold well for immigrants and natives. Our detailed comparisons to prior literature suggest this is also true for gender and racial differences, especially for highly educated workers. As such, it might not be suitable for other groups of workers either, suggesting important implications to how we model labor markets in general and, in particular, AKM-style empirical models.[10]

The rest of this paper is structured as follows. Section 2 lays out the historical context of Jewish FSU migration to Israel and related literature. Section 3 describes our data. Section 4 introduces the wage framework and the assimilation statistics that build upon it. Section 5 contains our main empirical results. Section 6 provides additional discussion and robustness checks. Section 7 concludes.

## 2 FSU Migration to Israel: Historical Context and Literature

In 1989, the USSR relaxed emigration restrictions, and Soviet Jews, fleeing antisemitism and the collapse of the Soviet Union, started to leave the country in massive numbers. Israel accepted FSU Jews unconditionally and granted them citizenship. Between 1989–1999, around 840,000 FSU Jews migrated to Israel, which in 1989 had a population of 4.5 million.[11] As a comparison, only around 16,000 Soviet immigrants arrived in Israel between 1980–1988. Figure 1 plots the number of FSU yearly arrivals to Israel between 1948–2019. Peak migration in 1990–1991 was followed by sustained levels of around 60,000 annual arrivals until 1999, with a steady decline starting thereafter. During 1990–1999, 80–90% of all

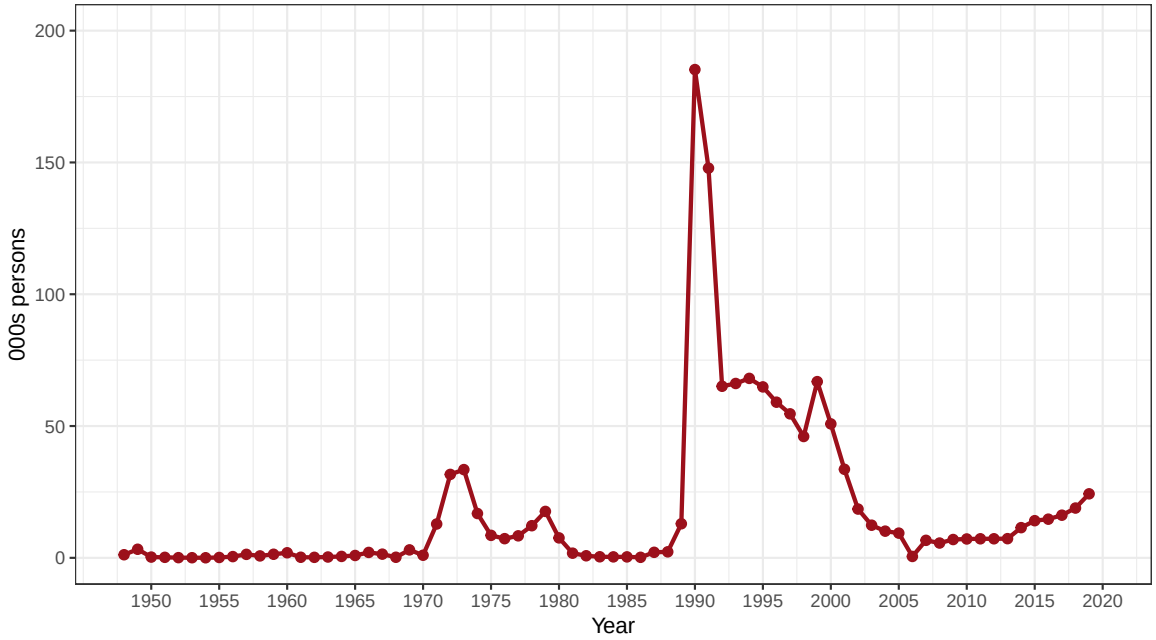
[10] Our findings also speak to papers on the interplay between imperfect labor market competition and migration (Naidu et al., 2016; Dustmann et al., 2024; Amior and Manning, 2021; Amior and Stuhler, 2022). Our analysis of the *differential pay setting* channel speaks to the extent to which firms are able to wage-discriminate between immigrants and natives, which is relevant for models in this literature.

[11] Migration options outside of Israel were less accessible. The US, for instance, stopped granting refugee status to Soviet Jews in October 1989. Germany, which admitted the greatest number of FSU Jews after Israel and the US, started granting asylum visas in 1990 but didn't offer citizenship as Israel did (Remennick, 2007).

immigrants arriving in Israel did so from the FSU (Figure A1).[12]

The Israeli government encouraged the immigration of FSU Jews, who were granted citizenship on arrival in accordance with the Law of Return. This implied that, compared to natives, FSU immigrants did not face any additional regulatory hurdles in the labor market. Additionally, FSU immigrants received full access to social benefits and had freedom over residential and labor market choices (Buchinsky et al., 2014). The government offered assistance settling in, initially subsidizing rent and mortgages, and providing Hebrew language classes (which most immigrants did not speak). Even though assistance was comprehensive and covered many dimensions, its monetary amount was modest and immigrants had to find complementary income sources very early on after arriving in Israel (Remennick, 2007).

**Figure 1:** Migration Flow: Former Soviet Union (FSU) to Israel, 1948–2019




*Notes:* Source is the Israel Central Bureau of Statistics. Number of immigrants arriving in Israel from the former Soviet Union, by year.

FSU immigrants were highly educated relative to the Israeli population. Out of those who arrived in 1990–1991, 30% of prime-age males had a college degree compared to 17% of prime-age male Israelis at the time; 70% of migrants had held middle- or high-skilled occupations in the FSU compared to 30% of Israelis (Cohen-Goldner et al., 2012).

FSU immigrants typically found employment quickly but initial occupational downgrading with respect to previous FSU jobs was prevalent, with the job prospects of many hindered by lacking language skills or limited portability of human capital acquired in

[12]Migration to Israel from FSU countries started growing again in 2014—the year Russia annexed Crimea—and dropped sharply due to the Covid pandemic in 2020–2021 (not shown in figure). In 2022, immigration to Israel from Ukraine and Russia sharply increased as a result of Russia's full-scale invasion of Ukraine: according to the Israeli Ministry of Immigration, in 2022 there were 15,037 arrivals from Ukraine and 43,584 from Russia.

the FSU (Friedberg, 2000; Weiss et al., 2003; Remennick, 2007).[13] Over time, FSU immigrants climbed the occupational ladder and experienced rapid rates of wage growth (Eckstein and Weiss, 2004). Using survey data, Cohen-Goldner et al. (2012) provide a detailed study of FSU immigrants' integration in the Israeli labor market. They estimate that college-educated FSU immigrants who arrived in 1990–1991 initially earned 58% of what comparable natives earned, 68% after five years, and 90% after 20 years. However, Cohen-Goldner et al. (2012) lacked employer-employee data and did not study assimilation through heterogeneous firms or the role of firm-specific pay premiums.

We complement the literature on FSU immigrants in Israel by being the first to study this remarkable historical episode using administrative matched employer-employee population data. This allows us to document new facts and provide new evidence, relative to the role of firms and job mobility, on the long-term evolution of FSU immigrants' labor market outcomes and assimilation.

***Generalizability to other contexts.*** Being granted citizenship on arrival did not preclude FSU arrivals from facing a number of barriers typically encountered by immigrant groups in other contexts. These barriers include poor portability of skills and qualifications, little wealth on arrival, not speaking Hebrew, and large cultural differences with respect to natives (Arellano-Bover et al., 2025).[14]

FSU Jews faced an Israeli open border and no differential labor market regulations compared to natives, which likely facilitated firm-to-firm mobility relative to a counterfactual of, e.g., employer-linked visas (Wang, 2021). While this is not a common immigration policy environment nowadays, it is, after all, a policy *choice*. Hence, while our findings on *unconstrained assimilation* might not be directly applicable to explain currently observed assimilation patterns in other contexts, they are general in the sense they are arguably informative of policy counterfactuals in such other contexts.

***Wage setting in Israel.*** Israel has a historical tradition of collectivism and centrality of the labor movement. However, starting before our period of study, the prevalence of wage determination via collective bargaining and union density experienced steep declines. Starting in the 1990s, there has been a substantial rise in the number and proportion of agreements signed by narrower bases of unionization—occupational and local unions—at the expense of agreements signed by industrial unions, allowing for intra-industry differential pay between firms (Cohen et al., 2003). Along with decentralization, bargaining agreements have become more liberalized, in the sense that they more often allow for employer flexibility in setting wages, often allowing for within-firm and occupation differences in pay. These

[13] Existing studies find that any negative effects of the migration wave on natives' wages and employment were either absent or modest and short-lived (Friedberg, 2001; Cohen-Goldner and Paserman, 2011; Cohen-Goldner et al., 2012). Capital accumulation and technology responses have been put forward as explanations for the absence of large impacts on natives' wages (Gandal et al., 2004; Cohen-Goldner et al., 2012).

[14] After living under Soviet rule for generations, FSU Jews did not follow Judaism cultural and religious practices in the FSU, and many in Israel are not considered Jewish according to Orthodox Jewish law, with its more stringent definition of being Jewish than what is applied by the migration and citizenship Israeli Law of Return (Cohen and Susser, 2009).

agreements also provide employers the flexibility to transfer workers from one job to another suitable one.

# 3 Data and Summary Statistics

The data we use are uniquely well suited to study immigrants' progress in the labor market since arrival to the host country. Relative to existing literature, this dataset is the first to combine the following features: i) decades-long panel data on all immigrant arrivals regardless of length of stay, ii) population-level coverage, iii) precise date of arrival to the country, iv) knowledge of immigration status (citizenship on arrival), and v) immediately good coverage of immigrants' labor market outcomes.

The dataset is constructed from newly available matched employer-employee administrative records from Israel. These data span 1985-2019 and contain information about the entire Israeli workforce collected from tax records. The dataset includes person identifiers, firm identifiers, monthly indicators for each firm where a person worked, the yearly salary received from each employer in a year, and firms' industry and location.

The employment tax records are merged with the Israeli Population Registry. This dataset covers the full population of Israel and includes demographic information such as date of birth, sex, residence status, ethnic group, country of birth, and date of arrival in Israel.

Crucially, country of birth and date of arrival in Israel allow us to identify FSU immigrants and the length of time they have lived in Israel at any point in time. Arrival date records allow us to infer the actual length of time an immigrant has spent in Israel without relying on proxies used in other studies of immigrants' labor market outcomes using administrative data, such as the timing of the first appearance in employment records in Germany (Dustmann et al., 2024) or the timing of application for a Social Security Number in the US (Rho and Sanders, 2021). Typically, administrative records will miss the early years of a significant number of immigrants who are unauthorized, hold visas that do not allow them to work, and/or hold informal jobs. Since the immigrants we study were granted citizenship on arrival, this is a lesser concern in our setting. All in all, compared to existing work using administrative data, we argue that our data have unusually good coverage of immigrants' early arrival experiences.

## 3.1 Sample Selection

Our baseline sample includes (i) FSU-born immigrants who arrived in Israel between 1990–1999 (henceforth labeled as "immigrants"), and (ii) Jewish, non-ultra-Orthodox Israeli natives (henceforth labeled as "natives").[15] The time span of our analysis sample is 1991–

[15]That is, the baseline sample does not include other immigrants, nor Arab natives, nor ultra-Orthodox natives. We make this choice in order to compare the outcomes of FSU immigrants to those of the dominant group in the Israeli labor market. In any case, we also show that the key takeaways from the main results are unchanged if we instead estimate FSU immigrants' assimilation relative to a more expansive comparison group that includes all Israeli workers.

2019 (from the first year after the full start of the migration wave until the latest year of available data) and we focus on people between ages 25–59. Following San (2021), we exclude from our sample worker-year observations with earnings less than 25% the national average monthly wage.[16]

In most analyses, we restrict attention to observations belonging to the largest *dual-connected* set of firms. A connected set of firms, linked by worker movements, is required to identify models with worker and firm fixed effects. As we estimate separate models for natives and immigrants, we need a connected set in each sample. The observations belonging to the largest connected set of firms in both the natives and immigrants samples comprise our analysis sample, which we call the "dual-connected sample" following Card et al. (2016).

Our analysis sample is a panel dataset at the annual frequency, assigning each person-year observation to the firm where that person was employed during the month of November. We calculate the monthly wage by dividing the yearly salary in a firm by the number of months worked at that firm. If someone was employed at more than one firm during November, we follow previous literature and assign them to the firm that paid the greatest monthly wage.

### 3.2 Summary Statistics

Tables A1 (males) and A2 (females) show sample sizes and sample means, separately for natives and immigrants, for the full sample and the dual-connected sample. The dual-connected samples for each gender—our main analysis samples—each have over 12 million worker-year observations encompassing over 1 million workers and 68,000–78,000 firms.

The dual-connected sample covers a very high share of the overall sample. This arises thanks to the combination of a large number of immigrants together with a long panel dimension of 29 years. Specifically, the dual-connected sample covers 85–88% of total employment (worker-years) and 94% of total FSU-immigrant employment. The coverage is not complete due to small firms that are not present in the dual-connected set. These firms are numerous but small, as evidenced by a higher average firm size in the dual-connected sample and the high coverage in terms of employment.

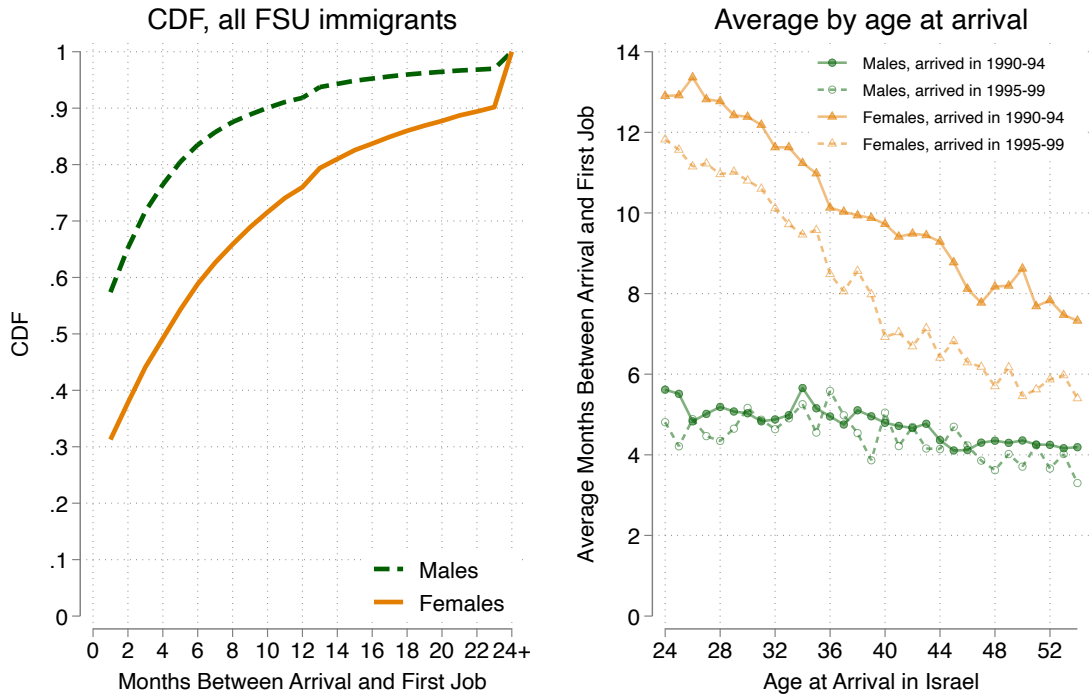
FSU immigrants comprise about 19 percent of workers in the full samples and about 20 percent of the dual-connected samples. Immigrants are, on average, about two years older than natives. The average monthly salary for native males is around 17,000 Shekels (2019 prices), while that of FSU immigrant males is around 11,000 Shekels—a 35% raw differential when averaging over the whole sample period. The equivalent differential for females is smaller, equal to 21%.

The summary statistics suggest that immigrants and natives are sorted into different types of firms. Natives are employed in significantly larger firms. In the dual-connected sample, for males, the native-worker-weighted average firm size is about 4,000 employees,

[16]The minimum wage in 2015 was 48.8% of the average wage in that year. This ratio fluctuated between 40%–50% in 1990–2019. Therefore, we exclude workers who earn approximately 50% or less the minimum wage each year, which with high probability reflects part-time jobs.

whilst the immigrant-worker-weighted average firm size is about 2,200 employees. The differential sorting of immigrants into firms is also reflected in firms' immigrant employee share. On average, a male FSU immigrant works in a firm where 26% of its employees are other FSU immigrants. On average, an Israeli male native works in a firm where 11% of its employees are FSU immigrants.

**Figure 2:** Months Since Arrival in Israel to First Job




*Notes:* Distribution of number of months spanned until an immigrants' observed first job, starting from the beginning of the calendar year that follows the arrival year. Sample: FSU immigrants who arrive in Israel between ages 25–58 and who are eventually employed at some point by age 59.

***Arrival in Israel and time to first job.*** Figure 2 uses the information on date of arrival in Israel to plot, among those who arrived in working age, the distribution of months spanned since arrival to the first job (Figure A2 plots the distribution of age at arrival).[17] The left panel shows that men found jobs soon after arrival—80 percent of men had started their first job in Israel by the sixth month, and 90 percent by the tenth month. These quick first-job matches align with the fact that these immigrants had little to no assets on arrival, very modest financial support from the government, and costly job search (Ferraro et al., 2022). We later show that these initial jobs were not of very high quality. FSU women, instead, took longer to start their first job: 60 percent of them had started their first job by the sixth month, and 75 percent by the first year. The right panel in Figure 2 shows age-at-arrival and year-of-arrival patterns in average months since arrival to first job. Across groups of

[17]Specifically, we measure the number of months spanned until an immigrants' observed first job, starting from the beginning of the calendar year that follows the arrival year.

men, average time to first job is quite stable, equal to between six and four months. Women instead display marked age-at-arrival patterns, with younger women taking on average as much as 13 months, and older women between six and eight. Later arrival cohorts of women took less time on average to start their first job compared to earlier arrivals.

# 4 Framework: Job Ladder, Wages, and Assimilation Statistics

## 4.1 A Stylized Job-Ladder Framework for Immigrant Assimilation

The mechanisms emphasized in standard on-the-job search and job-ladder models (Burdett and Mortensen, 1998; Cahuc et al., 2006) provide a useful framework for understanding the experience of newly arrived FSU immigrants. Two distinctive features characterize this group: 1) they have not yet sampled from the host-country job-offer distribution, unlike natives who have accumulated search experience and climbed the job ladder over time; and 2) they likely face worse outside options and weaker bargaining power relative to native workers, given their limited wealth, lack of local networks, and language barriers. Viewing our evidence through this framework helps rationalize three core empirical patterns: large initial immigrant-native gaps, subsequent catch-up driven by high job mobility, and persistent within-firm differentials.

A simple wage-posting framework in the spirit of Burdett and Mortensen (1998) illustrates how search frictions can generate initial gaps and differential job mobility for immigrants. Offers arrive to an employed worker as a Poisson process with rate $\lambda$. The wage offer for a worker of group $g \in \{N, M\}$ ($N$ for natives, $M$ for immigrants), from a firm with productivity $p$, is equal to $w_g(p) = b_g p$, where $b_g \in (0, 1)$ captures differences in bargaining power between immigrants and natives. Firm productivity draws are i.i.d. from the CDF $F(p)$. Workers accept any strictly higher wage offer. At time 0, the initial productivity $p_0$ is drawn from $H(p)$. For simplicity, we assume there are no involuntary separations.[18]

We first discuss between-firm gaps and job mobility for the case in which immigrant and native workers have the same bargaining power, $b_N = b_M = b$. This illustrates that differences in bargaining power are not necessary for immigrant-native differences to arise in sorting and job mobility. We then discuss the implications of $b_N > b_M$ in the context of within-firm pay gaps.

**Between-firm gaps.** Let $W_\tau$ and $P_\tau$ denote the current wage and employer productivity after $\tau$ units of search time (i.e., amount of experience in the Israeli labor market), where $W_\tau = bP_\tau$. The unconditional distribution of $W_\tau$ is given by:

$$G_\tau(w) \equiv Pr(W_\tau \leq w) = H(\tfrac{w}{b}) \exp(-\lambda\tau[1 - F(\tfrac{w}{b})]). \tag{1}$$

We can show that $G_\tau(w)$ is decreasing in $\tau$:

[18] The comparative statics we highlight below survive if instead we allow for an exogenous job destruction rate. Suppressing job destruction lightens notation.

$$\frac{\partial G_\tau(w)}{\partial \tau} = -\lambda[1 - F(\tfrac{w}{b})]H(\tfrac{w}{b})\exp(-\lambda\tau[1 - F(\tfrac{w}{b})]) \leq 0. \tag{2}$$

Hence, for any $\tau_N > \tau_M$, we have that $G_{\tau_N}(w) \leq G_{\tau_M}(w)$ for all $w$. As such, $W_{\tau_N}$ first-order stochastically dominates $W_{\tau_M}$: the group that has searched longer (i.e., natives) has accumulated more "search capital" leading to a higher wage distribution, purely mechanically via having accumulated more chances to climb the job ladder.[19]

Equation (2) shows that the comparative static holds even when immigrants and natives face the same job-offer distribution $F$ and offer arrival rate $\lambda$. In practice, however, these parameters could be group-specific. In general, immigration regulations can generate *regulatory-driven* differences between groups—for instance, employer-tied visas may effectively lower immigrants' offer arrival rate $\lambda_M$, while unauthorized status may truncate their offer distribution $F_M$. Our context of "unconstrained assimilation," instead, implies that any differences in job-search parameters between immigrants and natives are *not* driven by immigration regulation. Instead, such differences could stem in this setting from economic forces: weak social networks could imply $\lambda_M < \lambda_N$, and poor local language skills could truncate $F_M$ relative to $F_N$.[20] If present, these mechanisms would further amplify immigrant-native gaps implied by equation (2).

**Job mobility.** Consider a future window of length $s > 0$ starting at $\tau$ units of search time since entry. Conditional on a wage $W_\tau = w$, the probability of receiving an offer that would induce a job switch is given by $Pr(\text{switch } \tau; s | W_\tau = w) = 1 - \exp(-\lambda s[1 - F(\frac{w}{b})])$. The unconditional probability of switching is

$$Pr(\text{switch } \tau; s) = \mathbb{E}(1 - \exp(-\lambda s[1 - F(\tfrac{W_\tau}{b})])) \approx \lambda s\, \mathbb{E}(1 - F(\tfrac{W_\tau}{b})), \tag{3}$$

where the approximation follows from a first-order Taylor expansion for small $s$. Combining equations (2) and (3), we can conclude that

$$\frac{\partial}{\partial \tau} Pr(\text{switch } \tau; s) < 0. \tag{4}$$

That is, the group that has searched longer (i.e., natives) has a thinner tail of acceptable offers above their current wage, leading them to be less mobile than workers who have been working for a shorter period of time.

Note that immigrants may be more mobile than natives even at the same wage level, a pattern we document later in the paper. Switching and moving costs—omitted from the basic framework—are plausibly lower for immigrants who are more "footloose," lacking strong geographic attachments (Abramitzky et al., 2021). A greater willingness or ability to move could translate into higher rates of job mobility.

[19] In Section 4.2 below, "years since arrival in Israel" is the empirical analogue of $\tau_M$ for immigrants. For immigrants who arrive beyond labor-market-entry age, $\tau_M$ will be smaller than their similarly aged native counterparts' $\tau_N$ (potential labor market experience).

[20] While immigration regulations did not apply, FSU immigrants in Israel did find initial barriers in terms of being able to obtain occupational certifications they held back in the FSU.

**Within-firm gaps.** Low wealth, weak social networks, and poor language skills would all point towards lower outside options and bargaining power for immigrants relative to natives. Consider then the case where $b_N > b_M$ and, as such, holding $p$ fixed, $w_N(p) > w_M(p)$. This leads to within-firm wage gaps, which arise more broadly in search models where wages are individualized (Postel-Vinay and Robin, 2002; Cahuc et al., 2006). Our findings on within-firm wage gaps can be interpreted as, conditional on reaching the same point in the firm-productivity ladder, immigrants commanding lower wages due to worse bargaining power and outside options (see Card et al., 2016, for such an interpretation of within-firm gaps in an AKM framework).

**Non-pay amenities.** Consider a search framework such as Sorkin (2018) where firms offer a bundle of wage and amenities. If immigrants and natives value amenities equally, the logic of equations (2) and (4) applies to non-pecuniary job attributes as well. Due to search frictions and having searched for longer, natives will be employed in higher-amenity firms compared to newly arrived immigrants. Over time, differential mobility of immigrants would narrow this gap.[21] Empirically, we study wages through the AKM framework below, and we study amenities using a revealed-preference employer desirability index later in the paper.

### 4.2 Empirical Native- and Immigrant-Specific Job Ladder Wage Model

Building upon the AKM tradition (Abowd et al., 1999; Card et al., 2018) and its more flexible refinements (Card et al., 2016; Gerard et al., 2021), we interpret our assimilation analyses through the lens of a job ladder wage model featuring years-since-arrival effects and group-specific firm pay premiums:

$$\ln w_{it} = \theta_{A_{it}} + \alpha_i + \psi^{g(i)}_{J(i,t)} + X'_{it}\beta + \varepsilon_{it}, \tag{5}$$

where $\ln w_{it}$ is the log monthly wage of worker $i$ in year $t$, $g(i)$ indexes the group $g$ person $i$ belongs to, $\theta_{A_{it}}$ is a function of years since arrival in Israel (only applicable to immigrants), $\alpha_i$ is a person fixed effect, $J(i,t)$ indexes the firm $J$ person $i$ is employed at during year $t$, $\psi^g_J$ is the pay premium firm $J$ pays to workers of group $g$, $X_{it}$ are time-varying controls (age and time effects), and $\varepsilon_{it}$ is an error term.

There are two groups $g$: natives and immigrants. That is, $g \in \{N, M\}$. Additionally, all empirical analyses are carried out separately for men and women.[22] The model assumes that $\psi^g_J$, the premium firm $J$ pays to workers of group $g$, is constant throughout our sam-

[21] If immigrants and natives value amenities differently, presumably, FSU immigrants with little to no wealth would value relatively more the pecuniary aspect of jobs. This would be consistent with the initial gaps in amenities we find, though not with the later convergence.

[22] The wage equation (5) can be micro-founded through a rent-sharing wage setting model (Card et al., 2016) or a monopsonistic wage setting model (Gerard et al., 2021). According to these models and consistent with Section 4.1, between-firm variation in pay premiums arises from channels related to firm productivity. Instead, within firms, immigrants and natives could face different pay premiums if they have differential bargaining power, outside options, or lower labor supply elasticities. These and related mechanisms are emphasized in recent work on imperfect labor market competition and migration (Dustmann et al., 2024; Adda et al., 2022).

ple period 1991–2019. We view this as a reasonable assumption based on recent evidence showing that firm effects are highly persistent (Lachowska et al., 2023).[23] Moreover, works that document changes in the dispersion of firm pay premiums over time in Germany (Card et al., 2013) and in the US (Sorkin and Wallskog, 2023) find that rising dispersion is largely driven by cohort effects (i.e., changing *composition* of firms), rather than changes in the wage policies of existing firms. The composition channel is accommodated in our framework which naturally allows firm entry and exit. To the extent that the FSU migration wave was followed by a change in the composition of firms, and new firms had different wage policies from old firms, our wage model would flexibly capture this phenomenon.

***Identification assumptions.*** Consistent estimation of the parameters in equation (5) using OLS requires a conditionally exogenous mobility assumption to hold (see Card et al., 2016, for a detailed discussion). This assumption amounts to $\varepsilon_{it}$ being conditionally independent of employer transitions. Card et al. (2013), Card et al. (2016), Macis and Schivardi (2016), Gerard et al. (2021), and Song et al. (2019) carry out a variety of tests indicating that, reassuringly, administrative data from Germany, Portugal, Italy, Brazil, and US are consistent with the exogenous mobility assumption.[24] In Section 5.2 below, we provide evidence on similar tests—following Card et al. (2013, 2016)—applied to our dataset and group-specific model.

Note that the gradual sorting of migrants into higher-paying firms as their time in Israel increases does not pose a threat to identification since we explicitly condition on time since arrival in Israel. Similarly, sorting based on time-invariant worker characteristics (e.g., higher-ability workers matching with high-paying firms) does not pose a threat thanks to the inclusion of worker and firm fixed effects.

***Age, year, and time-since arrival effects.*** In models featuring person and year fixed effects, age effects cannot be identified without restrictions due to the well-known cohort-age-time identification problem. We thus follow Card et al. (2013) and allow for a wage profile that flattens at age 40.[25] In our setting we face the additional challenge of identifying years-since-arrival effects, $\theta_{A_{it}}$, for immigrants. We are able to estimate unrestricted years-since-arrival effects by assuming common time and age effects for immigrants and natives. I.e., we assume in equation (5) that the parameter $\beta$ is common for immigrants and natives as opposed to being group-specific.

***Normalization of firm effects.*** The firm fixed effects for natives and immigrants in equation (5) are not comparable to each other without a normalization. We follow the literature

[23] In any case, we show that our main result on firm pay premiums assimilation is robust to using a more flexible model that allows time variation in pay premiums. The downside of this more flexible model is that the normalization of firm effects that is needed to compare group-specific premiums (see discussion below) has to be carried out period by period. This procedure could introduce noise and also require additional assumptions about the relative ranking of the restaurant sector over time.

[24] Moreover, Bonhomme et al. (2019) show that, in the context of a more flexible model, modeling firm and worker heterogeneity in a log-additive way is a good approximation.

[25] That is, the age variables we include in the regression are $(age-40)^2$ and $(age-40)^3$.

that estimates group-specific pay premiums (Card et al., 2016; Gerard et al., 2021) and assume that the average pay premium in the restaurant industry is equal to zero for both immigrants and natives in each sex. The logic behind this assumption is that the restaurant sector is *low-paying*, with little surplus to share, and pay premiums there, whether for natives or immigrants, cannot be too high and therefore not too different.[26] Card et al. (2016) provide evidence that aligns with this assumption using Portuguese data on firm value added.

If the normalization assumption were to fail, our estimates of differential pay-setting effects would represent a *lower bound* (in absolute terms) of the true effects, as long as true differential-pay setting in the restaurant sector favors natives over immigrants.[27] Moreover, the projection of immigrant firm effects on native firm effects—another statistic related to differential pay-setting which we estimate and compare to related estimates in the literature—is invariant to this normalization.

## 4.3 Assimilation Statistics

We now interpret through the lens of the wage model (5) a series of assimilation statistics that we later estimate. This analysis provides a systematic way of interpreting the components of different assimilation statistics and how they differ from each other.

### 4.3.1 Overall Wage Gap

The first assimilation statistic compares immigrants' wages to those of natives as a function of immigrants' time spent in Israel, simply adjusting for age and calendar year effects. This assimilation statistic, capturing the overall wage gap, is defined as:

$$G_A^w \equiv \mathbb{E}\left(\ln w_{it} | M_i, A_{it}, X_{it}\right) - \mathbb{E}\left(\ln w_{it} | N_i, X_{it}\right), \tag{6}$$

where $M_i$ and $N_i$ identify immigrants and natives, respectively. Based on equation (5), omitting age and year effects $X_{it}$ for notational simplicity, $G_A^w$ maps into:

$$G_A^w = \underbrace{\theta_{A_{it}}}_{\text{non-firm assimilation}} + \underbrace{\mathbb{E}\left(\alpha_i | M_i, A_{it}\right) - \mathbb{E}\left(\alpha_i | N_i\right)}_{\text{baseline differences}} + \underbrace{\mathbb{E}\left(\psi_{J(it)}^M | M_i, A_{it}\right) - \mathbb{E}\left(\psi_{J(it)}^N | N_i\right)}_{\text{firm assimilation: pay setting and sorting}}. \tag{7}$$

The first term in (7), $\theta_{A_{it}}$, captures the time-since-arrival wage effects for immigrants other than those related to the climbing of the firm ladder (e.g., learning Hebrew). The second term, labeled "baseline differences," captures observed and unobserved time-constant

[26] Figure A3 shows the distribution of industry-level averages of our estimated firm pay premiums for natives and, indeed, the restaurant sector is at the bottom of the distribution. This is also true for the immigrants' distribution (see Figure A9).

[27] Let "true" differential pay setting be defined, following our notation below, as $\theta^T \equiv \mathbb{E}(\psi_j^M - \psi_j^N | M_i)$. Differential pay-setting in the restaurant sector is defined as $\theta^R \equiv \mathbb{E}(\psi_j^M - \psi_j^N | M_i, j \in \text{Restaurant Sector})$. The normalization assumption implies that our estimand is $\tilde{\theta} \equiv \theta^T - \theta^R$, which is equal to $\theta^T$ if $\theta^R$ is equal to zero. Our findings imply $\tilde{\theta} < 0$. If $\theta^R \leq 0$, then we have that $\theta^T \leq \tilde{\theta}$.

differences in wages potential between immigrants and natives. We call the third term—to which we devote much of our subsequent analyses—"firm assimilation," or the gap in firm pay premiums. It captures the difference in the average pay premium received by immigrants and natives, as a function of immigrants' time since arrival in Israel. This term captures both the *differential sorting* and *differential pay setting* channels.

We quantify the overall immigrant-native gap, $G^w_A$, by estimating the following regression:

$$\ln w_{it} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \cdot \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \varepsilon_{it}, \tag{8}$$

where $w_{it}$ is the monthly wage, $M_i$ is a dummy equal to one for FSU immigrants, $\mathbf{1}\{A_{it} = a\}$ are years-since-arrival fixed effects spanning 1–29, and $X'_{it}$ includes time and age effects. The set of parameters $\beta_a$ represents our estimate of $G^w_A$.

### 4.3.2 Within-Firm Wage Gap

The next statistic compares immigrants' wages to those of natives as a function of time spent in Israel, additionally controlling for employers' identity. This assimilation statistic, capturing the *within-firm* wage gap, is defined as:

$$G^w_{A|J} \equiv \mathbb{E}\left(\ln w_{it} | M_i, A_{it}, X_{it}, J(i,t)\right) - \mathbb{E}\left(\ln w_{it} | N_i, X_{it}, J(i,t)\right), \tag{9}$$

where all variables are defined as before and $J(i,t)$ represents the identity of the firm where worker $i$ is employed in year $t$. Based on equation (5) and abstracting from $X_{it}$, $G^w_{A|J}$ maps into:

$$\begin{aligned} G^w_{A|J} = \underbrace{\theta_{A_{it}}}_{\text{non-firm assimilation}} &+ \underbrace{\mathbb{E}\left(\alpha_i | M_i, A_{it}, J(i,t)\right) - \mathbb{E}\left(\alpha_i | N_i, J(i,t)\right)}_{\text{within-firm baseline differences}} \\ &+ \underbrace{\mathbb{E}\left(\psi^M_{J(i,t)} | M_i, A_{it}, J(i,t)\right) - \mathbb{E}\left(\psi^N_{J(i,t)} | N_i, J(i,t)\right)}_{\text{firm assimilation: pay setting only}} \end{aligned} \tag{10}$$

Compared to $G^w_A$ above, differences in person fixed effects in $G^w_{A|J}$ (i.e., "within-firm baseline differences") are defined between immigrants and natives who, in addition to sharing age and year, *also work at the same firm*. To the extent that there is assortative matching between workers and firms, we expect within-firm baseline differences to be smaller than baseline differences. Moreover, the firm assimilation component in $G^w_{A|J}$, relative to that in $G^w_A$, does not include differential sorting, but only differential pay setting. As such, we expect the gap $G^w_{A|J}$ to be narrower than $G^w_A$ due to these two channels.

Note that $G^w_{A|J}$ corresponds to wage gaps, documented by existing literature, which do not account for person fixed effects nor group-specific firm effects (Aydemir and Skuterud, 2008; Pendakur and Woodcock, 2010; Carneiro et al., 2012; Barth et al., 2012; Amior and Stuhler, 2022). The contrast between equations (7) and (10) illustrates what it is precisely—

through the lens of model (5)—that this literature captures when comparing estimates of $G^w_A$ vs. $G^w_{A|J}$. I.e., the difference between $G^w_A$ and $G^w_{A|J}$ does not isolate "the effect of firms" but delivers, instead, a composite of i) differential pay setting, and ii) the difference between unconditional and conditional native-immigrant gaps in average unobserved person effects.

We estimate $G^w_{A|J}$ with the following regression:

$$\ln w_{it} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \phi_{J(i,t)} + \varepsilon_{it}, \tag{11}$$

where $\phi_{J(i,t)}$ are firm fixed effects that are common for immigrants and natives and the set of parameters $\beta_a$ represent our estimate of $G^w_{A|J}$.

### 4.3.3 Firm Pay Premium Gap

The following statistic explicitly focuses on the time-varying difference between firm pay premiums received by natives and those received by immigrants, that is, the "firm assimilation" component present in $G^w_A$:

$$G^\psi_A = \mathbb{E}\left(\psi^M_{J(it)} | M_i, A_{it}, X_{it}\right) - \mathbb{E}\left(\psi^N_{J(it)} | N_i, X_{i,t}\right). \tag{12}$$

We estimate $G^\psi_A$ in two steps. In a first step, we estimate the group-specific AKM model in equation (5) and recover immigrant- and native-specific firm fixed effects. In a second step, we use the estimated firm effects as an outcome variable in the following regression:

$$\widehat{\psi}^{g(i)}_{J(i,t)} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \varepsilon_{it}, \tag{13}$$

where the set of parameters $\beta_a$ represent our estimate of $G^\psi_A$.

***Decomposition: differential pay setting and differential sorting.*** We gain a better understanding of the immigrant-native firm pay premium gap by estimating its decomposition into two components: differential pay setting (within firm) and differential sorting (between firms). Abstracting from $X_{it}$ for notational simplicity:

$$\underbrace{G^\psi_A}_{\text{firm pay premium gap}} = \underbrace{\mathbb{E}(\psi^M_{J(i,t)} - \psi^N_{J(i,t)} | M_i, A_{it})}_{\text{differential pay setting } \textit{(within)}} + \underbrace{\mathbb{E}(\psi^N_{J(i,t)} | M_i, A_{it}) - \mathbb{E}(\psi^N_{J(i,t)} | N_i)}_{\text{differential sorting } \textit{(between)}}. \tag{14}$$

The *differential pay setting* term captures the average within-firm difference in immigrant- vs. native-specific pay premiums, weighted by time-since-arrival-specific immigrant employment. It reflects how different are firm pay policies for immigrants compared to natives and how immigrants, over time, move across firms with varying gaps. The *differential sorting* term captures the time-varying average generosity—when using native-specific firm premiums as a common metric—of firms employing immigrants compared to firms em-

ploying natives. It reflects immigrants' movements across the firm ladder as they spend more time in Israel. Understanding how much of the gap in firm pay premiums is accounted for by each of these two channels is important since they present different root causes, consequences, and potential policy implications.[28]

# 5 Results

## 5.1 Employment and Wages

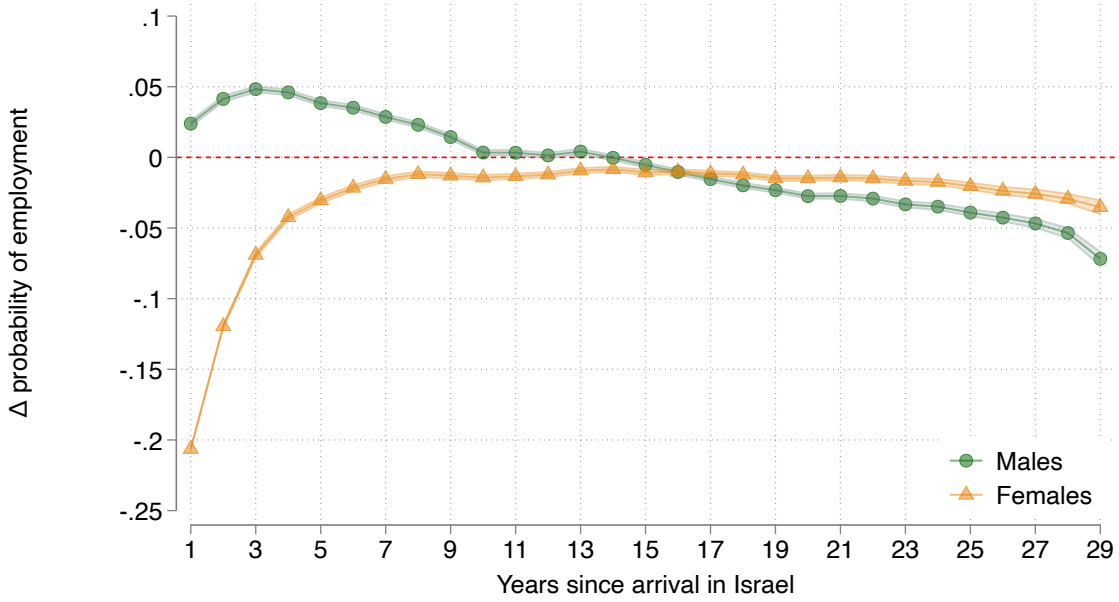
***Employment assimilation.*** Figure 3 shows estimates of *employment* assimilation. Specifically, it displays, separately for males and females, estimates of $\beta_a$ from a regression equation like (8) when the outcome variable, rather than wages, is a dummy equal to one if a person $i$ is employed in year $t$. We are able to estimate employment assimilation thanks to the unusual fact that our administrative data record immigrants' date of arrival in Israel independently from employment status.

These results align with the months-to-first-job distribution documented in Figure 2 and further confirm, for males, the historical narrative on FSU immigrants' being compelled to find jobs in Israel immediately after arrival (Remennick, 2007). Figure 3 shows that during their first nine years in Israel, FSU males were slightly more likely than native males to be employed. Over time the differential decreases and turns slightly negative between years 16–29.

For women, instead, Figure 3 shows that the first few years since arrival featured strong selection into employment. Compared to native females, FSU females' probability of employment was around 0.2 lower one year after arrival. These selection patterns in the earlier years should be kept in mind when interpreting all other results from the paper that are conditional on employment.

[28] One might argue for differential pay setting comparisons that account for occupations. That is, if higher-skilled occupations were to enjoy greater firm pay premiums, differences in $\psi_j^N$ and $\psi_j^M$ could be partly explained by differential occupational sorting within the firm. Our data does not record occupation, preventing us from estimating occupation-specific firm effects and keeping constant occupation when comparing immigrants' and natives' pay premiums. In any case, we argue that this approach would not be desirable due to occupational mismatch. FSU immigrants were more educated than natives and experienced substantial occupational downgrading. If, when faced with equally high-skilled immigrants and natives, some firms assign immigrants to lower-skill occupations while others do not, that is a source of variation that we wish to capture under differential pay setting. I.e., widespread occupational mismatch, which could plausibly vary across firms, is likely a channel through which differential pay setting *manifests itself*, rather than something to control for.

**Figure 3:** Employment Assimilation




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$employed_{it} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \varepsilon_{it},$$

where $employed_{it}$ is a dummy equal to one if a person $i$ is employed in year $t$ and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline employment probabilities: $Pr(\text{employment} = 1|\text{ native males}) = 0.652$ and $Pr(\text{employment} = 1|\text{ native females}) = 0.657$.

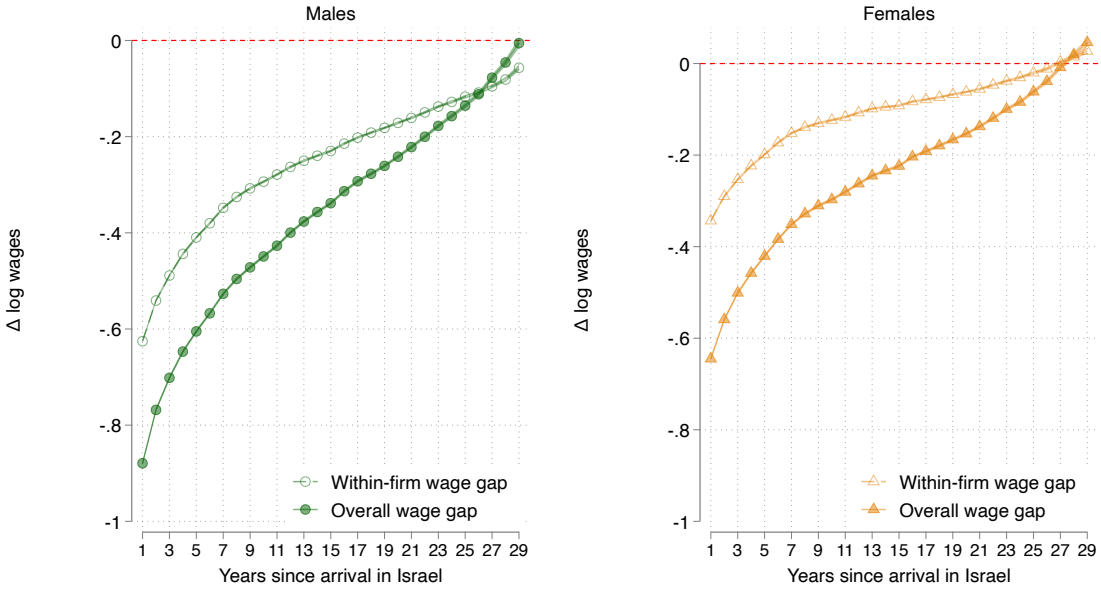
***Wage assimilation.*** Immigrant-native wage gap convergence estimates are shown in Figure 4. The overall wage gap is captured by the estimates of $\beta_a$ in equation (8), while the within-firm wage gap is captured by the corresponding estimates from equation (11). The overall gap among males shows that, on arrival, FSU immigrants earned 57% less than comparable natives (i.e., 0.85 log points). This sizable gap steadily shrinks over time, reaching 43% (0.57 log points) after five years and 19% (0.21 log points) after twenty years. It is only after 29 years since arrival that the gap closes.[29] For females, the initial gap is also sizable but smaller than males' (0.64 log points, equivalent to 47% less than natives). The convergence rate instead is flatter for women, as the female gap is closed roughly around the same time as males' in spite of the narrower initial gap. Figure A4 shows that the key takeaways from these results are very similar when using a more expansive comparison group that includes all Israelis.[30]

[29] Evidently, given the limits in the length of our panel and of working life, the immigrant-native wage gap 29 years after arrival is only identified through FSU immigrants who arrive in 1990 at an age of 30 years or younger. As such, the wage convergence documented in Figure 4 is a combination of (within-person) wage growth and changes in the composition of immigrants. To precisely quantify this distinction, in Section 6, we present estimates of wage convergence that are estimated separately for different groups of immigrants, according to their year of arrival and their age at arrival.

[30] That is, adding Arabs, ultra-Orthodox, and (other) foreign-born to the baseline comparison group that is comprised of Jewish non-ultra-Orthodox natives.

The within-firm gap profile represents the estimates of the statistic $G^{w}_{A|J}$. Once we condition on employers' identity, the wage gap between immigrants and natives is considerably reduced—by as much as 26–30% for males and 41–53% for females during the first ten years. Our analysis in Section 4.3 interprets this reduction as the combination of two forces. First, immigrant-native differences in person effects are likely larger unconditionally than within firm. Second, the overall gap in firm pay premiums (driven by sorting and pay-setting) is greater than the pay-setting component alone. Below, we precisely quantify the relative importance of the sorting and pay-setting channels.

**Figure 4:** Wage Assimilation




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equations (8) and (11). Standard errors clustered at the person level.

## 5.2 Native- and Immigrant-Specific AKM Estimation

We now present several results related to the estimation of the group-specific AKM wage model in equation (5), which we estimate in the dual-connected sample described in Section 3.

***Wage inequality decomposition.*** Table A3 presents a decomposition of the variance of log wages into components attributable to person effects, firm effects, covariates, and their covariances.[31] For males, firm effects explain the same share of the variance for FSU immi-

[31] Plug-in estimators of variance components of AKM parameters suffer from bias due to estimation error (e.g., Kline et al., 2020; Bonhomme et al., 2023). However, note that the main results from this paper—those related to firm pay premiums assimilation and the climbing of the firm ladder—do not suffer from this issue since we compute differences in means instead of quadratic components. Instead, when applicable to other results, we correct for bias in various ways we specify accordingly. In Table A3, we correct for bias using a

grants and for natives (both close to 17 percent). For immigrant and native females, the shares are also similar (13.9 and 14.6 percent, respectively). Person effects instead explain a greater share of wage inequality among natives (58–62 percent) than among FSU immigrants (37–43 percent), which could be due to the barriers to skill portability that highly educated FSU immigrants faced. The correlation between person and firm effects is 0.30–0.32 for FSU immigrants and 0.10–0.11 for natives. We explore differences in assortative matching between immigrants and natives in more detail in Section 5.4.

***Wage changes for job movers and mean residuals.*** Following Card et al. (2013, 2016), we present a check for the identification assumptions underlying equation (5). Figure 5 presents a series of event studies of the wage effects of job changes. Event studies are characterized by the origin and destination firms' wages—Figure 5 uses average coworkers' wage, while Figure A5 shows similar results using instead firm pay premiums estimated in equation (5). In both cases, we assign firms to quartiles and analyze the evolution of wages around the time of a job change, separately for each origin and destination quartile. Figure 5 shows results for workers leaving firms with the lowest-paid (quartile 1) and highest-paid (quartile 4) coworkers. Since our model features group-specific firm pay premiums, we carry out this check separately for immigrants and natives. The group-specific AKM model would indicate that, separately for each group, those who move to a firm with poorly paid coworkers will systematically experience a wage decrease, while those that move to a firm with highly paid coworkers will experience systematic wage increases.

The evidence in Figure 5 supports our AKM specification in (5) and the exogenous mobility assumption.[32] Within each of the four groups of workers, moves within a firm quartile feature rather flat wage profiles, moves from the first quartile to upper quartiles feature systematic wage increases, and moves from the fourth quartile to lower quartiles feature systematic wage decreases.[33] The largest wage increases are experienced by those who move from a firm in quartile 1 to one in quartile 4, while the largest wage decreases are experienced by those making the opposite move. Moreover, wage trends are flat when not changing jobs, and the wage effects around the job change are symmetric—i.e., the gains from moving from quartile 1 to 4 are approximately similar to the losses from moving from quartile 4 to 1.[34] The fact that these patterns also hold for immigrants suggests that the separately additive years-since-arrival effects in equation (5) are a reasonable modeling approach.

split-sample approach similar to Amior and San (2025), described in the table notes.

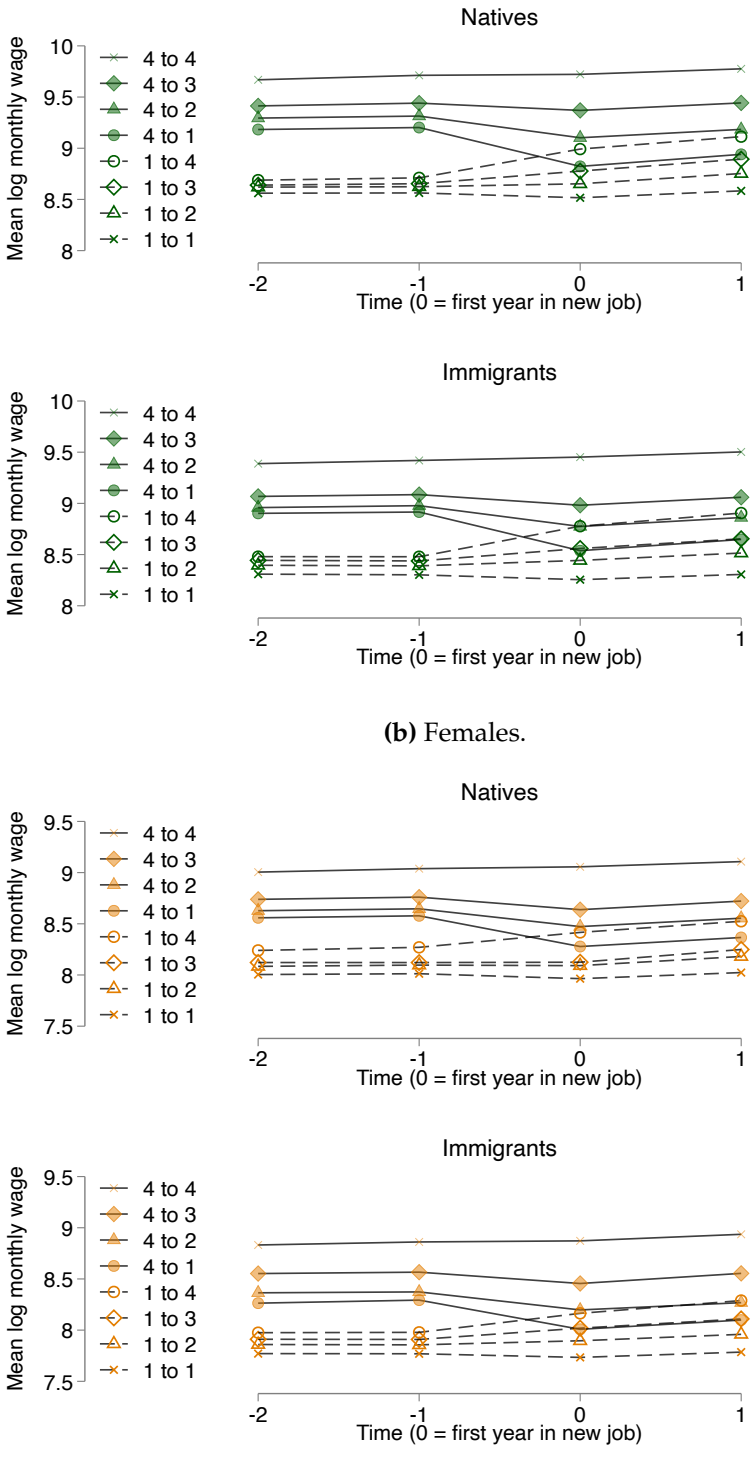
[32] This is also the case for Figure A5, which shows similar results.

[33] We residualized the log wages from year, age, and years since arrival effects, using the estimates from equation (5), before classifying the firms into quartiles and calculating the average wage by group and period. Figure A6 shows evidence on the lack of meaningful pre-trends among the 64 event studies underlying Figure 5.

[34] Figure A7 provides systematic evidence on symmetry, showing that wage changes are approximately symmetric for all four male/female immigrant/native groups.

**Figure 5:** Wage Changes for Job Movers, by Coworkers' Average Wage Quartile

**(a)** Males.




**(b)** Females.

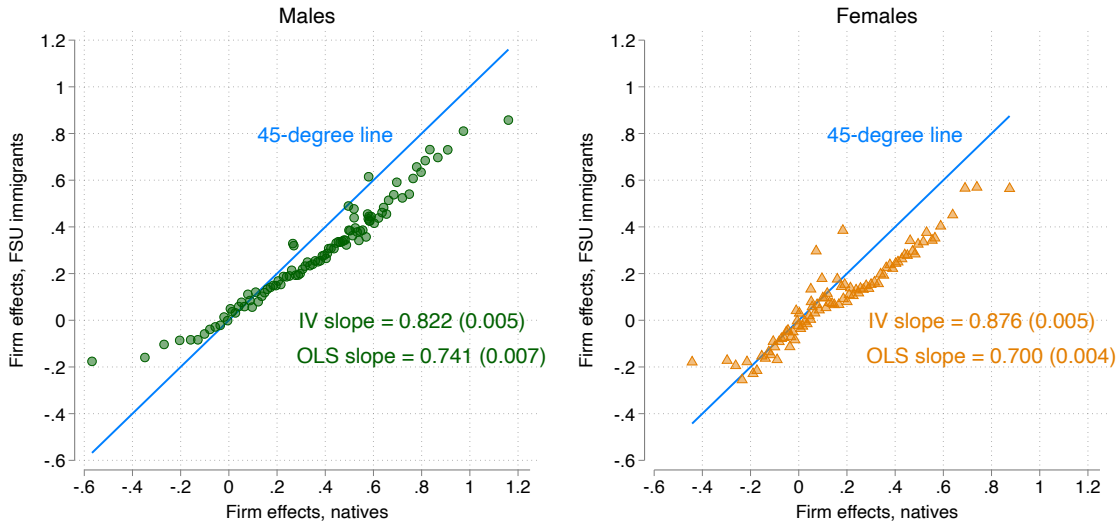



*Notes:* Event studies showing the wage effects of job changes. For any given worker, firms are categorized into quartiles based on the average wage of coworkers. Each point in the figure is the average wage by period, origin, and destination firm quartile, restricting the sample to workers who are employed for at least two years in both the origin and destination firms. This figure shows event studies for workers leaving firms with the lowest-paid (quartile 1) and highest-paid (quartile 4) coworkers. Wages are regression-adjusted using year, age, and years since arrival effects, using the estimates from equation (5), before classifying the firms into quartiles and before computing the average wages that enter event studies.

Figure A8 presents results from another common AKM diagnostic check, plotting the average wage residual in each of 100 cells of firms and workers deciles according to the firm effects and person effects in equation (5). For each of the four groups of workers, the 100 averages are very small, all of them well below 0.01 log points.[35] This is typically interpreted as evidence in favor of the separability assumption of worker and firm effects.

***Immigrant-specific and native-specific firm pay premiums.*** Figure 6 plots the relationship between $\hat{\psi}_j^M$ and $\hat{\psi}_j^N$, i.e., immigrant- and native-specific pay premiums estimated in equation (5). The horizontal axis groups firms into 100 equally sized bins, according to the value of $\hat{\psi}_j^N$. For each bin, on the vertical axis, the figure plots the average value of $\hat{\psi}_j^M$. Pay premiums for immigrants and natives are highly correlated, suggesting that, on average, firms that pay higher wages to natives also pay higher wages to immigrants. However, the IV slopes (which address attenuation bias) are equal to 0.82 for males and 0.88 females, far below 1. This implies that if an immigrant moves to a better-paying firm (according to natives' pay), on average, they will only benefit from 82%–88% of the (native) pay premium rise. Moreover, pay premiums for immigrants are typically lower than those for natives, as evidenced by most points being below the 45-degree line. We turn back to these patterns in more detail below, when we decompose the firm pay premium gap into differential pay setting and differential sorting.

**Figure 6:** Correlation Between Immigrant-Specific and Native-Specific Firm Pay Premiums




*Notes:* This figure plots means of the immigrant-specific ($\hat{\psi}_j^M$) and native-specific ($\hat{\psi}_j^N$) firm fixed effects. The 100 bins (with an equal number of native person-years) of firm pay premiums are based on native firm effects. "OLS slope" gives the OLS estimate and standard error of $\pi$ in equation (15), estimated using the full sample of FSU person-years. "IV slope" gives the corresponding IV estimate and standard error that adjusts for attenuation bias, using the firm effects of native females as instrument for the firm effects of native males, and vice versa.

[35] Figure A8 uses the same scale as Card et al. (2013) for comparison purposes. Unlike Card et al. (2013), we do not find evidence of greater residuals for observations in the bottom deciles of firm and worker effects. This suggests that, in our setting, the AKM framework also holds well for low-paying firms and low-wage workers.

Figure A9 plots the correlation between the two sets of fixed effects grouping firms according to their industry, weighting industry bins proportionally to the number of worker-year observations. The main takeaways are the same as before, although the industry-based correlation is slightly lower for females compared to males.

***Group-specific pay premiums and time since arrival.*** We now explore how the correlation between immigrant- and native-specific firm effects documented above varies as a function of immigrants' years since arrival in Israel, due to immigrants' job mobility. We do so by estimating the following equation using data on FSU immigrants:

$$\hat{\psi}^{M}_{J(i,t)} = \pi \cdot \hat{\psi}^{N}_{J(i,t)} + X'_{it}\beta + \nu_{it}, \tag{15}$$

where $\hat{\psi}^{M}_{j}$ and $\hat{\psi}^{N}_{j}$ are recovered from estimating equation (5) and $\pi$ captures the strength of the within-firm similarity of pay premiums. We estimate equation (15) for the pooled sample of FSU immigrants and separately by years since arrival. We account for measurement error by using an IV approach.[36] Figure A10 shows that the pooled IV estimate of $\pi$ is equal to 0.82 and 0.88 for men and women, respectively (the OLS estimates instead are equal to 0.74 and 0.70). When $\pi$ is allowed to vary as a function of years since arrival, we see an increasing gradient, both for men and women. Estimates of $\pi$ one year after arrival are close to 0.7, and they stabilize at around 0.9 for both men and women around 20 years after arrival. This implies that, over time, immigrants move towards firms with pay premiums that are more similar for immigrants and natives. That is, there is evidence of dynamic sorting of immigrants towards firms with lower *gaps* in pay premiums. We present additional evidence on this finding in Section 5.3 below, where we formally decompose the firm pay premium gap into sorting and pay-setting components.

### 5.3 Firm Pay Premiums

Figure 7 ("total gap in pay premiums") shows the firm pay premium assimilation results from the estimation of equation (13), following the two-step procedure outlined above. One year after arrival and relative to comparable natives, FSU immigrants received pay premiums that were smaller by 0.17 log points for males (equivalent to 20 percent of the overall immigrant-native wage gap) and by 0.08 log points for females (equivalent to 12 percent of the overall immigrant-native wage gap). When we average across the first ten years since arrival, the gap in firm pay premiums accounts for 24.1% and 17.2% of the immigrant-native wage gap for men and women, respectively. Gradually, immigrants close the firm pay premium gap with natives. Compared to women, immigrant men face a larger initial gap but greater convergence rates, resulting in gaps closing in comparable time periods: women close the gap 27 years after arrival while males' is almost closed 29 years after arrival.[37]

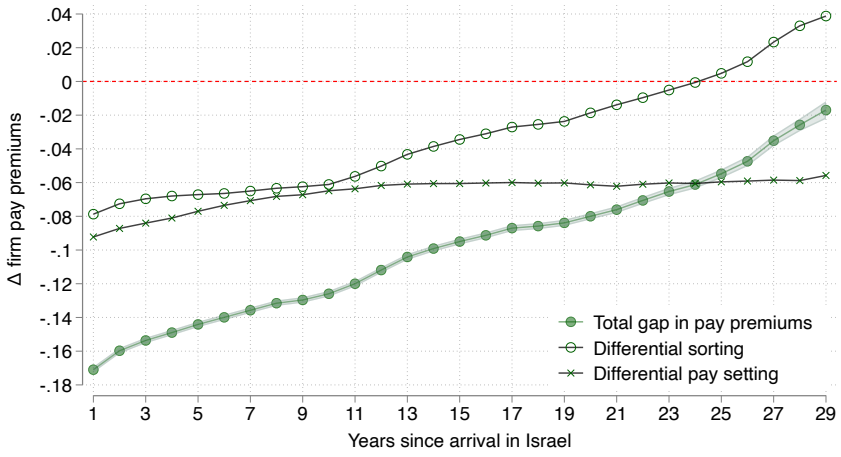
[36] Specifically, we instrument for males' $\hat{\psi}^{N}_{j}$ using females' $\hat{\psi}^{N}_{j}$, and vice versa (Gerard et al., 2021).

[37] As we do for wage convergence, in Section 6, we present estimates of firm pay premiums assimilation that are estimated separately for different groups of immigrants, according to their year of arrival and their age at arrival.

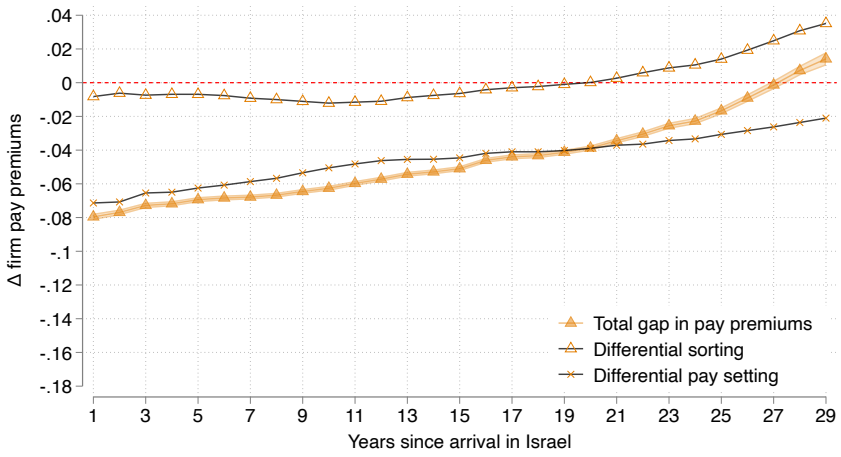
Figure A11 shows equivalent results when using a more expansive comparison group that includes all Israelis—there are some differences in magnitudes (levels for males and convergence rate for females), but the main takeaway is similar. Figure A12 shows that, if firm fixed effects are assumed to be common for immigrants and natives—instead of group-specific—firm pay premium gaps are cut in half and one would conclude that immigrants surpass natives after 14 years in Israel.[38]

**Figure 7:** Firm Pay Premiums Assimilation: Total Gap and Decomposition (Sorting vs. Wage Setting)

**(a)** Males.




**(b)** Females.




*Notes:* Total gap in pay premiums: Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13). Standard errors clustered at the person level. Differential sorting and differential pay setting: Decomposition of the total gap into differential pay setting (within) and differential sorting (between) components, as detailed in equation (14). Each component is residualized using the estimates of $\gamma$ from equation (13).

Figure A13 illustrates what happens to convergence in firm pay premiums when we relax the assumption of constant firm fixed effects over time.[39] Firm pay premium assim-

[38] This difference in magnitudes with our baseline, richer model is another indication of the importance of the differential pay-setting channel, which we precisely quantify in the next section.

[39] In particular, we depart from equation (5) by splitting the data into overlapping decades: 1991–2000, 1996–

ilation results using time-varying fixed effects are very similar to baseline ones. This is especially true for males, for whom the convergence profiles closely overlap. For females, there is almost perfect overlap in the second half of the profile, while the pay premium gaps are somewhat narrower during the initial years in Israel.[40]

### 5.4 Mechanisms: Unpacking the Firm Pay Premium Gap and Convergence

***Differential pay setting and differential sorting.*** Figure 7 shows results from decomposing the firm pay premium gap into differential pay setting and differential sorting components, following equation (14).[41] The key takeaway is that *both* within- and between-firm gaps play an important role in shaping the magnitudes and dynamics of the total immigrant-native gap in pay premiums. On arrival, for males, differential pay setting accounts for 54 percent of the total gap and differential sorting for the remaining 45 percent. For females, on arrival, differential pay setting accounts for the vast majority of the total pay premium gap, 89 percent, while differential sorting accounts for the remaining 11 percent.

The steady convergence in firm pay premiums is driven by different components across time. For males, during the first ten years, differential sorting and pay setting shrink at similar rates, contributing both somewhat equally to the reduction in the total gap. From 11 years in Israel onward, however, differential pay setting flattens out at about 0.06 log points, while sorting convergence accelerates and fully explains the dynamics in the total pay premium gap. In other words, during the initial years, male immigrants gradually access firms that have more equitable pay policies between immigrants and natives *and* pay more overall. In the later years, male immigrants continue to climb the firm ladder as defined by native pay premiums and reap the benefits of these higher premiums, yet at a persistent discount compared to their native coworkers.

For females, the vast majority of the pay premium gap is explained by differential pay setting. The differential sorting gap is very small and constant during the first ten years (possibly due in part to the employment selection documented in Figure 3). During these initial ten years, the shrinking of the female pay premium gap is exclusively driven by the reduction in differential pay setting. From 11 years onward, both sorting and pay setting contribute to the closing of the total pay premium gap.

---

2005, 2001–2010, 2006-2015, and 2011–2019, and estimate equation (5) separately for each decade. That gives us five different fixed effects for each firm and group (natives/immigrants), which we normalize as before, separately for each decade and group. The firm premium assigned to each worker-year observation in Figure A13 is a weighted average of time-varying pay premiums of the decades that include that year according to the formula $1-(|t-D_m|+0.5)/6$, where $t$ is the calendar year and $D_m$ is the middle point of the decade. E.g., the pay premium assigned to an immigrant worker employed in firm $j$ in the year 2002 is equal to $\frac{2}{3}\cdot\widehat{\psi}_j^{M,96-05}+\frac{1}{3}\cdot\widehat{\psi}_j^{M,01-10}$. This approach smooths out firm fixed effects transitions from one year to the next, rather than assuming that they change abruptly with each new decade.

[40] While the time-varying approach is more flexible, we still use as baseline constant firm fixed effects due to the normalization procedure described in Section 4.2—implementing the time-varying fixed effects requires one normalization per decade and group, which could lead to noisy comparisons and would require additional assumptions regarding the stability of pay generosity in the restaurant sector over time.

[41] For consistency with the total gap in pay premiums, which is adjusted for observables $X_{it}$, the decomposition in Figure 7 is carried out after netting out of $X_{it}'\hat{\gamma}$ the differential sorting and differential pay setting components, where $\hat{\gamma}$ are the estimates of $\gamma$ in equation (13).

Based on the importance of differential pay setting, we check what firm characteristics are correlated with the within-firm gap in pay premiums. Table A4 presents results from multivariate regressions where the outcome variable is either $\widehat{\psi}_j^N$ or $\widehat{\psi}_j^N - \widehat{\psi}_j^M$, and explanatory variables are a dummy equal to one if the firm was born in 1990 or later, log firm size, distance to Tel Aviv, a dummy equal one if the workforce is more than 50% FSU immigrants, a dummy equal to one if the firm's highest-paid employee is an FSU immigrant, and a firm desirability index (Sorkin, 2018).[42] Table A4 suggests that $\psi_j^N - \psi_j^M$ is smaller in larger firms, more desirable firms, and firms in which the highest-paid employee is an FSU migrant. Instead, the gap is greater in firms where the majority of the workforce are from the FSU.

***Different immigrant firm pay premiums by time since arrival.*** Since the channels that likely drive the differential pay setting effect could plausibly be more pronounced shortly after arrival, we estimate a more flexible version of equation (5) that allows firm pay premiums to differ across three groups: natives ($N$), immigrants with less than five years since arrival ($M^{<5}$), and immigrants with five or more years since arrival ($M^{\geq 5}$).[43] Figure A14 reports the resulting decomposition of the firm pay-premium gap, and shows patterns that are very similar to the baseline decomposition in Figure 7, with only modest differences in the first few years (and a kink at the five-year cutoff).

***Could differential pay setting be due to hours worked?*** Merging the administrative employment records to the Israeli Labor Force Survey, we check whether differential pay setting in favor of natives could be driven by FSU immigrants working less hours. The evidence is not consistent with this interpretation. Figure A15 shows that, throughout the years-since-arrival support, FSU immigrants report working more hours than natives. FSU immigrants are also less likely to work part-time. We conclude that the employment intensive margin cannot explain the differential pay-setting results.

***Comparison to related wage gap decompositions in the literature.*** We find an important role for differential sorting and differential pay setting. The latter is noteworthy since it implies that gradual access to better firms alone would not close the immigrant-native pay premium gap. Tables A5 and A6 compare our findings to existing related work studying wage gaps through the lens of group-specific AKM frameworks. This literature is commonly summarized as finding that most pay premium gaps are driven by differential sorting instead of differential pay setting.[44] However, Table A5 shows that when focusing on highly educated workers—which many FSU immigrants were—differential pay setting gains importance. For instance, Gerard et al. (2021) report that, in the full sample, pay setting accounts for 17–18 percent of the firm component of the Brazilian racial wage gap; among highly educated workers, pay setting instead accounts for 39–42 percent. Among the highly

[42] We study the firm desirability index in more detail in Section 5.5.

[43] That is, immigrant worker-year observations are classified as $M^{<5}$ for $A_{it} < 5$ and as $M^{\geq 5}$ for $A_{it} \geq 5$.

[44] Buzaglo-Baris (2023) also finds a small role for differential pay-setting when studying the Israeli gender gap, using the same data we use. This suggests that the role of within-firm differences we uncover has to do specifically with immigrants, rather than something broader about the Israeli labor market.

educated in Card et al. (2016)—which focuses on the Portuguese gender gap—pay setting accounts for 39–46 percent of the total firm effects gap. In our context, averaging across the ten first years since arrival, the corresponding percentage is 53 percent for males and 87 percent for females.[45]

Dostie et al. (2023) find that sorting explains most of the immigrant-native firm-effects gap in Canada, while pay setting is small and of the opposite sign (favoring immigrants).[46] This stands in contrast with our findings and those for racial and gender gaps mentioned above, especially among the highly educated. A possible reason for the difference with our context is the selection of Canadian permanent residents in the Dostie et al. (2023) sample (who apply through a points system and presumably have good labor market prospects by design). Another potential reason is Canadian regulation on equal pay for immigrants within the firm.[47] While this regulation applies to temporary workers, not the permanent residents in Dostie et al. (2023), it could still affect within-firm gaps for natives and permanent residents through spillovers: e.g., the fact that a meaningful fraction of permanent residents transition into this status from a temporary worker permit.[48]

Table A6 shows the comparison across studies of the slope parameter in a projection of firm fixed effects for one group on the other (immigrants and natives in our case, see Figure 6). Our slopes of 0.822 and 0.876 (males and females) fall below the slopes of around 0.95 in the Brazilian race gap (Gerard et al., 2021) and 0.987 for Venetian young vs. old workers (Kline et al., 2020); above a slope of 0.77 for German food, cleaning, security and logistics (FCSL) workers vs. non-FCSL workers (Goldschmidt and Schmieder, 2017); and similar in magnitude to the Portuguese gender-gap slope of 0.89 (Card et al., 2016).

***Job search and firm ladder climbing assimilation.*** As opposed to wage assimilation, assimilation in firms' pay premiums can only arise through job search and job mobility. That is, the convergence patterns documented in Figure 7 must be a combination of immigrants changing jobs more frequently than natives and/or taking larger steps up on the job ladder conditional on moving. We now turn to examine these immigrant job mobility patterns, which in our setting are uniquely (i) unrestricted thanks to the institutional context, and (ii) well-recorded immediately since arrival.

Figure 8 shows the roles played by (i) job switching, and (ii) firm ladder climbing conditional on switching jobs. The left panel shows estimates of $\beta_a$ from a regression equation like (8) when the outcome variable, rather than wages, is a dummy equal to one if a person $i$ changes employers between $t-1$ and $t$. FSU immigrants are much more mobile than

[45] As previously discussed, the low importance of differential sorting for FSU women is likely due to the strong selection into employment patterns we document during the first seven years in Israel.

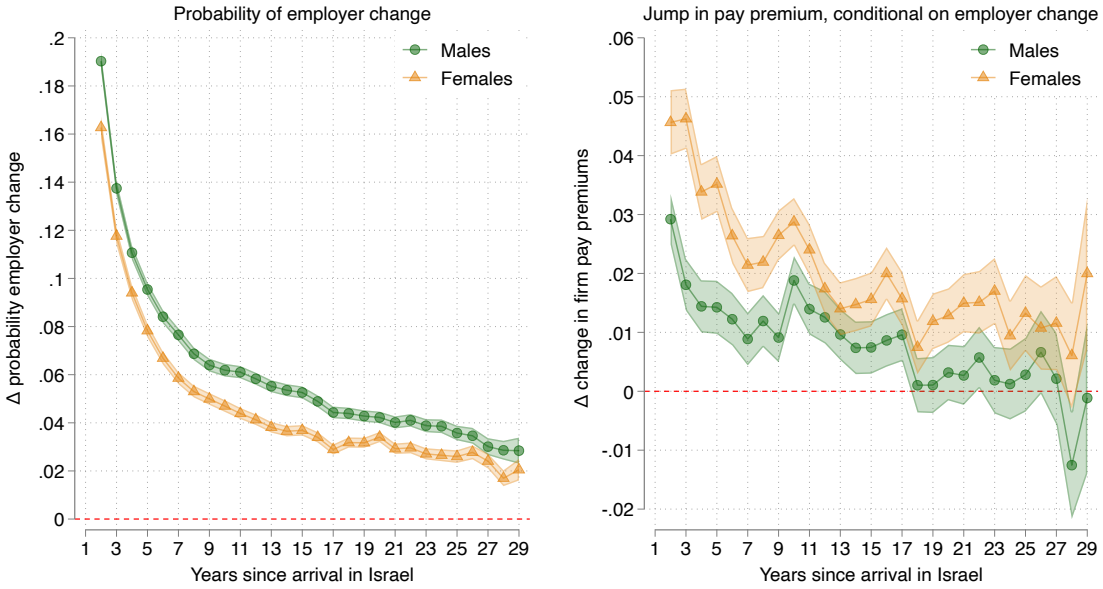
[46] When focusing on highly educated immigrants, differential pay setting becomes more meaningful, as in our context, although it still favors immigrants over natives.

[47] See https://www.canada.ca/en/employment-social-development/services/foreign-workers/permanent/working-conditions.html.

[48] According to the Canadian 2022 Annual Report to Parliament on Immigration, there were 405,999 new permanent residents in Canada in 2021, out of which 168,656 transitioned from a work permit status. See https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/annual-report-parliament-immigration-2022.html.

comparable natives and persistently so. In their second year in Israel, the probability that an immigrant changes employers is 0.16–0.19 higher than that of a comparable native. This differential drops quickly during the first years but it remains positive throughout and equals 0.02–0.03 even 29 years after arrival. Some of the job-switching differential is explained by immigrants' lower pay (as the search framework in Section 4.1 would predict), but most of the gap remains when keeping monthly wages constant (Figure A16).

**Figure 8:** Job Search and Firm Ladder Climbing Assimilation




*Notes:* Left panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$ChangedEmployer_{it} = M_i \cdot \left[\sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\}\right] + X'_{it}\gamma + \varepsilon_{it},$$

where $ChangedEmployer_{it}$ is a dummy equal to one if a person $i$ changed employers between years $t-1$ and $t$, and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline employer change probabilities: $Pr(\text{change} = 1|\text{ native males}) = 0.13$ and $Pr(\text{change} = 1|\text{ native females}) = 0.10$. Right panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$\left(\widehat{\psi}^{g(i)}_{J(i,t)} - \widehat{\psi}^{g(i)}_{J(i,t-1)}\right) = M_i \cdot \left[\sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\}\right] + X'_{it}\gamma + \varepsilon_{it},$$

estimated among the sample of worker-years for whom $ChangedEmployer_{it}$ is equal to one. Standard errors clustered at the person level. Baseline average jump: $\mathbb{E}\left(\widehat{\psi}^{g(i)}_{J(i,t)} - \widehat{\psi}^{g(i)}_{J(i,t-1)}|\text{ native male switchers}\right) = 0.04$ and $\mathbb{E}\left(\widehat{\psi}^{g(i)}_{J(i,t)} - \widehat{\psi}^{g(i)}_{J(i,t-1)}|\text{ native female switchers}\right) = 0.02$.

Immigrants experience large wage returns to mobility. The right panel in Figure 8 shows assimilation estimates when the outcome variable is period-to-period jumps in the job ladder. That is, the outcome of interest is equal to $\widehat{\psi}^{g(i)}_{J(i,t)} - \widehat{\psi}^{g(i)}_{J(i,t-1)}$. Importantly, these profiles are estimated *conditional* on changing employers—that is, restricting the sample to worker-years observations that are firm switchers. Even conditional on changing jobs, immigrants take greater steps up the job ladder than comparable natives. The magnitudes of the dif-

ferential average firm pay premium jump are quantitatively important, ranging between 0.01–0.05 log points during the first 19 years. These differentials persist up until 19 years since arrival for men and 28 years since arrival for women.

Figure 8 illustrates how immigrants are more likely to change jobs than natives and, even conditional on changing jobs, climb the firm ladder faster. Figure A17 shows the combination of these two channels by estimating unconditional differences in pay premium jumps (i.e., for movers and stayers combined). That is, Figure A17 reports the interaction of the forces in the left and right panels in Figure 8. Relative to natives, FSU men are more likely to change jobs than women, yet, conditional on changing jobs, women take greater steps in the job ladder. These two things combined result in a differential expected firm ladder climb that is similar for both genders, as seen in Figure A17.

***Assortative matching and time since arrival.*** Two-way fixed effects wage models such as equation (5) imply that assortative matching—the observed covariance between person effects and firm effects—is a key statistic to consider when aiming to understand wage inequality (Card et al., 2013). How does assortative matching evolve for immigrants as they spend more time in Israel and climb the firm ladder? How does the degree of immigrants' assortative matching compare to natives'? We estimate the following equation:

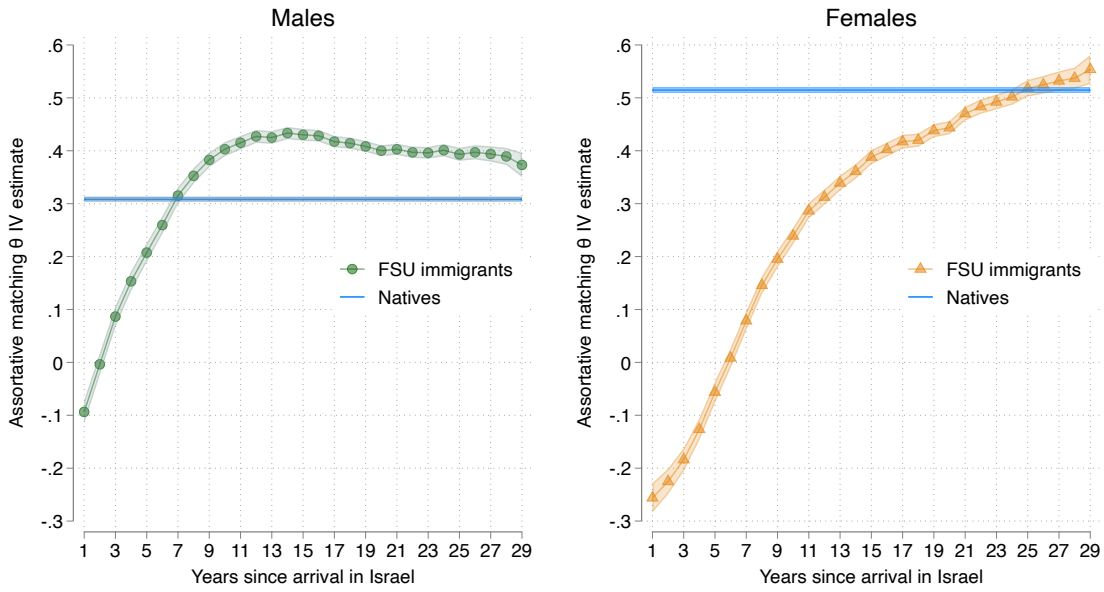
$$\hat{\alpha}_i = \theta \cdot \hat{\psi}^{g(i)}_{J(i,t)} + X'_{it}\gamma + \eta_{it}, \tag{16}$$

where $\hat{\alpha}_i$ and $\hat{\psi}^{g(i)}_{J(i,t)}$ are recovered from equation (5) and $\theta$ captures the degree of assortative matching—it provides the expected change in the person effect associated with an increase in the firm fixed effect. We estimate equation (16) separately for natives vs. immigrants, further separately for immigrants by time since arrival. We follow Gerard et al. (2021) and account for measurement error by instrumenting $\hat{\psi}^{M}_{J(i,t)}$ with $\hat{\psi}^{N}_{J(i,t)}$ and vice-versa.

Figure 9 shows IV estimates of $\theta$ for natives and for immigrants as a function of time since arrival. For immigrant men, there is little assortative matching on arrival, being even slightly negative. This is consistent with low search capital and the hasty acceptance of whatever job was available on arrival. Assortative matching then sharply grows, surpassing the natives' level after eight years in Israel and stabilizing at around 0.4 after ten years in Israel. This implies that the firm ladder-climbing patterns highlighted above are more pronounced for higher-ability immigrants. Female immigrants display negative assortative matching on arrival, which becomes positive after seven years and steadily grows until it catches up with natives' level only after 29 years.[49]

[49] Selection into employment for female immigrants during the early years since arrival could result in negative assortative matching if, shortly after arrival, high-$\alpha_i$ women accept any available job while low-$\alpha_i$ women only do so if an opportunity at a good firm arises.

**Figure 9:** Worker-Firm Assortative Matching: Immigrants and Natives




*Notes:* Point estimates and 95% confidence intervals of assortative matching parameter $\theta$ in equation (16). The equation is estimated separately for natives and for immigrants for each year since arrival. IV estimates which instrument each group's firm pay premium with that corresponding to the other group. Standard errors clustered at the person level.

Figure A18 shows that when splitting Figure 9 by age at arrival in Israel, the overall assortative matching dynamics result from a combination of within-group increases in assortativeness and between group compositional shifts towards younger immigrants. Upon arrival, immigrants from all age groups display lower rates of assortative matching compared to natives, with this gap increasing with age. Additionally, all immigrant age groups experience assortative matching rate increase over time but younger arrivals—in the case of males—surpass the natives' benchmark, while older arrivals never converge to natives.

## 5.5 Employer Desirability and Non-Pay Amenities

We have shown that immigrants gradually access better-paying firms as their time in Israel increases. Evidently, workers value non-pay employer characteristics as well (Maestas et al., 2023). How does the sorting into better-paying firms map into overall firm desirability? Do non-pay amenities exacerbate or attenuate job desirability gaps relative to pay gaps? We estimate and analyze the Sorkin (2018) index of employer desirability to assess the level and convergence patterns of the *immigrant-native gap in employer desirability*.

The Sorkin (2018) index is based on a revealed preferences logic. It assigns greater desirability values to firms that poach a larger number of workers, with even greater desirability attached to destination firms that attract workers from origin firms that are desirable themselves.[50] We estimate Sorkin (2018) desirability values in our data, allowing for group-

[50]Table A7 shows the correlation between the desirability indices and observable firm characteristics.

specific preferences (FSU males, FSU females, native males, and native females).[51] Figure 10 shows the immigrant-native gap in employer desirability, as a function of immigrants' time since arrival in Israel, for two variants of the Sorkin (2018) index. The left panel considers overall desirability, which combines pay and non-pay values. The right panel considers a desirability index net of firm pay premiums (residuals from a regression of a firm's overall desirability index on its AKM pay premium). As such, it represents a measure of firms' non-pay amenities.

The left panel in Figure 10 shows a sizeable initial immigrant-native gap in employer desirability which gradually shrinks and eventually closes after 17 (for women) and 21 (for men) years in Israel. The initial gap for males is equal to 0.62, which corresponds to 0.78 of a natives' standard deviation. Female immigrants experience an even larger desirability gap, which is noteworthy given that the pay premium gap among women is smaller than among men. On arrival, the desirability gap for females is equal to 0.81, which corresponds to 1.14 natives' standard deviation. Another way to understand the magnitude of these gaps is through the estimates of the regression of overall desirability indices on AKM pay premiums. The slope coefficient of this regression is equal to 0.86 for males and 0.12 for females. This implies that one desirability point maps into 1.2 wage log points for males and 8.3 wage log points for females. After closing the gap, immigrants' average employer desirability goes on to surpass those of natives, reaching 29 years since arrival a gap in favor of immigrants equal to around 0.25.

The right panel in Figure 10 shows that, for males, on arrival, the firm desirability gap that keeps pay premiums fixed (i.e., non-pay amenities) is equal to 0.29—equivalent to 0.38 native standard deviations—and it closes 11 years after arrival. For women, the initial gap is equal to 0.67—equivalent to 0.94 native standard deviations—and it closes after 13 years in Israel. Overall, even when firm pay premiums are held constant, there remains an important immigrant-native gap in this measure of non-pay amenities. These gaps are quantitatively meaningful and especially so for immigrant women. However, the gap in non-pay amenities closes much earlier than the gap in firm pay premiums (Figure 7) and goes on to favor immigrants for years since arrival 14–29.[52]

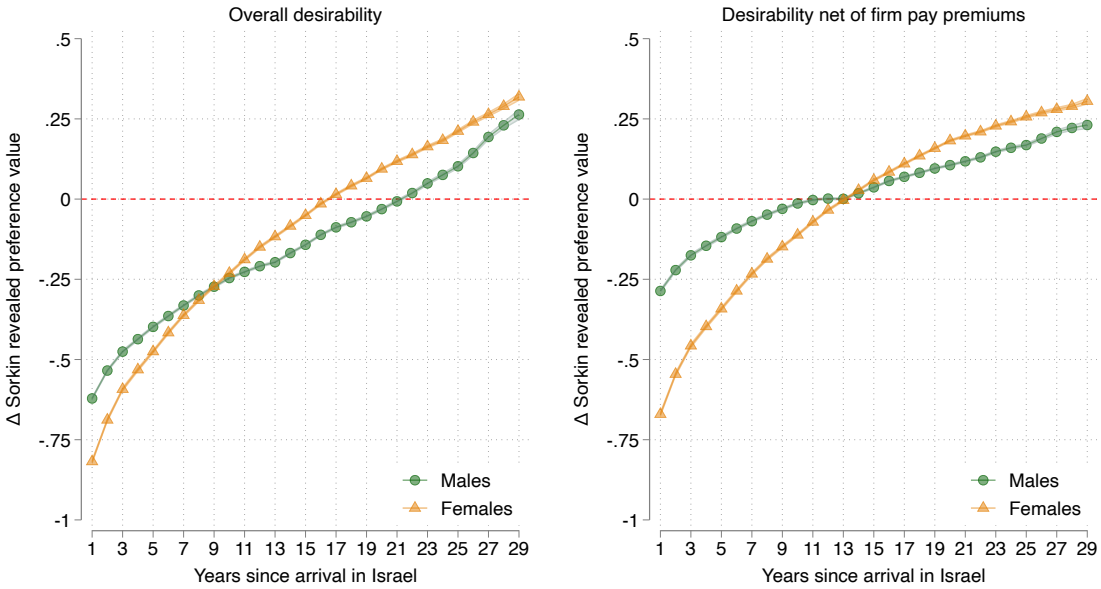
Existing evidence suggests women value non-wage amenities more than men (Sorkin, 2017; Morchio and Moser, 2023), something our data is also consistent with since job desirability is more correlated with pay premiums for men than for women. These works have documented that women are employed in firms with better non-pay amenities, which reduces the gender gap in overall job desirability, relative to the pay gap. In contrast, we find that for immigrants and natives, non-pay amenities *exacerbate* the pay gap during the first ten years since arrival, since immigrants are not only employed at lower-paying firms, but lower-amenity firms too. This suggests that the differential sorting in terms of firm pay we uncover is not the result of a compensating differentials trade-off or a choice of immigrants

[51] The preferences of immigrants and natives are positively correlated, with a correlation coefficient between the desirability indices of immigrants and natives equal to 0.75 for males and females alike. Figure A19 illustrates this correlation, showing binned scatterplots which lie close to the 45-degree line.

[52] Figure A20 shows that if we impose common preferences for immigrants and natives, the firm desirability gap closes much later (22 years for men and over 29 for women).

to work in those firms, but, rather their limited (and improving over time) labor market opportunities and success.[53]

**Figure 10:** Employer Desirability Assimilation




*Notes:* Left panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$Sorkin^{g(i)}_{J(i,t)} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \varepsilon_{it},$$

where $Sorkin^{g(i)}_{J(i,t)}$ is the group-specific Sorkin (2018) firm desirability index (described in the text) of the firm where worker $i$ is employed in year $t$, and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline firm desirability standard deviations: $SD(Sorkin|$ native males$) = 0.80$ and $SD(Sorkin|$ native females$) = 0.71$. Right panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$\widetilde{Sorkin^{g(i)}}_{J(i,t)} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X'_{it}\gamma + \varepsilon_{it},$$

where $\widetilde{Sorkin^{g(i)}}_{J(i,t)}$ is the group-specific Sorkin (2018) firm desirability index residualized of firm pay premiums, and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline firm desirability standard deviations: $SD(\widetilde{Sorkin}|$ native males$) = 0.77$ and $SD(\widetilde{Sorkin}|$ native females$) = 0.71$.

# 6 Discussion: Out-Migration, Immigrant Cohort Effects, and Age-at-Arrival Effects

We now discuss how our results speak to three common themes arising in the literature studying the career paths of immigrants, namely, the role of out-migration, changes in qual-

[53] Appendix B documents immigrant-native gaps and convergence patterns for a series of employer observable characteristics: employer size, age, distance to Tel Aviv, and employment segregation. On arrival and compared to natives, immigrants are employed in smaller, newer, more peripheral, and more segregated firms. Eventually, immigrants close the firm size, new firm, and employer distance to Tel Aviv gaps (this last one is only closed for females).

ity across immigrant arrival cohorts, and age-at-arrival effects.

***Out-migration.*** The baseline wage and firm pay premium assimilation profiles in Figures 4 and 7 pool all FSU immigrants who arrived in Israel between 1990–1999, regardless of length of stay in the country. In principle, part of the observed convergence with natives could be due to negatively selected out-migration (Lubotsky, 2007; Dustmann and Görlach, 2015). Yet, in practice, the immigrant population we study was characterized by low levels of out-migration since the vast majority of them settled in Israel for good.

Exploiting the longitudinal nature of the data, we follow an approach similar to those in Dustmann and Görlach (2015) and Abramitzky et al. (2014), estimating assimilation profiles among the subset of immigrants who were present in Israel 20 years after arrival. We use two different definitions to characterize the subsample of FSU immigrants who are in Israel 20 years after arrival. The first definition includes FSU immigrants who are *residing* in Israel 20 years after arrival. The percentage of FSU immigrants who categorize as stayers according to this definition is 95% for males and 98% for females. The second definition includes FSU immigrants who are *employed* in Israel during their 20th year after arrival.[54] The percentage of FSU immigrants who categorize as stayers according to this definition is 65% for males and 67% for females (these fractions are similar to the fraction of people who are employed in any given year, reported in Figure 3).

Figures A21 and A22 show wage and firm pay premium assimilation estimates for the two samples of stayers, based on the residence and employment definitions. Convergence profiles for these samples are either indistinguishable from (in the case of 'residence stayers') or very similar to (in the case of 'employment stayers') the baseline estimates. These findings reinforce the notion that, in this context, negatively selected out-migration plays no role in the observed immigrant career profiles.

***Immigrant arrival cohort effects.*** It has long been recognized that changes in the skill composition of immigrants across arrival cohorts can be a key factor underlying observed assimilation profiles (Borjas, 1985; Abramitzky et al., 2014). We first follow Abramitzky et al. (2014) and estimate assimilation profiles that add year-of-arrival fixed effects to equations (8) and (13).[55] Results from this exercise are shown in Figures A23 and A24. The inclusion of year-of-arrival fixed effects narrows the immigrant-native gaps in wages and pay premiums. For wages, the new profile in Figure A23 represents a slight upwards parallel shift relative to baseline. This upward shift follows the same direction, although with a smaller magnitude, as found in Abramitzky et al. (2014). For firm pay premiums, Figure A24 shows there is a level and slope difference in the assimilation profile when including year-of-arrival fixed effects, especially so for women.

Our population data and large number of immigrants allow us to go beyond year-of-

[54] This second definition constraints potential stayers to those who arrived in Israel between ages 5–39, so we compare results from this stayers' sample to baseline results that also restrict attention to immigrants arrived between ages 5–39.

[55] We are able to identify these additional fixed effects thanks to our assumption of common year and age effects for immigrants and natives.

arrival fixed effects and estimate richer patterns of immigrant arrival cohort heterogeneity that, in addition to cohort-specific intercepts, allow for cohort-specific slopes. Figures A25 and A26 show *arrival cohort-specific* wage and firm pay premium assimilation profiles. The earlier cohorts, 1990 especially, have better outcomes compared to later ones. This is consistent with the notion that earlier FSU arrival cohorts were more likely to hold a higher education degree or originate from a large city (Remennick, 2007; Abramitzky et al., 2022).

***Age-at-arrival effects.*** We now consider the importance of immigrants' age-at-arrival effects (Friedberg, 1992; Alexander and Ward, 2018; Kerr et al., 2024). Immigrants who arrive before labor market entry could face similar outcomes as natives, especially if they carry out much of their education in Israel. Immigrants who arrive as young adults, around labor market entry age, share with their native counterparts low levels of experience and search capital. Mature immigrant workers are, instead, very different from their native counterparts in terms of accumulated experience in the Israeli labor market. Understanding age-at-arrival effects is also important in our long-panel setting—evidently, our estimates of immigrant-native gaps 29 years since arrival are identified only through immigrants who arrive in Israel young enough to be working 29 years later.

Figures A27 and A28 show estimates of wage and firm pay premium assimilation profiles, separately for immigrants grouped by their age at arrival in Israel. Figure A27 shows that age at arrival is a key determinant of wage assimilation patterns, as initial gaps grow and subsequent slopes become steeper as a function of age at arrival. For instance, among males, wages upon labor market entry of immigrants who arrived between 0–9 years of age are persistently indistinguishable from natives; in contrast, those who arrived between ages 50–59 earn on arrival 70 percent less than comparable natives, and this gap is reduced to 55 percent nine years later (i.e., gap goes from -1.2 to -0.8 log points).

Figure A28 shows that age-at-arrival effects are not very meaningful for firm pay premiums assimilation profiles. However, the temporary lack of convergence for males who arrived between ages 10–29 during their first 5–6 years is noteworthy. As the search framework in Section 4.1 would predict, this could be due to the fact that comparable natives for this group are also labor market entrants experiencing substantial job mobility during those years (Topel and Ward, 1992). After that initial period, however, these young arrival immigrant groups also climb the firm ladder at faster rates than natives and gradually close the firm pay premium gap.

## 7 Conclusion

We have argued that the mass migration of FSU Jews to Israel is a valuable opportunity to gain insights into immigrants' career dynamics that are typically hard to uncover. The opportunity arises thanks to the unique combination of the prevailing historical-institutional context and availability of high-quality administrative data.

Immigrants' labor market choices are typically restricted by law in myriad ways relative

to natives'. From undocumented immigrants, to employment requirements, to high- or low-skill visas that are linked to employers, a variety of immigrants globally face regulatory barriers constraining their job search, employment, and employer choice decisions. In these contexts, even if job mobility were accurately observed, such regulatory barriers would prevent the researcher from identifying the root economic forces and preferences driving immigrants' careers. In our context, we are able to observe immigrants' *unconstrained* labor market choices and assimilation, and do so using unusually good data.

Our key finding is that firms and the climbing of the firm ladder can be a central source of immigrants' labor market integration and success. The degree of wage gains we document in our setting could not have been achieved without immigrants' recurrent employer changes. Beyond the immediate implications of this finding, we note that these patterns could, in this and other related settings, have important aggregate ramifications: the mobility patterns we document can be interpreted as a gradual relocation of a massive amount of labor towards more productive firms (see Bilal et al., 2022).

Finally, our long panel reveals sharp gender differences in both the level and the sources of immigrant assimilation. FSU women face a substantial short-run employment gap and a particularly large initial gap in employer desirability/non-pay amenities. FSU men, instead, face no employment gaps yet start from a larger wage gap. Correspondingly, the firm-driven component of assimilation is driven by different mixes of sorting and within-firm pay setting across genders—patterns that future research could try to better understand.

With regards to labor markets more broadly, our findings on the importance of the *differential pay setting* channel are a relevant addition to the question of how much firms can differentiate their wage policies across different groups of workers. Existing research suggests that the inability to discriminate leads firms to outsource (Goldschmidt and Schmieder, 2017), yet our results suggest that differentiating between immigrants and natives might be feasible to some degree (which is conceptually consistent with immigrants' having less bargaining power and worse outside options). Reaching a precise understanding of when, how much, and for whom firms differentiate wage policies is an important question for future research.

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# - SUPPLEMENTARY APPENDICES -
# For Online Publication Only

# A Additional Tables and Figures

**Table A1:** Summary Statistics, Males

| | Full Sample | | | Separate Connected Sample | | | Dual Connected Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Natives | Immigrants | All | Natives | Immigrants | All | Natives | Immigrants |
| **Worker-years** | | | | | | | | | |
| **N** | 14,184,464 | 11,473,932 | 2,710,532 | 14,049,132 | 11,357,729 | 2,691,403 | 12,004,116 | 9,450,027 | 2,554,089 |
| Salary (2019 Shekels) | 15,425 | 16,464 | 11,026 | 15,468 | 16,515 | 11,048 | 15,943 | 17,217 | 11,229 |
| Age | 39.41 | 38.96 | 41.29 | 39.40 | 38.94 | 41.31 | 39.43 | 38.93 | 41.30 |
| Years since arrival | - | - | 13.77 | - | - | 13.76 | - | - | 13.72 |
| Immigration year | - | - | 1993.08 | - | - | 1993.08 | - | - | 1993.06 |
| Birth year | 1968.02 | 1968.60 | 1965.56 | 1968.03 | 1968.62 | 1965.54 | 1967.82 | 1968.45 | 1965.48 |
| Firm: Size | 3110.48 | 3346.94 | 2109.51 | 3140.40 | 3381.15 | 2124.44 | 3673.36 | 4061.23 | 2238.26 |
| Firm: Age | 13.31 | 13.38 | 13.02 | 13.35 | 13.42 | 13.05 | 14.31 | 14.53 | 13.47 |
| Firm: Immigrant share | 0.13 | 0.09 | 0.29 | 0.13 | 0.10 | 0.29 | 0.14 | 0.11 | 0.26 |
| **Workers** | | | | | | | | | |
| **N** | 1,248,506 | 1,005,521 | 242,985 | 1,225,820 | 987,031 | 238,789 | 1,144,119 | 909,032 | 235,087 |
| Years observed | 11.36 | 11.41 | 11.16 | 11.46 | 11.51 | 11.27 | 10.49 | 10.40 | 10.86 |
| Immigration year | - | - | 1993.27 | - | - | 1993.27 | - | - | 1993.26 |
| Birth year | 1971.13 | 1972.32 | 1966.21 | 1971.11 | 1972.31 | 1966.11 | 1970.96 | 1972.21 | 1966.12 |
| **Firms** | | | | | | | | | |
| **N** | 335,945 | - | - | 317,220 | - | - | 78,597 | - | - |
| Years observed | 6.40 | - | - | 6.43 | - | - | 10.95 | - | - |
| Immigrant share | 0.13 | - | - | 0.13 | - | - | 0.21 | - | - |
| Avge. salary (2019 Shekels) | 10,280 | - | - | 10,347 | - | - | 11,427 | - | - |
| Firm size | 14.33 | - | - | 15.01 | - | - | 44.89 | - | - |
| Firm age | 5.28 | - | - | 5.26 | - | - | 7.39 | - | - |

*Notes*: Number of observations and sample means for worker-years, workers, and firms. "Immigrants" refers to those born in the FSU and arrived in Israel between 1990–1999. "Natives" refers to those who are Israel-born and non-ultra-Orthodox Jews. Firm characteristics are computed using workers' population data before implementing sample restrictions. Firm age is computed using the year in which it first appears in tax records, which is truncated at 1985.

**Table A2:** Summary Statistics, Females

| | Full Sample | | | Separate Connected Sample | | | Dual Connected Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Natives | Immigrants | All | Natives | Immigrants | All | Natives | Immigrants |
| **Worker-years** | | | | | | | | | |
| **N** | 14,126,360 | 11,469,601 | 2,656,759 | 14,032,200 | 11,399,939 | 2,632,261 | 12,493,944 | 9,993,273 | 2,500,671 |
| Salary (2019 Shekels) | 9,600 | 9,969 | 8,004 | 9,619 | 9,988 | 8,022 | 9,859 | 10,288 | 8,146 |
| Age | 39.61 | 39.14 | 41.61 | 39.59 | 39.12 | 41.63 | 39.71 | 39.23 | 41.63 |
| Years since arrival | - | - | 14.37 | - | - | 14.36 | - | - | 14.36 |
| Immigration year | - | - | 1993.07 | - | - | 1993.07 | - | - | 1993.04 |
| Birth year | 1967.96 | 1968.46 | 1965.83 | 1967.97 | 1968.47 | 1965.80 | 1967.77 | 1968.27 | 1965.77 |
| Firm: Size | 12190.00 | 13657.58 | 5854.24 | 12271.76 | 13741.01 | 5908.65 | 13781.09 | 15673.36 | 6219.13 |
| Firm: Age | 15.13 | 15.36 | 14.15 | 15.17 | 15.39 | 14.19 | 15.99 | 16.34 | 14.60 |
| Firm: Immigrant share | 0.11 | 0.08 | 0.26 | 0.11 | 0.08 | 0.26 | 0.12 | 0.09 | 0.23 |
| **Workers** | | | | | | | | | |
| **N** | 1,233,509 | 998,316 | 235,193 | 1,215,521 | 985,208 | 230,313 | 1,163,015 | 936,391 | 226,624 |
| Years observed | 11.45 | 11.49 | 11.30 | 11.54 | 11.57 | 11.43 | 10.74 | 10.67 | 11.03 |
| Immigration year | - | - | 1993.33 | - | - | 1993.32 | - | - | 1993.32 |
| Birth year | 1971.41 | 1972.44 | 1967.03 | 1971.40 | 1972.44 | 1966.93 | 1971.32 | 1972.37 | 1967.00 |
| **Firms** | | | | | | | | | |
| **N** | 278,889 | - | - | 263,988 | - | - | 68,221 | - | - |
| Years observed | 6.39 | - | - | 6.45 | - | - | 11.24 | - | - |
| Immigrant share | 0.14 | - | - | 0.14 | - | - | 0.19 | - | - |
| Avge. salary (2019 Shekels) | 6,844 | - | - | 6,891 | - | - | 7,590 | - | - |
| Firm size | 16.87 | - | - | 17.59 | - | - | 50.63 | - | - |
| Firm age | 5.83 | - | - | 5.83 | - | - | 8.18 | - | - |

*Notes*: Number of observations and sample means for worker-years, workers, and firms. "Immigrants" refers to those born in the FSU and arrived in Israel between 1990–1999. "Natives" refers to those who are Israel-born and non-ultra-Orthodox Jews. Firm characteristics are computed using workers' population data before implementing sample restrictions. Firm age is computed using the year in which it first appears in tax records, which is truncated at 1985.

**Table A3:** Summary of Estimated Group-Specific AKM Models

| | FSU Males | FSU Females | Native Males | Native Females |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| SD of log wages | 0.587 | 0.571 | 0.702 | 0.608 |
| SD of person effects | 0.355 | 0.374 | 0.535 | 0.480 |
| SD of firm effects | 0.240 | 0.213 | 0.286 | 0.233 |
| SD of covariates | 0.245 | 0.252 | 0.268 | 0.285 |
| Correlation of person/firm effects | 0.300 | 0.321 | 0.105 | 0.096 |
| Percentage of log wages variance due to: | | | | |
| Person effect | 36.6 | 43.0 | 58.1 | 62.2 |
| Firm effect | 16.7 | 13.9 | 16.6 | 14.6 |
| Covariance person/firm effect | 14.8 | 15.7 | 6.5 | 5.823 |
| Firm effect + cov. person/firm | 31.5 | 29.6 | 23.2 | 20.5 |
| $N$ person-year observations | 1,170,577 | 1,144,252 | 4,201,424 | 4,532,533 |

*Notes*: Log wage variance decomposition of estimated group-specific two-way fixed effects as outlined in equation (5). Variance bias correction is carried out using a split-sample method. Specifically, we randomly assign workers to two equally sized subsamples (A and B) and estimate the AKM model separately on each subsample (see Amior and San (2025) for the exact splitting algorithm). We then estimate the variance components using cross-sample covariances as follows: the variance of firm effects is estimated as the covariance of firm effects across subsamples A and B; the variance of covariates is the covariance of the corresponding covariate components across subsamples; the covariance of worker and firm effects is the covariance between worker effects estimated in subsample A and firm effects estimated in subsample B; and the variance of worker effects is the covariance between worker effects from subsample A and their counterfactual counterparts implied by subsample B. These counterfactual worker effects are constructed as time-averaged residuals (log wages net of firm effects and covariates) based on the subsample-B estimates.

**Table A4:** Firm Characteristics and Group-Specific Pay Premiums

| | Males | | Females | |
|---|---|---|---|---|
| | $\psi_j^N$ | $\psi_j^N - \psi_j^M$ | $\psi_j^N$ | $\psi_j^N - \psi_j^M$ |
| | (1) | (2) | (3) | (4) |
| =1 if firm birth year $> 1989_j$ | -0.014 | 0.002 | 0.013 | -0.011 |
| | (0.016) | (0.007) | (0.016) | (0.019) |
| Log firm size$_{jt}$ | -0.001 | -0.009*** | -0.003 | -0.012* |
| | (0.007) | (0.003) | (0.006) | (0.007) |
| Distance to Tel Aviv$_j$ | -0.000* | -0.000 | -0.001*** | -0.000*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| =1 if FSU worker share $> 0.5_{jt}$ | 0.027*** | 0.029*** | 0.123*** | 0.023** |
| | (0.009) | (0.007) | (0.022) | (0.010) |
| =1 if highest-paid employee is FSU$_{jt}$ | -0.111*** | -0.051*** | -0.090*** | -0.035*** |
| | (0.018) | (0.009) | (0.021) | (0.012) |
| Desirability index$_j$ | 0.145*** | -0.008** | 0.022** | -0.053*** |
| | (0.009) | (0.004) | (0.009) | (0.006) |
| Adj. $R^2$ | 0.142 | 0.027 | 0.033 | 0.121 |
| $N$ person-year observations | 8,609,964 | 8,609,964 | 8,237,997 | 8,237,997 |

*Notes*: Worker-year-weighted multivariate regressions where the outcome variable is either the native firm pay premium or the within-firm difference in pay premiums for natives and immigrants. The explanatory variables are a dummy equal to one if the firm was born on or after 1990 (time invariant), log firm size as measured by number of employees (time varying), distance to Tel Aviv measured in km (time invariant), dummy equal to one if more than 50% of the workforce is composed of FSU immigrants, dummy equal to one if the highest-paid employee is an FSU immigrant, and the group-specific Sorkin (2018) desirability index. Standard errors clustered at the firm level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

**Table A5:** Comparison of Firm Pay Premium Gaps, Differential Sorting, and Differential Pay Setting

| | | All | | | Highly Educated | | |
|---|---|---|---|---|---|---|---|
| Study | Source | Firm component as % of wage gap | Sorting [*% of (1)*] | Pay Setting [*% of (1)*] | Firm component as % of wage gap | Sorting [*% of (4)*] | Pay Setting [*% of (4)*)] |
| | | (1) | (2) | (3) | (4) | (5) | (6) |
| Card et al. (2016), male effects, female weights | Table III | 21.2 | 14.9 [*70.3%*] | 6.3 [*29.7%*] | 16.1 | 8.7 [*54%*] | 7.4 [*46%*] |
| Card et al. (2016), female effects, male weights | Table III | 21.2 | 19.9 [*93.9%*] | 1.2 [*5.7%*] | 16.1 | 9.9 [*61.5%*] | 6.2 [*38.5%*] |
| Gerard et al. (2021), males | Table 3 | 21.2 | 17.6 [*83%*] | 3.6 [*17%*] | 28.3 | 16.2 [*57.2%*] | 12 [*42.4%*] |
| Gerard et al. (2021), females | Table 3 | 25.2 | 20.2 [*80.2%*] | 4.6 [*18.3%*] | 37.4 | 22.8 [61%] | 14.6 [*39%*] |
| Dostie et al. (2023), all | Table 7 | 14.3 | 16.7 [116.8%] | -2 [-14%] | - | - | - |
| Dostie et al. (2023), US/UK/Northern Europe | Table 7 | - | - | - | 4.5 | -0.3 [*-6.7%*] | 4.8 [*106.7%*] |
| Dostie et al. (2023), other countries | Table 7 | - | - | - | 0 | 10.4 [*NA*] | -9.1 [*NA*] |
| This study, 1–10 years since arrival, males | Figures 4 and 7 | 24.1 | 11.4 [*47.3%*] | 12.8 [*53.1%*] | - | - | - |
| This study, 1–10 years since arrival, females | Figures 4 and 7 | 17.2 | 2.2 [*12.8%*] | 15 [*87.2%*] | - | - | - |

*Notes*: This table shows, for this and related studies, the share of the relevant wage gap that is accounted by group-specific firm effects, and the subsequent decomposition in differential sorting and differential pay setting components. Differential sorting and differential pay setting are expressed in terms of percentages of the wage gap and percentages of the firm component of the wage gap (in square brackets). When possible, computations are reported for the full sample and for highly educated workers. Card et al. (2016) refers to the gender gap in Portugal, Gerard et al. (2021) to the racial gap in Brazil, and Dostie et al. (2023) to the immigrant-native gap in Canada. Highly educated workers are those with a college degree; they represent 15% of females in Card et al. (2016) (Table I), 5.5% of non-whites in Gerard et al. (2021) (Table D5), and 46.5% of immigrants in Dostie et al. (2023) (Table 1). Dostie et al. (2023) only observe education for immigrants, so highly educated in that case refers to highly educated immigrants and all natives. In our context, 24.5% of FSU immigrants held a college degree (in 1996, see Gandal et al., 2004). The native-immigrant wage gap for highly educated US/UK/Northern Europe immigrants in Dostie et al. (2023) is negative (immigrants earn more) so in that row only, positive percentages refer to negative gaps and negative percentages refer to positive gaps.

**Table A6:** Differential Pay Setting: Comparison of Slope Parameter in Projection of Group-Specific Firm Effects

| Study | Source | Slope Estimate | Details | Groups |
|---|---|---|---|---|
| Card et al. (2016) | Figure V | 0.89 | OLS across bins | Males and Females (Portugal) |
| Goldschmidt and Schmieder (2017) | Figure A8 | 0.77 | Split-sample IV | FCSL and non-FCSL (Germany) |
| Kline et al. (2020) | Figure 1 | 0.987 | KSS-corrected | Young and Old (Veneto, Italy) |
| Gerard et al. (2021), males | Figure C7 | 0.964 | Other-gender IV | White and Non-White (Brazil) |
| Gerard et al. (2021), females | Figure C7 | 0.930 | Other-gender IV | White and Non-White (Brazil) |
| This study, males | Figure 6 | 0.822 | Other-gender IV | Immigrants and Natives (Israel) |
| This study, females | Figure 6 | 0.876 | Other-gender IV | Immigrants and Natives (Israel) |

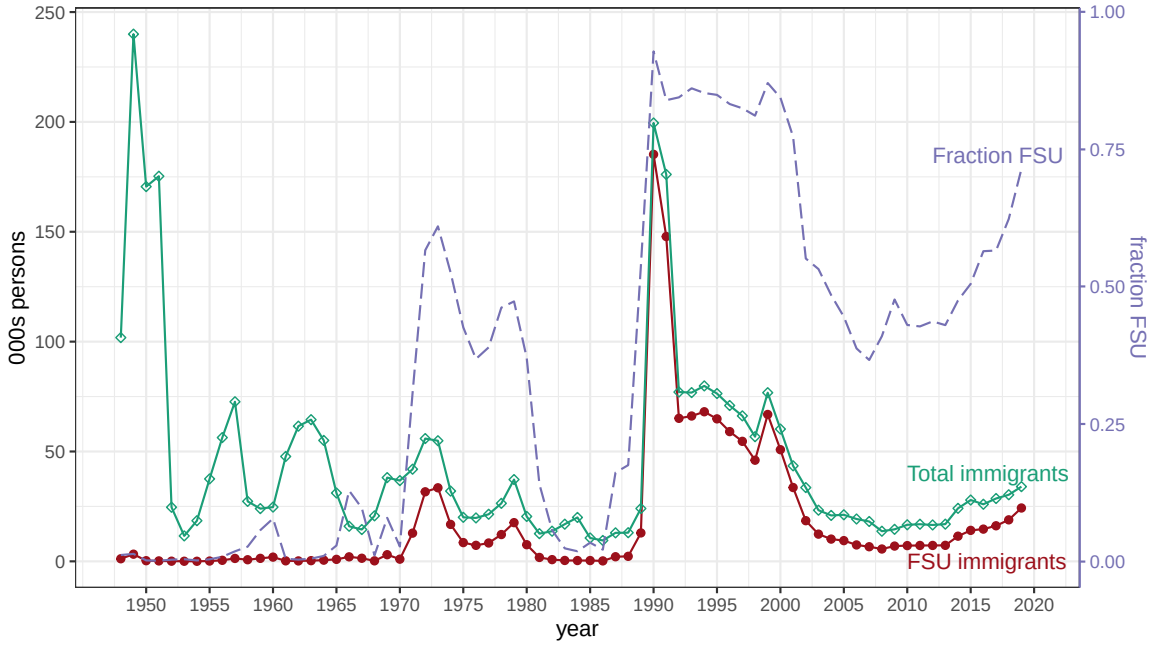
*Notes*: Slope parameter estimates of between-group projections of estimated group-specific AKM firm effects. Related literature (first five rows) and this paper (last two rows). FCSL in the second row stands for food, cleaning, security, and logistics workers.

**Table A7:** Firm Characteristics and Sorkin Desirability Indeces

| | Males | | Females | |
|---|---|---|---|---|
| | $Sorkin_j^{g(i)}$ | $\widetilde{Sorkin^{g(i)}}_j$ | $Sorkin_j^{g(i)}$ | $\widetilde{Sorkin^{g(i)}}_j$ |
| | (1) | (2) | (3) | (4) |
| =1 if firm birth year $> 1989_j$ | 0.265*** | 0.241*** | 0.143** | 0.147** |
| | (0.051) | (0.043) | (0.072) | (0.063) |
| Log firm size$_{jt}$ | 0.048*** | 0.041*** | 0.075*** | 0.071*** |
| | (0.017) | (0.015) | (0.024) | (0.021) |
| Distance to Tel Aviv$_j$ | -0.000 | 0.000 | -0.000 | 0.000 |
| | (0.001) | (0.000) | (0.000) | (0.000) |
| =1 if FSU worker share $> 0.5_{jt}$ | -0.226*** | -0.131*** | -0.308*** | -0.349*** |
| | (0.042) | (0.040) | (0.088) | (0.111) |
| =1 if highest-paid employee is FSU$_{jt}$ | 0.023 | 0.149*** | -0.005 | 0.074 |
| | (0.079) | (0.054) | (0.070) | (0.064) |
| Adj. $R^2$ | 0.147 | 0.156 | 0.128 | 0.129 |
| $N$ person-year observations | 7,788,315 | 7,788,315 | 7,909,298 | 7,909,298 |

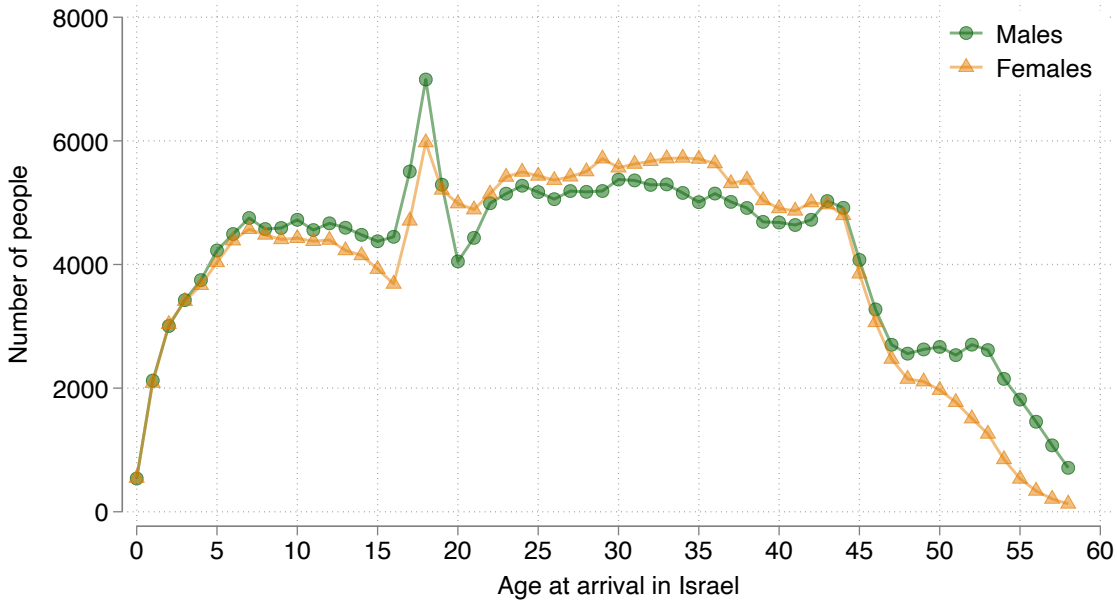
*Notes*: Worker-year-weighted multivariate regressions where the outcome variable is either the group-specific Sorkin (2018) firm desirability index or the group-specific Sorkin (2018) firm desirability index residualized of firm pay premiums. The explanatory variables are a dummy equal to one if the firm was born on or after 1990 (time invariant), log firm size as measured by number of employees (time varying), distance to Tel Aviv measured in km (time invariant), dummy equal to one if more than 50% of the workforce is composed of FSU immigrants, and dummy equal to one if the highest-paid employee is an FSU immigrant. Standard errors clustered at the firm level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

**Figure A1:** Immigration to Israel: 1948–2019




*Notes:* Source is the Israel Central Bureau of Statistics. Total number of immigrants arriving to Israel, and those arriving from the former Soviet Union, by year. Dashed line is the fraction of total immigrants who are FSU immigrants.

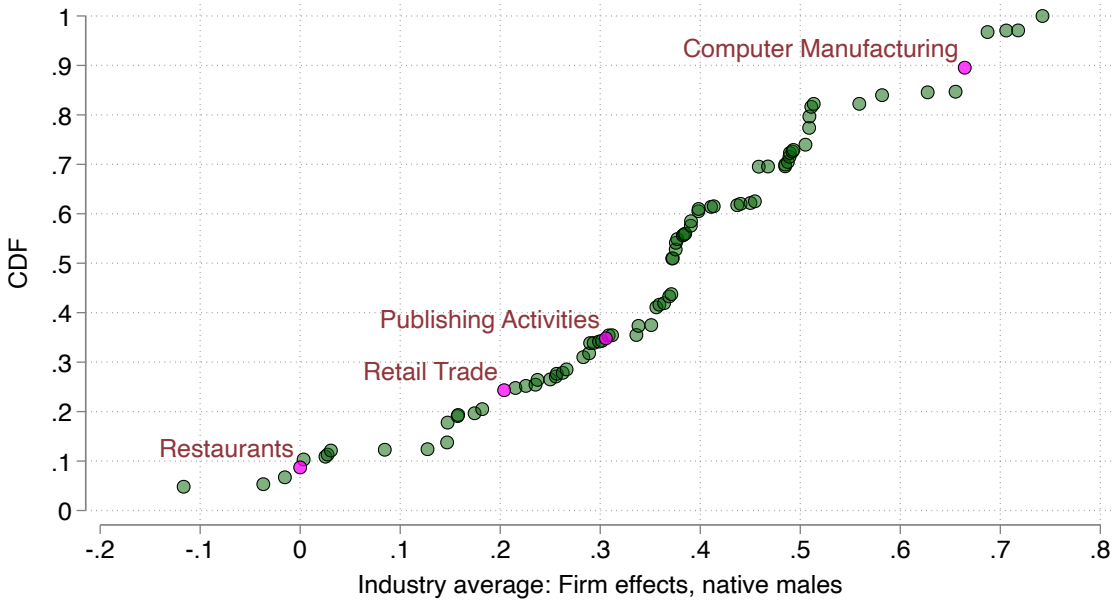
**Figure A2:** FSU Immigrants' Age at Arrival to Israel



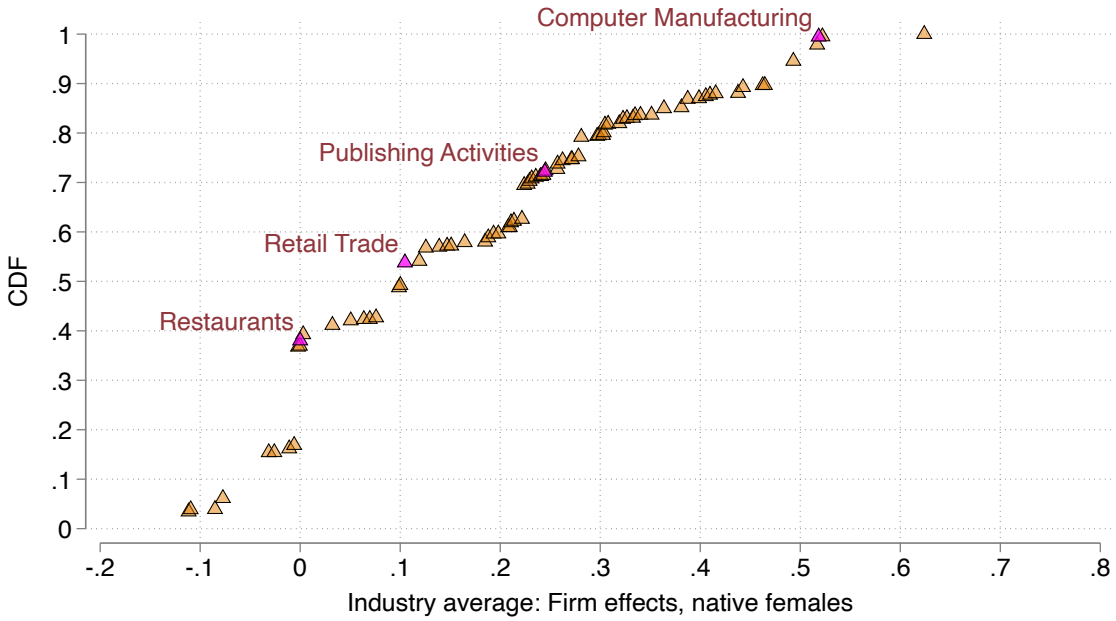

*Notes:* Number of persons in our sample by age at arrival in Israel.

**Figure A3:** CDF of Industry-Level Average Firm Pay Premiums

**(a)** Males.

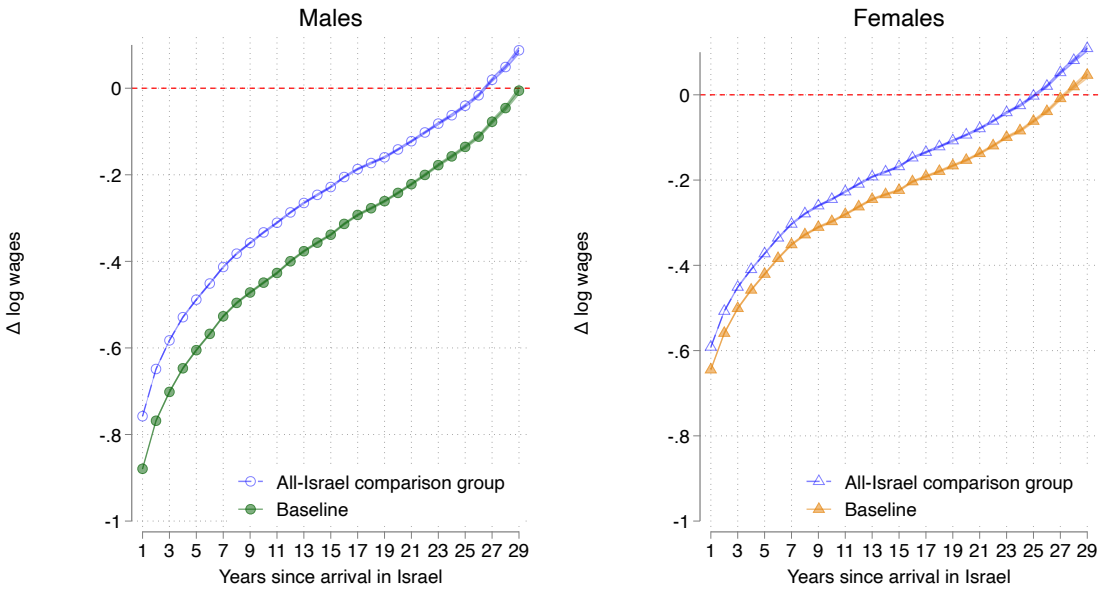



**(b)** Females.




*Notes:* CDF of industry-level averages of firm fixed effects for natives. Pay premiums are normalized such that the average for the restaurant industry is equal to zero.

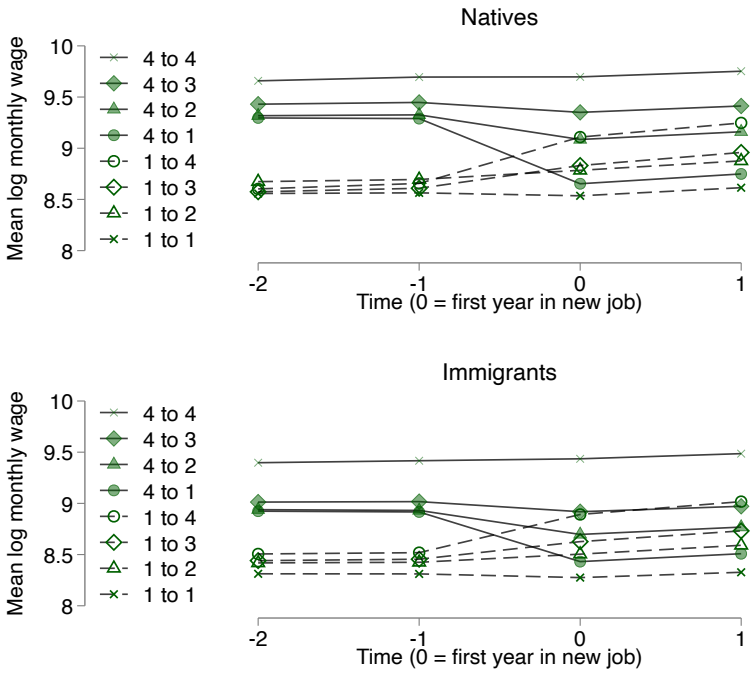
**Figure A4:** Wage Assimilation: All-Israel Comparison Group




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8). Standard errors clustered at the person level. Computed separately among two different samples: (i) Baseline sample, equivalent to Figure 4 in main text, and (ii) all-Israel comparison group, which incorporates all Israelis in the comparison group (i.e., adding Arabs, ultra-Orthodox, and foreign-born to the comparison group, relative to the baseline comparison group).

**Figure A5:** Wage Changes for Job Movers, by Firm Pay Premium Quartile

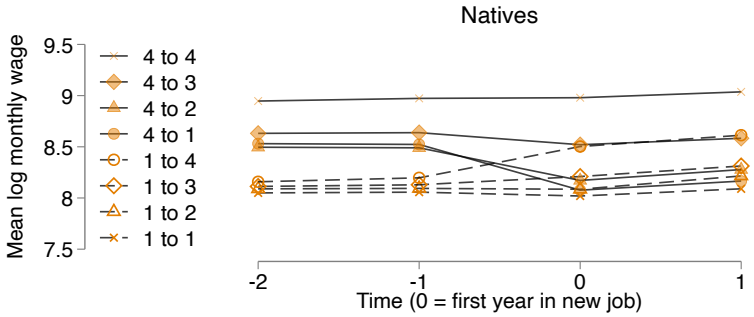
**(a)** Males.

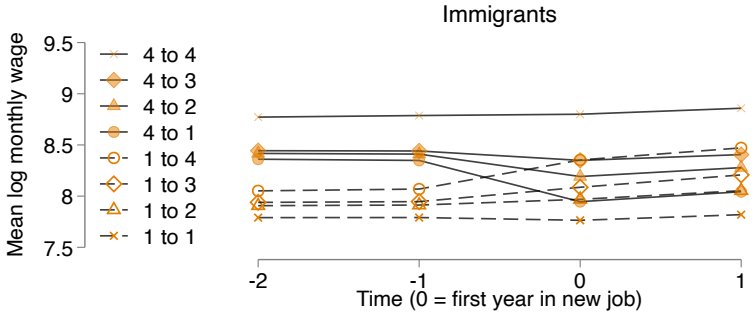






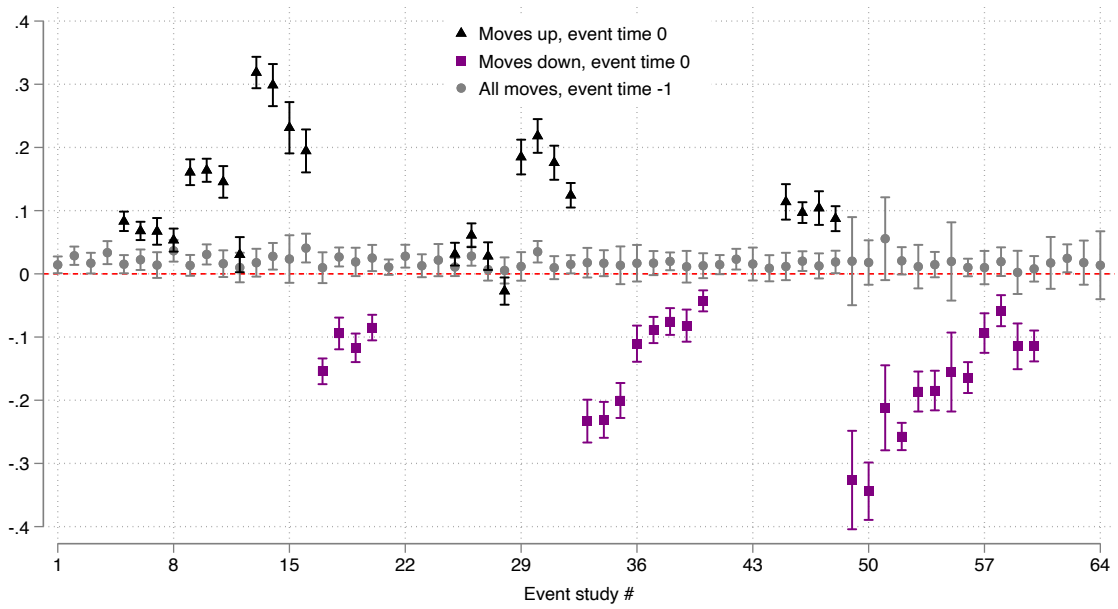
**(b)** Females.



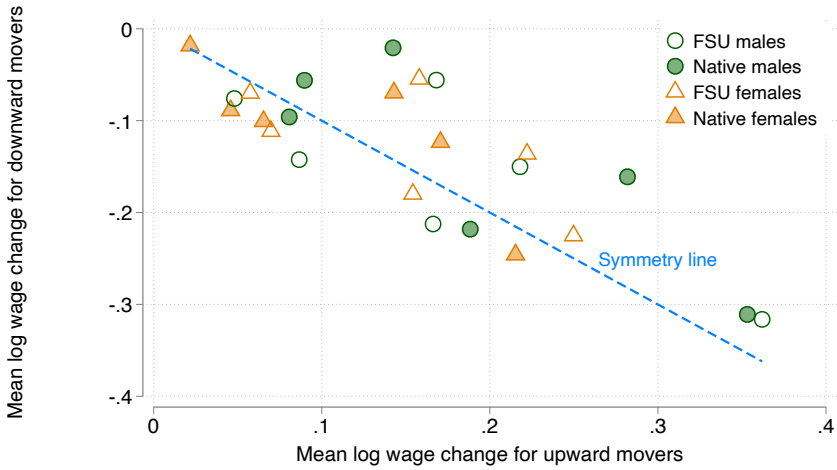

*Notes:* Event studies showing the wage effects of job changes. Firms are categorized into quartiles based on firm fixed effects recovered from equation (5). Event studies are estimated separately for each origin and destination firm quartile, restricting the sample to workers who are employed for at least two years in both the origin and destination firms. This figure shows event studies for workers leaving the lowest-paying (quartile 1) and highest-paying (quartile 4) firms. Wages are regression-adjusted using year, age, and years since arrival effects, using the estimates from equation (5), before classifying the firms into quartiles and before computing the average wages that enter event studies.

**Figure A6:** Event Studies: Estimates and Confidence Intervals



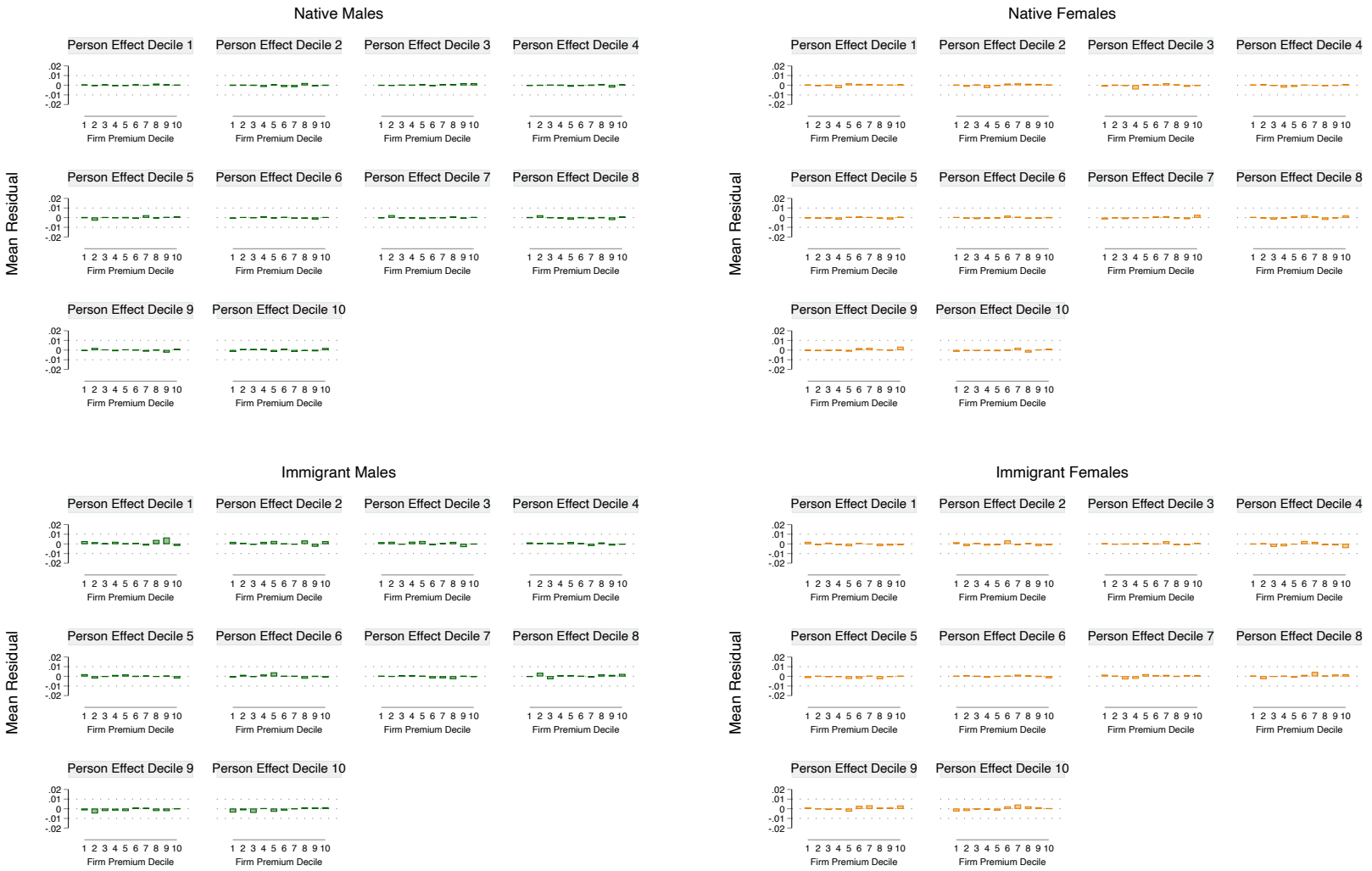

*Notes:* Point estimates and 95% confidence intervals of event-study estimates associated with Figure 5 in the main text. The horizontal axis numbers the underlying 64 event studies (16 possible moves * male/female * immigrant/native). Gray circles represent the estimates and 95% confidence intervals of the event-time=-1 (relative to baseline=-2). Black triangles represent the estimates and 95% confidence intervals of event-time=0 (relative to baseline=-2), among the event studies that involve a move from a lower to a higher firm-wage quartile. Purple squares represent the estimates and 95% confidence intervals of event-time=0 (relative to baseline=-2), among the event studies that involve a move from a higher to a lower firm-wage quartile.

**Figure A7:** Wage Changes for Job Movers, by Coworkers' Average Wage Quartile: Test for Symmetry



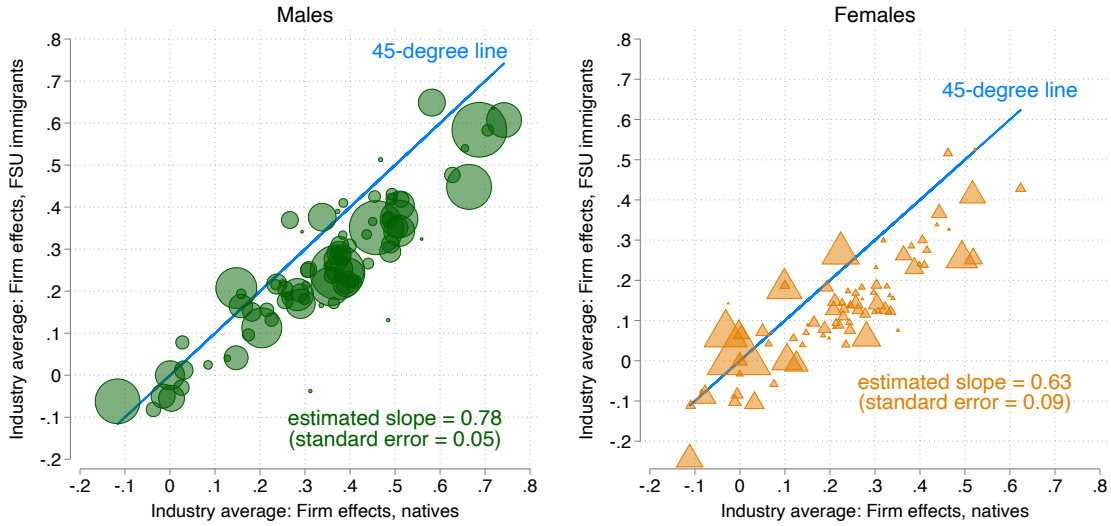

*Notes:* Test for symmetry of wage effects of movements across coworker wage quartiles, presented in Figure 5. The figure plots regression-adjusted (using year, age, and years since arrival effects estimated in equation (5)) mean wage changes over a 4-year interval for job switchers who move across distinct coworker wage quartile groups. That is, any given point displays, on the horizontal axis, the average wage change from moving from firm quartile $q$ to $q'$, where $q' > q$; the vertical axis displays the equivalent average wage change from moving from $q'$ to $q$. Mean wage changes are computed as the difference between the average of periods -2 and -1, and that of periods 0 and 1, in Figure 5. The dashed line represents perfectly symmetric changes for upward and downward movers.

**Figure A8:** Group-Specific AKM Residuals Plot



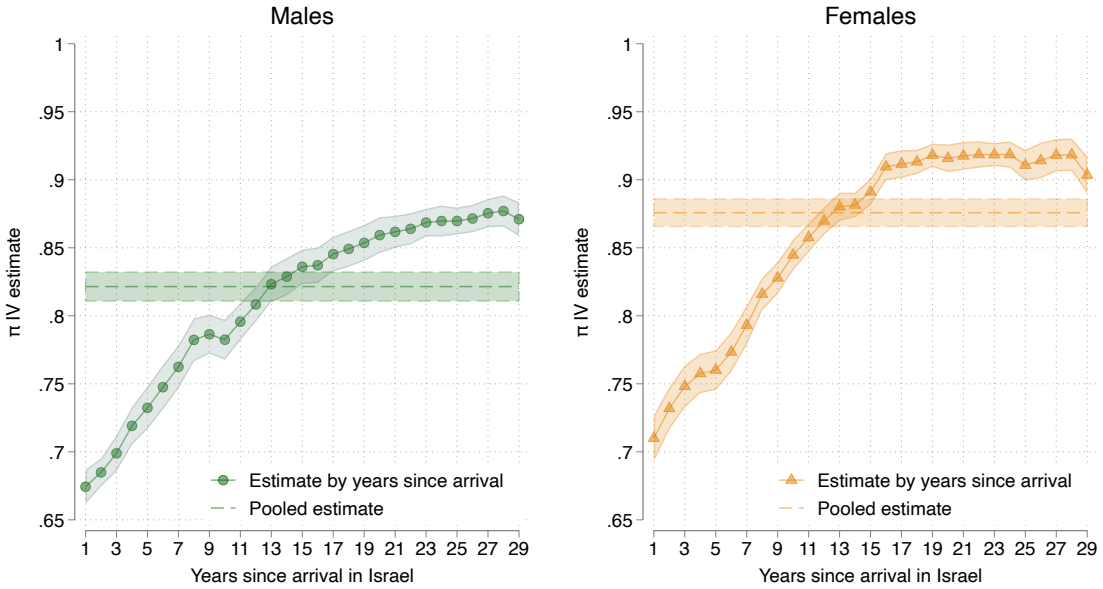

*Notes:* This figure assigns firms to one of ten deciles as a function of their pay premium estimated in equation (5) and workers to one of ten deciles as a function of their person fixed effect estimated in equation (5). For each of the 100 combinations of firm-worker deciles, this figure plots the average residual wage following the estimation of equation (5). The figure uses the same scale as Card et al. (2013) for comparison purposes.

**Figure A9:** Correlation Between Immigrant-Specific and Native-Specific Firm Pay Premiums: Industry Averages



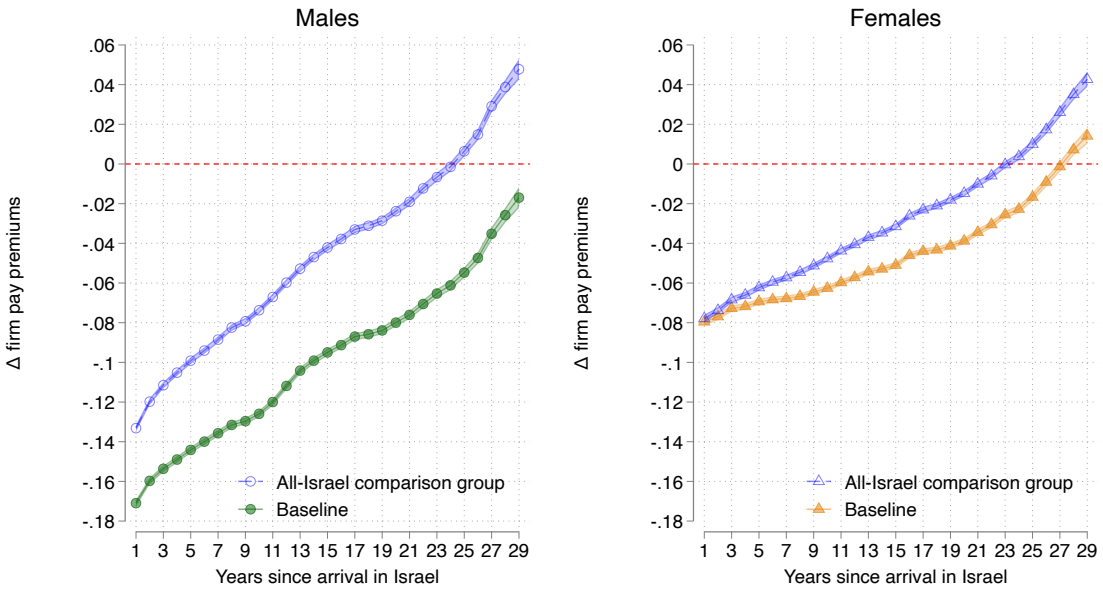

*Notes:* Correlation between immigrant-specific and native-specific firm fixed effects. Industry averages (weighted by person-year observations of natives).

**Figure A10:** Correlation Between Group-Specific Premiums by Time Since Arrival



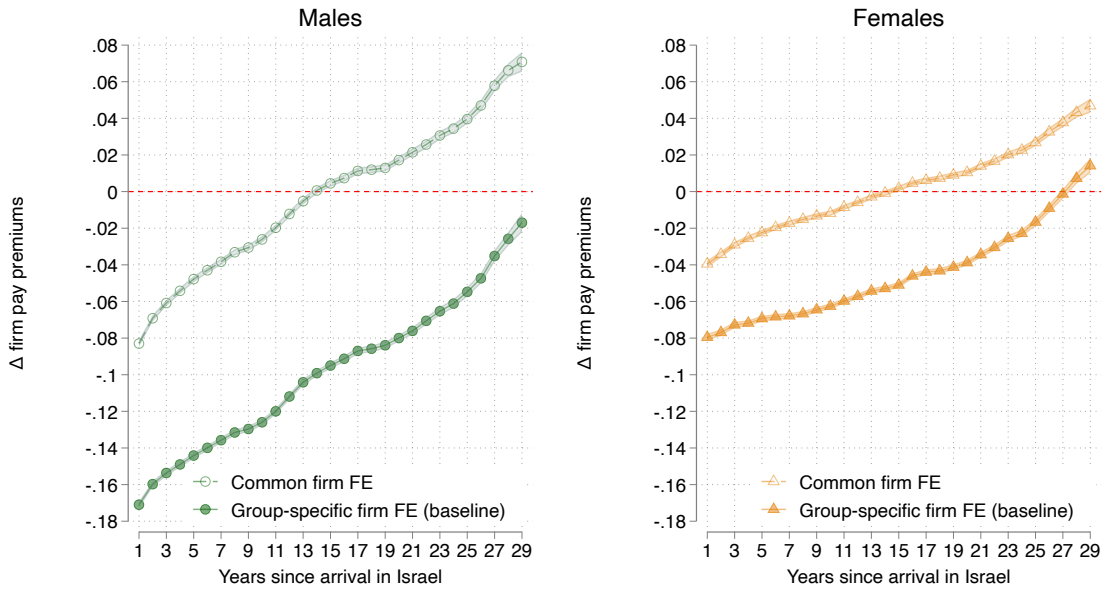

*Notes:* Point estimates and 95% confidence intervals of parameter $\pi$ in equation (15). The equation is estimated for FSU immigrants, for the pooled sample and separately by year since arrival. IV estimates which instrument each group's firm pay premium with that corresponding to the other group. Standard errors clustered at the person level.

**Figure A11:** Firm Pay Premiums Assimilation: All-Israel Comparison Group



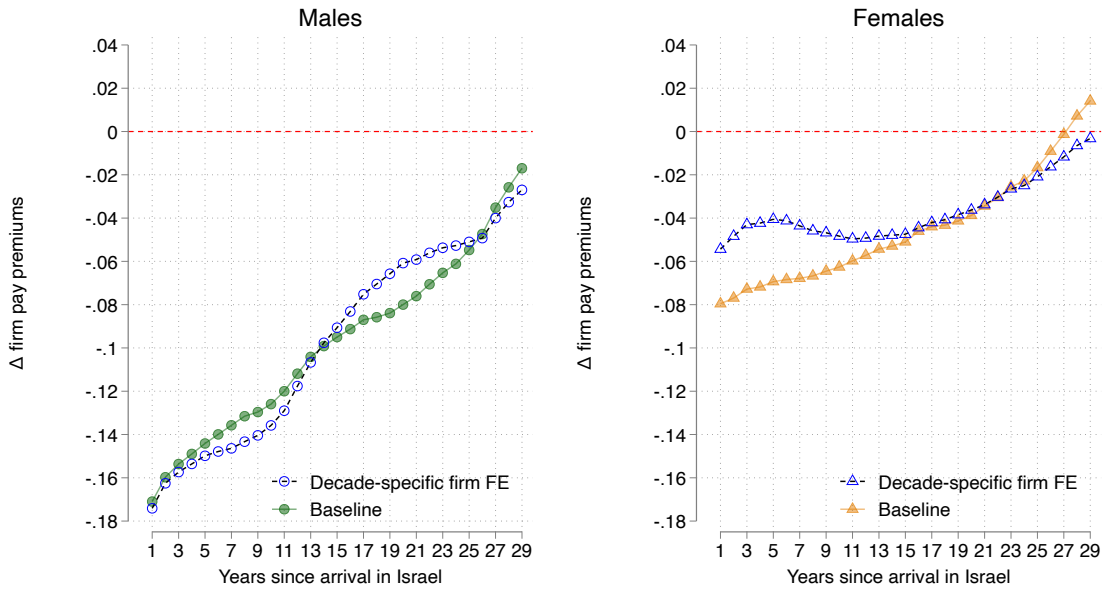

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13). Standard errors clustered at the person level. Computed separately among two different samples: (i) Baseline sample, equivalent to Figure 7 in main text, and (ii) all-Israel comparison group, which incorporates all Israelis in the comparison group (i.e., adding Arabs, Ultra-Orthodox, and foreign-born to the comparison group, relative to the baseline comparison group)..

**Figure A12:** Firm Pay Premiums Assimilation: Comparison of Common and Group-Specific Firm Effects




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13), using two different sets of firm fixed effects. Baseline corresponds to the group-specific firm fixed effects described in equation (5) and results shown in Figure 7. The common firm fixed effects estimates use firm fixed effects estimated from a version of equation (5) that imposes firm effects to be the same for immigrants and natives. Standard errors clustered at the person level.

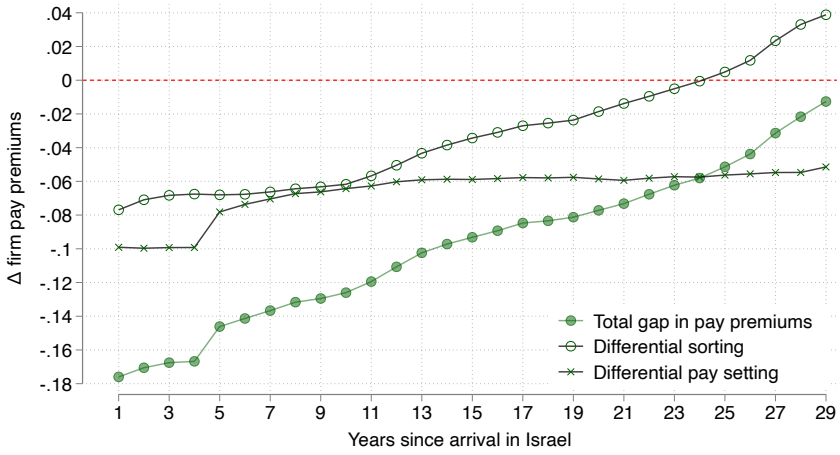
**Figure A13:** Firm Pay Premiums Assimilation: Robustness to Time-Varying Pay Premiums



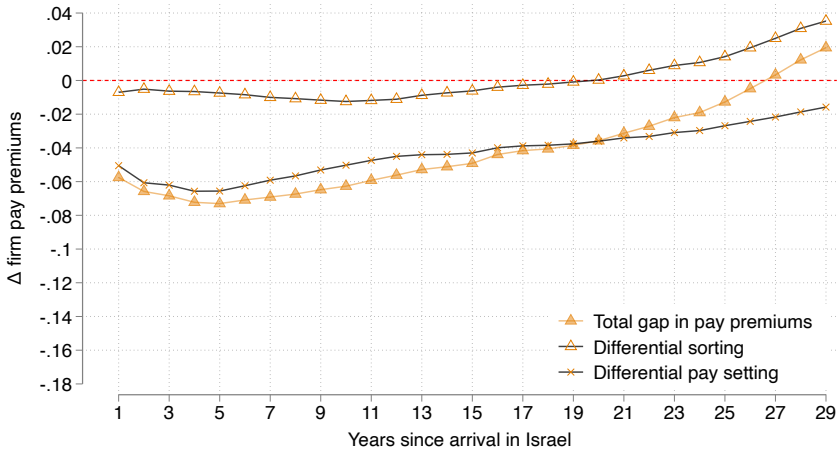

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13), using two different sets of firm fixed effects. Baseline corresponds to the firm fixed effects described in equation (5) and results shown in Figure 7. The decade-specific firm FE estimates use firm fixed effects that are allowed to vary over time. Specifically, we split the data into overlapping decades: 1991–2000, 1996–2005, 2001–2010, 2006-2015, and 2011–2019, and estimate equation (5) separately for each decade. That results in five different fixed effects for each firm and group (natives/immigrants), which we then normalize as before, separately for each decade and group. The firm premium assigned to each worker-year observation is a weighted average of time-varying pay premiums of the decades that include that year according to the formula $1-(|t-D_m|+0.5)/6$, where $t$ is the calendar year and $D_m$ is the middle point of the decade. E.g., the pay premium assigned to an immigrant worker employed in firm $J$ in the year 2002 is equal to $\frac{2}{3} \cdot \widehat{\psi}_j^{M,96-05} + \frac{1}{3} \cdot \widehat{\psi}_j^{M,01-10}$. Standard errors clustered at the person level.

**Figure A14:** Firm Pay Premiums Assimilation: Total Gap and Decomposition with Time-Since-Arrival–Specific Pay Premiums

**(a)** Males.

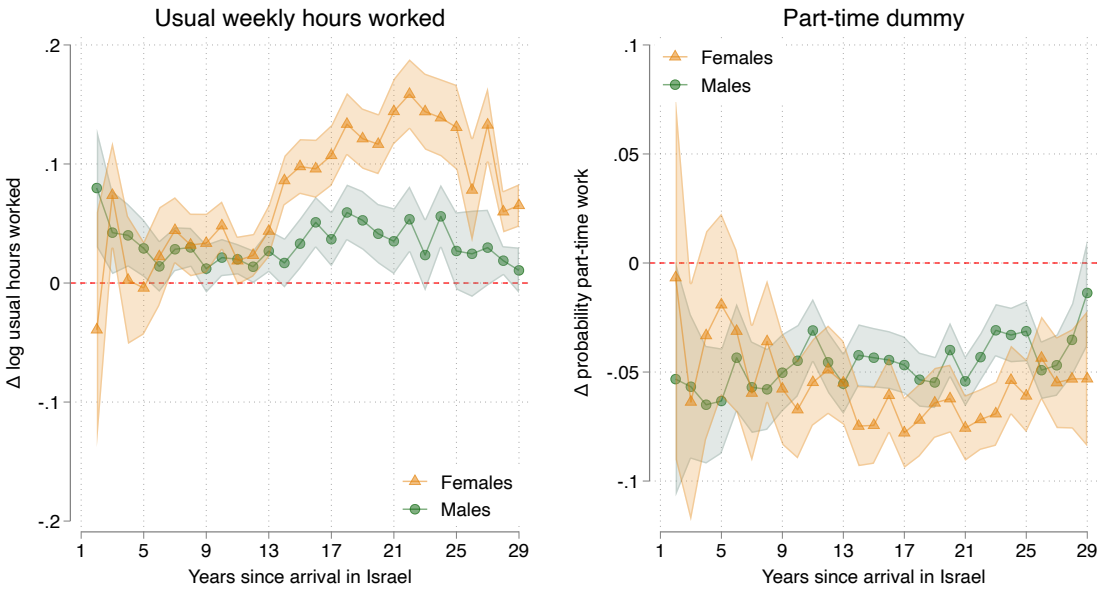



**(b)** Females.




*Notes:* Total gap in pay premiums: Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$, from a version of regression equation (13) that allows firm pay premiums to differ across natives, immigrants with less than five years since arrival, and immigrants with five or more years since arrival. Standard errors are clustered at the person level. Differential sorting and differential pay setting: Decomposition of the total gap in firm pay premiums into differential pay setting (within-firm) and differential sorting (between-firm) components, as detailed in equation (14). Each component is residualized using the estimates of $\gamma$ from the corresponding regression.

**Figure A15:** Immigrant-native differences in hours worked

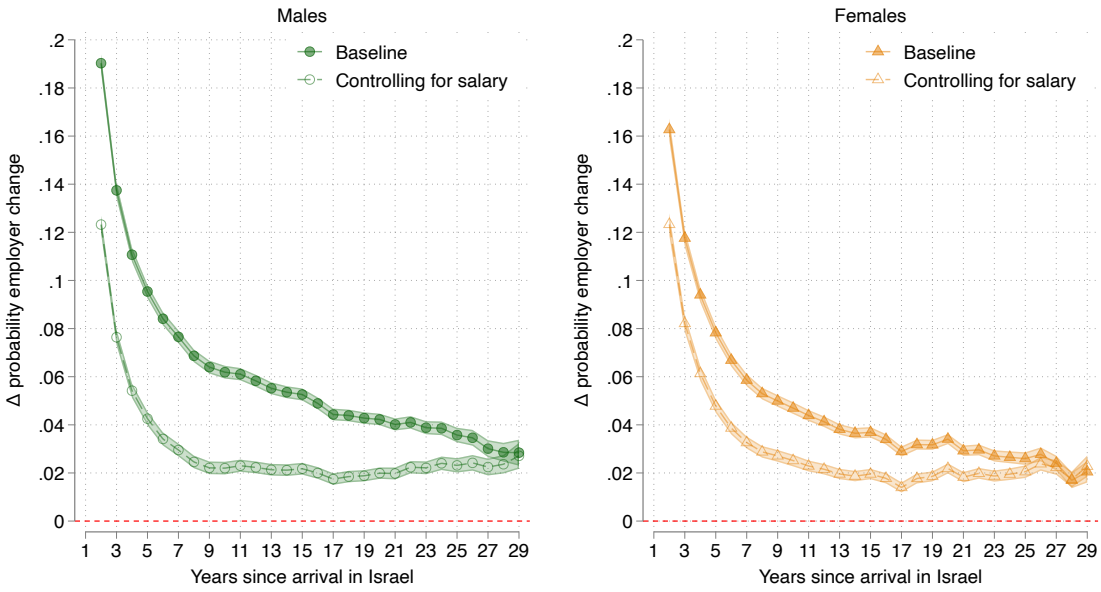



*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in

$$y_{it} = M_i \cdot \left[ \sum_{a=2}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X_{it}'\gamma + \varepsilon_{it},$$

where $y_{it}$ is either log usual weekly hours worked or a dummy for working part-time. Estimated on a sample of employed persons that we link between the administrative tax records and the Israeli Labor Force Survey, years 2001–2020 (2001 is the first year in which we can link individuals using identifiers). Standard errors clustered at the person level. Native means for part-time dummy are 0.144 for males and 0.289 for females.

**Figure A16:** Job Search Assimilation: Employer Switch Probability Controlling for Salary

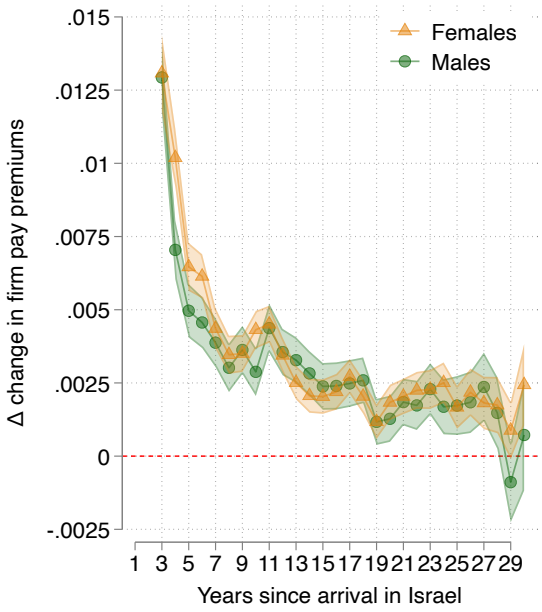



*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in variants of the regression equation

$$ChangedEmployer_{it} = M_i \cdot \left[\sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\}\right] + \delta \ln w_{i,t-1} + X'_{it}\gamma + \varepsilon_{it},$$

where $ChangedEmployer_{it}$ is a dummy equal to one if a person $i$ changed employers between years $t-1$ and $t$, $w_{i,t-1}$ is the monthly wage in year $t-1$, and remaining variables are defined as in equation (8). The filled markers are baseline estimates of $\beta_a$ that do not control for monthly wages, as in Figure 8. The open markers are estimates of $\beta_a$ that control for $w_{i,t-1}$. Standard errors clustered at the person level. Baseline employer change probabilities: $Pr(\text{change} = 1|\text{ native males}) = 0.13$ and $Pr(\text{change} = 1|\text{ native females}) = 0.10$.

**Figure A17:** Job Search Assimilation: Jump in Pay Premiums



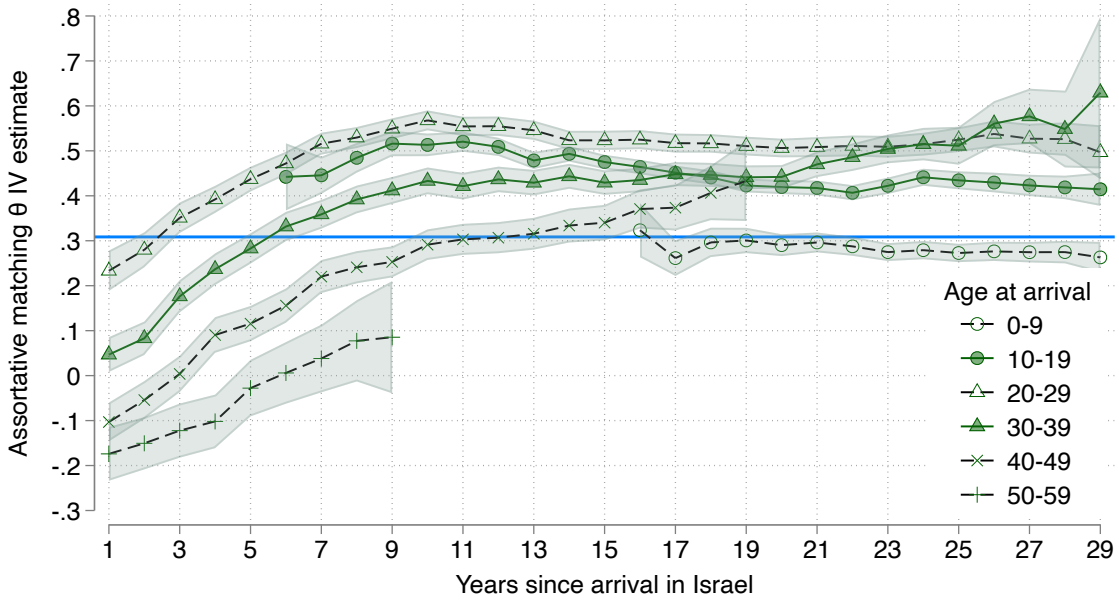

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$\left(\widehat{\psi}^{g(i)}_{J(i,t)} - \widehat{\psi}^{g(i)}_{J(i,t-1)}\right) = M_i \cdot \left[\sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\}\right] + X'_{it}\gamma + \varepsilon_{it},$$

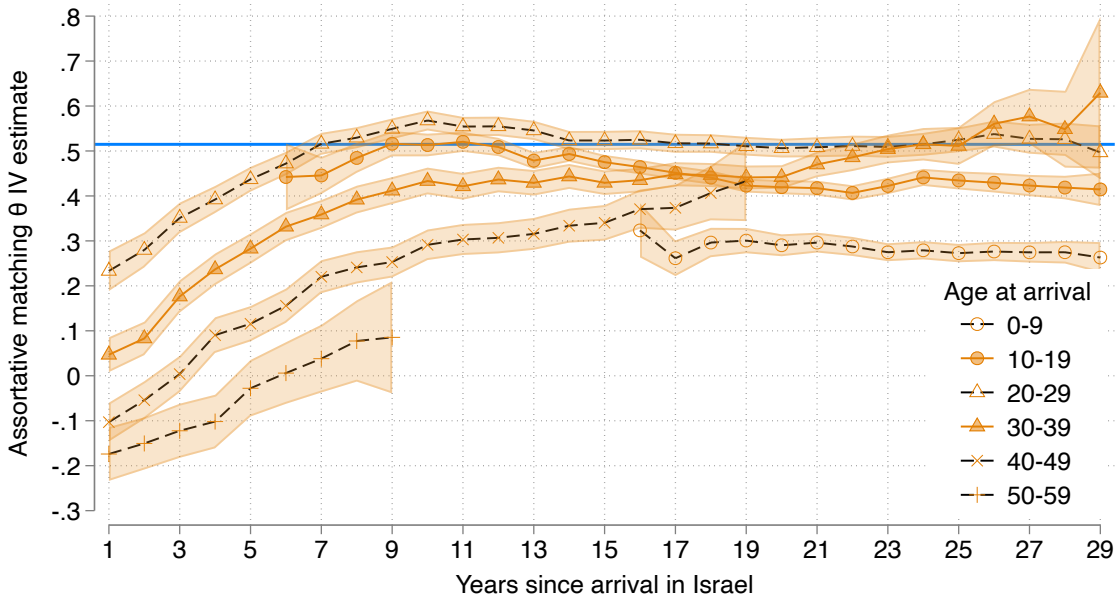
estimated in the full sample (stayers and movers). Explanatory variables are defined as in equation (8). Standard errors clustered at the person level.

**Figure A18:** Worker-Firm Assortative Matching: Arrival Age Heterogeneity

**(a)** Males.

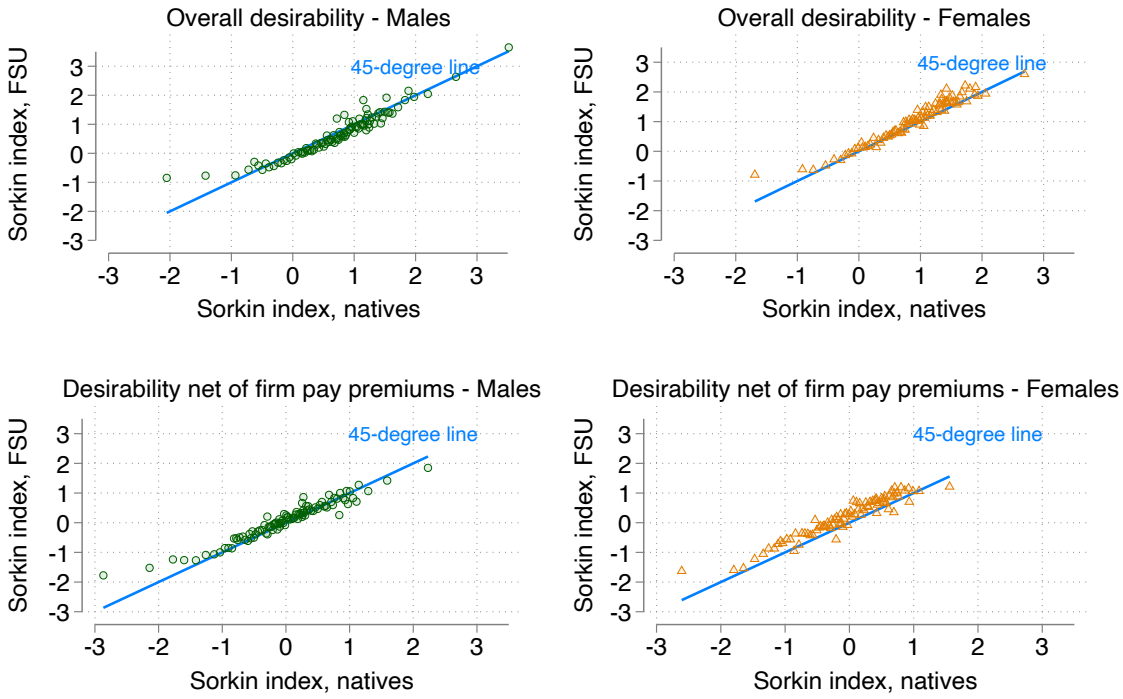



**(b)** Females.



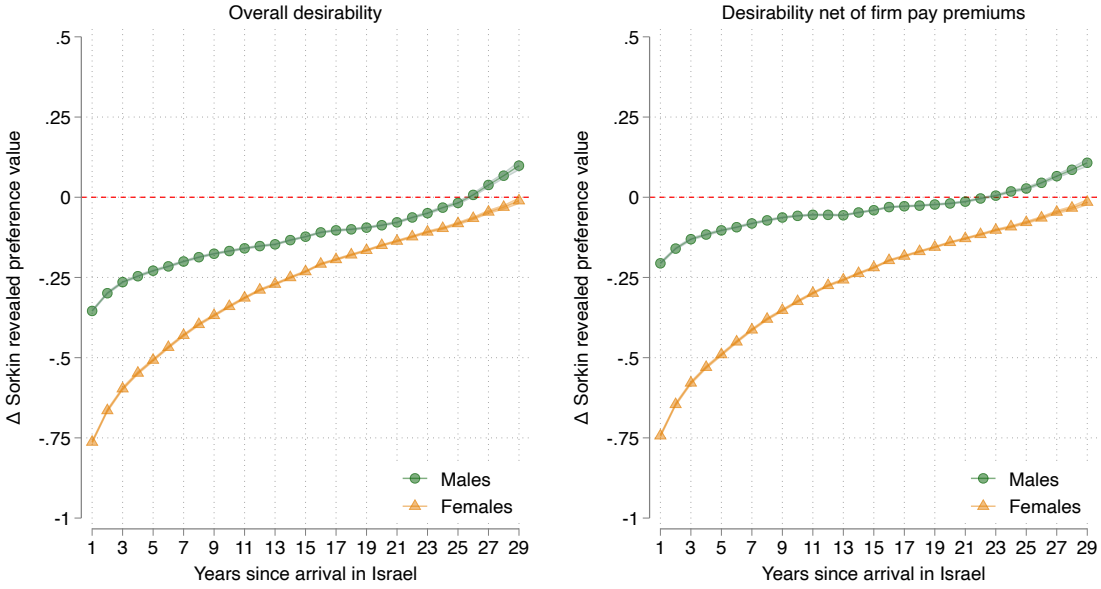

*Notes:* Point estimates and 95% confidence intervals of assortative matching parameter $\theta$ in equation (16). The equation is estimated separately for natives (represented by the horizontal solid line) and for immigrants by year since arrival and age at arrival. IV estimates which instrument each group's firm pay premium with that corresponding to the other group. Standard errors clustered at the person level.

**Figure A19:** Correlation Between Immigrant-Specific and Native-Specific Employer Desirability Indices




*Notes:* This figure plots means of the immigrant-specific and native-specific Sorkin firm desirability indices. The 100 bins (with an equal number of native person-years) are based on natives' index. The slope of the fit between the bins of the overall desirability index is 0.92 (se = 0.029) for males and 0.99 (se = 0.026) for females, while the slope for the desirability index net of firm pay premiums is 0.82 (se = 0.021) for males and 0.90 (se = 0.029) for females.

**Figure A20:** Employer Desirability Assimilation – Common Preferences




*Notes:* Left panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$Sorkin_{J(i,t)} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X_{it}'\gamma + \varepsilon_{it},$$

where $Sorkin_{J(i,t)}$ is the Sorkin (2018) firm desirability index of the firm where worker $i$ is employed in year $t$, and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline firm desirability standard deviations: $SD(Sorkin|$ native males$) = 0.84$ and $SD(Sorkin|$ native females$) = 0.76$. Right panel: point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation

$$\widetilde{Sorkin}_{J(i,t)} = M_i \cdot \left[ \sum_{a=1}^{29} \beta_a \mathbf{1}\{A_{it} = a\} \right] + X_{it}'\gamma + \varepsilon_{it},$$

where $\widetilde{Sorkin}_{J(i,t)}$ is the group-specific Sorkin (2018) firm desirability index residualized of firm pay premiums, and remaining variables are defined as in equation (8). Standard errors clustered at the person level. Baseline firm desirability standard deviations: $SD(\widetilde{Sorkin}|$ native males$) = 0.78$ and $SD(\widetilde{Sorkin}|$ native females$) = 0.73$.

**Figure A21:** Wage Assimilation: Robustness to Out-Migration

**(a)** Males.


**(b)** Females.


*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8). Standard errors clustered at the person level. Left panels show estimates from the sample of FSU immigrant sample who are residing in Israel 20 years after arrival. Right panels show estimates from the sample of FSU immigrants who are employed in Israel during their 20th year after arrival. All estimates in right panel only include FSU immigrants who arrived in Israel between the ages of 5–39.

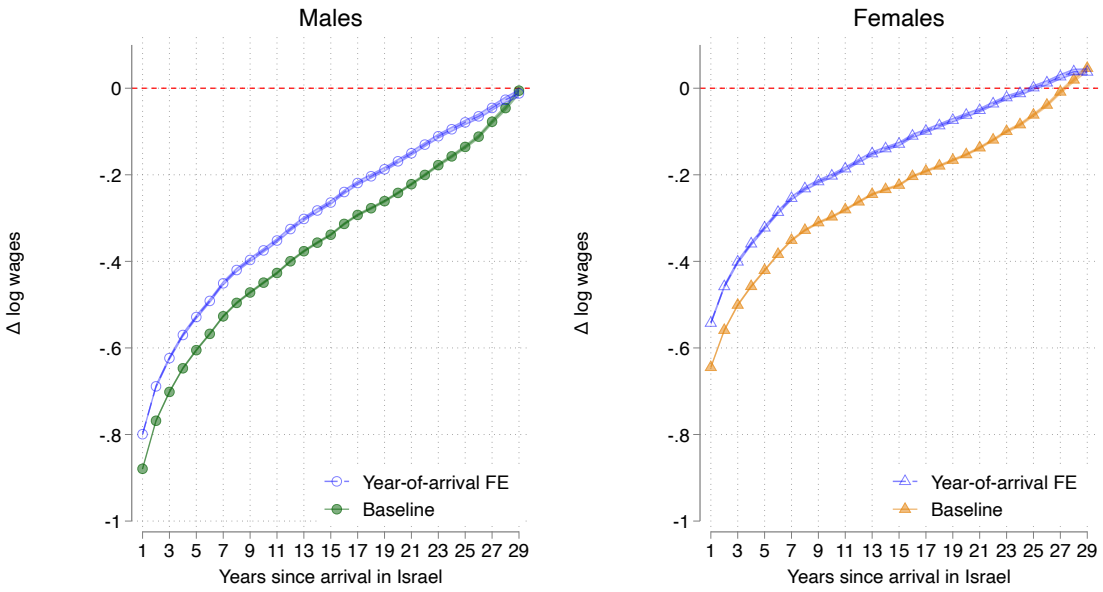
**Figure A22:** Firm Pay Premiums Assimilation: Robustness to Out-Migration

**(a)** Males.


**(b)** Females.

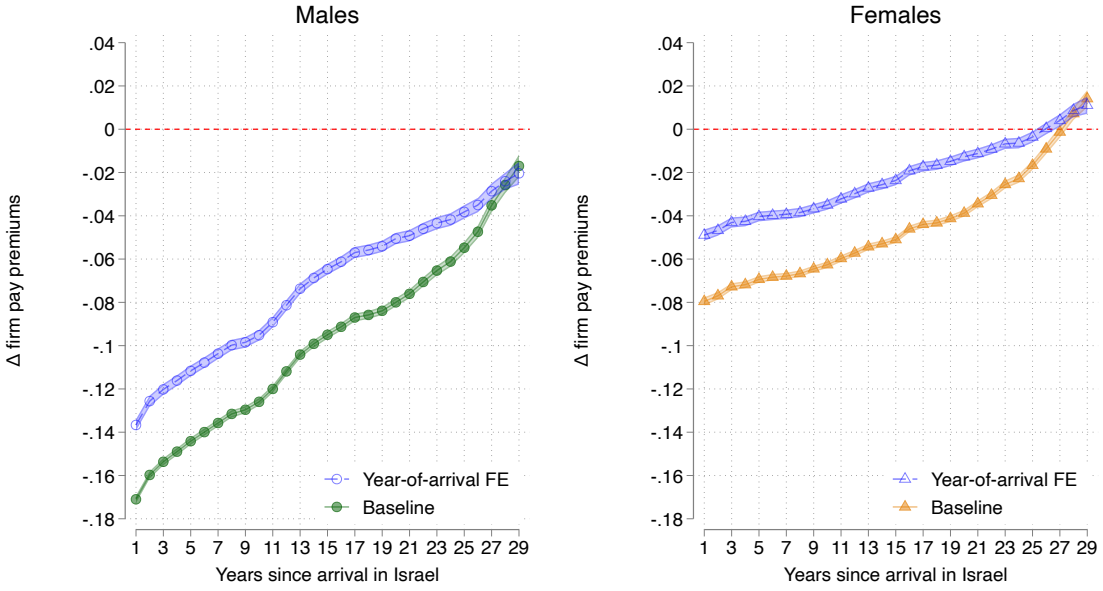

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13). Standard errors clustered at the person level. Left panels show estimates from the sample of FSU immigrant sample who are residing in Israel 20 years after arrival. Right panels show estimates from the sample of FSU immigrants who are employed in Israel during their 20th year after arrival. All estimates in right panel only include FSU immigrants who arrived in Israel between the ages of 5–39.

**Figure A23:** Wage Assimilation: Year-of-Arrival Fixed Effects




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in different versions of regression equation (8). Standard errors clustered at the person level. Baseline specification corresponds to equation (8), to which year-of-arrival fixed effects are added in the second specification.

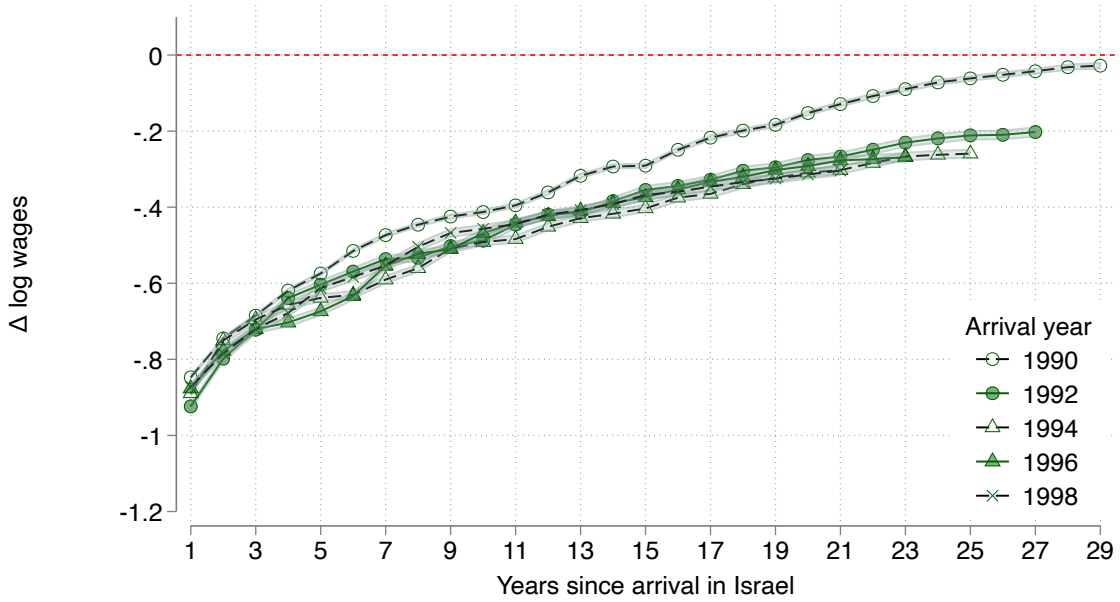
**Figure A24:** Firm Pay Premiums Assimilation: Year-of-Arrival Fixed Effects



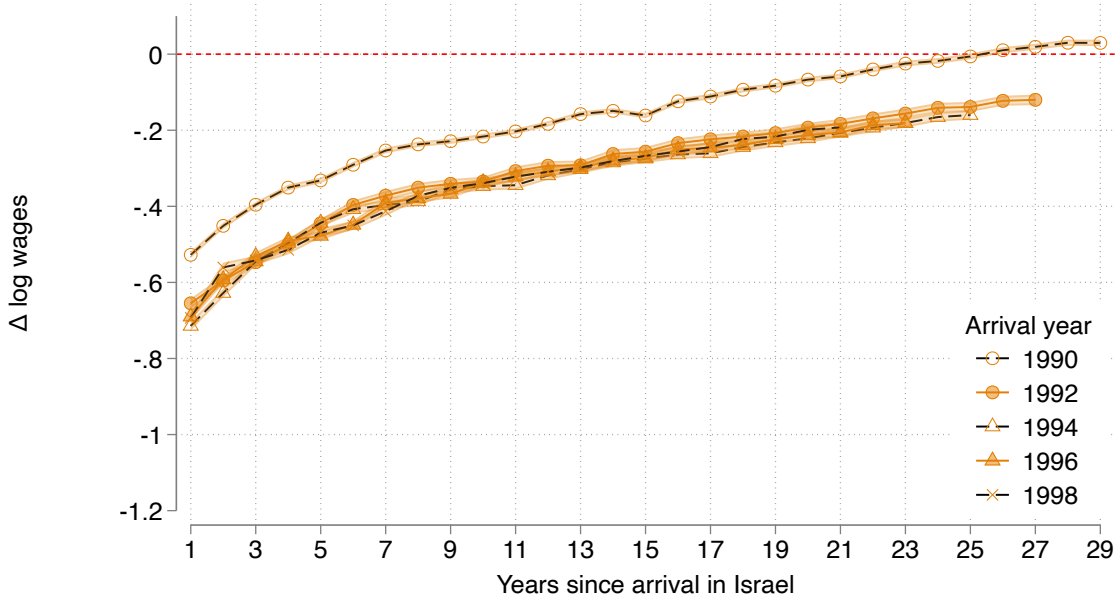

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in different versions of regression equation (13). Standard errors clustered at the person level. Baseline specification corresponds to equation (13), to which year-of-arrival fixed effects are added in the second specification.

**Figure A25:** Wage Assimilation: Arrival Cohort Heterogeneity

**(a)** Males.



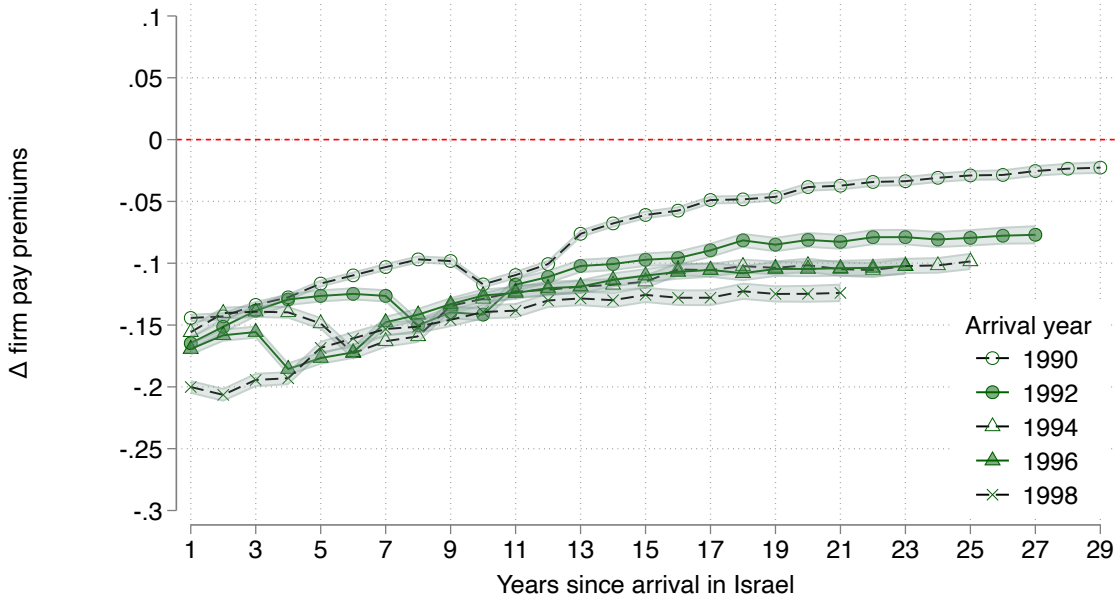

**(b)** Females.



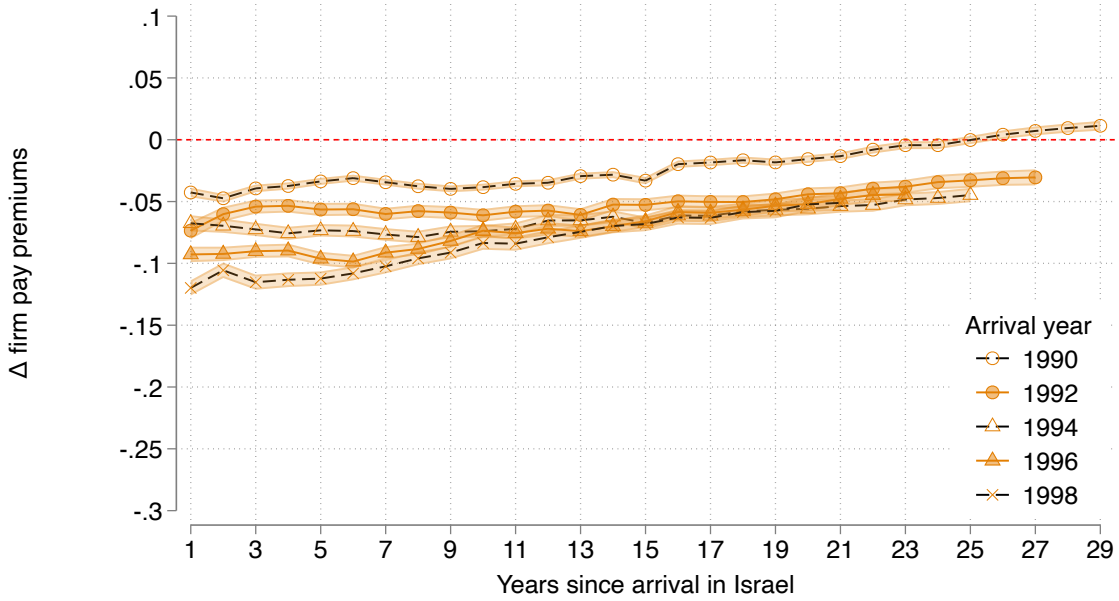

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8), estimated separately for different year-of-arrival groups. Standard errors clustered at the person level.

**Figure A26:** Firm Pay Premiums Assimilation: Arrival Cohort Heterogeneity

**(a)** Males.



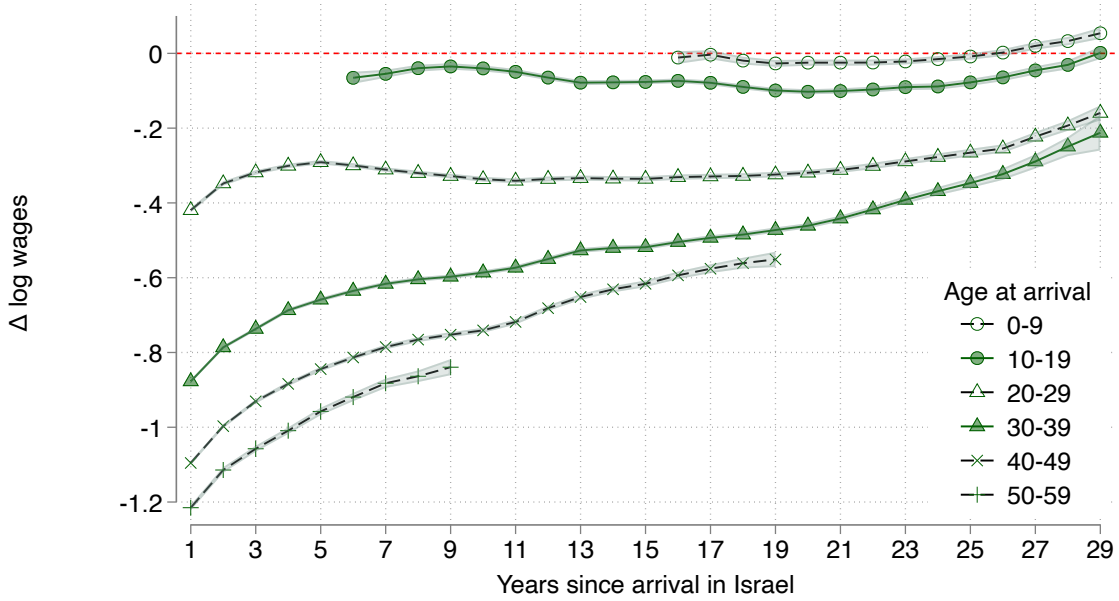

**(b)** Females.



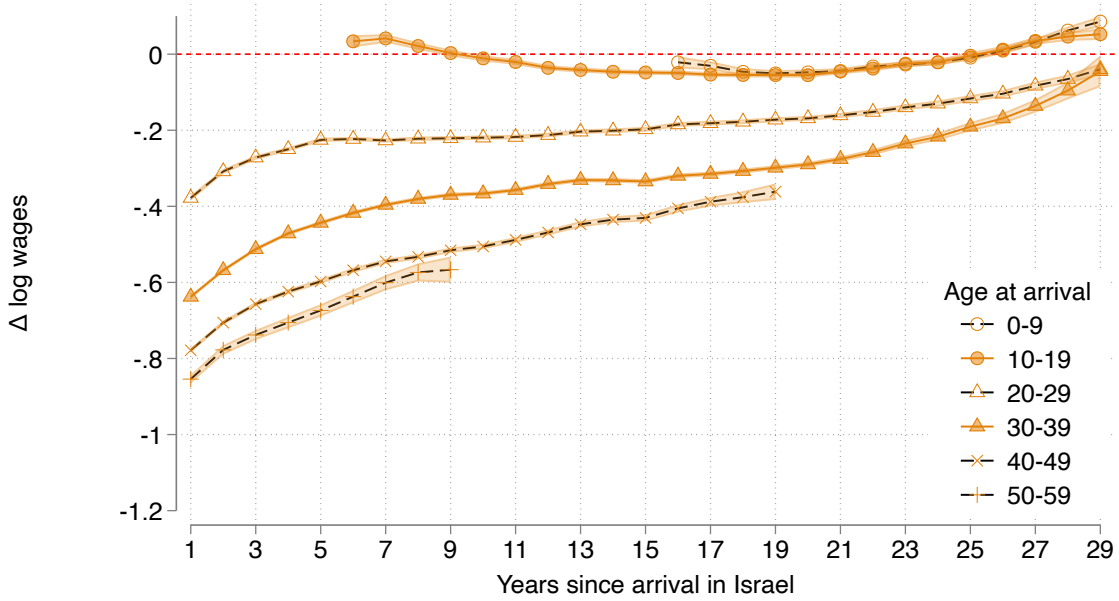

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13), estimated separately for different year-of-arrival groups. Standard errors clustered at the person level.

**Figure A27:** Wage Assimilation: Arrival Age Heterogeneity

**(a)** Males.



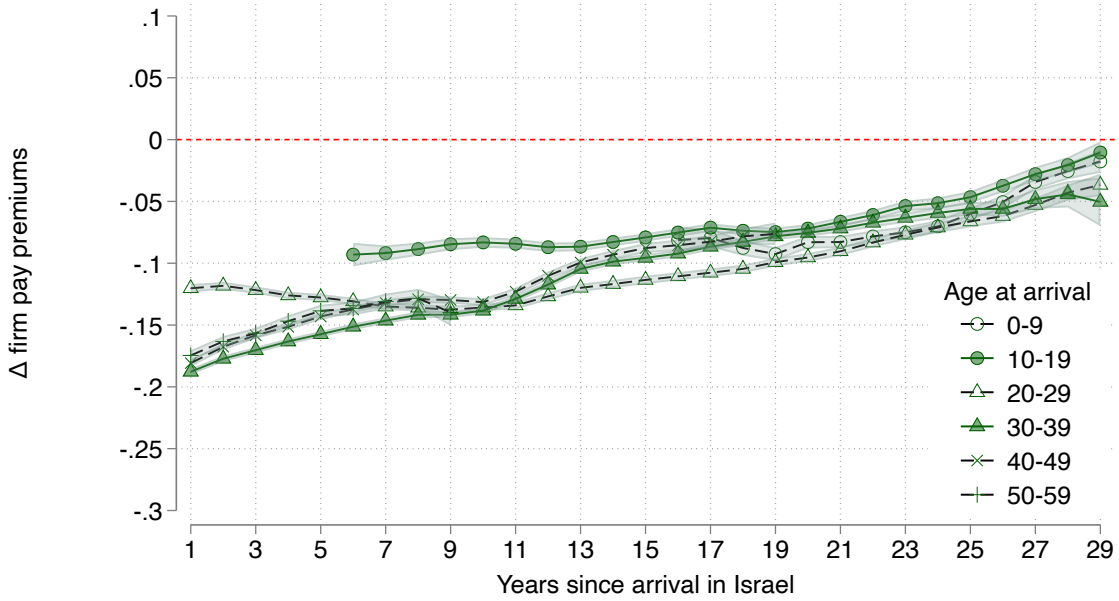

**(b)** Females.



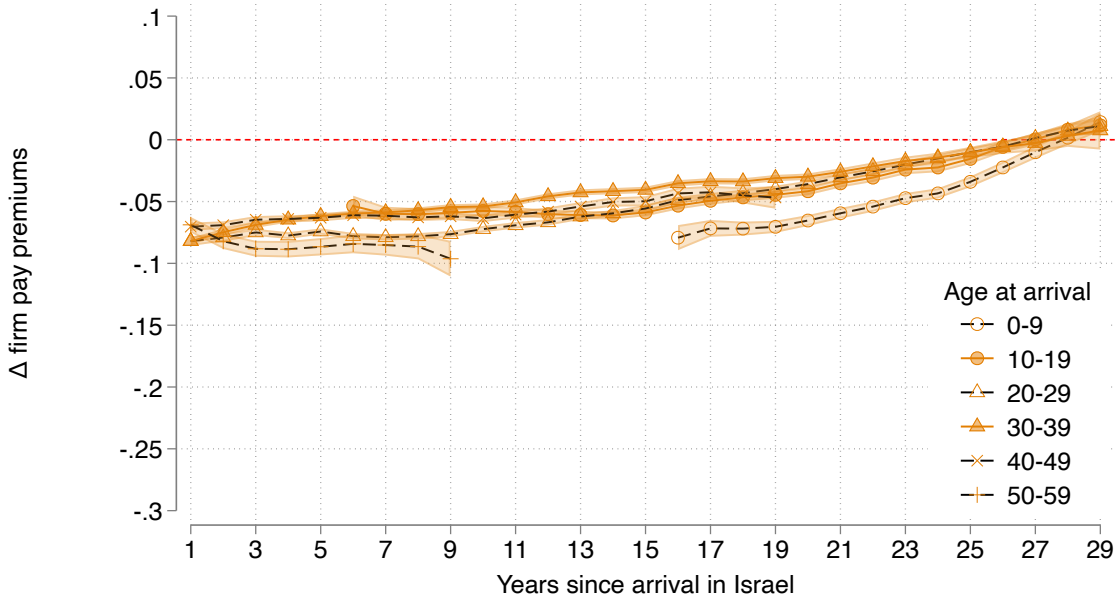

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8), estimated separately for different age-at-arrival groups. Standard errors clustered at the person level.

**Figure A28:** Firm Pay Premiums Assimilation: Arrival Age Heterogeneity

**(a)** Males.




**(b)** Females.



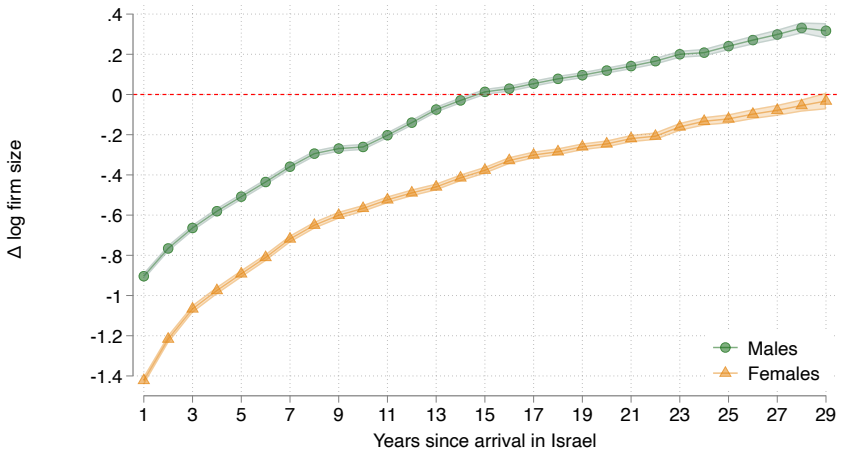

*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (13), estimated separately for different age-at-arrival groups. Standard errors clustered at the person level.

# B Assimilation in Other Employer Characteristics

We now consider assimilation in other employer attributes such as firm size, firm age, distance to Tel Aviv, and segregation. These employer dimensions could impact workers through skill acquisition, future compensation, or network formation. As a result, this analysis provides a complementary picture of labor market assimilation than the one arising from focusing on compensation and overall employer desirability.

***Firm size***. Figure B1 shows estimates of assimilation in terms of firm size (number of employees). On arrival to Israel and relative to comparable natives, FSU immigrants were employed in substantially smaller firms, with a firm size differential of 0.90 log points for males and 1.4 log points for females. Convergence in firm size takes a long time for females, only occurring after 29 years, while the gap closes after 15 years for males and it steadily continues to grow after having changed its sign. After 29 years in Israel, FSU males are employed in firms that are, on average, 0.30 log points larger than those employing comparable natives.

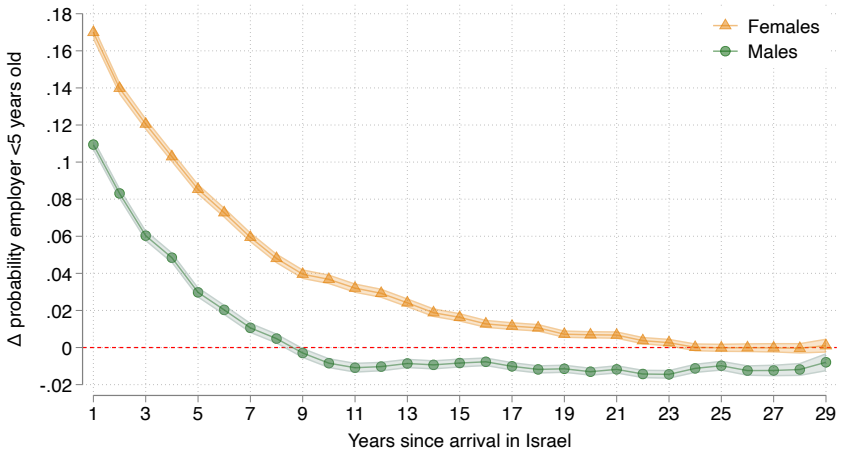
**Figure B1:** Employer Size Assimilation




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8) when the outcome variables is equal to $s_{J(i,t),t}$, the log number of employees at firm $J$ where worker $i$ is employed in year $t$. Standard errors clustered at the person level.

***Firm age***. Figure B2 displays the assimilation pattern in term's of employer age, where the outcome variable is a dummy equal to one if a worker's employer was born less than five years ago. On arrival, FSU immigrants were disproportionately found in young firms, with a probability of employment at a young firm greater than that of comparable natives by 0.11–0.17. Male immigrants experience relatively quick convergence along this margin, closing the gap after nine years in Israel. For females, the gap is closed only after 23 years. After closing, gaps stabilize at values that imply immigrants are slightly less likely to work in young firms.

**Figure B2:** Employer Age Assimilation

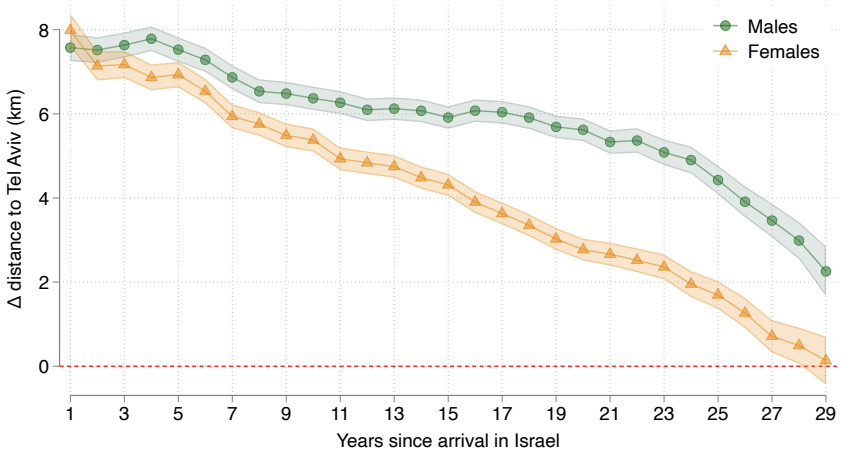



*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8) when the outcome variable is $Y_{J(i,t),t}$ a dummy equal to one if the firm $J$ where worker $i$ is employed in year $t$ is at the time less than five years old. Standard errors clustered at the person level. Unconditional mean for natives is equal to 0.22 (males) and 0.16 (females).

***Distance to Tel Aviv***. Disparities and assimilation in employer characteristics can naturally coexist with disparities and assimilation in geographical location.[1] We summarize an individual's geographic location by their employer's distance to Tel Aviv, Israel's commercial and financial capital. Figure B3 shows that, on arrival, FSU immigrants were located on average about 8km farther away from Tel Aviv compared to natives (21–24 percent of the natives' average). The location gap with natives gradually closes over time and 29 years after arrival it is reduced to 2km for males and closed for women.

[1] Porcher et al. (2023) document the interrelation between the firm and city size premiums; De La Roca and Puga (2017) show evidence consistent with workers experiencing greater skill accumulation in large cities; Buchinsky et al. (2014) use survey data to model the location choice of FSU engineers who arrived in Israel between 1989–1994.

**Figure B3:** Employer Distance to Tel Aviv Assimilation

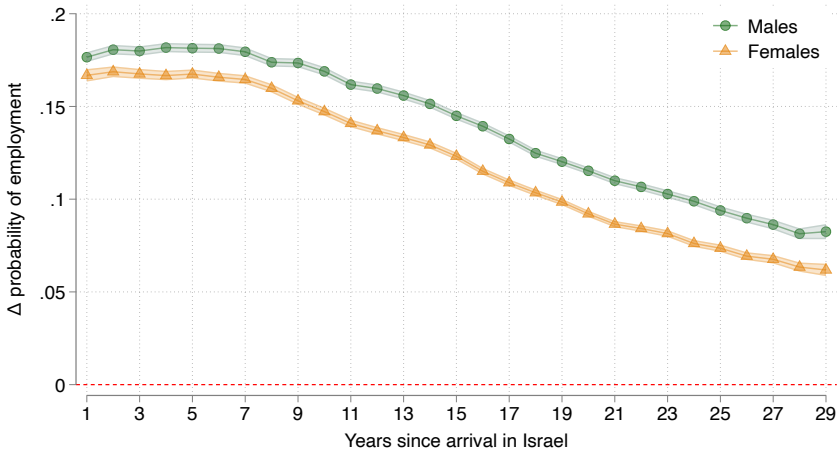



*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8) when the outcome variable is $D_{J(i,t)}$, the distance to Tel Aviv (in km) of firm $J$ where worker $i$ is employed in year $t$. Standard errors clustered at the person level. Unconditional mean for natives is equal to 38.4km (males) and 33.3km (females).

***Segregation***. Whether immigrants are mostly employed with other similar immigrants or, instead, mostly natives, can have implications for cultural assimilation, language learning, or network formation (Eliason et al., 2023; San, 2021). We consider the following measure of employment segregation: whether a firm is composed of 50% or more FSU employees. Figure B4 shows assimilation patterns for this measure.

On arriving in Israel, FSU immigrants' employment was highly segregated. Relative to comparable natives, the probability of being employed in a majority FSU firm was 0.16–0.18 higher for women and men, respectively (relative to very low baseline probabilities for natives). This segregation takes time to unfold. The share of those employed in majority-FSU firms starts to slowly decline only after seven years in Israel.

**Figure B4:** Employer Segregation Assimilation




*Notes:* Point estimates and 95% confidence intervals of parameters $\beta_a$, $a \in \{1, \ldots, 29\}$ in regression equation (8) when the outcome variable is equal to $M_{J(i,t),t}$, a dummy equal to one if firm $J$ where worker $i$ is employed in year $t$ is, at the time, composed of 50% or more FSU employees. Standard errors clustered at the person level. Unconditional mean for natives is equal to 0.011 (males) and 0.006 (females).