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Do Immigrants' Health Advantages Remain After Unemployment? Variations by Race-Ethnicity and Gender

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Abstract

Immigrants tend to display more favorable health outcomes than native-born co-ethnics. At the same time, they face considerable employment instability. It is unclear whether immigrants' job conditions may compromise their health advantage. Using U.S. National Health Interview Survey data, this study shows that the experience of unemployment reduces immigrants' health advantage, but unemployed foreign-born Blacks, White women, and Asian women still have lower mortality rates than their native-born employed counterparts. Overall, unemployment is less detrimental to immigrants than to natives, and immigrants' "survival advantage after unemployment" persists as their duration of residence extends. We further find substantial heterogeneity in the unemployment effect within immigrants. Asian immigrants display a much sharper gender difference in the mortality consequence of unemployment than other immigrants. Asian men's worse general health and substantially higher smoking rate, especially among the unemployed, lead them to fare much worse than Asian women following unemployment.

Keywords

Unemployment; Mortality; Nativity; Immigration; Gender; Race/Ethnicity

Despite immigrants' lower socioeconomic status and less access to health care (Derose et al., 2009; Lee, in press; Park & Myers, 2010), they tend to have better health on many dimensions, including mortality, heart and circulatory disease, obesity, and smoking status, than the native-born of their destinations (e.g., Cunningham et al., 2008; Lariscy et al., 2015; Markides & Eschbach, 2011; Singh & Hiatt, 2006). This is often known as the "immigrant health advantage" (e.g., Riosmena et al., 2017) or "Hispanic paradox" when referring to Hispanic immigrants (e.g., Markides & Coreil, 1986; Markides & Eschbach, 2005). The immigrant health advantage has mitigated the worse health performance of the U.S. compared to other developed countries.

In addition to health advantages, immigrants are known for facing especially challenging work environments and precarious labor market positions (Benach et al., 2011; Moyce

& Schenker, 2018; Orrenius & Zavodny, 2009). The adverse working conditions can potentially offset immigrants' health advantages. Research on this topic, however, is scarce. It remains little known how immigrants' precarious labor market positions may alter their health advantages, whether job insecurity is equally detrimental to immigrants and the native-born, or which factors may intensify or attenuate the adverse consequences of precarious employment conditions.

Addressing the questions related to immigrants' labor market experiences and health is important for at least two reasons. First, immigration is transforming America's demographic landscape and labor force profile. Foreign-born people constituted 13% of U.S. residents in 2013 (Trevelyan et al., 2016), and 17.4% of the U.S. labor force in 2018 (U.S. Bureau of Labor Statistics, 2019). The health and well-being of immigrants, especially immigrant workers, are gradually shaping the overall health profile of the U.S. population. Second, the rising share of precarious jobs in the U.S. labor market is likely to disproportionately affect immigrants (Kalleberg, 2011). Partly due to their lower English-language ability and educational attainment, immigrants tend to occupy riskier jobs and experience more workplace injuries and occupational fatalities than the native-born population (Orrenius & Zavodny, 2009). Immigrants are also more likely to work for lower pay, longer hours, and in worse conditions, not to mention that they are often subject to human rights violations, abuse, human trafficking, and violence (Moyce & Schenker, 2018). All these conditions compromise immigrant workers' health. Language and cultural barriers, poor access to health care, undocumented immigrant status, and hostile political climate may further amplify the negative health consequences of the adverse labor experiences.

Despite our knowledge of immigrants' disadvantages in the labor market, few studies have examined the effects of job loss and unemployment, a key component of precarious labor market conditions, on the immigrant-native gap in health outcomes. Unemployment can cause long-term and substantial declines in physical and mental health (Brand, 2015; Burgard & Lin, 2013), because it likely leads to loss of economic resources, loss of the worker role, lowered self-esteem and sense of control, social isolation, and family strain (Brand, 2015; Gallo et al., 2006; Jahoda, 1982; Leopold et al., 2017; McKee-Ryan et al., 2005). The negative health consequences of unemployment tend to remain even after reemployment (Young, 2012). Thus, a period of unemployment could increase individuals' mortality risk over the long run. This risk, however, may not be equally distributed between immigrants and the native-born. Moreover, different immigrant groups may fare differently because of their different occupational niches, earning trajectories, probabilities of success in the labor market, and health behaviors (Huang et al., 2011; Kestenbaum, 1986; Singh & Siapush, 2002; Villarreal & Tamborini, 2018).

In the present study, we used the Integrated Public Use Microdata Series (IPUMS) National Health Interview Survey (NHIS) with linked death records to examine the mortality consequence of unemployment among foreign-born people of various ethnoracial categories (Whites, Blacks, Asians, and Hispanics), compared to their corresponding native-born population in the United States. We also considered how these mortality consequences evolve along the duration of residence, as studies have reported that the foreign-born health advantage erodes as immigrants become more adapted and integrated into U.S. society

(Antecol & Bedard, 2006; Cho et al., 2004). In addition, we explored the heterogeneity in the impact of unemployment by gender and race/ethnicity within the foreign-born population. Because the NHIS contains a larger sample than most surveys used in previous research, we were able to compare different immigrant populations and shed light on the intersectionality among nativity, race/ethnicity and gender.

Immigrant Health Advantage

Many prior studies report a longevity and health advantage shared by immigrants compared to their native-born co-ethnics or White natives in spite of their socioeconomic disadvantages and poorer access to health care (e.g., Markides & Coreil, 1986; Riosmena et al., 2017). This immigrant health advantage has been attributed to a combination of three factors: (1) self-selection of healthier individuals into migration (Landale, et al., 2006); (2) the protection that immigrants receive from favorable health behaviors (e.g., Blue & Fenelon, 2011) and social capital embedded in immigrant networks and communities (Cho et al., 2004; Eschbach et al., 2004); and (3) the “salmon bias” that results from returning of relatively unhealthy migrants to their origins (e.g., Arenas et al., 2015; Palloni & Arias, 2004). The literature generally finds support for emigration selection (e.g., Akresh & Frank, 2008; Bosdriesz et al., 2013; Riosmena et al., 2017), and some support for the protection effect of healthy behaviors (e.g., Cagney et al., 2007; Kimbro 2009; Riosmena et al., 2017). Although there is evidence for the salmon bias, many find the bias not large enough to explain the immigration health advantage (e.g., Elo et al., 2004; Hummer et al., 2007; Riosmena et al., 2013).

Even though immigrants on average have a health advantage, it tends to be short-lived and occur mostly during the earlier part of an immigrant’s time in the United States (Riosmena et al., 2017). Immigrants with longer U.S. residence or greater acculturation to U.S. society generally have worse health and more risk factors compared to those with shorter residence or less acculturation (e.g., Cho et al., 2004; Hunt, et al., 2004; Lara et al., 2005). This is the so-called unhealthy assimilation (Antecol & Bedard, 2006). In other words, the health protection for immigrants tends to occur in the short run, while unhealthy assimilation (e.g., changes in diet, smoking) tends to evolve in the medium or long run, which partially explains the erosion of immigrant health advantage along the longer duration of residence in the United States (Riosmena et al., 2017).

Immigrants’ health advantage not only varies by their duration of residence, but also by their race/ethnicity and origin. For example, the survival difference by nativity is substantially larger for Blacks than Whites, with foreign-born Blacks having the longest life expectancy among all population groups in 1995 (Dupre, et al., 2012). Even among immigrants, research showed substantial health heterogeneity. According to Huang and colleagues (2011), East Asian immigrants had the lowest risk of physical disability; Mexican immigrants reported the lowest risk of mental disability; Canadian immigrants reported the lowest risk of work disability; and those from Eastern Europe and Southeast Asia had the highest risk of mental and physical disability. More recent research also reported similar heterogeneity in work disability benefit prevalence rates among the foreign-born (Engelman et al., 2017). Therefore, in the present study we paid special attention to the

possible heterogeneity in the immigrant-native disparity in the mortality consequence of unemployment by race/ethnicity or origin.

Unemployment and Immigrant Health Advantage

Even though immigrants' health advantage has been well documented, it is unclear how a key component of their labor market disadvantages—jobs loss and unemployment—may serve to temper this advantage. Unemployment can lead to loss of worker role and economic resources, reduce self-esteem and sense of control, strain family relationship, and cause social isolation, all of which have long-lasting consequences on an individual's physical and mental health (Brand, 2015; Burgard & Lin, 2013; Gallo et al., 2006; Jahoda, 1982; Leopold et al., 2017; McKee-Ryan et al., 2005). Unemployment can also “scar” people, increasing their chances of becoming unemployed again and reducing their life-time earnings (Gangl, 2006). Perhaps for this reason, the unemployed tend to suffer mental health problems even after reemployment (Young, 2012). Long-term mental illness, repeated labor market setbacks, and reduced lifetime earnings can all contribute to mortality hazards.

To our knowledge, no previous research has demonstrated the impact of unemployment on the immigrant health advantage. With respect to the mortality hazard, in particular, it is unknown how detrimental a period of unemployment for immigrants—would immigrants with unemployment experience lose so much health advantage that their mortality hazards are no longer different from those of their native-born co-ethnics without such experience? It is also not known whether unemployment is similarly harmful for different immigrant groups. As discussed earlier, there is substantial heterogeneity in immigrants' health advantages by race/ethnicity or origin. For some immigrant groups, such as foreign-born Blacks, the health advantage over the native-born is exceptionally large (Dupre, et al., 2012). The negative impact of unemployment may not completely offset this advantage in such a case. Because different immigrant groups vary in labor market positions and resources beyond the labor market (e.g., family and social capital), the effect of unemployment on mortality risk may also differ substantially by race/ethnicity. For the immigrant groups that tend not to suffer greatly from unemployment, job loss may not completely alter their health advantage over their native-born co-ethnics. Therefore, the first question we addressed was whether unemployment may offset immigrant health advantage and how this may differ across various immigrant groups.

Differential Impacts of Unemployment by Nativity

Immigrants, especially low-skilled ones, are typically more vulnerable during economic downturns, facing a much higher unemployment rate than the native-born population (Orrenius & Zavodny, 2010; Tamborini and Villarreal 2021). While the differential unemployment risk constitutes one way in which unemployment can erode immigrants' relative health advantage to natives, the potentially distinct health consequences of unemployment between the two groups is another important route. To our knowledge, whether immigrants' and natives' health suffer differently after unemployment is largely unstudied. There are many reasons to suspect that immigrants would face more detrimental consequences of unstable jobs compared to the native-born. Immigrants have fewer

economic resources to buffer the financial strain caused by unemployment. Culture and language barriers, discrimination against foreign workers, and disadvantages in network resources may further constrain their chances to find another similarly paid position after losing a job.

At the same time, there are reasons to suspect that immigrants would suffer less from unemployment than natives. High marital stability, tight family relationships, and social capital embedded in immigrant networks and communities (e.g., Eschbach et al., 2004; Qian, 2014) may all help foreign-borns buffer the financial, psychological, and physical stress caused by unemployment. Immigrants may also have niche and ties in certain industries, which allow them to land typical immigrant jobs relatively easily. In addition, compared to those with more economic resources, immigrants may be more willing to take a suboptimal job after becoming unemployed. Consistent with this argument, a recent study found that unemployed Hispanics have similar paces of re-entering employment as unemployed Whites (Yu & Sun, 2019). Furthermore, immigrants may experience less severe long-term health consequences because of their better health endowment and health behavior (especially the lower incidence and prevalence of smoking), compared to the native-born.

The reasons that could amplify or mitigate the effect of unemployment on immigrants' relative to that of natives may change as immigrants become more assimilated into the society to which they immigrate. For example, immigrants may adopt less healthy behavior or experience reduced benefit from their initial health endowment over time. Indeed, previous research shows that immigrants' health advantage declines with their duration of residence in the United States (Cho et al., 2004; Hunt et al., 2004; Lara et al., 2005). Therefore, in this study we also asked how the disparity in the mortality consequence of unemployment between natives and their foreign-born co-ethnics changes along this duration.

Moreover, there may be substantial heterogeneity in the nativity gap in the unemployment effect across ethnoracial groups. Previous research has reported a racially differentiated pattern of earnings assimilation among immigrants: compared to White and Asian immigrants, Black and Hispanic immigrants are less able to catch up with native Whites' earnings (Villarreal & Tamborini, 2018). Moreover, ethnographic research has found that employers hold different stereotypes for different ethnoracial groups, making them favour Hispanic over Black job applicants in low-skilled labor markets (Newman, 2009). Such different stereotypes may very well affect how likely different groups of immigrants can locate new jobs after unemployment. There are also potential differences in health behavior. For example, Asian female immigrants have a lower smoking rate compared to female immigrants of other origins, while Black male immigrants have a lower rate of smoking than other male immigrants (Bosdriesz et al., 2013). Taken together, the differences in earning and skill levels, labor market receptions, and health behavior may all contribute to variation in the native-immigrant difference in the unemployment consequence by race/ethnicity.

Gender may further intersect with nativity and race/ethnicity to shape the mortality consequence of unemployment. Ethnographic research has shown that being unemployed has different meanings for men and women, especially married ones, because of their

different gender roles (Rao, 2020). Women's presumed caretaker role makes it easier for them to rely on alternative income sources (e.g., their spouse's) and downplay the importance of unemployment. Therefore, only when job loss causes severe economic hardship may women suffer greatly from it. Conversely, the much closer connection between male employment and identity leads men to simultaneously lose income, social status, and self-esteem with unemployment. Hence job loss could harm men of all socioeconomic statuses, with those having lost a better job possibly suffering more. The potential gender difference in the effect of unemployment may be even more pronounced among foreign-born people, who tend to be from countries where the gender division of labor is more traditional than in the United States (Blau, 2011). Because conditions such as being married and having higher education are more likely to help women weather unemployment than men, the gender contrast in the mortality consequence of unemployment may be sharper for immigrant groups with higher marriage rates and educational attainment, for example, Asian immigrants (Edmonston, in press). Unemployment may also have especially small effects on mortality risk for women in such immigrant groups.

Because immigrants' potentially more conservative gender views than natives' have implications for how foreign-born men and women may suffer from unemployment compared to same-gender natives, and because the different immigrant groups' skill levels, occupational niches, and socioeconomic conditions further complicate the picture, our analysis also addresses the intersectionality between gender, nativity, and race/ethnicity. We specifically investigate whether the disparity in unemployment effect *between* natives and immigrants varies by race/ethnicity and gender, and whether the unemployment effect varies by race/ethnicity and gender *within* the foreign-born population.

Method

Participants

We used the IPUMS NHIS 1992-2009 surveys linked to the mortality records through the year 2011 (<https://ihis.ipums.org/ihis/>) for the analysis (Blewett et al., 2018). The NHIS is an annual, cross-sectional, multistage probability sample survey of the non-institutionalized civilian U.S. population conducted by the National Center for Health Statistics. Different from other national surveys on immigration that either focus on one specific immigrant group or have small samples, the NHIS includes immigrants of diverse origins and has a large sample size. The survey thus facilitates the comparison among immigrants of different race/ethnicities. The NHIS collects health information for each member of a family or household sampled, based on reports of one primary respondent. The survey data for all household members are then linked to death records in the National Death Index through probabilistic record-matching methods based on 12 criteria to ascertain the vital status of each respondent. To date, death records from the NHIS 1992-2009 surveys are available to the public, making it feasible to estimate the respondents' mortality hazards. At the time of this study, mortality information at quarter-year intervals is available through December 31, 2011.

Even though the NHIS started measuring nativity in 1989, we restricted the sample to data from 1992 onward because the survey lacked detailed information about Asian heritages in

earlier years. We limited the sample to individuals of prime working age—namely, 30-65 years old—at the time of survey ($N = 678,608$). This age restriction reduces the possibility of capturing early career instability, which is typical and potentially inconsequential, and mitigates the “salmon bias,” as return migration tends to occur in older age when some immigrants return to origins for health care. We examined four foreign-born populations (i.e., non-Hispanic Whites, non-Hispanic Blacks, non-Hispanic Asians, and Hispanics) and their native-born counterparts. Non-Hispanic Asians included Chinese, Filipinos, and Asian Indians. We excluded other Asian ethnic groups because their members were relatively few or disproportionately foreign- or native-born in the NHIS data. Hispanics included those who originated from Mexico and other Latin American countries. Table A1 in the Appendix shows the race/ethnicity/nativity compositions of the sample and basic descriptive statistics. After dropping individuals not in the labor force ($n = 150,237$), anyone with missing data on unemployment status ($n = 2,098$), those in other racial groups ($n = 18,522$), and those with missing data on covariates ($n = 23,676$), the analytic sample includes 73,727 foreign-born individuals, among whom 14,682 (19.9%), 6,617 (9.0%), 9,476 (12.9%), and 42,952 (58.3%) are Whites, Blacks, Asians, and Hispanics, respectively; and 410,348 native-born individuals, among whom 326,328 (79.5%), 55,960 (13.6%), 1,710 (0.4%), and 26,350 (6.4%) are Whites, Blacks, Asians, and Hispanics, respectively.

Measures

The main outcome of interest is mortality status. By December 31, 2011, 26,783 (5.5%) of the NHIS respondents had died. The main explanatory variable, unemployment, was measured by whether respondents were unemployed, including being laid off and looking for a job, at the time of interview. We did not consider those who were out of the labor force and not looking for jobs as unemployed. Among the foreign-born, 3,588 (4.9%) were unemployed. The unemployment rate was highest among Blacks (5.6%), followed by Hispanics (5.4%), Whites (3.9%), and Asians (3.5%). Among the native-born, 13,977 (3.4%) were unemployed at the time of the survey. Within this group, the unemployment rate was highest among Blacks (6.2%), followed by Hispanics (4.5%), Asians (3.3%), and Whites (2.8%). Besides testing the nativity difference in the effect of unemployment, we also tested how this difference changed along the duration of stay in the United States. We therefore created a duration variable which was coded as 0 for U.S.-born and dichotomized as either less than 10 years or 10 years and above for foreign-born respondents.

To understand how gender intersects with nativity and race/ethnicity to shape the mortality consequence of unemployment, we included gender in the models. To account for differences in characteristics between native-born and foreign-born, we introduced education, poverty status, marital status, smoking status, self-rated health, and a chronic disease index. Education consisted of four categories: less than high school, high school degree, any college, and college degree or more. Poverty was composed of three categories: above the poverty threshold, below the poverty threshold, and unknown poverty status. We did not include income in the models due to a considerable proportion of missing values (31%). Marital status consisted of five categories: married, widowed, divorced, separated, and never married. Smoking status included four categories: never smoking, current smoker, former smoker, and unknown smoking status. Although the NHIS contained information

on obesity, we were unable to include obesity status because of the high proportion of missing data (40%). We were nevertheless able to include self-rated health, consisting of five categories: excellent, very good, good, fair, and poor. The models also included an index for chronic disease, which was a summarized index based on 14 self-reported chronic illnesses: angina, arthritis, asthma, bronchitis, diabetes, emphysema, heart attack, heart failure, cancer, stroke, hip fracture, osteoporosis, spine fracture, and wrist fracture. Finally, because the NHIS respondents were from surveys conducted in various years, we further controlled for survey year in the analysis.

Analytic Strategy

We fit a series of Cox models using attained age, which was the age of death or age at the time the mortality record was obtained if the respondent had not died, as the time metric to test the mortality consequence of unemployment. Following our foregoing discussions, we proceeded the analysis in these steps. First, we analyzed whether unemployment abated immigrants' survival advantage compared to both native-born employed Whites and native-born employed co-ethnics. We estimated Cox models by gender and compared immigrants of different race/ethnicities and employment statuses with native-born employed Whites in the models (Figure 1 and Figure 2). We also estimated separate Cox models for each race/ethnicity/gender composition (eight groups in total) to compare immigrants to their native-born employed co-ethnics (Table 1). Second, we investigated the native-immigrant difference in the mortality consequence of unemployment and the heterogeneity and temporal changes in this difference. The aforementioned separate Cox models (Table 1) showed whether unemployment affects mortality differently between native- and foreign-born individuals and whether the extent of immigrant survival advantage or disadvantage depended on race/ethnicity and gender. The NHIS collected information on immigrants' duration of U.S. residence, which allowed us to show how the mortality consequence of unemployment may have changed along this duration (Table 2 and Figure 3). Third, we examined the heterogeneity in the unemployment effect within the foreign-born (Table 3 and Figure 4). We tested a three-way interaction between employment status, race/ethnicity, and gender within immigrants. We present the results in these three steps as well.

Results

Immigrant Health Advantage and Impact of Unemployment

We first examined the extent to which the experience of unemployment affected the immigrant advantage in mortality hazards using native-born employed Whites as the reference group. Figure 1 shows the hazard ratios of different groups of men relative to native-born employed White men. With the exception of Black foreign-born men, unemployed foreign-born men tended to have higher mortality hazards than employed White natives. This difference has implications for how immigrants' potentially greater risk of unemployment may affect the gap in mortality hazards between immigrants and native Whites. We can imagine, for example, in a time of economic turmoil, when immigrants are likely to be especially vulnerable to job losses, a sizable proportion of immigrant men would be like the unemployed ones in the figure, whereas a relatively large proportion of White men would remain employed. Immigrant groups as a whole could therefore fall farther

behind Whites in mortality hazards. In this sense, the unequal chances of unemployment could serve to reduce immigrants' health advantage at the aggregate level.

Figure 2 shows the hazard ratio relative to native-born employed Whites among women. Unlike men, unemployed female immigrants did not have higher mortality hazards than employed White natives, except for Hispanics. In fact, foreign-born unemployed Asian women had the lowest mortality hazard. Thus, for most ethnoracial groups, female immigrants' health advantage remained even if they were unemployed.

To examine whether unemployment may offset the immigrant health advantage compared to native-born co-ethnics, we conducted a survival analysis for each ethnoracial-gender group with just nativity, employment status, and the interaction between the two. Table 1 shows the hazard ratio relative to employed native-born co-ethnics within each race/ethnicity/gender combination. Two main findings merit emphasizing: (1) compared to the employed, the unemployed had higher mortality hazards, except for foreign-born White women and Asian women, among whom unemployment was associated with lower mortality hazards (A vs. B, C vs. D); and (2) whether unemployed foreign-born people were still better off compared to employed native-borns depended on race/ethnicity and gender (A vs. D). Even facing unemployment, foreign-born Black men and women were better off than their native-born employed counterparts because they had much lower mortality hazards in the first place; the increase in the hazards because of unemployment was comparatively small for foreign-born Blacks. By contrast, foreign-born unemployed White and Asian women were better off than their native-born employed counterparts because the effect of unemployment on their long-term health was rather small. These findings shed additional light on some of the racial and gender patterns presented in Figure 1 and 2.

Heterogeneity and Temporal Changes in the Nativity Gap in Mortality Consequence of Unemployment

Although the previous section revealed how the experience of unemployment reduced immigrants' advantages in mortality, it does not specifically compare the effects of unemployment between natives and immigrants. In this section we show how the native-immigrant gap in the mortality consequence of unemployment varies by race/ethnicity, gender, and duration of residence. Starting with Table 1, unemployment was generally more detrimental for native-born than for foreign-born men and women (B vs. E). In other words, unemployment led to a relatively higher mortality rate among the native-born compared to the foreign-born. We call it the "immigrant survival advantage after unemployment." This survival advantage seems to substantially vary by race and gender (F).

In a separate analysis not shown here, we tested a three-way interaction between nativity, employment status and race within each gender, a three-way interaction between nativity, employment status and gender within each ethnoracial group, and a four-way interaction between nativity, employment status, race/ethnicity, and gender. But we found only two statistically significant variations: the immigrant survival advantage after unemployment was exceptionally high for Asian women; conversely, immigrant Hispanic women were disadvantaged. This first significant variation, however, was mainly due to the small sample size and data sparseness among native-born Asian women. The second variation was

actually not significant when we constrained the data to Hispanic women and tested the interaction between unemployment and nativity as shown in Table 1. The overall lack of significant variation in nativity disparity in unemployment effect across races and genders was probably because data were stretched too thin in the race- and gender-specific three-way interactions and combined four-way interaction.

How might the immigrant survival advantage after unemployment evolve along the duration of residency? We do not break down the analysis by race/ethnicity and gender here because the aforementioned analysis did not reveal significant variation by these subgroups. As Model 1 of Table 2 shows, foreign-born individuals who stayed in the United States for more than 10 years at the survey time had a smaller advantage in mortality hazard over natives, compared to foreign-born people with a shorter duration of stay. Foreign-born people's survival advantage after unemployment, however, magnified along the duration of residence. Once gender, education, and poverty status were controlled in Model 4, the mortality hazard after unemployment was 30% lower for foreign-borns of either period of residence, compared to natives. Immigrants' favorable status in marriage, smoking, and health partially explained their survival advantage after unemployment when their duration of stay was less than 10 years (Model 7). Those with more than 10 years of residence, however, continued to exhibit a survival advantage after unemployment over natives even after adjusting for various factors, including health status.

Figure 3 further illustrates the key findings from Table 2. The figure shows: (1) immigrants' overall survival advantage over the native-born population decreased along the duration of residence (Panel A), while the former's survival advantage after unemployment maintained or even increased when residence was over 10 years (Panel B); (2) immigrants' overall survival advantage became more salient after adjusting for sociodemographic, economic, and health conditions, because their disadvantaged socioeconomic status diminished their survival advantage somewhat (Panel A); and (3) the native-immigrant differences in marital, smoking, and health statuses explained the post-unemployment survival advantage for immigrants who experienced unemployment relatively soon after arriving in the United States but not much for those undergoing unemployment in the later years of their residence (Panel B).

Gender Disparity in Mortality Consequence of Unemployment within the Foreign-Born

Even though we did not find that the disparity in unemployment effect *between* natives and immigrants significantly varied by race/ethnicity and gender, there exists substantial heterogeneity in the unemployment effect *within* the foreign-born population. Based on the results presented in Column E in Table 1, among foreign-born men, unemployment increased mortality hazards the most for Whites, followed by Asians, Hispanics, and Blacks, in that order. Among foreign-born women, the order was nearly reversed, with Hispanics suffering the most, followed by Blacks, Whites, and Asians. In fact, not only did unemployment appear not to compromise long-term health for foreign-born White and Asian women, but the ones experiencing unemployment within these groups actually had lower mortality hazards than those without the experience. The somewhat perplexing, "protective" effect of unemployment was especially pronounced among foreign-born Asian

women. These results clearly indicate heterogeneity across foreign-born groups with respect to gender differences in unemployment-related mortality hazard rates.

To better understand this heterogeneity, we conducted a survival analysis for each foreign-born ethnoracial group, with gender, unemployment, and the interaction between the two as predictors while controlling for survey year. We found no significant gender difference in the unemployment effect for Blacks and Hispanics. By contrast, foreign-born Asian men's mortality hazard associated with unemployment was 8.94 times more than that of Asian women, $p < .05$, and foreign-born White men's was 2.97 times more than that of White women, $p < .10$. The corresponding results are displayed in Figure 4. The gender ratio in unemployment-related mortality hazard stands in sharp contrast between Asians and other groups.

What may account for this unique pattern among Asian immigrants? Table 3 explores some possible explanations. It presents the gender ratios in the rates of unemployment, having a college degree, being in poverty, being married, and ever smoking, and the adjusted gender ratios in mortality hazards, which take into account the aforementioned covariates, by race/ethnicity. There was no gender difference in unemployment rates among foreign-born Asians, and the gender ratio in such rates was not substantially higher among Asians than other groups. Therefore, this factor cannot explain the substantially higher gender ratio in unemployment-related mortality hazard rates for Asians. A larger proportion of Asian men had a college degree than Asian women, but this gender difference was no larger than that of other ethnoracial groups. Hence the health benefit of having a college degree also cannot be a contributor. Similarly, foreign-born Asian men were more likely married than Asian women. Despite a higher proportion having a college degree, Asian men were 1.23 times more likely to be in poverty than Asian women. This disadvantage was relatively larger than men (vs. women) of other race/ethnicities. But given that Asian men were 8.94 times more likely to experience death related to unemployment than Asian women, $p < .05$, the contribution of poverty status was modest. These conclusions are further supported by gender ratios in these factors among the unemployed.

Table 3 also shows that foreign-born Asian women had higher marriage and college attendance rates than all other groups of women. In a separate analysis we explored whether the exceptionally large gender gap in the mortality consequence of unemployment among Asian immigrants could be explained by the different ways in which marriage or college education moderated the impact of unemployment between men and women. We found that marriage mitigated the mortality consequence of unemployment similarly for immigrant men and women from Asia. College attainment, however, moderated the effect of unemployment in opposite ways for male and female immigrants. Whereas immigrant men with higher education suffered more from unemployment than less educated men, highly educated immigrant women suffered less than their counterparts without college education. That is to say, the gender difference in the mortality consequence of unemployment was especially large among the college educated. The fact that Asian immigrants had the highest proportion of college graduates among all immigrant groups therefore partially accounted for the comparatively wide gender gap in the impact of unemployment for Asians.

In addition to the socioeconomic indicators just discussed, smoking status played an important role in shaping the gender gap in the effect of unemployment among Asian immigrants. Asian men were 3.72 times more likely to be a current or ever smoker than Asian women. Among the unemployed, this disadvantage further increased to 7.1 times, a gender gap substantially larger than that in other race/ethnicities. These findings suggest that the gender difference in the smoking status also accounted for Asian immigrants' exceptionally sharp gender contrast in the effect of unemployment on mortality. Indeed, when smoking status was added to model, the gender ratio in unemployment-related mortality hazards within Asian immigrants substantially reduced and was no longer significant, ($p > 0.1$, results available upon request). Moreover, Asian men were 2.24 times more likely to die than Asian women even after controlling for smoking status, a gap again greater than those for other race/ethnicities. This gender ratio suggests that immigrant Asian women had other health advantages (e.g., having healthier behavior, facing less daily stress) over their male counterparts, which further allowed the former to weather unemployment better.

Discussion

Despite considerable attention to the immigrant health advantage and the unstable job conditions foreign-born workers face, previous research sheds little light on how immigrants' disadvantages in the labor market may counteract their health advantage. Using the NHIS data linked to mortality records through the year 2011, we found that even though immigrants tended to have better health than the native-born populations of destinations, four groups of unemployed immigrants (Hispanic men, Hispanic women, White men, and Asian men) exhibited no health advantage compared to their employed native-born counterparts. There were some exceptions, such as Blacks, White women, and Asian women (Table 1). Our analysis indicates that the finding about Black immigrants was mainly due to the much lower mortality rate among foreign-born than native-born Blacks in the first place. The case for White and Asian female immigrants was attributable to the minimal mortality consequence of unemployment for these two groups. At the same time, although immigrants had fewer economic resources to buffer the financial strain caused by unemployment, their mortality risk, on the whole, was less affected by unemployment compared to that of the native-born. Therefore, unemployed immigrants had lower mortality hazards than their unemployed native-born counterparts. This immigrant survival advantage post unemployment persisted along their duration of residency in the United States.

Our findings naturally lead to the question of what may explain the immigrant survival advantage after unemployment. Earlier in the paper we discussed various factors that may help mitigate the harmful effect of unemployment for immigrants. It is beyond the scope of this paper to conduct a comprehensive investigation due to data limitation. In an additional exploration, which is presented in Appendix Table A2, we added human capital (e.g., education), economic resources (e.g., poverty status), marriage, health endowment (e.g., self-rated health, diseases), and health behaviour (e.g., smoking) to the survival models to see how these factors may mitigate or intensify the differential mortality consequence of unemployment between the native- and foreign-born populations. We found immigrants' advantages in marriage and smoking buffered the mortality consequence of unemployment.

It is possible that immigrants' higher percentage of marriage and likely closer family ties helped offset the financial strain and psychological scar caused by unemployment. Their general healthier lifestyle, for example, lower smoking rate, may reduce the risk of resorting to an unhealthy lifestyle for comfort after unemployment. These two factors substantially reduced immigrants' survival advantage after unemployment. However, as Table 2 shows, the covariates we examined generally did not explain as much survival advantage for immigrants who experienced unemployment in later years of their stay in the United States as for those undergoing unemployment earlier. More mechanisms need to be discovered to understand how immigrants' unemployment-associated survival advantage evolves along their duration of stay.

Other mechanisms, not included in our analysis, could also have contributed to the immigrant survival advantage following unemployment. Immigrants may be more willing to take an inferior job and thus end unemployment sooner. Also, because immigrants may be more likely to hold jobs without adequate health insurance and benefits, the relative harm of losing jobs may be smaller for them compared than for natives. Moreover, immigrants' tighter family relationships and social capital embedded in migrant networks and communities (e.g., Eschbach et al., 2004; Qian, 2014) could help reduce the financial, psychological, and physical stress caused by unemployment. The beneficial impacts of family and social capital may also accumulate and magnify along the duration of residence. Unfortunately, the NHIS data have limited information on characteristics of former jobs, marriages and family relationships, and network and community resources. The cross-sectional nature of the NHIS also makes it impossible to track immigrants' economic and network resources over the duration of residence. Therefore, these possible mechanisms need to be tested in future studies when relevant data become available.

The survival advantage after unemployment among the foreign-born seems not to be directly related to their general health advantage. We come to this tentative conclusion for two reasons. First, health status, for example, self-reported health, did not explain the differential impacts of unemployment on mortality by nativity as Appendix Table A2 shows. We also replaced self-rated health with a composite disease index, but the general finding did not change. Second, the survival advantage after unemployment and general health advantage displayed divergent trends along the duration of residence (Figure 3). The general health advantage among the foreign-born decreased with more years of U.S. residence, but their survival advantage after unemployment persisted even after adjusting for general health status. Although these findings do not completely exclude the general health advantage as a possible mechanism, they do suggest it probably is not an important reason for immigrants' survival advantage after unemployment. Rather than considering immigrants' general health advantage as a contributor to their survival advantage after unemployment, we may need to see the relationship in a reverse way. That is, being able to weather unemployment better is one of the reasons immigrants are healthier throughout their lives compared to the native-born.

Even though the immigrant survival advantage after unemployment was consistently observed for men and women of different race/ethnicities, there was substantial heterogeneity *within* immigrants. Among male immigrants, unemployment seems more

detrimental for Whites and Asians than Blacks and Hispanics. As for female immigrants, unemployment appears more harmful for Blacks and Hispanics than Whites and Asians (Table 1). More interestingly, we found a more pronounced gender difference in unemployment effect among Asian immigrants than other groups (Figure 4), which was attributable to Asian immigrant men's much higher prevalence of smoking and especially severe health disadvantage than their female counterparts'. To put these findings in context, we should recognize that the health behavior and health are shaped by more distant social factors. The traditional family labor division and gender role within Asian families, that is, that men tend to be the main breadwinners, may cause Asian male immigrants to feel particularly powerless and undignified when they lose jobs, which may negatively impact their health behaviors and health. The cultural stigma that may lead Asian men unlikely to seek help after suffering from unemployment-related mental health problems could further accelerate their health decline (Abdullah & Brown, 2011; Abe-Kim et al., 2007). The rather traditional gender roles may be also the reason Asian women were not affected by unemployment. Future research should further investigate the more distant social factors that may shape the pronounced unemployment impact among Asian male immigrants than female immigrants.

This study has several limitations. First, because the NHIS data are cross-sectional, we could only focus on static employment status. That is to say, we do not know how often an individual experiences unemployment before and after the observation time. As a result, we cannot distinguish mortality risks between those who just experience unemployment once from those having undergone multiple episodes. Because immigrants may be more likely to belong to the latter group than natives, and because cumulative risk of unemployment across the life course may be more detrimental, it is possible that immigrants' mortality advantages after unemployment are larger than our estimates had we been able to control for frequency of unemployment. To know whether this is the case, future work needs to investigate labor market experiences beyond static employment status and incorporate life-long employment histories. Second, due to sample size, we were not able to break down the analysis by specific country of origin. Researchers should collect even more comprehensive data to allow a more detailed analysis by country of origin in the future. Third, sample sizes for some native-born groups (e.g., Asian women) and foreign-born groups (e.g., African immigrants) were small, which may have caused relatively unstable hazard estimates. For example, the especially high hazard ratio of unemployed native-born Asian women compared to employed ones was probably due to small sample size and data sparseness. Fourth, we only examined mortality in this study. Future work should expand to other outcomes, such as biomarkers of physical health, activity limitations, mental health, and cognitive functioning, to broaden our understanding of the immigrant health advantage after unemployment.

Finally, salmon bias may potentially cause overestimate of the immigrant survival advantage as those returning to origins may be more likely to be unhealthy or unable to find jobs if ever experiencing unemployment. By limiting the sample, to age 30-65 years old, we were able to mitigate salmon bias to some extent, as returnees tend to be older and return for health care. Moreover, because the selective returns based on ability and health should be more pronounced among immigrants with lower education, who tend to have limited

access to health care and jobs, we would expect the immigrant survival advantage to be especially large for such immigrants. But our supplemental analysis did not find a significant educational variation in the native-immigrant gap in mortality consequence of unemployment. Nonetheless, “salmon bias” warrants further analysis with appropriate data.

Despite the limitations, this study reveals the complexity on how and why unemployment may modify the immigrant health advantage and the temporal changes and group heterogeneity in this process. We have portrayed one aspect of the integration process of immigrants to their destination societies through the lens of immigrant-native differences in labor market experiences, disadvantages and resources to magnify or buffer unfavorable labor experiences, and the health impact of these experiences over time. By doing so, this research contributes to the knowledge of the mortality consequence of job instability and immigrants’ employment and health.

This research also highlights the long-term mortality consequence of unemployment. Our estimate of the effect size of unemployment is probably on the lower bound because the reference group (employed) may consist of individuals who experienced unemployment in the past. This mortality consequence is particularly worthy of attention in the context of the COVID-19 pandemic. The coronavirus outbreak that began in February 2020 sent shock waves through the U.S. labor market, pushing the unemployment rate to 22.7% in April 2020 and causing millions to leave the workforce (Kochhar and Bennett, 2021). Even though the unemployment rate dropped to 9.9% in February 2021, employment in this month was still 8.5 million less than in February 2020, a loss that could take several years to recoup (Kochhar & Bennett, 2021). This unemployment tsunami is likely to have affected immigrants and those with less education disproportionately. Thus, despite our finding of an immigrant advantage following unemployment, the pandemic and its associated economic impact might have led immigrants as a whole to experience a greater increase in mortality hazards than natives. Social scientists and policy makers attempting to remedy the negative consequences of the COVID-19 pandemic should therefore pay close attention to the mortality consequence of unemployment and the nativity disparities wherein. The deaths related to unemployment may be more long-lasting and silent than those from coronavirus.

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APPENDIX

Table A1

Descriptive Statistics of the Sample by Nativity Status, NHIS 1992-2009

	Foreign-Born				
	Total	White	Black	Asian	Hispanic
Unemployed	3,588 (4.9%)	576 (3.9%)	367 (5.6%)	327 (3.5%)	2,318 (5.4%)
Men	57.2%	56.1%	49.1%	52.8%	59.7%

	Foreign-Born				
	Total	White	Black	Asian	Hispanic
Education					
Less than high school	32.7%	7.7%	10.9%	6.9%	50.2%
High school degree	24.2%	25.2%	31.9%	16.1%	24.5%
Any college	18.2%	23.9%	28.4%	16.8%	14.9%
College degree or more	24.9%	43.2%	28.8%	60.2%	10.4%
Poverty					
Above poverty threshold	71.2%	81.8%	74.1%	81.4%	64.9%
Below poverty threshold	11.7%	3.6%	7.9%	4.6%	16.6%
Unknown poverty status	17.1%	14.6%	18.0%	14.0%	18.5%
Marital status					
Married	74.6%	76.8%	62.7%	84.2%	73.5%
Widowed	1.8%	2.0%	2.2%	1.7%	1.7%
Divorced	8.3%	10.5%	10.8%	4.3%	7.9%
Separated	4.2%	2.2%	6.5%	1.5%	5.1%
Never married	11.2%	8.5%	17.8%	8.4%	11.7%
Smoking status					
Never smoker	6.7%	9.6%	4.5%	3.8%	6.7%
Current smoker	6.5%	10.5%	4.0%	4.5%	5.9%
Former smoker	25.9%	20.2%	34.3%	27.3%	26.3%
Unknown smoking status	60.9%	59.7%	57.3%	64.4%	61.0%
Self-rated health					
Excellent	32.2%	38.1%	37.2%	36.5%	28.4%
Very good	30.4%	33.4%	31.2%	33.4%	28.6%
Good	29.3%	23.1%	25.4%	25.0%	33.0%
Fair	7.2%	4.8%	5.6%	4.7%	8.9%
Poor	0.9%	0.6%	0.6%	0.4%	1.1%
Total	73,727	14,682	6,617	9,476	42,952
	Native-Born				
	Total	White	Black	Asian	Hispanic
Unemployed	13,977 (3.4%)	9,283 (2.8%)	3,450 (6.2%)	56 (3.3%)	1,188 (4.5%)
Men	52.5%	53.9%	44.5%	53.7%	51.8%
Education					
Less than high school	8.1%	6.5%	12.0%	3.9%	19.5%
High school degree	34.3%	33.5%	38.6%	18.0%	35.6%
Any college	28.7%	28.1%	31.3%	25.8%	29.8%
College degree or more	28.9%	31.8%	18.1%	52.4%	15.0%
Poverty					
Above poverty threshold	81.9%	84.0%	72.5%	81.9%	75.3%
Below poverty threshold	4.3%	3.0%	9.9%	2.9%	8.9%
Unknown poverty status	13.9%	13.0%	17.6%	15.2%	15.8%
Marital status					

	Foreign-Born				
	Total	White	Black	Asian	Hispanic
Married	70.2%	74.1%	49.5%	70.8%	65.8%
Widowed	1.9%	1.7%	3.2%	0.8%	1.8%
Divorced	13.4%	12.7%	16.9%	8.5%	14.4%
Separated	2.7%	1.8%	7.0%	1.4%	4.2%
Never married	11.8%	9.6%	23.4%	18.5%	13.8%
Smoking status					
Never smoker	10.8%	10.7%	12.4%	5.3%	8.5%
Current smoker	9.4%	10.1%	6.7%	6.1%	7.0%
Former smoker	20.6%	19.8%	25.3%	22.0%	22.2%
Unknown smoking status	59.1%	59.5%	55.6%	66.7%	62.4%
Self-rated health					
Excellent	34.3%	36.1%	25.8%	37.9%	29.4%
Very good	34.6%	35.5%	30.7%	32.1%	32.2%
Good	24.5%	22.8%	32.4%	24.4%	28.9%
Fair	5.9%	4.9%	10.0%	4.8%	8.5%
Poor	0.8%	0.7%	1.2%	0.9%	1.0%
Total	410,348	326,328	55,960	1,710	26,350

Note. Whites, Blacks, and Asians were non-Hispanic.

Table A2

Hazard Ratio from Cox Survival Analysis on the Differential Impacts of Unemployment by Nativity

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Foreign-born	0.763 *** (0.018)	0.753 *** (0.018)	0.699 *** (0.017)	0.687 *** (0.017)	0.704 *** (0.017)	0.728 *** (0.017)	0.733 *** (0.018)
Unemployed	1.795 *** (0.061)	1.801 *** (0.062)	1.680 *** (0.058)	1.586 *** (0.055)	1.492 *** (0.052)	1.439 *** (0.050)	1.322 *** (0.046)
× Foreign-born	0.711 ** (0.075)	0.711 ** (0.076)	0.699 *** (0.074)	0.687 *** (0.073)	0.719 ** (0.077)	0.756 ** (0.082)	0.759 * (0.084)
Male		1.630 *** (0.024)	1.656 *** (0.024)	1.665 *** (0.024)	1.763 *** (0.026)	1.718 *** (0.026)	1.748 *** (0.026)
Education (ref=less than high school)							
High school degree			0.722 *** (0.015)	0.747 *** (0.015)	0.757 *** (0.015)	0.773 *** (0.016)	0.867 *** (0.018)
Any college			0.632 *** (0.014)	0.659 *** (0.015)	0.665 *** (0.015)	0.690 *** (0.016)	0.813 *** (0.018)
College degree or more			0.418 *** (0.010)	0.438 *** (0.010)	0.444 *** (0.010)	0.481 *** (0.011)	0.611 *** (0.015)
Poverty (ref=above poverty threshold)							
Below poverty threshold				1.508 ***	1.371 ***	1.339 ***	1.170 ***

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
				(0.045)	(0.041)	(0.040)	(0.035)
Unknown poverty status				1.026	1.007	1.017	0.995
				(0.023)	(0.023)	(0.023)	(0.023)
Marital status (ref=married)							
Widowed					1.404 ^{***}	1.381 ^{***}	1.389 ^{***}
					(0.051)	(0.050)	(0.050)
Divorced					1.461 ^{***}	1.386 ^{***}	1.352 ^{***}
					(0.028)	(0.026)	(0.026)
Separated					1.534 ^{***}	1.453 ^{***}	1.393 ^{***}
					(0.063)	(0.060)	(0.058)
Never married					1.748 ^{***}	1.734 ^{***}	1.680 ^{***}
					(0.041)	(0.041)	(0.040)
Smoking status (ref=never smoker)							
Current smoker						2.291 ^{***}	2.170 ^{***}
						(0.066)	(0.062)
Former smoker						1.218 ^{***}	1.200 ^{***}
						(0.036)	(0.035)
Unknown smoking status						1.401 ^{***}	1.367 ^{***}
						(0.033)	(0.032)
Self-rated health (ref=excellent)							
Very good							1.220 ^{***}
							(0.024)
Good							1.685 ^{***}
							(0.033)
Fair							2.612 ^{***}
							(0.069)
Poor							4.383 ^{***}
							(0.194)
<i>N</i>	484,075	484,075	484,075	484,075	484,075	484,075	484,075
Year fixed effects	X	X	X	X	X	X	X

Note. Numbers in the parentheses are standard errors.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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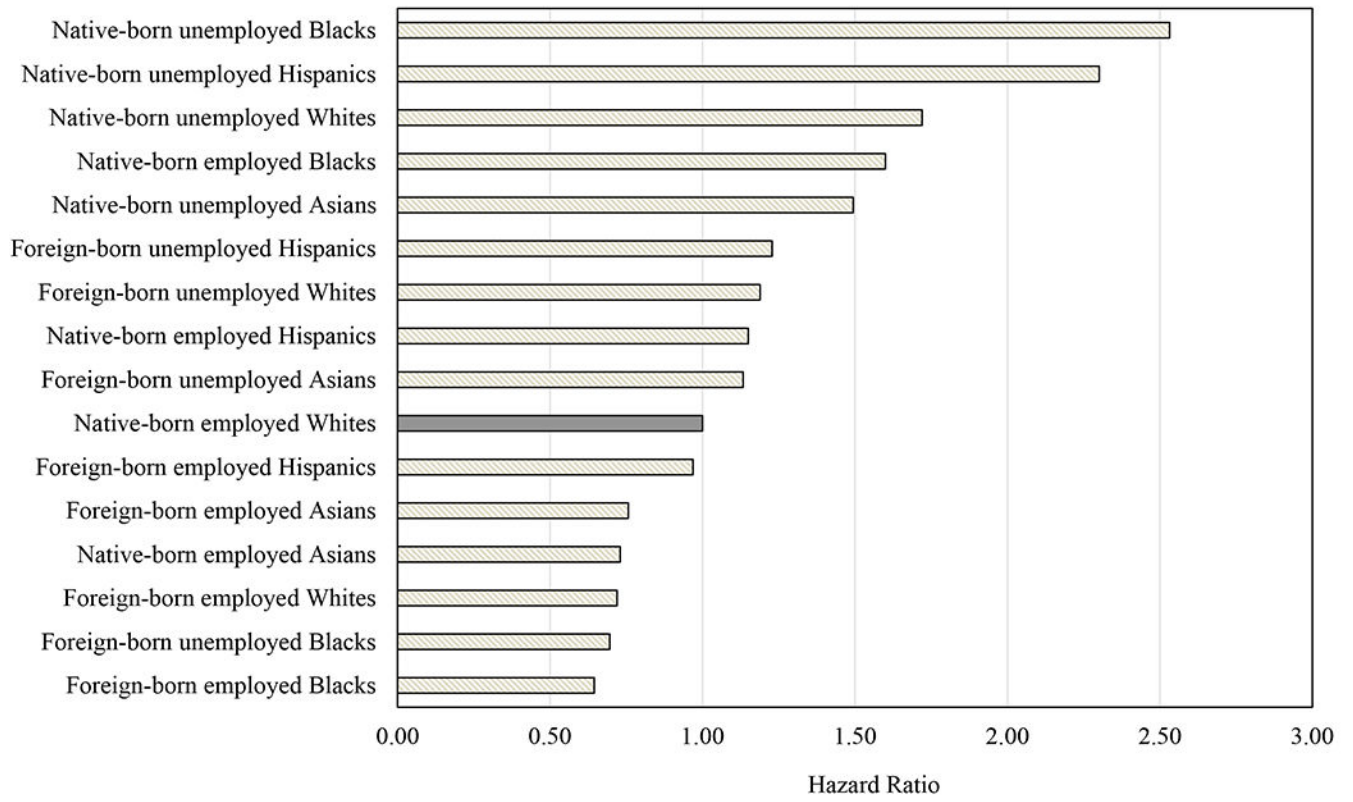


Figure 1. Hazard Ratio Relative to Native-Born Employed Whites among Men

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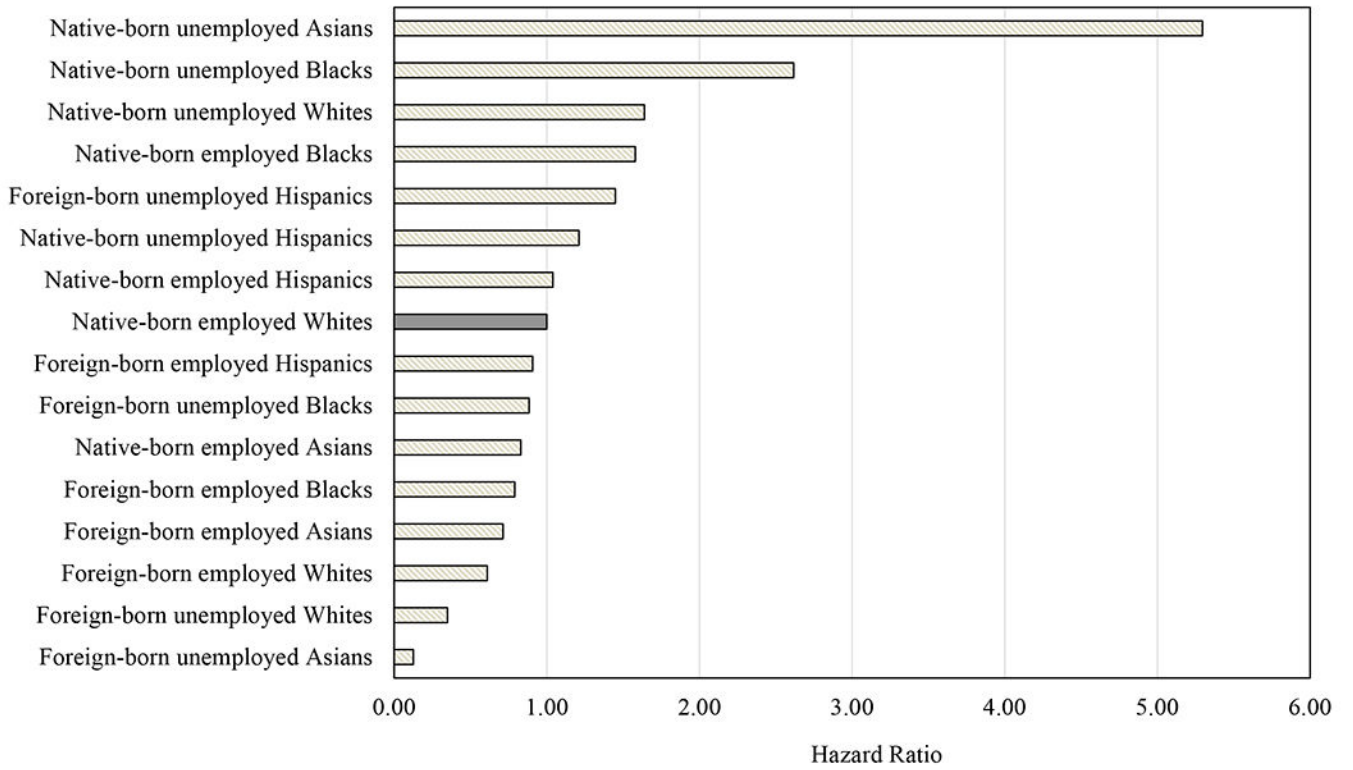
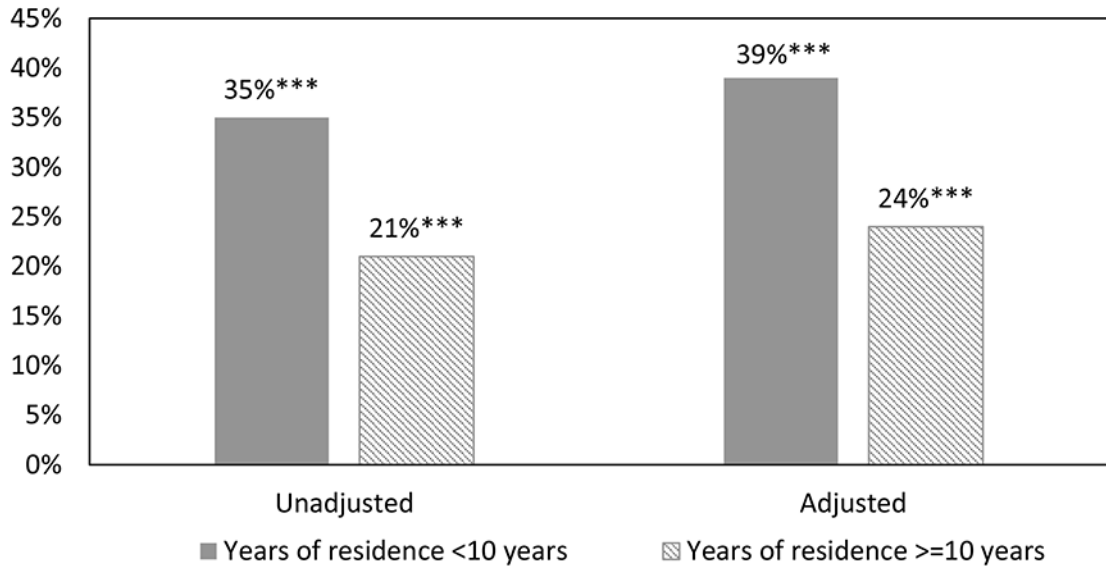


Figure 2.
Hazard Ratio Relative to Native-Born Employed Whites among Women

Panel A. Reduction in mortality hazard compared to native-born



Panel B. Reduction in Unemployment-Related Mortality hazard compared to native-born

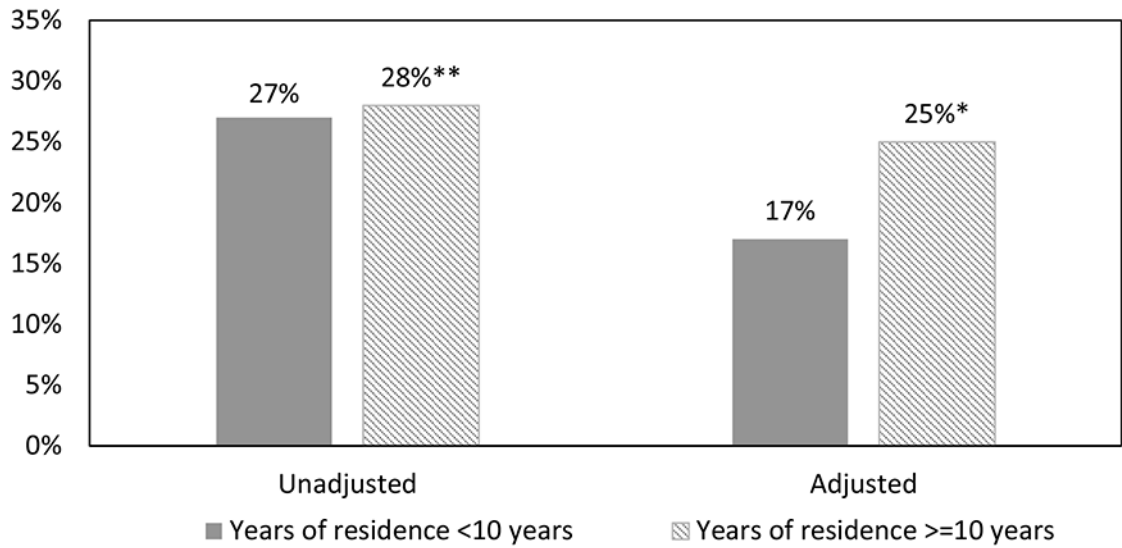


Figure 3. Divergent Trend in Mortality Hazard and Unemployment-Related Mortality Hazard along Duration of Residence

Note. Adjusted values were adjusted for gender, educational status, poverty, marital status, smoking, health status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

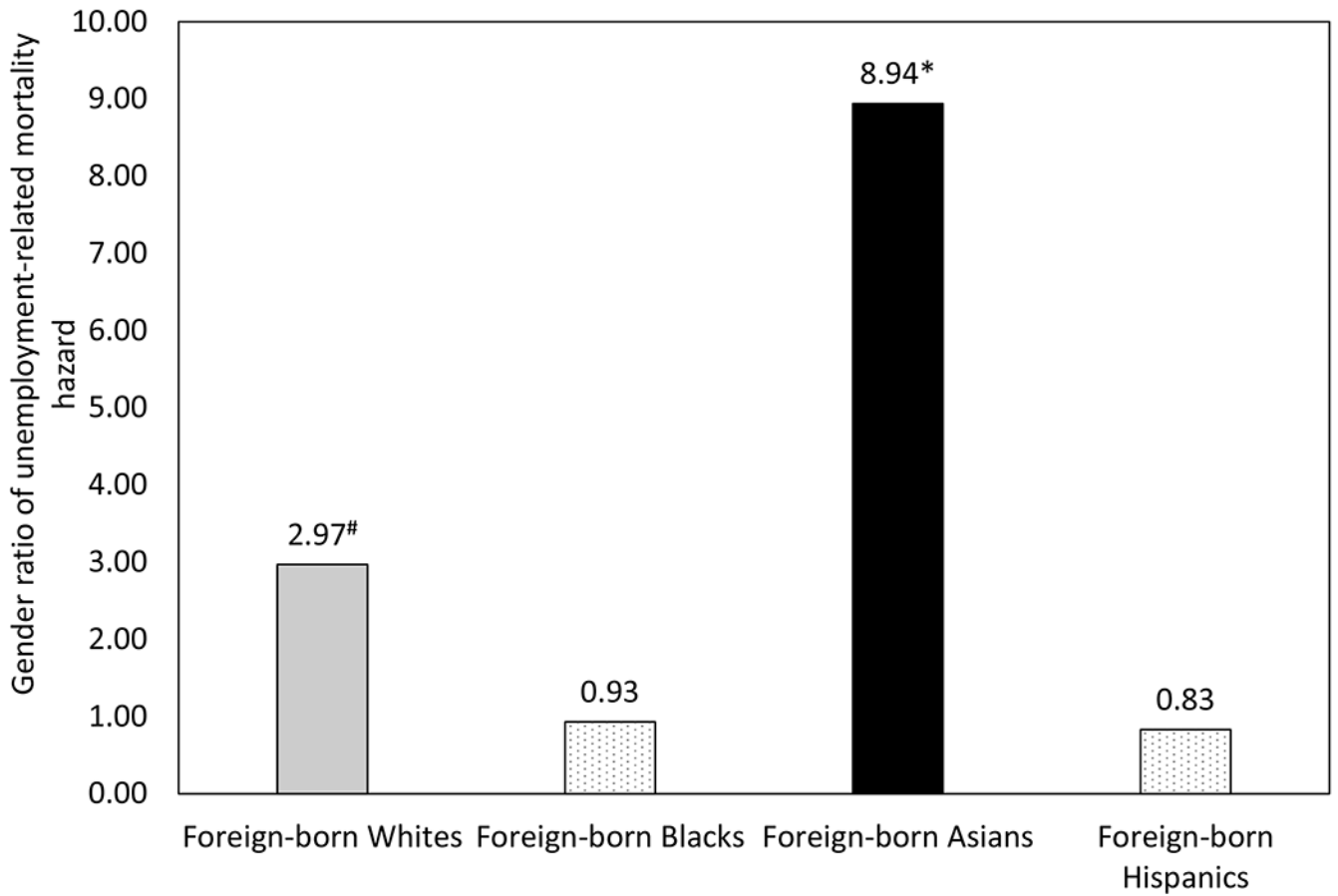


Figure 4. Gender Ratio (Men/Women) of Unemployment-Related Mortality Hazard by Race / Ethnicity within the Foreign-Born
 * $p < .05$. # $p < .10$.

Table 1
Hazard Ratio Relative to Native-Born Employed within Each Race/Ethnicity/Gender Composition

	A	B	C	D	E	F
	Native-born employed	Native-born unemployed	Foreign-born employed	Foreign-born unemployed	Foreign-born unemployed / Foreign-born employed	E/B
All	1.00	1.76	0.85	1.21	1.43	0.81
Men	1.00	1.69	0.78	0.82	1.05	0.62
Women	1.00	1.72	0.72	1.18	1.63	0.95
Non-Hispanic White	1.00	1.64	0.61	0.35	0.57	0.35
Men	1.00	1.56	0.40	0.43	1.08	0.69
Women	1.00	1.62	0.49	0.59	1.20	0.74
Non-Hispanic Black	1.00	1.98	1.12	1.69	1.50	0.76
Men	1.00	7.44	0.85	0.15	0.18	0.02
Women ^b	1.00	1.95	0.82	1.06	1.29	0.66
Hispanic	1.00	1.18	0.85	1.33	1.57	1.33
Men	1.00					
Women ^c	1.00					

Note. Bold values indicate statistically significance, $p < .05$. Columns B, C, and F show the main effect of unemployment, immigrant, and the interaction effect between them, respectively. We did a separate test to check the statistical significance of the difference between column A and D. Column E comes from C/D, or B*F.

^bThe unbelievably high hazard ratio among native-born Asian women is probably due to small sample size and data sparseness. A careful examination of the gender difference between native-born Asian men and women did not reveal statistical significance.

^cAmong Hispanic women, even though unemployment was associated with higher hazard ratio for foreign-born than for native-born, the difference was not statistically significant.

Table 2

Hazard Ratio from Cox Survival Analysis by Duration of Residence among Foreign-Born Compared to Native-Born

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Native-born (reference group)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Years of residence <10 years	0.651*** (0.041)	0.634*** (0.041)	0.589*** (0.038)	0.558*** (0.036)	0.580*** (0.037)	0.600*** (0.038)	0.612*** (0.039)
Years of residence ≥10 years	0.785*** (0.020)	0.778*** (0.020)	0.722*** (0.019)	0.714*** (0.019)	0.731*** (0.019)	0.755*** (0.019)	0.759*** (0.020)
Unemployed	1.795*** (0.061)	1.801*** (0.062)	1.679*** (0.058)	1.583*** (0.055)	1.489*** (0.052)	1.437*** (0.050)	1.320*** (0.046)
× Years of residence <10 years	0.728 (0.131)	0.733 (0.133)	0.720 (0.131)	0.700* (0.127)	0.747 (0.137)	0.796 (0.148)	0.833 (0.156)
× Years of residence ≥10 years	0.718** (0.090)	0.718** (0.091)	0.705** (0.089)	0.699** (0.088)	0.725* (0.092)	0.759* (0.097)	0.751* (0.099)
Male		X	X	X	X	X	X
Education			X	X	X	X	X
Poverty				X	X	X	X
Marital status					X	X	X
Smoking status						X	X
Health status							X
<i>N</i>	482,720	482,720	482,720	482,720	482,720	482,720	482,720
Year fixed effects	X	X	X	X	X	X	X

Note. Numbers in parentheses are standard errors. The sample size is slightly smaller than 484,075 due to missing data on years of residence.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Possible Explanations for the Heterogeneity in Gender Ratio in Unemployment Effects on Mortality across Race/Ethnicities within the Foreign-Born

	Unemployed	College degree	Poverty	Married	Current or ever smoker	Adjusted hazard ratio
Asian men	3.5%	62.4%	5.9%	87.1%	35.7%	
Asian women	3.5%	57.2%	4.8%	80.8%	9.6%	
<i>Ratio</i>	<i>1.00</i>	<i>1.09</i>	<i>1.23</i>	<i>1.08</i>	<i>3.72</i>	<i>2.24</i>
White men	3.5%	46.6%	4.5%	80.6%	54.5%	
White women	4.3%	38.4%	4.0%	72.5%	44.5%	
<i>Ratio</i>	<i>0.81</i>	<i>1.21</i>	<i>1.13</i>	<i>1.11</i>	<i>1.22</i>	<i>1.92</i>
Black men	5.7%	31.9%	7.9%	71.7%	30.8%	
Black women	5.4%	25.3%	11.2%	54.0%	10.1%	
<i>Ratio</i>	<i>1.06</i>	<i>1.26</i>	<i>0.71</i>	<i>1.33</i>	<i>3.05</i>	<i>1.62</i>
Hispanic men	4.7%	9.5%	20.7%	80.6%	42.8%	
Hispanic women	6.3%	11.7%	20.4%	63.5%	19.2%	
<i>Ratio</i>	<i>0.75</i>	<i>0.81</i>	<i>1.01</i>	<i>1.27</i>	<i>2.23</i>	<i>1.60</i>
Unemployed						
Asian men	51.7%	21.8%	21.8%	83.1%	43.3%	
Asian women	49.1%	18.2%	18.2%	82.9%	6.1%	
<i>Ratio</i>	<i>1.05</i>	<i>1.20</i>	<i>1.00</i>	<i>1.00</i>	<i>7.10</i>	
White men	34.8%	23.0%	23.0%	67.0%	63.6%	
White women	42.3%	16.2%	16.2%	62.5%	43.3%	
<i>Ratio</i>	<i>0.82</i>	<i>1.42</i>	<i>1.07</i>	<i>1.07</i>	<i>1.47</i>	
Black men	24.0%	26.5%	26.5%	63.7%	35.2%	
Black women	14.7%	32.1%	32.1%	51.9%	10.8%	
<i>Ratio</i>	<i>1.63</i>	<i>0.83</i>	<i>1.23</i>	<i>1.23</i>	<i>3.26</i>	
Hispanic men	6.6%	42.2%	42.2%	72.7%	46.3%	
Hispanic women	8.8%	42.2%	42.2%	54.8%	22.3%	
<i>Ratio</i>	<i>0.75</i>	<i>1.00</i>	<i>1.33</i>	<i>1.33</i>	<i>2.08</i>	

Note. The survival analysis was adjusted for education, poverty, marital status, smoking status, and self-rated health. Bold values indicate statistical significance, $p < .05$.