# The Great Migration and Women's Work

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**Abstract**

The Great Migration had profound impacts on urban labor markets and black-white gaps in socioeconomic status. While a growing literature has demonstrated the role of the Great Migration in reducing black-white wage gaps for males, far less is known about the impacts on the migration and labor market outcomes of women despite black female migrants having labor force participation rates well over 50 percent, with particularly high representation in domestic services. We use variation in migration driven by Southern economic conditions to show that the inflow of black women to Northern cities put downward pressure on black female wages and fundamentally changed white women's work choices, both in terms of market and non-market work. Greater inflows of black workers led to white women leaving the formal labor sector, particularly highly educated women from higher income households, and led to increases in fertility. Our findings suggest that the increased supply of black female domestic help, rather than shifting white women's non-market work to market work, complemented it and allowed for greater time invested in white families. White women's responses to the Great Migration may then have increased racial gaps in investment in children, with stark intergenerational consequences.

# 1 Introduction

The Great Migration fundamentally altered the geographic distribution, employment opportunities and socioeconomic outcomes of the United States' black population. In 1910, roughly 90 percent of the black population in the United States lived in the South. By 1970, nearly half of the black population lived outside the South. Much has been written about this massive internal migration across the humanities and the social sciences.[1] Within economics, there is a long literature on the economic conditions that pushed black individuals out of the South and pulled them to the cities of the North, Midwest and West, the selection of individuals into migration, and the economic outcomes of those who migrated.[2] This literature continues to grow as better census data become available, allowing researchers to apply modern census linking techniques to track individuals and their offspring over the course of the Great Migration.

This paper is focused on the experience of women during the Great Migration. This is not a new subject; an extensive economics literature exists covering black-white gaps in female wages and employment. Sundstrom (2000) traces the evolution of black female occupational distributions over the twentieth century, work extended by Collins & Moody (2018), who review

[1] See the classic book by Lehmann (1991) and the more recent Wilkerson (2010) for in-depth accounts of the Great Migration that shed light on the individuals making the journey and their families. These highlight the more personal dimensions of the Great Migration experience that can be lost in the more quantitative economic history literature that will be the focus of this paper.

[2] See Collins (2020) for a thorough overview of the economics literature on the Great Migration.

the history of black-white differences in labor force participation and wages from 1940 into the twenty-first century. One pattern that emerges from these reviews is the high percentage of black women employed in household and non-household services. A second significant stylized fact is the high labor force participation rate of black females relative to white females. These gaps in labor force participation cannot be explained through differences in economic and demographic characteristics alone (Goldin, 1977). Work by Boustan & Collins (2014) emphasizes the role of racial differences in norms concerning women's work that contributed to early labor force participation gaps and was then perpetuated partly as the result of intergenerational transmission of these norms.

This paper builds off of these stylized facts of high labor force participation and employment in service occupations for black women, exploring whether those features altered the labor force participation and fertility decisions of white women in Northern cities. The substantial increase in the supply of service occupation employees could have impacted white female labor force participation in a variety of ways. If white females were less inclined to engage in market work due to social norms, an increas in the supply of black female workers could drive down wages in the service occupations to the point where the costs of going against social norms exceed the benefits of income from service occupation work for white females. This would lead to a decline in white female labor force participation among those females likely to be employed in service occupations.

However, in other parts of the occupational distribution, we might anticipate an increase in white labor force participation. As norms changed and more clerical, sales and professional occupations opened to women, an increase in the supply of black women working in private household service occupations could enable white women with children to be able to enter the labor force. Among these women, we may expect labor force participation to rise. Alternatively, we could also think of this as a reduction in the cost of children which could result in an increase in family sizes.

This historical shock to American women's time allocation decisions, driven by internal migration, has a modern analogue in international migration, with low-skilled foreign-born migrants to the United States today disproportionately likely to work in the domestic services sector. Potentially as a result of this phenomenon, Cortés & Tessada (2011) find that immigration to

the US significantly, positively impacts work hours for women in the top quartile of the female earnings distribution, but they find no effect on work hours for those below the distribution's median. Other US focused papers, such as East & Velásquez (2024), find that policies decreasing immigration decreased the size of the domestic help sector, in turn lowering the proportion of highly educated women in the labor force. Cortés (2023) provides a broader review of this literature and offers a theoretical framework for understanding the impacts of immigration on female work decisions through a time-use model. A key takeaway from both the theory and the empirical literature is that the impacts of in-migration on native-born women's labor decisions are concentrated among wealthy women, highly-educated women and women with young children. Another key result of this modern empirical literature is that family size responds to international migration; Furtado (2015) demonstrates that immigration leads to increased fertility, especially among college-educated women. This modern literature suggests that the Great Migration did indeed have the potential to significantly impact Northern women's work and time allocation decisions. Furthermore, the results for the modern United States underscore the possibility that any impacts of the Great Migration on the work decisions will likely differ by income, education and family structure.

In what follows, we use decadal census data from 1940 through 1970 to assess whether inflows of black women during the Great Migration were correlated with changes in white-black female wage gaps, white female labor force participation, and white family size decisions. To attempt to uncover a causal relationship, we employ a variation on the methodology of Boustan (2010), using heterogeneity in push factors from Southern counties to tease out variation in inflows to Northern cities that is independent of the economic and social conditions in those cities. Our results for wages are consistent with established patterns for males. Increased supply of black female migrants tended to lower black female wages but leave white female wages largely unaffected. Growth in the black female population is associated with declines in white female labor force participation coupled with increases in white family sizes, suggesting that paid black female household workers complemented white female non-market work and aided in maintaining larger households and greater investments in children. These findings raise the possibility that the Great Migration and the unique features of female labor markets combined to increase black-white gaps in investment in children.

# 2 The Great Migration and Gender

## 2.1 Contrasting Male and Female Migrants

While there are a range of studies exploring how the female experience during the Great Migration differed from the male experience,[3] it is instructive to provide a basic set of descriptive statistics to highlight the ways in which the male and female experiences differ. First, a simple but important point: female out-migration from the South was on the same scale as male out-migration. Figure 1 demonstrates this by plotting the share of Southern-born black individuals living outside of the South by decade and gender over the twentieth century. Both in the early decades of the Great Migration and in the peak decades following World War II, women are migrating at levels nearly identical to men.[4] Given the comparable scales, female migration may be as economically impactful to Northern cities as male migration (if not more, as discussed in the next section).

A second basic consideration for assessing economic impacts of female migration is where individuals migrated from and to during the Great Migration. Table 1 provides the distribution of sending states for black migrants from the South by gender in 1940 based on individuals who moved across states within the last five years. The distribution of sending states is quite similar by gender. The destination choices of migrants show slightly more variation across gender, as seen in Table 2, which gives the share of black Southern out-migrants by metropolitan area in 1940. Here we can see that females are somewhat more drawn to the largest cities including New York, Chicago and Los Angeles while males appear slightly more likely to move to manufacturing cities such as Detroit and Pittsburgh.[5]

This notion that occupational opportunities might account for aforementioned differences in migration patterns between black men and women is reinforced when looking at the individual

[3]See, for example, White et al. (2005) on differences in destination choice by gender, Bailey & Collins (2004) on the wage gains of African-American women during the 1940s, and Tolnay (1997) on changes in the Northern black family from 1940 to 1990.

[4]Throughout this paper, we define the South as the South Atlantic, East South Central and West South Central census regions which include Delaware, the District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas.

[5]These differences may appear slight but it is important to keep in mind that many migrants move as couples. Based on authors' calculations using the 1940 complete count census, 46 percent of the black women who moved out of the South between 1935 and 1940 were married prior to moving. The differences in Table 2 understate the variation in destination choices among the unmarried half of migrants.

characteristics of migrants. Table 3 provides summary statistics for black individuals migrating to Northern cities from a Southern state within the past five years for both 1940 and 1970. Most differences between males and females are slight. Females have similar ages, marital status, educational attainments and unemployment rates to males.[6] However, while perhaps unsurprising, there are important differences in occupations and labor force participation by gender. Males are far more likely to be employed in manufacturing and females are far more likely to be employed in the service sector and, given work in the service sector, are ten times as likely to be employed in a private household by 1970.

## 2.2 Migration, Market Work and Household Production

It is this high likelihood of migrant women finding employment in private households that is at the heart of this study. The question at hand is whether the in-migration of black women to Northern cities changed white women's work decisions, in part by supplying labor that substituted for white women's time spent in household work. The large share of black female migrants working in the service sector suggests this is certainly a possibility. Table 4 offers a closer look at female employment in the North in 1950 to reinforce this point. Black females were over nine times as likely to be private household workers compared to white females. Private household work, laundry and dry cleaning, and other service workers constitute three of the top five jobs where black females are most over-represented relative to their population share.The table also reveals an important point about which occupations and industries have the least black female representation: white collar jobs like accounting, banking and credit. White women are ten times more likely to be working as bookkeepers and twenty times more likely to be working as bank tellers than black females.[7]

Given these stylized facts, one can think of a few important ways in which black female migrants might have impacted white female employment outcomes. First, analogous to mechanisms at the center of work on the impacts of male migration, the increased labor supply might drive

[6]The similar mean ages is a bit misleading. When looking at the distributions of migrant ages, as shown in Appendix Figure B6 and Figure B7, a greater share of female migrants in the late 1930s are coming in their twenties compared to males. This difference largely disappears by 1970.

[7]It is worth noting that black men were far more likely to work in private household than white men, as shown in Appendix Table B10. However, it is a much smaller share of black men working in these occupations, only one percent as opposed to the 30 percent for black women.

down wages. However, given the occupational distributions above, this downward pressure on wages will be strongest in the domestic service sector and far less pronounced in white collar professions. This is reinforced by educational attainment patterns. White women were twice as likely to be high school graduates as black women in 1950.[8] One would expect any wage effects of the increased labor supply to be strongest in jobs associated with lower educational levels. While these wage impacts are similar in theory to those in male labor markets (as explored by Boustan (2009) and Gardner (2016)), there is reason to believe they may be more significant in practice for females given differences in labor force participation by race and gender. While labor force participation rates were high for both white and black males, hovering around 90 percent at the start of the second wave of the Great Migration, female labor force participation rates were far lower for females and particularly for white females, as shown in Figure 2. Given similar populations of white males and females in Northern cities and similar numbers of black male and female migrants, these low white female labor force participation rates mean that female migrants will increase the female working population by a significantly larger percentage compared to male migrant impacts on the male working population.

Beyond these wage impacts, there is a channel more unique to females relating to the division of time between market work and household production. As Figure 2 makes clear, a substantial fraction of women do not work in the formal labor sector. Instead, their time is spent in household production, non-market work related to maintaining a home and raising children. Here is where the concentration of black women in the domestic service sector, and particularly work in private households, is especially important. This labor can serve as a substitute for white women's household production. This increased availability of domestic help could allow white women to shift time from non-market work to market work, increasing white female labor force participation rates (a pattern seen in Figure 2), or could instead allow for increased investment in household production (larger family sizes, increased time spent with children, etc.).

One might wonder if the role of black female domestic workers could be large enough to meaningfully influence white female labor force participation and family size decisions, particularly

[8] 50 percent compared to 27 percent based on authors' calculations using the IPUMS 1% sample of the 1950 Census, restricting the sample to all women outside of the South between the ages of 20 and 55. College graduation shows a similar relative black-white gap though with far lower absolute levels for both groups, with six percent of white women completing four years of college compared to only three percent of black women.

given that even in the later decades of the Great Migration black individuals are still very much a minority in most Northern metropolitan areas. Data from the Social Security Administration offer a glimpse of how prevalent the use of paid household help was during this era. Beginning in 1951, employers of household workers fell under covered employment in the Social Security Act, requiring employers to report wages paid to these workers. Reporting was required if employers paid a household worker at least $50 in a quarter.[9] These reported wages offer a rough estimate of the share of households relying on paid domestic help. In 1963, among non-farm households, one in 40 reported employing household help. This prevalence varied substantially across state, with some states having as many as five percent of non-farm households reporting wages paid to household help (U.S. Department of Health, Education, and Welfare, 1966).[10]

While that in itself is a non-trivial share of households, it is worth noting that it is very much a lower bound as it only counts those employers who actually report. As the Social Security Administration notes in a 1970 report, "the wages of some domestic workers are not being reported because of either a lack of understanding or a disregard of the law on the part of the employer or the worker or of both." (Tacker, 1970). While they do not venture to put a number on the extent of under-reporting, modern studies suggest that as few as 5 percent of household employers actually file their required household employment taxes (Erard, 2018). So the 1 in 40 households reporting paid domestic help suggests a substantially larger share of households actually employing domestic help. The SSA statistics also confirm what the occupational distributions from the census showed: black women make up a disproportionately large share of those household workers.

Figure 3 offers a concrete example of just how significant the contributions of black domestic workers are, showing the black share of the overall female population and of domestic workers for Chicago and Philadelphia. While the black population share steadily rises in both of these major destinations of the Great Migration, the black share of domestic workers rises at a far faster rate. In Philadelphia, black women account for three quarters of domestic workers during the peak decades of the Great Migration despite being under 20 percent of the female population. For the

[9]The 1950 amendment to the Social Security Act that made paid household work covered employment only required employers to report wages if the employee worked at least 24 days for the employer in a quarter in addition to the $50 in earnings threshold. The 24 day requirement was eliminated in 1955.

[10]Maryland had the highest prevalence of household employers. Southern states generally had the highest numbers of household employers followed by the Northeast and Midwest. Western states had the lowest numbers.

country as whole, black females constituted 56 percent of all household workers in 1950 and still 46 percent by 1970.[11] This is not strictly driven by Southern households, it is also reflected by the Great Migration destinations. In the Northeast, black females accounted for 39 percent of all household workers in 1950. Given the significant share of households relying on paid domestic help, and the huge share of that help being provided by black females, it is certainly plausible that the Great Migration significantly impacted how white females allocated their time between housework and market work.[12]

# 3 The Impact of Black Migration on Women's Wages and Work

The basic stylized facts presented in the previous section suggest the white female labor force participation in Northern cities was growing at the same time that black female population shares were growing. Those black female migrants were disproportionately working in service occupations, both relative to black male migrants and relative to white women. Our goal is to quantify the relationship between black female in-migration and changes in white female labor force participation and family size decisions by estimating three distinctly different effects: (i) how the influx of female migrants from the South impacted female wages in the Northern cities, (ii) how these changes in the formal labor market opportunities of white women and the supply of domestic help impacted white women's labor force participation decisions and, finally, (iii) how all of these forces impacted fertility patterns.

We are going to rely primarily on data from the 1940 through 1970 federal population censuses. We use reported wage and salary income as well as reported work hours to address the

[11] Authors' calculations based on the default IPUMS samples of the 1950 and 1970 federal census. We define household workers as all individuals in the occupational categories housekeeper (private household), laundress (private household) and private household worker (nec).

[12] There is also anecdotal evidence suggesting that Northern households perceived a shortage of domestic workers on the eve of both the earlier and later waves of the Great Migration. See, for example, the Fifteenth Annual Report of the Secretary of Labor (1926), noting that people were attributing the root of the 'servant girl problem' to the "recently enacted restrictive immigration laws", the same immigration restrictions that would create openings for black individuals in Northern labor markets. Leading up to the later wave of the Great Migration, the *Philadelphia Inquirer* covered the difficulty of women honoring the War Manpower Commission's request to share their domestic help with women war workers. The newspaper noted that "housewives are having a tough time getting domestic help on any basis. Even houseworkers by the day are hard to come by" (Philadelphia Inquirer, 1944).

first question of how wages responded to the influx of black female workers. We use responses to the employment status questions to assess the impact of in-migration on labor force participation rates of Northern white women. Finally, we use the observed number of children as a variable to directly capture fertility responses of Northern women to in-migration and to indirectly proxy for time spent in non-market work.

For all of these relevant outcome variables, a key econometric issue is that white females are likely responding to the same economic conditions that are drawing black females workers to Northern cities. Increases in black female population may simply proxy for improved economic opportunities that directly impact white female work decisions. Consequently, we need a source of exogenous variation in black female population sizes in Northern cities, something that impacts migration decisions but is independent of local conditions in the North. To accomplish this, we follow the approaches of Boustan (2009) and Boustan (2010) utilizing variation in Southern economic conditions to predict growth in the Northern black population. While we closely follow the spirit of Boustan's approaches, our context of female work choices and the evolution of census data availability lead to several important modifications, detailed below.

## 3.1 The Great Migration and female racial wage gaps

### 3.1.1 Empirical Approach

For estimating the impact of black female migrants on female wages in the North, we closely follow the approach of Boustan (2009), expanded on by Gardner (2016). The basic approach is to focus on competition within 'skill cells' by regressing relative black-white wages on relative migrant labor supply. A skill cell is a particular combination of education ($e$) and work experience ($x$). Educational attainment levels are binned into the following categories: elementary school, middle school, high school attendees, high school grads, and at least some college. Work experience is defined as age minus years of education minus 6, grouped into five-year bins. The goal is to then think about how wages by race in each skill cell (each combination of education and experience) are impacted by the number of migrants arriving in the North by race. We can think of capturing this relationship with the following equation:

$$ln\left(\frac{w_{exbt}}{w_{exwt}}\right) = \beta ln\left(\frac{L_{exbt}}{L_{exwt}}\right) + e + x + \tau + (e \cdot x) + (e \cdot \tau) + (x \cdot \tau) + \varepsilon_{ext} \quad (1)$$

where $w_{exbt}$ ($w_{exwt}$) are the average wages for Northern-born black (white) workers with education $e$ and experience $x$ in year $t$, $L_{exbt}$ ($L_{exwt}$) is the number of Southern-born black (white) workers in the North with education $e$ and experience $x$, and $\varepsilon_{ext}$ is an unobserved error term for the particular skill cell. The restriction to Northern-born workers for calculating the dependent variables is to avoid the estimates of Northern wages being biased upward by positively-selected migrants (see Collins & Wanamaker (2014) for estimates of positive selection into migration during the earlier waves of the Great Migration).

The coefficient $\beta$ is picking up the marginal effect of an increase in the number of black migrants relative to white migrants on black wages relative to white wages controlling for education, experience and year fixed effects as well as their interactions. The key issue with this interpretation of $\beta$ is that the number of migrants in the key independent variable is not only driving changes in the wages captured in the dependent variable, it is also responding to those wages, presenting a clear possibility of reverse causality. To address this, Boustan (2009) uses the total population of Southern-born individuals in a particular skill cell to instrument for the number of migrants in that cell. We take the same approach.

As with Boustan (2010), we draw these wage and migrant data from the IPUMS samples of the Federal Census, convert the nominal income data from the census to real income using the Consumer Price Index, and pool data for 1940, 1950, 1960 and 1970.[13] Given our interest in female labor markets, we do make some slight variations to this approach. First, we obviously use female wages and migrant stocks. Second, while Boustan focuses on full-time workers and annual earnings, we also consider hourly wages, estimated as reported annual income divided by the product of weeks worked last year and hours worked last week. The advantage of focusing on full-time workers and annual wages is that it substantially reduces the measurement issues introduced by part-time workers: hours worked last week is a noisy proxy for average hours worked per week over the past year. While missing out on part-time workers in the name of more precise estimates for full-time workers is a worthwhile trade-off for males, it is quite

[13]Note that income is not recorded in any census prior to 1940, preventing us from considering the first wave of the Great Migration.

problematic for females for two key reasons. First, part-time work is far more common among females in this period. Second, a substantial fraction of more highly-educated women choose to work part time (or not at all) in this period, a pattern that is not an issue for males.

### 3.1.2 Labor-market-level Results

Table 5 provides estimates of Equation 1 for annual wages of full-time workers in Columns (1) through (3). These estimates follow the Boustan (2009) approach exactly with the exception of focusing on full-time females rather than full-time males. Panel A provides the OLS estimates while Panel B provides the IV estimates using the total population in the South in each education-skill cell to instrument for the migrant labor supply in that cell. The results echo those of Boustan, suggesting that the dynamics of the Northern female labor markets match those of male labor markets in important ways. In particular, increased black female migrant supply is associated with large decreases in black female wages and corresponding increases in the black-white wage gap.

The results in the first three columns are restricted to full-time workers to ensure the comparability of weekly wages across individuals. However, unlike the male labor markets studied by Boustan, part-time work is an important component of female labor markets. Excluding these part-time workers could therefore produce misleading results. The final three columns in Table 5 provide estimates using hourly wages for all workers, allowing us to include the significant share of part-time female workers. The precision of these estimates suffer substantially from the measurement error introduced by each component of the hourly wage imputation (relying on hours worked last week as an estimate of average weekly hours and relying on accurate reporting of weeks worked last year). Nonetheless, we find that the signs of the effects are consistent with those for the weekly wages of full-time workers and the negative effects of black migrant labor supply on both black wages and black wages relative to white wages remains large and statistically significant: under the IV estimates, a one percent increase in the black labor supply is associated with a nearly three-quarter percent decrease in wages for black workers already residing in the North.[14] A similar increase in the white labor supply has no statistically significant

[14]Beyond impacting wages, we might also expect the increase in the black female migrant supply to impact unemployment rates for white women, particularly in the sectors with a larger share of black women. To examine this, we follow the individual-level analysis approach outlined in Section 3.2.1 using unemployment as the outcome variable.

impact on black wages and only a small, negative impact on white wages.

## 3.2 The Great Migration and women's work and family decisions

The previous section's results suggest that, as with male labor markets, the major impact of black migration to the North was on Northern black wages, not white wages. However, this obscures several other potentially important Northern responses. As seen in Figure 2, men's labor force participation rates are high and stable throughout this period. Women's, however, are not. Unlike men, part of what may be keeping white female wages insulated from the impacts of black in-migration is an exit from the labor force. It is entirely possible that the lack of a significant impact of black inflows on white women's wages is not that white women were insulated from competition from black women, but rather that they responded to increased competition that would otherwise lower market wages by exiting the labor force, exerting a pressure on market wages in the opposite direction. It is important, then, to consider how women changed their work decisions in response to in-migration.

As discussed earlier, these labor force participation responses will differ significantly across different categories of women. Married women will have substantially more flexibility to disengage from market work than unmarried women. Women with children will have significantly different demands on their time in terms of non-market work than women without children. Highly-educated women will face different job opportunities, and different levels of competition from migrant workers, than less-educated women. Consequently, analysis of these work decisions necessarily requires turning to individual-level data to allow us to estimate responses that differ across these individual characteristics.

Results are provided in the appendix tables Table C12 and Table C13. The results in Table C12 reveal a fairly noisy relationship between black in-migration and unemployment. There is weak evidence of increased unemployment among non-high-school graduates, a result consistent with black in-migration creating greater competition among lower-skilled jobs. However, any interpretation of these results is complicated by the samples being restricted to those participating in the formal labor market. A decrease in unemployment among white females could be driven by improved labor market outcomes but it could also be the result of women who would otherwise face unemployment leaving the labor force. This conceptual issue with interpreting female unemployment status coupled with the large standard errors leave us hesitant to draw any strong conclusions from the unemployment estimates.

### 3.2.1 Empirical Approach

To analyze these individual work decisions, we turn to the empirical approach of Boustan (2010) and Derenoncourt (2022), both of whom create shift-share instruments to study the impact of the Great Migration on Northern cities. We adapt those approaches to focus specifically on female migration and individual-level female outcomes, particularly labor force participation and family size.[15] We turn to individual-level data from the IPUMS samples of the federal census for 1950, 1960 and 1970, in order to control for relevant characteristics such as age, marital status, presence of young children, and spousal characteristics.[16] Here we discuss the empirical approach for labor force participation, but the other outcome variables use identical approaches.

The simplest way to utilize individual-level census data to estimate the impact of black female migration on white female outcomes would be to estimate a relationship of the form:

$$LFP_{i,m,t} = \alpha \text{black\_pop}_{m,t} + X_{i,t}\beta + Z_{m,t}\gamma + \theta_m + \zeta_t + \varepsilon_{i,m,t} \tag{2}$$

where $LFP_{i,m.t}$ is an indicator for being in the labor force for individual $i$ living in metropolitan area $m$ observed in year $t$.[17] The key independent variable of interest is the black female population size, $\text{black\_pop}_{m,t}$. Individual characteristics like age and marital status are controlled for with the vector $X_{i,t}$, time-varying metropolitan characteristics are included in $Z_{m,t}$ and $\theta_m$ and $\zeta_t$ incorporate metropolitan area and year fixed effects.

A first problem with this is how we think black female population should enter the equation. Roughly, the mechanism in mind is that an additional black woman employed by a private household potentially allows one additional white woman to enter the labor force rather than

[15] Clearly women may respond on both the intensive and extensive margins in terms of work, shifting both work hours and overall labor force participation. In practice, census data on labor force participation are more precise than work hours (in general we only observe intervalled work hours for the previous week). While we report results for both work hours and full-time status in the appendix, our focus in the main results will be on the far more accurately measured labor force paritication.

[16] The choice of census years is dictated in part by history and in part by data constraints. Focusing on 1950 through 1970 captures the second wave of the Great Migration and the period in which the country witnessed substantial increases in female labor force participation, as seen in the earlier sections. Consequently, it makes sense as a focus of this particular study. However, it misses the first wave of the Great Migration, a period that would offer an interesting comparison to these later decades. Unfortunately, we lose educational attainment data for the census for all years earlier to 1940 and city statistics get increasingly sparse as well. That said, we are currently exploring the first wave in another working paper.

[17] We focus on metropolitan area here rather than distinguishing between central cities and suburbs given the possibility that black females living in the central city could very well be employed as domestic help in suburban households.

focus solely on household production. Given that, it is reasonable to scale the black female population by the working-age white female population. To do this, we simply use the ratio of the black female population to the working-age white female population, defined as all females between the ages of 20 and 59.

A second problem is that the black female population size will be correlated with local labor market conditions that likely influence white women as well. The direction of the bias this creates is unclear. Suppose that black women are drawn to cities where norms among white women make them less likely to engage in market work, and therefore they present less competition to black female workers. In this case, we would get a negative bias on the coefficient on the black female population. However, in the case where these norms do not vary across cities, black women will likely be attracted to labor markets with increasing wages. These increasing wages would likely induce more white women to join the labor force as well. Here would would be getting positively biased estimates of the impact of an additional black migrant.

To get around these issues, we would ideally use variation in the flow of black female migrants that is uncorrelated with local conditions in the receiving metropolitan areas. One approach is to follow the methodology of Boustan (2010) in which she constructs a shift-share instrument using variation in push factors over time in Southern counties and the 1940 distribution of black migrants in each Northern city by birth state to predict inflows of black migrants into each city over time. This procedure begins by regressing outflows from each Southern county on various push factors.[18] Using Boustan's notation, this is represented as:

$$\text{mig\_rate}_{c,t-t+10} = \alpha + \gamma(\text{push factors})_{ct} + \varepsilon_{ct} \tag{3}$$

where $\text{mig\_rate}_{c,t-t+10}$ is the net migration rate for county $c$ over the decade from $t$ to $t+10$. Boustan aggregates these migration rates up to the state level to get the predicted flow of migrants from each Southern state $s$ from $t$ to $t+10$ by multiplying each county's net migration rate by the initial county population and then summing over all counties:

$$\text{pred\_mig}_{s,t} = \sum_{c=1}^{\bar{c}} \widehat{mig\_rate}_{c,t-t+10} \cdot \text{black\_pop}_{c,t} \tag{4}$$

[18]Data for net migration rates and from each Southern county and initial black populations by county are obtained from Bowles et al. (1990) for 1950 through 1970 and Gardner (1971) for 1940.

These outflows at the state level are then used to construct inflows for each Northern metropolitan area $m$ with a weighted sum using the share of out-migrants from state $s$ residing in city $m$ in 1940, $\omega_{m,s}$:

$$\text{pred\_mig}_{m,t} = \sum_{s=1}^{\bar{s}} \omega_{m,s} \cdot \text{pred\_mig}_{s,t} \tag{5}$$

This predicted number of migrants is used to instrument for black population in Equation (2). The logic behind this instrument is that black migrants from a particular state tended to follow the same migration patterns of earlier waves of migrants from that state due to both transportation and community networks.[19] While the initial location decisions of black migrants will certainly be related to destination economic conditions, interacting that distribution of destinations with subsequent variation in push factors yields an instrument for subsequent inflows of black workers that is plausibly uncorrelated with contemporaneous economic conditions in the destinations.[20]

With the release of the complete count 1940 census data in subsequent years, Derenoncourt (2022) refined this approach by using the 1940 Federal Census's question about place of residence in 1935. The place of residence was reported at the county-level, allowing a more precise prediction of inflows into Northern metropolitan areas by skipping the aggregation of Southern outflows to the state level and instead directly estimating Northern MSA inflows from a weighted sum of the Southern county outflows:

$$\text{pred\_mig}_{m,t} = \sum_{c=1}^{\bar{c}} \omega_{m,c} \cdot \widehat{mig\_rate}_{c,t-t+10} \cdot \text{black\_pop}_{c,t} \tag{6}$$

where $\omega_{m,c}$ is the share of the migrants leaving county $c$ between 1935 and 1940 who reside in metropolitan area $m$ in 1940. It is this approach to the shift-share instrument that we will use in our analysis.

In practice, we first predict migration into each county within a metropolitan area and then sum those predicted in-migrants across all the counties to get the predicted metropolitan-area number of in-migrants. This allows us to keep the county-composition of metropolitan areas

[19] Recent work by Stuart & Taylor (2021) convincingly estimates strong migration networks among black migrants during the Great Migration. These networks make the 1940 distribution of black migrants highly predictive of subsequent migrant flows.

[20] For a more thorough and elegant justification of the instrument, refer to Boustan (2010).

constant to ensure that any results are driven by migration flows into a metropolitan area, not by changes in county composition of the metropolitan area. For our main results, we keep metropolitan boundaries fixed at their 1970 definitions. This ensures that we capture the more suburban outlying areas and allows us to include areas that start small in 1940 but get designated as metropolitan areas by the end of our sample period. In the appendix, we provide a full set of our regression results using 1950 boundaries rather than 1970 boundaries.[21]

The one other modification we make is to normalize the instrument by the white working-age female population as discussed earlier. However, we cannot simply divide by the year $t$ white working-age population as this would reintroduce the same endogeneity issue the instrument is meant to solve. Instead, we divide by the 1940 white working-age female population, summed across all counties in the 1970 boundaries of the metropolitan area.

One potential drawback of this general approach, whether inflows are calculated using county-level outflows or outflows aggregated to the state level, is the potential for these shares to be correlated with the very same trends in Northern economic conditions we are trying to purge from our independent variables. Particularly for considering changes in migration and Northern female labor market outcomes in between 1940 and 1950, one third of our observations, the location decisions of migrants between 1935 and 1940 may be driven by the same Northern economic trends that will impact Northern white females over the coming years, drawing the validity of the instrument into question. A second concern of relying on 1935 to 1940 migrants relates to the predictive power of the instrument. Using migration patterns during the Great Depression may yield shares that are based on idiosyncratic Depression-era economic conditions across locations that will not be relevant for migration decisions in later years. People may revert to the migration patterns of prior eras of more normal economic conditions. Earlier migration patterns may be a more useful source for the shares in the shift-share instrument, both to create more temporal distance from the Northern economic trends that drive our concerns of endogeneity in our OLS regressions and to potentially better match non-Depression settlement patterns.

Recent efforts to create publicly available linked census data offer a solution. These efforts include the Census Linking Project as well as the Census Tree, both of which provide links

[21]The main takeaway from the results using the 1950 boundaries is that they suffer from a lack of precision given a major reduction in sample sizes. See Appendix Table B11 for sample sizes under the different approaches.

matching individuals across federal censuses for which complete count data are available.[22] We use the links between the 1920, 1930 and 1940 censuses to identify migrants who left the South between 1920 and 1930 and who left the South between 1930 and 1940. By observing them prior to moving, we can see their county of residence in the South and by observing them after they move, we see their new county and metropolitan area of residence outside of the South, providing an alternative way to calculate destination shares. While links between earlier censuses are available as well as links across multiple decades (e.g., 1920 to 1940), the earlier censuses contain too few black interregional migrants to be of use and the links across multiple decades are too likely to contain intraregional moves as well as interregional moves, making them less predictive of the initial location choices of new migrants.

There are two potential drawbacks to the switch to linked census data for calculating destination shares. First, linked individuals are a small subset of the overall population. This effectively creates a noisier estimate of the distribution of black migrants, particularly given that the number of black migrants to many metropolitan areas is rather low in the early twentieth century. Second, this mismeasurement is compounded by any mismeasurement introduced by incorrect links and by sample biases generated by the linking process itself. Consider the increased likelihood of linking women who married prior to migration given their last name stays the same. The linked data will overpredict migration to cities that married women were more likely to move to (see White et al. (2005) on marriage and destination choice during the Great Migration). The 1940 complete count approach avoids these issues given that the complete population of 1935 to 1940 movers is observed. Given that both approaches have strengths and weaknesses, we will present results using both throughout our analysis.

Beyond taking advantage of the newly available linked census data for constructing destination shares, we also deviate from the prior Great Migration literature by constructing female-specific destination shares given our focus on women's labor markets. For the destination shares based on the 1940 census, this is straightforward given that men and women answered the same question about their place of residence in 1935. The linked census data provide a bit more of a challenge. Common linking techniques like those used by the Census Linking Project rely

[22]Censuses become public after 72 years. Currently, complete count data is available on IPUMS for censuses up to and including the 1940 Federal Census with preliminary data available for the 1950 Census.

in part on the similarity of a person's first and last names across censuses. These approaches cannot link women who marry between censuses and change their last name. Consequently, many linked data sources focus solely on males. The Census Tree Project, however, is built in part on a training dataset created from user-generated links on Familysearch.org. These users, with knowledge of their family genealogies, can potentially link women across censuses in spite of name changes. We use the links from this "Family Tree" subset of the Census Tree data, allowing us to focus specifically on female migrants when calculating destination shares.

Figure 4 shows just how sensitive our predicted number of black female migrants is to the choice of how to construct destination shares, both in terms of whether the shares are based on men or women and in terms of the data source used to identify destinations. The upper panel compares the predicted number of black female migrants using the same data source, the 1940 complete count census, but using either men or women's location choices. Here we see that there was indeed significant variation in the destination choices of men and women (as hinted at by Table 2), justifying the approach of a gender-specific shift-share instrument. The lower figure compares predicted migrants by the choice of data source for destinations. Here we see substantial variation in predicted migrants between the two approaches. However, as discussed above, neither approach is clearly better than the other. Figure 4 underscores that results based on shift-share instruments, both those presented here and those in future papers on the Great Migration, may vary substantially with the data used to construct shares.

As with the destination choices, we want to allow for women to differ from men in their responses to the economic push factors in the South which generate the shift portion of the shift-share instrument. Consequently, we estimate the shift portion of the instrument using county-level female net migration rates. We focus on the same set of push factors as Boustan (2010), namely the share of land in cotton production, the share of tenants among farmers, the share of the labor force in agriculture, the share of labor force in mining, defense spending per capita during World War II, and indicators for whether the state is a tobacco state and an oil state. We pull these data from the same sources as Boustan (the County and City Databooks (ICPSR 12) supplemented with data from published reports of the Census of Agriculture and the Census of Mineral Industries) with the exception of World War II spending, for which we draw on the more recent numbers from Jaworski (2017). To this we add the female labor force

participation rate, which we calculate from the IPUMS samples of the federal population census. Given that we are considering migration driven by economic opportunity, we expect counties with more working females to see more out-migration. This push factor is less relevant for the male population where there is less variation in labor force participation rates across counties.[23]

### 3.2.2 Individual-level Results

Table 7 provides the IV estimates of Equation 2 using labor force participation as the dependent variable (1=in the labor force, 0=not in the labor force). OLS estimates are provided in the Appendix. Each cell in the table gives the estimated coefficient on the black female migrants per white working-age female variable from an IV regression that includes metropolitan area fixed effects, year fixed effects, and controls for age, age squared, foreign born status, years of education, number of children under five, number of children over four, and, for married women, their spouse's age, age squared, and occupational income score.[24] As discussed in the previous section, we instrument for the black female migrants per working-age white female variable with the predicted number of black female migrants based on our shift-share instrument divided by the 1940 white working-age female population. The push factor regressions used to create the shift portion of that instrument are reported in Appendix Table A9.[25] The different rows of Table 7 correspond to the different approaches to calculating the share portion of the instrument.[26]

The columns of Table 7 correspond to different regression samples of working-age white females living in non-Southern metropolitan areas. As discussed in the earlier sections, work responses likely differ by women's education and marital status. Thus we split the sample by marital status, high school graduate status, and husband's income.[27] The results suggest that

[23]See Appendix A for a fuller discussion of the determinants of out-migration from the South and for push factor regression estimates.

[24]Occupational income scores are provided by IPUMS and based on a person's given occupation. They are equal to the median income for all individuals reporting that occupation in 1950.

[25]While we use female-specific estimates for the push factor regressions, we also include male-specific estimates for comparison in the Appendix. One noteworthy point is that the R-squared for the female regressions is actually slightly higher than for the male regressions, reinforcing the point that economic forces are just as important for understanding the female side of the Great Migration as the male side.

[26]An example of complete regression results, rather than just the black female migrant coefficient, are provided in Appendix Table C14 and Table C15 Results for the control variables match intuition, with older and more highly educated women more likely to be working. Women with children were less likely to be working and that effect was stronger for children under the age of five.

[27]We split husbands into high and low income on the basis of whether they have an above- or below-median occupational income score.

there are indeed heterogeneous responses across these groups. In general, we find decreases in labor force participation among married white women in response to an increase in black female migrants but no significant effects on unmarried women. This lack of an effect for unmarried women is expected, as they really have no option of leaving the labor force when faced with increased competition. The effects on married women are larger for women with high-income spouses and for women who graduated high school.[28]

This greater elasticity of labor supply among higher income and higher education females parallels the findings for modern US women in response to inflows of foreign-born workers (Cortés, 2023). However, it differs in sign. While studies such as Cortés & Tessada (2011) and East & Velásquez (2024) find increased market work for high income and highly educated US women with increased inflows of foreign-born workers, we find the opposite for non-Southern women in response to inflows of black female workers during the Great Migration. However, the modern literature on migration and women's work does offer a way to reconcile this finding. As we discussed earlier, Furtado (2015) finds increases in fertility among high-skilled US women in response to increases in the share of low-skilled immigrants. These increases in fertility contributed to decreases in labor force participation rates due to women exiting the labor force to bear children.

To test whether there were similar fertility responses during the Great Migration, we consider the number of children as an outcome variable in Table 8, otherwise following the same empirical strategy used for labor force participation. The results are far less precise than the labor force participation results, with only the Family Tree migrant men approach to the shift-share instrument consistently leading to statistically significant estimates. For this approach to the instrument, we find substantial increases in family size associated with increases in black female migrants. As with the labor force participation results, these effects are concentrated among married women. The estimated effects are meaningfully large: a one standard deviation increase in the number of black females per working-age white female is associated with an increase in

[28] As noted in the earlier section, women may also be responding on the intensive margin of how many hours they work. Appendix Table C17 through Table C20 follow the same estimation approach but restrict the regression sample to working women and use full-time work status and work hours as dependent variables. While the OLS results reveal some evidence of a general increase in work among high school graduates and a decrease among non-HS graduates, the IV results are far too imprecise to draw any conclusions. Both dependent variables suffer from the measurement error introduced by relying on intervalled hours worked last week as our best proxy for typical work hours.

family size of 0.2 children for a non-high school graduate married white woman. These results suggest that the increased supply of black female domestic help effectively lowered the costs of a larger family, leading to higher fertility among white females.

# 4 Conclusion

We motivated this paper by highlighting several stylized facts about gender and the Great Migration. The migration of black men from the South to Northern cities fundamentally altered Northern economies but the migration of black women was equally consequential. Black womenm migrated in comparable numbers to black men and responded very similarly to economic push and pull factors. Yet while the economic forces driving these migrations might have been quite similar, the impacts of those migrations were quite different. Black women entered very different occupations, particularly those related to domestic services, and had significantly different labor market participation rates than their white female counterparts, unlike black males.

These stylized facts suggest a richer set of impacts on Northern economies than those studied for males. With females making important decisions about how to allocate time between market and non-market work, the arrival of black females during the Great Migration introduced possibilities of both substitutes and complements to white female work. Particularly in domestic services, black females presented competition in the formal labor market, potentially driving down wages, driving up unemployment and driving white women out of the labor force. However, particularly for highly-educated married white females, black female domestic workers offered a substitute for white female non-market work. This potentially enabled white women to allocate more time to market work or to having larger households.

Our results suggest that these latter effects on household size proved to be the most substantial. We find that female wages followed patterns similar to those for males; increased black female migrants primarily drove down black female wages and increased black-white wage gaps rather than driving down white female wages. In terms of individual work decisions, married white women's labor force participation was generally negatively related to black female in-migration, with effects stronger for more highly educated women and those with higher income spouses. The results for family size, while suffering from a lack of precision, are suggestive of

that withdrawal from the labor force being related to a decision to have larger families.

These results have an interesting analogue in the ways in which labor-saving technologies changed female work habits over the twentieth century. Electrification and the subsequent introduction of water pumps, refrigerators, washers and dryers to American households dramatically decreased the time it took to complete a wide range of daily tasks involved in running a household, work that typically fell to women. The response to this reduction in non-market work was not necessarily an increase in either market work or leisure, it was an expansion in the amount of other non-market work accomplished. Time use studies suggest that when the time required for cooking and cleaning was reduced, women on farms and in small towns reallocated that time: women working seven or more hours per week reallocated to more farm or paid work, and women working fewer than seven hours per week reallocated primarily to adult and child care (Gershuny & Harms, 2016). For the group that did not shift into additional paid work, the saved time went to further investment in the household. Here we find a similar pattern when the inflow of black female migrants provided a substitute for white women's own non-market work. Particularly in the case of married, high-school educated females, this savings was translated not into leisure or market work, but rather to greater investment in the household as evidenced by larger family sizes.

While this response may be analogous on its face to the response of rural women to labor-saving technological change, there are far different implications in this context. Here time is not being saved by new technology, it is being saved through substituting the non-market labor of white women for the paid labor of black women. Given that the response to this substitution was further investment in the household, it suggests that racial gaps in investment in children might be exacerbated. While black women moved North to find better economic conditions for themselves and their families, their labor resulted in an increased investment in white households. While part of this investment came in the form of white women shifting time toward non-market work, a significant portion came from the paid labor of black women that necessarily came at the expense of time allocated to their own children. These dynamics in the female labor market during the Great Migration therefore have significant implications for the evolution of racial gaps in the investment of human capital of children and consequently racial gaps in economic outcomes for the next generation.

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# 5 Figures

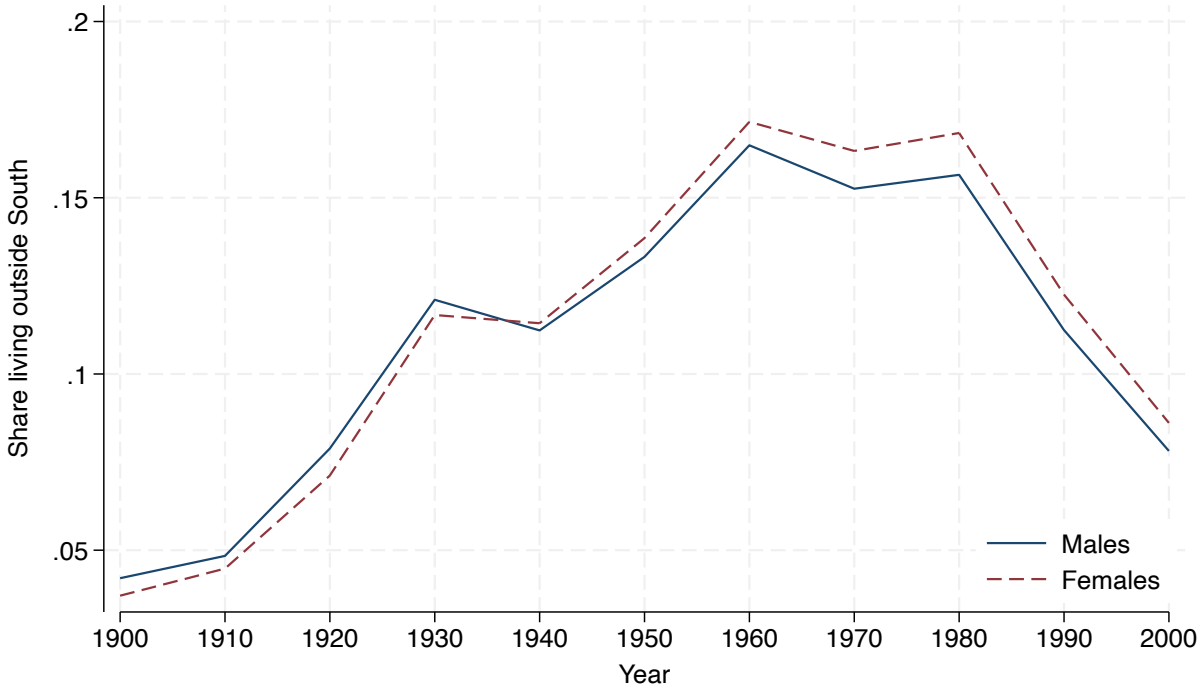


Figure 1: Share of Southern-born Black individuals living outside of the South, 1900 to 2000. Notes: Data are from the default IPUMS samples of the US Federal Census.

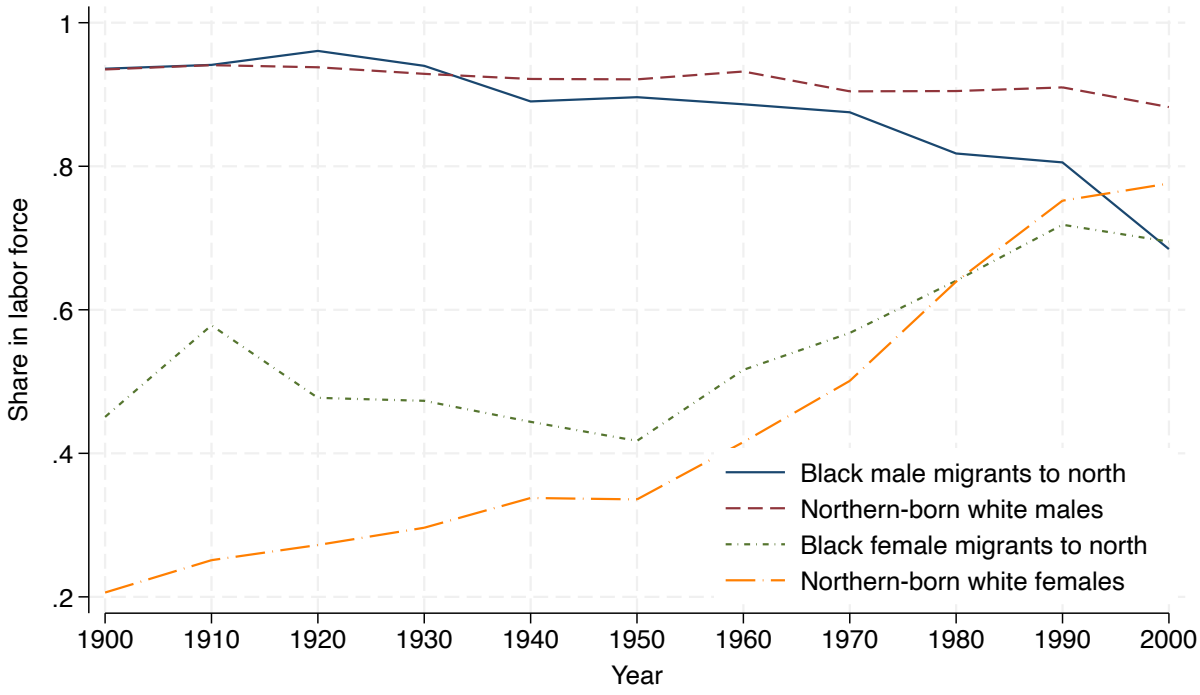


Figure 2: Labor force participation rate by sex and year, 1900 to 2000. Notes: Data are from the default IPUMS samples of the US Federal Census. Sample is restricted to individuals between the ages of 18 and 55.

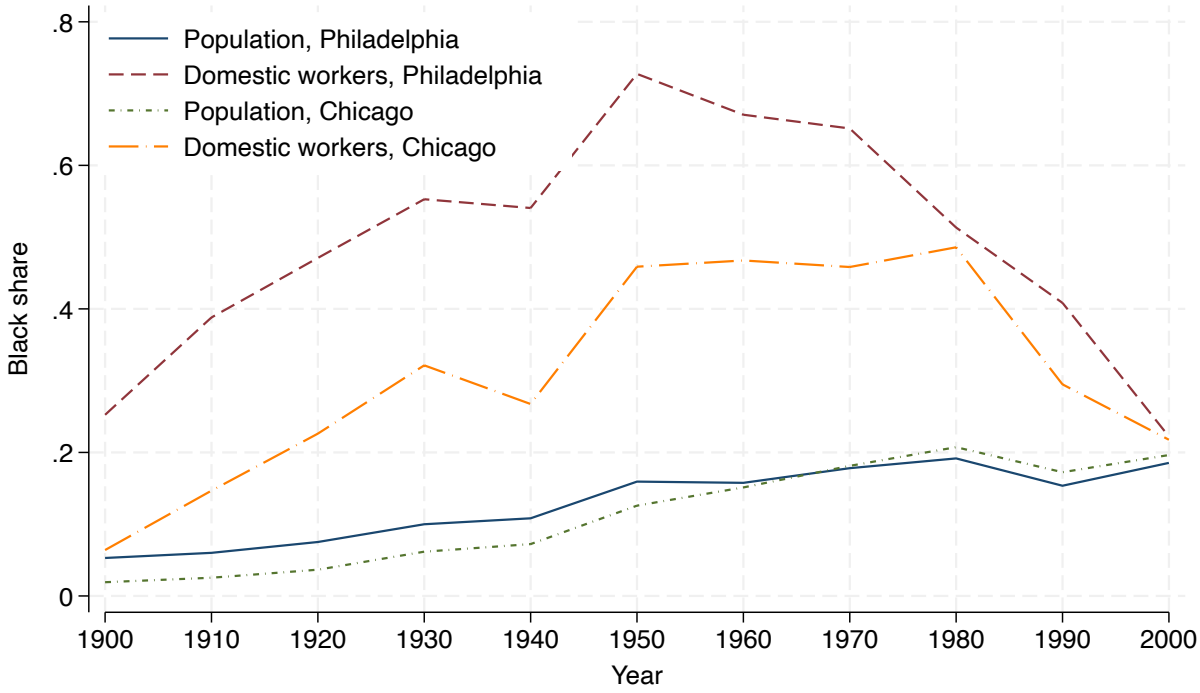


Figure 3: Black share of females and domestic workers in Chicago and Philadelphia, 1900 to 2000. Notes: Data are from the default IPUMS samples of the US Federal Census. Sample is restricted to white and black females.

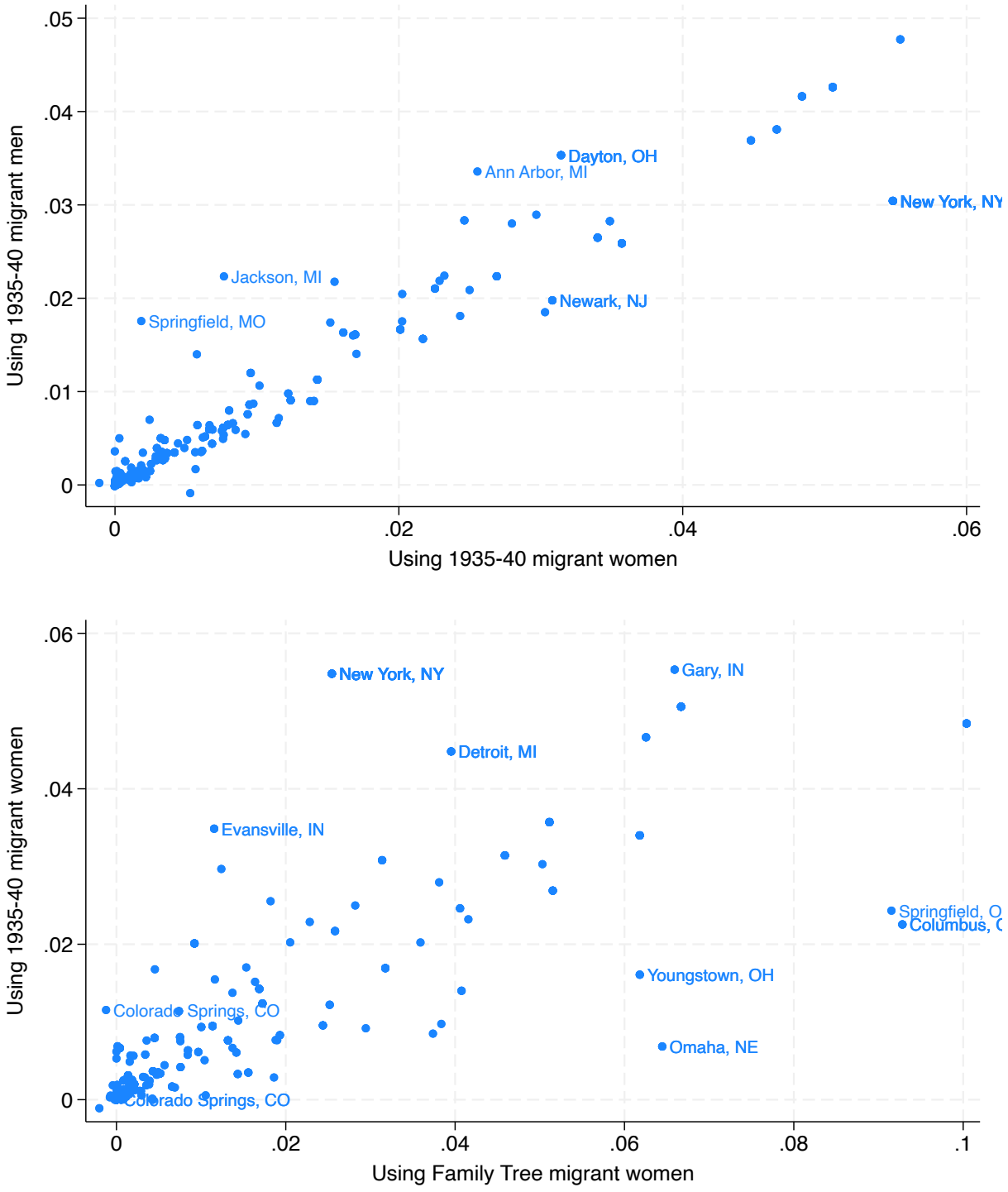


Figure 4: Predicted black female in-migrants per white working-age woman in 1970 by method for constructing migrant destination shares. Each point corresponds to a single non-Southern metropolitan area.

# 6 Tables

Table 1: Distribution of birth states among black migrants out of the South, 1940.

| | Percentage of migrants | |
|---|---|---|
| Birth state | Females | Males |
| Alabama | 8.95 | 9.49 |
| Arkansas | 5.24 | 5.38 |
| Delaware | 0.54 | 0.49 |
| District of Columbia | 0.72 | 0.60 |
| Florida | 2.39 | 2.66 |
| Georgia | 14.11 | 14.10 |
| Kentucky | 5.36 | 5.35 |
| Louisiana | 3.67 | 4.05 |
| Maryland | 2.81 | 2.53 |
| Mississippi | 9.51 | 9.79 |
| North Carolina | 8.49 | 8.37 |
| Oklahoma | 1.92 | 2.06 |
| South Carolina | 11.02 | 10.40 |
| Tennessee | 7.30 | 7.60 |
| Texas | 3.80 | 4.30 |
| Virginia | 13.30 | 11.95 |
| West Virginia | 0.84 | 0.89 |

Data are from the IPUMS 100% sample of the 1940 Federal Census. The sample includes all black individuals with a Southern state of residence in 1935 residing outside of the South in 1940.

Table 2: Distribution of receiving cities of black migrants out of the South, 1940.

| | Percentage of migrants | |
|---|---|---|
| Metropolitan area | Females | Males |
| New York, NY-Northeastern NJ | 23.94 | 19.62 |
| Chicago, IL | 14.02 | 13.38 |
| Philadelphia, PA/NJ | 11.29 | 10.89 |
| Detroit, MI | 6.89 | 7.47 |
| St. Louis, MO/IL | 5.42 | 5.37 |
| Cleveland, OH | 3.56 | 3.66 |
| Los Angeles-Long Beach, CA | 3.26 | 3.05 |
| Pittsburgh, PA | 3.11 | 3.64 |
| Cincinnati-Hamilton, OH/KY/IN | 2.66 | 2.67 |
| Kansas City, MO/KS | 1.86 | 1.88 |
| Indianapolis, IN | 1.83 | 1.78 |
| Columbus, OH | 1.16 | 1.34 |
| Dayton-Springfield, OH | 0.99 | 1.15 |
| Buffalo-Niagara Falls, NY | 0.77 | 0.89 |
| Youngstown-Warren, OH/PA | 0.75 | 0.88 |
| Atlantic City, NJ | 0.73 | 0.68 |
| Boston, MA/NH | 0.69 | 0.63 |
| San Francisco-Oakland-Vallejo, CA | 0.62 | 0.71 |
| Akron, OH | 0.55 | 0.59 |
| Toledo, OH/MI | 0.53 | 0.58 |

Data are from the IPUMS 100% sample of the 1940 Federal Census. The sample includes all black individuals with a Southern state of residence in 1935 residing outside of the South in 1940.

Table 3: Characteristics of recent black migrants out of the South, 1940 and 1970.

| | 1940 | | 1970 | |
|---|---|---|---|---|
| | Females | Males | Females | Males |
| | Demographics | | | |
| Age | 32.35 | 33.17 | 31.83 | 30.94 |
| | (12.19) | (11.51) | (13.96) | (12.34) |
| Share married | 0.61 | 0.65 | 0.52 | 0.63 |
| | (0.487) | (0.477) | (0.500) | (0.483) |
| Number of children | 0.73 | 0.63 | 1.44 | 1.09 |
| | (1.354) | (1.349) | (1.732) | (1.603) |
| | Education | | | |
| Share with no high school | 0.24 | 0.33 | 0.06 | 0.08 |
| | (0.428) | (0.471) | (0.244) | (0.279) |
| Share with some high school | 0.40 | 0.39 | 0.14 | 0.13 |
| | (0.490) | (0.487) | (0.347) | (0.334) |
| Share graduating high school | 0.36 | 0.28 | 0.80 | 0.79 |
| | (0.479) | (0.448) | (0.402) | (0.410) |
| | Work | | | |
| Share in labor force | 0.53 | 0.87 | 0.55 | 0.87 |
| | (0.499) | (0.338) | (0.498) | (0.334) |
| Share unemployed | 0.14 | 0.20 | 0.10 | 0.07 |
| | (0.351) | (0.397) | (0.306) | (0.256) |
| Share in manufacturing sector | 0.04 | 0.19 | 0.23 | 0.45 |
| | (0.205) | (0.396) | (0.419) | (0.498) |
| Share in services sector | 0.75 | 0.15 | 0.15 | 0.02 |
| | (0.431) | (0.358) | (0.356) | (0.131) |
| Share in service sector working | 0.91 | 0.54 | 0.46 | 0.04 |
| in private households | (0.279) | (0.498) | (0.499) | (0.189) |
| Observations | 47164 | 36531 | 2035 | 1686 |

Means given with standard deviations in parantheses. Sample is restricted to all black individuals who moved from a Southern state to the Northeast, Midwest or West in the previous five years. Observations are drawn from the IPUMS 1940 complete count and 1970 1% fm1 and fm2 samples of the federal census.

Table 4: Most and least likely occupations to be held by black women relative to white women, 1950. Sample is restricted to working women age 18 and older living in the North.

| Rank | Occupation (i) | Black share within occupation Pr(B\|i) | Probability of holding occupation within black population Pr(i\|B) | Relative probability of holding occupation Pr(i\|B)/ Pr(i\|W) |
|---|---|---|---|---|
| 1 | Private household workers (nec) | 0.41 | 0.30 | 9.85 |
| 2 | Elevator operators | 0.33 | 0.01 | 6.89 |
| 3 | Garage laborers and car washers and greasers | 0.32 | 0.00 | 6.79 |
| 4 | Porters | 0.31 | 0.00 | 6.40 |
| 5 | Laundry and dry cleaning Operatives | 0.27 | 0.06 | 5.16 |
| 6 | Laundresses, private household | 0.25 | 0.01 | 4.79 |
| 7 | Service workers, except private household (nec) | 0.23 | 0.06 | 4.17 |
| 8 | Janitors and sextons | 0.20 | 0.01 | 3.46 |
| 9 | Attendants, hospital and other institution | 0.16 | 0.02 | 2.81 |
| 10 | Attendants, professional and personal service (nec) | 0.16 | 0.00 | 2.79 |
| ... | | | | |
| 91 | Stenographers, typists, and secretaries | 0.01 | 0.02 | 0.20 |
| 92 | Office machine operators | 0.01 | 0.00 | 0.19 |
| 93 | Telephone operators | 0.01 | 0.00 | 0.16 |
| 94 | Buyers and dept heads, store | 0.01 | 0.00 | 0.15 |
| 95 | Spinners, textile | 0.01 | 0.00 | 0.14 |
| 96 | Editors and reporters | 0.01 | 0.00 | 0.12 |
| 97 | Weavers, textile | 0.01 | 0.00 | 0.11 |
| 98 | Bookkeepers | 0.01 | 0.00 | 0.10 |
| 99 | Farm laborers, unpaid family workers | 0.00 | 0.00 | 0.07 |
| 100 | Bank tellers | 0.00 | 0.00 | 0.04 |

Sample is restricted to all white and black working females in the 1950 complete count federal census. Occupations are based on IPUMS OCC1950 coding scheme and are limited to the 100 most commonly held occupations among women.

Table 5: The marginal effect of migrant labor supply on Northern women's wages, 1940-1970.

| | Weekly wages for fulltime workers | | | Hourly wages for all workers | | |
|---|---|---|---|---|---|---|
| LHS - wages for: | ln(black/white) | ln(black) | ln(white) | ln(black/white) | ln(black) | ln(white) |
| RHS - migrant labor supply for: | | | | | | |
| Panel A: OLS | | | | | | |
| ln(black/white) | 0.007 | 0.049 | 0.018 | -0.051 | 0.000 | 0.033 |
| | (0.08) | (0.08) | (0.02) | (0.09) | (0.10) | (0.02) |
| ln(black) | -0.125 | -0.127 | -0.008 | -0.182 | -0.263* | -0.021 |
| | (0.11) | (0.10) | (0.02) | (0.12) | (0.13) | (0.03) |
| ln(white) | -0.078 | -0.123 | -0.028 | -0.049 | -0.149 | -0.052** |
| | (0.08) | (0.08) | (0.02) | (0.10) | (0.10) | (0.02) |
| Panel B: IV | | | | | | |
| ln(black/white) | 0.008 | 0.046 | 0.044* | -0.167 | -0.181 | 0.027 |
| | (0.12) | (0.12) | (0.03) | (0.14) | (0.16) | (0.03) |
| ln(black) | -0.279* | -0.272* | 0.023 | -0.529*** | -0.735*** | -0.066 |
| | (0.16) | (0.15) | (0.03) | (0.18) | (0.20) | (0.04) |
| ln(white) | -0.175* | -0.052 | -0.020 | -0.213* | 0.211 | -0.054* |
| | (0.10) | (0.13) | (0.02) | (0.12) | (0.19) | (0.03) |
| N | 151 | 151 | 155 | 155 | 155 | 155 |

Each cell represents the result of a separate regression. The unit of observation is the education-skill bin in a given decade. Data come from the IPUMS samples of the 1940, 1950, 1960 and 1970 censuses. Observations are limited to locations outside of the South. The instrumental variable regressions use the total population of Southerners in an education-skill bin as an instrument for the migrant labor supply in that bin. All regressions include fixed effects for education bins, experience bins, year and all their interactions. Significance of coefficients is indicated by * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table 6: Summary statistics for regression variables, white-working-age women living, 1950-1970.

| | Unmarried | | Married | |
|---|---|---|---|---|
| | Non-HS grad | HS grad | Non-HS grad | HS grad |
| Dependent variables: | | | | |
| In labor force (1=yes) | 0.64 | 0.82 | 0.33 | 0.37 |
| | (0.480) | (0.387) | (0.471) | (0.482) |
| Unemployed (1=yes) | 0.07 | 0.03 | 0.07 | 0.04 |
| | (0.256) | (0.174) | (0.255) | (0.185) |
| Working full time (1=yes) | 0.70 | 0.66 | 0.58 | 0.53 |
| | (0.460) | (0.475) | (0.493) | (0.499) |
| Weekly work hours if working | 38.29 | 37.90 | 35.12 | 34.02 |
| | (9.862) | (9.605) | (11.60) | (11.97) |
| Number of children | 0.76 | 0.39 | 1.79 | 1.80 |
| | (1.282) | (0.910) | (1.610) | (1.459) |
| Independent variables: | | | | |
| Working-age black females per | 0.23 | 0.23 | 0.23 | 0.22 |
| working-age white female | (0.138) | (0.146) | (0.139) | (0.145) |
| Age | 40.10 | 33.44 | 39.82 | 36.13 |
| | (10.95) | (11.35) | (9.756) | (9.408) |
| Children under 5 | 0.13 | 0.07 | 0.42 | 0.56 |
| | (0.453) | (0.317) | (0.773) | (0.818) |
| Children over 4 | 0.64 | 0.32 | 1.37 | 1.25 |
| | (1.133) | (0.814) | (1.409) | (1.327) |
| Foreign born (1=yes) | 0.12 | 0.06 | 0.12 | 0.06 |
| | (0.323) | (0.239) | (0.326) | (0.232) |
| Husband occscore | -- | -- | 27.48 | 31.89 |
| | -- | -- | (8.062) | (10.71) |
| Highest grade completed | 8.11 | 13.32 | 8.66 | 12.88 |
| | (2.775) | (1.788) | (2.051) | (1.538) |
| Observations | 108,306 | 189,910 | 392,680 | 610,298 |

Variable means with standard deviations given in parentheses. The regression sample includes all white females age 20 to 55 living in a metropolitan area outside of the South. Data are from the IPUMS samples of the 1950, 1960 and 1970 Federal Censuses.

Table 7: IV estimates of the marginal effect of black female migrants on Northern white women's labor force participation. Dependent variable equals 1 if in labor force, 0 if not.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.083 | -0.355*** | 0.096 | -0.029 | -0.145 | -0.302** | 0.093 | 0.100 |
| | (0.10) | (0.08) | (0.13) | (0.22) | (0.12) | (0.12) | (0.16) | (0.15) |
| 1940 complete count migrant men | -0.248** | -0.398*** | -0.114 | 0.352 | -0.534** | -0.559** | -0.401** | 0.061 |
| | (0.12) | (0.15) | (0.19) | (0.45) | (0.23) | (0.26) | (0.18) | (0.43) |
| Family Tree migrant women | 0.088 | -1.117 | 1.663 | 2.698 | -0.125 | -0.269 | 0.103 | 0.904 |
| | (0.81) | (1.02) | (4.57) | (4.73) | (0.34) | (0.30) | (0.73) | (1.32) |
| Family Tree migrant men | -0.254** | -0.669*** | 0.122 | 0.153 | -0.265* | -0.207 | -0.297* | 0.191 |
| | (0.12) | (0.21) | (0.17) | (0.34) | (0.14) | (0.13) | (0.16) | (0.17) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table 8: IV estimates of the marginal effect of black female migrants on Northern white women's family size. Dependent variable is number of children.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | 0.009 | 0.218 | -0.093 | 0.345 | 0.127 | 0.029 | 0.256 | -0.849* |
| | (0.36) | (0.31) | (0.43) | (0.49) | (0.33) | (0.28) | (0.41) | (0.46) |
| 1940 complete count migrant men | 0.404 | 0.309 | 0.497 | -0.261 | 0.486 | 0.232 | 0.702 | -1.235 |
| | (0.44) | (0.45) | (0.59) | (0.73) | (0.41) | (0.41) | (0.49) | (1.47) |
| Family Tree migrant women | -0.973 | 1.473 | -4.116 | -2.390 | -0.208 | -0.116 | -0.535 | -2.282 |
| | (2.91) | (1.90) | (11.77) | (4.83) | (1.48) | (1.24) | (2.46) | (2.79) |
| Family Tree migrant men | 1.385*** | 1.302*** | 1.417** | 0.324 | 0.765* | 0.553 | 1.016** | 0.098 |
| | (0.50) | (0.45) | (0.64) | (0.74) | (0.44) | (0.48) | (0.44) | (0.31) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

# A The determinants of out-migration from the South

In this section, we estimate the determinants of out-migration from the South. While this is essentially a replication of Boustan (2010), it is important to emphasize that the history of female migration is distinct from that of male migration during the Great Migration. Consider Figure A5, giving net migration rates for black Southerns by gender and county. While male and female out-migration from counties is clearly highly correlated, it is far from perfectly correlated. From the figures, for any given level of male out-migration, the female out-migration rate varies by as much as 10 to 20 percentage points.[29] While the deviations between male and female net migration rates shrink over time, they remain important even by the 1960s. Consequently, it is important to allow for push factors varying by gender.

Table A9 provides the coefficients from regressing black net migration rates for Southern counties on push factors by gender. When separating the regressions by gender, the results are largely consistent with Boustan (2010) but some differences do emerge. For both males and females, the share of workers in agriculture is negatively related to net migration in the earlier periods but is positively correlated in the 1960s for females. For both genders, oil drives in-migration in all periods and World War II defense spending leads to in-migration only in the 1940s. We also find that county-level labor force participation rate, our addition to Boustan's set of push factors, proves to be statistically significant for both genders in the final period. Those counties with greater shares of working adults saw higher out-migration, consistent with those working adults perhaps being more sensitive to economic conditions than non-working adults.

Where differences emerge is largely in the later periods and in terms of the magnitude rather than the sign of net migration. While magnitudes of the marginal effects are quite similar for males and females in the 1940s, the 1960s generally show black males being more responsive to push factors than black females. Across nearly every push factor, the male coefficient is at least double the magnitude of the female coefficient. This greater responsiveness of male population to push factors relative to the female population raises concerns that predicted migration might prove to be a weak instrument for black female in-migration to Northern cities. However, the push factors remain statistically significant in predicting female migration and, as the next section

[29] The net migration rate is defined as $100 \cdot \frac{\text{net\_migrants}_{t,t+10}}{\text{total\_pop}_t}$. As such it is bounded from below at $-100$.

will show, these push factors are still able to predict meaningful variation in female in-migration across Northern cities.

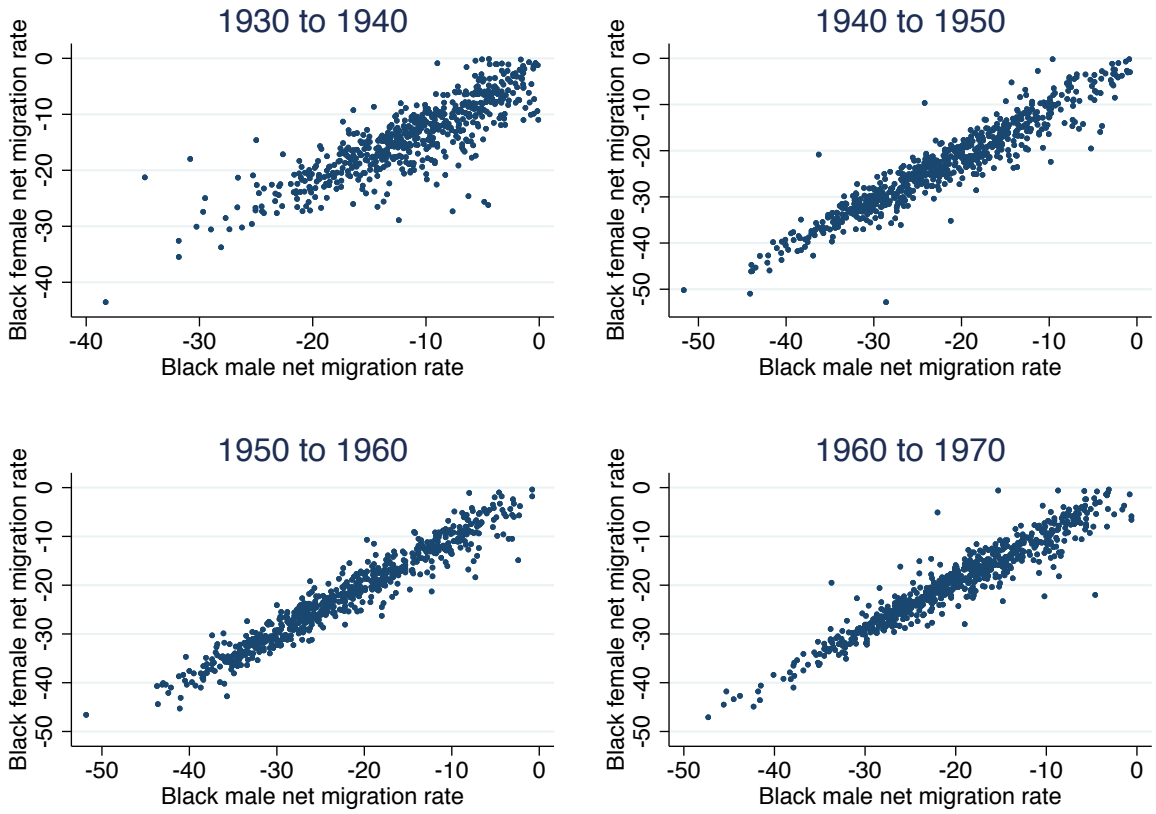


Figure A5: County-level black net-migration rates by gender and decade for the South, 1940-1970. Notes: Data are from the Gardner (1971) and Bowles et al. (1990). Only counties for which net migration rates are negative for both black males and black females are shown. Counties with net migration rates greater in magnitude than 70 are not shown (this omits only a handful of counties).

Table A9: Effects of Southern county characteristics on county-level black net migration rates by gender, 1940-1970.

| | Females | | | Males | | |
|---|---|---|---|---|---|---|
| | 1940-50 | 1950-60 | 1960-70 | 1940-50 | 1950-60 | 1960-70 |
| Share land in cotton | 30.682 | -16.865 | -160.895*** | 37.533 | -61.703 | -213.836 |
| | (22.96) | (20.28) | (61.02) | (24.62) | (39.01) | (140.93) |
| Share farmers as tenant | -0.120* | -0.284*** | -0.492** | -0.251*** | -0.213 | -0.085 |
| | (0.07) | (0.10) | (0.24) | (0.07) | (0.19) | (0.56) |
| Share LF in agriculture | -35.427*** | -18.826* | 25.412 | -34.270*** | -12.680 | -59.376 |
| | (5.76) | (10.41) | (22.57) | (6.20) | (20.02) | (52.13) |
| Tobacco state (1=yes) | -0.472 | 3.952 | 0.389 | 0.529 | 0.647 | 16.600 |
| | (2.39) | (3.18) | (6.51) | (2.57) | (6.11) | (15.03) |
| Share LF in | 41.615 | 20.008 | 81.016 | 36.138 | 51.595 | -57.752 |
| agriculture (tobacco=1) | (56.56) | (57.47) | (154.61) | (60.62) | (110.55) | (357.07) |
| Share LF in mining | -43.134*** | -50.401*** | 17.880 | -22.439 | -60.293* | -70.243 |
| | (13.26) | (18.85) | (45.62) | (14.25) | (36.26) | (105.37) |
| Oil state (1=yes) | 2.716 | 6.139* | 17.637*** | 6.530** | 22.119*** | 26.296* |
| | (2.42) | (3.40) | (5.92) | (2.60) | (6.54) | (13.67) |
| Share LF in mining (oil=1) | 193.671*** | 236.509*** | -65.349 | 104.515*** | 124.785* | 32.150 |
| | (28.19) | (36.85) | (63.27) | (30.10) | (70.89) | (146.11) |
| WWII spending per capita | 3.240 | -0.121 | -3.509 | 2.400 | -0.194 | -12.215 |
| | (2.67) | (3.10) | (6.34) | (2.86) | (5.96) | (14.64) |
| Female LFP rate | 0.029 | 0.154 | -0.833** | -0.047 | 0.531 | -2.714*** |
| | (0.10) | (0.23) | (0.34) | (0.11) | (0.45) | (0.79) |
| Constant | 1.431 | -6.014 | 28.055** | 10.173** | -16.366 | 96.876*** |
| | (3.98) | (7.52) | (11.88) | (4.27) | (14.46) | (27.44) |
| R-squared | 0.122 | 0.085 | 0.037 | 0.098 | 0.032 | 0.021 |
| Obs. | 1349 | 1336 | 1335 | 1341 | 1336 | 1335 |

Coefficients given with standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.
Unit of observation is the county and the sample includes all Southern counties. See text for descriptions of the various data sources.

# B Supplementary descriptive statistics figures and tables

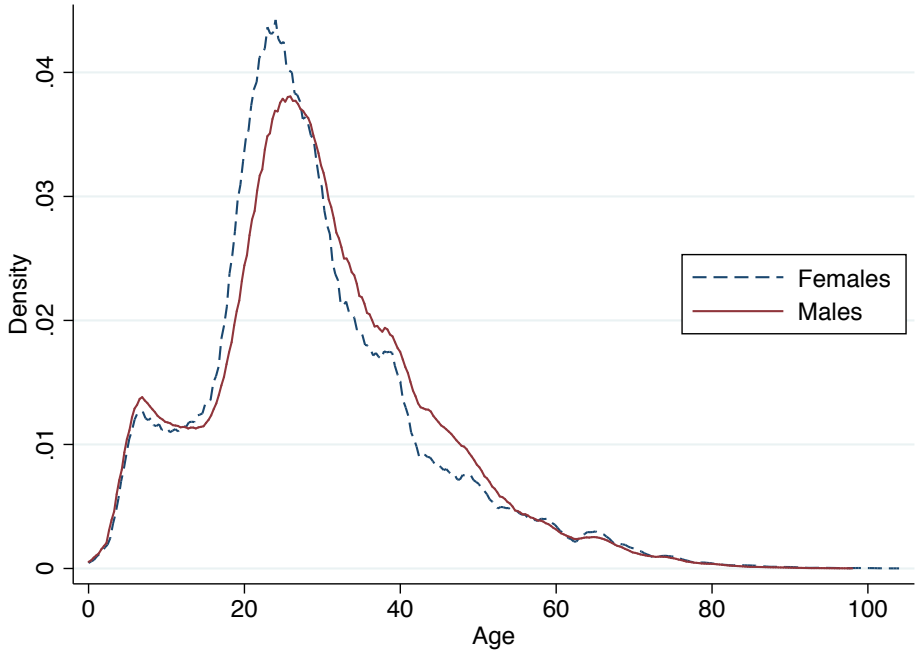


Figure B6: Age distribution of Southern black migrants to Northern metropolitan areas, 1940. Notes: Sample is restricted to those living in a Southern state five years earlier and residing in a Northern MSA. Data are from the IPUMS complete count census data. Figures for 1970 are from the IPUMS 1% metro samples of the 1970 census.

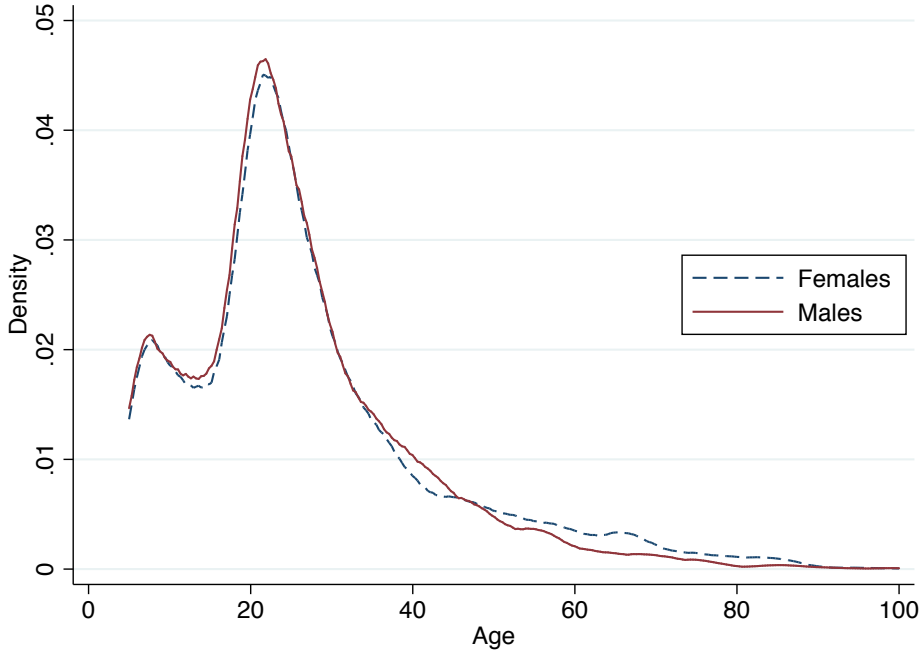


Figure B7: Age distribution of Southern black migrants to Northern metropolitan areas, 1970. Notes: Sample is restricted to those living in a Southern state five years earlier and residing in a Northern MSA. Data are from the IPUMS 1% metro samples of the 1970 census.

Table B10: Most and least likely occupations to be held by black men relative to white men, 1950.Sample is restricted to working men age 18 and older living in the North.

| Rank | Occupation (i) | Black share within occupation Pr(B\|i) | Probability of holding occupation within black population Pr(i\|B) | Relative probability of holding occupation Pr(i\|B)/ Pr(i\|W) |
|---|---|---|---|---|
| 1 | Porters | 0.57 | 0.05 | 28.04 |
| 2 | Private household workers (nec) | 0.32 | 0.01 | 9.82 |
| 3 | Garage laborers and car washers and greasers | 0.31 | 0.01 | 9.40 |
| 4 | Laundry and dry cleaning Operatives | 0.25 | 0.02 | 7.01 |
| 5 | Furnacemen, smeltermen and pourers | 0.19 | 0.01 | 4.99 |
| 6 | Waiters and waitresses | 0.19 | 0.01 | 4.91 |
| 7 | Janitors and sextons | 0.18 | 0.04 | 4.47 |
| 8 | Molders, metal | 0.17 | 0.01 | 4.29 |
| 9 | Longshoremen and stevedores | 0.16 | 0.01 | 4.10 |
| 10 | Elevator operators | 0.16 | 0.01 | 4.02 |
| ... | | | | |
| 91 | Farm laborers, unpaid family workers | 0.01 | 0.00 | 0.17 |
| 92 | Linemen and servicemen | 0.01 | 0.00 | 0.15 |
| 93 | Accountants and auditors | 0.01 | 0.00 | 0.15 |
| 94 | Draftsmen | 0.01 | 0.00 | 0.15 |
| 95 | Electrical-Engineers | 0.01 | 0.00 | 0.13 |
| 96 | Farmers (owners and tenants) | 0.01 | 0.01 | 0.13 |
| 97 | Buyers and dept heads, store | 0.01 | 0.00 | 0.11 |
| 98 | Tool makers, and die makers and setters | 0.00 | 0.00 | 0.10 |
| 99 | Mechanical-Engineers | 0.00 | 0.00 | 0.09 |
| 100 | Engineers (nec) | 0.00 | 0.00 | 0.09 |

Sample is restricted to all white and black working females in the 1950 complete count federal census. Occupations are based on IPUMS OCC1950 coding scheme and are limited to the 100 most commonly held occupations among men.

Table B11: Sample sizes for the various regression samples based on MSA boundary definition and approach to shift-share instrument.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | | Married | | Unmarried | | Married | | Unmarried |
| | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| Shares for IV based on: | 1950 metropolitan area boundaries | | | | | | | |
| 1940 complete count migrant women | 93,445 | 39,132 | 54,313 | 26,044 | 138,666 | 81,406 | 57,260 | 40,103 |
| 1940 complete count migrant men | 111,865 | 46,026 | 65,839 | 29,781 | 166,394 | 95,592 | 70,802 | 45,681 |
| Family Tree migrant women | 160,234 | 66,871 | 93,363 | 42,185 | 248,937 | 143,766 | 105,171 | 67,920 |
| Family Tree migrant men | 141,941 | 59,387 | 82,554 | 38,372 | 224,685 | 129,416 | 95,269 | 61,613 |
| Shares for IV based on: | 1970 metropolitan area boundaries | | | | | | | |
| 1940 complete count migrant women | 420,872 | 192,900 | 227,972 | 119,826 | 657,315 | 411,346 | 245,969 | 207,254 |
| 1940 complete count migrant men | 352,471 | 162,798 | 189,673 | 99,378 | 547,815 | 345,307 | 202,508 | 175,123 |
| Family Tree migrant women | 395,666 | 180,621 | 215,045 | 111,762 | 620,887 | 388,463 | 232,424 | 194,869 |
| Family Tree migrant men | 348,310 | 163,869 | 184,441 | 101,923 | 550,329 | 352,030 | 198,299 | 179,838 |

Each cell gives the number of observations in the regression sample when imposing both the MSA boundary definition and the approach for establishing shares for the shift-share instrument. Note that these are the numbers corresponding to the labor force participation and number of children regressions. The unemployment, full-time, and work hours regressions will have smaller sample sizes as they are restricted to women in the labor force.

# C Supplementary regression results using 1970 boundaries

Table C12: IV estimates of the marginal effect of black female migrants on Northern white women's unemployment. Dependent variable equals 1 if unemployed, 0 if employed.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | 0.142** | 0.014 | 0.234*** | 0.110 | 0.023 | -0.018 | 0.077 | 0.050 |
| | (0.06) | (0.06) | (0.08) | (0.12) | (0.04) | (0.04) | (0.05) | (0.06) |
| 1940 complete count migrant men | 0.017 | -0.036 | 0.050 | -0.114 | -0.023 | -0.033 | -0.031 | -0.082 |
| | (0.12) | (0.09) | (0.18) | (0.14) | (0.05) | (0.07) | (0.07) | (0.12) |
| Family Tree migrant women | 0.602 | 0.085 | 1.204 | 0.133 | 0.163 | 0.090 | 0.308 | 0.349 |
| | (0.86) | (0.22) | (2.09) | (0.41) | (0.24) | (0.18) | (0.48) | (0.44) |
| Family Tree migrant men | 0.097 | 0.089 | 0.107 | -0.184 | 0.052 | -0.012 | 0.143 | 0.079 |
| | (0.10) | (0.10) | (0.12) | (0.13) | (0.06) | (0.07) | (0.10) | (0.08) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C13: OLS estimates of the marginal effect of black female migrants on Northern white women's unemployment. Dependent variable equals 1 if unemployed, 0 if employed.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | 0.063** | 0.016 | 0.096*** | 0.077** | -0.021 | -0.032 | -0.008 | -0.017 |
| | (0.03) | (0.03) | (0.03) | (0.04) | (0.02) | (0.02) | (0.03) | (0.02) |
| 1940 complete count migrant men | -0.023 | -0.027 | -0.020 | 0.041 | -0.036** | -0.054** | -0.014 | -0.021 |
| | (0.03) | (0.03) | (0.04) | (0.03) | (0.02) | (0.02) | (0.02) | (0.02) |
| Family Tree migrant women | 0.030 | 0.001 | 0.051 | 0.033 | -0.008 | -0.023 | 0.011 | -0.025 |
| | (0.03) | (0.03) | (0.04) | (0.03) | (0.02) | (0.02) | (0.02) | (0.02) |
| Family Tree migrant men | 0.046 | 0.012 | 0.070* | 0.065** | -0.027 | -0.044 | -0.005 | -0.010 |
| | (0.03) | (0.03) | (0.04) | (0.03) | (0.02) | (0.03) | (0.03) | (0.02) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C14: IV estimates of marginal effects of characteristics on white women's labor force participation among non-high school graduates. Dependent variable equals 1 if in labor force, 0 if not.

| | Non-HS Grads | | | |
|---|---|---|---|---|
| | Married | Married, above-median-income spouse | Married, below-median-income spouse | Unmarried |
| | (1) | (2) | (3) | (4) |
| Working-age black females | -0.083 | -0.355*** | 0.096 | -0.029 |
| per white female | (0.10) | (0.08) | (0.13) | (0.22) |
| Age | 0.020*** | 0.018*** | 0.022*** | 0.015*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Age^2 | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Children under 5 | -0.136*** | -0.142*** | -0.131*** | -0.150*** |
| | (0.00) | (0.00) | (0.00) | (0.01) |
| Children over 4 | -0.031*** | -0.031*** | -0.031*** | -0.046*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Husband age | 0.001 | 0.001 | 0.001 | |
| | (0.00) | (0.00) | (0.00) | |
| Husband age^2 | -0.000 | -0.000 | -0.000 | |
| | (0.00) | (0.00) | (0.00) | |
| Foreign born (1=yes) | 0.030*** | 0.013* | 0.046*** | 0.082*** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Husband occscore | -0.002*** | -0.004*** | 0.002*** | |
| | (0.00) | (0.00) | (0.00) | |
| Highest grade completed | 0.009*** | 0.009*** | 0.009*** | 0.034*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Constant | 0.044 | 0.144*** | -0.087** | 0.194*** |
| | (0.04) | (0.05) | (0.04) | (0.04) |
| R-squared | 0.066 | 0.063 | 0.071 | 0.090 |
| Obs. | 420872 | 192900 | 227972 | 119826 |

Standard errors clustered by metarea-year given in parentheses. The regression sample is restricted to white females between 20 and 55 living in an MSA outside of the South. All regressions include MSA and year fixed effects. Inflows of black females based on predicted Southern outflows are used to instrument for the number of black females per white female. Shares for the instrument are based on 1935 to 1940 migrants in the 1940 complete count Federal Census. MSA county composition is held fixed at the 1970 borders. * p<0.10, ** p<0.05, *** p<0.01

Table C15: IV estimates of marginal effects of characteristics on white women's labor force participation among high school graduates. Dependent variable equals 1 if in labor force, 0 if not.

| | High School Grads | | | |
|---|---|---|---|---|
| | Married | Married, above-median-income spouse | Married, below-median-income spouse | Unmarried |
| | (5) | (6) | (7) | (8) |
| Working-age black females | -0.145 | -0.302** | 0.093 | 0.100 |
| per white female | (0.12) | (0.12) | (0.16) | (0.15) |
| Age | 0.002* | 0.000 | 0.005*** | 0.036*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Age^2 | -0.000*** | -0.000* | -0.000*** | -0.000*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Children under 5 | -0.210*** | -0.211*** | -0.209*** | -0.158*** |
| | (0.00) | (0.00) | (0.00) | (0.01) |
| Children over 4 | -0.043*** | -0.044*** | -0.040*** | -0.045*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Husband age | -0.006*** | -0.006*** | -0.008*** | |
| | (0.00) | (0.00) | (0.00) | |
| Husband age^2 | 0.000*** | 0.000*** | 0.000*** | |
| | (0.00) | (0.00) | (0.00) | |
| Foreign born (1=yes) | 0.006 | 0.005 | 0.015** | -0.006 |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Husband occscore | -0.004*** | -0.006*** | 0.005*** | |
| | (0.00) | (0.00) | (0.00) | |
| Highest grade completed | 0.023*** | 0.025*** | 0.024*** | -0.003** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Constant | 0.435*** | 0.546*** | 0.181*** | 0.198*** |
| | (0.03) | (0.03) | (0.04) | (0.07) |
| R-squared | 0.126 | 0.131 | 0.122 | 0.043 |
| Obs. | 657315 | 411346 | 245969 | 207254 |

Standard errors clustered by metarea-year given in parentheses. The regression sample is restricted to white females between 20 and 55 living in an MSA outside of the South. All regressions include MSA and year fixed effects. Inflows of black females based on predicted Southern outflows are used to instrument for the number of black females per white female. Shares for the instrument are based on 1935 to 1940 migrants in the 1940 complete count Federal Census. MSA county composition is held fixed at the 1970 borders. * p<0.10, ** p<0.05, *** p<0.01

Table C16: OLS estimates of the marginal effect of black female migrants on Northern white women's labor force participation. Dependent variable equals 1 if in labor force, 0 if not.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.121* | -0.156** | -0.095 | -0.444*** | -0.022 | -0.061 | 0.062 | 0.096 |
| | (0.06) | (0.06) | (0.07) | (0.13) | (0.05) | (0.05) | (0.06) | (0.06) |
| 1940 complete count migrant men | -0.197*** | -0.192*** | -0.180*** | -0.461*** | -0.068 | -0.056 | -0.040 | -0.012 |
| | (0.05) | (0.05) | (0.06) | (0.15) | (0.05) | (0.05) | (0.05) | (0.06) |
| Family Tree migrant women | -0.182*** | -0.147*** | -0.194*** | -0.541*** | -0.026 | -0.004 | -0.014 | 0.003 |
| | (0.05) | (0.06) | (0.05) | (0.10) | (0.05) | (0.04) | (0.06) | (0.05) |
| Family Tree migrant men | -0.149*** | -0.178*** | -0.117** | -0.551*** | -0.034 | -0.034 | -0.007 | 0.038 |
| | (0.05) | (0.07) | (0.06) | (0.11) | (0.05) | (0.05) | (0.06) | (0.06) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C17: IV estimates of the marginal effect of black female migrants on Northern white women's full time work status. Dependent variable equals 1 if working full time, 0 if working part time.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.053 | 0.257 | -0.291 | 0.025 | 0.009 | -0.060 | 0.095 | 0.004 |
| | (0.16) | (0.18) | (0.19) | (0.14) | (0.15) | (0.17) | (0.17) | (0.18) |
| 1940 complete count migrant men | 1.492 | 7.404 | -3.896 | -0.038 | 0.707 | -6.779 | 9.975 | 10.958 |
| | (7.19) | (7.43) | (7.68) | (8.58) | (4.22) | (6.04) | (8.80) | (13.02) |
| Family Tree migrant women | 0.710 | 1.319 | 0.010 | -0.434 | 1.000 | 0.533 | 1.872 | 0.343 |
| | (1.26) | (1.41) | (1.20) | (0.88) | (1.46) | (0.76) | (3.28) | (0.68) |
| Family Tree migrant men | 0.040 | 0.365 | -0.212 | -0.183 | 0.170 | 0.180 | 0.165 | -0.211 |
| | (0.21) | (0.29) | (0.36) | (0.36) | (0.17) | (0.17) | (0.20) | (0.23) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C18: OLS estimates of the marginal effect of black female migrants on Northern white women's full time work status. Dependent variable equals 1 if working full time, 0 if working part time.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | 0.020 | 0.097 | -0.041 | 0.157** | 0.090* | 0.119** | 0.044 | 0.072 |
| | (0.07) | (0.07) | (0.09) | (0.08) | (0.05) | (0.06) | (0.07) | (0.08) |
| 1940 complete count migrant men | -0.052 | 0.148** | -0.186** | 0.061 | 0.062 | 0.114** | -0.012 | 0.087 |
| | (0.06) | (0.07) | (0.08) | (0.08) | (0.05) | (0.05) | (0.07) | (0.07) |
| Family Tree migrant women | -0.100 | 0.052 | -0.206** | 0.041 | 0.022 | 0.048 | -0.015 | -0.006 |
| | (0.07) | (0.06) | (0.10) | (0.08) | (0.07) | (0.07) | (0.08) | (0.10) |
| Family Tree migrant men | 0.033 | 0.107 | -0.023 | 0.084 | 0.130** | 0.155** | 0.090 | 0.054 |
| | (0.06) | (0.07) | (0.08) | (0.09) | (0.06) | (0.06) | (0.08) | (0.08) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C19: IV estimates of the marginal effect of black female migrants on Northern white women's work hours. Dependent variable is weekly work hours.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.253 | -0.320 | 0.121 | -5.175 | 1.433 | -2.294 | 6.355** | 3.952 |
| | (2.65) | (3.70) | (3.93) | (6.52) | (2.34) | (2.68) | (3.13) | (3.70) |
| 1940 complete count migrant men | 1.492 | 7.404 | -3.896 | -0.038 | 0.707 | -6.779 | 9.975 | 10.958 |
| | (7.19) | (7.43) | (7.68) | (8.58) | (4.22) | (6.04) | (8.80) | (13.02) |
| Family Tree migrant women | 21.412 | 15.344 | 32.528 | 6.802 | 22.849 | 0.232 | 64.309 | 0.854 |
| | (39.52) | (23.56) | (71.10) | (20.83) | (33.23) | (11.25) | (111.25) | (7.88) |
| Family Tree migrant men | 0.870 | 3.538 | -0.263 | 10.776 | 5.403 | 3.811 | 7.329 | -1.083 |
| | (4.22) | (5.86) | (4.99) | (7.92) | (3.90) | (3.62) | (5.25) | (2.40) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C20: OLS estimates of the marginal effect of black female migrants on Northern white women's work hours. Dependent variable is weekly work hours.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.166 | -0.582 | 0.018 | -2.401 | 1.895* | 1.396 | 2.570* | 0.853 |
| | (1.25) | (1.86) | (1.56) | (2.12) | (1.10) | (1.17) | (1.44) | (1.12) |
| 1940 complete count migrant men | -0.013 | 1.969 | -1.173 | 1.200 | 2.116** | 2.634*** | 1.364 | 1.523 |
| | (1.46) | (1.82) | (1.64) | (1.23) | (1.01) | (0.99) | (1.65) | (1.04) |
| Family Tree migrant women | -1.909 | -0.093 | -3.304* | 0.561 | 1.300 | 1.570 | 0.913 | 0.000 |
| | (1.85) | (2.02) | (1.96) | (1.52) | (1.47) | (1.58) | (1.74) | (1.38) |
| Family Tree migrant men | 1.091 | 1.432 | 0.743 | 0.331 | 2.780** | 2.422* | 3.241** | -0.257 |
| | (1.32) | (1.95) | (1.33) | (1.56) | (1.13) | (1.25) | (1.41) | (1.11) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table C21: OLS estimates of the marginal effect of black female migrants on Northern white women's family size. Dependent variable is number of children.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | 0.361** | 0.416*** | 0.323* | 1.001*** | 0.425** | 0.266 | 0.644*** | -0.141 |
| | (0.16) | (0.14) | (0.17) | (0.36) | (0.17) | (0.19) | (0.17) | (0.12) |
| 1940 complete count migrant men | 0.258* | 0.239** | 0.245 | 1.011*** | 0.244* | 0.010 | 0.547*** | -0.128 |
| | (0.14) | (0.12) | (0.17) | (0.34) | (0.14) | (0.16) | (0.14) | (0.09) |
| Family Tree migrant women | 0.301** | 0.186 | 0.365** | 0.935** | 0.251* | 0.038 | 0.507*** | -0.176 |
| | (0.15) | (0.14) | (0.17) | (0.38) | (0.14) | (0.16) | (0.16) | (0.11) |
| Family Tree migrant men | 0.332** | 0.389*** | 0.291* | 1.241*** | 0.332** | 0.143 | 0.623*** | -0.183* |
| | (0.15) | (0.14) | (0.18) | (0.35) | (0.15) | (0.18) | (0.12) | (0.10) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects and controls for age, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1970 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

# D Supplementary regression results using 1950 boundaries

Table D22: IV estimates of the marginal effect of black female migrants on Northern white women's labor force participation. Dependent variable equals 1 if in labor force, 0 if not.

| | | Non-HS Grads | | | | High School Grads | | |
|---|---|---|---|---|---|---|---|---|
| | | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.095 | -0.187** | -0.019 | -0.412*** | -0.115 | -0.088 | -0.120 | -0.104 |
| | (0.09) | (0.09) | (0.09) | (0.15) | (0.10) | (0.10) | (0.10) | (0.07) |
| 1940 complete count migrant men | -0.122 | -0.089 | -0.098 | -0.246* | -0.133* | 0.011 | -0.223*** | -0.177* |
| | (0.08) | (0.11) | (0.07) | (0.13) | (0.07) | (0.09) | (0.06) | (0.09) |
| Family Tree migrant women | 0.141 | 0.115 | 0.152 | -0.123 | 0.214 | 0.315 | 0.099 | -0.212 |
| | (0.27) | (0.28) | (0.26) | (0.12) | (0.19) | (0.22) | (0.19) | (0.17) |
| Family Tree migrant men | 0.058 | -0.054 | 0.074 | 0.284 | 0.749 | 0.820 | 0.356 | -0.373 |
| | (0.32) | (0.30) | (0.32) | (0.32) | (0.65) | (0.57) | (0.52) | (0.33) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D23: OLS estimates of the marginal effect of black female migrants on Northern white women's labor force participation. Dependent variable equals 1 if in labor force, 0 if not.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.165* | -0.257*** | -0.083 | -0.407*** | -0.154 | -0.130 | -0.150 | -0.106 |
| | (0.09) | (0.09) | (0.08) | (0.14) | (0.10) | (0.10) | (0.09) | (0.09) |
| 1940 complete count migrant men | -0.077 | -0.030 | -0.073 | -0.193* | -0.122* | -0.006 | -0.186** | -0.082 |
| | (0.08) | (0.11) | (0.07) | (0.11) | (0.07) | (0.08) | (0.07) | (0.10) |
| Family Tree migrant women | -0.031 | -0.089 | 0.019 | -0.113** | -0.016 | 0.001 | -0.029 | -0.055 |
| | (0.07) | (0.08) | (0.07) | (0.05) | (0.05) | (0.05) | (0.05) | (0.06) |
| Family Tree migrant men | -0.096 | -0.147 | -0.062 | -0.135 | -0.084 | -0.017 | -0.092 | -0.122 |
| | (0.13) | (0.13) | (0.13) | (0.15) | (0.15) | (0.14) | (0.14) | (0.09) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D24: IV estimates of the marginal effect of black female migrants on Northern white women's full time work status. Dependent variable equals 1 if working full time, 0 if working part time.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.218 | -0.039 | -0.331 | -0.111 | 0.072 | 0.064 | 0.084 | 0.048 |
| | (0.21) | (0.15) | (0.24) | (0.09) | (0.18) | (0.14) | (0.27) | (0.10) |
| 1940 complete count migrant men | -0.223 | 0.052 | -0.389* | 0.037 | 0.006 | -0.077 | 0.109 | 0.181** |
| | (0.15) | (0.12) | (0.20) | (0.12) | (0.13) | (0.11) | (0.17) | (0.09) |
| Family Tree migrant women | 0.583 | 0.640 | 0.513 | -0.598 | 0.743 | 0.567 | 0.954 | 0.148 |
| | (0.66) | (0.49) | (0.79) | (0.58) | (0.63) | (0.53) | (0.78) | (0.20) |
| Family Tree migrant men | 0.415 | 0.610 | 0.252 | -0.882 | 1.390 | 0.765 | 2.131 | 0.240 |
| | (0.46) | (0.46) | (0.55) | (0.64) | (1.22) | (0.90) | (1.55) | (0.17) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D25: OLS estimates of the marginal effect of black female migrants on Northern white women's full time work status. Dependent variable equals 1 if working full time, 0 if working part time.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -0.331 | -0.123 | -0.463* | -0.166 | -0.050 | -0.027 | -0.072 | -0.015 |
| | (0.20) | (0.15) | (0.23) | (0.10) | (0.18) | (0.15) | (0.26) | (0.11) |
| 1940 complete count migrant men | -0.356** | -0.209 | -0.437** | 0.011 | -0.223 | -0.270** | -0.152 | 0.028 |
| | (0.14) | (0.14) | (0.19) | (0.10) | (0.14) | (0.12) | (0.18) | (0.12) |
| Family Tree migrant women | -0.076 | 0.066 | -0.155 | 0.057 | -0.039 | -0.078 | 0.001 | -0.055 |
| | (0.10) | (0.08) | (0.13) | (0.09) | (0.12) | (0.10) | (0.15) | (0.08) |
| Family Tree migrant men | -0.214 | -0.109 | -0.265 | -0.002 | -0.070 | -0.241 | 0.146 | 0.124 |
| | (0.20) | (0.13) | (0.25) | (0.18) | (0.22) | (0.19) | (0.28) | (0.12) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D26: IV estimates of the marginal effect of black female migrants on Northern white women's work hours. Dependent variable is weekly work hours.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | Unmarried | | Married | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count migrant women | -2.500 | 4.465 | -7.836 | 5.933** | 4.874 | 4.115 | 4.206 | 1.229 |
| | (7.13) | (4.47) | (8.31) | (2.38) | (5.32) | (5.06) | (5.85) | (1.96) |
| 1940 complete count migrant men | -3.506 | 6.194** | -10.089** | 10.084** | 0.664 | 0.745 | -0.112 | 0.415 |
| | (3.44) | (2.92) | (5.04) | (4.61) | (4.47) | (4.75) | (4.88) | (1.95) |
| Family Tree migrant women | 21.699 | 19.708 | 23.274 | -5.537 | 23.066 | 19.837 | 24.622 | -9.255 |
| | (23.47) | (17.34) | (28.81) | (11.02) | (17.13) | (13.35) | (20.83) | (6.52) |
| Family Tree migrant men | 14.143 | 9.891 | 17.575 | -6.192 | 41.750 | 35.088 | 46.876 | -16.936 |
| | (11.41) | (7.85) | (16.54) | (11.81) | (32.32) | (31.62) | (31.40) | (12.13) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D27: OLS estimates of the marginal effect of black female migrants on Northern white women's work hours. Dependent variable is weekly work hours.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count | -3.741 | 4.436 | -9.684 | 5.384** | 2.875 | 2.375 | 2.206 | 1.447 |
| migrant women | (6.68) | (4.77) | (7.67) | (2.41) | (5.11) | (5.01) | (5.51) | (1.91) |
| 1940 complete count | -5.072* | 3.341 | -10.644** | 9.462* | -3.874 | -4.610 | -3.149 | 1.891 |
| migrant men | (2.86) | (2.47) | (4.11) | (4.91) | (4.01) | (4.24) | (4.28) | (1.64) |
| Family Tree | -1.207 | 1.379 | -2.487 | 2.734 | 1.111 | 1.632 | 0.047 | -1.837 |
| migrant women | (3.19) | (3.60) | (3.35) | (1.82) | (3.06) | (2.68) | (3.74) | (1.38) |
| Family Tree | -4.549 | -0.042 | -6.684 | 0.841 | -1.141 | -2.463 | 0.186 | 0.726 |
| migrant men | (3.48) | (3.93) | (4.82) | (6.36) | (5.78) | (5.97) | (6.57) | (2.18) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects, year fixed effects and controls for age, number of children younger than five, number of children over four, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to working white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D28: IV estimates of the marginal effect of black female migrants on Northern white women's family size. Dependent variable is number of children.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count | -0.248 | -0.291 | -0.249 | -0.720** | 0.031 | -0.088 | 0.076 | -0.117 |
| migrant women | (0.23) | (0.28) | (0.25) | (0.30) | (0.21) | (0.29) | (0.17) | (0.20) |
| 1940 complete count | 0.081 | -0.099 | 0.146 | -0.072 | -0.111 | -0.430 | 0.144 | 0.267* |
| migrant men | (0.30) | (0.39) | (0.33) | (0.18) | (0.28) | (0.28) | (0.30) | (0.14) |
| Family Tree | -0.748 | -0.307 | -1.020 | 0.524 | -0.309 | -0.621 | 0.268 | 0.077 |
| migrant women | (0.57) | (0.36) | (0.91) | (0.95) | (0.61) | (0.58) | (0.66) | (0.26) |
| Family Tree | -1.908 | -1.237 | -2.188* | -1.705 | -1.967 | -2.463 | -0.733 | -0.444 |
| migrant men | (1.18) | (1.09) | (1.26) | (1.05) | (1.99) | (2.05) | (1.41) | (0.65) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a IV regression that includes metarea fixed effects, year fixed effects and controls for age, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01

Table D29: OLS estimates of the marginal effect of black female migrants on Northern white women's family size. Dependent variable is number of children.

| | Non-HS Grads | | | | High School Grads | | | |
|---|---|---|---|---|---|---|---|---|
| | Married | | | Unmarried | Married | | | Unmarried |
| Shares for IV based on: | All | High-income spouse | Low-income spouse | All | All | High-income spouse | Low-income spouse | All |
| 1940 complete count | -0.180 | -0.243 | -0.178 | -0.518 | 0.124 | 0.041 | 0.116 | -0.113 |
| migrant women | (0.24) | (0.29) | (0.24) | (0.31) | (0.22) | (0.31) | (0.18) | (0.20) |
| 1940 complete count | 0.361 | 0.247 | 0.384 | -0.259 | 0.293 | 0.125 | 0.370 | 0.102 |
| migrant men | (0.29) | (0.36) | (0.30) | (0.22) | (0.32) | (0.34) | (0.30) | (0.14) |
| Family Tree | 0.081 | 0.188 | -0.013 | -0.212 | 0.221 | 0.038 | 0.464** | 0.182 |
| migrant women | (0.22) | (0.32) | (0.17) | (0.18) | (0.20) | (0.23) | (0.19) | (0.13) |
| Family Tree | 0.052 | 0.690 | -0.360 | -0.513 | 0.465 | 0.189 | 0.719*** | 0.148 |
| migrant men | (0.34) | (0.45) | (0.31) | (0.48) | (0.32) | (0.38) | (0.25) | (0.34) |

Each cell gives the coefficient estimate and standard error for the working-age black females per white female variable from a OLS regression that includes metarea fixed effects and controls for age, highest grade completed, foreign-born status, and, if married, husband's age and occscore. Sample is restricted to white women between the ages of 20 and 55 living in an MSA outside of the South. MSA county composition is fixed at the 1950 boundary. Standard errors are clustered at the metarea-year level. * p<0.10, ** p<0.05, *** p<0.01