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The Impact of Migration on Earnings Inequality in New England

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EXECUTIVE SUMMARY

The Impact of Migration on Earnings Inequality in New England

Migration plays an important role in the New England economy; absent immigration, the region's population and workforce would have shrunk in recent years. Yet increasingly, immigrant inflows have been met with legislative opposition at both the national and regional levels, motivated in part by concerns that immigration may be an important factor driving the marked rise in earnings inequality. The research findings presented in this report, however, indicate that immigration accounts for a very small portion—only 6.0 percent—of the rising earnings inequality that the region has experienced. These results suggest that policymakers interested in responding to increased inequality should pursue avenues other than immigration reform.

Among the key conclusions in this report is the finding that earnings inequality in New England increased by 52.8 percent over the 1950–2015 period, with Connecticut and Massachusetts leading the region in terms of earnings inequality. Regional growth in earnings inequality closely tracks the national average, as do migration flows, although New England experiences higher rates of immigration than the United States as a whole.

Analyzing the causal impact of migration on earnings inequality, the report shows that domestic migration between states does not have any statistically detectible effect on earnings inequality. International migration is found to contribute only 6.0 percent of the observed rise in earnings inequality in New England. Most of that contribution is due to changes in the earnings of non-migrants in the labor force that may arise for various reasons, such as coordination between migrants and non-migrants that increases the work productivity of non-migrants.

Public policies that seek to restrict immigration will likely have only a limited impact on earnings inequality. However, restricting immigration may undermine economic growth in New England. Policymakers concerned with earnings inequality should explore other approaches, such as building the skills of low-paid workers and increasing educational opportunities for people from low-income families.

I. Introduction

Migration is defined as the movement of individuals across areas, often traversing official borders—whether these boundaries exist at the level of a county, a metropolitan area, a state, a region, or a nation. The choice to relocate from one place to another plays a key role in establishing who the consumers and producers are in markets, which then affects how those markets function. Policymakers interested in the health and growth of their economies thus have a distinct incentive to be aware of area migration patterns and to enact or support legislation to help their jurisdictions in light of such migration trends.

In New England, the economic importance of migration falls against a broader backdrop of demographic trends. First, the region's population is aging.[1] According to 2016 estimates from the U.S. Census Bureau, New England, as measured by the median age of its residents, was home to the three oldest states in the country—Maine (44.6 years old), New Hampshire (43 years old), and Vermont (42.7 years old).[2] Additionally, in recent decades, population growth in the region has generally lagged behind population growth in the United States. During the 1990–2000 period, for example, the rate of population growth in New England (5.4 percent) trailed the country (13.2 percent) by a substantial 7.8 percentage points, and only one state in the region—New Hampshire (11.4 percent)—came within 2 percentage points of the U.S. rate (Agrawal 2006). More recently in the 2010–2017 period, all of the New England states except Massachusetts and New Hampshire experienced population growth that ranked them 45th or lower out of all 50 states plus the District of Columbia (U.S. Census Bureau 2017a).[3]

With 289,175 more people measured as leaving New England for other U.S. locations than entering it from other areas of the United States during the 2010–2017 period, negative net domestic migration has contributed to the region's slow population growth. In contrast, however, the positive net international migration of 473,387 individuals to New England has helped to buttress the regional population (U.S. Census Bureau 2017b). Observing these demographic patterns, some members of the public have advocated for states in New England to be more welcoming to newcomers, especially those who are foreign-born, in order to help support local economies.[4]

Still, others in the region and nation are opposed to immigration to the United States. Recent federal policy has shifted markedly towards restricting immigrant inflows, as demonstrated by limits on travel into the nation, or stricter review of H-1B and student visas.[5] Other federal policies

1 One reason why New England's elderly population is increasing is the large generation known as the baby boomers, who were born between 1946 and 1964. As of 2011, the oldest of this cohort started to reach 65 years of age.

2 See Michelle Williams, "New England Now Home to Oldest Population in America, Census Data Shows," masslive.com, July 11, 2017.

3 These four states, with national rankings and population growth rates in parentheses, are as follows: Rhode Island (45th, 0.64 percent); Maine (46th, 0.57 percent); Connecticut (48th, 0.39 percent); and Vermont (50th, –0.33 percent). Vermont was one of only three states with declining population growth over the 2010–2017 period, ranking just below Illinois (49th, –0.23 percent) and just above West Virginia (51st, –2.00 percent).

4 See Editorial Board, "Our View: Stagnant Workforce Means No New Jobs," from the *Portland Press Herald*, August 13, 2018; also see the website for the New England Seasonal Business Coalition. Some work also finds that in New England, immigrants could be a growth source, particularly for high-skilled labor (Watson 2013.)

5 See the following articles: Adam Liptak and Michael D. Shear, "Trump's Travel Ban Is Upheld by Supreme Court," *New York Times*, June 26, 2018; Sara Ashley O'Brien, "Trump Administration Toughens H-1B Visa Renewal Process," CNN.com, October 25, 2017; and Noah Smith, "Trump's Student Visa Clampdown Hurts the Rust Belt," Bloomberg.com, September 18, 2018.

seek to regulate the foreign-born population already residing in the country and directly coordinate these efforts with local officials. One example is the reinstitution of the Secure Communities program, which relies on a partnership among federal, state, and local law enforcement agencies in order to help facilitate deportations by U.S. Immigration and Customs Enforcement (ICE).[6] Another federal program, known as Section 287(g), allows state or local law enforcement agencies to partner with ICE as delegated authorities for immigration enforcement within their jurisdictions.[7] While some communities in and outside of New England have opposed participation in these federal policies, thus colloquially becoming known as "sanctuary cities," other jurisdictions have willingly complied.[8] Lastly, in addition to policies enacted at the federal level, which in some cases also involve local legislative decisions, policies enacted or rejected at the state level have also had implications for foreign-born individuals living in the United States. One example of such a policy is the provision of in-state college tuition for undocumented immigrants, which has been opposed by some policymakers in the region.[9]

Migration plays a key role in the health and growth of an economy.

While the stated motivations behind such examples of resistance to immigration have varied, at times economic reasons have been cited as justification for such opposition. For instance, some federal officials have claimed that immigrants have directly led to "significant reductions in wages for blue-collar workers" and could "displace or take a job from an American worker" as a result of direct competition in the workforce.[10] However, the evidence in economic studies regarding the extent of immigration having such negative labor market effects remains very mixed (for example, Borjas 2003 and 2017; Card 1990; Ottaviano and Peri 2012).[11] Nevertheless, the enduring view by some individuals is that immigration has harmed the labor market opportunities of certain native-born workers, thus perhaps contributing to earnings inequality.

Inequality—whether in earnings, as noted above, or alternatively, in wages, income, wealth, or consumption—is an area of enormous recent discussion among academics, policymakers, and the public at large. This widespread interest is largely driven by the various forms of inequality that have been growing in the United States during the last several decades, as a number of studies have documented (for example, see Bricker et al. 2015; Fisher et al. 2018; Kopczuk, Saez, and Song

6 See "Secure Communities" on the U.S. Immigration and Customs Enforcement website.

7 See "Delegation of Immigration Authority Section 287(g) Immigration and Nationality Act" on the U.S. Immigration and Customs Enforcement website. Of the 78 law enforcement agencies across 20 states that have 287(g) agreements with ICE, four are in New England and are all located in Massachusetts (the Barnstable County Sheriff's Office, the Bristol County Sheriff's Office, the Massachusetts Department of Corrections, and the Plymouth County Sheriff's Department).

8 See the following: Susan Campbell, "Want to Reduce Crime in New England? Add More Immigrants," New England News Collaborative, July 21, 2018; "Delegation of Immigration Authority Section 287(g) Immigration and Nationality Act" on the U.S. Immigration and Customs Enforcement website; and Kathryn Casteel, "While Some Communities Become Sanctuaries, Others are Happy to Help with Trump's Immigration Crackdown," FiveThirtyEight.com, August 10, 2017.

9 See Amanda McGowan, "Governor Baker Would Veto In-State Tuition for Undocumented Immigrants," wgbh.org, July 16, 2015.

10 See Amita Kelly, "FACT CHECK: Have Immigrants Lowered Wages for Blue-Collar American Workers?," npr.org, August 4, 2017.

11 Additionally, see Lewis and Peri (2015) for a survey of research on immigration and its impact on the local economies of cities and regions.

2010; Piketty and Saez 2003; Saez and Zucman 2016). For instance, in 1950, approximately 25 percent of the total, inflation-adjusted real earnings in the United States went to the top 10 percent of earners (that is, the top "decile"). In 2010, six decades later, the top 10 percent earnings share had risen dramatically to about 35 percent (Piketty and Saez 2003). Specifically in New England, evidence has suggested that parts of the region may experience some of the worst inequality in the nation. For instance, according to analysis from the Brookings Institution, Boston had the highest rate of income inequality in 2014 among the 100 largest U.S. cities, although its ranking has since fallen in 2016 (Holmes and Berube 2016; Berube 2018).

Given the above background, this report seeks to determine whether the perceptions that some policymakers and members of the public have regarding the contribution of immigration to higher amounts of earnings inequality are justified. More specifically, this study examines the impact of various forms of migration on earnings inequality in New England and the nation. Concentrating on the period from 1940 to 2015 and tackling several measurement considerations, the report uses household survey data to document national, regional, state, and sub-state trends in earnings inequality and migration. Then, using historical birthplace information obtained from the 1940 U.S. Census for persons living in the country, the analysis predicts migration flows in the United States from 1950 to 2015. This approach creates a virtually random experiment in migrant locations that can be used to examine the impact of migration on earnings inequality.

Regarding patterns of migration, both regionally and nationally, what is defined as "recent immigration"—inflows of foreign-born persons from one to 11 years prior—ranges between 0 and 1 percent of the labor force from 1950 to 2015. During the same period, recent in-migration and out-migration—internal inflows and outflows, respectively, of domestic residents one to 11 years prior—accounts for between 1 and 5 percent of the labor force in New England. Rates of interstate migration in the United States mirror the New England trends, and a decline in internal migration is observed between 1980 and 2010, as detected in other studies (for instance, Kaplan and Schulhofer-Wohl 2017; Molloy, Smith, and Wozniak 2011 and 2017). Turning to earnings, the report finds evidence of an increase in earnings inequality in New England over the 1950–2015 period, with Connecticut and Massachusetts leading the region. Earnings inequality growth in the nation closely tracks New England, and lower-level analysis in the region reveals differences even within states regarding the amount of recent earnings inequality.

Analyzing the impact of state-level migration on state-level earnings inequality using virtually random migration flows, the report finds that recent immigration has had a small positive effect on the top 10 percent share of earnings. However, neither recent in-migration nor recent out-migration have had any statistically detectible effect on the top 10 percent earnings share.[12] The results suggest that immigration only accounted for 6.0 percent of the observed rise in earnings inequality in New England from 1950 to 2015. An overwhelming 93 percent of that immigration contribution (that is, 5.6 percent of the observed rise in regional inequality) occurs via changes to the earnings of non-migrants in the labor force (the "non-migrant channel"). Such changes to non-migrant earnings may arise, for instance, as a result of work coordination between migrants

12 Immigration, in-migration, and out-migration flows are mutually exclusive for a given state. However, by definition, out-migration from one state corresponds to in-migration for another state.

and non-migrants that increases how productive non-migrants are in their jobs. The remaining and minimal 7 percent of the immigrant contribution (0.4 percent of the observed rise in regional inequality) is due to how immigrant earnings alter the existing allocation of earnings in the labor market that immigrants join (the "migrant channel").

The evidence in this report therefore suggests that immigration as a whole plays only a minor role in the growth of state-level earnings inequality, thus aligning with some existing research.[13] The resulting recommendations for legislators in the region are therefore twofold. First, if worries about the harmful effects of immigration on area earnings inequality motivate policies that restrict immigration, the findings in this study generally do not support such concerns. In light of this evidence, local officials may wish to reevaluate their stances on such regulatory policies, which may take the form of participation in federal programs that solicit local cooperation (for instance, Section 287[g]), or alternatively, locally enacted policies (for example, in-state tuition for undocumented immigrants).

Second, legislators hoping to counteract earnings inequality in their jurisdictions may find it more effective to explore alternative policies to promote greater equality in earnings. Such legislation could be approached in a few ways. One possibility would be to implement policies intended to directly increase earnings at the low end of the earnings distribution, such as increasing the minimum wage or adopting an earned income tax credit. Another possibility would be to enact policies meant to indirectly increase earnings at the bottom of the distribution, like raising educational attainment in low-income communities or facilitating union representation in low-wage industries. Alternatively, rather than changing earnings, policymakers could propose legislation aimed at redistributing wealth or income, such as estate taxes or income taxes that disproportionately affect high earners. However, across all of these policy approaches, it should be noted that the research evidence remains mixed regarding how effective these measures are at mitigating earnings inequality. Additionally, these policies may also alter other outcomes besides inequality that also warrant consideration, such as work hours or employment. Thus, using such policy levers as a tool for potentially addressing earnings inequality should be approached with some caution by legislators until more research is available.

II. Migration Trends in New England

This report centers on recently occurring migration flows for three types of migration: immigration to the United States, internal in-migration, and internal out-migration (see Box 1 for details on data and measurement).[14] Immigration is classified as inflows from abroad of persons who are

13 Card (2009) similarly finds that immigration has modest and positive effects on wage inequality. However, in contrast, Ganong and Shoag (2017) determine that state-level migration can increase wage inequality due to a limited stock of housing that constrains the ability of low-skilled (and relatively low paid) workers to migrate relatively more than the housing stock affects the migration decisions of high-skilled and more highly paid workers. Given the slim existing literature and the lack of a consensus among these studies, this report and the related working paper (Jackson 2019) thus add to our growing understanding of how migration affects earnings inequality.

14 Emigration is necessarily omitted, because measuring this flow would require analyzing household survey data from all foreign destinations of former U.S. residents.

BOX 1: MEASURING MIGRATION FLOWS

Data Sources

This report (and the related analysis in Jackson 2019) utilizes household survey data from the U.S. decennial census from 1940 to 2000, combined with American Community Survey (ACS) data from 2010 and 2015 (Ruggles et al. 2017). These data have the advantage of being publicly available and containing information on migration flows as well as earnings and other variables, allowing for an analysis linking migration and earnings inequality using the same persons. Across the listed years, the unrestricted data contain 58,403,498 individuals. After making additional restrictions (see Box 2), the final data for analysis contain 22,246,567 individuals.

Measurement

As Molloy, Smith, and Wozniak (2011) discuss in their study, migration researchers typically define migrants according to two criteria:

1. Choosing **geographic units** to define origin and destination locations;
2. Defining the **time period** in which individuals must move between origin and destination locations.

Geographic Units: This study selects the relevant geographic units as **states**, thus designating them as the local labor markets for examining earnings and also ensuring consistent geographic boundaries from 1940 to 2015. This choice also helps allow for full coverage of both rural and urban areas. In some descriptive analysis, regions or the nation as a whole are also used as the relevant geographic unit(s).

Time Period: This report focuses on the **prior year** as the time period referenced for migration flows. A one-year period is preferred in this study because a longer time frame is more likely to miss intermittent moves. The data report the state or country of residence one year earlier for individuals one year of age or older in the sample years 1950, 2010, and 2015, and five years earlier for individuals five years of age or older in the sample years 1940 and 1960 to 2000.[a] The analysis converts five-year migration flows into one-year flows using a constructed measure, resulting in all flows reflecting prior year migration and being comparable across years (Jackson 2019).[b]

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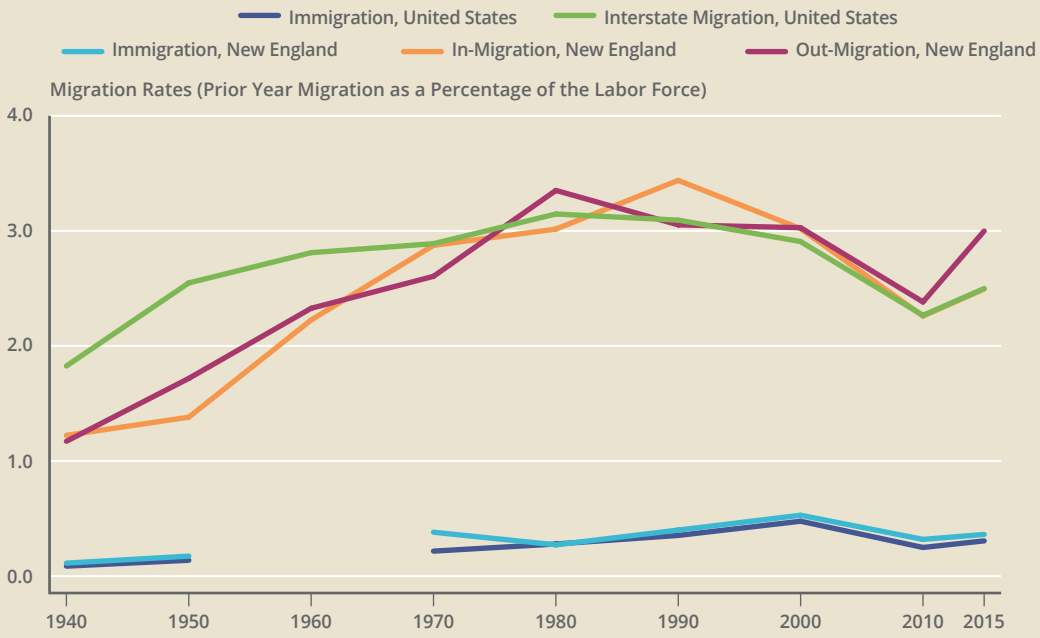
a Prior location abroad is not available in 1960. The Census microdata used in the study that year is a "restoration" sample that "includes restored data originally missing," and as such, may be subject to more missing or inconsistent information than non-restoration samples (Ruggles et al. 2011).

b To confirm that the converted prior year migration flows are reasonable, the analysis compares these to established patterns on U.S. interstate migration from other research. This assessment verifies that the national interstate migration measure generated by this study's methods aligns with documented trends, thus lending support to the conversion approach.

Figure 1

Measuring Types of Migration Over Time
New England and the United States, 1940–2015



Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.

Notes: Migration is measured as the migrants who relocated in the previous year, computed as a percentage of an area's labor force. Five-year migration flows in 1940 and 1960–2000 are converted to one-year flows, as noted in the report. Immigration flows in 1960 are missing because information about the prior location abroad is not available in the data for that year.

noncitizens or naturalized citizens.[15] Inflows and outflows within the United States from existing domestic residents are designated as internal in-migration and out-migration, respectively. For a given area, these three flows are mutually exclusive phenomena.[16] The remaining persons living in an area are categorized as "non-migrants." This last grouping reflects individuals who have never migrated, as well as persons who have migrated but not recently.

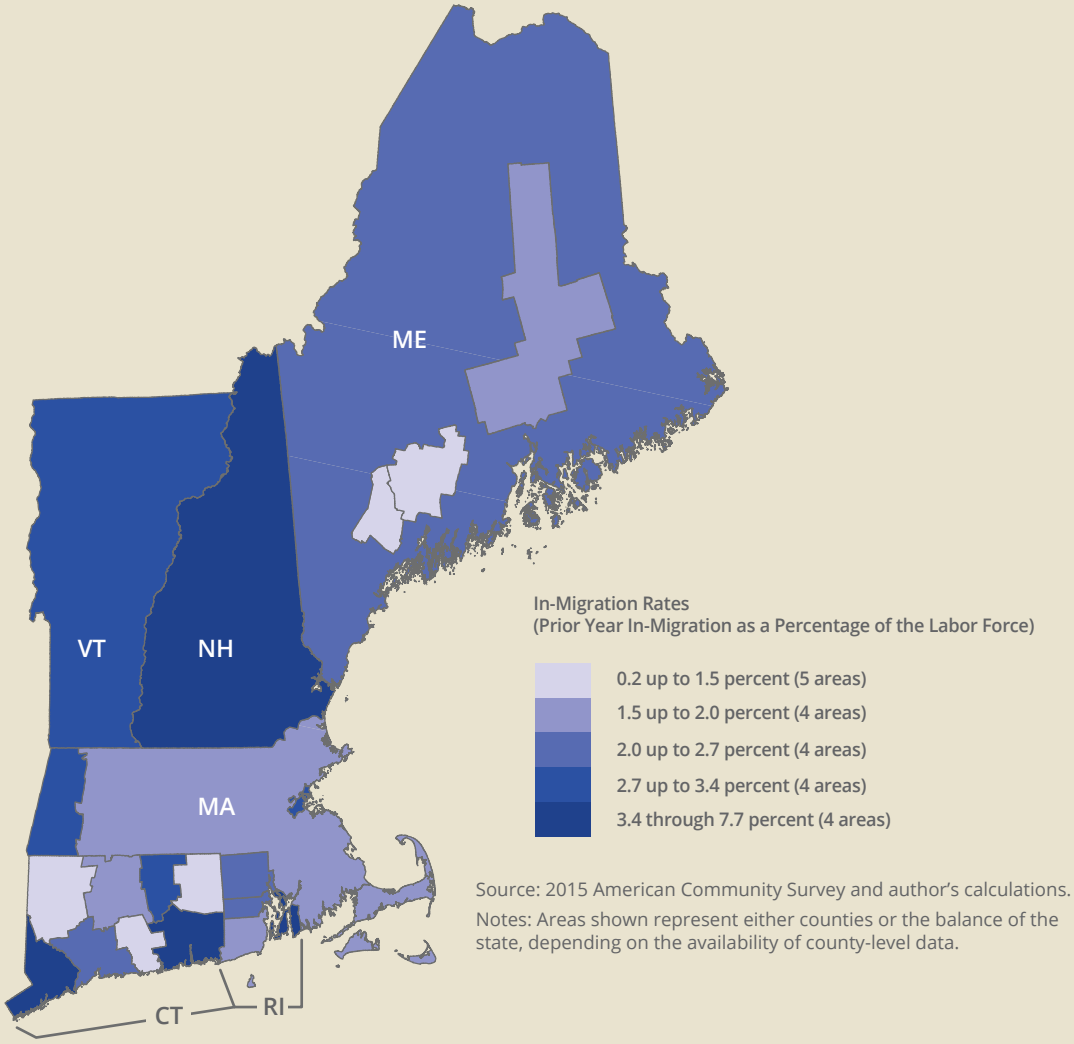
Figure 1 portrays rates of prior year in-migration, out-migration, and immigration in New England from 1940 to 2015 as a share of the region's labor force, as well as rates of prior year interstate migration within and immigration to the United States. The figure shows that in-migration and out-migration rates for New England closely follow each other throughout the period. In particular, from 1940 to 2015, the region's in-migration rates grew from 1.22 percent to 2.49 percent, cresting at 3.44 percent in 1990. Out-migration rates in the same timespan rose from 1.17 percent in 1940 to 3.00 percent in 2015, with a high of 3.35 percent in 1980. Examining past year immigration in the region, this inflow rate more than tripled during the period studied, going from a rate of 0.11 percent in 1940 to a rate of 0.36 percent in 2015.

15 Regarding further details and exceptions, this study treats all countries, territories, and U.S. possessions whose inhabitants are statutory U.S. citizens as non-foreign (for example, Puerto Rico). Also, if individuals may have been born abroad to U.S. parents, the analysis does not allow these persons to contribute to measured immigration flows in the data. See Jackson (2019) for more information.

16 Additionally, internal migration accounts only for an individual's current residence, not his or her birthplace. For example, a foreign-born person immigrating to the United States from Germany will contribute to immigration inflows. If this same individual relocates within the United States several years later, he or she would then also contribute to internal in-migration for the location moved to, and internal out-migration for the location moved from.

Figure 2

Measuring In-Migration Across the New England States
2015



Source: 2015 American Community Survey and author's calculations.

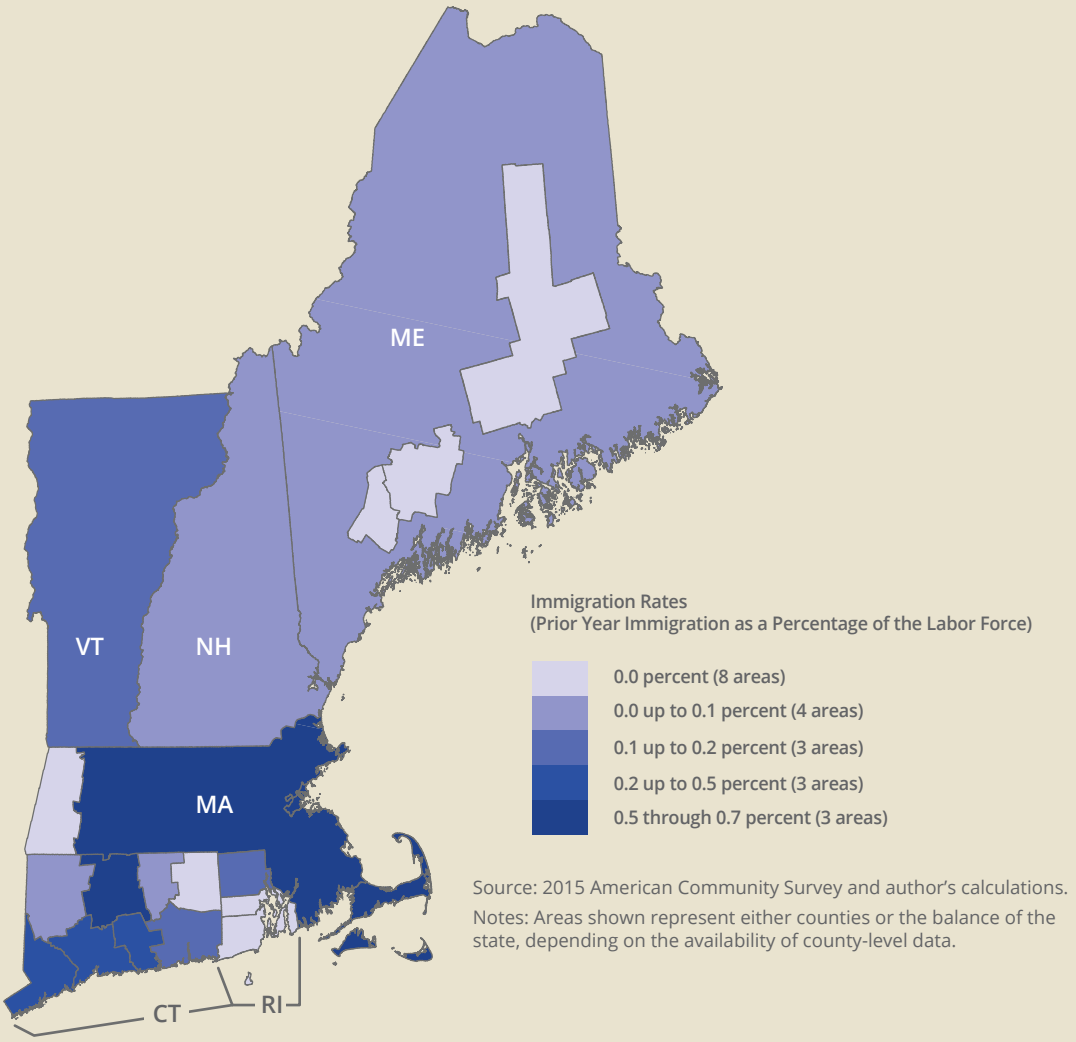
Notes: Areas shown represent either counties or the balance of the state, depending on the availability of county-level data.

Turning to the nation as a whole and focusing first on interstate migration, Figure 1 reveals that U.S. interstate migration over the 1940–2015 period rose from an annual rate of 1.83 percent to 2.50 percent. This annual interstate migration rate peaked at 3.15 percent in 1980 before experiencing a 0.88 percentage point decline from 1980 to 2010. Interstate migration rates for the United States tend to track in-migration and out-migration rates for New England from 1970 onward. However, before 1970, internal migration rates for New England fell below national rates. Turning to immigration, once again there are similar national and regional patterns. U.S. immigration increased from a rate of 0.09 percent in 1940 to a rate of 0.31 percent in 2015, reaching a high of 0.48 percent in 2000 before the Great Recession preceded a fall to 0.25 percent in 2010.

It is also of interest to explore migration flows within New England. Figure 2 displays the region's 2015 prior year in-migration rates for either counties or the balance of a given state, depending on the availability of county-level data. These in-migration rates vary quite a bit

Figure 3

Measuring Immigration Across the New England States
2015



Source: 2015 American Community Survey and author's calculations.

Notes: Areas shown represent either counties or the balance of the state, depending on the availability of county-level data.

throughout the region, ranging from a low of 0.15 percent in Maine's Androscoggin County, to a high of 7.66 percent for Rhode Island, excluding the counties of Kent (2.64 percent), Providence (2.67 percent), and Washington (1.73 percent).

Figure 3 depicts similar differences in prior year immigration rates within New England for 2015. In this case, there are eight instances of no measured prior year immigration for a given area. For example, while Berkshire County in the western part of Massachusetts had no measured prior year immigration, Suffolk County in the east, at 0.73 percent, and the balance of the state, at 0.48 percent, experienced some of the highest immigration rates in New England (ranked first and third, respectively, with Connecticut's Hartford County, at a rate of 0.59 percent, ranked second).[17]

17 It is not possible to examine a similar county-level map for out-migration rates because information on a person's residence in the previous year identifies countries or states, not counties.

Table 1

Comparing Types of Migration

New England and the United States, 1940–2015

	Immigration Percentage		In-Migration Percentage		Out-Migration Percentage	
Area	**Rank (NE/US)**	**Average**	**Rank (NE/US)**	**Average**	**Rank (NE/US)**	**Average**
CT	2/10	0.3	3/29	2.8	6/43	2.1
MA	1/5	0.4	6/47	2.0	4/39	2.5
ME	5/32	0.1	5/34	2.5	5/40	2.5
NH	6/33	0.1	1/19	3.6	1/22	3.7
RI	3/12	0.3	4/32	2.8	2/36	2.8
VT	4/28	0.2	2/25	3.2	3/38	2.5
Region						
NE	2	0.3	8	2.4	7	2.5
US	4	0.3	6	2.7	6	2.7

Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.
Notes: Each type of migration is measured as the migrants who relocated in the previous year as a percentage of an area's labor force ("immigration percentage," "in-migration percentage," and "out-migration percentage"). Each of these three measures are the mean values across years for states or for the United States and its nine Census divisions (with only the New England division, "NE," shown). States, which include the District of Columbia, are listed according to standard U.S. Postal Service abbreviations. Separate, measure-specific rankings are shown for states (51 in total when including the District of Columbia for the US ranking, or six in total for the "NE" ranking) versus the United States and other regions (ten in total).

Massachusetts has the highest average immigration rate in the region and one of the highest average immigration rates in the United States.

In Table 1, the average percentages are shown for the three types of migration over the 1940–2015 period for each of the six New England states, the region as a whole, and the United States. Consistent with the results shown in Figure 3, at 0.4 percent of the labor force, Massachusetts has the highest average immigration rate in the New England region. Moreover, with its rank of fifth in the nation, Massachusetts also has one of the largest immigration rates in the country. Compared to most other U.S. regions, including the United States when viewed as a whole, New England has higher immigration rates, as it ranks second among the ten U.S. regions. Meanwhile, although New Hampshire has the lowest average immigration rate in New England (0.1 percent of the labor force, ranked 33rd), it has the region's highest average rates of in-migration (3.6 percent of the labor force, ranked 19th) and out-migration (3.7 percent of the labor force, ranked 22nd). Meanwhile, the entire New England region tends to exhibit low rates of internal migration, ranking eighth for in-migration (2.4 percent of the labor force) and seventh for out-migration (2.5 percent of the labor force). For these two types of migration, New England ranks below the United States, which has an average rate of 2.7 percent, and a corresponding rank of sixth, for both in-migration and out-migration.

III. Earnings Inequality Trends in New England

This report focuses on measuring earnings inequality in order to assess whether migration flows, especially immigration inflows, contribute to such inequality, as some policymakers have proposed. However, because such earnings disparities are directly tied to labor markets, an interest in understanding how these markets function provides additional motivation for this analysis. Earnings inequality is easier to measure accurately than other types of inequality, especially when

BOX 2: MEASURING EARNINGS INEQUALITY

Data Sources

The same U.S. Census and American Community Survey Data used in this report to study migration patterns (described in Box 1) are also utilized to analyze earnings inequality, thus ensuring that all the analysis is fully aligned. Inflation-adjusted earnings are examined so that values are comparable across years, and certain choices are made for the data sample used in all analysis, such as focusing on individuals with positive earnings.[a] Again, these restrictions result in a final data sample for analysis of 22,246,567 persons.

Measurement

In order to paint a picture of earnings inequality in New England and connect it to the three types of migration rates, a specific measure of inequality must be chosen. This study focuses on a measure known as **the top 10 percent share of earnings**.

Top 10 Percent Share of Earnings: Some inequality measures capture the extent to which a subset of the **earnings distribution** (that is, the allocation of earnings across individuals) represents a disproportionate share of total earnings. For example, one could calculate the earnings share of the top or bottom "X" percent of the earnings distribution, where "X" could be 1, 10, 20, and so on. Computing such measures is thus transparent and straightforward. Because evidence in Jackson (2019) and other work suggests that from 1940 to 2015, most of the change in U.S. earnings inequality was driven by persons with the highest earnings, this report concentrates on the top of the earnings distribution. A choice of "X" equal to 10 percent is made in order to help facilitate a comparison of the inequality measure in this study with leading research on earnings inequality in the United States (Piketty and Saez 2003). For example, a value of 30 percent for the inequality measure would indicate that the top 10 percent of the earnings distribution has a disproportionate 30 percent share of all earnings.[b]

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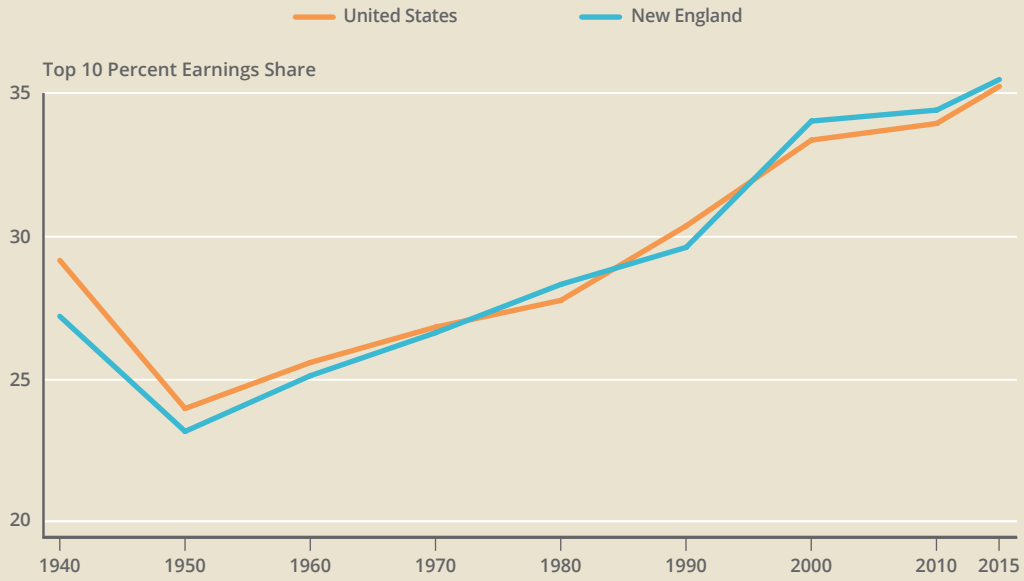
a Nominal earnings are adjusted to real terms in constant 1999 U.S. dollars using data on the Consumer Price Index for all Urban Consumers (CPI-U) from the U.S. Bureau of Labor Statistics. Meanwhile, regarding sample restrictions, the analysis drops individuals who are not in the labor force, not between the ages of 16 years (motivated by state compulsory schooling laws) and 64 years (given a likely retirement age of 65), and not living in group quarters (for instance, dormitories or prisons).

b A potential limitation of this measure when using U.S. Census and ACS data is that, due to confidentiality concerns, the true labor income of the highest-earning individuals in the surveys is suppressed. Such "top coding" reports all persons at or above certain earnings thresholds in a given year (and sometimes varying by state too) as having the same threshold-level earnings. However, a comparison of the values for the top 10 percent earnings share measure calculated for the United States with the same measure obtained from existing work that uses administrative federal income tax return data without top coding (Piketty and Saez 2003) shows that the two measures are very similar.

Figure 4

Measuring Earnings Inequality Over Time
New England and the United States, 1940–2015



Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.
Notes: Earnings inequality is measured as the top 10 percent's share of total earnings in a year for a given region.

using household survey data rather than administrative data like federal income tax returns (see Box 2 for details on data and measurement).[18] Definitionally, earnings inequality focuses on monetary inflows related to income earned from employment—labor income—and excludes non-labor income such as the dividends earned from owning company stock.[19]

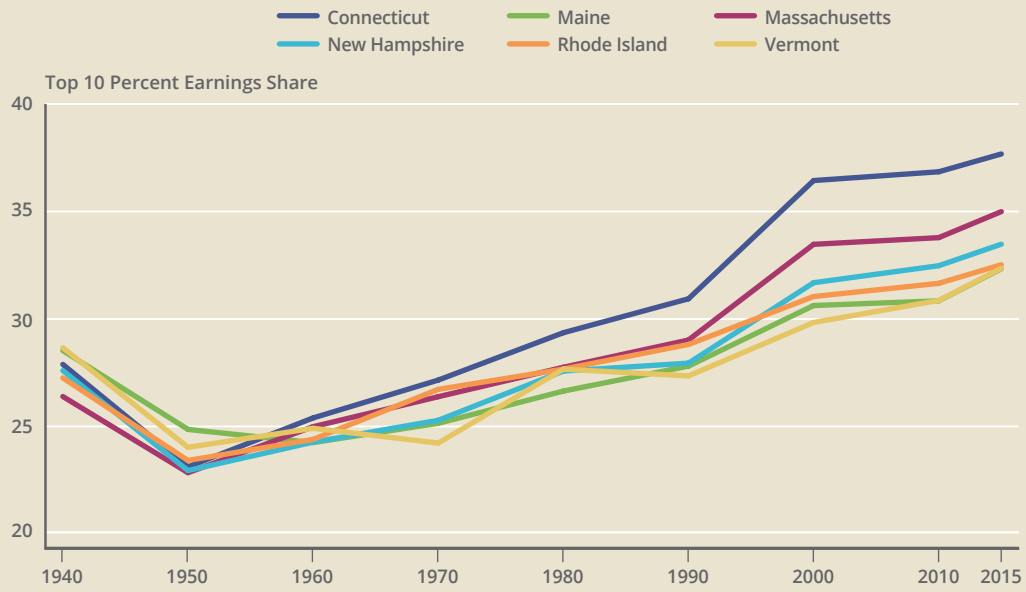
Figure 4 plots the top 10 percent share of earnings from 1940 to 2015 for New England and the United States. The plot reveals that trends in the region and country mirror each other. In New England, the top 10 percent earnings share fell from 27.2 percent in 1940 to 23.2 percent in 1950, then climbed by over 12 percentage points to 35.5 percent by 2015. The top 10 percent earnings share was slightly higher in the United States from 1940 to 1970, but then the top 10 percent's earning share was lower in the United States than in New England from 2000 to 2015.

18 Income tax data from the Internal Revenue Service are not publically accessible and only record limited demographic and other information about individuals. Additionally, in the survey data, the study focuses on earnings rather than hourly wages in part due to the absence of information on work hours throughout the 1940–2015 sample period.

19 As discussed in the introduction, there are other types of inequality that one can examine. Wealth inequality measures the disparity across persons in net worth, defined as assets minus liabilities—that is, the accumulated balance of monetary inflows minus monetary outflows. In contrast, income inequality reflects differences across persons in monetary inflows only. Like earnings inequality, wage inequality centers on the labor market but examines inequality in earnings per work hour rather than total annual earnings. Consumption inequality reflects differences in the usage of goods and services, often approximated using expenditure outflows.

Figure 5

Measuring Earnings Inequality in New England Over Time
1940–2015



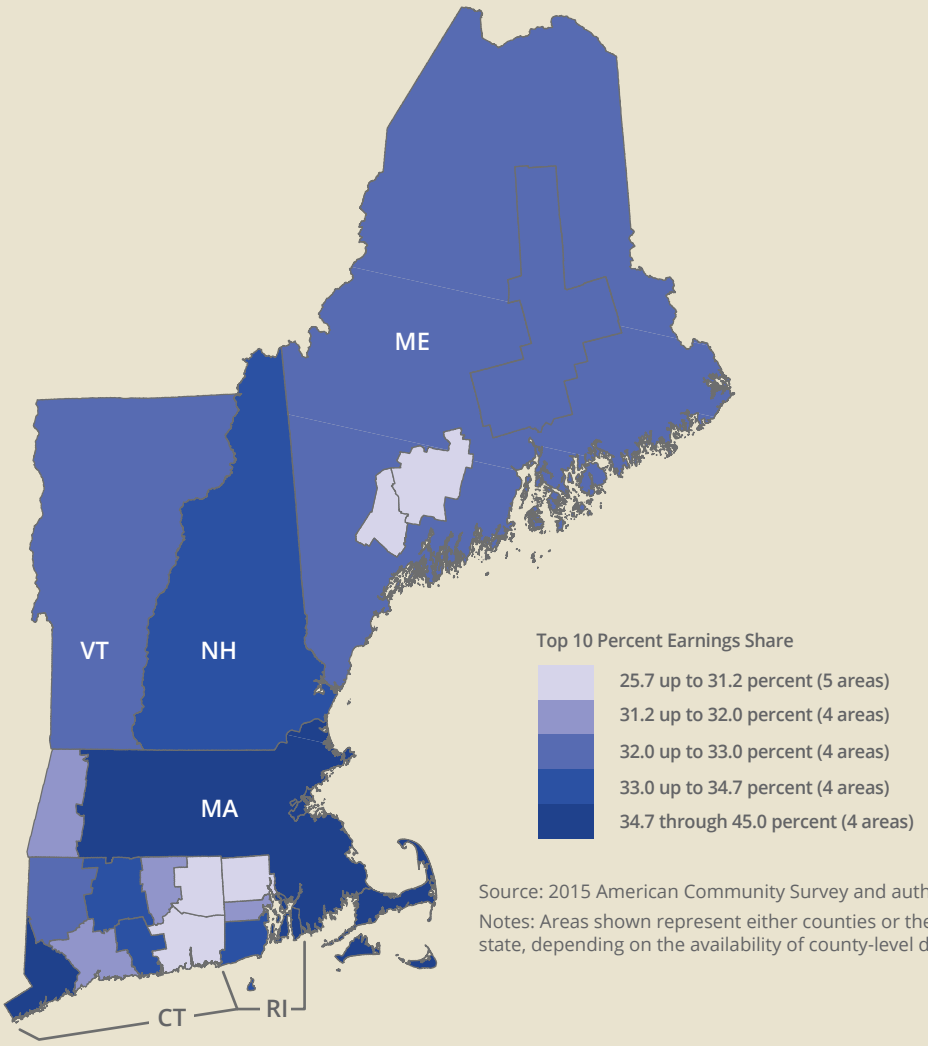
Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.
Notes: Earnings inequality is measured as the top 10 percent's share of total earnings in a state and year.

Looking within New England, Figure 5 displays patterns in the top 10 percent earnings share for each of the region's six states. The plot shows that Connecticut (first) and Massachusetts (second) led the region in earnings inequality in 2015, with earnings shares of 37.7 percent and 35.0 percent, respectively. The figure also reveals that differences in earnings inequality across all states in the region increased since 1980. Specifically, in 1940, the difference in the earnings share between Vermont, the state with the highest earnings inequality (at 28.7 percent) and Massachusetts, the state with the lowest inequality (at 26.4 percent) earnings inequality (at 26.4 percent) was 2.3 percentage points. By 2015, the difference in the earnings share between Connecticut, the New England state with the highest earnings inequality (37.7 percent, as noted earlier) and Maine, the state with the lowest earnings inequality (32.3 percent) had more than doubled to 5.4 percentage points.

Between 2000 and 2015, earnings inequality was higher in New England than in the United States.

Figure 6

Measuring Earnings Inequality Across New England
2015



Source: 2015 American Community Survey and author's calculations.
Notes: Areas shown represent either counties or the balance of the state, depending on the availability of county-level data.

Figure 6 further explores the differences in earnings inequality within New England states as of 2015. As in Figures 2 and 3, the areas shown represent either counties or the balance of a given state, revealing the differences in earnings inequality within a given state. For instance, although Connecticut as a whole is the New England state with the largest top 10 percent earnings share, county-level inequality in the state varies quite a bit. Fairfield County, at 45.0 percent, has the highest top 10 percent earnings share in the state and in New England. Meanwhile, Connecticut's Windham County, at 25.7 percent, has the lowest earnings share in the state and in New England. Other areas in and outside of Connecticut fall between those two extreme values—in Massachusetts, Suffolk County, which encompasses the City of Boston, has a top 10 percent share of 36.7 percent.

Table 2 Measuring Actual and Counterfactual Earnings Inequality
New England and the United States, 1940–2015

Area	Rank (NE/US) Average Percentage Difference	Average Actual (Percentage)	Average Counterfactual (Percentage)	Average Percentage Difference
CT	1/3	30.5	30.4	0.434
MA	5/30	28.9	28.8	0.033
ME	6/47	27.9	27.9	–0.184
NH	4/28	28.1	28.1	0.040
RI	2/9	28.2	28.1	0.319
VT	3/13	27.8	27.7	0.233
Region				
NE	1	29.4	29.3	0.169
US	7	29.6	29.6	0.042

Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.
Notes: Earnings inequality is measured as the top 10 percent's share of total earnings in an area. The counterfactual (no "migrant channel") top 10 percent earnings share is calculated using state-year populations that revert immigration, in-migration, and out-migration from the prior year. "Average Percentage Difference" is the average proportional difference across years for states or for the United States and its nine census divisions (with only the New England division, "NE," shown) between the actual top 10 percent share and counterfactual top 10 percent share (the formula is: Avg[{(Actual – Counterfactual)/Actual} x 100%]. This is distinct from the difference between the actual and counterfactual average shares in the preceding columns, which has a different formula: Avg[Actual] – Avg[Counterfactual]). States, which include the District of Columbia, are listed according to standard U.S. Postal Service abbreviations. Separate rankings are shown for states (51 in total when including the District of Columbia in the U.S. rankings, or six in total for the New England rankings) versus the United States and other regions (ten in total).

Lastly, Table 2 shows the top 10 percent earning shares over the 1940–2015 period for each of the six states in New England, for this region as a whole, and how these rankings compare with the rest of the United States. In 2015, Connecticut's top 10 percent earnings share averaged 30.5 percent, the highest earnings inequality in the region and the third highest in the United States. Maine, in contrast, with an average earnings share of 27.9 percent, has the lowest earnings inequality in New England and with a national ranking of 47, has some of the lowest earnings inequality in the United States. Echoing the trend depicted in Figure 4, Table 2 shows that New England and the United States, at 29.4 percent and 29.6 percent, respectively, have very similar average earnings shares for the top 10 percent. The New England region ranks first in earnings inequality, while the United States, when viewed as a whole, ranks seventh.

IV. The Impact of Migration on Earnings Inequality in New England

As mentioned earlier, there are two channels through which migration may have an impact on earnings inequality: (1) how migrants change the population and the associated earnings that are used to measure inequality (the "migrant channel"); or (2) changes in the earnings of those who do not migrate (the "non-migrant channel"). For instance, in regards to the migrant channel, an outflow of very high-earning individuals from Rhode Island to Maine might reduce earnings inequality in Rhode Island and increase this inequality measurement in Maine due solely to the migrants themselves and their relative positions in the earnings distributions of those two states. Meanwhile, regarding the non-migrant channel, the same inflow of high-earning individuals to Maine might further increase earnings inequality in the state by raising the earnings of non-migrants. Such an increase in non-migrant earnings might occur due to changes in non-migrant traits that are either observed (for example, adjustments in non-migrant education) or unobserved (for instance, work coordination between migrants and non-migrants that increases how productive non-migrants are in their jobs). Alternatively, this non-migrant earnings increase might arise even without changes in non-migrant traits (for instance, due to employer discrimination).

Calculating "Counterfactual" Earnings Inequality

To separate the migrant and non-migrant channels, it would be ideal if earnings inequality could be measured in a version of the world without migration. Any observed impact of migration on such a "counterfactual" (that is, an alternative explanation that differs from reality) measure of inequality would thus necessarily be due to the non-migrant channel only since the possibility of a migrant-channel effect would not exist. Of course, obtaining such a counterfactual measure of inequality is not possible when people move across state borders and across national borders. However, a reasonable substitute can be produced by recalculating earnings inequality for a population in a given state and year that "reverts" migration in the previous year. Specifically, using the data for a specific state and year, the report reassigns prior year immigrants, in-migrants, and out-migrants to their origin locations, and then calculates earnings inequality for the hypothetical population that resides in the state.[20]

Immigration accounts for a very small portion—only 6 percent—of New England's rise in earnings inequality.

Once counterfactual earnings inequality is calculated and compared to the actual measure of earnings inequality, there are only small discrepancies between the two sets of values. Table 2 lists the average percentage differences between the actual and counterfactual measures of earnings inequality. Positive values indicate that the migrant channel effects tend to increase earnings inequality due to the amount that migrants earn compared to non-migrants. In contrast, negative values reflect the idea that the migrant channel effects tend to decrease earnings inequality. Connecticut, where the migrant channel increases the top 10 percent earnings share by 0.434 percent, experiences the largest such effect in New England and the third largest in the country, although the size of the effect is small. Alternatively, Maine has the smallest migrant channel effect in the region and is ranked 47th in the nation. Maine is also the only New England state where the migrant channel effect is negative, causing a –0.184 percent change in the top 10 percent earnings share. As a whole, New England ranks first among all U.S. regions (including the nation as a whole) in experiencing positive migrant channel effects of 0.169 percent on average. These effects in New England are well above the 0.042 percent national average, a measure that ranks the United States as a whole seventh out of all ten regions.

The Impact of Migration on Earnings Inequality

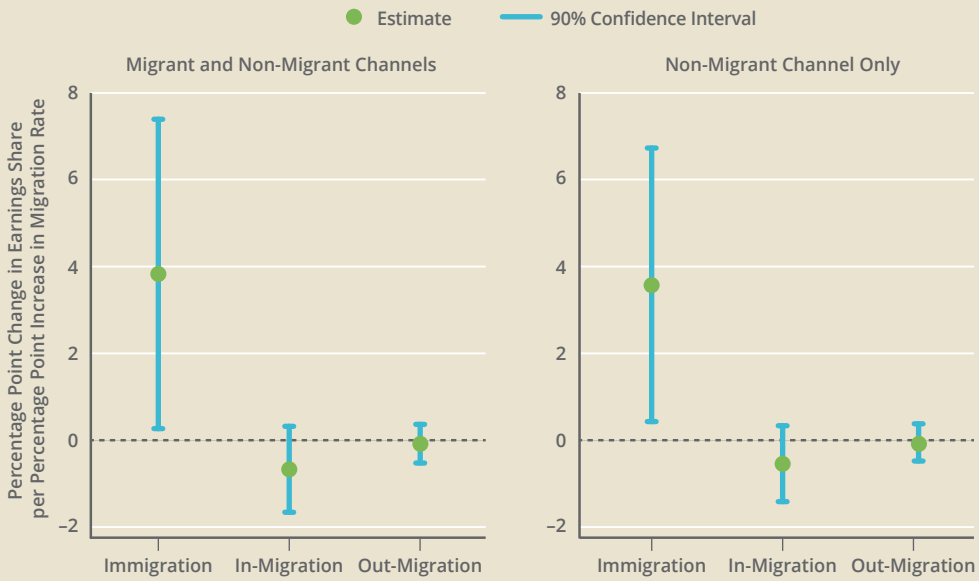
The report now examines the effect of recent state-level migration on state-level earnings inequality.[21] One complication of such analysis is that migration flows do not occur randomly, thus allowing the possibility that migrants might choose or avoid certain states because of

20 This proxy measure thus assumes that only the location of migrants is affected by their moves, not the amount of their earnings, or else that while not identical, their earnings across locations are very similar.

21 Jackson (2019) finds some evidence that migration has long-run effects on inequality. Therefore, "recent state-level migration" should be interpreted to reflect a broad time horizon for migration flows that extends beyond only prior year migration (namely, flows within the previous one to 11 years).

Figure 7

Estimating the Impact of Migration on Earnings Inequality
1950–2015



Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.

Notes: Results based on regression analysis of 326 state-year observations in the United States. Each estimate represents the average percentage point change in the top 10 percent earnings share that results from a 1 percentage point increase in the listed migration flow as a share of the labor force. The 90 percent confidence interval displays the set of values that one can be 90 percent confident includes the true estimate.

earnings inequality in those locations.[22] For example, if internal in-migrants tend to go to states with high amounts of earnings inequality, this would make it mistakenly appear as though in-migration *causes* inequality to increase. To address this complicating issue, this study uses historical birthplace information from the 1940 U.S. Census and data from the ACS to predict migration flows for the period from 1950 to 2015, creating virtually random migration flows as a result.[23]

Figure 7 displays the impact of state-level migration on earnings inequality obtained from this study's analysis. The panel on the left shows the overall effect and reveals that recent in-migration and out-migration have no statistically detectible impact on earnings inequality. However, recent immigration does have a significantly positive effect on earnings inequality, with a 1 percentage point increase in the immigration rate raising the top decile share of earnings by 3.83 percentage points.[24] Figure 7's right-hand panel examines the impact of all three types of migration on counterfactual earnings inequality. The similarity of the immigration estimate here, 3.58 percentage

22 Borjas (1987) examines this phenomenon in his study of immigrant self-selection and earnings.

23 More specifically, in 1940, the analysis determines the states where individuals lived and compares these states with the locations where they were born either abroad (continents) or domestically (states). These observed 1940 patterns are then used to predict where persons with the same birthplaces will migrate to or from during the 1950–2015 period. So, for instance, if 15 percent of foreign-born persons born in South America were living in New Hampshire in 1940, the analysis would designate 15 percent of the total South American one-year immigrant inflow in 1990 to New Hampshire. For further details regarding this general analytical technique, called "instrumental variables" in the economics literature, see Jackson (2019). This migration-specific instrumental variables application follows similar approaches in previous studies (see, for example, Bartel 1989; Boustan, Fishback, and Kantor 2010; Card 2001).

24 The in-migration and out-migration effects are –0.67 and –0.08 percentage points, respectively.

points, with the earlier overall estimate, shows that the effect of recent immigration on inequality mostly operates through the non-migrant channel. Thus, changes in non-migrant earnings resulting from recent immigration, rather than the distribution of immigrant earnings itself, is what causes immigration to have a positive effect on earnings inequality.

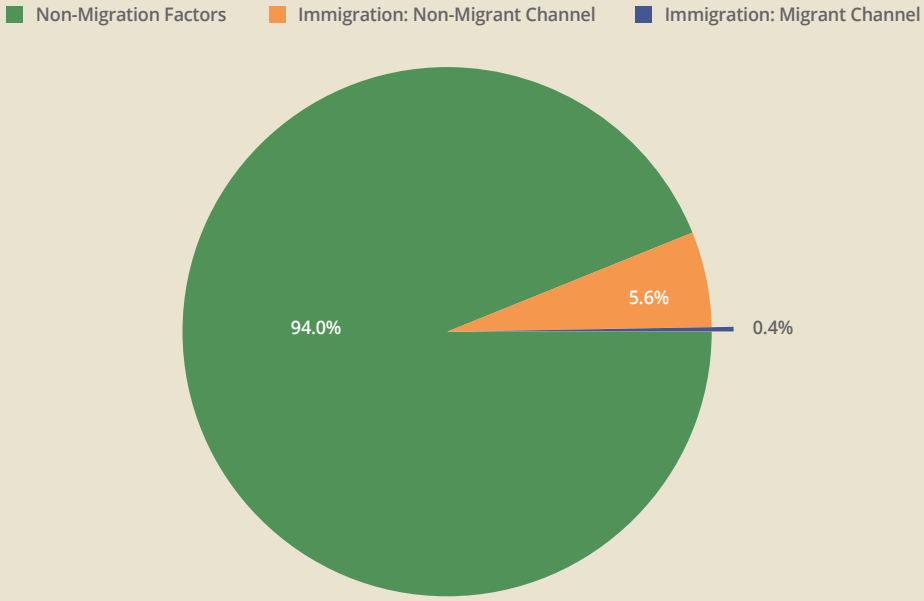
Additionally, as shown in Figure 7, the overall immigration effect appears to be much larger than the in-migration and out-migration effects (and a similar pattern is seen for the non-migrant channel results). However, it is worth noting that the study finds that the average immigration share of the labor force in a given state and year is 0.2 percent in the study, while the average in-migration and out-migration shares are found to be 3.5 percent and 3.7 percent, respectively. Therefore, a 1 percentage point increase in immigration is a huge, 500 percent increase, while a 1 percentage point increase in out-migration would represent a much smaller increase of 27 percent. If instead one focuses on 10 percent increases for both migration rates, the effects on inequality are much more comparable—immigration increases the top decile share by 0.08 percentage points, while out-migration decreases that same share by –0.03 percentage points. To give that analysis a bit more context, the average labor force in a given state and year of the data is composed of 2,135,447 persons. Thus, an average immigration share of 0.2 percent of the labor force is equivalent to roughly 4,271 recent immigrants, with an increase of 10 percent therefore equal to 427 immigrants.

Public policies that seek to restrict immigration will likely have only a limited impact on earnings inequality. However, restricting immigration may undermine economic growth in New England.

The above estimates, combined with observed changes in the immigration rate and the top decile earnings share (as displayed in Figures 1 and 4, respectively), can be used to determine the fraction of inequality growth in both the region and nation that can be explained by immigration. In New England during the period under analysis, the region's immigration rate rose from 0.17 percent in 1950 to 0.36 percent in 2015, an increase of 0.19 percentage points. This rise in immigration would cause an increase of 3.83 × 0.19 = 0.73 percentage points in the top 10 percent earnings share from 1950 to 2015. This study's measure of the top 10 percent earnings share in New England rises from 23.22 percent in 1950 to 35.48 percent in 2015, an increase of 12.26 percentage points. Thus, the analysis suggests that immigration contributed (0.73/12.26) × 100 = 5.95 percent of the observed rise in the region's earnings inequality from 1950 to 2015. Meanwhile, since 3.58 × 0.19 = 0.68, the non-migrant channel of immigration contributed (0.68/12.26) × 100 = 5.55 percent of the observed rise

Figure 8

Sources of Earnings Inequality Growth
New England, 1950–2015



Source: 1940–2000 U.S. Census, 2010 and 2015 American Community Survey, and author's calculations.

Notes: Results based on regression analysis of 326 state-year observations in the United States. "Immigration: Non–Migrant Channel" and "Immigration: Migrant Channel" jointly represent explained causes of earnings inequality growth, while "Non–Migration Factors" represent unexplained causes of earnings inequality growth.

in regional earnings inequality. Putting these two results together, as shown in Figure 8, means that approximately 0.4 percent of the increase in earnings inequality in New England is due to the migrant channel of immigration, 5.6 percent is due to the non-migrant channel of immigration, and the remaining 94.0 percent is due to unexplained factors that are unrelated to migration. Furthermore, when considering the United States as a whole, not New England, the contribution of immigration to the national growth in earnings inequality is slightly smaller, but nearly identical, at 5.8 percent rather than 6.0 percent.[25] Separated out, 0.4 percent of the growth in U.S. earnings inequality is due to the migrant channel of immigration, identical to the effect in New England, while 5.4 percent is due to the non-migrant channel of immigration, leaving 94.2 percent of the rise in earnings inequality due to unexplained factors that have nothing to do with migration within the United States or into the United States.

25 This estimate is similar to Card (2009), who finds that the contribution of immigration to U.S. wage inequality falls in the 4–6 percent range from 1980 to 2005–2006.

V. Conclusion

The analysis in this report finds that recent immigration as a whole has had a very small effect on the growth in earnings inequality that New England has experienced over the past several decades, and that in-migration and out-migration in the region have had no discernible effects on such inequality. Thus, discussion that designates recent immigration as a major reason for earnings inequality growth is not supported by the economic evidence presented for New England as well as for the United States. To the extent that policymakers in the region have taken stances on legislation and actions related to restricting immigration due to concerns about the local impact of such inflows on the unequal distribution of earnings, this report's findings suggest that such views should be reconsidered. New England legislators interested in changing earnings inequality within the region should instead explore alternative policy tools. These policies could aim to increase earnings at the low end of the earnings distribution directly (for instance, through a minimum wage increase), indirectly (for example, through higher educational attainment for low-income individuals), or rather, reduce earnings inequality by redistributing wealth or income (for instance, through taxation). However, implementing such policy alternatives should be approached with some caution given the need for further direct evidence regarding the impact of these policy levers on earnings inequality.

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