

Taking the Pulse of Illinois' Middle Class:

The Changing Size and Composition
of Middle Income Households

April 20, 2017

Robert Habans

Postdoctoral Research Associate
Project for Middle Class Renewal
University of Illinois at Urbana-Champaign

Project for Middle Class Renewal

School of Labor and Employment Relations
Labor Education Program



ABOUT THE PROJECT FOR MIDDLE CLASS RENEWAL

The Project for Middle Class Renewal's mission is to investigate the working conditions of the workers in today's economy and elevate public discourse on issues affecting workers with research, analysis and education in order to develop and propose public policies that will reduce poverty, provide forms of representation to all workers, prevent gender, race, and LGBTQ+ discrimination, create more stable forms of employment, and promote middle-class paying jobs.

Each year, the Project will be dedicated to a number of critical research studies and education forums on contemporary public policies and practices impacting labor and workplace issues. The report that follows, along with all other PMCR reports, may be found by clicking on "Project for Middle Class Renewal" at illinoislabored.org

If you would like to partner with the Labor Education Program in supporting the work of the Project or have questions about the Project please contact Bob Bruno, Director of the Labor Education Program at (312) 996-2491.

EXECUTIVE SUMMARY

Over recent years, the hollowing out of the American middle class has emerged as a topic of much speculation and concern. During the middle of the twentieth century, the middle class rose to a position of economic and demographic dominance. The question of whether this is no longer the case is closely related to the issue of rising income and wealth inequality but focused more directly on those who fall between the extremes of rich and poor.

This report aims to broadly document trends affecting the middle class in Illinois with a focus on employment. The notion of “class” defies straightforward measurement with conventional data sources and encompasses more than employment status. In lieu of a clear way to define and measure class *per se*, this report follows previous national analyses in focusing on “middle income” households and their changing composition over time:

- The portion of Illinois households falling within the middle income range has fallen from about 59 percent in the early 1970s to about 49 percent over the last five years. Middle income levels are also not keeping pace with the growth of upper income levels.
- Like Illinois’ population as a whole, the state’s middle-income households have grown more diverse, although their composition remains disproportionate by race. In 1980, non-Hispanic Whites made up 84 percent of people in middle-income households, but this portion fell to 67 percent by 2015.
- Growth in the female workforce between the 1970s and 1990s and the slow decline of the gender pay gap has probably moderated the relative decline of middle-income households.
- The observable decline in middle-income households is closely related to other contemporaneous trends, such as declining earnings for workers without a college education, the changing mix of industries that support middle-income employment, and changing affects of labor market institutions on earnings.

The report concludes with a discussion of how state and local policy can raise employment standards and affect the supply and demand for labor. Such policies should be evaluated on how they achieve two objectives: growing the middle class from below and stabilizing the middle class from within.

Contents

1	Introduction	I
2	What does “middle class” mean?	2
	Ways of operationalizing middle class	3
	Middle income as a proxy for middle class	3
	Other ways of defining middle class	5
3	Analysis of key trends	7
	Methodology	7
	The size and incomes of the middle class	8
	Demographic characteristics of middle-income households	12
	The location of middle income households	17
	The changing middle-income workforce	19
	Occupations and industries	19
	Education	22
	Labor market institutions	22
4	Conclusion	25
5	References	29
6	Appendix A: National graphs for comparison	32
7	Appendix B: Technical notes on methods	34
	Data Sources	34
	Income Adjustments	34
	Industries and Occupations	35
	Census Tract-level Estimates	36

The author wishes to acknowledge helpful comments and advice from Robert Bruno and Lonnie Golden. If you have questions or comments, please contact the author at rhaban2@illinois.edu.

1 Introduction

The growth of the middle class propelled the prolonged mid-twentieth century economic expansion of the United States and established the twenty-first century economy. However, decades of increasing income and wealth inequality have threatened to upend this established order. While the expansion of the middle class broadly benefited more workers, families, and businesses than any other era, these benefits were experienced unevenly. Similarly, the polarization of opportunity is contoured by race, geography, and industrial change.

This report attempts to examine the economic situation of the middle class in Illinois, particularly as it relates to the workplace. This task, however, requires addressing a second, deceptively complex question: how is the “middle class” defined? As discussed below, the middle class is neither easy to define in a consistent manner nor simple to detect in socio-economic data. *Every* analysis of the middle class – including this one – makes assumptions that have tradeoffs for the findings.

Even noting the limitations, the analysis presented below illustrates several patterns affecting the experience of middle class workers since the 1970s. The center of the income distribution – defined here and elsewhere (Pew Research Center, 2015) as between two-thirds and double the median – has fallen below the majority of the state’s total population. Meanwhile, the share of households earning both higher and lower incomes has grown. This trend has been exacerbated by Illinois’ changing industrial composition and moderated by the growth and wage gains of female workers. As a group, the middle class has grown more diverse partly due to gains among non-white, non-male workers – although gaps persist – and partly due to declining opportunities for low-skilled, male workers.

The findings point, first and foremost, to the need to clarify the mechanisms through which policies affect the middle range of the income distribution. Although this report aims to inform policy discussion, not to propose specific policy recommendations, the conclusion offers an approach to explicitly evaluating policies that affect the labor market in terms of their impact on the middle class. Policies that work to either raise standards of work or to programmatically affect the supply and demand of labor may be evaluated in the context of two objectives: building pathways from low-income to middle-income employment and shoring up the quality and stability of middle-income jobs. Ultimately, progress on these objectives should be detectable through the type of analysis put forth in this report.

This rest of this report begins with a discussion of different approaches to defining the middle class for data-driven analysis. The following section examines trends affecting

the middle class in Illinois. The report concludes with a discussion of how policy can build jobs to support a larger, stronger, more diverse middle.

2 What does “middle class” mean?

As we know it today, the middle class arose from the political and economic transformations of the middle decades of the twentieth century. During the Great Depression and World War II, the New Deal established a broadly Keynesian social contract that prioritized full employment; regulations to improve the quality of work and the power of workers; and collective supports for the poor, the industrial workforce, and professional workers alike. As the United States rose to economic dominance after the war, a regulatory system characterized by moderate redistribution, fiscal management, and increased unionization underwrote the transformation of American society. The middle class, perhaps best symbolized by – though not exclusive to – the white suburban nuclear family, emerged as a majority enjoying the support of policy and economic growth, even as a range of hard and soft barriers structurally limited the access of certain groups (e.g., female workers, African-Americans) and places (e.g., inner city neighborhoods and older industrial areas) to economic expansion. The erosion of the postwar social contract during the 1970s and 1980s and the multifaceted shift toward an ostensibly more market-oriented political order is traced through its hallmark tendencies toward deregulation, reduced support for collective bargaining, limited government, low taxes, and low inflation monetary policy. One might argue that the great middle class era, like the New Deal (Cowie and Salvatore, 2008), was merely a long historical exception. Without question, its legacy continues to shape American politics, consumption, and cultural identity.

Unfortunately, the concept of the “middle class” is probably easier to articulate in terms of social experience, cultural norms, and epochal shifts in the structures of the national economy than in terms of the economic position of an individual household. Although most people have a general idea of what it means to be middle class, asking a dozen random strangers to define the term could easily yield a dozen different answers. In all likelihood, with the exceptions of the very poor and very wealthy, the majority of this same group would actually consider *themselves* to be middle class, likely owing to the association of the middle class with mainstream American norms. Regardless of current income or wealth, middle class status can be an inheritance from family history or an aspiration for the future, neither of which is necessarily reflected in current income levels. For these reasons, it is not surprising that recent Pew polls routinely find that nearly nine of ten respondents identify as either upper-middle, middle, or lower-middle

class rather than lower or upper class (Pew Research Center, 2014; Rose, 2016).¹ The general public experiences middle class identity in ways that are commonplace but not concrete and that cross a diverse array of personal backgrounds and political, economic, and cultural situations.

Unfortunately, these conceptual ambiguities also extend to the analysis of government data. There is no consensus operational definition of the “middle class,” either among economists or in government statistics (Cashell, 2008; Pressman, 2015). Most adopt “middle income” as a proxy for middle class and base their measures on the income distribution or the poverty level, often defining the middle class not by what it is but by what it is not: neither poor (or near-poor) nor rich. Though not always explicit, the ambiguity only grows when distinguishing even further between the upper- and lower-middle class. Other approaches focus on a mix of college education, occupational characteristics like the degree of control over work responsibilities (Zweig, 2000) or white collar tasks, economic security, consumption characteristics (e.g., homeownership), or certain social and political values (Pew Research Center, 2015). Each of these alternatives provides, at best, an approximation, and adopting one strategy over the other can shape the story told by the data.

Since these issues constrain any foray into quantitative analysis, it is not altogether surprising that researchers have varied widely in their approach to similar questions. At its root, class refers to collective identity and political and economic power in relation to the broader structure of society. These characteristics are, at best, awkward to measure with the available tools of individual- and household-level indicators of income, wealth, and employment.

Ways of operationalizing middle class

MIDDLE INCOME AS A PROXY FOR MIDDLE CLASS

Most studies with a thematic focus similar to this report base their operational definition of the middle class on measures of the income distribution. Considerable discretion exists in the definition of a cutoff point for inclusion in the middle class, which in turn affects the interpretation of trends. The simplest approach is to define income levels into five quartiles. In this case, the middle three quartiles correspond to lower-middle, middle, and upper-middle class; the bottom quartile corresponds to poor, and the upper quartile corresponds to rich. While this method can be useful for comparing the changing shares of aggregate income going to each group over time, the obvious limitation is that the

¹Pew Research Center (2014), however, finds that the portion identifying as “middle class” has fallen slightly and “lower-middle class” has increased since 2008.

quartiles always account for the same portion of the population. Thus, this method does not address the question of whether the middle class is shrinking or growing.

As a result, most studies define the middle class as those falling within a certain range of the median income level, or as those falling between the extremes on either end of the income distribution (e.g., low-income might be defined as a proportion of the poverty level²). Ultimately, these cutoff points, which are left to the discretion of the researcher, imply potentially unreasonably discrete demarcations of class status. However, as long as the cutoffs are chosen carefully, they can still be relevant for analyzing trends, since any bias will be carried consistently through the time period under analysis.

Comparing trends also necessitates a decision over whether the references for determining cutoff points are fixed or variable across time periods. This issue is best reflected in the varying interpretations of two recent studies published by Pew (Pew Research Center, 2015) and the Urban Institute (Rose, 2016), respectively. The Pew study defines middle income households as falling between two-thirds and double the median income level, although the reference median is determined for each current time period. Thus, the cutoffs vary for each year of data. In contrast, the Urban Institute study uses fixed cutoffs determined for the last year of the study to assign households into poor or near-poor (150 percent of the federal poverty level) and rich (top 1.8 percent of incomes), with lower-middle, middle, and upper-middle falling in between. Both studies used the same underlying government data sources and adjusted for family size in a similar manner. However, the different approaches to determining income thresholds led to different narratives regarding the middle class.

The Pew study, ominously subtitled “no longer the majority,” found that the share of households that are middle income had fallen below 50 percent for the first time since the 1970s, giving weight to the narrative of a formerly formidable middle class now under threat. This method, however, suffers from two shortcomings. First, if some members of the middle class “graduate” to the upper class without any of the rest of the middle class being worse off, the method will still show a shrinking middle class without any actual decline in any portion of the distribution. Second, when the median income declines, as it did during the Great Recession, the cutoffs also decline, making it easier for previously middle income households to advance into the upper income and previously lower income to advance into middle income without those families’ incomes actually increasing.

The Urban Institute study, titled “The Growing Size and Incomes of the Upper Middle Class,” partly corrects these issues with the Pew study while introducing new

²For example, a series of related reports by Williams and Boushey (2010); Boushey and Hersh (2012); Appelbaum et al. (2014) use this method to define low-income.

problems (Rose, 2016). The study found that while the share of poor and near-poor, lower-middle, and middle classes all declined, the upper middle class and the small group of rich had both more than doubled. In fact, the upper-middle class grew more than enough to offset the declines in other middle-income groups. The implication is that the familiar narrative of gains concentrating at the top did not come at the expense of households lower on the economic ladder. However, in this instance, because median incomes rose across the distribution,³ the entire distribution would be expected to shift up. The finding that the middle income group, largest in size at the outset, would cause the largest gains to be located one level higher in the upper income group is thus somewhat predictable based on the parameters of the analysis.⁴ However, the report does emphasize that a decrease in the middle-income range is not necessarily a sign that the middle class is universally, or even mostly, suffering.

As Rose (2016, 5) also notes, income-based measures have additional limitations. It is not possible to use after-tax income, and income measures routinely ignore disposable income⁵ and regional differences in cost of living. These changes would arguably yield a more appropriate measure of income variation. Additionally, sources of income besides earnings generated from work are routinely under-reported in national surveys. Examples of such benefits include non-cash benefits for the poor and elderly, capital gains on investment income, and employment benefits like health insurance.

OTHER WAYS OF DEFINING MIDDLE CLASS

Several alternative definitions avoid relying solely on income. First, educational attainment, particularly a four-year college degree, has often served as a marker of class status. A notable example of this method is *The Economist's* white working class male index, which includes males of prime working age with only a high school education (The Economist, 2017). Education continues to provide one of the most significant predictors of lifelong earnings and an important pathway to the middle class (Carnevale et al., 2011). However, education alone ignores many of the key changes affecting the middle class. For example, sixty years ago, when less than ten percent of the population had a college degree, the combination of opportunities in industrial and middle-skill office

³This effect was intensified by the author's use of the personal consumption expenditure deflator rather than the consumer price index, although the report also describes sensitivity tests that suggest a minimal effect of this decision.

⁴This effect is further compounded by the Urban Institute's use of the personal consumption expenditure deflator rather than the consumer price index to adjust for inflation. This shows a larger gain in income over time. Both studies adjusted for household size in essentially the same manner.

⁵A notable exception is (Pressman, 2015). He develops a measure of middle-class disposable income adapted from the original method of calculating the poverty level.

occupations and strong labor market institutions, including unions, made a middle class lifestyle attainable for large numbers of workers without a college degree, particularly for white and male workers. Today, after rising steadily for decades, the rate of college education is much higher than during the postwar expansion of the middle class, yet this contradicts the contention that the middle class is under threat – if not contracting outright (e.g., Pew Research Center, 2015). Education and, more generally, skills are part of the puzzle, but their relationship to class status is less determinative than conditioned on the broader structure of economic opportunity.

Second, wealth provides a reasonable alternative to income, particularly since accumulated wealth likely implies a greater degree of economic security than income in the event of a shock, such as a decrease in income due to job loss or an increase in expenses due to family illness. Moreover, Piketty (2014) highlights the historic increase of wealth inequality since the 1970s as both more severe than income inequality and as a defining characteristic of the contemporary economy. Wealth inequality also foregrounds the historic, generational effects of participation, or exclusion, from the long middle class expansion. For example, as postwar white working families solidified their middle class status through suburban homeownership, institutionalized lending practices and government policy prevented African-Americans from accumulating wealth through the same mechanism. Unfortunately, short of access to the rich exotic data sources employed by Piketty and his colleagues, data on wealth is difficult to come by, especially at the local level; and mapping its distribution onto notions of class suffers limitations parallel to those encountered for income.

Third, consumption patterns might provide an additional means to define middle class. This, too, is difficult due to a lack of individual or household-level data on the range of possible consumption expenditures, aside from homeownership. A narrow consumption focus would also introduce conceptual problems by ignoring the connection between middle class status and economic security or employment-based earnings.

Fourth, occupational characteristics could also provide a reasonable proxy for class. Two notable but very different examples of occupation-based methods further illustrate the problems with focusing solely on the middle class. Zweig (2000) takes issue with the absence of class in economic thought and the misleading emphasis on the middle class in the political imagination. Defining class not in terms of the previously mentioned factors but instead in terms of power at the workplace, Zweig allocates specific occupations based on their characteristics to the working class, an extremely small but powerful corporate elite, and a middle class of professionals, small-business owners, and managers. The resulting occupational estimates position a sizeable, diverse majority of workers within the working class. In deliberately re-allocating employment that would otherwise be considered to be middle class – mistakenly, according to Zweig – to the working class,

this approach issues a corrective to distortions in the political discourse that are closely entwined with notions of the middle class.

Operating from a very different set of concerns, Florida (2002) also uses occupations to argue for an alternative view of class structure, where the putative “creative class” of design and technology workers; creative and knowledge professionals; and arts, culture, and media workers lies at the center. This argument hinges on the creative talent that, according to Florida, drives innovation and urban competitiveness and generates cultural and consumption preferences distinct from those of the postwar middle class. Despite its rise to prominence in policy circles over the 2000s, Florida’s argument has encountered criticism of its potential to exacerbate inequality by exclusively emphasizing high-end service occupations in expectation of benefits trickling down to lower-skilled, non-creative workers. In fact, the creative class theory’s popularity and its key prescriptions may be closely related to the same underlying forces hollowing out the middle class (Peck, 2005).

Despite their differences, both Zweig (2000) and Florida (2002) illustrate, first, the possibilities of alternative conceptions of class in society and, second, the advantages and limitations of occupational definitions. Occupations overcome some of the issues inherent in focusing on income or consumption characteristics in absence of a structural argument about their relationship to the economy. However, occupational definitions also only indirectly allow for an analysis of the quality and quantity of jobs at the middle. In sum, class remains problematic to measure and depends on the assumptions and objectives of the analysis.

3 Analysis of key trends

Methodology

Attempting to analyze the middle class depends on several assumptions. In addition to wading through the ambiguities mentioned in the previous section, decisions must be made in selecting an appropriate dataset, specifying a time frame, and choosing a unit of analysis (e.g., family, household, individuals, or employed individuals). Duly noting the limitations, this report adopts the Pew method of adjusting for household size and cutoffs as a starting point:

- low income are households falling below two-thirds of the median,
- high income are households above double the median,
- middle income households are in between.

After adjusting for household size, the median household income in Illinois in 2015 was about \$65 thousand for a household of three. Thus, the threshold between lower- and middle-income would be \$43 thousand, and the threshold between middle- and upper-income would be \$130 thousand for a household of three. These cutoffs vary by size of household and by year.

Focusing the analysis on a specific state as opposed to the nation presents additional challenges. Nationally representative datasets may not have a large enough sample to produce state-level estimates; even if they do, smaller samples imply larger sampling errors than in comparable national estimates. Most of the original analysis in this report uses publicly available sources that are published by federal agencies (i.e., the Bureau of Labor Statistics, Census Bureau, and Bureau of Economic Analysis) and are routinely used for economic analysis on a wide variety of topics. Several sources are used, including the Current Population Survey Annual Socioeconomic Supplement (CPS-ASEC) and Outgoing Rotation Groups (CPS-ORG), the decennial Census and the American Community Survey (ACS, which replaced aspects of the census after 2000).⁶ These sources are similar in surveying individuals and households on a wide range of demographic, employment, income, and household characteristics; though many of the questions overlap, the survey methodology, questions, periodicity, and sample sizes differ.⁷ The appendix includes additional details on the sources.

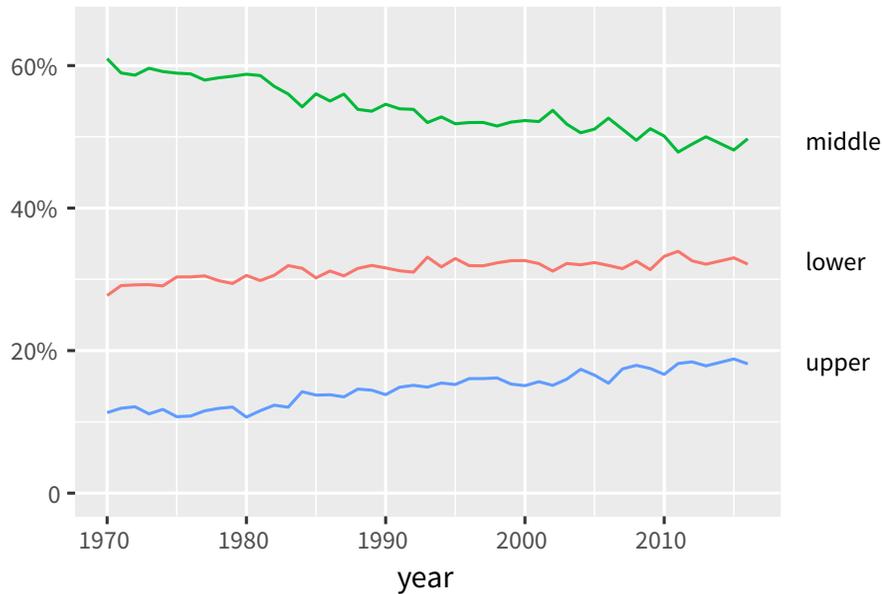
The size and incomes of the middle class

Figure 1 represents the changing share of the state's population that falls into the lower, middle, and upper income ranges between 1970 and 2016, using the Pew method for delineating income groups relative to the median. For Illinois, the general pattern of a decreasing share of middle class households parallels that of the nation as a whole. Comparing averages drawn from the first five years of the analysis with averages drawn from the last five years, the portion of households in the middle income range declined from 59 to 49 percent in Illinois, compared with a decline from 56 to 48 percent in the nation as a whole. In other words, the declines were similar, although Illinois began with a slightly higher share of middle-income households and experienced a slightly steeper

⁶Each of these data sources were based on University of Michigan IPUMS extracts (Flood et al., 2015; Ruggles et al., 2015).

⁷For example, the 2015 ACS sample for Illinois included 121,292 records; the CPS-ASEC routinely has about 5,000–6,000 respondents for Illinois.

Figure 1: Lower, middle, and upper incomes, 1970-2016



Source: CPS-ASEC (IPUMS-CPS).

decline.⁸ While the low income portion has been relatively stable since the 1990s, the high income portion has increased consistently.

The impact of the 2008 recession is also evident in figure 1. With some year-to-year variation, the share of middle-income households has continued to trend downward slightly during the recovery, while the lower- and higher-income groups have increased slightly.⁹ This finding echoes other reports that most of the employment recovery has occurred via low-wage jobs (see, e.g., National Employment Law Project, 2014).

Table 1 presents the median household income, adjusted for household size, *within* each of these three groups, taken from the decennial census (1980, 1990, 2000) and the American Community Survey (2005, 2010, 2015). For the low and middle income ranges,

⁸The numbers in Pew Research Center (2015), which found a decline from 61 to 50 percent between 1971 and 2015, are slightly different. The authors use the share of adults falling within the middle-income range rather than the share of households used here.

⁹This comparison also emphasizes the limitations of the Pew method: since the median household income declined, the bar for a household to qualify as middle (2/3 of the median) or upper income (double the median) also decreased.

Table 1: Median size-adjusted household income for household size 3

	Low	Middle	High
1980	25,829.50	79,278.13	168,534.01
1990	25,945.53	79,334.02	175,798.27
2000	29,118.66	86,014.31	204,139.51
2005	27,027.99	82,866.87	191,982.14
2010	26,085.71	78,734.89	183,913.29
2015	26,145.60	80,807.29	192,888.72
Change	1.2%	1.9%	14.5%

Source: 2015 ACS (IPUMS).

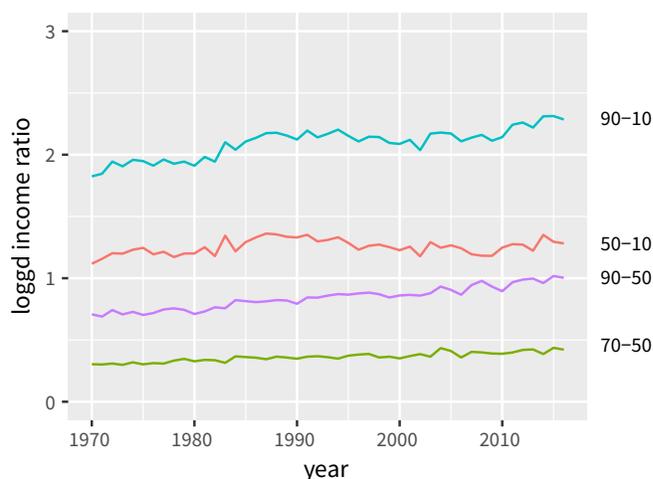
the median household income was stable, increasing by less than 2 percent, respectively. Median income for the high income group, however, has increased by nearly 15 percent since 1970.

Another way that researchers examine the changing distribution of incomes is to examine the ratio of income for specific quantiles of the income range. The most commonly used versions are the 50-10 ratio, which compares the lowest ten percent to the median, and the 90-50 ratio, which compares the highest 10 percent to the median, and the 90-10 ratio, which compares the highest 10 percent to the lowest 10 percent. In order to unpack the changing distribution of incomes, figure 2 shows how these ratios have changed since 1970. The 70-50 ratio is also included to illustrate upper-middle incomes.

The highest line, the 90-10 ratio, illustrates the now accepted story of increasing income polarization, as gulf between the poorest and richest has widened since the 1980s. During the 1970s and 1980s, the 50-10 and 90-50 ratios were both rising. However, between roughly 1990 and the Great Recession, the 50-10 ratio trended slightly downward while the 90-50 ratio continued to increase. The highest income residents of Illinois have continued to pull away from the middle as well. For comparison, the 70-50 ratio shows very modest increases. As a whole, these trends suggest that the top 10 percent of earners have pulled away from both the middle and the lower end of the distribution. Meanwhile, upper-middle incomes have also increased relative to the middle (70-50 ratio), but only modestly.

Still another way to examine trends among middle income households is to sort households into quintiles by income, each comprising twenty percent of the population. Here, the top quintile may be considered high income, the bottom quintile may be considered low income, and the middle three quintiles represent the lower-middle,

Figure 2: Logged income ratios, 1970-2016



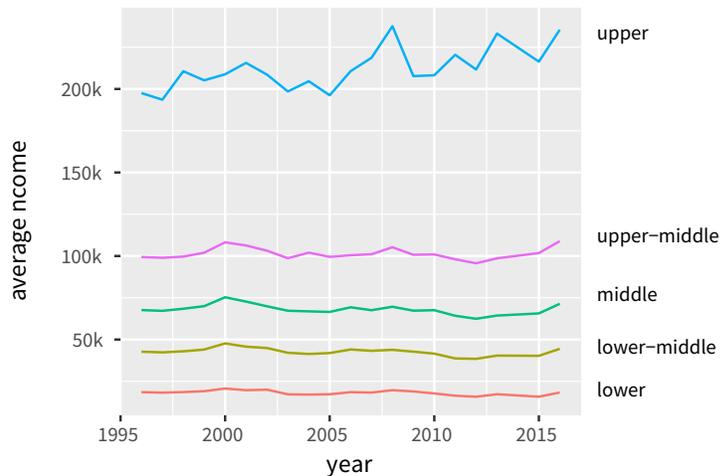
Source: CPS-ASEC (IPUMS-CPS).

middle, and upper-middle income groups. While the size of each group always stays the same, the income level reflects the total portion of income going to each quintile. Figure 3 plots the average income for each of the three groups since 1970. Except for a sustained increase during the late 1990s, the middle and lower-middle quintiles have been stagnant since the late 1970s. Meanwhile, upper middle incomes have risen slightly, and upper incomes have risen much higher.

Each of the previous breakdowns offers numbers for comparison but can hide some of the complexity of the changing distribution. Figure 4 uses a histogram to more directly represent how these trendline work to reshape the income distribution as a whole over time. To make comparisons easier, the charts use a different scale for household incomes below and above \$100,000. In 1980, household incomes approximated a normal distribution (a “hump”) around the middle, with a long “tail” stretching out toward the higher income range. This is consistent with a population where a middle-class forms the majority of households. In subsequent years, the “hump,” which looked more like a peak in 1980, has flattened and shifted toward lower income levels, while the long “tail” has grown thicker, skewing toward higher incomes.

Because these figures show the distribution of incomes without demarcating households into discrete classes, they present a more precise illustration of the transformation of the middle class. Rather than describing the middle class as shrinking or shifting toward upper-middle class incomes, the middle itself is shrinking and shifting toward

Figure 3: Average income by quintile, 1970-2016



Source: CPS-ASEC (IPUMS-CPS).

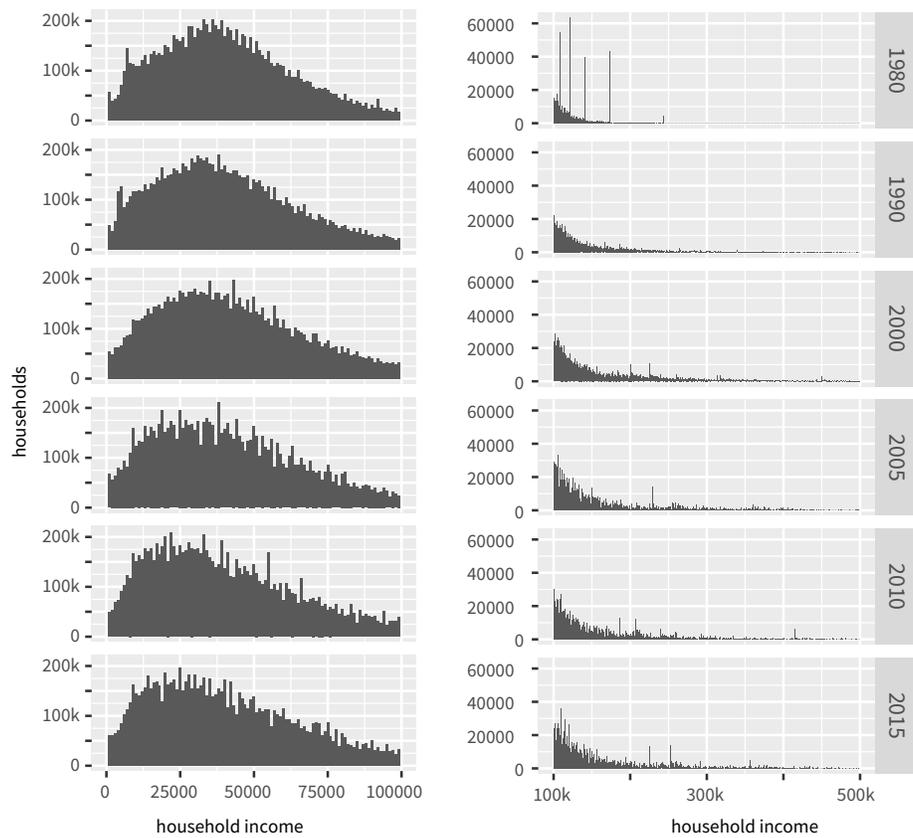
both the short low-income tail and the long high-income tail. While the basic shape of the state’s income distribution – the large middle “hump” – remains consistent since 1980, the graphs reflect a slow polarization of incomes, where the middle income peak is both a smaller share of the population and a lower level of income.

Demographic characteristics of middle-income households

As a whole, Illinois’ middle class has become more diverse, although inequalities persist. Since the 1970s, women have increasingly entered the workforce (see figure 5). Female workers have also attained better jobs, although the earnings gap remains, as shown in figure 6. This pattern adds context to the relative stability of the median household income over time. As opportunities have opened for women and the earnings gap has closed, earnings have fallen for the median male worker.

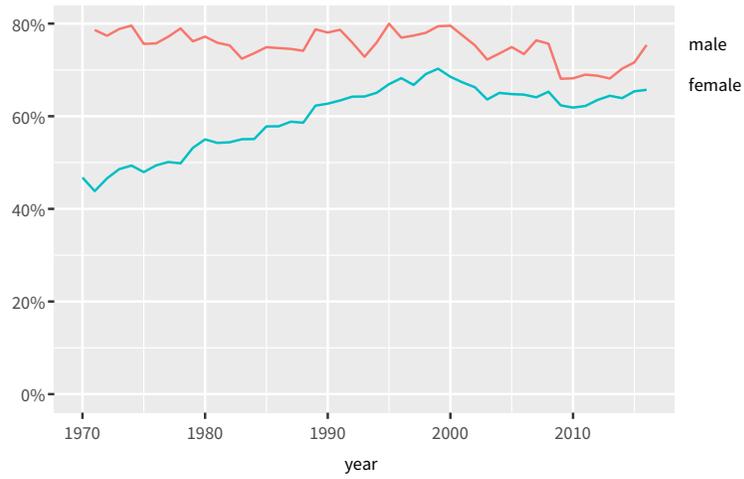
Table 2 compares estimates for major race and ethnicity categories for the entire state economy and for middle income individuals. In 1980, non-Hispanic whites made up 83 percent of the middle income group. By 2015, this portion had fallen to 67 percent. While whites are still over-represented among middle-income families, the middle income group as a whole has grown more diverse. People who identified as Asian or Hispanic have gained a larger share of the state’s population and its middle-income range. The

Figure 4: Snapshots of Illinois' household income distribution, household-of-one equivalents, 1980-2015



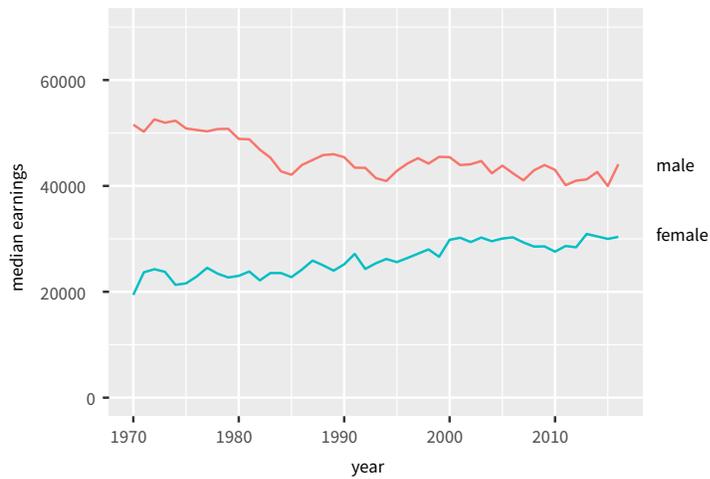
Source: 1980, 1990, and 2000 Census and 2005, 2010, and 2015 ACS (IPUMS).

Figure 5: Percentages of females and males under age 65 who are working



Source: CPS-ASEC (IPUMS-CPS).

Figure 6: Female and male median earnings for adults under age 65



Source: CPS-ASEC (IPUMS-CPS).

Table 2: Race and ethnicity, total population and middle-income population, 1980 and 2015

	1980		2015	
	Total	Middle	Total	Middle
Hispanic white	5.3%	4.4%	10.2%	9.7%
White (Non-Hisp.)	77.9%	83.0%	61.9%	66.6%
African-American	14.8%	10.5%	14.0%	11.3%
Asian/Pacific Is.	1.5%	1.6%	5.2%	4.9%
Other	0.5%	0.4%	8.6%	7.5%

Source: 1980 Census and 2015 ACS (IPUMS). Note that “other” includes individuals who responded with two or more races.

share of African-Americans in middle-income households has also increased, but only slightly.¹⁰

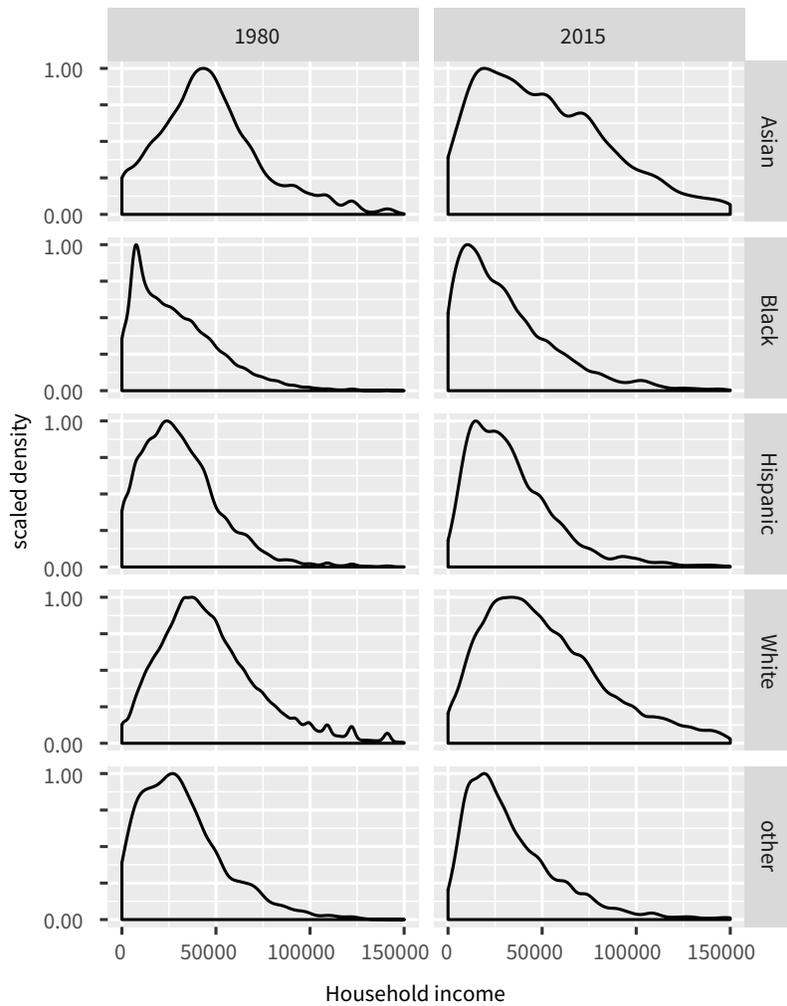
Figure 7 compares the income distributions of major race categories in 1980 and 2015.¹¹ For the White and Asian cohorts, the middle income has flattened, and the tail of higher incomes has grown. For Hispanic and Black cohorts, the median income has increased but remains lower; and these groups have not participated in the growth of the higher income ranges to the same extent.

The result of racial differences in the income distribution is also reflected in the likelihood of each group to be a member of a lower-, middle-, or upper-income household (table 3). Lower and upper incomes are clearly divergent, with Latino and Black residents much more likely to be lower income and Asians and Whites much more likely to be upper income. The likelihood of falling in the middle income range also varies, albeit to a lesser degree, e.g., about 41 percent of those who identify as African-American and 55 percent of those who identify as non-Hispanic white are part of middle-income households.

¹⁰Because “Hispanic” status and race are reported separately, this analysis uses individuals who identified as both “Hispanic” and “White” as an imperfect proxy for Latino/a identification that is mutually exclusive with other categories. Hispanics of other races were coded as belonging to that race.

¹¹Note that the Census Bureau changed its method for tallying race by including individuals who identified with more than one race. These individuals are not identified in 1980 but have been lumped into “other” in 2015. As a result, the distributions are not perfectly compatible. Because “Hispanic” background is reported separately, individuals who identify as Latino or Hispanic have been approximated as “Hispanic white”; all other Hispanic individuals (e.g., Hispanic black) have been allocated to a single race category.

Figure 7: The structure of household income distribution by major race and ethnicity categories, 1980 and 2015



Source: 1980, 1990, and 2000 Census and 2005, 2010, and 2015 ACS (IPUMS).

Table 3: Lower-, middle-, and upper-incomes as a share of major racial and ethnic categories

	Lower	Middle	Upper
Asian/Pacific Is.	27%	47%	26%
African-American	52%	41%	7%
Hispanic white	45%	48%	6%
White (non-Hisp.)	23%	55%	22%
Other	48%	45%	8%

Source: 2015 ACS (IPUMS).

Race and ethnicity also remains a significant source of difference for homeownership, which could be considered as an alternative measure of middle class status. Figure 8 compares homeownership rates for Illinois households in 1980 and 2015. While White homeownership remains highest, the rates for other groups have increased substantially. Black homeownership, again, remains the exception. Rates are both lower than other groups and similar to 1980 levels. Homeownership serves as an important means of wealth accumulation for middle class families.

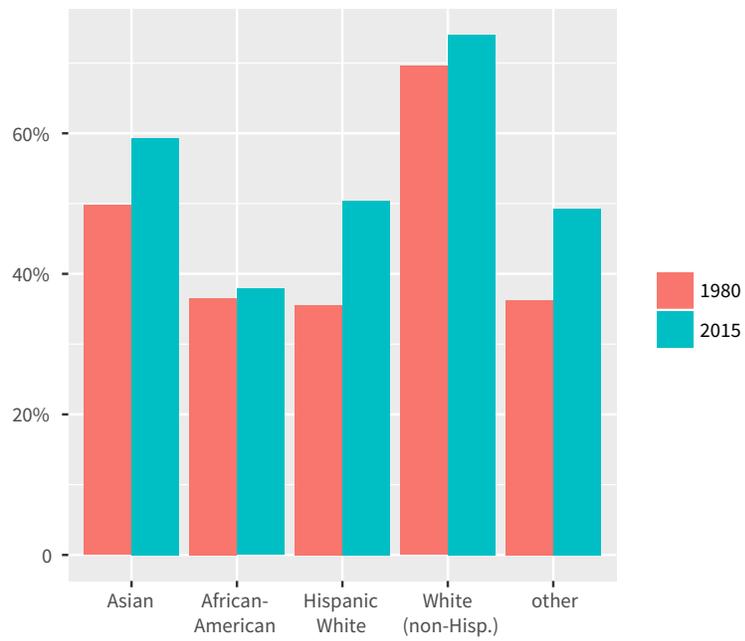
THE LOCATION OF MIDDLE INCOME HOUSEHOLDS

By adapting the previous analysis, it is possible to approximate the geographic distribution of middle class households across the state. The maps use a different data source, one which does not allow for adjustment by household size, which introduces biases that are variable with geographic differences in household size.¹² Nonetheless, it is interesting to compare across areas.

Figure 9 shows the estimated portion of households within each census tract that falls within the middle income range. Middle income households are relatively evenly distributed with the state's population, although variations are highest in urbanized areas. This patchwork is more complex in Chicago and its suburbs. Middle income concentrations are highest in inner ring suburbs and noticeably low in both the relatively affluent sections (e.g., northern and western suburbs and on the North-side of the City of Chicago) and relatively low-income sections (e.g., the south and west sides of the City

¹²In order to map at the tract level, the American Community Survey tables are the only data available. It provides incomes in ranges rather than the individual household levels available from using ACS microdata. Households were allocated to low, middle, and high income in proportion to their representation in the previous analysis.

Figure 8: Household homeownership rates by major race and ethnic categories, 1980 and 2015



Source: 1980 Census and 2015 ACS (IPUMS). Note that in 2015, "other" includes survey respondents who identified with two or more racial categories.

of Chicago) of the region. To an extent, similar patterns are replicated on a smaller scale in the state's other, smaller metropolitan areas.

Figure 10 uses the same estimates to depict tracts that hold either a low, middle, or upper income majority. Where no single group comprises a majority of households, the tract is not highlighted. This map illustrates clearly that middle-income majority tracts are widely dispersed but tend to be located within rural, small-town areas (especially in the northwest and southeast portions of the state), in some urban neighborhoods (e.g., the southwest and northwest of Chicago), and in inner ring suburbs. By contrast, lower- and higher-income majority tracts are less common and tend to be more specialized in their locations. Upper-income majority tracts tend to fall in wealthy and outlying suburbs of Chicago. Lower-income majority tracts tend to be more narrowly situated within cities, such as the south and west sides of Chicago. Smaller but similar concentrations of low-income majority tracts also exist in other urban areas.

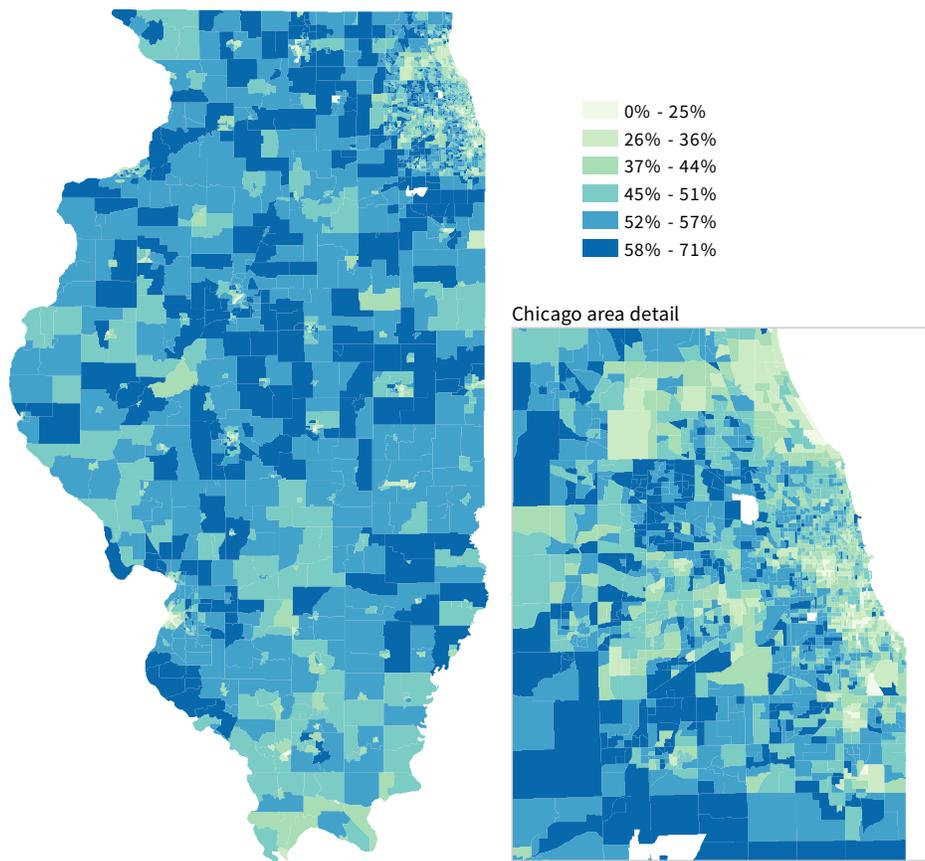
The changing middle-income workforce

OCCUPATIONS AND INDUSTRIES

Table 4 shows the share of occupations in Illinois held by heads of middle-income households (only occupations that comprise more than 2 percent of all employed middle income workers are shown). The large decrease in the share of middle income households in production occupations and office and administrative support occupations reflects the evaporation of middle-skill opportunities in fields that have traditionally fed the growth of the middle class.

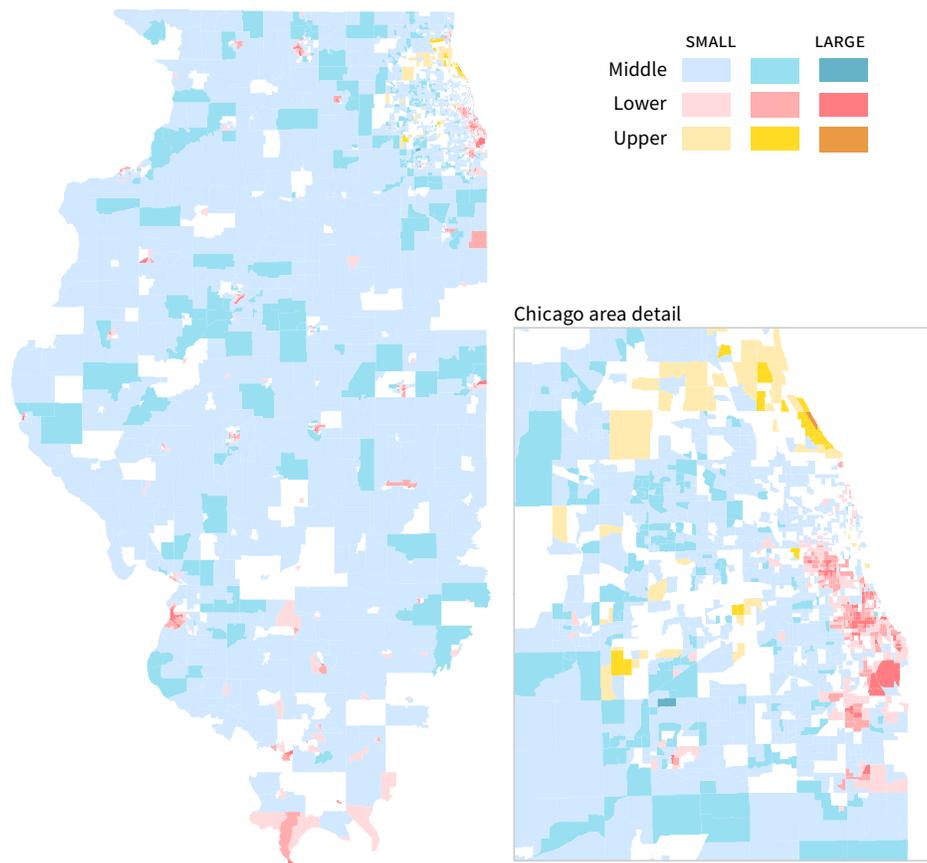
The shift in jobs toward the services sectors is also a major component of the shrinking middle class. Figure 11 shows the changing composition of middle income employment between 1980 and 2015. In 1980, manufacturing employed nearly three out of ten middle income workers, but its share has decreased by half. Meanwhile, the largest gains are in health care; education; business and repair services; finance, insurance, and real estate; and retail trade. According to Census and ACS data, Illinois lost about 575,000 manufacturing jobs between 1980 and 2000, most of which supported middle-income households. These jobs have been replaced by a range of services jobs that provide a wider variation in earnings than manufacturing. The largest gains have been in health care, which provides many middle income jobs (e.g., nurses and technicians) as well as a mix of relatively low-paying jobs (e.g., home health) and high-paying jobs (e.g., physicians and administrators). High levels of growth have also occurred in low-paying sectors, like child and residential care and retail trade, and high-paying sectors, like business and professional services. As a result, the changing industrial composition of Illinois as a

Figure 9: Estimated middle-income households as a percentage of total households by census tract, 2011–2015



Source: 2015 ACS tables (NHGIS).

Figure 10: Tracts where the middle-, low-, or high-income income group is the majority of households, 2011–2015



Source: 2015 ACS tables (NHGIS).

Table 4: Selected occupational shares of middle-income employment

	1980	2015	Change
Management	8.0%	8.5%	0.5%
Business and financial operations	2.8%	5.0%	2.2%
Education, training, and library	4.4%	6.2%	1.9%
Healthcare practitioners and technical	3.4%	5.9%	2.5%
Sales	9.6%	9.8%	0.1%
Office and admin	19.4%	15.0%	-4.5%
Construction	4.8%	4.6%	-0.2%
Installation maintenance, repair	3.9%	3.4%	-0.6%
Production	15.5%	7.4%	-8.1%
Transportation	8.8%	7.9%	-0.9%
Food prep and serving	3.9%	4.9%	1.0%

Source: 1980 Census and 2015 ACS (IPUMS).

whole is closely tied to the changing income distribution and the number of households falling within the middle range.

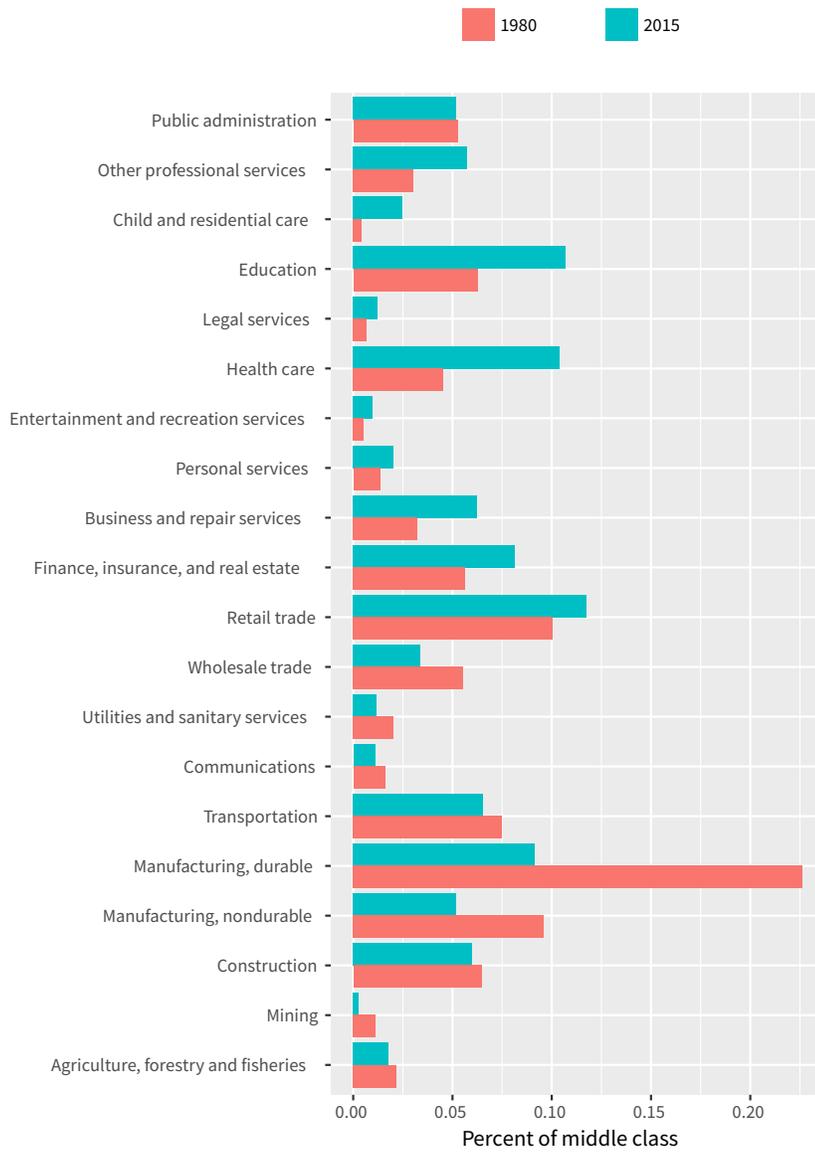
EDUCATION

Historically, college education has provided perhaps the surest path to the middle class. Today, college education continues to be a major predictor of lifelong earnings (Carnevale et al., 2011). Figure 12 shows that the income premium for college education for Illinois workers has continued to grow since 1970, and about two-thirds of the upper income bracket holds a bachelors degree. However, continued gains in educational attainment have not corresponded with an expansion of the population that is middle income. Even with considerable gains in the rate of the population with a college degree since the early 1990s, the middle income share has continued to fall (see figure 13).

LABOR MARKET INSTITUTIONS

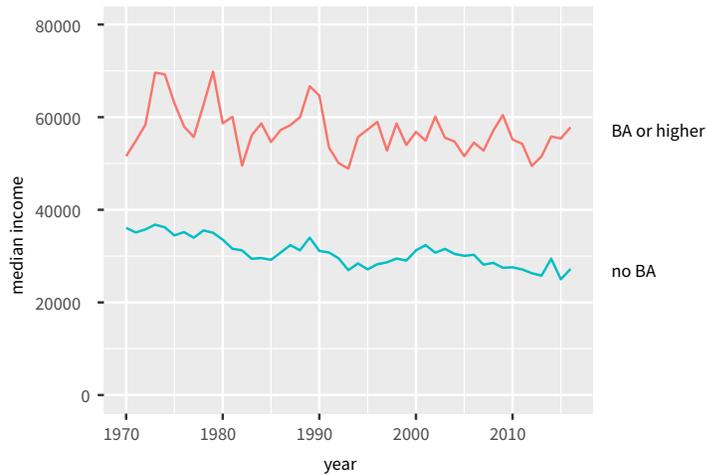
Figure 14 compares the state's declining union density with the share of total middle income households. Noting this same decline in union density, Manzo and Bruno (2017) find a high degree of correlation with the decrease in labor's share of the state economy relative to capital's share since the late 1990s. As the New Deal and World War 2 set the stage for the rise of both the modern labor movement and the middle class,

Figure 11: Industry shares of middle-income workers who are employed heads of households, 1980 and 2015



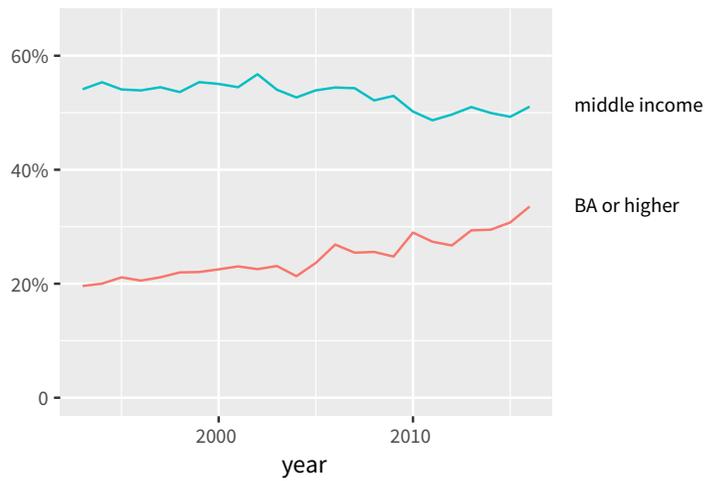
Source: 1980 Census and 2015 ACS (IPUMS).

Figure 12: Median income for adults with and without a college degree



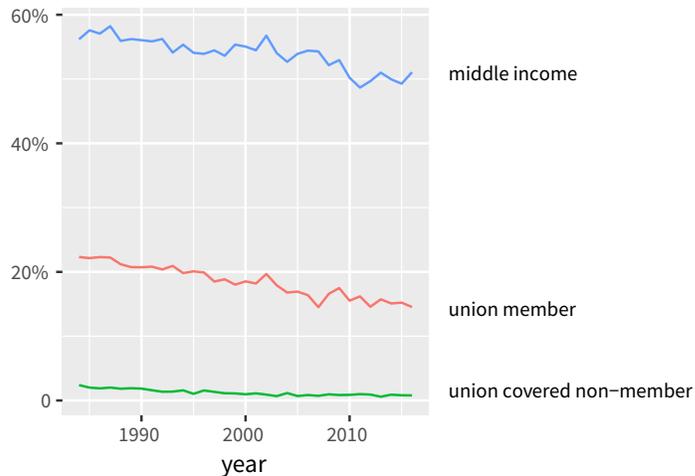
Source: CPS-ASEC (IPUMS-CPS).

Figure 13: Share of middle income households with a bachelors degree



Source: CPS-ASEC (IPUMS-CPS).

Figure 14: Share of middle income households and union density in the workforce



Source: CPS-ASEC and CPS Outgoing Rotation Groups (IPUMS-CPS).

the connection is not incidental (Western and Rosenfeld, 2012). Unions impact the middle income range by setting wage floors through collective bargaining, particularly for workers without a college education, which in turn has indirect effects on the labor market that raise the wages of non-union workers (Rosenfeld et al., 2016). According to Freeman et al. (2016), union workers are more likely to be in the middle class than non-union workers, and unions raise the earnings of workers who would otherwise fall below the middle-income threshold. These effects explain the correlation between middle incomes and union coverage.

4 Conclusion

Over recent decades, Illinois incomes have become increasingly polarized. In this respect, the state is not unique, but the slow hollowing out of its middle class has been stark. Evidence derived from an analysis of income patterns suggests that middle-income households are fewer and on less stable footing than they were in 1980. Using established definitions of middle-income as those falling between two-thirds and double the median, this report has found that the share of middle-income households has fallen steadily from nearly 60 percent in 1970 to below 50 percent in the current, post-recession period. Incomes at the middle have also been stagnant relative to high incomes.

The causes of this change are undoubtedly numerous and complex. They range from big historical transformations, like what Hacker and Pierson (2011) describe as a gradual rewriting of political and economic rules to benefit the wealthy, to specific contemporaneous processes, such as the dramatic rise in health insurance premiums since the 1980s and its role in siphoning off wage gains for middle-income workers (Auerbach and Kellermann, 2011). Without question, the restructuring of labor market opportunity at the state and local levels has also played a substantial role. In Illinois, conventional pathways to middle-class income levels, such as middle-skill office and production jobs (Autor, 2010), have evaporated. Growth in the services sector tends to create openings on either the low-skilled, low-income or high-skilled, high-income end of the spectrum. Meanwhile, labor market institutions, such as unions and the minimum wage, have diminished in their potency to support a broad pattern of income distribution (Western and Rosenfeld, 2011, 2012).

Along with these challenges, the middle class has also certainly grown more diverse and less exclusively defined by white male earners. Nonetheless, the middle portion of the income distribution for African-Americans and Latinos remains lower than for non-Hispanic Whites. For female workers, compensation gains have been steep but remain below those of males and have, in many cases, served to offset wage declines for male workers. For households, the slow, uneven erosion of traditional race- and gender-based barriers to the middle class has actually moderated the general trend of decreasing the number and income levels of middle-class households (Williams and Boushey, 2010). Without this incomplete but growing inclusiveness, the hollowing out of the income distribution would be even more apparent.

As it is difficult to project these patterns into the future, several uncertainties remain. Is the shifting distribution of income a reflection of marginal adjustments or a step on the path toward a truly bimodal income distribution, an economy divided into rich and poor?

To an extent, these futures may be shaped by policy. The findings presented above suggest that, while it remains a consistent favorite of political discourse, the middle class has not consistently benefited from shifts in public policy and the regulatory environment. At least in part, the ambiguity of defining the middle class has facilitated the disconnect between decisions over regulations and programs and their impacts on middle-income households.

The goal of this analysis is to spur policy discussion rather than to inform a prescriptive set of recommendations. In fact, such recommendations are not difficult to find (see e.g., Williams and Boushey, 2010; Manzo et al., 2017; Steil et al., 2017; Mishel and Eisenbrey, 2015; Madland, 2012; Holder, 2017). However, in closing, this report urges an explicit approach to debates over how policy decisions pursue – or impede – two

Figure 15: Framing policies to support middle income jobs

	Standards	Programs (supply & demand)
Growing from below	Minimum wage	Equitable K-12 funding
	Enforce standards	Training programs & Career ladders
	Unionization & worker centers	Access to higher-ed
	Regulate non-standard work	
Stabilizing from within	Protect collective bargaining	Infrastructure
	Public funding that supports middle-income jobs	Targeted economic incentives
	Work-life and family policy	Sectoral programs

objectives: building pathways from low-income to middle-income (growing the middle class from below) and shoring up stability at the middle-income range (stabilizing the middle class from within). Decreasing standards for low-wage work stifle the growth of the middle class by preventing its replenishment over the long term. Meanwhile, shoring up the middle class from within implies protecting the quality of good locally serving jobs, such as those in the public sector, and promote the competitiveness of good jobs in traded sectors. Moreover, these objectives would be traceable over time in relative measures of middle-income distributions, such as those explored in this report.

Figure 15 illustrates these two approaches in terms of two kinds of policy interventions, specifically policies that set or raise standards and policies that establish or support programmatic interventions in either the supply or demand for labor.¹³ While Illinois and its local governments have limited leeway to shape their economic fortunes without support from the federal government, the figure – which is by no means exhaustive or even representative – is intended to illustrate points at which state and local governments can adopt policies focused on growing and supporting the middle of the labor market.

A few examples illustrate how specific discussions around policy could be framed according to the logic sketched in figure 15:

- The public sector, education, and health care account for a relatively high number of middle class jobs for Black workers. These sectors depend on government funding. As a result, cuts to the public sector and Medicaid should be evaluated

¹³The structure of this two-by-two matrix is partly adapted from (Osterman, 2014). Of course, some policies might be considered as both standard-setting and programmatic in terms of their effect on the labor market.

for their potential to have a disproportionate impact on middle-income jobs of Black workers (Manzo et al., 2017).

- Declining standards for low-skilled workers maintain jobs that pay low wages in a variety of precarious conditions, inhibit the possibility for advancing to middle-income levels, and expand the gulf between low incomes and high incomes. Increasing standards for low-income workers makes moving toward middle-income levels more attainable for more households.
- State and local economic development incentive programs are frequently poorly targeted. The social benefit of economic incentives is greatest when they overcome problems of “market failure” that result in the underutilization of local resources like infrastructure or labor (e.g., in the case of unemployment or underemployment) (Bartik, 1990, 2005). Incentives should be designed not just to follow “jobs” counted by economic impact analysis but also to maximize social benefit by moving workers toward good jobs that provide stable mid-level incomes.

From one perspective, renewing the middle class may be shaped by specific policies, but this possibility also hinges on an overarching model for how the economy and its institutions should be structured. It is difficult to envision an equitable society without a large and strong middle. More pragmatically, a strong middle class fosters a strong economy in ways that are often hidden in mainstream economic analysis. To paraphrase Boushey and Hersh (2012), a strong middle class supports education and the development of human capital; stable demand for goods and services throughout the economy; the skill-set and stability for broad-based entrepreneurship and innovation; and inclusive political and economic institutions. In short, shoring up the middle means making bad jobs better, keeping good jobs good, and supporting the growth of the economy as a whole.

5 References

- Appelbaum, E., Boushey, H., and Schmitt, J. (2014). *The Economic Importance of Women's Rising Hours of Work: Time to Update Employment Standards*. Center for American Progress and Center for Economic and Policy Research.
- Auerbach, D. I. and Kellermann, A. L. (2011). A decade of health care cost growth has wiped out real income gains for an average US family. *Health Affairs*, 30(9):1630–1636.
- Autor, D. (2010). *The Polarization of Job Opportunities in the U.S. Labor Market: Implications for Employment and Earnings*. Center for American Progress and the Hamilton Project.
- Bartik, T. J. (1990). The Market Failure Approach to Regional Economic Development Policy. *Economic Development Quarterly*, 4(4):361–370.
- Bartik, T. J. (2005). Solving the Problems of Economic Development Incentives. *Growth and Change*, 36(2):139–166.
- Boushey, H. and Hersh, A. S. (2012). *The American Middle Class, Income Inequality, and the Strength of Our Economy*. Center for American Progress.
- Carnevale, A. P., Rose, S. J., and Cheah, B. (2011). *The College Payoff: Education, Occupations, Lifetime Earnings*. Center on Education and the Workforce.
- Cashell, B. W. (2008). *Who are the "Middle Class"?* Congressional Research Service, Washington, DC.
- Cowie, J. and Salvatore, N. (2008). Scholarly Controversy: Rethinking the Place of the New Deal in American History. *International Labor and Working-Class History*, (74):3–32.
- Flood, S., King, M., Ruggles, S., and Warren, J. R. (2015). *Integrated Public Use Microdata Series, Current Population Survey: Version 4.0 [dataset]*. University of Minnesota, Minneapolis.
- Florida, R. (2002). *The Rise of the Creative Class, and How It Is Transforming Work, Leisure, Community and Everyday Life*. Perseus Book Group, New York.
- Freeman, R., Han, E., Duke, B. V., and Madland, D. (2016). *What Do Unions Do for the Middle Class?* Center for American Progress.

- Hacker, J. S. and Pierson, P. (2011). *Winner-take-all Politics: How Washington Made the Rich Richer—and Turned Its Back on the Middle Class*. Simon and Schuster.
- Holder, H. J. (2017). *Building a New Middle Class in the Knowledge Economy*. The Progressive Policy Institute.
- Madland, D. (2012). *Making Our Middle Class Stronger: 35 Policies to Revitalize America's Middle Class*. Center for American Progress.
- Manzo, F. and Bruno, R. (2017). *Union Decline and Economic Redistribution: A Report on Twelve Midwest States*. Midwest Economic Policy Institute and University of Illinois Project for Middle Class Renewal.
- Manzo, F., Manzo, J., and Bruno, R. (2017). *Policies to Reduce African-American Unemployment*. Illinois Economic Policy Institute and University of Illinois Labor Education Program.
- Mishel, L. and Eisenbrey, R. (2015). *How to Raise Wages: Policies That Work and Policies That Don't*. Economic Policy Institute, Briefing Paper No. 391.
- National Employment Law Project (2014). *The Low-wage Recovery: Industry Employment and Wages Four Years into the Recovery*. Data Brief: National Employment Law Project.
- Osterman, P. (2014). Career Ladders in the Low-wage Labor Market. In Luce, S., Luff, J., McCartin, J., and Milkman, R., editors, *What Works for Workers?: Public Policies and Innovative Strategies for Low-Wage Workers*. Russell Sage Foundation.
- Peck, J. (2005). Struggling with the creative class. *International journal of urban and regional research*, 29(4):740–770.
- Pew Research Center (2014). *Most See Inequality Growing, but Partisans Differ over Solutions*. Pew Research Center.
- Pew Research Center (2015). *The American Middle Class Is Losing Ground: No Longer the Majority and Falling Behind Financially*. Pew Research Center.
- Piketty, T. (2014). *Capital in the 21st Century*. Harvard University Press Cambridge, MA.
- Pressman, S. (2015). *Defining and Measuring the Middle Class*. Working paper 007, American Institute for Economic Research.

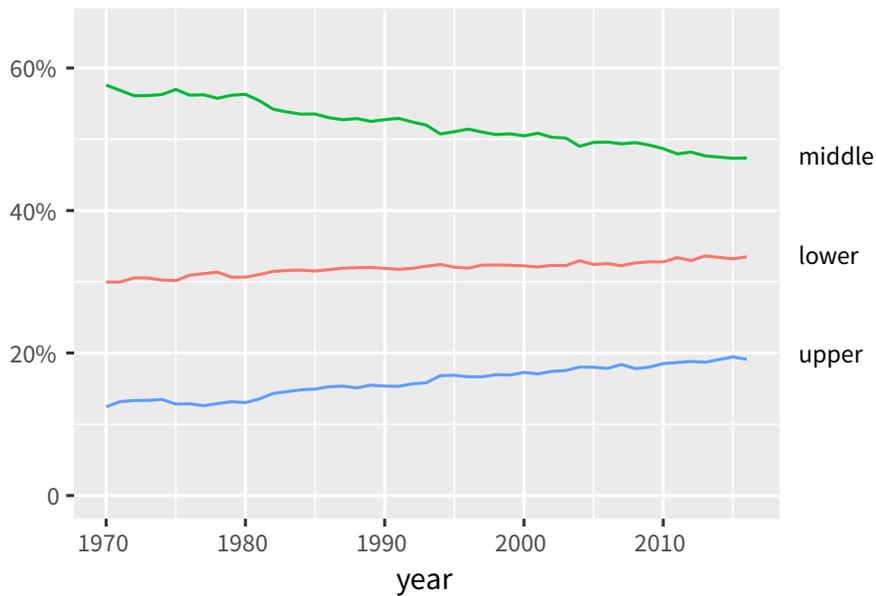
- Rose, S. J. (2016). *The Growing Size and Incomes of the Upper Middle Class*. the Urban Institute.
- Rosenfeld, J., Denice, P., and Laird, J. (2016). *Union Decline Lowers Wages of Nonunion Workers*. Economic Policy Institute.
- Ruggles, S., Genadek, K., Goeken, R., Grover, J., and Sobek, M. (2015). *Integrated Public Use Microdata Series: Version 6.0 [dataset]*. University of Minnesota, Minneapolis.
- Steil, J., Menendian, S., and Gambhir, S. (2017). *Responding to Rising Inequality*. Haas Institute for a Fair and Inclusive Society.
- The Economist (2017). Tracking the Fortunes of the White Working-Class. *The Economist*, (February 18).
- Western, B. and Rosenfeld, J. (2011). Unions, norms, and the rise in US wage inequality. *American Sociological Review*, 76(4):513–537.
- Western, B. and Rosenfeld, J. (2012). Workers of the World Divide: the Decline of Labor and the Future of the Middle Class. *Foreign Affairs*, pages 88–99.
- Williams, J. C. and Boushey, H. (2010). *The Three Faces of Work-Family Conflict: The Poor, the Professionals, and the Missing Middle*. Center for American Progress and UC Hastings College of Law.
- Zweig, M. (2000). *The Working Class Majority: America's Best Kept Secret*. Cornell University Press.

6 Appendix A: National graphs for comparison

Figures 16, 17, and 18 present national-level versions of the first three Illinois charts presented in the paper, figures 1, 2, and 3, respectively. They are offered as comparison.

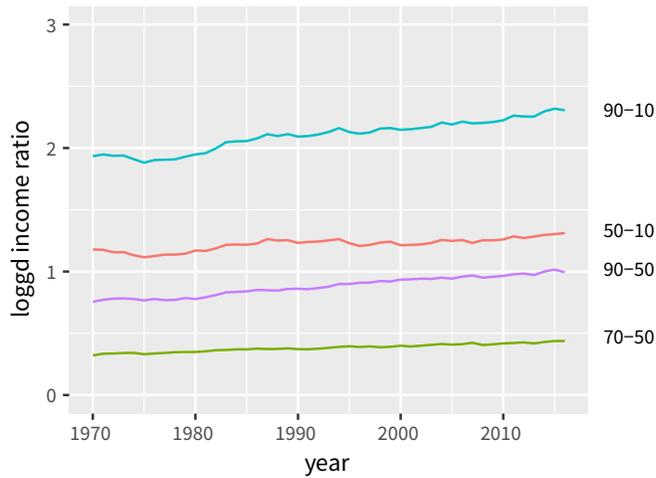
Note that figure 16 uses a similar method to the estimates presented in Pew Research Center (2015), but the numbers differ. This is due to a difference in how the numbers are tallied. In this report, each income level is tallied as a percentage of households, but Pew Research Center (2015) tallies each income level as a percentage of adults. As a result, Pew Research Center (2015) gives greater weight to households with two or more adults.

Figure 16: Lower, middle, and upper incomes, United States, 1970-2016



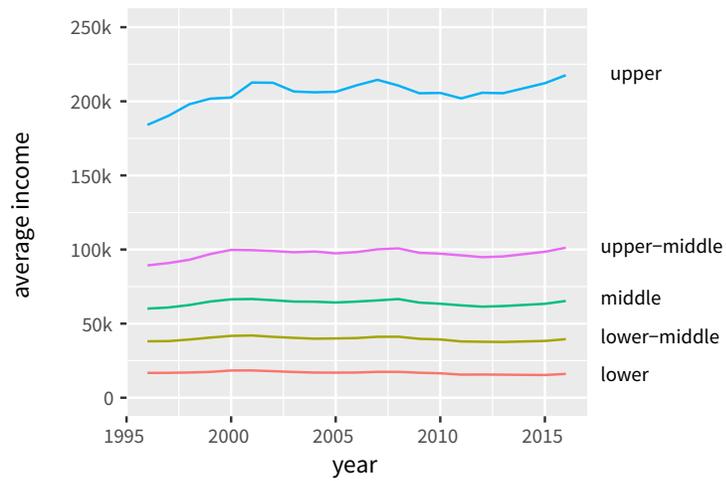
Source: CPS-ASEC (IPUMS-CPS).

Figure 17: Logged income ratios, 1970-2016



Source: CPS-ASEC (IPUMS-CPS).

Figure 18: Average income by quintile, 1970-2016



Source: CPS-ASEC (IPUMS-CPS).

7 Appendix B: Technical notes on methods

DATA SOURCES

Two primary sources of survey microdata are used, both of which cover overlapping subjects but have different strengths and limitations. Both sources are derived from extracts produced by the Integrated Public Use Microdata Series program of the Minnesota Population Center at the University of Minnesota (Ruggles et al., 2015; Flood et al., 2015), and extensive additional documentation may be found at the IPUMS website (ipums.org). As with all survey-based data, estimates derived from both sources are subject to sample error.

The Current Population Survey (CPS) is a monthly survey of about 60,000 households conducted by the Census Bureau and Bureau of Labor Statistics. The Annual Social and Economic Supplement (CPS-ASEC) is issued in March and typically included a larger sample size. When restricted only to the state of Illinois, the CPS-ASEC sample averages about 6,500 individual records, with a standard deviation of about 700. Data on union density is derived from a different version of the CPS data known as the Outgoing Rotation Group, which is the main source of data on union density (CPS-ORG). The CPS-ASEC and CPS-ORG have the advantage of being available on a year-to-year basis since 1970.

Additional estimates are derived from other, larger-sample sources produced by the Census Bureau. Larger sample sizes allow for less error in breakdowns by other categorical variables in addition income, such as race/ethnicity, occupation, and industry. For 1980, 1990, and 2000, this data is collected as a smaller sample in conjunction with the decennial census, the so-called “long form” questionnaire. The sample size for Illinois is about 600,000 individual records. For years after 2000, the American Community Survey (ACS) replaced the Census long-form. It is issued on a rolling basis and released every year. One minor difference between the Census and ACS with regards to income is that the Census asks about income earned during the previous calendar year, whereas the ACS asks about income earned during the previous 12 months. The way that the Census Bureau tallies race also changed in 2000, with respondents given the option of indicating two or more races; and this may affect comparability with the 1980 and 1990 Census data.

INCOME ADJUSTMENTS

Both the CPS-ASEC and Census/ACS data sample on households and report records for all individuals within a sampled household. For this purpose, household is defined as

all individual persons living in a single dwelling. Family incomes, which include related individual persons within a given dwelling, are also reported, but these do not include non-family households and do not encompass the full diversity of household living arrangements. The vast majority of households contain either a single family or a single adult living alone, and any differences between family income and household income are likely to be small. Like Pew Research Center (2015), this report uses household income.¹⁴

All household income estimates are based on an adjustment for the number of people within a household. Families and households may be many different sizes, and the adjustments enable the comparison of, for example, a single adult living alone (household size of one) and a household with two employed adults and three children (household size of five). This implies that meeting a “middle class” income level would necessitate a higher income for larger households based on typical expenses, especially if these households include dependents. Following the approach of previous studies (e.g., Pew Research Center, 2015; Rose, 2016), this report adjusts household income by dividing it by the square root of the household size. For example, a household of size three with an income of \$75,000 would have an income of \$43,301.27 in size-adjusted, household-of-one equivalent dollars. In some estimates included in the main body of the report, these have been re-adjusted to household-of-three equivalents.

Adjusting for inflation makes current-year incomes comparable over all years. All incomes are adjusted to constant 2015 dollars using the Consumer Price Index deflator provided by the Bureau of Labor Statistics. This adjustment does not affect the thresholds for lower-, middle-, and upper-income levels for any given year, since these are based on the median household income of all households in the sample for that year.

INDUSTRIES AND OCCUPATIONS

The IPUMS data extracts include consistent, long-term definitions based on standard occupational and industrial classification schemes. The underlying schemes are modified periodically to better reflect the changing realities of the economy, so recent data might not be comparable with older data without the consistent definitions provided by IPUMS. All industry categories were based on the 1990 Census Bureau industrial classification scheme. The full classifications include over 200 categories, so this expanded list of categories was collapsed into 21 smaller aggregates based on the categories included in the IPUMS codebook. A similar process was conducted for occupational categories based on the IPUMS coding of a consistent ACS occupation classification scheme for

¹⁴In a slightly different approach, Rose (2016) uses household incomes for single-person households and family incomes for all others.

2010, which was collapsed into 23 aggregate categories to correspond with the Standard Occupational Classification scheme.

CENSUS TRACT-LEVEL ESTIMATES

The maps utilize census tract-level estimates. They involve another layer of analysis to extrapolate state-level totals onto tract-level data. As a result, and because they are based on smaller samples, tract-level estimates are less accurate than the state-level estimates. The tract-level data is based on the five-year household income ACS estimates for 2011–2015, which report the number of households falling within each of 16 income ranges. Since microdata is not available at the tract level, adjusting for household size is not possible. As a result, the estimates are likely biased by geographic differences in household size.

The process for deriving tract-level estimates included several steps. First, statewide estimates for lower-, middle-, and upper-income ranges were conducted using the household size adjustment method and the Pew cutoffs ($2/3$ and double the median) for the 2015 ACS data. Second, these households were assigned to the fixed income ranges in the five-year ACS tables, which are not adjusted for size, based on their household incomes before the size adjustment. Third, the portion of each fixed income range in the five-year ACS tables that are lower-, middle-, and upper-income household at the statewide level were used to calculate tract-level estimates of lower-, middle-, and upper-income households that sum to the total number of households within the census tract. Fourth, these estimates were used to define the map symbology.