

Competing sources of earnings inequality: A comparison of variance components

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Abstract

Using data from the National Longitudinal Survey of Youth, this study partitions competing sources of earnings variation into four components: a component for individual-level factors, a component for transitory factors, a component for occupational factors, and a component for geographic factors. From these variance components intraclass correlation coefficients are calculated and compared within and across seven ascriptive statuses: non-Hispanic white, non-Hispanic black, Latino, women, men, foreign-born and U.S. born statuses. Among those of age 25 to middle adulthood, the results indicate that the transitory component is the largest source of variation in earnings, followed by individual-level factors. Occupational factors and geographic factors combined account for nearly the amount of earnings variation as individual-level factors. The omission of these socio-structural factors inflates the size of the individual-level variance component by over 35 percent. Counter to expectations, the variance profiles are remarkably similar across ascriptive statuses. Indeed, the variance profiles for whites and blacks are nearly identical. Modest differences in intraclass correlation coefficients are found between men and women. Relative to men, less of the variation in earnings for women is attributed to individual-level factors, and slightly more of the variation in earnings for women is attributed to occupational factors and transitory factors. This research draws attention to universal theories of earnings inequality.

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Studies of earnings attainment often focus on two broad areas of research to explain pay disparities. One area of research focuses on the effects of childhood background. Research on childhood background emphasizes the role of parental socioeconomic resources, family structure/stability, childhood socialization, and educational quality in explaining socioeconomic attainment later in life (e.g., Becker, 1993; Carneiro, Heckman, & Masterov, 2005; Conley & Glauber, 2007, 2008; Conley, 2004; Jencks et al., 1972, 1979; Neal & Johnson,

1996). From this perspective, the understanding is that childhood and adolescence experiences contribute to the acquisition of skills and attributes that are later rewarded in the labor market, and for this reason, inequalities between adults are often seen as reflecting disparities that existed prior to individuals entering the labor force (e.g., Neal & Johnson, 1996).

A second area of earnings attainment research focuses on socio-structural factors. Socio-structural factors represent patterns of societal behavior within the marketplace that affect people's earnings. A common approach to identifying such factors involves studying the geographic variation and/or occupational variation in

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the earnings attainment process. Often of primary interest to stratification researchers are the socio-structural factors associated with the unequal pay of women (e.g., Reskin & Roos, 1990; Tomaskovic-Devey & Sheryl, 2002) and minorities (e.g., Deitch et al., 2003; Maume, 1999, 2004; Tomaskovic-Devey, Melvin, & Kecia, 2005). Studying the sources of variation in earnings across geographies and across occupations is often helpful in explaining systematic differences in pay.

This research contributes to our understanding of earnings attainment and earnings disparities in two important ways. First, researchers are understandably unable to measure all the individual, geographic, occupational, and seemingly random factors that affect earnings. Instead, researchers tend to place emphasis on a particular source of earnings variation in which they are able to explain theoretically and empirically. However, this “street light” approach often unintentionally overstates the importance of either individual-level factors or socio-structural factors in explaining earnings and earnings disparities. This study improves upon previous work by providing a unique comparison of several competing sources of earnings variation. By simultaneously comparing the explanatory power of several main sources of earnings variation, this research puts the relative importance of individual effects and socio-structural effects into perspective.

Second, a longstanding question in stratification research is whether society is structured in a way that categorically disadvantages some groups relative to others. Research on ascriptive inequality, in particular, suggests that the kind of society in which many disadvantaged groups strive to make a living is different in fundamental ways from “mainstream” society. Thus, the second objective of this research is to compare and contrast the sources of earnings variation across ascriptive groups. By comparing the relative explanatory power of individual sources of earnings variation alongside socio-structural sources of earnings variation among racial, ethnic, gender, and nativity groups, this research provides a novel view into the sources of ascriptive inequality.

Conceptually, the novel aspect of this research involves assessing a totality of factors that affect people’s earnings. The central aim is to compare the variance profiles in earnings within and across ascriptive groups to better understand the similarities and differences that affect pay disparities. If the variance profiles for groups that are known to be relatively disadvantaged in the labor market (e.g., minorities, women, and foreigners) differ markedly from the variance profiles for groups that are seen as advantaged with regard to earnings (e.g., whites,

men, and native-born) then this will provide support for social theories that highlight particularistic reasons for ascriptive inequality. On the other hand, similarity of the variance profiles among ascriptive groups would suggest that the causes and mechanisms that generate inequality within ascriptive groups share some structural commonality with the factors that generate inequalities between groups. If this is true, the factors that generate of ascriptive inequality maybe better understood as differences in magnitude rather than differences in kind. The consequences of ascriptive inequality can be equally pernicious regardless of whether it is driven by particularistic or universalistic causes; but determining how fundamentally different these factors maybe for various groups has important implications for the way social theories approach the issue.

Methodologically, this research uses longitudinal data to partition earnings variation into four main variance components: an individual component, a within-individual component (i.e., a random/transitory component), and two socio-structural factors: an occupational component, and a geographical component. Because people over the life course come to live in any number of different locations and/or find work in any number of occupations; and because occupations and locations are not grouped in a hierarchical fashion, previous attempts at this sort of variance decomposition on multiple cross-classified grouping factors have likely been computationally infeasible. This research overcomes this limitation by using sparse matrix methods implemented in the *lme4* package in the open-source software *R* (Baayen, Davidson, & Bates, 2008; Bates, 2005, in press; Doran, Bates, Blise, & Dowling, 2007), which greatly reduces the computational difficulty in partitioning variance components when the grouping structure among the factors is complex and non-hierarchical.

1. Variance components as sources of earnings inequality

Universal theories of inequality suggest that the sources of earnings variation within groups are similar across all groups, and the earnings differences that exist between ascriptive groups stem largely from differences in family background (which equally affect all individuals albeit in positive and negative ways). Particularistic theories of ascriptive inequality, on the other hand, suggest that the sources of earnings variation operate in fundamentally differently ways for disadvantaged groups. Particularistic theories suggest that earnings differences that exist between ascriptive

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