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Comment

Lawrence F. Katz

Thomas Lemieux has produced a terrific chapter documenting the basic facts about changes in the U.S. hourly wage structure over the past three decades using the May-outgoing rotation group (ORG) and March Current Population Survey (CPS) data. He also does a very nice job of examining how conclusions about wage inequality trends are affected by different choices for handling crucial measurement issues related to the topcoding of high earnings, the treatment of imputed (allocated) earnings observations, adjustments for changes in the education and experience composition of the workforce, and whether to use direct point-in-time wage measures from the May-ORG CPS versus wage measures based on past year annual earnings, weeks worked, and usual hours worked from the March CPS.

Lemieux carefully documents large increases in overall hourly wage inequality (as measured by the variance or 90-10 log wage gap) for both men and women since 1980. He shows that overall wage inequality grew most rapidly in the 1980s when both upper-end (90-50) and lower-end (50-10) wage inequality increased. But lower-end wage inequality stopped increasing (and even decreased after adjusting for education-experience composition

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changes) after the late 1980s, while upper-end wage inequality continued rapidly rising from 1989 to 2006.

Educational wage differentials have increased rapidly and "convexified" since 1980 with particularly large increases in the returns to college and especially postcollege graduate education. Rising educational wage differentials are the largest single contributor to increases in U.S. wage inequality since 1980 and probably account for the majority of increased wage inequality. Furthermore, within-group wage inequality has increased much more for the college and postcollege educated than for less-educated workers. Thus, rising U.S. wage inequality is concentrated in the upper half of the wage distribution and substantially driven by rising educational wage differentials and increased within-group inequality for the college educated.

Lemieux shows these patterns of changes in the wage structure are not sensitive to reasonable measurement choices using the May-ORG CPS related to the handling of allocated earnings and to topcoding issues. The size and importance of within-group inequality increases since the late 1980s is somewhat sensitive to whether one adjusts the data for changes in education-experience composition and to whether one uses the May-ORG CPS or the March CPS. But that rising education returns are a major source of increased inequality and that most of the increase in wage inequality since the late 1980s is happening in the upper half of the distribution are robust findings to all sensible measurement decisions using May-ORG and March CPSs. Lemieux's main findings are quite consistent with other recent studies of U.S. wage inequality trends such as Autor, Katz, and Kearney (2006, 2008) and with the emphasis on the role of the race between education and technology in rising educational wage differentials of Goldin and Katz (2007, 2008).

I do have some minor qualms related to some of Lemieux's preferred measurement choices and interpretation of wage structure trends. The first relates to the appropriateness and interpretation of wage inequality measures that have been "adjusted" for changes in the education-experience composition of the workforce. I believe the composition adjustments for experience (or age structure) make a lot of sense as a reasonable demographic adjustment because age structure changes are pretty exogenous, and there are clear life-cycle patterns of wage dispersion related to job shopping, on-the-job training, and labor market learning factors that vary with age or experience.

In contrast, I am less comfortable with the adjustments for changes in the education composition of the workforce, especially given that education is a choice variable. There are two cases to consider. In the first case, education has a causal impact on wage dispersion just like we believe it has on earnings levels. Education could increase opportunities for jobs with more upside on wages as well a greater wage variability, education returns are likely to be quite heterogeneous, and some individuals may take their "returns" to edu-

cation in nonpecuniary aspects of jobs (like becoming academics). If educational investments have a causal impact on wage dispersion among individuals (beyond their between-group impacts on educational wage differentials), then it is not clear why one wants to "adjust" away this source of changes in wage inequality and calls it an ignorable demographic compositional factor. The causal impact of educational investments on wage dispersion should be an interesting component of wage inequality to consider in its own right.

In the second extreme case, cross-section differences in wage variance by education groups (such as those documented by Lemieux in figure 1.5) are spurious and simply reflect differences in the heterogeneity of individuals in high- versus low-education groups. In this case, changes in educational composition have no "real" compositional effects on wage dispersion, and there is no need to adjust for education composition in wage inequality measures. Thus, in the first case of causal education impacts on wage dispersion, one might want to look at education composition adjustments but to consider them a factor of interest rather than a nuisance. And, in the second case of no causal education impacts on wage dispersion, it is inappropriate to adjust wage inequality for educational composition. The logic here is that some of the growth in within-group wage inequality that Lemieux adjusts away with his educational composition adjustments may reflect real growth in wage inequality that should be included in analytical studies rather than removed before thinking about alternative economic and institutional sources of wage structure changes.

Several other wage inequality measurement issues could use further analysis beyond what is contained in Lemieux's excellent study. The first is that the larger increase in within-group hourly wage inequality in the March CPS than in the May-ORG CPS since the late 1980s does remain a mystery. It is unclear why measurement error should be rising in the March CPS but not in the ORG CPS samples in recent years. The second is that hourly wage measures depend not just on the measurement of earnings but on measurement of hours worked for nonhourly workers in the May-ORG samples and for all workers in the March CPS. There appears to have been an increase in the share of high earning and highly educated workers who report very high usual weekly hours. It is unclear how to interpret this trend. Weekly wage inequality even among full-time workers has increased by more than hourly wage inequality in both the May-ORG and March CPS as measured hourly wages and weekly hours show an increased positive covariance. If the meaning of hours worked is becoming more ambiguous in many salaried (nonhourly) jobs, it may be preferable to focus on weekly earnings inequality (at least for full-time workers) to get at what is going on, especially in the upper-part of the distribution. The third is it would be nice to also have some comparisons of earnings inequality trends in the March and May-ORG CPSs with other data sources such as the Internal Revenue Service (IRS) tax data, social security earnings data, the Survey of Income and Program

Participation, the Panel Study of Income Dynamics (PSID), the National Longitudinal Survey (NLS) samples, and the American Community Surveys and decennial censuses.

In conclusion, Tom Lemieux has performed a valuable service in his comprehensive and careful work documenting the evolution of the U.S. hourly wage structure in CPS data and showing the sensitivity of one's conclusions to measurement issues and compositional adjustments. I echo Lemeiux's conclusion that understanding rising educational wage differentials and increased within-group wage inequality among the highly educated are the key issues for understanding recent U.S. wage inequality trends. But one needs to look at quantities of workers by skill group and not just wages (prices) to draw conclusions about the role of market forces versus institutions.

The slowdown in the growth of U.S. skill supplies since 1980 from a slowing of the growth of the educational attainment of post-1950 U.S. birth cohorts combined with rapid secular growth in the demand for more-educated workers for skill-biased technological change goes a substantial distance to understanding the post-1980 rise in the college wage premium (Goldin and Katz 2007, 2008). And a "polarization" of labor demand favoring the top-end of the skill distribution and disadvantaging the middle of the distribution from computerization (and possibly from international offshoring as well) can help explain the recent "convexification" of returns to education and growing top-end wage inequality. The strong positive covariation of changes in prices (wage) and quantities employed along the whole wage distribution since the late 1980s strongly suggests demand shifts rather than purely institutional factors (declining unions and minimum wage) play a key role in rapidly rising upper-half wage inequality combined with stagnant or declining lower-half wage inequality (Autor, Katz, and Kearney 2008).

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