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# Jacob Mincer's Contributions to Modern Labor Economics: A Review Essay

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July 18, 2008

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Forthcoming in *Research in the History of Economic Thought and Methodology* (J. Biddle, W. Samuels, and R. Emmett, eds., 2009).

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One of the key figures in the development of modern labor economics is Jacob Mincer (1922-2006). His contributions have recently been highlighted and assessed in two books. The most in-depth and substantive of these volumes is by Portuguese economist Pedro Teixeira, entitled *Jacob Mincer: A Founding Father of Modern Labor Economics* (2007). Also valuable and well done is an edited volume by Shoshana Grossbard, *Jacob Mincer: A Pioneer of Modern Labor Economics* (2006). It is composed of a number of short remembrances by Mincer's colleagues and students, an oral history interview with Mincer by Teixeira, several larger review chapters on important parts of Mincer's research program, and several speeches and short articles by Mincer.

In this review essay I provide a brief summary and evaluation of Mincer's research contributions and place in the history of thought in labor economics, drawing largely on these two books but with some of my own observations and perspectives interspersed.

Mincer: A Biographical Sketch

Teixeira devotes the first chapter of his book to a modest-sized personal portrait of Mincer and overview of his professional career. Some of this material is largely of personal interest, although only the most stoic would fail to be moved. Mincer was born into a Jewish family in Poland in 1922. He excelled as a high school student and was in his first year of university studies in Czechoslovakia (chosen largely because other universities rejected him due to his religious background) when Hitler and the Nazis took over the country. Mincer spent three years in German concentration camps and miraculously survived, although his family in Poland was much less fortunate.

Mincer was able to get a fellowship to study in the USA and after two years of bureaucratic delay finally arrived in late 1946. Teixeira relates that Mincer came by ship to New York City and one can imagine his feelings as it sailed past the Statue of Liberty and into the harbor of his new home country. Mincer's original coursework was in engineering but his interests shifted to the social sciences and he chose to focus on economics where he could utilize his math skills. After a brief stint as a student at Emory University, Mincer was accepted into the graduate program at Chicago where he did one year of work; he then transferred to Columbia University in New York City (to accommodate his wife's new job) and finished his Ph.D. degree in 1957 (at age 35). Mincer's dissertation was "A Study of Personal Income Distribution."

When Mincer arrived at Columbia, it was still heavily under the influence of the institutional approach to economics, reflecting the legacy of luminaries such as Wesley Mitchell and John M. Clark. Mincer, however, was not attracted to institutionalism; instead he gravitated

toward the neoclassical price theory style of economics done at Chicago and taught at Columbia by Stigler. Mincer did not start out as a labor economist and felt his dissertation was in the area of microeconomic theory. When he went back to Chicago on a post-doctoral fellowship, however, Mincer took the labor course from Greg Lewis and found the analytical treatment more to his liking.

Back at Columbia, Mincer was joined on the faculty by Gary Becker. The two started a Labor Economics Workshop, began an active labor research program through the National Bureau of Economic Research (NBER), and began to attract a coterie of talented graduate students. These aspects of Mincer's career are ably covered in the Grossbard volume in separate chapters by Becker, Heckman, Chiswick, Polachek, and Grossbard. Particularly evident is the substantial synergy developed between Mincer and Becker not only in their joint research but also training of doctoral students.

Both Teixeira and Grossbard observe that the field of labor economics underwent a major shift in orientation in the 1960s from an institutional to a neoclassical approach. Teixeira points to the human capital concept as the foundation stone for the neoclassical revival, attributes its initial development to the trio of Mincer, Becker and Theodore Schultz (also from Chicago), and argues that Mincer was the person most responsible for integrating the human capital concept into labor economics research, particularly through his studies of labor supply, on-the-job training, and income distribution. The exemplar is Mincer's 1974 book *Schooling, Experience, and Earnings*.

Mincer retired from Columbia in 1991 but continued to publish for much of the rest of his life. He received a number of awards and recognitions; the Society of Labor Economists, for example, created a Jacob Mincer prize for lifetime achievements in labor economics and in 2002 Mincer received the first IZA Prize in Labor Economics. By all accounts, Mincer had high and exacting scholarly standards; was a strong but not dogmatic or ideologically driven proponent of neoclassical price theory, and was a person who students and colleagues liked and respected.

## Mincer's Research Program Historically Viewed: The Beginning

Teixeira and Grossbard make a number of claims for Mincer, all of which I think are broadly correct. In one or two cases, however, Teixeira's obvious affection and respect for Mincer may have led him to go a bit over the top.

Foremost, Mincer is described by Teixeira as "a founder of modern labor economics," "one of the pioneers of human capital research," and someone who made "a significant contribution to the contemporary dominance of neoclassical economics in labor research" (p. 13, p. 82). In a similar spirit, Grossbard states that Mincer is "one of the principal architects of

Modern Labor Economics" and Mincer and Becker are "founding fathers of the NHE [New Home Economics]" (p. vii, p. 39). I see no basis for argument here.

Teixeira also asserts, accurately I think, that Mincer's dissertation was the first analytical contribution to the development of human capital theory, his research "opened the way for very important work to be carried out on patterns of lifetime earnings, labor force participation, and investments in human capital," and his development and econometric estimation of the human capital earnings function became "a centerpiece of modern labor research" (p. 154, p. 14). With regard to the last point, but more generally, Mincer was truly a pioneer, alongside Greg Lewis, in testing theoretical hypotheses derived from price theory through careful application of econometric methods to analysis of large-size data sets. In this regard, Teixeira notes, "This led many to admire his [Mincer's] work due to the balanced blend of theory and empirical (testable) research" (p. 9).

Where Teixeira might get slightly over-enthusiastic is with statements such as, "The person who most contributed to put human capital at the center of contemporary labor research was Jacob Mincer" (p. 153). It's a tough judgment call but I suspect the majority of labor economists would identify Becker's book *Human Capital* (1964) as the fountainhead for the human capital research program, although without quarrel Mincer's work would be in everybody's estimation a close number two.

As indicated above, Mincer's main contributions to labor economics fall in the areas of labor supply, human capital and income distribution, although as Teixeira claims it is human capital that provides much of the connecting links to the other two. The significance of these contributions, and how they fit into the broader evolution of labor economics proper, can better be appreciated by putting them into historical perspective.

All three topics have venerable traditions in economics and were certainly not new to economics circa the 1950s. The concept of labor supply and its influence on income distribution was a staple of classical economics and, in particular, the Malthusian population principle and Ricardo's iron law of wages. Likewise, the general idea of human capital goes back to Adam Smith (1776, 1937) who famously compared the investment in education and skill in workers to the investment in machines and observed that both must pay a competitive rate of return to be economically worthwhile. A century later Alfred Marshall (1912) discusses education as an economic investment and states, "The most valuable of all capital is that invested in human beings" (p. 272), while institutional economist John Commons (1919) observed that workers change from an unskilled commodity to a valuable "human resource" as a consequence of education and training.

As Teixeira recounts, these suggestive ideas remained largely undeveloped in economics until the late 1950s. Why so? According to Teixeira, the innovation of Mincer and colleagues was to pour the ideas of human capital and labor supply into the mold of neoclassical

competitive price theory. This allowed them to develop the ideas within the standard corpus of economic theory and, further, to give these concepts an analytical treatment. This research program could have been done earlier but was not because the institutional economists who dominated labor economics into the 1950s were, he claims, not well trained in price theory and largely hostile to it. For example, he states that the institutionalists had "an apparent disdain for economics," "hardly used neoclassical theory, let alone price theory," exhibited in the eyes of their critics "poor mastery of the basic price/economic theory," and held the view that "the labor market was a peculiar type" (p. 10, p. 83, pp. 86-7).

This assessment is widely accepted today among labor economists (e.g., Boyer and Smith, 2001) and is repeated by Heckman in his essay in the Grossbard volume. In light of the conventional wisdom, and judged relative to the highly critical comments of Stigler and others toward the institutionalists, Teixeira's account appears relatively balanced and even-handed. A closer examination reveals it contains significant elements of truth but also a substantial degree of mischaracterization due to both sins of omission and commission in the standard Whiggish historiography of the field (i.e., history written by the "winners").

I do not believe it is fair to say, for example, that the labor institutionalists of the 1930s and neo-institutionalists of the 1950s were disdainful of economics or uninterested in theorizing. Further, I think a perusal of the publications of the neo-institutional labor economists, such as John Dunlop, Clark Kerr, Richard Lester, Charles Myers, and Lloyd Reynolds, reveals they were relatively well schooled in the price theory of their day and used it as a standard of reference for their research program. It was Dunlop (1939), after all, who took on Keynes in the pages of the *Economic Journal* regarding the cyclical movement of real wages (and won!); Lester who in 1941 published a labor textbook that opened with the claim the presentation is "analytical" with "emphasis… upon economic principles rather than… ephemeral facts" (p. vii) and then (as far as I am aware) for the first time in a labor text used a labor demand/supply diagram; Reynolds (1946) who published an article in the *Quarterly Journal of Economics* on the supply curve of labor to the firm; and Dunlop (1957) who published an edited volume entitled *Theory of Wage Determination*. I note, in particular, that in this volume Dunlop states, "All wage theory is in a sense demand and supply analysis" (p. 14), and then on the next page he notes that while the marginal productivity theory had long provided an analytical model for the labor demand side there was a theoretical hole on the supply side, leading him to observe "the pivotal task of wage theory is to formulate an acceptable theory on the supply side."

For comparison's sake, one may also look at the labor textbook published in 1957 by Chicago graduate (and, later, faculty member) Melvin Reder and notice that it is quite similar in tone and substance to the texts written by neo-institutionalists (e.g. Reynolds, 1953). In particular, Reder discusses labor supply mostly in terms of inter-plant mobility of workers, spends four pages on college education and suggests it is a significant source of stratification and economic rents in the labor market, and states "the idea of a labor market is about as difficult an application of the market concept as one can find" (p. 320).

Thus, I think it is fair to conclude that the institutionalists who occupied labor economics at the time Mincer began his career in the 1950s were neither anti-theory nor ignorant of theory. Going further, it is clear that the institutionalists were receptive to and cognizant of the need for stronger theory on the supply side of the labor market. What gets closer to the center of the issue, therefore, is that what they were against is a *particular kind* of theory and *particular approach* to theorizing. The approach they were hostile to is the uni-disciplinary "economic imperialism" style of theorizing, as exemplified by Friedman and Stigler; the kind of theory they rejected was the short-run application of the competitive model of demand and supply to labor markets. In this spirit, Pierson (1957) concludes, "The competitive hypothesis is useful in explaining general, long-term trends in wage relationships" but, on the other, asserts with respect to short-run wage determination "competitive theory seems totally out of touch with reality" (p. 19, p. 18).

Teixeira recognizes this disjunction, per his observation that the institutionalists thought the labor market is "different from the standard model" while Mincer and colleagues thought "the process of wage determination was not very different from the one defined by competitive theory" (p. 88). I give extra stress to this point, however, partly because Teixeira gets unnecessarily diverted on to false trails (e.g., the institutionalists' alleged disdain of theory) and partly because it goes a long way toward explaining why the neoclassical theory of labor supply and human capital concept remained undeveloped as of the late 1950s.

In particular, the institutionalists were convinced from case studies and first-hand evidence (from arbitration, government service, etc.) that labor markets are substantially imperfect, frequently employer dominated, have many frictions and rigidities that impede competition and mobility, are prone to disequilibrium, and have wages that are in significant part a form of administered price (Kaufman, 1988). As this bore on wage determination, they thought at the micro level that wages and employment are largely determined by the height of firm-level demand curves (significantly influenced by product market factors, such as industry, size and profitability), while firm-level supply curves are more like large bands with considerable room for indeterminacy, closed in part by social and institutional factors and management decisions within *internal* labor markets. At the macro level they thought the aggregate supply curve is near-to-vertical. Coupled with the fact that the bulk of manufacturing employment was covered by collective bargaining, the institutionalists were accordingly skeptical of the idea that a competitive price theory version of labor supply would explain much at either the micro or macro level. In this their reaction may well have been overly negative, but a fair appraisal also has to note that they were reacting against the unwillingness of neoclassical price theorists to meet them half-way and consider non-competitive and institutional/social elements.

The concept of human capital lay fallow for many of the same reasons. Much of the workforce was employed in blue-collar jobs where general education, particularly at the college level, seemed less relevant to job attainment and individual productivity. At a theory level, the institutionalists objected to the idea that the rate of return is determined by demand and supply in largely competitive conditions. A significant part of on-the-job training, for example, takes place

in internal labor markets and is rationed by employers rather than determined through some form of equilibrium price adjustment process (Dunlop, 1988). They also thought that access to higher education was significantly constrained by family income and background, social class, and gender and race, in effect making access to college education not just a matter of competitive weighing of benefits and costs but also a rationing process where some groups are favored over others. [Becker (1967) later developed an insightful human capital demand/supply model that illuminated the role of these matters, although it did not resolve the relative importance of competition versus stratification.] Finally, a core concept in institutional economics is property rights (Commons, 1934). Central to a competitive outcome is that all property rights are well-defined and covered in a complete contract; the institutional labor economists questioned how the market for human capital could approximate competitive outcomes when property rights in labor are hugely incomplete, the asset is largely illiquid, and workers are most often on the long-side of the market.

I cite these matters, not to diminish Mincer's contributions, but to put into perspective the situation in labor economics as it existed when he started his career. Teixeira reasonably well captures the big picture; I am simply adjusting and redrawing some of the lines.

## Mincer's Research Program: Development Over a Half Century

Mincer's professional career spanned nearly a half-century, starting with his dissertation in 1957 and extending close to the time of his death in 2006. Over this period he contributed dozens of published papers, chapters and books, frequently co-authored with one of his dissertation students. A number of economists achieve significant recognition in their fields of study for important studies, only to later have their work fade away. Has this also been true of Mincer?

Teixeira and the authors in the Grossbard volume conclude that Mincer's research program continues to exert strong influence on the field of labor economics and I agree with this assessment. Naturally, graduate reading lists get updated with the most recent studies and work by the big names of the 1960s and 1970s gradually falls off. This is true for Mincer. Nonetheless, Mincer's name and his seminal works remain frequently cited in the modern literature. Teixeira, for example, documents this with a citation count to Mincer's work and finds in the 1990s more than 200 citations per year. His reputation also lives on in labor textbooks which uniformly cite his works as seminal in the areas of labor supply and human capital theory.

What were Mincer's most important contributions? As earlier noted, his work largely pertains to labor supply and human capital, with a particular application to income distribution. The importance of these two areas is revealed by the two volume collection of his published works (Mincer, 1993), entitled *Studies in Human Capital* (vol. 1) and *Studies in Labor Supply* (vol. 2).

In the area of labor supply, Mincer is particularly remembered for his 1962 paper on the labor supply of married women. In this paper he resolved a seeming paradox of that period: that is, how to reconcile the fact that in a cross-section women's labor force participation was negatively related to the husband's and household's income and yet over time women's labor force participation was rising with economic growth and higher per capita income. The resolution proffered by Mincer was to focus on the role of the rising market wage for women, with the argument that the positive substitution effect from a rise in the wage of women earners more than offset the negative income effect from higher husband's earnings. Also noteworthy is that Mincer developed this argument in a family context, which may be viewed as one of the root sources of the now large "economics of the family" literature (highlighted in Grossbard's chapter in her volume). Also characteristic of Mincer, the innovative application of price theory in this paper was then followed up by a very careful and equally innovative empirical analysis in which the model's hypotheses were tested using the then-new tool of multiple regression applied to decennial census data.

Mincer made a number of contributions in the area of human capital theory, but perhaps most noteworthy is his theoretical explanation for the shape of age-earnings profiles (highlighted in the Lemieux chapter in the Grossbard volume). These profiles exhibit four interesting patterns. The first is that the typical profile starts at a low earnings level in people's early work years, exhibits a rise in earnings which gradually peaks in the mid-late work years, and then shows earnings modestly declining until the end of work life. The second pattern is that the profiles shift-up with higher educational attainment (i.e., show a higher earnings level at any given age); the third is that the upward rising portion of the profile has a steeper slope for people with higher educational attainment; and the fourth is that the rising slope of the profile is steeper for men than women. In his book *Schooling, Experience and Earnings*, as well as in subsequent research (e.g., Mincer and Ofek, 1982), Mincer used the human capital model to offer an integrated explanation of these four patterns. For example, higher education creates a larger stock of human capital and, for a given rate of return, yields higher annual income for people with more schooling, thus accounting for the shift-up feature of the profiles. Crucial to explaining the other three features is the incorporation of on-the-job training (OJT). Mincer argued that general education determines the starting position of the profiles; their slope, peak and decline then reflect relative differences among workers in the amount, duration and depreciation of human capital gained through OJT. Finally, the steeper rise in earnings with age for men relative to women reflects systematic gender differences in investment in OJT, partly due to women's greater extent of job interruptions and smaller cumulated years of job experience.

These and a number of other contributions by Mincer are carefully reviewed by Teixeira, as well as in a number of chapters in the Grossbard volume, so I shall go no further.

Teixeira also notes that Mincer's work -- and the area of human capital in general -- has attracted criticism and generated alternative theoretical models. These matters, while appropriately mentioned and briefly discussed, are not examined or assessed in sufficient depth

and detail to allow the reader to judge how well the human capital story has held its own over time. Given space constraints, I am also precluded from going very far down this road. Nonetheless, let me simply point out three of the major bodies of research that provide an alternative to and critique of human capital theory. These theories are separate but mutually overlapping.

The first alternative, arising from theories of asymmetric information, is the screening model. The main argument here is that the positive correlation between schooling and earnings does not reflect a positive effect of education on worker productivity (the human capital hypothesis) but rather reflects the role of education as a signaling and screening device that determines who is first in line for good jobs (Stiglitz, 2001). The second alternative, arising from institutional (and radical) labor economics, focuses on the role of segmented and dual labor markets. This literature suggest that the flatter slope of women's age-earning profile reflects not efficiency and comparative advantage considerations between men and women but the forces of discrimination, gendered social norms, and unequal rights and resources (Dickens and Lang, 1988). The third comes from radical and neo-Marxist economics and focuses on the role that education plays in fostering and preserving socio-class divisions and inequalities and in providing capitalist employers with a disciplined and trained factor input (Bowles and Ginits, 2002 ).

My judgment is that the human capital paradigm remains most used and accepted in labor economics – particularly the mainstream portion – but that these three alternative theories have made successful encroachments. The continued dominance of human capital theory (exemplified by publication in 2008 of a new journal, *Journal of Human Capital*) helps explain, in turn, why Mincer continues to enjoy considerable influence and prestige in today's labor economics.

## Conclusion

Over the twentieth century two universities had paradigmatic dominance in the field of labor economics in the United States. During the first half of the century it was Wisconsin and the institutional and industrial relations approach; during the second half it was Chicago and the neoclassical price theory approach. The latter now rules the roost in labor economics and Jacob Mincer played a leading and pioneering role. People wanting to know more about Mincer will find the Teixeira and Grossbard books very informative. Mincer is fortunate to have had such dedicated and able biographers.

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