Commentary: Causes of Changing Earnings Inequality

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In the first half of this stimulating paper, Dennis Snower gives us a review of the existing academic literature on inequality. His bottom line is that some of the inequality appears to derive from globalization, deindustrialization, and technological change, but a significant degree of inequality and several other features of wage behavior remain unexplained. Snower then suggests an answer, which could provide the explanation. He argues that an organizational revolution, the shift from mass production to mass customization, is the primary source of growing inequality. This revolution increases the attractiveness of versatility, skills, and education. The result is higher productivity and returns to the skilled, and lower productivity and returns to the less skilled.

This is a rich and provocative analysis. I am sympathetic to the central argument that the role played by deindustrialization and globalization in these developments is relatively small and that organizational change is particularly important. In my comments, I will first discuss Snower's account of the role of globalization and will then raise some questions about the implications of his explanation.

It has been said that an economist is someone who sees something working in practice but wants to know if it works in theory. My first comment is in this spirit. I agree with Snower's conclusion that the empirical evidence indicates that globalization does not explain

much of the rising skill premium in the United States, but I do want to take issue with his description of the way global factors affect factor prices in theory.

Snower argues that as the U.S. economy becomes more open to trade, global forces increasingly operate through two "mechanisms"—the net factor content mechanism and the factor price equalization mechanism—to put downward pressure on the relative wages of unskilled U.S. workers. I have problems with this argument. In the competitive framework, which Snower is using to discuss supply and demand side factors, the influence of international trade on relative factor prices is felt *at the margin.* This means that the volume of trade (or openness of the economy) is irrelevant and the key influence is through the prices of internationally traded goods—the so-called Stolper-Samuelson effect. (This is what provoked Richard Freeman to entitle a paper he wrote on this topic "Are Your Wages Set in Beijing?")

In the simplest versions of this model, if the country is a price taker, as long as the number of internationally traded products produced is at least equal to the number of factors of production, international prices determine relative factor prices. If one believes in this framework, since demand is infinitely elastic, factor prices are unaffected by relative factor supplies. In the case of the United States, in this model, the size of immigration and the growth in college graduates are irrelevant considerations. In more complicated versions of this model, if the country is large enough to affect world prices, factor supplies can influence factor prices, but only to the degree that they affect world prices.

In this framework, therefore, there is only one mechanism that counts: the impact of internationally traded goods prices. Global prices certainly matter, but the volume of trade and the size of the manufacturing sector are irrelevant. As the literature on this question makes clear, provided changes in trade flows reflect only a shift in foreign supply and demand conditions, changes in the net factor content of trade can be used to infer what has happened to traded goods prices and thus to factor prices. It is wrong, therefore, to talk of

a factor content mechanism, which operates independently of the factor price mechanism.[1]

While elegant in theory and much beloved by trade economists, this model does not seem to square with the abundant evidence assembled by labor economists, that at the national level, relative factor supplies do affect factor prices. To justify the focus on domestic factors, and to validate much of the discussion presented by Snower, therefore, it is necessary to change the framework. One approach, which is still based on perfect competition, assumes sufficient specialization so that the number of internationally traded goods is less than the number of factors of production. Under these circumstances, the prices of domestically produced goods determine factor prices, but these domestic prices could be affected by import prices. Under these circumstances, however, changes in the factor content of trade is not a valid indicator of the impact of global forces on factor prices.

It is common to see discussions, presumably based on such a framework, in which the sources of inequality are apportioned among various causes. Those who think globalization is important, generally argue for a number like 15 percent or 20 percent of the rise in the skill premium. Those who believe it is less important, suggest between 5 percent and 10 percent. But the implicit assumption in such discussions is that without the impact of trade and other factors such as skill-biased technical change, the skill premium would have remained constant. Yet we know that, as noted by Snower, over the past two decades, in the United States, the relative supply of college graduates has *increased* by almost 50 percent. Thus in the simple supply-demand framework, the skill premium should have been expected to plunge. The relevant counterfactual, therefore, is one in which the skill premium falls dramatically. As a share of the gross increase from this depressed level, even 20 percent of the net increase will be relatively small.

This reasoning leads to the conclusion that "skill-biased technology" is the overwhelming force at work and also suggests that the real mystery is not why the skill premium may have risen or fallen,

but why, as compared with these very large increases in the supply of educated workers, the premium has remained relatively constant. It seems likely that the demand for skilled workers is endogenous and heavily influenced by the supply. Indeed Daron Acemoglu has come up with an interesting model in which the availability of educated workers induces skill-biased technological change.[2] There may be a kind of Say's Law in operation whereby the supply of educated workers stimulates demand. In Snower's context, what is interesting is that the organizational revolution itself may well have been induced as much by the widespread availability of a skilled and educated workforce.

Once we drop the assumption that markets are perfectly competitive, other relevant considerations may enter. In particular, the volume of import competition could be important in a model in which employers and unions bargain over rents. This has the impact of making the demand for domestic labor more elastic. Indeed, it is quite common to see increased global competition invoked as a reason why the U.S. economy has been able to achieve lower levels of unemployment without inflation. In this framework, increased international competition puts downward pressure on wages by allowing firms to threaten workers with outsourcing. In this framework, increased international competition operates through three channels: first, it reduces wage premiums; second, it reduces the number of premium jobs available; and third, it lowers the wages of other workers by subjecting them to increased competition from displaced workers. In practice, however, the latter two effects are simply too small to explain much of the aggregate change in the skill premium, while, surprisingly, the premiums earned by unskilled workers in tradable goods industries, such as autos and primary metals, do not seem to have declined over the past two decades.

Snower sharply distinguishes between "technology," which is something that fits in the supply-demand framework, and "organizational change," which he believes is something different. I do not think it productive to get bogged down in semantics, but I must note that I have always thought of technology as "the methods by which inputs are combined to achieve output" and in ascribing a major role

to technology as a source of inequality, I have always believed this meant more than routine engineering methods and included management and organizational practices. I believe that, in terms of the general debate about the causes of inequality, in essence, Snower has actually fleshed out the technology hypothesis rather than challenged it. I think, in this regard, Snower is on the right track.[3]

If Snower is correct, however, and the organizational revolution is the source of most of the inequality, it leads to a key conundrum: *Why is there so much change and so little progress?* Why is technological change sufficient to induce huge changes in the wage structure but insufficient to induce rapid productivity growth?

One answer to this conundrum is that we are increasingly unable to measure the progress accurately. A second, however, is to acknowledge that it may well be that there could be change without progress. Let me give examples of each answer. It is certainly plausible that many of the welfare-enhancing effects of mass customization are not picked up in the data. Mass customization increases the number of products that are available. One well-known problem is related to measuring new products and taking account of the fact that lots of new varieties are available. But even harder, and not even attempted, is measuring the welfare benefits of improvements in matching varieties of products with consumers who have particular tastes. When products are highly differentiated, lots of resources go into improving mechanisms for matching. Indeed, our economy devotes an increasing share of resources to advertising, marketing, and the Internet—all of which could improve the matching of tastes and products. If for example, a Toyota advertisement informs consumers about a new recreational vehicle, it could help some buyers discover a product that matches their needs. But the fact that matches are better is not something the Bureau of Labor Statistics is going to pick up in their measures of productivity. Indeed, what the numbers will tell us is that, since it takes more inputs to distribute a given quantity of output, productivity has actually fallen. Thus the positive spin on these developments is simply that important aspects of progress have been missed.

But before we proclaim that prosperity is here, we should acknowledge that there could be zero-sum activities in which there is technological change but no improvement in welfare. Again, advertising could be an example. Toyota could invest purely in its image, and despite the fact that consumers are not given better information—indeed they could actually be given misleading information—its market share could increase. If its competitors respond with similar advertising campaigns, however, their share might not change. At the end of the day, this competition is more like an arms race. No one is better off. Yet the technology required to sell cars will have changed. The demand for advertising executives will have increased and their wages could increase and yet, socially, we could have a waste of resources.

I suspect there are many such elements in our economy. Indeed, it is likely that these help explain how the supply of educated people may create a demand. As the saying goes: If there is only one lawyer in town, she will have nothing to do. But if there are two, there will be enough work for both of them. Similarly, if citizens fill out their own tax returns, the government auditors need not be very sophisticated, but if citizens hire well-educated tax lawyers, the government has to respond with well-trained auditors of its own. Again, large amounts of expensive talent will go into endeavors, which need not yield socially productive results, even though the demand for talent will increase. In the paper, Dennis Snower points out in a similar vein how practices such as insider-outsider behavior and efficiency wages may be rational but have social consequences that are detrimental to aggregate welfare.

In sum, Snower has written an extremely stimulating paper. It highlights the need for new empirical work, which moves us beyond the simple apportioning of the causes of inequality. It suggests that we need a deeper understanding of the implications of the managerial revolution if we are to understand these developments and contemplate policy responses to them.

Endnotes

[1]For a more complete discussion, see Edward E. Leamer, "In Search of Stolper-Samuelson Linkages Between International Trade and Lower Wages" in Susan Collins, ed., *Imports, Exports and the American Worker,* (Washington, D.C.: Brookings Institution, 1998).

[2]See Daron Acemoglu, "Why Do New Technologies Complement Skills? Directed Technical Change and Wage Inequality," *Quarterly Journal of Economics*, forthcoming.

[3]I have written, "Those arguing for a major role for technology must have a broader interpretation than simply computerization to include new forms of labor-management relations and work organization." Robert Z Lawrence, *Single World, Divided Nations*, (Washington, D.C.: Brookings Institution, 1996), p. 64.