Technology, trade, and wage inequality in Mexico
before and after NAFTA

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Abstract

Over the past few years, there has been a substantial increase in wage inequality between skilled and unskilled workers in Mexico. This increment in the wage gap coincided with both a period of rapid technological change and the process of trade liberalization in Mexico that began in the mid-1980s. Using a methodology suggested by Leamer [Leamer, E., 1998. In search of Stolper–Samuelson linkages between international trade and lower wages. In: Susan Collins (Ed.), Imports, Exports and the American Worker, Brookings Institution, pp. 141–202], we separate out the effects of technological progress and trade on the real wage evolution of skilled and unskilled workers in Mexico’s manufacturing industry for the periods 1988–1994 and 1994–2000. We find that, as implied by the Stolper–Samuelson theorem, trade liberalization would have led to a reduction in the wage gap in Mexico in the first period. This effect, however, was offset by the large negative impact of technological progress on the real wage of unskilled workers. On the other hand, during the period 1994–2000 the effect of trade liberalization on the wage gap was nil, thus suggesting that the slight increase in wage inequality that occurred in this period was also driven by technological progress. © 2003 Published by Elsevier B.V.

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1. Introduction

Over the past two decades, there has been a continuous increase in the wage gap between skilled and unskilled workers in several developed and developing countries (OECD, 1997; Gottschalk and Smeeding, 1997; Wood, 1997). In many developed
countries, but particularly in the case of the United States, there has been a heated debate about the underlying causes of such a trend. There have been two main lines of argumentation: first, higher volumes of trade with emerging or low-income countries may have led, through the mechanisms described by the Hecksher–Ohlin model and the Stolper–Samuelson theorem, to a reduction in the relative price of the less-abundant factor in rich countries (namely, unskilled labor). The intuition is that by increasing trade with unskilled labor-abundant countries, the domestic relative price of products intensive on the developed countries’ abundant factor (skilled labor) will rise, and this in turn will be associated to an increase in the relative wages of the abundant factor.

The second line of argumentation suggests that there has been a worldwide skill-biased technological change that has increased the demand for skilled workers relative to that of unskilled workers (Bhagwati, 1995; Krugman and Lawrence, 1993). Some of the authors that favor this explanation for the US case, rule out the possibility that trade could have been the main explanatory factor of the increase in US wage inequality on the basis that US trade with developing countries is relatively small.

Since both arguments are theoretically compelling, a definitive answer about the sources of wage inequality in developed countries was expected to come from empirical studies. However, empirical works based on the US experience provided mixed or weak evidence and therefore did not contribute to resolve the debate. In light of these results, some authors suggested to look at the experience of developing countries (i.e. Hanson and Harrison, 1999). They reasoned that, if trade was behind the relative wage movements in developed countries, we should observe a movement in the opposite direction in the relative wages of developing countries. That is, if trade with developing countries was increasing the wage gap between skilled and unskilled workers in developed countries, we should observe a corresponding reduction in the wage gap in the former countries. However, if skill-biased technological change was the main force behind the relative wage movements in developed countries, a similar pattern should be present in developing countries too.

Based on this premise, a number of authors have since then analyzed the relationship between wage inequality and trade in developing countries. The initial empirical evidence was apparently unequivocal: most developing countries that had gone through episodes of trade liberalization had also experienced a substantial increase in wage inequality (Robbins, 1996a,b). This result led some authors to conclude that skill-biased technological change was pervasive around the world and that it was the main source of wage inequality in both developed and developing

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1 Wood (1995) and Leamer (1998), among others, have proposed this interpretation.
2 See, for example, Lawrence and Slaughter (1993) and Sachs and Shatz (1994). According to Leamer (1996), the empirical evidence of these and other similar papers “seems weak or nonexistent” (p. 311).
3 See, for example, Hanson and Harrison (1999), Cragg and Epelbaum (1996), Epelbaum and Cragg (1997), Revenga (1997), Feliciano (2001), Meza (1999), Robertson (2001), and Cañionero and Werner (2002) for the case of Mexico; Beyer et al. (1999) for Chile; Galiani and Sanguinetti (2003) for Argentina; Gonzaga et al. (2002) for Brazil; and Robbins (1996a,b), Wood (1997) for several developing countries. See also IADB (2002) for a recent survey.
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