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Who Gains from *Maquiladoras*?

The rapid growth of assembly plants in northern Mexico has become a sensitive issue in the United States. Critics contend that these so-called *maquiladoras,* which normally process U.S.-made components and export the assembled products back to the United States, have allowed employers to replace U.S. workers with Mexicans earning much lower wages. U.S. labor unions have argued consistently for the repeal of the law allowing goods assembled in maquiladoras from U.S.-made parts to enter the United States under lower import duty. But in two recent NBER studies, **Gordon Hanson** finds that, on balance, maquiladoras benefit the U.S. economy—in ways that are often overlooked.

Initially, Hanson recalls, maquiladoras were not conceived as standalone factories. When they were first permitted in 1965, proponents envisioned "twin plant" production, in which a factory in a U.S. border city would manufacture components and a sister plant across the border, under the same management, would assemble the components into finished goods. This type of formal arrangement has not occurred. Nonetheless, Hanson have had a major economic impact on the U.S. side of the border. Manufacturing employment in the 1980s was nearly flat, but it grew significantly in major U.S. border cities.

In **The Effects of Offshore Assembly on U.S. Industry Location** (*NBER Working Paper No. 5400*), Hanson considers whether the rise in manufacturing employment along the U.S. side of the border is related to the growth of assembly in Mexico, or is attributable to other factors, such as relatively low wage levels. The Mexican plants, he finds, have contributed to the expansion of U.S. border employment in specific industries, notably electrical and electronic equipment and motor vehicle parts, which are also the most common industries for maquiladora assembly. A 10 percent expansion in Mexico's maquiladora sector leads to a 5.8 percent increase in U.S. border region durable goods manufacturing and a 3.6 percent increase in nondurable goods manufacturing. "The effects are large, considering that offshore assembly along the Mexican border has been growing at the rate of more than 10 percent per year for the last two decades," Hanson finds.

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The 1994 North American Free Trade Agreement (NAFTA) is not likely to alter the trend toward increased industrialization on the border, Hanson adds. Strictly speaking, that agreement obviates the need for maquiladoras as a separate industrial category, because all Mexican exports will enter the United States duty-free. But the pre-NAFTA pattern of border trade reveals that the United States has a comparative advantage in components production, while Mexico's advantage is in assembly. As Mexican assembly plants expand under the free trade arrangement, that is likely to generate increased demand for U.S.-made components, Hanson says.

In **U.S.–Mexico Integration and Regional Economies** (*NBER Working Paper No. 5425*), Hanson investigates the extent to which re-

gional economies are linked across the border. Using both U.S. and Mexican data, he looks at the growth of six major U.S.–Mexican city pairs. In general, Hanson finds, economic activity in the United States is shifting toward the border region. Five of the six cities he studies—San Diego, CA; and El Paso, Laredo, McAllen, and Brownsville, TX—have had much more rapid employment growth than the country as a whole.

In three of the cities studied—Brownsville, El Paso; and Imperial, CA—Hanson finds a strong correlation between employment growth and the rate of increase in maquiladora value added in the adjacent Mexican cities for the entire period since 1970. Two other cities, McAllen and San Diego, show a positive correlation since 1982. Only Laredo's employment growth is not strongly linked to maquiladora production in its neighboring community, Nuevo Laredo. According to Hanson, "export manufacturing growth in Mexican border cities contributes to employment growth in U.S. border cities." The impact goes far beyond manufacturing. Hanson finds that a 10 percent increase in maquiladora value added leads U.S. border region employment to rise by between 1.7 percent and 2.8 percent in transportation, 1.4 percent and 2.4 percent in wholesale trade, and 1.3 percent and 1.6 percent in services. However, increased maquiladora production also tends to depress wages slightly on the U.S. side of the border. ML

Clinton Tax Rate Increases Raised Little Revenue at a High Cost

In 1993, the Clinton administration increased the top income tax rate from 31 percent to 36 percent for families with taxable income between $140 thousand and $250 thousand, and to 39.6 percent for families with taxable income over $250 thousand. In predicting the effect of the rate increase on tax revenues, Treasury Department economists assumed that high-income taxpayers would not alter the amount that they worked, the amount of their compensation that they took in untaxed benefits, or the amount of various deductions. But in a recent NBER study, **The Effect of Increased Tax Rates on Taxable Income and Economic Efficiency: A Preliminary Analysis of the 1993 Tax Rate Increases** (*NBER Working Paper No. 5370*), NBER President **Martin Feldstein** and Research Associate **Daniel Feenberg** show that if tax rates had not increased, high-income taxpayers would have reported 7.8 percent more taxable income in 1993 than they did. This tax-induced decline in taxable income, they show, caused the Treasury to lose more than half of the extra revenue that it anticipated from the tax rate increases.

Feldstein and Feenberg reach their conclusion by comparing the increase in taxable income between 1992 and 1993 for two groups: taxpayers with adjusted gross income (AGI) over $200 thousand and those with AGI between $50 thousand and $200 thousand. Because marginal tax rates were constant for all but 2 percent of the lower-income group, the researchers treat this group as having no change in tax rates. They then assume that if tax rates had not increased, taxable incomes for the high-income people would have grown by the same 3.4 percent rate that incomes for the lower-income people grew.

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If taxable incomes for the high-income group had grown by 3.4 percent, then their total taxable income would have been $399 billion in 1993. In fact, their taxable income fell from $374 billion in 1992 to $364 billion in 1993. Part of this decline was the result of taxpayers falling below the $200 thousand threshold, though. Adjusting for this, Feldstein and Feenberg find that taxable income for those who were or would have been in the $200-thousand-and-up category was $370 billion. Thus, they conclude that the tax rate increases caused taxable income for the people paying these higher rates to drop from $399 billion to $370 billion.

Had the higher tax rates not affected behavior, Feldstein and Feenberg note, then an extra $19.3 billion in tax revenues would have been raised in 1993 from taxpayers with an AGI of over $200 thousand. Their "static" estimate is close to the Treasury's static estimate of $19.5 billion. But by reducing taxable income, the higher tax rates extracted only an additional $8.8

billion, less than half of the predicted "static" revenue gain. Moreover, the reduction in taxable income reduced payroll tax revenues for Social Security and Medicare by $0.38 billion, they estimate.

Of course, these conclusions rest crucially on the assumption that incomes for people in the $200-thousand-and-up group would have risen at the same 3.4 percent rate as incomes in the lower-income group. Relaxing that assumption could lead to the conclusion that the tax-induced reduction in taxable income was even greater than Feldstein and Feenberg estimate, and that the proceeds of the higher tax rates were even smaller. Indeed, other evidence suggests that the income of high-income people would have grown faster than that of lower-income people. Thus the assumed 3.4 percent growth may understate the growth of high incomes that would have occurred without the tax rate increases.

All taxes impose a deadweight loss (that is, an inefficiency) by causing people to do things they would not have found worthwhile in the absence of taxes. When income tax rates increase, people take more of their pay in the form of fringe benefits, for example, or buy a more expensive house with a higher deductible interest payment on the mortgage. Taxes also cause inefficiency by inducing people not to do things that they would have found worthwhile, such as working harder to make more income. Feldstein and Feenberg estimate that these and other inefficiencies caused by the 1993 increases in personal tax rates add up to $15.9 billion. This deadweight loss, they point out, is almost double the amount of revenue raised by the increases in tax rates, making the higher tax rates a very inefficient way to raise revenue.

The 1993 tax law also eliminated the $135 thousand ceiling on the amount of compensation subject to the health insurance (HI) tax. Had taxpayers not changed their behavior, the increase in the tax base would have extracted an additional $2 billion from taxpayers, they estimate. But if taxpayers' behavior was as sensitive to the higher HI tax as it was to the higher income tax rates, then the increased revenue extracted was only $600 million. By raising marginal tax rates by 2.9 percentage points for people with compensation over $135 thousand, the increase in the tax base reduced taxable income and thus reduced by $1.4 billion the income tax revenues that these taxpayers paid. Feldstein and Feenberg estimate that the deadweight loss from increasing the HI tax base was $2.1 billion, or over three times the $600 million of revenue raised.

Feldstein and Feenberg conclude that "the higher marginal tax rates in 1993 raised substantially less revenue than a static estimate would imply and imposed relatively large deadweight losses." DRH

Human Resource Practices Can Be Good for the Bottom Line

Modern systems of work practices produce substantially higher levels of productivity and higher quality output than more traditional approaches to human resource management (HRM) do, according to an NBER study by **Casey Ichniowski, Kathryn Shaw,** and **Giovanna Prennushi**. In **The Effects of Human Resources Management Practices on Productivity** (*NBER Working Paper No. 5333*), they focus on one very specific type of manufacturing production line. Based on extensive visits to steel mills, they developed a detailed model of the production process, and collected precise measures of productivity, product quality, specific features of the production machinery, and the HRM practices at each rolled steel finishing line. They then considered the effects of work practices in seven HRM policy areas: job design, recruiting and selection, compensation design, teams and employee participation, training, communication and dispute resolution procedures, and employment security.

Their estimates show that production lines with a complete system of innovative HRM practices spanning all seven areas—including broad job classifications, extensive screening and orientation of new workers, multi-attribute incentive pay plans, high levels of employee participation in problem-solving teams, regular skills training for all employees, frequent meetings between labor and management, and a policy of employment security—enjoy the highest levels of productivity and product quality. The lowest levels of productivity and product quality are in production lines with "traditional" work arrangements, including narrow job classifications, strict work

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rules, no work teams, no sharing of financial information or other offline meetings with workers, no systematic screening or training, and strict supervision of production workers by supervisors.

At the same time, the authors show that the adoption of any one individual modern work practice has no apparent impact on productivity. This supports recent theories that emphasize the importance of sets of complementary employment practices for developing the most effective incentive structures.

The authors estimate that production lines with a full system of innovative work practices have productivity levels that are roughly 7 percentage points higher than lines with traditional work systems. Operating profits for a line increase by at least $30,000 per month for each one point gain in productivity, they figure. For example, one line that adopted a set of modern work practices and abandoned the traditional approach reduced production downtime from about 12 percent per month to about 4 percent, while significantly improving the quality of its output. Based on these estimates, the portion of the improvement in productivity and quality strictly caused by the new work practices that this production line has now sustained for eleven years is worth well over $10 million.

This study helps to explain the disparate experiences that many manufacturing companies seem to have with employee participation initiatives, with some companies claiming that these initiatives are a rousing success, and others finding them to be of little help in improving performance. The majority of production lines sampled here have adopted work teams in some form. However, few of these lines combine work teams with a full set of complementary practices—such as employment security, multi-attribute incentive pay, and flexible assignment of workers to different job tasks—which make employee participation in problem-solving teams more effective. Most lines with work teams do involve the sharing of financial information, but this more limited adoption of modern work practices has only a small effect on productivity and product quality. DRF

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