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Economic Review 94(1), March 2004, pp. 300–16.

⁹ See World Trade Organization, Annual Report 1998 (Geneva: World Trade Organization Conference on Trade and Development), 1998, and S.R. Yeaple, “The Complex Integration Strategies of Multinationals and Cross Country Dependencies in the Structure of Foreign Direct Investment,” *Journal of International Economics* 60(2), August 2003, pp. 293–314.

¹⁰ See G.M. Grossman, E. Helpman, and A. Szeidl, “Optimal Integration

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¹¹ See P. Antràs and E. Helpman, “Global Sourcing,” NBER Working Paper No. 10082, November 2003, published in the *Journal of Political Economy* 112(3), June 2004, pp. 552–80.

¹² See G.M. Grossman and E. Helpman, “Managerial Incentives and the International Organization of Production,” NBER Working Paper No. 9403, December 2002, published in the

Journal of International Economics 63(2), July 2004, pp. 237–62.

¹³ See S.F. Lin and C. Thomas, “When Do Multinational Firms Outsource? Evidence From the Hotel Industry,” mimeo, Harvard University, 2005

¹⁴ See E. Helpman, “Trade, FDI, and the Organization of Firms,” mimeo, Harvard University, February 2006, forthcoming in the *Journal of Economic Literature*, for a detailed review of the literature on these topics.

Historical Aspects of U.S. Trade Policy

Douglas A. Irwin*

While international trade and trade policy continue to be as controversial as ever, the United States has been committed for more than half a century to maintaining an open market. It was not always that way. For most of U.S. history, the United States imposed fairly substantial barriers to imports in an effort to protect domestic producers from foreign competition.

For the past several years, I have been investigating the historical aspects of U.S. trade policy as part of the NBER’s research on international trade and the development of the American economy. The purpose of this research has been to study the economic effects of past trade policies on the U.S. economy and understand the political and economic forces that have shaped those policies.¹

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Early American Trade Policy

To say much about the stance of a country’s trade policy requires, at a minimum, data on the average tariff level. Unfortunately, standard U.S. trade statistics only started calculating average tariff figures from 1821. To fill the gap in the historical data, I gathered information from early government documents to calculate the average tariff on total and dutiable imports for the period from 1790 to 1820.² These figures reveal that tariffs started out at relatively low levels, about 15 percent in the 1790s, but rose thereafter to generate additional revenue and help finance the War of 1812. Because re-exports were a significant component of U.S. foreign trade at this time, my study suggests that it is important to adjust for drawbacks (rebated tariff revenue on re-exported goods) to determine the true level of the tariff.

One of the classic, early statements on U.S. trade policy is Alexander Hamilton’s Report on Manufactures in 1791. This report called for government

support of manufacturing through subsidies and import tariffs, but it is commonly believed that the report was never implemented. Although Hamilton’s proposals for bounties (subsidies) failed to receive support, my research has shown that Congress adopted virtually every tariff recommendation put forward in the report by early 1792.³ These tariffs were not highly protectionist duties, because Hamilton feared discouraging imports, the critical tax base on which he planned to fund the public debt. Indeed, because his policy toward manufacturing was one of limited encouragement and not protection, Hamilton was not as much of a protectionist as he is often made out to be. Hamilton’s moderate tariff policies found support among merchants and traders, the backbone of the Federalist Party. But disappointed domestic manufacturers shifted their political allegiance to the Republican Party, led by Thomas Jefferson and James Madison, both of whom were willing to consider much more draconian trade policies aimed at Britain.

Indeed, as president, Jefferson was responsible for one of the most unusual policy experiments in the history of U.S. trade policy. At his request, Congress imposed a nearly complete embargo on international commerce from December 1807 to March 1809. The Jeffersonian trade embargo provides a rare opportunity (or natural experiment) to observe the effects of a nearly complete (albeit short-lived) elimination of international trade. Economists usually describe the gains from international trade by comparing welfare at a free-trade equilibrium with welfare at an autarky equilibrium. In practice, such a comparison is almost never feasible because the autarky equilibrium is almost never observed, except in unique cases such as this one. By mid-1808, the United States was about as close to being fully shut off from international commerce as it has ever been during peacetime.

Monthly price data allow us to observe the dramatic impact of the embargo: the export-weighted average of the prices of raw cotton, flour, tobacco, and rice, which accounted for about two-thirds of U.S. exports in the United States, fell by one third within a month or two of the embargo. The price of imported commodities rose by about a third as the number of ships entering U.S. ports fell to a trickle and imports became increasingly scarce. According to my calculations, the static welfare cost of the embargo was about 5 percent of GDP.⁴ Thus, the embargo inflicted substantial costs on the economy during the short period that it was in effect.

The embargo, along with the dramatic reduction in trade as a result of the War of 1812, is commonly believed to have spurred early U.S. industrialization by promoting the growth of nascent domestic manufacturers. Joseph Davis and I used his newly available series on U.S. industrial production to investigate how this protection from foreign competition affected domestic manufacturing.⁵ On balance, the trade disruptions did not decisively accelerate U.S. industrialization as trend growth in industrial production was little changed over this period. However, the disruptions may have had a

permanent effect in reallocating resources between domestic infant industries (such as cotton textiles) and trade-dependent industries (such as shipbuilding).

Antebellum Trade Policy

During the 1820s, the average tariff on dutiable imports rose sharply, peaking at over 60 percent in 1830, even higher than under the notorious Hawley-Smoot tariff of 1930. Over the next decade, the average tariff fell by half, and stood at less than 20 percent by the Civil War. In fact, the period from 1830 to 1860 was one of just two in American history when tariffs exhibited a secular decline (the other being from the mid-1930s to the present). What political economy factors explain the rise and fall of tariffs during this period?

A shift in the economic interests of the West (the Midwest of today) appears to explain this pattern.⁶ In the highly sectional politics of the day, the North favored high tariffs, the South favored low tariffs, and the West was a swing region. In the 1820s, a coalition in Congress between the North and West raised tariffs by exchanging votes on import duties for spending on internal improvements, which benefited the West. But when President Andrew Jackson began vetoing internal improvements bills, he effectively de-linked these issues and destroyed the North-West alliance. South Carolina's refusal to enforce the existing high tariffs sparked the nullification crisis and paved the way for the Compromise Tariff of 1833, which phased out tariffs above 20 percent over a nine year period. Although Congress could not credibly commit to implementing the staged reductions or maintaining the lower duties, the Compromise held because of the growing economic interest of the West in exporting grains (due, ironically, to transportation improvements as the railroad network expanded) which gave it a stake in maintaining a lower tariff equilibrium in cooperation with the South.

Aside from revenue, the ostensible purpose of such import tariffs was to protect import-competing manufactur-

ers from foreign competition. The role of the tariff in promoting the expansion of the early American cotton textile industry has been quite controversial, with older scholarship by Frank Taussig suggesting that the industry was well established by the 1830s and more recent work suggesting that the tariff remained critical for some time. In joint work, Peter Temin and I concluded that Taussig was correct in that the cotton textile industry could survive without the tariff by the early 1830s.⁷ Using data from 1826 to 1860, we estimated the sensitivity of domestic production to fluctuations in import prices and concluded that most of the industry could have survived even if the tariff had been completely eliminated. The lack of responsiveness of domestic production to changes in import prices was mainly due to the specialization of American and British producers in different types of textile products that were imperfect substitutes for one another: imports consisted of intricate gingham, whereas New England power looms were supplying plain weaves, such as sheeting.

In terms of exports, the United States produced about 80 percent of the world's cotton in the decades prior to the Civil War, most of which was exported. A long-standing question has been the degree to which the United States had market power in cotton and how much it could have gained from an optimal export tax on cotton. To address this question, I estimated the elasticity of foreign demand for U.S. cotton exports and used it in a simple partial equilibrium model to determine the optimal export tax and its probable impact on prices, trade, and welfare.⁸ The results indicate that the export demand elasticity for U.S. cotton was about -1.7 and that the optimal export tax of about 50 percent would have raised U.S. welfare by about \$10 million, that is about 0.3 percent of U.S. GDP or about 1 percent of the South's GDP. (Such a tax was not implemented, however, partly because the U.S. Constitution forbids the imposition of export taxes.) One implication is that the welfare gains from an export tax are not necessarily large, even

for a country with considerable market power.

Post Civil War Industrialization and Growth

After the Civil War, the United States maintained high tariffs to protect domestic manufacturers from foreign competition. Tariff advocates claimed that high import duties helped to expand industrial employment and keep wages high, while also aiding farmers by creating a steady demand in the home market for the food and raw materials that they produced. Tariff critics charged that those import duties raised the cost of living for consumers and harmed agricultural producers by effectively taxing their exports, thus redistributing income from consumers and farmers to big businesses in the North.

One approach to examining the magnitude of protection given to import-competing producers and the costs imposed on export-oriented producers is to focus on changes in the domestic prices of traded goods relative to non-traded goods.⁹ Because the tariff also increased the prices of non-traded goods, the degree of protection was much less than indicated by nominal rates of protection; my results suggest that the 30 percent average tariff on imports yielded just a 15 percent implicit subsidy to import-competing producers while effectively taxing exporters at a rate of 11 percent. The paper also indicates that the tariff policy redistributed large amounts of income (about 9 percent of GDP) across groups, although the impact on consumers was roughly neutral because they devoted a sizeable share of their expenditures to exportable goods. These findings may explain why import-competing producers pressed for even greater protection in the face of already high tariffs and why consumers (as voters) did not strongly oppose the policy.

Were protectionist policies essential for domestic industries after the Civil War? In the case of pig iron, high import tariffs may have helped those producers, but they harmed other manufacturers who needed access to cheap iron to produce other products, such as machinery and bridges.¹⁰ One justification for the tariffs is that they pro-

moted the growth of infant industries. I examined the case that has been heralded as possibly the best example of infant industry protection: the tinplate industry, which produces thin sheets of iron or steel that have been coated with tin.¹¹ Although the tinplate industry is an obscure one, it is unique because, unlike most manufacturing industries, it did not receive significant tariff protection after the Civil War, apparently because of a mistaken interpretation of the tariff code. Left without adequate protection, there was virtually no domestic production prior to 1890. The McKinley tariff of 1890 substantially raised the duty on imported tinplate to encourage the entry and growth of domestic producers. The act also contained an unusual provision in which the tariff would be completely eliminated in six years if, by that time, domestic production did not amount to at least one-third of imports. The tariff succeeded in promoting domestic production and output rapidly expanded, and by about 1910 the price of U.S. tinplates fell below those produced in the United Kingdom.

The tinplate example has all the elements of an apparently successful application of infant industry protection. But in asking the counterfactual question—would the industry have developed anyway, and were the tariffs worthwhile?—I answer yes and no. My analysis suggests that tinplate was not an “infant industry” that floundered because of the lack of previous production experience (learning by doing), but rather an industry in which domestic production was not profitable because of the high domestic cost of iron and steel inputs attributable to tariffs. The tinplate industry suffered from negative effective protection due to the existing tariff structure; while a second-best optimal tariff could have corrected that distortion, and improved welfare, such an optimum was not imposed. In the absence of the McKinley tariff, the U.S. tinplate industry would have established itself about a decade later as the material input costs of iron and steel converged with those in Britain. Over this time horizon, the McKinley duty fails to pass a cost-benefit test.

Were high import tariffs somehow related to the strong U.S. economic growth

during the late nineteenth century? One paper investigates the multiple channels by which tariffs could have promoted growth during this period.¹² I found that 1) late nineteenth century growth hinged more on population expansion and capital accumulation than on productivity growth; 2) tariffs may have discouraged capital accumulation by raising the price of imported capital goods; and 3) productivity growth was most rapid in non-traded sectors (such as utilities and services) whose performance was not directly related to the tariff.¹³

At the end of the nineteenth century, though, the pattern of U.S. trade changed dramatically. For most of the century, the United States had a strong comparative advantage in agricultural goods and exported mainly raw cotton, grains, and meat products in exchange for imports of manufactured goods. But in the mid-1890s, America’s exports of manufactures began to surge. Manufactured goods jumped from 20 percent of U.S. exports in 1890 to 35 percent by 1900 and nearly 50 percent by 1913. In about two decades, the United States reversed a century-old trade pattern and became a large net exporter of manufactured goods. What accounts for this abrupt change in the structure of U.S. exports?

My research suggests that natural resource abundance fueled a dramatic expansion of iron and steel exports, in part by enabling a sharp reduction in the price of U.S. exports relative to other competitors.¹⁴ In this case, the commercial exploitation of the Mesabi iron ore range in Minnesota reduced domestic ore prices by 50 percent in the mid-1890s and was equivalent to over a decade’s worth of industry productivity improvement in its effect on iron and steel export prices. The non-tradability of American ore resulted in its distinctive impact on the pattern of U.S. trade; whereas raw cotton was tradable, and hence the domestic cotton textile industry did not reap an advantage from having local production of cotton, iron ore and other minerals were difficult to trade, and therefore they were exported in final products, not in raw form.

¹ *This is an update from my previous report in the Winter 1999 NBER*

Reporter. See D.A. Irwin, "Historical Perspectives on U.S. Trade Policy," NBER Reporter, Winter 1999.

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⁷ D.A. Irwin and P. Temin, "The Antebellum Tariff on Cotton Textiles Revisited," NBER Working Paper No. 7825, August 2000, and *Journal of Economic History* 61 (September 2001): pp. 777-98.

⁸ D.A. Irwin, "The Optimal Tax on Antebellum Cotton Exports," NBER Working Paper No. 8689, December 2001, and *Journal of International Economics*, 60 (August 2003), pp. 275-91.

⁹ D.A. Irwin, "Tariff Incidence in America's Gilded Age," NBER Working Paper No. 12162, April 2006.

¹⁰ D.A. Irwin, "Could the U.S. Iron Industry Have Survived Free Trade After the Civil War?" NBER Working Paper No. 7640, April 2000, and *Explorations in Economic History* 37 (July 2000): pp. 278-99.

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¹³ I am currently studying the role of tariffs in promoting structural change during this period. Cross-country analysis is an alternative way of examining the U.S. experience. D.A. Irwin, "Interpreting the Tariff-Growth Correlation of the Late Nineteenth Century," NBER Working Paper No. 8739, January 2002, and *American Economic Review* 91 (May 2002): pp. 165-69.

¹⁴ D.A. Irwin, "Explaining America's Surge in Manufactured Exports, 1880-1913," NBER Working Paper No. 7638, April 2000, and *Review of Economics and Statistics* 85 (May 2003): pp. 364-76.

NBER Profile: Thomas C. Buchmueller



Thomas C. Buchmueller is a Research Associate in the NBER's Programs in Health Care and Health Economics. He received his B.A. in Economics from Carleton College in 1985 and his Ph.D. in Economics from the University of Wisconsin, Madison in 1992. Since 1992, he has taught at the University of California, Irvine, where he is Professor of Economic and Public Policy at the Paul Merage School of Business. He has also been a visiting scholar at University of York (UK), INSEAD and CREDES in France, and at the Federal Reserve Bank of San Francisco. Buchmueller will be spending the 2006-7 academic year in Australia as a Packer Policy Fellow. Then, he will be joining the faculty of the University of Michigan's Stephen Ross School of Business, where he will hold the Waldo O. Hildebrand Chair in Risk Management and Insurance.

Buchmueller's research focuses on the

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Buchmueller lives in Irvine, California with his wife Liz Phillips, a social worker; his children, Sophie and Adam; and a 14-year old beagle. He enjoys playing basketball, traveling, and following the Red Sox from afar.