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Recoveries from Financial Crises: The United States and Argentina in the 1890s

Peter H. Bent, Department of Economics, Trinity College, USA,
peter.bent@trincoll.edu

Abstract

The United States and Argentina both experienced severe financial crises in the early 1890s. The causes of these crises have been studied in depth. Here, I analyze the recoveries from these crises, comparing the factors that propelled or hindered renewed economic growth, focusing on how changes in commodity prices and trade policies impacted post-crisis economic activity. Sustained recovery only occurred in the United States when wheat prices surged in 1897. Likewise, recovery was delayed after the Baring Crisis in Argentina in part because of decreased prices for agricultural exports, and renewed growth ultimately coincided with higher export prices. Increases in tariff rates also occurred during these recovery periods, though most consistently in the United States. However, the evidence suggests that higher commodity prices played more of a role in encouraging post-crisis economic growth than did trade policy changes in these countries over this period.

Keywords: Crisis; recovery; tariffs; commodity prices; United States; Argentina.

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Introduction

What impacts do trade policies and changes in the terms of trade have on recoveries from financial crises?[1] I address this question using the cases of the United States and Argentina in the 1890s, when both of these economies experienced major financial crises and subsequent depressions. The factors that precipitated these crises have been analyzed at length in previous research and are outlined below. But less attention has been paid to the trajectory of the recoveries from these crises, and the factors that contributed to, or hindered, these recovery periods.

Cross-country growth studies focusing on this turn-of-the-century "first era of globalization" have found positive associations between higher tariff rates and economic growth, and between improving terms of trade and economic growth (Michael A. Clemens and Jeffrey G. Williamson 2004; Kevin H. O'Rourke 2000). Additional research has focused on particular industries (Douglas A. Irwin 2000), and countries (Léo Charles 2017), and found evidence supporting an infant industry argument for protectionism during this period. Commodity cycles have also been shown to drive business cycles across this period (Joseph H. Davis, Christopher Hanes, and Paul W. Rhode 2009; Carmen M. Reinhart, Vincent Reinhart, and Christoph Trebesch 2016). This literature covers long-run trends as well as more narrowly focused studies on how tariffs and commodity prices influenced output growth around the turn of the twentieth century.

This paper extends this line of research by presenting a comparative case study analyzing how these two factors—tariffs and the terms of trade—shaped the recoveries from the major depressions experienced by two of the most significant emerging economies during the last decade of the nineteenth century. Focusing on these two explanatory variables addresses two narratives about what drove recoveries during the boom-crisis-bust periods facing the United States and Argentina in the 1890s: (1) that government policies played a role in helping economies recover from crises; (2) that higher commodity prices helped economies grow again after a crisis.

The baseline data used in this analysis are measures of the terms of trade and tariff rates, focusing on the timing of significant changes in these variables and how those changes aligned with recoveries from financial crises. Terms of trade is the ratio of export to import prices. Tariff rates are calculated by dividing the total government revenue from imports by the value of imports by a given country in a given year.[2] I also extend this analysis by taking into account other economic and political variables for which data are available. These additional factors offer insights beyond average terms of trade and tariff rate figures, by showing trends in the factors that underlie those aggregated measures. For example, in addition to looking at the terms of trade data, I also analyze the export and import data series that are used to calculate the terms of trade, in order to see more clearly how exactly trade flows changed across this period.[3]

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[1] I follow the standard business cycle definition of recovery, where an economy has recovered from a crisis once its GDP per capita has returned to its pre-crisis peak (Carmen M. Reinhart and Kenneth S. Rogoff 2014). I also conceive of recovery more loosely as a broad increase in economic activity in the aftermath of a crisis.

[2] The terms of trade data are from Christopher Blattman, Jason Hwang, and Jeffrey G. Williamson (2007), and the tariff data are from Clemens and Williamson (2004). I am grateful to Jeffrey Williamson for sharing an updated version of this database with me (September 2016).

[3] Monetary policy and gold standard membership are other key variables shaping recoveries over the 1890s, but I do not focus on these issues in this analysis as they have been thoroughly analyzed elsewhere. Here I want to focus on variables that have received less attention in the literature on recoveries across this period, namely tariffs and the terms of trade. The literature on the gold standard during this period is extensive. The US was on the gold standard across the 1890s, but Argentina did not return to the gold standard until the end of the decade. See Michael D. Bordo and Hugh Rockoff

Overall, tariff rates fluctuated more widely in Argentina after the 1890 crisis, compared to the sharper but more consistent increasing trend in tariff rates several years after the 1893 crisis in the United States. As detailed in the case studies below, there is not a clear correlation between tariff rate changes and recovery from the 1890 crisis in Argentina, though increased tariff rates do align with aspects of the timing of recovery from the 1893 crisis in the United States.[4]

For both of these countries, improvements in terms of trade in the 1890s (in the early-to-mid-1890s in Argentina, and the late-1890s in the United States) coincided with the recoveries from the major financial crises these countries experienced. While improving terms of trade could be economically beneficial to these countries at any time, the importance of the sharp increases in the terms of trade in the United States and Argentina in the 1890s centers on the fact that these increases occurred several years after these countries experienced major financial crises. The case studies developed below indicate that these terms of trade upswings helped drive the recoveries from these crises. The evidence consistently suggests that these economies benefited from higher commodity prices, which encouraged economic growth several years after the financial crises. The relationship between changes in tariff rates and renewed economic growth is less clear.

Background: The Crises in the United States and Argentina in the 1890s

The United States experienced a major depression from 1893-1897. Businesses closed, investment stalled, and unemployment was widespread (Carlos C. Closson, Jr. 1894). Sustained recovery began in 1897, but whether this was due to protectionist policies or market conditions that were favorable for American agricultural exports is a longstanding debate (Peter H. Bent 2015a; F.W. Taussig 1897). While a turn to protectionism did coincide with renewed economic growth after 1897, the evidence presented below suggests that rising commodity prices played a stronger role in helping the US economy recover from the depression that followed the 1893 panic.

In the years leading up to the 1893 crisis, the United States expanded westward. Just as expansion in Argentina led to the settling of the pampas and the subsequent growth of agricultural activity there, settlers in the United States moved west and staked out new farms. From 1870-90, “the number of farms in the United States rose by nearly four-fifths, to 4,545,000, and it increased by a fourth again by the end of the century” (Douglas Steeples and David O. Whitten 1998, 15). Railroad construction also increased significantly, preceding and helping to drive these population movements. Yet bad weather and agricultural overproduction occurred in the years leading up to 1893, negatively impacting agricultural revenues. Thus the “Midwestern and Southern farming regions seethed with discontent” while “debt payments and low prices restricted agrarian purchasing power” and the “foreclosure of farm mortgages impaired the liquidity of mortgage companies, banks, and other lenders” (ibid, 22). International crises, such as the French recession of 1889 and the Baring Crisis of 1890, put further pressure on the US economy (Charles P. Kindleberger and Robert Z. Aliber 2005, 17 and 119).

Another disturbance facing the US economy in the early 1890s was the strengthening of pro-inflation sentiments. Low prices encouraged “political radicals, debt-pressed farmers,

(1996) and Barry Eichengreen and Michael D. Bordo (2003) for general international overviews of the gold standard around the turn of the twentieth century. For Argentina, see, for example: Gerardo della Paolera and Alan M. Taylor (2001b); H. S. Ferns (1992); and Juan Huitzi Flores (2007). For the impact of the gold standard on the US economy during the 1890s, see Mark Carlson (2005); Brandon R. Dupont (2009); Alexander D. Noyes (1894); and Albert C. Stevens (1894).

[4] The tariff rate and terms of trade data for the United States and Argentina are presented in Figures 1, 3, 8 and 11.

and angry workingmen" to push for the unlimited coinage of silver dollars (Steeples and Whitten 1998, 29). Six new states entered the US in 1889-90, and they were all significant sources of silver. People began to fear that the US adherence to the gold standard would be undermined, and inflationary fears pushed more domestic and foreign investors to convert their dollars to gold (ibid, 30).

These political developments occurred at a time when the US economy was feeling the negative impact of the international economic turbulence that followed the Baring Crisis (Kindleberger and Aliber 2005, 17 and 119). Widespread uncertainty and the outflow of gold hurt demand and investment. Businesses began to fail in 1893 as a result of these adverse conditions. A significant blow to the US economy came in February 1893, when the Philadelphia and Reading Railroad failed. Through May 1893, US industrial securities took major hits at the New York Stock Exchange, culminating in an outright stock market crash on May 5th.[5] By the end of 1893, 199 railroad companies had failed, and 15,242 firms went under overall (Steeples and Whitten 1998, 37; see also Gary Richardson and Michael Gou 2011). The unemployment rate approached 10 percent from 1894-97, in contrast to rates of less than five percent for the years prior to the Panic of 1893 (Closson 1894; Michael T. Owyang, Valerie A. Ramey, and Sarah Zubairy 2013; Samuel Rezneck 1953, Christina D. Romer 1986). Additionally, wages, industrial production, and consumption data were depressed across this period.[6]

Following the Panic of 1893 came four years of economic recession and turmoil. While real GDP increased from 1894-95, overall the years 1893-97 were characterized by widespread hardship and uncertainty. Observations from a contemporary of this depression offer a summary of the general difficulties facing the United States during this time:

> It may be said in a few words, for it needs not elaboration or statistical tables, that the condition in this country on the election-day of 1896 was more deplorable than at any other period following the American Revolution…. [T]here was never such a condition of horror and doubt and uncertainty and fear as there was on the day when Mr. McKinley was elected President of the United States…. There was more idle labor than ever had been known before. There were more idle spindles, mills, factories and shops than had been known before. Foreign trade was falling off. Home markets had been destroyed. Confidence was to be found nowhere. Hunger, nakedness, fear, disaster, trouble were to be encountered everywhere (Charles Henry Grosvenor 1900, 42).

What ultimately caused the end of the 1890s depression in the US has been an ongoing debate. At the time, protectionist Republicans argued that the July 1897 Dingley Tariff Act promoted recovery from the 1890s depression, as a new regime of high tariff rates helped American businesses feel assured of growth and continued protection, thus encouraging them to invest and engage in production and propel the economy out of the depression (Bent 2015a and 2015b). Others have been skeptical of the claim that the Dingley tariff helped end that depression. G.T. White (1939, 14), for example, wrote that these claims were only supported by those in "highly partisan circles." This was exemplified by people like Republican Senator Justin Morrill of Vermont, who argued that increased tariff rates would be "something which the people would be likely to approve as looking toward a revival of the business interests of the country," and Republican Representative Nelson Dingley, Jr., who declared that the tariff "shall reestablish that policy of protection to American industries which for thirty years gave

[5] Samuel T. McSeveney (1972, 33) places the start of the depression on May 4, 1893, when the National Cordage Company "collapsed for want of capital." Rezneck (1953, 324) identifies May 5, 1893 as the "Industrial Black Friday" that brought about the depression.

[6] These data are presented in Figure A1 in the Data Appendix.

the United States such prosperity and elevated the wages of the people of this country as was never known in the world" (quoted in White 1982, 54). In contrast, White argues that "A more dispassionate opinion attached some significance to the rapidly developing and sizable foreign markets for American manufactures" in explaining the recovery (ibid, 14). Specifically, White argues that rising prices for American wheat exports in the late-1890s helped the American economy recover from the depression. Below, I build on White's argument, and present more and new data that show how rising commodity prices coincided with renewed economic growth in the late 1890s, while higher tariff rates did not induce the increased economic activity that the proponents of protectionism had hoped for.

In Argentina, the 1890 Baring Crisis—"the nineteenth century's most famous sovereign debt crisis"—shaped the economic outcomes across the last decade of the nineteenth century (Kris James Mitchener and Marc D. Weidenmier 2008, 462). From 1880-1916, Argentina was ruled by the Partido Autonomista Nacionalista, a strong federal government. This governing party came to power after spreading the reaches of state power over Argentina's fertile pampas region, thereby assuring that this important agricultural area would be beholden to the interests of the Buenos Aires elite. With its largely agricultural economy, Argentina exported pastoral products such as wool and hides, as well as cereals. But in order for its agricultural export-based economy to grow, Argentina required modern infrastructure, namely railroads.[7] Financing for these infrastructure projects came mainly from foreign sources (A.G. Ford 1956, 133).

Argentina required an inflow of funds from abroad in order to finance its economic expansion in the late nineteenth century. While it did not have a central bank, and even lacked a national currency, Argentina was beholden to the structure of the gold standard. In this setting British capital flowed in increasing quantities to Argentina, financing government expenditures and development projects (Richard S. Grossman 1997, 50; Mitchener and Weidenmier 2008, 464; Irving Stone 1999). The "investment boom became self-expanding and self-generating, [with] many Europeans being dazzled with the prospects of the second 'America'" (Ford 1956, 134). The 1880s in Argentina "stand out as a period of totally unprecedented capital inflows into an emerging market at any time in history" (Taylor 2003, 177). But the boom turned into a bust, with a panic precipitated by the failed loan from Barings Bank to Buenos Aires Water Supply in 1890 (della Paolera and Taylor 2001a, 71).[8] Thereafter, British enthusiasm for investing in Argentina waned as investors realized "that there were considerable limitations to the promise of the new El Dorado" (Ford 1956, 135). By 1890 new capital issues in London for investment in Argentina dropped toward zero (Stone 1999).[9]

Argentina, like the United States, saw a capital inflow boom in the late 1880s, before investment fell sharply through the mid-1890s. Flores (2011, 194) argues that British finance flowed to Argentina despite a "deteriorating macroeconomic and financial situation" leading up to the Baring Crisis. Capital flows to Argentina then all but stopped after the crisis, before resuming in the mid-1890s as export prices rose and the economy began to recover, but capital inflows remained well below their late-1880s peak until after 1905. Taylor (2003, 177) argues that it took that long for inflows to resume because Argentina had to establish credibility

[7] By 1900, the rail networks of Argentina and the United States were nearly equally developed, with Argentina having 3.6 kilometers of railways per 1,500 inhabitants, and the United States having 4.1 kilometers per 1,500 inhabitants (the comparable figures for Uruguay, Mexico, and Venezuela in that year were 2.0, 1.0, and 0.3, respectively) (Leticia Arroyo Abad 2013, 42, Table 1).

[8] For more on Barings Bank—the "famous and much respected [financial] house"—see A. Andréadès (1909, 365).

[9] These capital flow trends are shown in Figure A2 in the Data Appendix.

among investors after going back on the gold standard in 1899.[10] Over the 1890s, British capital flows to the United States followed a similar trajectory as in Argentina, as the crises of the early 1890s reduced capital outflows from the main capital-exporting economies (Britain, France, and Germany) to peripheral economies.

In his study of the Baring Crisis, Ford highlights the role of the particular financial arrangements in Argentina at that time. Argentina made use of foreign investment in order to develop, as did the United States. Railroads were often the primary focus of this investment and were necessary to get exportable agricultural products to markets. Yet there were underlying problems in this international capital exchange. As the Argentinian economy cooled in the late 1880s, overseas borrowing decreased, and the gold premium on Argentinian loans increased as debt-service charges were in gold or sterling but "the government and the economy as a whole were being bolstered up by currency issues" (Ford 1956, 145). By 1890, the Argentinian securities held by Barings Bank could only be traded at a loss (ibid, 147). The Bank of England hurriedly met with representatives from Barings in London and established a fund of £10 million to guarantee Barings' obligations to address any doubts about its solvency. The day after that meeting, in mid-November 1890, the Bank of England announced that it would guarantee Barings' loans, which immediately "calmed the public and arrested the panic" (ibid, 367).

While these actions prevented an all-out financial panic in Britain, broader economic problems in Argentina persisted, as prices for agricultural exports stayed depressed through the mid-1890s. Later in that decade, positive commodity price movements helped the economy grow again. And while average tariff rates did change in Argentina during this post-crisis period, they fluctuated inconsistently, suggesting that protectionism did not play a role in the recovery from the prolonged depression.

Case study: United States

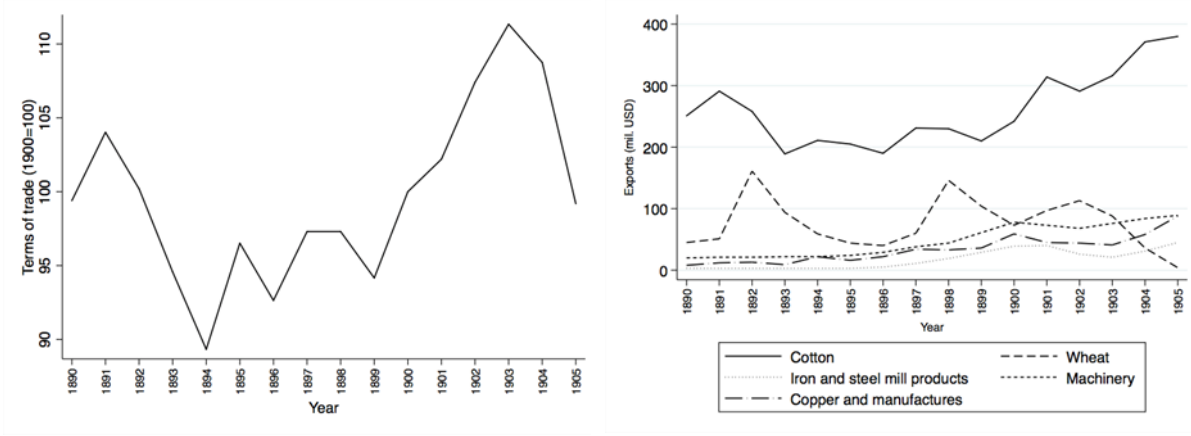
Terms of trade and recovery: United States

Terms of trade estimates for the United States over this period are shown in Figure 1 (panel a). The prolonged downturn in terms of trade in the 1890s coincides with the major economic depression of that decade. The sharp improvement in terms of trade seen in the late 1890s occurred as the economy recovered from that depression.

In early 1897, economists, business owners, and industrialists were expressing "general indications of pessimism" about the state of the US economy (White 1939, 13). Yet by the end of 1897 the economy had begun to recover. White cites contemporary sources who observed the recovery taking off most forcefully in the western United States, where agriculture was the foundation of the economy. The main impetus for renewed economic growth beginning in 1897, White argues, was US wheat production: "Beyond all other factors ... much emphasis was placed upon the relationship of the profitable marketing of the large American wheat crop of 1897 to the recovery then being experienced" (ibid, 14). White presents data from contemporary newspapers, trade journals, agricultural journals, American consuls abroad, and government sources to support his argument that high prices for wheat exports propelled the US economy out of the 1890s depression. Steeples and Whitten (1956, 72) also argue that the "record for farm exports after the harvest of 1897 spoke eloquently of the role of foreign demand for American crops in inducing business recovery." They emphasize the role of wheat in particular: "In fiscal 1898 and 1899 the movement overseas of American goods rose by about $225 million, perhaps 2 percent of gross national product, over the year ending June

[10] Argentina had previously gone off the gold standard in 1885. Leonard I. Nakamura and Carlos E.J.M. Zarazaga (1997) argue that Argentina was well integrated into international capital markets over the 1900-30 period.

30, 1897. Enlarged wheat shipments that totaled $130 more than the annual rate for fiscal 1897 accounted for more than half the increase" (ibid). More recently compiled data on wheat export values during the late nineteenth and early twentieth centuries support those claims. These data are presented in Figure 1 (panel b) along with the export figures for other commodities and manufactures.



(a) Terms of trade (b) Exports (value, millions of dollars)

Sources: Panel a: Blattman, Hwang, and Williamson (2007); Panel b: Irwin (2006a).

Figure 1
US Terms of Trade and Exports, 1890-1905

Figure 1 (panel b) shows that the value of American wheat exports was high in 1892, the year before the panic. The value of these exports then fell dramatically during the depression years, from $161 million in 1892 down to $40 million in 1896. It then rose again beginning in 1897, increasing to $146 million by 1898. This fits with the argument that rising prices for US wheat exports spurred the recovery that began in 1897, as this windfall provided much-needed revenue for the economically and politically important American agricultural sector.[11]

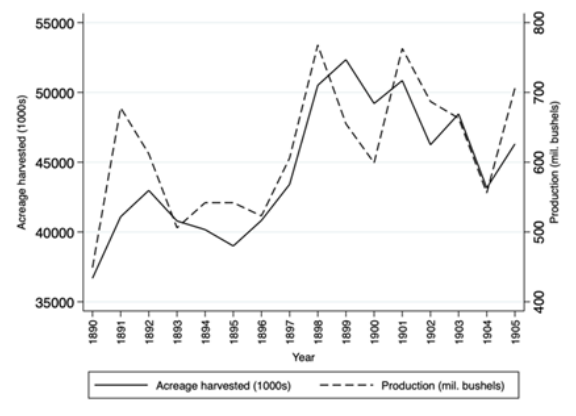
Agricultural production data highlight similar trends. Figure 2 (panel a) shows wheat production falling during the mid-1890s depression years, then spiking sharply and staying elevated as the economy recovered from 1897 onward. Wholesale prices show similar trends (Figure 2, panel b). The price of a bushel of wheat fell from $0.84 in 1890 down to $0.49 in 1894, before climbing again to $0.81 in 1897. Though the wholesale prices decreased again after 1897, the fact that they increased from the depression's trough up through the beginning of the recovery in 1897 supports the argument that favorable conditions in the wheat market helped the economy recover from the depression.[12] Higher commodity prices meant higher agricultural incomes, which could then support increased consumption and investment in capital goods, stimulating economic growth more broadly.[13] "Not until some branch of production (perhaps agriculture) gains new purchasing power, does the growing demand,

[11] Owyang, Ramey, and Zubairy (2013) have quarterly GDP estimates for the United States at this time, and they estimate that the recession ended halfway through 1897.

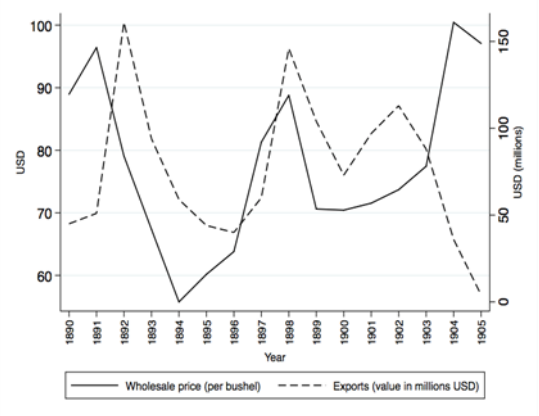
[12] Figure 1 (panel b) also includes export data for other commodities, for the sake of comparison. Trends in wool prices are discussed in more detail below.

[13] A similar "farm channel" has been put forth as an impetus for recovery during the Great Depression (Joshua K. Hausman, Paul W. Rhode, and Johannes F. Wieland, 2017). They argue that a devalued dollar raised agricultural prices, spurring investment by farmers, measured through increased auto purchases.

increasing concurrently with production, spread in ever-widening circles to many occupations—until, finally, all available capital and labor find employment in new adjustments" (J. Laurence Laughlin, 1897, quoted in White 1939, 13, footnote 3). In the United States in 1900, 29,073,000 people were gainfully employed, and 11,288,000 of those people were working in agriculture, compared to 4,253,000 in manufacturing (Everett S. Lee, Ann Ratner Miller, Carol P. Brainerd, and Richard A. Easterlin 1957, 399). Rising prices for agricultural goods would thus have a stimulating effect for more people in the economy than would higher wages in manufacturing jobs benefiting from protectionism.



(a) Wheat production (bushels) and acreage harvested (1000s)



(b) Wheat exports and wholesale prices (US$)

Sources: Production: Alan L. Olmstead and Paul W. Rhode (2006); Exports: Irwin (2006a); Prices: Michael R. Haines (2006).

Figure 2
US Wheat Production, Prices, and Exports, 1870-1913

After the 1893 panic, this farm channel worked in reverse, as lower commodity prices undermined the broader US economy:

> Luckily for the United States, the Chicago miracle ["a food surplus and fantastic growth in manufactured food exports"] kept on ticking for a few years between 1890 and 1893. A famine in southern Russia caused wheat prices to shoot up, buoying international demand for American breadstuffs and ensuring that gold and credit were still available. But in 1893, Argentina exported a huge percentage of its total wheat production to obtain currency to pay off the Barings loans. A fantastic harvest in Russia saw wheat production shoot up 38 percent in the same year, causing a glut in the world wheat supply. This glut of 1893 established what merchants throughout the world agreed would now be a new and lower floor for the international price of wheat. At the end of the nineteenth century a new and lower floor in international wheat prices could cripple the American economy. American railroads, midwestern banks, western banks, and urban crossroads cities like Chicago all depended on $1 wheat bushels. Just as American institutions before 1837 had depended on cotton at twenty cents a pound, so the sudden drop in wheat prices had a similar effect on mortgages. Banks in Omaha, Kansas, and California that had issued farm mortgages to wheat growers began defaulting (Scott Reynolds Nelson 2012, 188-189).

The course of the 1890s depression was then driven by these commodity price movements.[14] Toward the end of that decade, higher wheat prices were associated with recovery from the depression:

> In certain highly partisan circles attempts were made to attribute this recovery to the Dingley Tariff Act of July 1897, for a fundamental tenet of the Republican campaign propaganda of 1896 had been the restoration of a high protective tariff as the main essential for renewed prosperity. A more dispassionate opinion attached some significance to the rapidly developing and sizeable [*sic*] foreign markets for American manufactures. Beyond all other factors, however, much emphasis was placed upon the relationship of the profitable marketing of the large American wheat crop of 1897 to the recovery then being experienced (White 1939, 14).

The wheat price, production, and export data (Figure 2) show how contemporary observers and later researchers could support arguments in favor of wheat playing a leading role in the recovery.[15] Each of these measures surged around 1897, the year the recovery began in earnest (following the 1896 double dip). Rising wheat prices in 1897 were held up as a sign of the renewed strength of the US economy. In a journal entry from August 21, 1897, Charles Dawes noted that wheat prices were at heights not seen since 1891, and he took this to signal that "Prosperity seems to be dawning at last."[16] Rising wheat prices, production, and exports (Figure 2) buoyed optimism that the depression was finally over, encouraging higher consumption and investment (Figure A1 in the Data Appendix).

Even short-term increases in wheat prices in 1897 helped farmers' finances in ways that could have longer-term positive impacts on the economy more broadly. In 1897 farm income increased between $400 million and $1 billion (which includes the effect of appreciating agricultural land values and farm product prices) (White 1982, 80). This allowed farmers to pay down their mortgages and to invest in industrial goods. Wheat-producing regions in the upper Mississippi Valley were identified by trade journals as booming markets for manufactured products, as farmers' incomes increased (ibid, 80-81). Altogether this evidence suggests that the wheat-producing regions of the West propelled the recovery starting in 1897.

Tariffs and recovery: United States

Average tariff rates in the United States were high leading up to the 1890s, fell during the 1890s, then rose sharply again after 1897 before falling in the years before World War One. The general trends are seen in Figure 3. The "tariff" measure in Figure 3 is from Clemens and Williamson (2004), and the AVE measure shows a more detailed annual series of average tariff rates, along with Irwin's (2010) trade restrictiveness index (TRI).[17] Each of these series

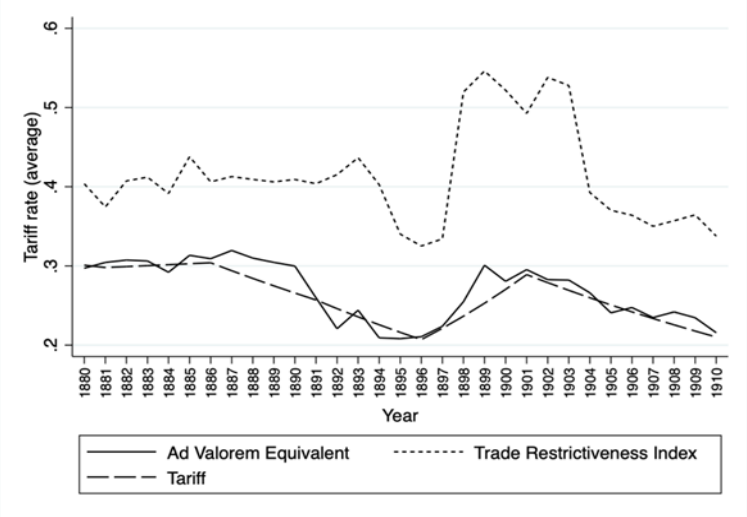
[14] For more on how similar trends in wheat prices played out in 1890s Britain see Helen C. Farnsworth (1934).

[15] David S. Jacks (2013) also documents rising real commodity prices over this same period, after generally depressed prices during the mid-1890s.

[16] Charles G. Dawes, later Comptroller of the Currency and Vice President of the United States, as quoted in Rezneck (1953, 326).

[17] In addition to ad valorem equivalent (AVE) tariff measures of Clemens and Williamson, another measure of US trade policies during the late nineteenth and early twentieth centuries is Irwin's (2010) trade restrictiveness index (TRI). This indicator is calculated from the share of imports of a good in GDP, the elasticity of import demand for that good, and the import tariff imposed on that good (Irwin 2010, 113; building on James E. Anderson and J. Peter Neary 2005, and Hiau Looi Kee, Alessandro Nicita, and Marcelo Olarreaga, 2008). Markus Lampe and Paul Sharp (2013, 215) note that Irwin's TRI is "theoretically better grounded and more reliable" than AVE measures. Likewise, Irwin (2010, 111) argues that there are four shortcomings to using AVE measures: (1) they are downward-biased since

shows how a period of relatively low tariff rates coincided with the mid-1890s depression in the United States and highlights how high tariff rates were in the years following the Dingley tariff.



Sources: Tariff data are from Clemens and Williamson (2004). Customs revenue data are from John Joseph Wallis (2006). Imports data are from Irwin (2006b). Trade Restrictiveness Index data are from Irwin (2010).
Note: The ad valorem equivalent approximation of the average tariff rate is calculated by dividing customs duty revenue by total value of imports for domestic consumption.

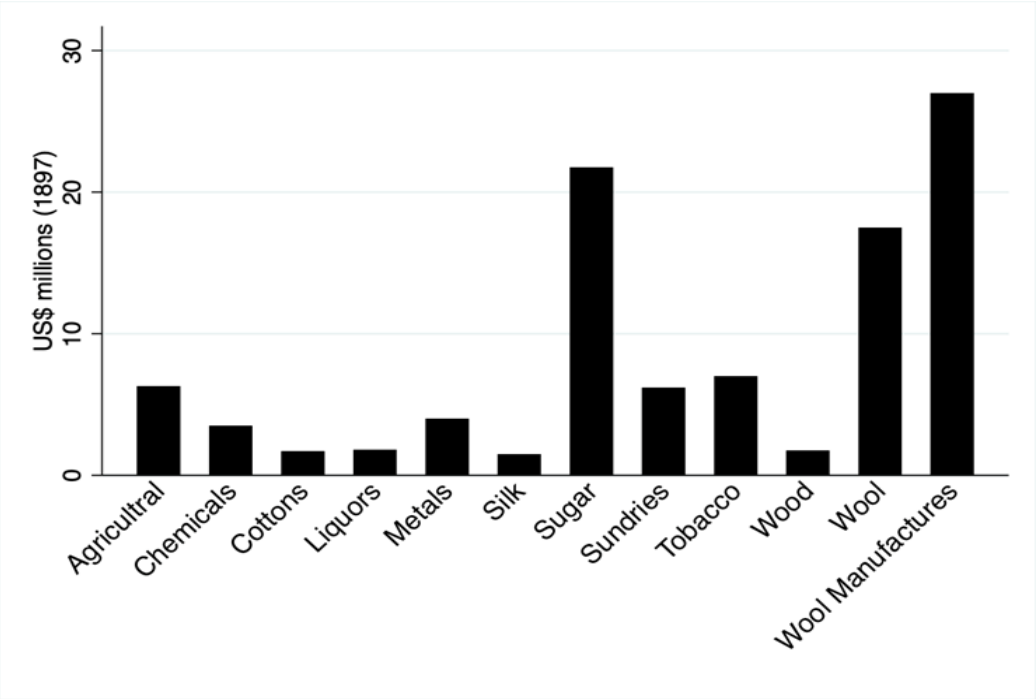
Figure 3
US Average Tariff Rates, 1880-1910

Tariff policy was a focal point of debates over how to get the US economy out of the depression. The political economy of these developments has been studied in depth.[18] In the decades leading up to the 1890s, Republicans had overseen a robust protectionist environment, though that changed after the panic of 1893 and the election of the Democratic president Grover Cleveland, an advocate for more liberal trade policies who reduced tariff rates. But Republicans continued to push for protectionism, and when they returned to power under William McKinley's presidency in 1897, protectionist policies reached new heights through the Dingley tariff which raised tariffs rates to historical highs. Representative Nelson Dingley, Republican from Maine and Chairman of the Ways and Means Committee, expected wool manufactures to be the most important source of duty revenues for the federal government after the protectionist legislation of 1897 was signed into law. His estimates of how much revenue the federal government could earn from tariffs on major categories of

goods subjected to prohibitively high tariffs are not accounted for; (2) the dispersion of import duties across goods is ignored; (3) economic interpretation is difficult (Irwin gives the example that an AVE of 50 percent might restrict trade as much as an AVE of 25 percent); and (4) nontariff barriers such as quotas are not accounted for in AVE estimates. Irwin's TRI and AVE measures are highly correlated (0.92 correlation coefficient), but the TRI levels are higher. Irwin has calculated a TRI for the US from 1867 to 1961. These estimates are shown in Figure 6. While both series follow a similar pattern, the TRI figures highlight how strongly protectionist the 1897 tariff legislation was. It would be useful to have TRI measures for all the countries in the sample to test whether the main results hold. But the only other historical TRI estimates of which I am aware are for Italy (Giovanni Federico and Michelangelo Vasta 2015).

[18] See, for example: Bent (2015a and 2015b)); Charles Hoffman (1970); Steeples and Whitten (1998); Taussig (1905 and 1934); and White (1982).

imported goods are presented in Figure 4. Dingley promoted this legislation in order to "encourage the industries of the United States," raise revenue for the federal government, and protect American workers which would in turn increase demand for American products.[19]



Source: The New York Times (1897).

Figure 4
Estimated Tariff Revenue, by Goods Category (1897 US$)

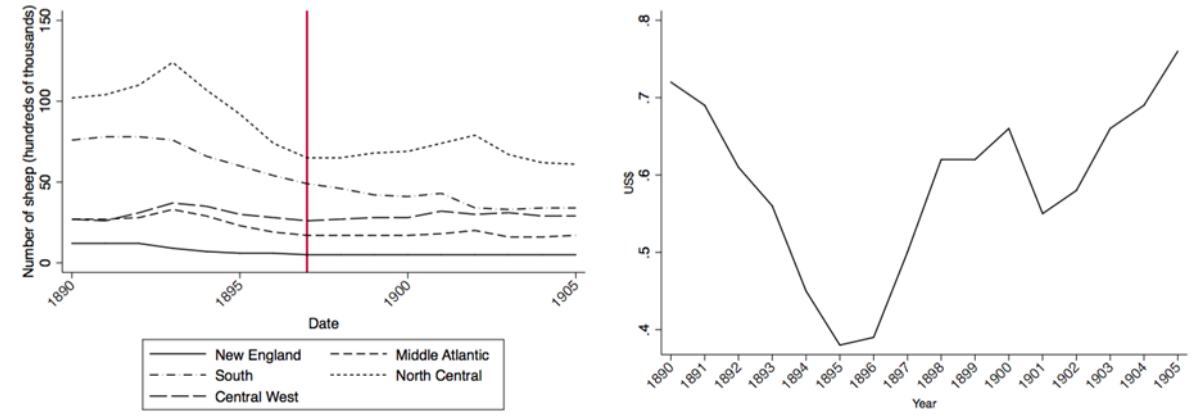
Advocating for these policies in 1897, Dingley and his fellow Republicans took advantage of the fact that Cleveland's tenure and policies overlapped with the mid-1890s depression, which they used to argue that protectionism would promote recovery. "As the years succeeding [the Panic of] 1893 grew blacker and blacker, the staunch protectionists had the opportunity to cry: 'We told you so; let us return to the policy of prosperity'" (Taussig 1964, 323).

Just because the Republicans argued that protectionism would promote prosperity does not mean that such a connection necessarily existed. Clarence A. Stern (1971, viii) argues that the Republican party at this time was "primarily a business-enterprise-promotion agency dedicated to the determination of tariff schedules by the protectionist beneficiaries themselves." That is, Republicans promoted tariff increases to benefit their allies' narrow business interests, without having broader macroeconomic objectives. But recent empirical studies have confirmed the Republicans' arguments. Sibylle H. Lehmann and Kevin H. O'Rourke (2011), for example, find a positive correlation between industrial tariffs and growth at this time, suggesting that the Republican tariff policy could have helped the US economy grow after the 1890s depression. And Lampe and Sharp (2013) find that while most of the turn-of-the-century countries in their study exhibit a negative correlation between tariffs and growth, the case of the United States stands out for having a positive relationship between

[19] Dingley argued that "revenue should be at least equal to expenditures, with the conviction that in adjusting duties to secure such equality it is a wise policy to encourage home production and manufactures, and thus provide employment at good wages for the laborers of our people, upon whose purchasing power depends the market for our products" (New York Times 1897).

these variables. Contrasting the results for the US case against the findings for other countries, they argue that "it seems plausible to assume that actually the United States was singular in the way this [tariff] policy was implemented and focused on protection of manufactures" (Lampe and Sharp 2013, 219). This fits with the qualitative evidence which highlights the Republicans' support for particular industries such as manufacturers of woolen goods (Figure 4). But the evidence is not conclusive. Irwin (2001) argues against making too much of the positive correlations that empirical analyses find between protectionist policies and economic growth: "That the high tariffs [of the turn-of-the-century United States] were accompanied by rapid growth and industrialisation was noted by contemporary proponents of protectionism and has been a source of controversy ever since" (ibid, 15).

Wool was one of the biggest beneficiaries of protection under the Dingley tariff (Figure 4). Like wheat, wool prices surged in 1897, and stayed at elevated levels through the beginning of the twentieth century (Figure 5, panel b). Interestingly, sheep production did not increase (Figure 5, panel a) the way that wheat production did (Figure 2, panel a). There was a gradual increase in the number of sheep being raised in the North Central states after 1897, but it is still surprising that more sheep were not raised in response to the higher prices under the Dingley tariff. This suggests that the Dingley tariff did not have a particularly strong impact on the agricultural sector.



(a) Sheep (hundreds of thousands) (b) Wool price (US$)

Sources: Sheep: Wright (1910, 298), from data in the wool manufacturers' *Bulletin*. Wool prices: Haines (2006).

Note: The number of sheep is measured in hundreds of thousands. The wool price is the wholesale price per pound. The vertical line marks 1897, the year the Dingley tariff was enacted. States in panel a are as follows. The North Central states are Ohio, Indiana, Illinois, Wisconsin, Michigan, West Virginia, and Kentucky. The South comprises Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, and Tennessee. The Central West states are Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and "Indian Territory." Chester Whitney Wright (1910, 298) does not define the Middle Atlantic or New England states, but presumably these include the states remaining outside of those listed above, in the appropriate regions.

Figure 5
Number of Sheep, and Wool Prices, 1890-1905

Regional trade data: United States

A regional analysis of the 1890s recovery in the United States addresses the fact that commodity price movements and tariff rate changes could affect different regions in different ways. Particular commodities experienced price increases at different times through the late 1890s, and tariff legislation strongly favored some products over others. As manufacturing and commodity production varied by region, looking closely at which regions recovered sooner and faster allows for connections to be drawn between price movements or increased tariffs rates and regional recovery patterns. This offers a more complete understanding of the recovery at a level of detail not available through national-level statistics.

It would be ideal if annual data were available for the 1890s covering all the census categories. Annual data on agricultural, manufacturing, demographic, and related trends in the economic development of the United States during this era would paint a much more complete picture of the impacts of the 1890s depression, where and when the recovery began, and what shape it took. Unfortunately, those data are generally only available by decade.[20] Decadal data are useful for analyzing longer-run changes in the US economy.[21] But to study the economic fluctuations during the 1890s depression requires data at a higher frequency than just 1890 and 1900.

Annual data tell a much more detailed story than decadal data, but monthly data are ideal because they can account for the timing of specific events with more precision, such as the enacting of the Dingley tariff. Toward this end, I have compiled monthly import and export data for specific US regions, from the *Summary Statement of the Imports and Exports of the United States* (pre-1896) and the *Monthly Summary of Foreign Commerce of the United States* (post-1896).[22] These data contribute in two ways to our understanding of the course of the 1890s depression and recovery, by moving beyond national-level annual data and instead presenting a picture of changes in the US economy at (1) monthly frequency and (2) regional levels.

An additional benefit of these data is that they are consistent and nearly comprehensive. That is, they cover the whole country and account for every month of the depression and recovery (with a few gaps). Previous regional studies of this depression offer important insights into how the depression impacted some regions differently from others, but not in a systematic way that allows for direct comparisons across different parts of the country. Closson (1894), for example, studies how unemployment trends varied across the country, based on surveys sent out to officials in a range of cities and towns. This offers interesting contemporary snapshots of unemployment during the depths of the depression, but only covers one year, and does not necessarily cover each region equally (because the study depended on the reliability of survey responses and the level of detail provided by each respondent).

Other research focuses more narrowly on particular regions during the depression (such as Robert C. Line 1912). This is useful for understanding how the depression impacted particular parts of the country, but it still faces the same limitation of not providing data that can be compared across regions. By presenting regional data, this analysis addresses claims made in previous research about regional differences during the recovery, such as White's (1939, 13-14) argument that "The contemporaneous reports were almost unanimous in the opinion that this recovery had first appeared in the West, but it was also reported, to a lesser extent in the East." Regional trade data allow for such claims to be tested.

Regional variations in the trajectory of the depression and recovery are important because the two main focuses of this literature—the impact that commodity price movements

[20] The historical census data are available, for example, from Haines, 2010.

[21] See, for example, Carol Heim (2000); Sukkoo Kim (1998); and Rodney Ramcharan (2010).

[22] There are some gaps in these data, such as for exports from the interior of the United States. The regions are defined in Table A1 in the Data Appendix.

and tariff changes had on the economy over the course of the depression—played out differently across the country depending on the characteristics of regional economies. Farnsworth (1934), Nelson (2012), Rezneck (1953), and White (1939), for example, all argue that rising wheat prices played a significant, if not the most important, role in helping the economy recover from the depression. Others have argued that the high tariff rates of the Dingley Act helped encourage investment and growth as expectations were stabilized, domestic industry was protected from foreign competition, and customs revenue helped secure government finances.[23] But growth trajectories could vary at the regional level within countries, and tariffs could impact different regions in disparate ways depending on the economic activity defining each region. The same is true for commodity price swings. By analyzing new series of regional economic data at monthly frequency, this study moves beyond research which drew conclusions at the national level about which factors had the most impact on the course of the 1890s depression and recovery.

The first trend that stands out from the data on imports (Figure 6) is that people anticipated the tariff increases of July 1897 by massively increasing the amount of goods they imported in the months before the higher tariff rates took effect (in each region except for the Interior). This was after McKinley was elected (winter/spring 1896-87) and right before the Dingley Act was enacted (summer 1897). In the Atlantic and Gulf ports, imports were then generally reduced for about 18 months, before picking back up in 1898.[24] The Pacific and Northern ports saw imports rebound sooner, while imports in Interior ports fluctuated more variably. The Atlantic ports accounted for the vast majority of the imports to the United States at this time. While there was a spike in imports in Atlantic ports in the first half of 1898, a sustained increase in imports did not begin until the final few months of that year. Using imports as an indicator of general economic conditions, this suggests that the US economy did not begin to fully recover from the mid-1890s depression until the end of 1898, well after the Dingley Act. By this measure, if there was a positive impact of protectionism on economic activity this effect was only seen over a year after tariff rates were increased.[25]

The export data (Figure 7) cast further doubt on the argument that higher tariff rates caused the recovery from the mid-1890s depression. While these data show clear seasonal fluctuations, there are discernible long-run trends. In the Atlantic, Pacific, and Northern ports, exports fell in 1893, the year of the panic. Then, in all four regions (Atlantic, Pacific, Northern, as well as Gulf ports), exports began a general increase from 1894-95 (looking at general trends, rather than seasonal fluctuations). This indicates that exports began picking up well before the 1897 return to protectionism, thus further undermining claims that the Dingley tariff was instrumental to the post-1897 recovery.[26]

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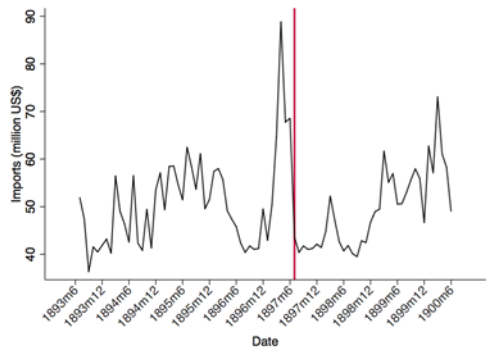
[23] See Bent (2015a and 2015b); White (1982); and E.O. Wolcott (1900).

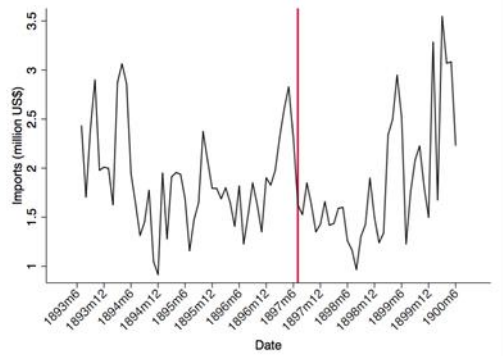
[24] These import data do not appear to be as influenced by seasonality as the export data (Figure 7).

[25] Expectations that tariff rates would increase under a Republican administration in 1897 caused some manufacturers to invest in capital projects as early as 1894 (L.D.H. Weld 1912, 92). This indicates that any stimulus the Dingley tariff provided the US economy could have occurred before 1897, as well as after. Still, there was not a sustained increase in imports until later in that decade.

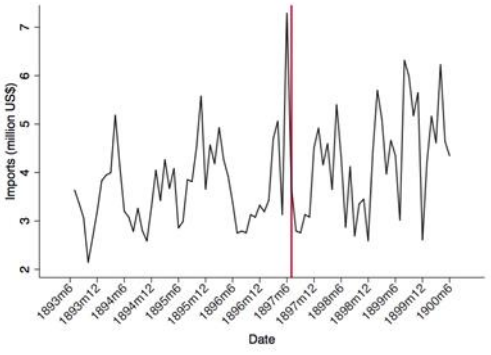
[26] If the protectionist Dingley tariff had a widespread positive impact on US manufacturing, those firms could have increased their production of export goods as well as goods for the domestic market. Since one of the main beneficiaries of the Dingley tariff was the woolen manufactures industry, if protectionism encouraged the production of these goods for export that would be seen in the regional export data, specifically in the Atlantic ports, as much of this manufacturing was based in the Northeast. Table A2 in the Data Appendix shows the percentage of the workforce, by state, that was engaged in agriculture versus other sectors. These Census data actually discount the importance of agriculture in the US economy at this time (1900), because they do not account for independent farmers, only farm laborers. These data confirm that the Northeastern and northern Midwestern states tended to have a much higher percentage of workers engaged in non-agricultural sectors such as manufacturing. The



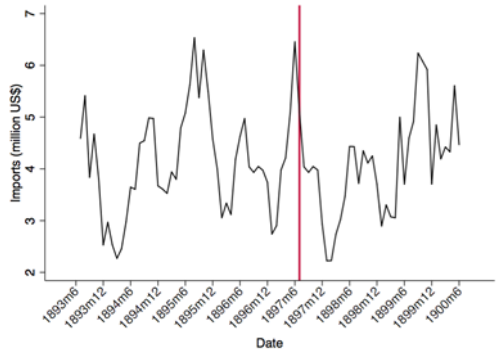
(a) Atlantic



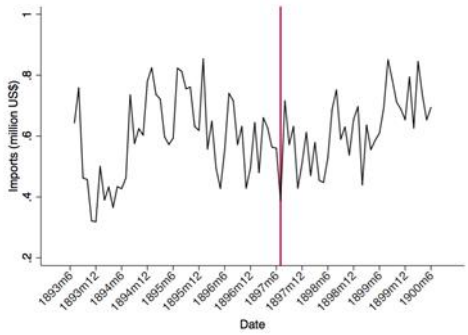
(b) Gulf



(c) Pacific



(d) Northern

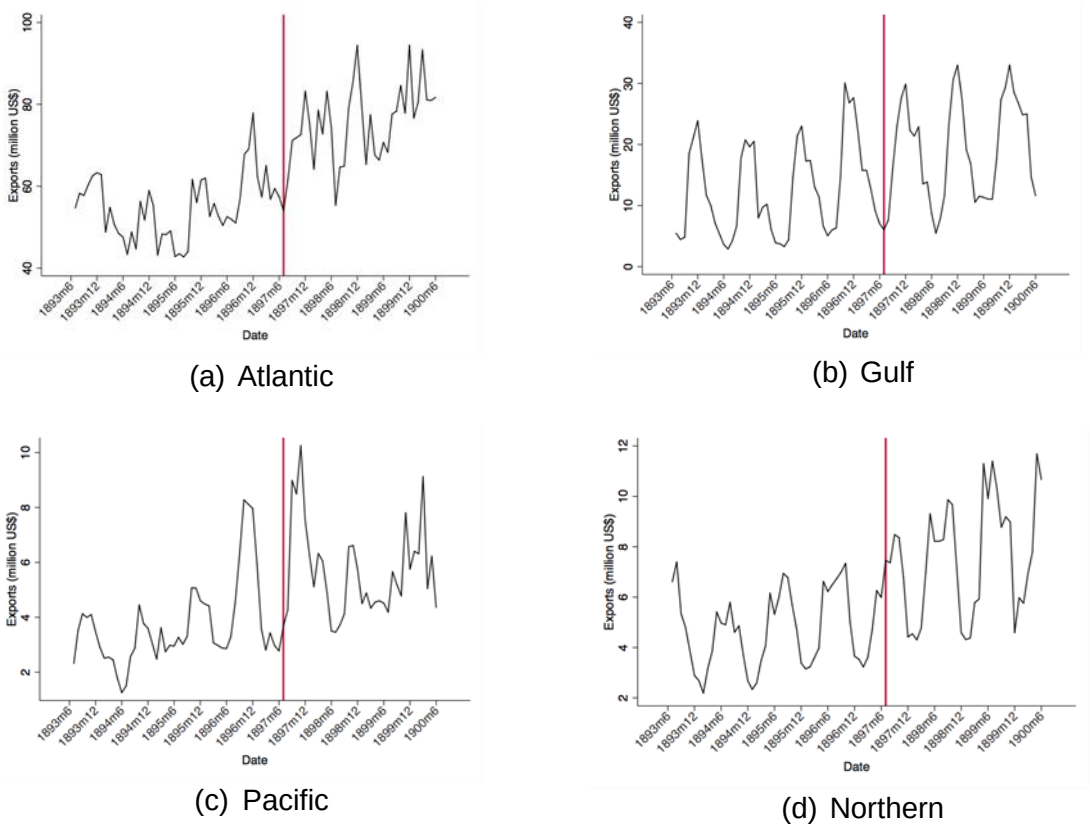


(e) Interior

Sources: *Summary Statement of the Imports and Exports of the United States* [pre-1896 data] and *Monthly Summary of Foreign Commerce of the United States* [post-1896].
Note: The vertical line in each graph indicates the month and year (July 1897) when the Dingley tariff legislation was signed into law.

Figure 6
Imports (monthly data; million US$), 1893-1900

export data for these more industrialized regions do not indicate that the Dingley tariff had a significant impact on US exports of manufactured goods. Additionally, the trade data do not show an increase in the export of manufactured goods, as the more obvious seasonality of the export data presumably indicates the continued dominance of commodities among US exports (versus manufactures among imports) even after 1897.



(a) Atlantic (b) Gulf

(c) Pacific (d) Northern

Sources: *Summary Statement of the Imports and Exports of the United States* [pre-1896 data] and *Monthly Summary of Foreign Commerce of the United States* [post-1896].
Note: The vertical line in each graph indicates the month and year (July 1897) when the Dingley tariff legislation was signed into law. Export data are not available for the "interior" region of the United States for these years.

Figure 7
Exports (monthly data; million US$), 1893-1900

Case study: Argentina

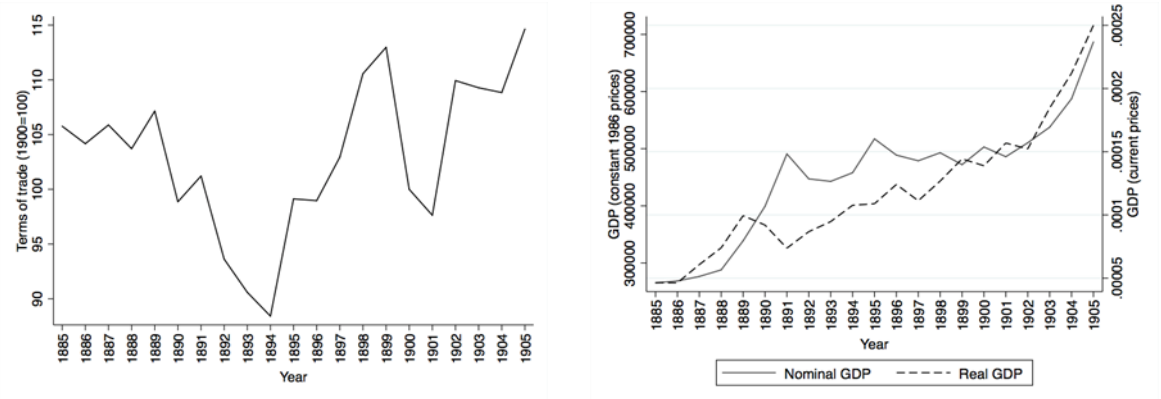
Terms of trade and recovery: Argentina

Terms of trade and GDP data for Argentina are presented in Figure 8. Panel a shows terms of trade falling sharply during the early and mid-1890s before rising again just as sharply through 1899, suggesting that decreased prices for agricultural exports after the Baring Crisis kept the Argentinian economy stuck in a recession, before rising export prices helped that economy grow again in the mid-1890s.[27] The trajectory of the consumption index for Argentina also broadly follows these trends (Figure 9).

An important part of the connection between low export prices and Argentina's prolonged recession was the significant lag between loans for investment projects and the time when the gains from the investments were realized. For example, a loan might be taken out to construct a railroad to bring agricultural products from the hinterland to the coast for export, but it could take at least several years for the railroad to be built and for the newly accessible farmland to start yielding profitable amounts of crops. Thus when something like

[27] Panel b shows the real and nominal GDP data, which both show the depression after the 1890 crisis.

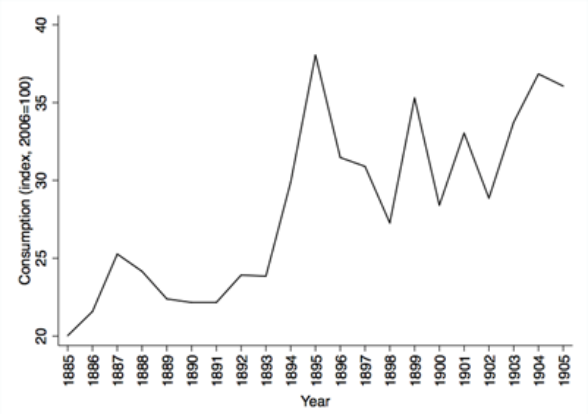
the Baring Crisis occurred, funds that were tied up in long-term projects were not available to deal with problems such as Barings' failed loans to the Buenos Aires Water Supply company. Exports are relied upon to provide revenue which can fund investment projects as well as pay for imports. But in a developing economy the time frame of big investment projects can result in a mismatch between when funds are needed (to service loans and pay for imports) and when they are actually available.[28]



(a) Terms of Trade (b) Nominal and Real GDP (US$)

Sources: Panel a: Blattman, Hwang, and Williamson (2007). Panel b: Gerardo della Paolera, Alan M. Taylor, and Carlos G. Bózzoli (2003) [based on Williamson (1999)].

Figure 8
Argentina Terms of Trade and GDP, 1885-1905



Source: Barro and Ursua (2010).

Figure 9
Argentina: Consumption, 1885-1905

[28] I have not seen data to suggest that this issue was as prominent in the United States as it was in Argentina. The United States had significant domestic investment in railroads, so if this issue did exist it would not be as systemically destabilizing as it was in Argentina. Also, the US economy was more developed and diverse by this time, so the impact of particular investment projects would be much less than in the Argentinian case.

For Argentina, Ford identifies this process as occurring in the following sequence: First, foreign borrowing peaked in 1888. Imports then reached their zenith in 1889. Railroad construction did not peak until 1891. Grain production and exports only rose in volume beginning in 1893. But the Baring Crisis occurred in 1890, and foreign lending to Argentina took a major hit.[29] The problem was that "Foreign debt-service charges, which were payable once the debts had been incurred, had a large element fixed in terms of gold and bore on the economy immediately. They remained in 1889 and onward, whilst borrowing vanished almost immediately" (Ford 1956, 139). Focusing more closely on exports, Ford finds that they "showed no increase in value over 1889 figures until 1898, owing to the slow maturing of investment projects, to climatic conditions, and to the slump in world prices of Argentine exports between 1890 and 1896" (ibid). Only when these conditions changed, and export prices increased, did the economy recover from the depression.

Ford analyzes export data for maize, wheat, wool, fleeces, and hides from 1887-94 (Table 1). The second column lists the annual nominal values for these combined exports during this period. The third column adjusts these values based on an average of the prices for these goods from 1885-89.[30]

Table 1
Argentina: Exports of Maize, Wheat, Wool, Fleeces, and Hides, 1887-94 (mil. USD)

Year	At Current Values	At 1885-89 Prices	Price Effect
1887	65.5	69.0	-3.5
1888	74.5	70.5	+4.0
1889	91.5	75.5	+16.0
1890	77.0	86.5	-9.5
1891	67.5	79.0	-11.5
1892	87.0	97.0	-10.0
1893	63.5	100.5	-37.0
1894	72.5	136.5	-64.0

Source: Ford (1956, 144, Table IV).

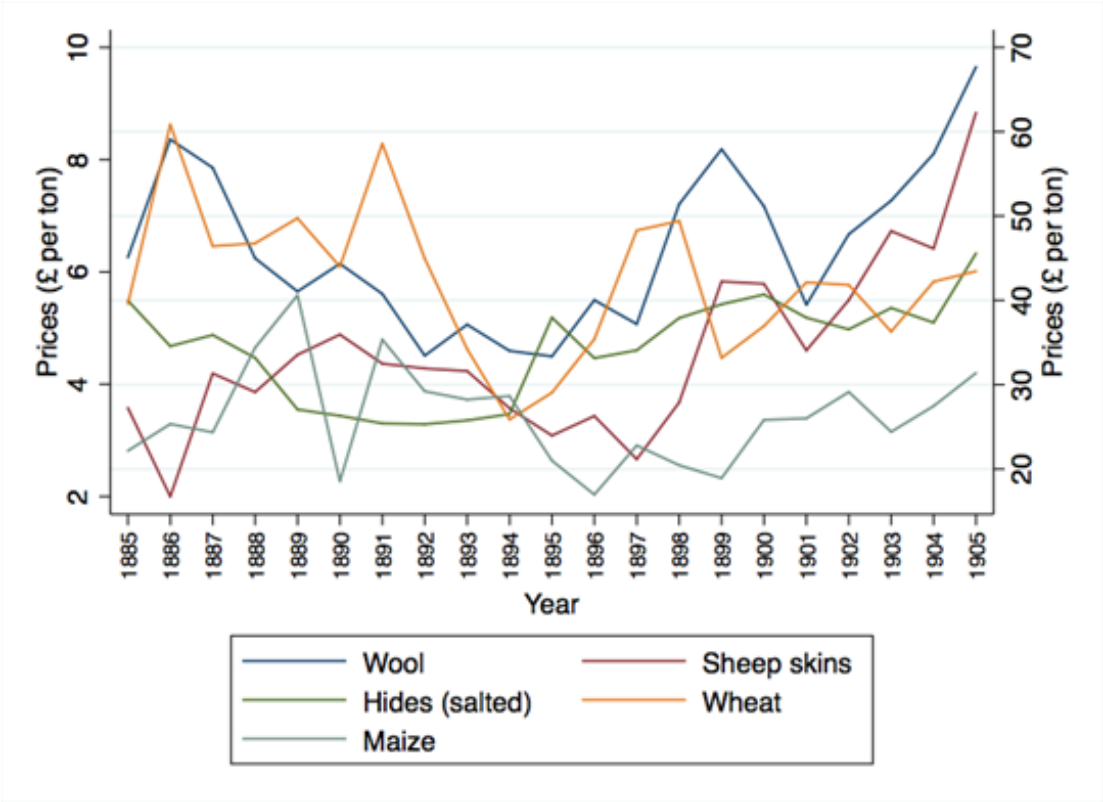
To highlight the adverse price conditions facing Argentinian exports from 1887-94, Ford subtracts the values found using the average of 1885-89 prices from the actual nominal values. The results are shown in the fourth column of Table 1. The "price effect" is negative for 1887, then positive in 1888 and 1889, before becoming negative again in 1890. From 1890-94 the trend of the price effect is to become increasingly negative. It is US$9.5 million in 1890 and US$64 million in 1894. These findings fit Ford's narrative—decreasing prices for exports

[29] This is supported by Stone's (1999) data. See Figure A2 in the Data Appendix.

[30] Ford does this after first indexing the prices based on 1889, but then argues in favor of the averaging approach (the one used to find the values in the third column of Table 1). Justifying his methodology, Ford rhetorically asks: "is it appropriate to use 1889 prices for revaluing? For wool prices reached a peak in that year, and by value wool and fleeces formed roughly half of exports. Surely it would be better to use some average of prices—say 1885 to 1889—to measure the effect of changing export prices over the whole period of boom and crisis" (Ford 1956, 143).

exacerbated Argentina's crisis, since low prices for exports meant less income for Argentina, thus making it difficult to service debts, finance development-promoting infrastructure projects, and generally recover from the 1890s depression.

More recently compiled data on Argentinian prices are available from Joseph A. Francis (2014). To extend Ford's analysis, I present the price series for the same set of export goods (maize, wheat, wool, sheep skins, and salted hides) in Figure 10.[31] Ford's focus was on the depth of the depression, and the data from Francis confirm that prices fell through the mid-1890s. Francis' data also allow us to see when prices rose, with the general pattern being that commodity prices did not see generally higher levels until the last few years of that decade (despite some earlier spikes, such as the price of hides in 1895). These price trends align with the new Argentinian price index developed by Tena-Junguito and Willebald (2013, 41) for this period, as well as with the terms of trade estimates from Blattman, Hwang, and Williamson (2007). Agricultural production also expanded massively around this time, as the total cultivated land in Argentina grew from 40,000 to 143,000 square kilometers between 1895 and 1914, during what has been described as an "agricultural revolution on the pampas" (Pablo Fajgelbaum and Stephen J. Redding 2014, 9). These swings in commodity prices and agricultural production are correlated with the general movement of the Argentinian economy over the last decade of the nineteenth century, from the depression of the early-to-mid-1890s to the recovery over the latter half of that decade.



Source: Francis (2014).

Figure 10
Argentina: Prices, 1885-1905

[31] From 1895-1899, maize made up 10 percent of Argentinian exports, wheat 13 percent, wool 37 percent, and hides 8 percent (Antonio Tena-Junguito and Henry Willebald 2013, 46).

Tariffs and recovery: Argentina

Average tariff rates in Argentina over the 1890s followed a similar course as in the United States, fluctuating from a high above 30 percent to a low of close to 20 percent. Average tariff rates in Argentina are shown in Figure 11. Tariff rates were lowest immediately after the 1890 crisis and had sharp increases a couple years later and again at the end of the decade.

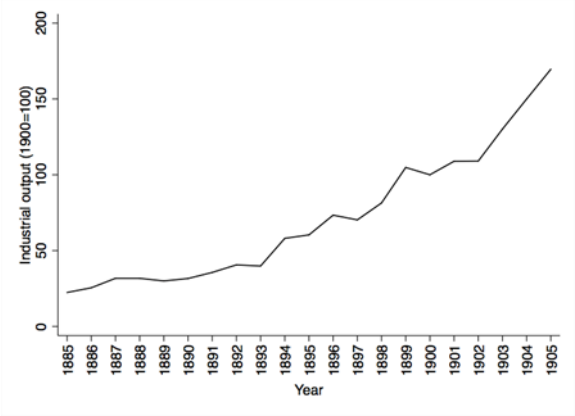
Source: Clemens and Williamson (2004).

Figure 11
Argentina: Average Tariff Rate

More detailed tariff information for select years over this period is available from Agustina Rayes (2018) and is presented in Table A3 in the Data Appendix. These rates are from 1895, which Rayes (2018, 3) argues is an illustrative example of the type of tariff legislation that was enacted in Argentina in the 1890s. The 1895 customs legislation had tariff rates that ranged from zero to 50 percent (ibid, 18 and 31). Zero or low tariff rates were reserved for imports that were inputs in Argentinian industries, such as metals, cotton, and railway components. Higher tariffs were placed on goods that competed with domestic production (such as clothing and tanned leather) or were deemed potentially socially problematic (guns and ammunition). While lower tariff rates on selected imports were helpful to Argentina's domestic industry, Argentinian politicians at the turn of the twentieth century did not direct tariff policy toward promoting industrialization, but rather used it as a way to generate government revenue (María Inés Barbero and Fernando Rocchi 2003, 267; José Carlos Chiaramonte 2012, 190-194, cited by Rayes 2018, 13; John H. Coatsworth and Jeffrey G. Williamson 2004, 224; and Rayes 2018, 24). Along these lines, Barbero and Rocchi (2003, 268) note that “selective tariff protection was very far from being part of a grand plan for industrial promotion” in turn-of-the-century Argentina.

Though Argentina was a predominantly agricultural economy at the turn of the twentieth century, this was one of the fastest periods of industrial growth in Argentinian history. Barbero and Rocchi (2003, 264) argue that this was driven by the integration of Argentina’s economy into the world market rather than protectionism. The development of industrial output in Argentina over this period is shown in Figure 12. Industrial output rose consistently across this period, averaging 8.04 percent annual growth from 1875-1900, and 7.82 percent annual growth from 1901-12 (ibid, 267). While the industries driving this growth, such as textile production, did benefit from protectionist policies, they relied heavily on imported inputs (ibid, 268-269). And it is important to place this industrial growth in the context of the agriculturally-oriented Argentinian economy: in the years before World War One, 99.7 percent of Argentinian

exports were primary products, so even if tariff policies benefited Argentinian manufacturing industries that would not have had a big enough impact on overall output to have driven the recovery (Yael S. Hadass and Jeffrey G. Williamson 2003, 636).



Source: Barbero and Rocchi (2003, 265, Table 9.2).

Figure 12
Argentina Industrial Output (1900=100)

The debates surrounding tariffs and crises were in some ways similar in Argentina to those in the United States, mainly regarding concerns about changes in international prices during crisis periods (Rayes 2018, 13). But infant industry arguments did not play a role in these discussions in Argentina as they did in the United States. Instead, protectionists in Argentina focused on the role of tariff revenues as benefiting government finances, without framing their arguments in terms of promoting renewed economic growth in general in the aftermath of the crisis. Overall, the case for tariff rate changes in Argentina driving the recovery from the 1890 crisis is much less clear than for the comparable (1890s) situation in the United States (and that connection in the US case is already hard to establish). Tariff rates fluctuated more erratically in Argentina and did not show a clear trend after the 1890 crisis, in contrast to the clear upward trend in both tariff rates and economic output in the United States from 1897 onward. Tariffs in the United States benefited agriculture as well as manufacturing and were based at least in part on infant industry concerns, in contrast to the tariffs in Argentina which were spread across a range of goods and were primarily intended to produce revenue for the government. While primary products made up 99.7 percent of Argentinian exports in the years before World War One, they only accounted for 73.3 percent of US exports at that time (Hadass and Williamson 2003, 636). Protectionist policies that favored manufacturing would thus have had a wider economic impact in the United States than in Argentina at this time, though the US evidence still suggests that this effect on the recovery was not as great as the impact of rising commodity prices. In the more diversified US economy, manufacturing and agricultural interests could vie for favorable tariff treatment. But the Argentinian economy was much more centered around agriculture, so manufacturers were less able to influence protectionist policies to their advantage compared to manufacturers in the United States. While wool manufacturers pressured the US Congress to change tariff rates in their favor, “Argentina possessed virtually no economic production or services which were independent of, or in conflict with, the dominant pastoral interests which controlled the state” (Donald Denoon 1983, 159). The political influence of agricultural interests meant that agricultural export price changes impacted the Argentinian economy more than did any moves toward protectionism.

Conclusion

The recoveries from the major financial crises in the United States and Argentina in the 1890s were driven more by rising commodity prices than by protectionist trade policies. These crises were particularly severe, and more comparative research needs to be done to see how the experiences of these countries during the 1890s differed from crises in other decades and in other countries.[32]

These crises had far-reaching implications. The Baring Crisis in Argentina dashed Europeans' hope of finding a "new America," while the 1890s depression in the United States led to the Republican presidential candidate being elected in 1896 and the implementing of some of the strongest protectionist policies ever seen in that country. These crises also had international repercussions in addition to the problems they caused domestically, by destabilizing economies with which they shared trade and financial ties (Kindleberger and Aliber 2005, 119).

For both the United States and Argentina, low export prices coincided with the 1890s depressions, and higher commodity prices then helped propel the subsequent recoveries in those economies. The connection between tariff rate changes and these recoveries is much less clear. Other economic and political issues were also influential, and future research can build on this analysis by looking at related factors in more detail. For example, it would be informative to measure the impacts that increased export revenue had on investment and consumption patterns. Also, it would be useful to look in greater depth at the international connections between the United States, Argentina, and other countries, and to construct an analysis of this period focusing specifically on the effects that events in one country had in other countries. This could also more explicitly incorporate an analysis of the impact that declining transportation costs had on commodity prices, and how that impacted crises and recoveries.[33] Additionally, the importance of individual commodities can be quantified with more precision to get a better understanding of these economies. Other political developments also need to be taken into account when looking at how certain policies came into being.[34]

Agricultural price, production, and export data suggest that positive changes in commodity market conditions played more of a role in the recoveries from the 1890s crises in the United States and Argentina than did any turn to protectionism in these countries. In both countries, the 1890s depressions were set off by financial panics that were then followed by unfavorable markets for their main exports. These economies then recovered when commodity export prices increased. Tariff changes in the United States were not connected to increased agricultural production, and US exports began increasing in the 1890s well before the move toward protectionism. Tariffs in Argentina were more focused on generating government revenue than on supporting domestic industry and were not increasingly protectionist during this period. Governments played increasingly prominent roles in supporting economic recoveries from subsequent crises in the twentieth and twenty-first centuries, but the recoveries from the 1890s depressions in the United States and Argentina were driven more by market conditions for agricultural commodities than by changes in tariff rates.

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[32] The terms of trade and GDP per capita data are averaged across the countries in the sample of Clemens and Williamson (2004) in Figure A3 in the Data Appendix. The 1890s stand out for having an especially deep trough followed by a sharp peak in the terms of trade data. Thus this period is unique and these findings are not necessarily similar to lesser crises and less pronounced movements in terms of trade in other periods.

[33] For more on transportation costs and commodity prices see Roberto Cortés Conde (2003); Pablo Gerchunoff and Lucas Llach (2008); David S. Jacks and Krishna Pendakur (2010); David S. Jacks, Christopher M. Meissner, and Dennis Novy (2010); and Rayes (2015).

[34] The "free silver" movement in the United States is one example (Milton Friedman and Anna J. Schwartz 1963, 113-119).

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Data Appendix

Table A1
US Ports by Region

Region	Port		
Atlantic	Alexandria, VA	Aroostook, ME	Baltimore, MD
	Bangor, ME	Barnstable, MA	Bath, ME
	Beaufort, SC	Belfast, ME	Boston and Charleston, MA
	Bridgeton, NJ	Bristol and Warren, RI	Brunswick, GA
	Castine, ME	Charleston, SC	Delaware
	Edgartown, MA	Fairfield, CT	Fall River, MA
	Fernandina, FL	Frenchman Bay, ME	Georgetown, DC
	Georgetown, SC	Gloucester, MA	Great Egg Harbor, NJ
	Hartford, CT	Machias, ME	Marblehead, MA
	Newark, NJ	New Bedford, MA	Newburyport, MA
	New Haven, CT	New London, CT	Newport, RI
	Newport News, VA	New York, NY	Norfolk and Portsmouth, VA
	Pamlico, NC	Passamaquoddy, ME	Perth Amboy, NJ
	Petersburg, VA	Philadelphia, PA	Plymouth, MA
	Richmond, VA	Portsmouth, NH	Providence, RI
	Richmond, VA	Saco, MA	St. Augustine, FL
	St. Johns, FL	St. Marys, GA	Salem and Beverly, MA
	Savannah, GA	Stonington, CT	Waldoboro, ME
	Wilmington, NC	Wiscasset, ME	
Gulf	Apalachicola, FL	Brazos de Santiago, TX	Corpus Christi, TX
	Galveston, TX	Key West, TX	Mobile, AL
	New Orleans, LA	Paso del Norte, TX	Pearl River, MS
	Pensacola, FL	St. Marks, FL	Saluria, TX
	Tampa, FL	Teche, LA	
Pacific	Alaska	Arizona	Humboldt, CA
	Los Angeles, CA	Oregon	Southern Oregon
	San Diego, CA	San Francisco, CA	Willamette, OR
Northern	Buffalo Creek, NY	Cape Vincent, NY	Champlain, NY
	Chicago, IL	Cuyahoga, OH	Detroit, MI
	Duluth, MN	Dunkirk, NY	Erie, PA
	Genesee, NY	Huron, MI	Miami, OH
	Michigan	Milwaukee, WI	Minnesota
	Montana and Idaho	Niagara, NY	North and South Dakota
	Oswego, NY	Sandusky, OH	Superior, MI
	Vermont		
Interior	Albany, NY	Atlanta, GA	Cincinnati, OH
	Columbus, OH	Council Bluffs, IA	Denver, CO
	Des Moines, IA	Dubuque, IA	Evansville, IN
	Kansas City, MO	Lincoln, NE	Louisville, KY
	Memphis, TN	Nashville, TN	Omaha, NE
	Pittsburgh, PA	St. Joseph, MO	St. Louis, MO
	Sioux City, IA	Springfield, MA	Syracuse, NY

Source: see text.

Table A2
US Workers, Agricultural vs. Nonagricultural, by State or Territory, 1900

	Number of workers				Number of workers		
State	AG	NONAG	% AG	State	AG	NONAG	% AG
Alabama	543,500	219,600	71	Nebraska	201,400	172,600	54
Arizona	17,600	35,700	33	Nevada	6,600	13,200	33
Arkansas	362,600	123,200	75	New Hamp.	41,700	137,000	23
California	161,500	482,700	25	New Jersey	77,000	680,700	10
Colorado	48,700	169,600	22	New Mexico	34,900	31,100	53
Connecticut	49,100	336,500	13	New York	413,600	2,582,800	14
Delaware	21,900	51,100	30	N. Carolina	493,600	223,100	69
D.C.	1,700	125,200	1	N. Dakota	76,500	41,200	65
Florida	91,300	110,300	45	Ohio	466,500	1,079,400	30
Georgia	557,300	307,100	64	Oklahoma	197,900	68,500	74
Idaho	29,800	32,900	48	Oregon	64,200	105,400	38
Illinois	517,000	1,287,000	29	Pennsylvania	389,600	2,059,000	16
Indiana	385,000	513,900	43	Rhode Island	11,800	180,200	6
Iowa	403,200	386,200	51	S. Carolina	419,500	151,700	73
Kansas	291,300	216,400	57	S. Dakota	87,300	49,900	64
Kentucky	442500	310,100	59	Tennessee	449,500	278,100	62
Louisiana	329,500	206,600	61	Texas	696,000	337,000	67
Maine	85,100	191,700	31	Utah	33,000	51,600	39
Maryland	108,700	350,100	24	Vermont	54,100	80,800	40
Massachusetts	71,500	1,136,900	6	Virginia	335,900	326,500	51
Michigan	345,300	560,600	38	Washington	60,500	164,900	27
Minnesota	280,700	365,200	43	W. Virginia	168,900	156,800	52
Mississippi	516,400	128,800	80	Wisconsin	298,600	433,900	40
Missouri	501,700	619,700	45	Wyoming	15,500	28,800	35
Montana	31,100	83,700	27	US total	11,288,000	17,785,200	39

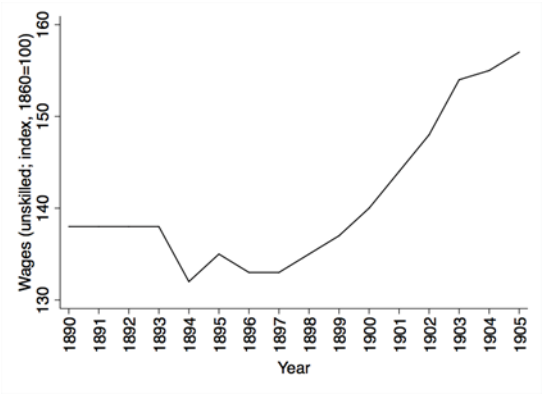
Source: Everett S. Lee et al. (1957, 609-21, Table L-4) based on Census data.
Note: AG and NONAG stand for agricultural and nonagricultural, respectively.

Table A3
Argentina: Tariff Rates in 1895

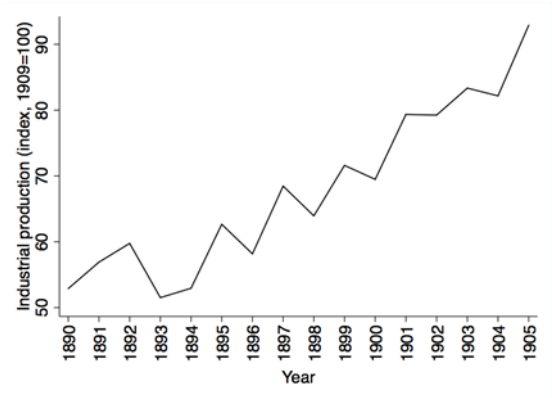
Tariff	Good		
0%	Cork	Animals	Ships
	Reaper/thresher/gleaner	Metal coins	Charcoal/coal
	Bottles for packaging	Coke	Wheat
	Fresh fruit	Locomotives	Materials for school
	Fresh fish	Water filters	Silver
	Sugarcane	Firewood	Corn/wheat flour
2.50%	Cotton	Impure sulfur	Hops
	Zinc for packaging	Bark	Gemstones
5%	Jewels	Wires for reapers	Wire for fences
	Ploughs	Quicksilver	Gum
	Threads for mowers/reapers	Agricultural machinery parts	Spun wool
	Sewing machines	Burlap	Seeds
	Saffron	Sewing machine needles	Bricks
10%	White lead	Thread for candles	Antimony
	Lead	Tar	Lime sulfate
	Iron for bridges	Cocoa	Materials for railroads
	Malt	Small boats	Machine parts
	Fats	Tins	Materials for tramways
	Carded jute	Pitch	
15%	Pines	Silk fabrics for sieves	
20%	Textile fabrics		
40%	Textile bags	Iron boxes	Silk fabrics
	Tanned leather/skins	Wool blankets	Fine laces
	Match boxes		
45%	Socks		
50%	Weapons	Ammunition	Gun powder
	Cartridges for weapons	Canes with swords	Clothing
	Suitcases/trunks	Furniture	Hats
	Harnesses	Carriages	

Source: Rayes (2018, 31).

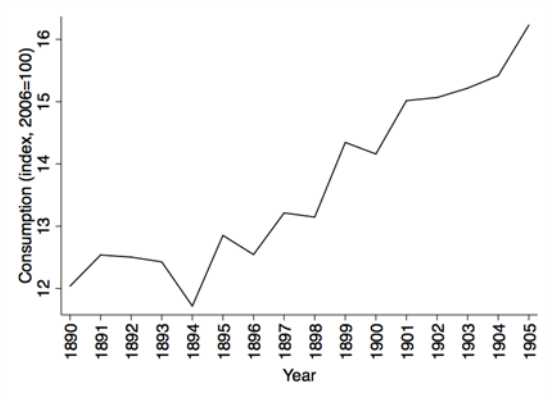
(a) Unemployment



(b) Wages



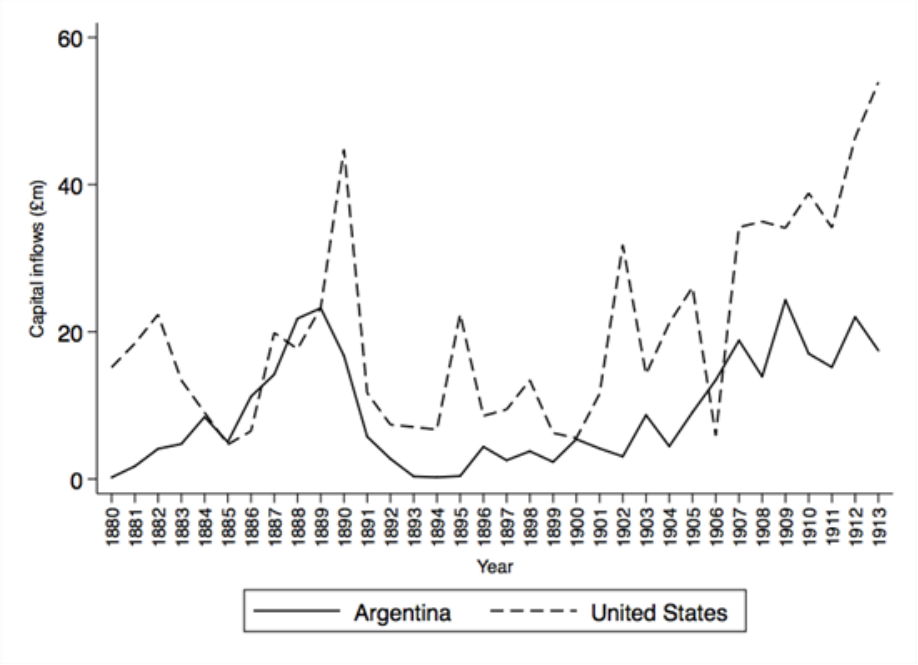
(c) Industrial production



(d) Consumption

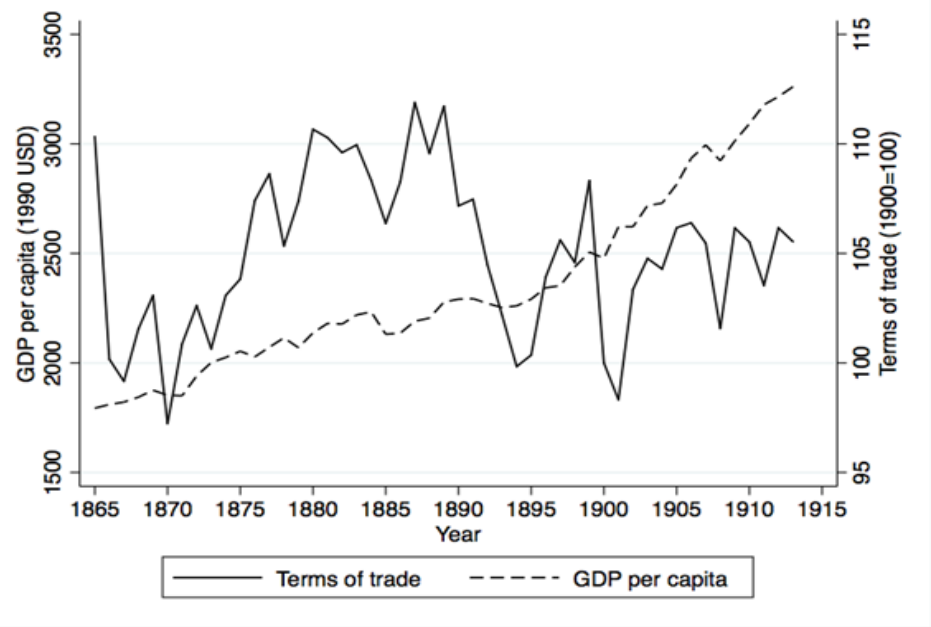
Sources: Unemployment: Owyang, Ramey, and Zubairy (2013); Wages: NBER Macrohistory Database; Industrial production: Richard Sutch (2006) [Miron-Romer 13 component index (1909=100)]; Consumption: Barro and Ursua (2010).

Figure A1
US Economic Indicators, 1890-1905



Source: Stone (1999).

Figure A2
Gross British Capital Flows (£m) to Argentina and the United States, 1880-1913



Source: Clemens and Williamson (2004).
Note: Excluded from this subsample are the countries of the European core and countries that did not experience a financial crisis over this period.

Figure A3
Terms of Trade and GDP per Capita for 30 Peripheral Economies, 1870-1913