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**ABSTRACT**

The last decade has seen an outpouring of scholarship on the economics of the Great Depression. If there is anything approaching a consensus, it is a synthetic view which admits a role both for monetary policy mistakes and for the international monetary and financial system in transmitting those destabilizing impulses to the rest of the world. It explains the speed and extent of the subsequent decline in terms of both banking crises and the collapse of the gold standard, which conspired in placing deflationary pressure to different degrees on different countries. And, it explains the eventual recovery in terms of the abandonment of the gold standard, which facilitated the pursuit of stabilizing monetary policies, but also in terms of the restoration of stability to banking and financial systems, something that occurred at different times in different countries. One way of understanding the veneer of disputation on this consensus is that different elements dominated in different countries. For the United States, there is no denying the role of monetary policy mistakes in the onset of the Depression, whereas for other countries international monetary instability played the most important part.

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## Still Fettered After All These Years<sup>1</sup>

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I may have been the only one who noticed that 2002 was the tenth anniversary of *Golden Fetters*, these kind of things tending to have significance only for the author. Whatever impact this volume may have had is due in no little part to the title, which invokes Keynes' description of the impact of the gold standard on economic policy during the 1930s. In fact, not everyone thought that this title was particularly marketable. I recently rediscovered a letter, circa 1991, from my editor at Oxford University Press. "Barry," he wrote, "I have the impression that we still don't have a final title that we all like... 'Golden Fetters' sounds just a little old fashioned... Permit me to suggest that you should consider the following: 'World Finance in Chaos: How the Gold Standard Contributed to, and Prolonged, the Great Depression, 1919-1939' or 'The Collapse of the World Financial System, 1919-1939.'" Some advice, it would seem, is best ignored.

This is not to say that scholars today necessarily agree that the gold standard was a central factor in the Depression. Not all economists place the same emphasis as I on the implications of the operation of the international monetary system. To be sure, it is now commonplace to regard the depression of the 1930s as a global phenomenon, which is very different from the U.S.-centric approach that long dominated the literature.<sup>2</sup> It is now standard to test hypotheses by

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<sup>1</sup>This is the text of the 2002 Mackintosh Lecture, delivered at Queen's University, September 2002. I thank Muge Adalet for helping with various calculations related to this paper.

<sup>2</sup>The literature when I first encountered it was dominated by the debate between Friedman and Schwartz (1963) and Temin (1976), both of which focused on the United States.

comparing countries that experienced relatively mild and severe depressions and by asking whether their contrasting experiences can be explained by differences in their policies. But it is not universally agreed that the structure and operation of the interwar gold standard explain why so many countries experienced sharp and disruptive downturns in the early 1930s, or that the abandonment of the gold standard was the single most important factor shaping the course of recovery.

Indeed, the last decade has seen an outpouring of scholarship disputing virtually every aspect of the conventional wisdom on the Great Depression. Where does it leave us? How much has been learned? What questions remain to be addressed? In this lecture, as in my book (some habits die hard), I organize my answers to these questions around the three phases of the depression – the onset, the downward spiral, and the recovery.

## **1. The Onset of the Great Depression**

Four decades ago, Friedman and Schwartz (1963) made the case for U.S. monetary policy as the key factor in the onset of the depression. As reviewers from Tobin (1965) to Romer and Romer (1989) have observed, it is the depth and breadth of historical detail that renders their account so compelling. The most difficult challenge for any analysis of money and output, and hence for the monetary interpretation of the onset of the Great Depression, is the identification problem.<sup>3</sup> Friedman and Schwartz used historical detail to make the case that the monetary

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Kindleberger (1973) was a notable exception to this generalization.

<sup>3</sup>Temin famously made this point when he observed that a negative shock to output (an autonomous fall in consumption in 1929) could in principle have caused the concurrent fall in money, rather than a negative shock to money causing the fall in output.

shock was autonomous and the fall in output was induced – that causality ran from money to output, in other words. They documented the Fed’s concern with excessive speculation and its belief that the rise in share prices and the high level of turnover on the stock market were diverting resources from more productive uses. They showed how this belief led the Fed to raise the discount rate repeatedly, especially following the death of Benjamin Strong and the ascent of Adolph Miller, a diehard believer in the dangers of speculative excesses. The implication was that money was not tightened in response to the evolution of output.<sup>4</sup> Rather, it was tightened in response to developments largely unrelated to the movement of output and employment. The monetary shock, in other words, was autonomous from this point of view.

Friedman and Schwartz next argued that the untimely death of Strong and disputes among regional reserve banks and between the reserve banks and the Federal Reserve Board prevented policy from responding in its customary stabilizing fashion to the decline in industrial production. The inexperienced Federal Reserve Board had never encountered an analogous peacetime recession. Misinterpreting the real-bills doctrine, predisposed to a perverse and self-fulfilling liquidationalist view of the business cycle, and preoccupied by the belief that monetary ease might reignite speculation, it saw inaction as the appropriate policy response.<sup>5</sup> Rather than loosening as output declined, monetary policy remained essentially immobilized.

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<sup>4</sup>In particular, money was not tightened in response to the rapid growth of the mid-to-late 1920s, rapid growth which according to some theories could have been responsible for the subsequent slump (thus causing money to respond to output, but not in ways that could be easily picked up by Granger causality tests).

<sup>5</sup>The roles of liquidationism, the real bills doctrine, and renewed speculation are emphasized by, respectively, DeLong (1990), Meltzer (2002), and Calomiris and Wheelock (1998).

This, then, was evidence of an autonomous monetary shock, reflecting the operation of a unique and unprecedented set of historical circumstances. This argument in turn encourages the belief that monetary factors played an important role in the onset of the Depression.

But there are problems with this U.S.-centered monetary interpretation of the slump. While the tightening of monetary policy through the summer of 1929 was not particularly dramatic, the subsequent decline in activity was.<sup>6</sup> Recall that the Fed attempted to use “direct action” to deny Wall Street credit for use in speculative activities. Rather than simply relying on the classic device of a higher discount rate to reduce the volume of credit for use in financing brokers’ loans (making it more expensive for banks to obtain credit from the Fed and thereby forcing them to pass through that cost to their customers), it applied moral suasion to the banks. It hesitated to make more active use of the conventional instruments and to tighten more sharply, in other words. Essentially, this is another way of saying that the Fed did not tighten as aggressively as it felt that conditions warranted.<sup>7</sup> Thus, the first problem, to put it in the form of a question, is: how could this modest monetary tightening produce such a sharp contraction in the

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<sup>6</sup>Ritschl and Woitek (2000) document this in a forecasting framework. Their time series analysis suggests that the effects of the Fed’s discount policy remained “far too small to explain the collapse in output after 1929” (p.11). To put these changes in perspective, I calculate that the Fed has typically (since 1951) raised the discount rate by 425 basis points between the trough and the peak of the business cycle (as dated by the NBER). By comparison, the tightening in 1928-29 was 350 basis points, hardly out of the ordinary. (This comparison assumes, of course, that the 1926-7 slowdown was a business cycle trough, a characterization which would not be universally accepted.) The implication in the text only follows, of course, if one agrees that the “direct action” part of the Fed’s initiative ultimately had little effect (which is my view).

<sup>7</sup>Note that the same problem arises in the immediate post-crash period. The Fed actually loosened quite significantly following the stock market crash, which makes it all the more surprising that the economy contracted as rapidly as it did – although one can certainly argue, with benefit of hindsight that it did not loosen far or fast enough.

United States?

If the Fed's modest monetary tightening was not obviously sufficient to explain the unusually sharp downturn in U.S. economic activity, then it was even less sufficient to explain the unusually sharp downturn in the rest of the world.<sup>8</sup> This is the second problem: it is not clear how modest monetary tightening in one country could have been responsible for the onset of a depression that engulfed virtually the entire globe.

The third problem is related: a number of other countries – Canada, Germany, Poland, Argentina, Brazil, and Australia among them – turned down before the United States.<sup>9</sup> The model of international transmission in most older accounts – inspired by the IS-LM model with low capital mobility that was the workhorse for multi-country macroeconomic thought experiments in the 1960s and 1970s – is that the Fed's tightening led to a deceleration in growth in the United States, which in turn led the U.S. to import less, transmitting the slowdown to other countries. Clearly, the actual sequence of events is all wrong for this story.<sup>10</sup>

The gold standard – and the fact that capital mobility was anything but low in the 1920s – helps to resolve all three paradoxes. Because capital was mobile and exchange rates were fixed,

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<sup>8</sup>The Institut für Konjunkturforschung's index of world industrial production fell by 10 per cent between 1929 and 1930. (The League of Nations' index of mining and manufacturing fell by 12 per cent.) By comparison, the largest fall since 1971 in the IMF's index of world real GDP was 1.5 per cent in 1982.

<sup>9</sup>In Germany, for example, recent national product estimates show that the peak was reached in 1928. Construction peaked in the summer of 1927, and the production of consumer goods peaked in February 1928. See Ritschl (1997, 1999).

<sup>10</sup>U.S. merchandise imports peak in the first half of 1929, not in the first half of 1928. (There is another upward spike in U.S. imports in October 1929, but that appears to be a seasonal effect.)

higher interest rates in the United States meant higher interest rates in the rest of the world as a result of the operation of interest arbitrage. If market interest rates rose in the United States, they also had to rise in other countries, as capital flowed toward the U.S. or at least flowed out of the U.S. at a slower rate. If foreign central banks failed to follow the Fed in raising discount rates, they would suffer reserve losses, jeopardizing the stability of their currencies. Because Europe and Latin America had relatively weak balances of payments, reflecting the strengthened competitive position in international markets for manufacturing exports acquired by the United States during and after World War I and the weakness of agricultural and primary product prices in the 1920s, their central banks could ill afford reserve losses. Because their commitment to the gold standard was uncertain, reflecting the expansion of the franchise and the inability of populist governments to subordinate other goals of policy to the overarching imperative of exchange rate stabilization, the tendency for capital flows to reverse direction and now flow not from but to the United States raised doubts about the stability of currencies elsewhere.<sup>11</sup> This added a risk premium to foreign interest rates. Central banks thus had to respond by raising rates even more sharply to calm skittish investors. This is where the incomplete credibility of the interwar gold standard enters the story.

Consequently, the restrictive turn in monetary policy in the United States provoked an even more restrictive turn in monetary policy elsewhere. The deceleration in the rate of money growth in 1928 was even faster in Latin America and Europe than in the United States. The

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<sup>11</sup>Obstfeld and Taylor (2002) invoke this connection between gold standard credibility and popular politics and provide supportive data for the interwar years. Flandreau, Le Cacheaux and Zumer (1998) challenge the applicability of the thesis to the period before 1913, but that is a different question.



same was again true in 1929. The only region for which this was not the case was East Asia, not surprisingly since Australia had already begun to tinker with its gold standard (in 1929), and Japan was not on the gold standard at all, except for a few months in 1930-1.

Now consider again our three paradoxes. That the shock was a global monetary contraction and not just a U.S. monetary contraction helps to explain why the U.S. economy turned down so sharply. Exports were the first component of aggregate demand to begin falling, indicative of the impact of the contraction in the rest of the world on the United States. That foreign central banks had to respond sharply helps to explain why foreign cycles peaked even earlier. The one factor that insulated U.S. economic activity from the effects of higher Federal Reserve discount rates, namely the reversal of U.S. capital exports, further explains why other countries began to contract before the United States. It is revealing that the countries whose business cycle peaks preceded that of the U.S. had been capital importers in the 1920s. And, of course, a global monetary shock works better than a U.S. monetary shock in explaining a global recession.

There are two objections to this line of argumentation. First, other factors could have mattered more than tighter money for the onset of the depression. Second, even if tighter money was responsible, interest rates in other countries could have risen for unrelated reasons; the tightening of monetary policy elsewhere, it could be argued, did not result from the international transmission by the gold standard of tighter money in the United States.

The operation of other factors was clearly evident in France, as I observed in my book and Clark Johnson (1998) emphasized in his. The Poincare stabilization raised French real interest rates in the second half of 1926, as inflation came down but nominal interest rates

remained stuck in positive territory. Higher real rates clearly made France a more attractive place for portfolio capital; hence, funds flowed toward it and away from other countries. High real rates also made consumption and investment less attractive, strengthening the French current account. Lower nominal interest rates, for their part, stimulated the demand for money, which could be met only by running a payments surplus and attracting gold from the rest of the world, given the reluctance of the Bank of France to expand domestic credit.<sup>12</sup> For its own reasons, then, France was an independent source of monetary deflation in the second half of the 1920s.

Germany is the other important country for which a case can be made (Balderston 1993, Ritschl 1999). The president of the Reichsbank, Hjalmar Horace Greeley Schacht, also became convinced of the dangers of a speculative bubble in the spring of 1927 and tightened credit (Voth 2002).<sup>13</sup> It is no coincidence that Schacht embraced a model similar to that of the governors of the Federal Reserve System; the leading central banks were in regular contact in the second half

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<sup>12</sup>While the French central bank's revised statute limited the scope for conventional expansionary open market operations, it still could have expanded domestic credit by unconventional means such as purchasing foreign exchange on the open market. Preoccupied with inflation to the point of phobia, however, it hesitated to do so. If this reference to the need to use unconventional means and to the central bank's neurotic preoccupation with inflation reminds readers of the Bank of Japan in the 1990s, my wording will have accomplished its goal.

<sup>13</sup>Schacht was also concerned about the high level of foreign borrowing; he saw the stock market boom in Berlin and expansion in Germany in general as being fueled by unsustainable capital inflows, which added to the country's already unsustainable external obligations, thereby setting the economy up for an even more painful future fall. The dilemma, then, was the same as that facing any central banker confronting a problem of capital inflows: higher interest rates might eventually prick the stock market bubble, but in the meantime they would only encourage further capital inflows (as they did, in the German case, until the Fed responded in 1928 with further increases in its discount rate). Schacht's preferred solution, which is the medicine nowadays recommended for countries experiencing difficult-to-manage capital inflows, was fiscal restraint, but this was not something he could force on free-spending municipal governments or Reich authorities feeling pressure from a variety of special interest groups.

of the 1920s. Schacht too resorted to a policy of direct pressure, meeting with the directors of the big Berlin banks to express his concerns. Tighter money and credit succeeded in pushing down the German stock market, as Schacht intended, but they also pushed down the German economy, which was presumably not his intention.<sup>14</sup>

The other objection to the gold standard story is that it was not monetary policy but other shocks and imbalances that caused the slump. This returns us to the debate between Friedman and Schwartz and Temin; indeed, it returns us to what was the debate in the 1930s. After experiencing the 1990s, observers are perhaps less inclined to find explanations for the downturn in an autonomous fall in consumption spending and more likely to consider a role for the credit boom, the stock market bubble and real estate speculation, for excessive optimism about the commercial potential of information and communications technologies (in the 1920s, radio; in the 1990s, the Internet), and for the naive belief that recessions had become a thing of the past. They see parallels, in other words, between the “new economy” of the 1990s and the “new age” of the 1920s. The culprit could have been technological change creating structural imbalances that left the economy vulnerable to destabilizing shocks. Many old industries were financially fragile, and new ones like radio were not yet profitable. Thus, even a minor shock, whatever its source, could create financial stress. This is the story told by Bernstein (1987) and elaborated by Szostak (1995). Alternatively, the culprit could have been overinvestment in property, which left financial institutions exposed and bequeathed a legacy of inappropriately subdivided tracts that depressed productivity through the 1930s (Field 1992).

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<sup>14</sup>This line of argument also addresses a problem noted by Temin (1971), that the German economy started turning down even before capital outflows from the U.S. were curtailed.

These interpretations tend to be sector and country specific. They focus on sectors like radio, electricity, and residential construction and on a particular country, the United States.<sup>15</sup> Unfortunately, it is not clear how sector-specific factors could have produced such a pronounced economy-wide slump or how country-specific factors could have produced such a sharp global downturn. These alternatives thus reproduce a problem with the earlier literature: they are U.S.-centric, analogous stories being harder to tell for the rest of the world. And, as an explanation for global macroeconomic trends, they lack a propagation mechanism.

One way of attempting to knit these stories together is by applying “the Bank for International Settlements view” to the 1920s. The BIS view, as informed by the experience of the 1990s, is that pronounced credit booms set the stage for sharp economic downturns, sometimes marked by financial crises. Borio and Lowe (2002) develop indicators of credit booms – based on the rate of growth of bank credit, stock market valuations, and the investment ratio – and show that recessions and crises are most likely to follow when these indicators rise relative to trend. Their story runs as follows. Loose credit conditions, produced by lax monetary policy at the center and a combination of pegged exchange rates and implicit guarantees for bank depositors at the periphery, fuel indiscriminate increases in bank lending. The quality of bank assets deteriorates, and when equity valuations and investment activity are disturbed by a shock to confidence or a disturbance to the real economy, the banking system is forced to retrench. As firms are denied external finance, an unusually rapid decline in economic activity follows, causing further distress in the financial system. Capital flows reverse direction as investors begin

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<sup>15</sup>Similar country-specific stories are sometimes told for the UK (Heim 1984), but from a macroeconomic point of view their limitations are the same.

to doubt the security of bank deposits and the stability of the currency. In the worst case, both banking and currency stability are threatened.

Together with Kris Mitchener, I have constructed composite indicators of credit conditions for the 1920s (as in Borio and Lowe's work for the 1990s, a weighted average of credit growth, stock market valuations, and the investment ratio).<sup>16</sup> As shown in Figure 1, the composite indicator rises relative to trend after 1927, signaling turbulence ahead.<sup>17</sup> And, of course, currency and banking crises followed. The larger the credit boom circa 1928 (that is, the greater the rise in the actual value of the composite indicator relative to trend), the larger the subsequent fall in per capita GDP, as shown in Figure 2. We see from the figure that the credit boom-subsequent depression relationship is first and foremost a U.S. story, but a number of other countries also experienced pronounced credit booms in the late 1920s, Canada, France, and Italy among them, and suffered the consequences subsequently. Multiple regressions including controls for other country characteristics influencing their susceptibility to the international slump (the size of the current account deficit in 1928, for example) do not weaken this relationship.<sup>18</sup> Evidently, the transmission mechanism from the credit boom to the economic slump resembles that sketched by the BIS in its studies of the credit-boom episodes of the 1980s

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<sup>16</sup>The weights are based on the signal-noise ratio of the indicators – in other words, on the number of crises that are corrected predicted by each indicator out of sample, relative to the number of false positives, where the critical value taken as signaling a crisis is chosen to maximize the probability of success.

<sup>17</sup>This international average is the unweighted average of the 16 country cases for which complete data are available.

<sup>18</sup>The typical t-statistic on the value of the composite indicator in 1928 in such a multiple regression is consistent with statistical significance at the 95 but not the 99 per cent confidence level. For details, see Eichengreen and Mitchener (2003).

and 1990s.

Credit booms had littered the 19th century financial landscape, of course. They feature prominently in Sprague's (1910) history of U.S. crises, and other countries, like Argentina in the 1880s, similarly displayed all the classic symptoms.<sup>19</sup> Typically, a combination of lax domestic credit conditions and capital inflows fueled a railway- or public-utility-related construction boom, investment in which was encouraged by government guarantees. All this will be unsurprising to economists familiar with more recent experience.

Why, then, did none of these late-19th century episodes produce a slump as deep, long, and widespread as the 1930s? The competing answers focus, predictably, on U.S. and foreign policies. Before 1913, Treasury operations were capable of some monetary fine tuning, but there was no central bank to behave in strongly destabilizing fashion. The prewar gold standard imposed automatic limits on the extent of credit fluctuations. In the 1920s, in contrast, an additional element of discretion was introduced. The Fed kept interest rates too low for too long, allowing the credit boom to develop, before ratcheting them up sharply. The key mistake in this view was at least as much that monetary policy was too loose before 1927 as that it was too tight later. The problem was not merely the gold standard, in other words; it was gold standard management.

The limitation of this argument, once again, is that it does not explain why other countries responded in like fashion. Against the backdrop of "new age economics," it can explain the U.S. credit boom but not the global credit boom, unless we are prepared to assume that low interest

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<sup>19</sup>This was of course the period leading up to the default in Buenos Aires that precipitated the famous Baring Crisis in London (Eichengreen 1999).

rates in a country accounting for less than a quarter of global output and 15 per cent of world exports can explain financial developments throughout the world.

Foreign policies were to blame insofar as other central banks similarly allowed interest rates to remain too low for too long. Countries like Britain were already suffering double-digit unemployment, and raising interest rates would have only added to the problems of a politically-challenged Conservative Government. Part of what the governor of the Bank of England, Montagu Norman, meant when he described the Bank as continuously “under the harrow” was the political pressure he felt not to raise interest rates even when doing was dictated by gold standard considerations.<sup>20</sup> Germany, for its part, had a moral hazard problem: tighter credit which strengthened the balance of payments undermined the argument that the country was incapable of meeting its reparations obligations. The problem, in this view, was not so much misguided policy in the United States as the politicization of policy in other countries.

Central banks’ ill-conceived efforts to cooperate may have contributed to this situation. Benjamin Strong understood that his foreign counterparts, in particular Norman, were under pressure not to raise interest rates. If no other change took place, this might raise questions about the credibility of Britain’s commitment to the gold standard. This was the motivation for the

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<sup>20</sup>For those who recall textbook accounts in which the instability of the 1920s was a result of misaligned exchange rates – and specifically of Winston Churchill’s ill-advised decision to restore sterling’s prewar parity in 1925 – this is where these factors enter the story. Sterling’s overvaluation compounded the problem of British unemployment and balance-of-payments weakness. More generally, the failure of central banks to force prices back down to prewar levels before restoring convertibility at the prewar rate of exchange forced the interwar system to operate on a narrower gold basis – the real value of existing gold stocks would have been higher had price levels been lower – in the event leaving less margin for error. The resulting global gold shortage continues to be emphasized by authors writing in the tradition of Cassel (see Johnson 1998 and Mundell 2000).

secret meeting of central bankers on Long Island in May of 1927 – the 1920s analog of “the committee to save the world.” Rather than forcing the Bank of England to raise rates, as dictated by the “rules of the game,” as a result of that meeting the Fed agreed to lower it’s. It was at this point that the credit boom and the Wall Street bubble began to get out of hand.

This brings us to the role of central bank cooperation in the depression. My emphasis on need for cooperation to sustain the interwar gold standard when it came under threat and on its inadequacy as a factor contributing to its collapse has come in for critical scrutiny (Flandreau 1997, Moure 2002). The critics argue that cooperation was never really prevalent before 1913, and that cooperation in the 1920s was in fact part of the problem, not part of the solution. I think these disagreements reflect a misunderstanding.<sup>21</sup> When analyzing the pre-1913 gold standard, I pointed to the importance of “regime-preserving cooperation.” The argument was not that central banks cooperated continuously when setting interest rates but that the leading central banks and governments supported one another with emergency assistance in times of crisis. This prevented the collapse of any one key currency from jeopardizing the entire system and limited the domestic financial repercussions. It prevented pressures on particular currencies from provoking systemic crises of the sort that erupted in the 1930s.<sup>22</sup> It was this regime-preserving cooperation that was missing in the 1931, when the Bank of France hesitated to assist its

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<sup>21</sup>In addition, I think that the critics exaggerate the role of international factors in explaining the Fed’s interest-rate cut in 1927. In addition, the Fed was responding to the slowdown in industrial production (as Henry Ford shut down his assembly lines to retool for the Model A) and to distress in the agricultural Midwest due to depressed farm prices. There was a large element of unilateralism and self-interest, in other words, in the Fed’s 1927 interest rate cut, as opposed to international motives.

<sup>22</sup>As I describe below.



Austrian and German counterparts and the BIS was prevented from doing so for a time by the dispute over reparations, Germany's program of building pocket battle ships, and the proposal for a Austro-German customs union (the latter in contravention of the Versailles Treaty). There is no contradiction between the argument that the absence of regime-preserving cooperation was part of the problem in the 1930s, but that misguided cooperation of a different sort was equally problematic in the 1920s.

## **2. The Downward Spiral**

As output and asset prices began falling, banks experienced financial distress. Since borrowers' obligations were fixed in nominal terms, the fall in incomes led to a rise in nonperforming loans. Rising concern over the stability of the gold standard then led investors to substitute gold for financial assets where doing so was permitted and central banks to liquidate their foreign exchange reserves to avoid suffering capital losses in the event that reserve currencies were devalued.

Under these circumstances, the gold standard became an engine of deflation. Money supplies were a multiple of the international reserve backing of central banks and governments. That backing contracted as central banks, fearful for the stability of the gold standard, liquidated their foreign their exchange reserves. Central banks whose obligations were reserve currencies, suffering corresponding reserve losses, raised their discount rates to defend their parities.<sup>23</sup>

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<sup>23</sup>As the Fed did, for example, in September-October 1931 following Britain's abandonment of the gold standard – see below. Say that the National Bank of Belgium sought to liquidate its holdings of British treasury bills, and to replace them with gold in order to avoid suffering capital losses on the former. It would sell those bills on the British market for sterling and present that sterling to the Bank of England for conversion into gold. The Bank of England,

Higher interest rates heightened the distress experienced by commercial banks with maturity mismatches on their balance sheets. They consequently sought to rebuild their liquidity and reserves by calling in loans. Depositors, with fears about the liquidity of the banks, fled into currency.

Bernanke and Mihov (2000) decompose this process by writing the money stock (M1) as follows:

$$M1 = (M1/BASE) \times (BASE/INTRES) \times (INTRES/GOLD) \times GOLD$$

where BASE is currency in circulation plus the reserves of commercial banks, INTRES is the country's international reserves (gold plus foreign exchange), and GOLD is the value of gold reserves denominated in domestic currency. The preceding discussion suggests that most of the action in this product should have come from the first and third terms.<sup>24</sup> The first term, the money multiplier, will fall as the worsening prospects of financial institutions lead depositors to flee into cash and banks to call in their loans. The third ratio, the international reserve multiplier

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experiencing gold losses, would then have to raise interest rates to limit the deterioration of its position. The National Bank of Belgium, to minimize its own reserve losses, would presumably respond in kind. The net effect would be a decline in reserve backing (since foreign exchange reserves had declined but the amount of gold in the international system was fixed) and higher interest rates all around – two indications of deflationary pressure. In fact, the Belgian case is an interesting one. The British authorities lobbied the National Bank to hold onto its sterling, as a result of which the Belgian authorities suffered extensive capital losses when sterling was ultimately devalued.

<sup>24</sup>In the short run, we can take the second term as given by the backing rules under which the gold standard operated in each country, and the fourth term as fixed, reflecting the lagged response of the gold-mining industry.

(total international reserves relative to gold), will fall as central banks liquidate their foreign currency assets.

How important were these components in producing the observed decline in money stocks? The INTRES/GOLD ratio fell from 1.27 at the end of 1929 to 1.25 at the end of 1930 and 1.12 at the end of 1931 in 26 countries (the 24 countries considered in Nurkse (1944), Appendix II, plus the United States and the United Kingdom). Other things equal, this implies a 12 per cent fall in global money supplies centered in calendar year 1931. If we exclude the U.S. and the UK, the principal reserve-currency countries (the ratio being fixed in the countries issuing rather than holding foreign exchange reserves), the INTRES/GOLD ratio falls from 1.60 at the end of 1929 to 1.53 at the end of 1930 and 1.23 at the end of 1931. For countries other than the reserve centers, the corresponding fall in money supplies was then 23 per cent, *ceteris paribus*.

While the INTRES/GOLD ratio fell across the board (except in the U.S. and the UK for the aforementioned institutional reasons), the change in M1/BASE varied more across countries. Bernanke (1995) analyzes data for six countries, of which the largest fall was in the United States (25 per cent), but in two of which (the UK and Sweden) the ratio instead rose between the end of 1929 and the end of 1931.<sup>25</sup> The weighted average for Bernanke's six countries (weighted by 1929 money supplies expressed in U.S. dollars) declined by 21 per cent. The weighted average excluding the U.S. was 11 per cent. I undertook a broader comparison for a total of 31 countries; in this larger sample, the weighted average decline excluding the U.S. (30 countries) was 10 per

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<sup>25</sup>Of course, these were two of the countries that went off the gold standard toward the end of 1931. But the other two countries considered, Poland and Belgium, did not experience declines in the M1/BASE ratio approaching that of the United States.

cent.<sup>26</sup>

Evidently, then, the liquidation of foreign exchange reserves played a more important role than the liquidation of bank deposits in the monetary contraction outside the United States. The U.S. was unusual in that the percentage fall in the M1/BASE ratio was larger than the percentage fall in the INTRES/GOLD ratio.<sup>27</sup> (Recall that as the issuer of a reserve currency, the Fed, like the Bank of England, held no foreign-exchange reserves.) It is tempting to say that for the rest of the world the collapse of the gold-exchange standard mattered more than the collapse of the banking system, while the opposite was true for the United States. It is not surprising from this point of view that the literature on the global depression focuses on the gold standard while that on the United States concentrates on the banking crisis.

One should be cautious here, since banking and currency crises were related. Currency crises in other countries were one factor forcing the Fed to ratchet up interest rates in the final months of 1931, contributing to the U.S. banking crises. In countries experiencing both kinds of crisis, the banking crisis typically became evident before the currency crisis. All of the banking-crisis episodes identified by Bernanke and James (1991) begin before the corresponding currency crises in the same countries. This same pattern – banking crises first, currency crises second – is

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<sup>26</sup>The 30 countries in question were Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, Colombia, Czechoslovakia, Denmark, Estonia, Ecuador, Finland, France, Germany, Hungary, Italy, Japan, Latvia, Lithuania, Mexico, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Uruguay. Again, I took the weighted average by converting M1 and the base into dollars at market exchange rates.

<sup>27</sup>In the U.K., in contrast, the M1/BASE ratio rose slightly between the end of 1929 and the end of 1930 and fell slightly between the end of 1930 and the end of 1931, hence remaining essentially unchanged over the period. This stability reflects the absence of serious banking-sector problems in Britain, an issue to which I return subsequently.

also typical of twin crises today.<sup>28</sup> When deposits hemorrhage out of the banking system, the government and the central bank find themselves between a rock and a hard place. In the 1930s, providing large amounts of liquidity to the banking system almost certainly would have violated gold-standard statutes; doing so would have raised questions about whether the authorities attached priority to the maintenance of the exchange rate peg relative to other social and economic goals. But not doing so might have allowed the banking system to come crashing down, with even more disruptive effects on economic activity. Except in the United States, where they remained strangely unperturbed, the authorities generally took steps to prevent the collapse of banking systems. In Germany and Austria, for example, they injected just enough domestic credit to keep the principal banks afloat, thereby limiting the fall in the money multiplier. But doing so undermined confidence in the stability of the currency, provoking capital flight and encouraging the continued conversion of foreign exchange reserves into gold, thereby accelerating the fall of the gold-reserve multiplier. Again, it follows that the main engine of deflation was the banking crisis in the United States but the currency crisis in other countries.

One of the conventional critiques of the literature on twin crises is that timing does not prove causality.<sup>29</sup> That a banking crisis becomes evident before a currency crisis does not prove that the former caused the latter. It could be that anticipations of a subsequent currency crisis led savers to liquidate domestic-currency-denominated deposits and flee into foreign exchange in

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<sup>28</sup>This is the famous finding of Kaminsky and Reinhart (1998).

<sup>29</sup>Recall that this is the same critique of timing evidence on money and output, alluded to in the preceding discussion of Friedman and Schwartz's discussion of monetary factors in the onset of the Depression and made explicit in Tobin (1965).

order to avoid capital losses due to the eventual devaluation.<sup>30</sup> Ferguson and Temin (2001) show that Germany was running chronic budget deficits in the first half of 1931 and reason that expectations that these would be monetized, leading to a currency crisis, provoked the deposit withdrawals of May and June.<sup>31</sup> Wigmore (1984) argues that anticipations of Roosevelt's decision to take the dollar off gold led to the run on U.S. banks in the interregnum between FDR's election and assumption of office. The judicious conclusion, then as now, is that the causality between banking and currency crises was bidirectional.

If expectations of depreciation could destabilize a banking system, then the fact of depreciation could be broadly stabilizing. Going off the gold standard freed up monetary policy. It allowed the central bank to cut interest rates, relieving banking sector distress. Grossman (1994) contrasts a number of explanations for why some countries succeeded in averting banking crises in the 1930s. The single most important factor, he finds, was whether a country had abandoned the gold standard, allowing the central bank to engage more freely in lender-of-last-resort operations and to jump-start the recovery. This seems to have been the case in capital-importing and capital-exporting economies and in industrial and developing countries alike.

This is in contrast to the experience of the 1990s, when capital-importing emerging markets saw their financial systems and economies destabilized by depreciation. Why didn't

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<sup>30</sup>This dynamic was evident in Argentina in the final months of 2001, for example, although the deposit withdrawals were not enough to provoke a full-blown banking crisis prior to the actual devaluation.

<sup>31</sup>The authors argue that Bruening's references to a reparations moratorium worked in the same direction. Of course, there is a sense in which the reparations tangle and German budget deficits were two sides of the same coin; strengthening the budget would have weakened the argument that Germany could not pay.

depreciation in the 1930s have similarly destabilizing effects? One can think of several potential explanations.

- Foreign deposits were widespread but foreign-currency-denominated deposits were less. This was at least one favorable legacy of the gold standard, insofar as a history of fixed rates made it seem less imperative for foreign depositors to avoid currency risk.
- Foreign-currency denominated loans to the banks' domestic clients were similarly less prevalent. Hence, depreciation did not destroy the balance sheets of the corporate sector and aggravate the problem of nonperforming loans.
- Not a few countries with foreign obligations responded to exchange market pressures by slapping on currency and exchange controls – in effect, they responded like Malaysia in 1998. This allowed the authorities to inject credit into the banking system without precipitating the uncontrolled collapse of the currency. Decoupling from international financial markets made more sense in the 1930s than the 1990s because the market for new foreign issues was effectively shut down.
- Finally, a number of countries substituted clear and coherent monetary policy operating strategies for the gold-standard anchor. Sweden adopted a price level target not dissimilar from the inflation targeting regime that has become a popular approach to anchoring floating exchange rates in recent years. Britain adopted a dirty float consistent with an exchange rate that remained stable over the intermediate run. The Commonwealth and many of Britain's trading partners adopted a policy of following the pound, albeit more loosely than before, forming what came to be known as the Sterling Area. Thus, fears that abandoning the gold standard would unleash another round of

uncontrolled inflation were quickly dispatched. This helped to revive confidence in banking systems.

All this assumes that the gold standard was a binding constraint on stabilizing intervention and that its abandonment was a precondition for the adoption of reflationary policies. Any attempt to unilaterally reduce interest rates or to unilaterally engage in expansionary open market operations would have precipitated capital outflows and reserve losses that endangered the exchange rate peg. Here was where the absence of international cooperation was an issue. A unilateral interest rate reduction would cause capital to flow toward other, higher interest rate markets, endangering the exchange rate of the initiating country, but there was no reason why simultaneous reductions by several countries would weaken any one currency relative to another.

The United States was the one country that arguably was not prevented from taking unilateral monetary action. Controversy here centers on the open market operations of April-August 1932 and whether they were abandoned as a result of fears that continued security purchases would lead to continued reserve losses, to the point where the dollar would be attacked.<sup>32</sup> This episode has been revisited by Bordo, Choudhri and Schwartz (1999) and Hsieh and Romer (2001), who question whether the open market purchases of the spring and summer

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<sup>32</sup>There is less dispute over the two other periods where the gold standard allegedly inhibited the pursuit of more expansionary policies. The first time was in 1931, following Britain's devaluation, when the Fed had to hold gold not just to back its own liabilities but also government securities in its portfolio; this was the problem of free gold eliminated by the Glass-Steagall Act of February 1932. No one to my knowledge has disputed that the Fed needed to raise rates in the wake of Britain's devaluation in order to maintain confidence in the dollar. The second time was in January-February 1933, when excess reserves fell to zero and there is no question that the gold standard bound.



created expectations of dollar devaluation or induced the Fed to draw to curtail those operations in order to prevent the emergence of such expectations. This is not the place to become embroiled in this controversy.<sup>33</sup> But that controversy is one more sign that the United States was different; again, the gold standard mattered less, while banking crises – and the failure of the authorities to do what was in their capacity to avert them – mattered more in this, the second stage of the Great Contraction.

### 3. The Recovery

This perspective implicating monetary blunders and constraints in the onset of the slump suggests a role for corrective monetary action in the recovery. Just as the gold standard

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<sup>33</sup>Bordo, Choudhri and Schwartz (1999) simulate a calibrated price-specie flow model and show that further increases in domestic credit, undertaken either in October 1930-February 1931 or September 1931-January 1932 would not have exhausted the Fed's excess gold reserves because the Fed held ample amounts of excess gold. This assumes a linear relationship between domestic credit creation and reserve losses of a sort that will be familiar to readers from the monetary approach to the balance of payments. The authors raise but rule out the possibility of a speculative attack, which, in balance-of-payments crisis models like Krugman (1979), produce a sharp nonlinearity when reserves fall to a lower threshold. In effect, this rules out a priori the central problem of concern to those who see fears for the stability of the dollar as possibly constraining the Fed. Hsieh and Romer argue that there was little perceived likelihood, either in the markets or in the corridors of the Fed, that such an attack was pending. Their evidence mainly concerns forward foreign exchange rates; they show that the forward discount adjusted for trend reversion implied a maximum probability of 11 per cent of a major U.S. devaluation in the summer of 1932. The forward discount displayed no significant correlation with open market operations. And, their measure suggests that expectations of a major dollar devaluation actually dropped during the latter part of the Fed's expansionary program. I would require more evidence on the volume of activity in the forward market, and on how these forward quotations are constructed, before being convinced. There is also the question of whether the Fed aborted its program for fear of destabilizing the dollar before a larger discount was allowed to emerge, and whether expectations of this action were what caused the discount to narrow in July. Hsieh and Romer's qualitative discussion speaks to this question; it focuses on the Harrison Papers, which do not suggest significant concern within the Fed about the danger to the dollar. But Sumner (1997) provides qualitative evidence that points in the opposite direction.

prevented central banks from unilaterally pursuing expansionary monetary policies, abandoning the gold standard could have allowed them to impart an expansionary monetary impulse. Fiscal policy played a negligible role in recovery, even in countries like the U.S., the UK and Sweden where the Keynesian revolution received the most intellectual play.<sup>34</sup> Monetary policy did the hard lifting. In some cases like the U.S., the monetary authorities simply cut interest rates and encouraged the exchange rate to decline; they accommodated an increase in the demand for money and credit by passively discounting or leaving capital inflows unsterilized.<sup>35</sup> In a few cases they actively expanded domestic credit but did so cautiously, given the immediacy of memories of high inflation in the 1920s, the last time the gold standard had been abeyance. This reluctance to expand more aggressively, while understandable in the circumstances, is one reason why the recovery was not more robust.

We can analyze the reorientation of monetary policy using the approach of Cecchetti and Krause (2001). These authors study how efficiently central banks minimize a weighted sum of output and inflation variability. The measure of monetary policy efficiency is the variance of output times the variance of inflation, minus the squared covariance of inflation and output.

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<sup>34</sup>See Romer (1992) on the U.S. and Jonung (1981) on Sweden. The same was also true of emerging markets (see della Paolera and Taylor 1998). The main exceptions were Germany and Japan, in which recovery was stimulated by public expenditure on rearmament. Toward the end of the 1930s, as military conflict loomed, stimulus from rearmament became general (see for example Thomas 1983 on Britain). But this occurred after the period of principal concern here.

<sup>35</sup>The U.S. case probably overstates the typical degree of monetary stimulus from devaluation, since the country was also on the receiving end of capital flight from Europe once the clouds of war darkened. Romer emphasizes the importance of this factor. On the other hand, devaluation would have helped less insofar as the U.S. was a large open economy (for smaller economies, there would have been no offsetting negative impact on the rest of the world and hence on export demand).

(Output is detrended, and the period average is subtracted from the inflation rate.) The measure should become smaller as monetary policy improves. The comparison in Figure 3 is of 1919-30 with 1931-39. (Output followed very different trends in the 1920s and 1930s; I therefore detrend separately for the period 1920-30 and 1931-39, regressing it on a linear time trend in top panel and log time in the bottom panel.)

Some of the results here are intuitive, for example that three of the largest gains in monetary policy efficiency were in Sweden, Britain and Japan, these being three countries where there was a particularly dramatic reorientation of monetary policy once the gold standard was abandoned.<sup>36</sup> By comparison, there was not much improvement in French or Belgian monetary policies, these gold bloc countries having stuck to the old monetary regime until 1934 in Belgium and 1936 in France. Austria and Germany had more monetary leeway as a result of their exchange controls; this renders it somewhat surprising that the efficiency of their monetary policies did not improve more than in Belgium and France.<sup>37</sup> Spain was not on the gold standard at all in the interwar period, so it is not surprising that its experience is anomalous; standard

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<sup>36</sup>The result for Japan is somewhat sensitive to how output is de-trended (and, it turns out, to whether the sample is broken in 1930 or 1931). Again, it is not entirely surprising that the Japanese case is somewhat anomalous. Unlike most of the other countries, Japan was on the gold standard only in 1930 and 1931. Breaking the sample in 1931 rather than 1930 thus puts twice the weight on gold standard years in the first subsample, and thus leads to a largest apparent improvement in the efficiency of Japanese monetary policy in the first subperiod.

<sup>37</sup>Data on the growth of money supplies in the exchange control and floating countries in the 1930s, in Eichengreen (1992), similarly show that the second group expanded money supplies more aggressively once gold convertibility was abandoned or controlled. Note that our data for Austria and Germany only begin in 1922 and 1925, respectively, due to their hyperinflations. Clearly we would observe a very dramatic improvement in the efficiency of policy in the 1930s if we extended their data series backwards, but this would tell us nothing about the consequences of abandoning the gold standard.

arguments suggest no reason why its policies should have been more flexible and efficient in the 1930s than in the 1920s. A straightforward explanation for why policy efficiency appears to deteriorate in the second decade is that the global macroeconomic environment deteriorated. This presumably is also part of the explanation for why the efficiency of U.S. monetary policy declined slightly in the 1930s, but a larger part is that the relatively efficient monetary policies of the mid-to-late 'thirties are swamped by the dreadful policies of 1931-33. Canada does slightly better than the U.S. because it left the gold standard somewhat sooner. Poland is not a case about which I know enough to pontificate.<sup>38</sup>

But wasn't monetary policy rendered impotent by the liquidity trap?<sup>39</sup> In the 1930s, nominal interest rates fell to extremely low levels, especially the United States. With rates so low, it hardly made sense for banks to lend, as opposed to holding excess reserves. Expansionary open market operations that created additional Federal Reserve obligations to the private sector might simply go into additional bank reserves and, given where the banks held their reserves, back into the Fed.<sup>40</sup> Equally, so long as households and firms expected deflation to continue, real interest rates were high (given the zero bound on nominal rates), and potential bank customers had no incentive to borrow.

In the 1930s, as in the 1990s, whether the supply or the demand for bank loans was the

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<sup>38</sup>One suspects data problems, particularly with the measurement of output.

<sup>39</sup>Keynes famously warned of the danger at the time, and the possibility has gained new relevance with Japan showing signs of having entered a liquidity trap at the end of the 1990s.

<sup>40</sup>Buying bonds "would simply increase the reserves of the banking system by the amount of government bonds which were purchased with currency. The currency would go out...but [it] would immediately go into the banks and from the banks into the federal Reserve Banks." U.S. Congress (1935), quoted in Wilcox (1984), p.1.

binding constraint mattered greatly for effectiveness of policy. If the problem was less that no one was willing to lend, given the low-interest-rate environment, than that no one was willing to borrow, given deflationary expectations and demoralized business conditions, then a monetary shock could transform the situation. A sharp change in the exchange rate was an obvious way of transforming expectations of future prices and policies.<sup>41</sup> For a small country, allowing the exchange rate to depreciate by, say, 25 per cent (the magnitude of a typical devaluation) implied an eventual 25 per cent rise in import prices and ultimately in the domestic price level.<sup>42</sup> For a large country, the eventual rise in prices was smaller, but the direction was the same. In the short run, before prices had completed their adjustment, the change in the exchange rate also had the effect of shifting demand from foreign to domestic goods. If the authorities wished to prevent the currency from rebounding too strongly from its initial drop, they could undertake unsterilized intervention (Britain's approach following the establishment of the Exchange Equalisation Fund), engage in expansionary open market operations, or re-peg the currency to gold at its new lower level (as the U.S. did in January 1934), allowing the now higher demand for money and credit to be met by capital and gold inflows.<sup>43</sup> In this case, the fall in the exchange rate was an

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<sup>41</sup>This is similarly the conclusion of the modern literature on the liquidity trap. Even if the interest-rate channel for monetary policy is immobilized by the lower bound on the nominal rate, a reflationary strategy of pushing down the exchange rate and committing to a future path for the foreign exchange value of the currency can still help an open economy to escape the liquidity trap (Svensson 2000, McCallum 2001).

<sup>42</sup>Adjusted, of course, for any fall in world prices due to the continued deterioration in global conditions.

<sup>43</sup>Svensson (2000) observes that pegging the exchange rate in an environment of deflationary expectations (when it is, if anything, expected to appreciate) may require arbitrarily large foreign exchange market interventions. Pegging to gold may thus require arbitrarily large purchases of gold. In practice, it was through daily purchases of gold at progressively higher

unequivocal signal that future prices would be higher than current prices; by transforming deflationary expectations, it pushed down the real interest rate and stimulated borrowing for investment.

Temin and Wigmore (1984) show how devaluation of the dollar led to a sharp rise in activity in capital-goods-producing industries in a matter of months, just as if such a transformation of expectations had taken place. The literature on Britain's devaluation and recovery points in a similar direction; it emphasizes the recovery of residential construction (the housing boom), and what is residential construction if not an investment activity? Nominal interest rates declined still further starting in 1932, but this did not prevent British banks from lending. Rather, the fall in real interest rates as expectations of deflation were eliminated stimulated the demand for bank credit. Both cases thus suggest that it was the failure of the demand for bank loans, and not any liquidity-trap-related obstacle to their supply, that was the problem in the Depression.<sup>44</sup> Both cases suggest that this problem could be solved by a devaluation that convincingly transformed expectations of future prices and monetary policies and gave the authorities the leeway needed to validate those expectations.<sup>45</sup> The econometric evidence provides only limited support for the hypothesis of a liquidity trap in the 1930s, but the

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prices (set by FDR and his "kitchen cabinet" over the president's breakfast) that the dollar's rate of exchange was driven down to lower levels after April 1933.

<sup>44</sup>Of course, factors other than the liquidity trap (adverse balance-sheet effects due to deflation, the destruction of information due to bank failures, the elimination of thickness externalities) could have disrupted the supply of financial-intermediation services, as emphasized by Bernanke (1983) and analyzed further below.

<sup>45</sup>Similar arguments can be made for still other countries. Thus, della Paolera and Taylor (1998) show that abandonment of the gold standard led to a sharp change in expectations in Argentina, again consistent with the effectiveness of monetary-cum-exchange-rate policy.

qualitative evidence is if anything still harder to square with the notion that monetary policy was impotent.<sup>46</sup>

Once devaluation transformed expectations and freed up monetary policy, prices began to rise – or, at least, they stopped falling. Eichengreen and Sachs (1985) identified a number of channels through which supply and demand were stimulated. Raising product prices relative to wages made production more profitable and stimulated labor demand. Raising import and export prices relative to the cost of domestic goods stimulated net exports. Increased profitability and sales, future as well as current, raised the value of productive capacity relative to its replacement cost. It raised Tobin's  $q$ , encouraging investment (which, as already noted, tended to lead the recovery in countries pursuing this policy).

Eichengreen and Sachs report bivariate correlations showing that European countries devaluing by larger amounts tended to recover more rapidly. Campa (1990) shows that the comparison extends to Latin America. Bernanke and Carey (1996) focus on sticky wages and aggregate supply; they show that the supply relationship estimated by earlier authors survives a variety of econometric extensions. Under the assumption that differences in economic performance as of the mid-1930s were due to differences in gold standard policies, they show that the cross-section relationship between real wages and production identifies a component of the aggregate supply relation.<sup>47</sup>

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<sup>46</sup>Thus, Wilcox (1984) reports estimates showing that the demand for excess reserves was very (but not completely) flat in the 1930s.

<sup>47</sup>If the main thing happening in the 1930s was shocks to demand coming from domestic and international monetary policies, in other words, then the resulting shifts in the aggregate demand schedule enable us to trace the aggregate supply curve.

This assumption has not gone unquestioned. Cole, Ohanian and Leung (2002) observe that the cross-section relationship between the change in real wages and the change in output (both between 1929 and 1933) is surprisingly diffuse. Figure 4 shows their labor demand schedule, derived on the assumption of a Cobb-Douglas production function with a labor share of two-thirds.<sup>48</sup> In some countries, prominently the U.S., the fall in output was larger than the rise in real wages alone would lead one to predict. In others, notably France, Holland, and Switzerland, it was smaller. It could be that a Cobb-Douglas production function with a labor share of two-thirds poorly represents the technology of the time. But no conventional production function, in conjunction with an explanation for the Great Depression that relies on demand-side factors alone, can explain why output should have fallen more than predicted by the rise in real wages in some countries but less than predicted by the rise in real wages in others. The implication is that the observed real wage-employment relationship was simultaneously perturbed by other disturbances. The reduction in the real wage produced a surprisingly large or small increase in output and employment, depending on the national case, due to these other shocks.

The bad news, in this case, is that the real wage-output relationship does not in fact identify a component of the aggregate supply relation. The good news, for those who emphasize the role of gold standard policies, is that the observed correlation then underestimates how much difference changes in those policies could make for macroeconomic outcomes, *ceteris paribus*. Cole, Ohanian and Leung's point, though, is that *ceteris* was not *paribus*. In addition to the effect

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<sup>48</sup>This schedule goes through the zero-zero point on the figure and has an elasticity of negative one-half, such that labor's share is constant at two thirds.



of negative demand shocks, the Depression was evidently compounded by negative supply shocks.

This interpretation is attractive if it is possible to identify plausible shocks in the countries concerned. As noted, four countries in Cole, Ohanian and Leung's 17 country sample lie especially far from the predicted real wage/employment relationship. As shown in Figure 4, the U.S. lies far below, while France, the Netherlands and Switzerland lie far above. For the U.S., the obvious factor disrupting aggregate supply was the financial crisis.<sup>49</sup> This emphasis on the collapse of financial intermediation as a supply shifter is consistent with Bernanke's emphasis on the nonmonetary effects of the financial crisis and on the impact of increases in the cost of credit intermediation. Early analyses treat bank failures mainly as a determinant of aggregate demand, operating through the monetary channel. This analysis, in contrast, suggests that the banking crisis had an impact on both blades of the aggregate-supply/aggregate-demand scissors.

As noted, France, the Netherlands and Switzerland did better, in terms of the change in output, than the rise in their labor costs alone would lead one to predict. As members of the gold bloc, they were on the receiving end of capital inflows once other countries' gold-standard parities began to crumble, rendering their economies and financial systems more liquid than would have been the case otherwise.<sup>50</sup> This, then, could be the mirror image of the U.S. case.

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<sup>49</sup>Conceivably supplemented by the tendency for New Deal policies to restrict competition and push up production costs, although the comparison of 1933 with 1929 is a bit early for the latter set of effects to have plausibly made themselves felt.

<sup>50</sup>Cooper and Ejarque (1995) provide a model in which capital flows like these can affect the supply side due to thickness externalities in financial intermediation, but as they note their model can reproduce only some of the macroeconomic fluctuations of the period.

That said, none of these countries escaped banking sector problems entirely. France experienced the collapse of a major deposit bank, the Banque Nationale de Credit, in October 1932.<sup>51</sup> In Switzerland, the Banque Populaire had to be restructured in November 1933. That these events occurred relatively late in the 1929-33 period suggests that the longer these countries stayed on the gold standard, the greater became the fragility of their financial systems and economies. Thus, in an even longer term comparison (from 1929 through 1935, as in Eichengreen and Sachs), these three members of the gold bloc should not have performed so unusually well, while the U.S., now off the gold standard and able to put its banking-sector problems behind it, should not have performed so exceptionally poorly. This prediction is borne out for the U.S., as shown in Figure 5. Output is now 30 per cent below predicted levels, rather than 45 per cent, a considerable improvement in just two years.<sup>52</sup> France, the Netherlands and Switzerland, on the other hand, remain positive outliers, in terms of output, by about the same extent as in 1933. By 1935 they were no longer on the receiving end of gold and capital inflows. This suggests that there must have been additional factors that also help to explain why output in the gold bloc countries did not collapse more dramatically as the real wage rose. What they were remains, to my mind, one of those mysteries that future research will have to solve.

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<sup>51</sup>There were also three bank failures and runs on provincial banks in November 1930, although Bouvier (1984) questions whether these events in fact constituted a banking crisis.

<sup>52</sup>Bordo, Erceg and Evans (1997) notes that a standard model of monetary-caused inflation and deflation, together with wage stickiness due to overlapping contracts, cannot explain why output in the U.S. recovered as quickly as it did after 1933, especially since real wages did not decline. This is a problem for the Romer (1992) story. The speed of recovery becomes easier to understand once one admits a role for the restoration of financial stability and reintermediation due to the looser credit conditions brought about by capital inflows.

#### **4. Conclusion**

One way of characterizing recent research on the Great Depression is as “normal science.” There is now a steady stream of publications that add incrementally to existing knowledge. Economists recognize the Depression as a natural testing ground for theories of macroeconomic fluctuations. Historians have gone beyond the American and British cases that were once the focal points for archival research. If this work has limitations, it is that many economists continue to view the 1920s and 1930s as simply a data set with which to test the latest fashions in economic theory rather than a period to be understood in its own right, while historians disregard the economic dimension of the greatest macroeconomic catastrophe of modern times in favor of its social and psychological aspects.

The onset of the Depression remains the stage about which there is least consensus, perhaps unavoidably given the limited ability of macroeconomists to explain turning points. The debate continues to revolve around the relative importance of domestic monetary policies and an unstable international system. If there is anything approaching a consensus, it is a synthetic view which admits a role for both factors – for monetary policy mistakes not just in the United States but also in Germany and, of a different sort, in France, and for the international monetary and financial system in transmitting those destabilizing impulses to the rest of the world. It explains the speed and extent of the subsequent decline in terms of both banking crises and the collapse of the gold standard, which conspired in placing deflationary pressure to different degrees on different countries. And, it explains the eventual recovery in terms of the abandonment of the gold standard, which facilitated the pursuit of stabilizing monetary policies, but also in terms of the restoration of stability to banking and financial systems, something that occurred at different

times in different countries.

One way of understanding the veneer of disputation on this consensus is that different elements dominated in the United States and other countries. For the U.S., there is no denying the role of policy mistakes in the onset of the Depression, whereas for other countries international transmission via capital and gold flows plays the most important part. The banking crisis was the main motor for the downward spiral in the United States, whereas for other countries the disintegration of the gold-exchange standard was more important. For most countries, the movement of wages and prices can largely explain the course of slump and recovery, but industrial production in the U.S. fell more rapidly than the behavior of real wages would lead one to predict and remained depressed relative to the international norm for several years following devaluation of the dollar. One explanation of the disputes that characterize the literature is thus that Americanists continue to export the conclusions of research on the United States to the rest of the world while other country specialists continue to do the opposite.

The other way of understanding these disputes is that economists continue to search for a unified explanation for the global depression, while historians continue to treat each national experience as unique. The contrasts between the experiences of the United States and other countries drawn in this lecture suggest that neither approach is quite right for understanding this pivotal period in the development of the 20<sup>th</sup> century world economy.

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**Figure 1**

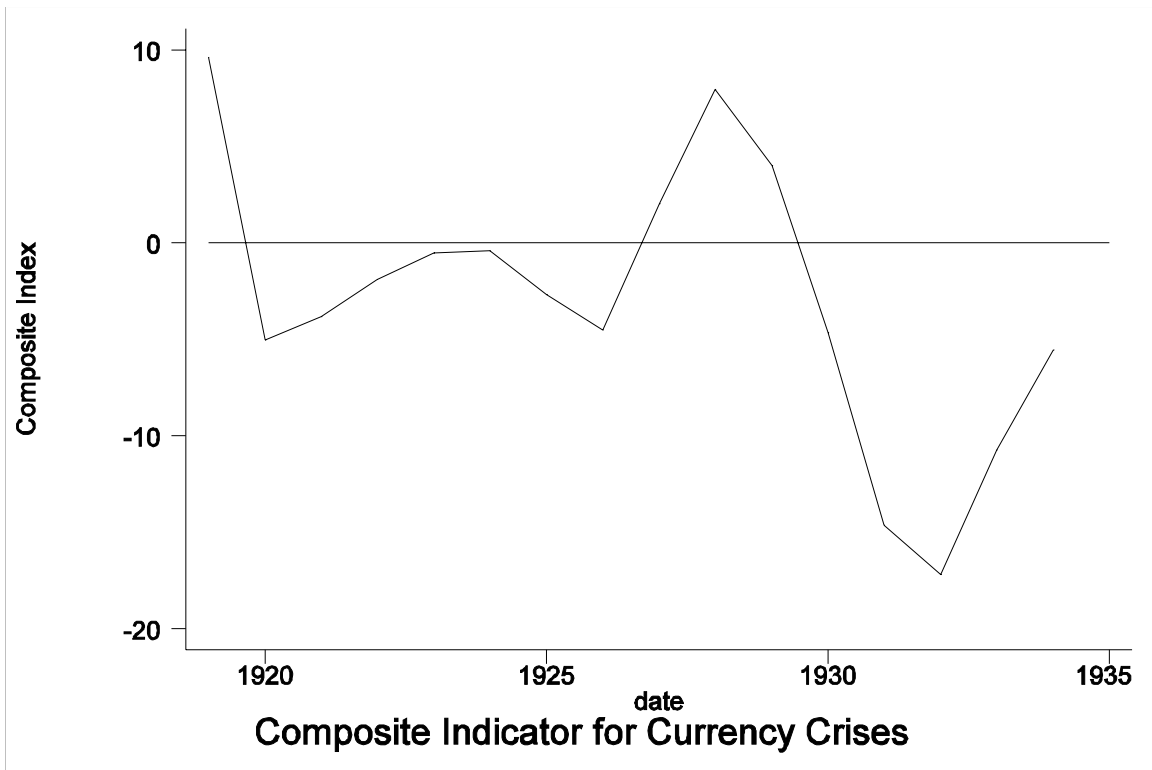
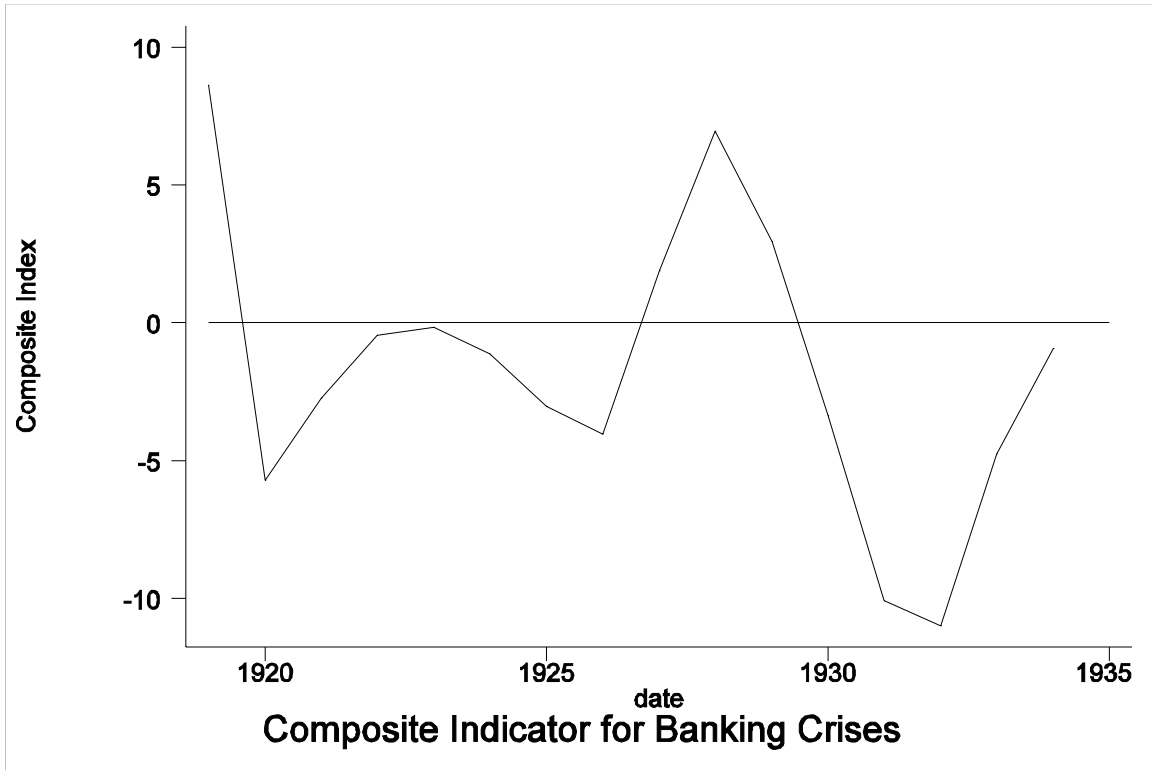
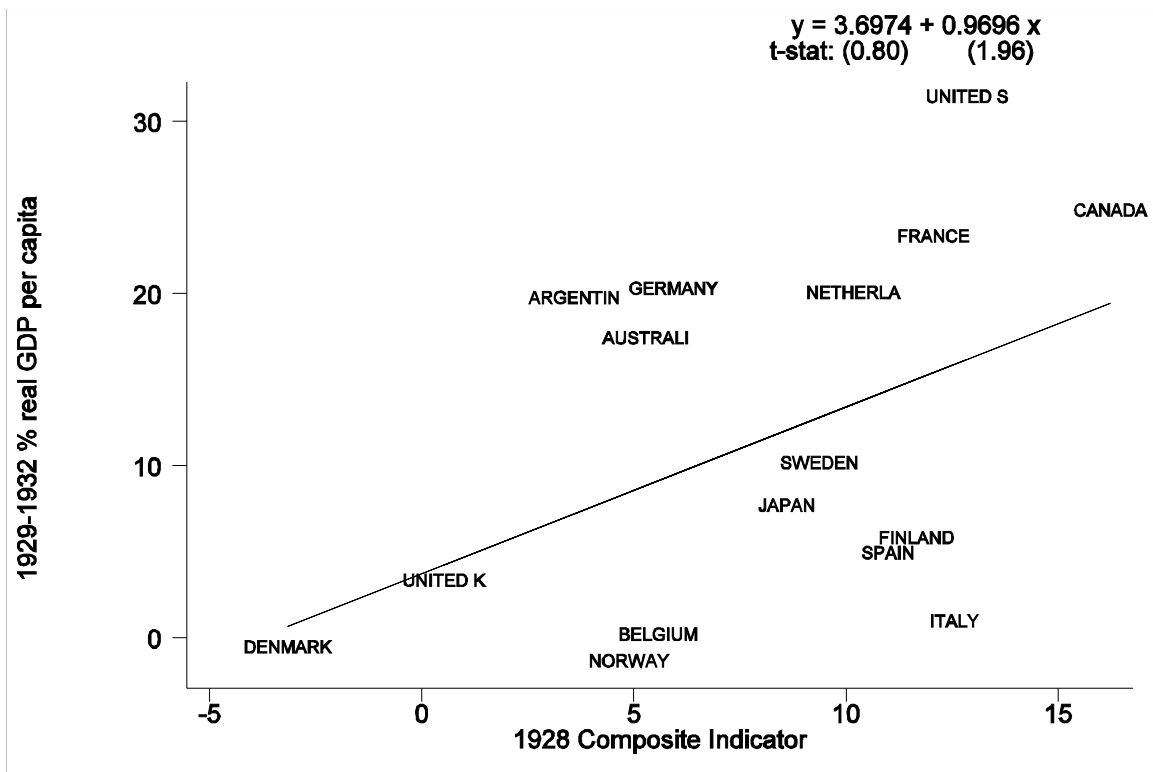
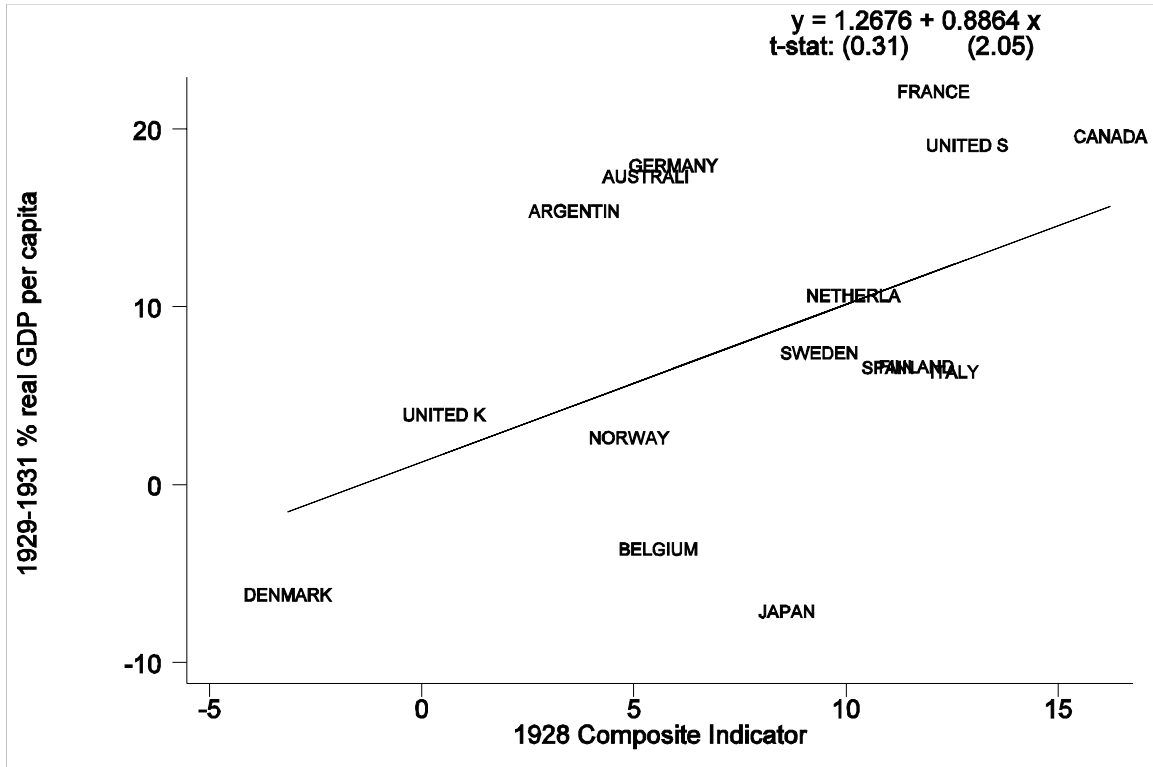
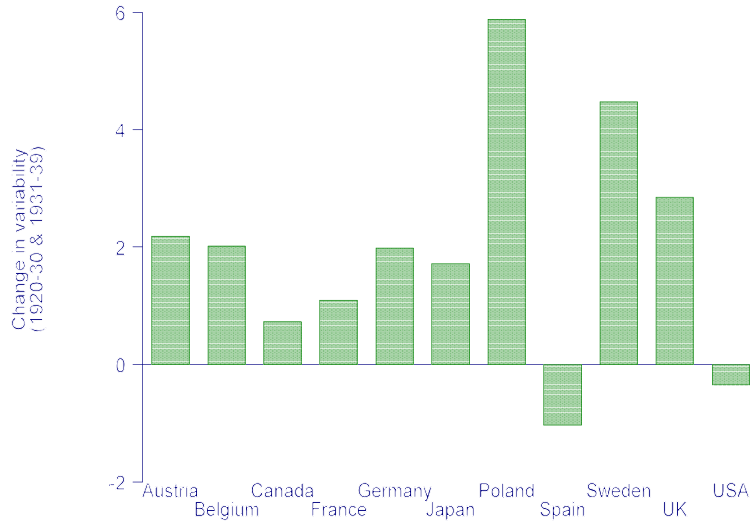


Figure 2



**Figure 3**  
**Policy Efficiency Gain**

a)



b)

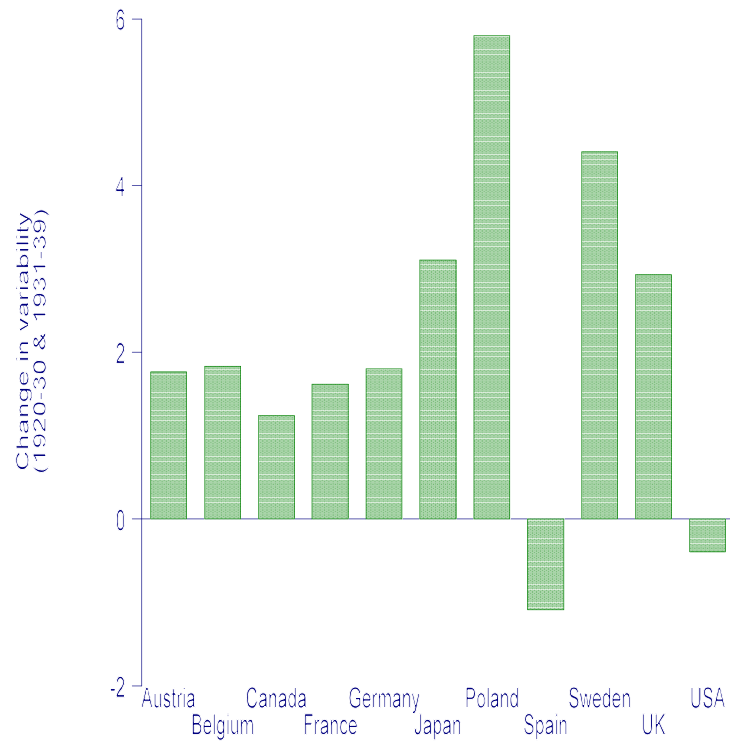


Figure 4

THE REAL WAGE-OUTPUT RELATIONSHIP, 1929-33

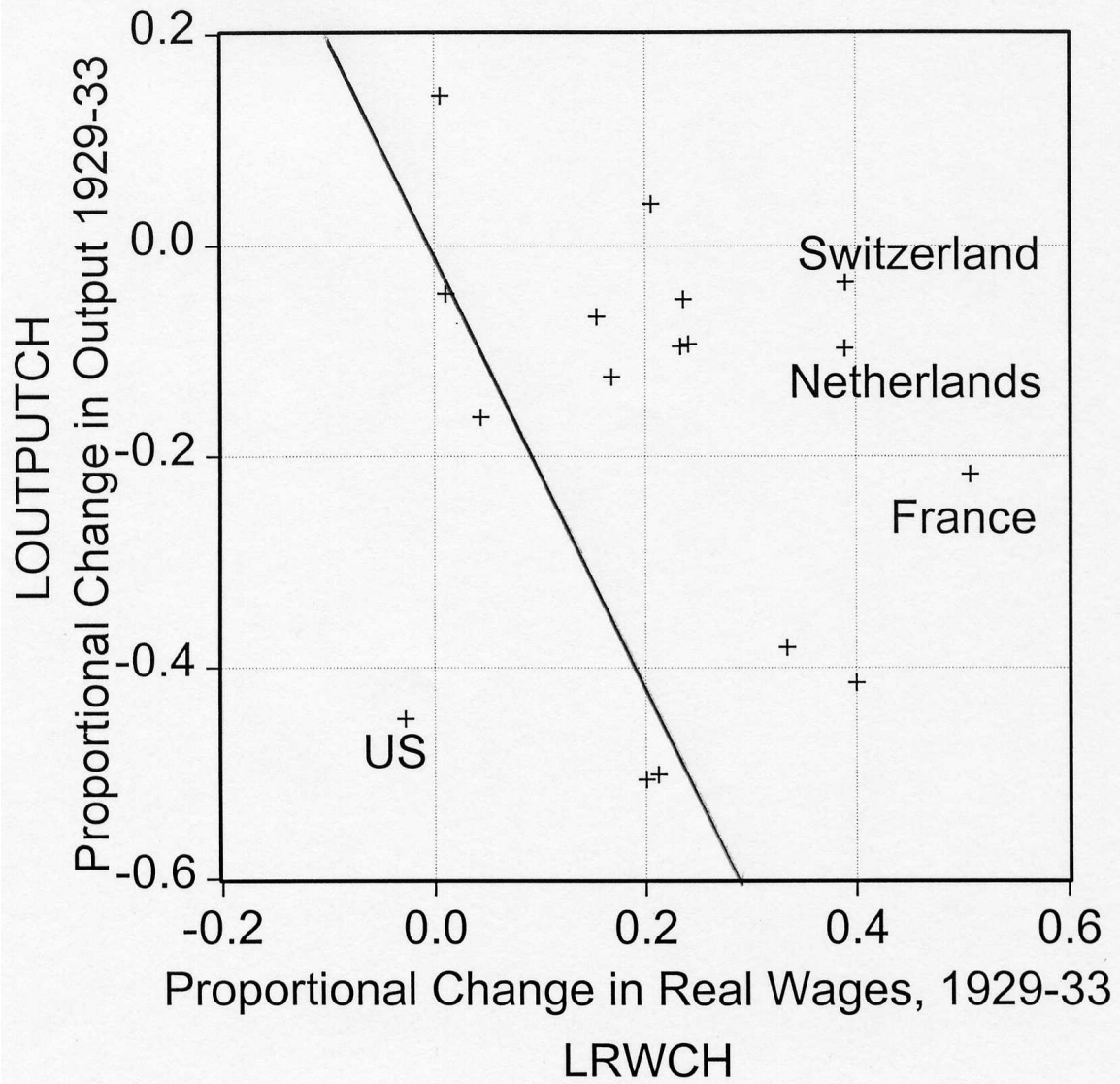


Figure 5

THE REAL WAGE-OUTPUT RELATIONSHIP, 1929-35

