**On the Causes of Secular Stagnation: China, Relative Prices, and the Collapse of Manufacturing *(Published in VoxEU)***

The 2000s began with the Federal Reserve narrowly missing the zero lower bound on short-term interest rates, and it ended with the US, and other developed economies, ensnared in a liquidity trap, a quagmire from which few central bankers have successfully navigated absent the help of wartime spending.[[1]](#footnote-1) Even the economic boom from 2003 to 2007, despite being driven by a housing bubble, was [lackluster](https://research.stlouisfed.org/fred2/series/PAYEMS/) by US post-war standards. This has led economists such as [Larry Summers](https://www.youtube.com/watch?v=KYpVzBbQIX0) to note that the US appears to have been experiencing a “secular stagnation” – a prolonged shortfall in demand in which very aggressive stabilization policies are required just to ensure normal growth – since well before the financial crisis.

 What caused this slowdown in demand? [Summers](http://www.washingtonpost.com/blogs/wonkblog/wp/2014/01/14/larry-summers-on-why-the-economy-is-broken-and-how-to-fix-it/) cogently suggested that the Great Reserve Accumulation – the unprecedented rise in foreign reserves by many developing countries – might be a factor since it has effectively reduced demand for developed economies. This view was affirmed by [Dean Baker](http://www.cepr.net/index.php/blogs/beat-the-press/krugman-on-bubbles-and-secular-stagnation) and [Paul Krugman](http://krugman.blogs.nytimes.com/2013/09/26/trade-and-secular-stagnation/), who also suggested that large US trade deficits since the mid-1990s (plotted in Figure 1 below vs. two measures of the real exchange rate) may be part of the problem. The question then becomes, what caused the trade deficit?

**Through the Looking Glass: A WARPed View of Recent Relative Price History**

To understand the past 20 years of economic history, you first need to know the seemingly subtle difference between the two diverging indices plotted below. The “Divisia using the CPI” (from [Campbell and Pyun [2014]](http://dougcampbell.weebly.com/uploads/1/0/2/2/10227422/exchange_rate_indices.pdf) – hereafter CP [2014]) extends the Federal Reserve’s widely-used [Broad Trade-Weighted Real Exchange Rate Index](http://research.stlouisfed.org/fred2/series/TWEXBPA) back to 1950. The trouble is that the index is computed as an index-of-indices -- in which price levels do not matter, only changes in bilateral RERs -- and thus it does not account for compositional changes in trade toward countries, such as China, that have systematically lower price levels. [Fahle *et al*. (2008)](http://www.federalreserve.gov/Pubs/ifdp/2008/917/default.htm) find that a simple Weighted Average of Relative Prices (WARP) may be the appropriate looking glass to view RERs, as it does a superior job of predicting the current account. And what one finds in this distorted world is that WARP implies a dollar appreciation of 48% from 1990 to 2002, vs. a 21% appreciation using the Fed’s index, with much of the difference coming from due to the rising share of trade with poor countries.[[2]](#footnote-2) CP (2014) document that in 2002, US prices were higher relative to trading partners than at any point since the Great Depression. This sharp appreciation of relative prices was due to rapidly growing trade with China and also due to the dollar’s general strength – in essence a perfect storm which proved too much for American manufacturing and policy makers alike.

**Figure 1**: Real Exchange Rate Measures vs. the Goods Trade Balance, Ex-Oil



**Relative Prices, Hysteresis, and the Collapse of American Manufacturing**

The dollar’s sharp appreciation coincided with large trade deficits and the decline and fall of US manufacturing employment, which had, contrary to popular belief, actually declined little from 1970 to 1998. Note that in the late 1990s, despite robust economic growth, manufacturing employment, which tends to be strongly pro-cyclical, actually declined slightly, and thus was anomalous from the late 1990s.

**Figure 2**: American Manufacturing Employment



Wise economists have generally thought that the foolish public’s concern with offshoring was misplaced, believing instead that the decline in manufacturing employment was caused by faster productivity growth in manufacturing and a sectoral shift toward services, reflected by the growing role of services in trade. But Figure 3, Panel (a) shows that aggregate measured labor productivity growth in manufacturing has been roughly constant in the postwar period,[[3]](#footnote-3) while Panel (b) reveals that the services share of exports has been surprisingly flat.

**Figure 3**: Productivity Growth and the Services Share of Trade

 

1. Value-Added per Worker (b) Services Share of Exports

To identify a causal impact of RER movements on manufacturing, in my job market paper, “[Relative Prices, Hysteresis, and the Decline of American Manufacturing](http://dougcampbell.weebly.com/uploads/1/0/2/2/10227422/campbell_relative_prices_and_manufacturing.pdf)”, I compare the US experience in the early 2000s to the 1980s, when large US fiscal deficits led to a sharp appreciation in the dollar, and to Canada's experience in mid-2000s, when high oil prices and a falling US dollar led to an equally sharp appreciation of the Canadian dollar. I use disaggregated sectoral data and a difference-in-difference methodology, finding that appreciations in relative unit labor costs lead to disproportionate declines in employment, output, investment and productivity in relatively more open manufacturing sectors. The basic research design is plotted in Figure 3 below. In Panel (a), I compare the evolution of manufacturing employment in sectors which were the most open in terms of trade in 1972 with the sectors which traded the least, after controlling for other factors such as year-specific shocks, and demand and productivity growth. When the dollar appreciated sharply in the mid-1980s (nearly 50%), more open sectors experienced a decline in employment relative to less exposed sectors. Interestingly, after relative unit labor costs returned to parity, the jobs lost in these sectors did not return. In the early 2000s, much the same pattern is evident.

**Figure 3**: Employment Growth by Initial Openness



1. The 1980s Dollar Bubble (b) The 2000s Manufacturing Collapse (NAICs)

A variety of different estimation methods in Campbell (2014) suggest that approximately two million jobs were lost directly as a result of the appreciation in RULCs, with perhaps another million jobs lost via input-output linkages. This estimate builds on the seminal research of [Autor, Dorn, and Hansen (2013)](https://www.aeaweb.org/articles.php?doi=10.1257/aer.103.6.2121), who diagnosed US manufacturing with the “China Syndrome”, finding that increasing exposure to Chinese imports explains a quarter (800,000) of the loss in US manufacturing jobs through 2007, devastating local labor markets which compete the most directly with China.

**Policy Implications: A Return to Free Trade**

 The implication is clear – allowing your trading partners to undervalue their currencies as per the [Bretton Woods II](http://www.nber.org/papers/w9971) system will result in the loss of manufacturing jobs. During the 2000s, the Fed could offset these job losses with loose monetary policy (feeding the housing bubble), but now that the US is in a liquidity trap, as [Paul Krugman](http://krugman.blogs.nytimes.com/2010/03/15/chinas-water-pistol/) has noted, capital inflows in practice subtract directly from aggregate demand. How best to encourage countries such as China to revalue their currencies? Given that direct negotiation seems unlikely to bear fruit, I favor a passive-aggressive approach: have the Fed aim for higher inflation, which functions as a tax on the Great Reserve Accumulators and which makes sense for [other reasons](http://www.voxeu.org/article/case-4-inflation) given that US inflation is now [extremely low](http://ycharts.com/indicators/us_core_pce_inflation_rate). Can the Fed achieve higher inflation? In short, yes. All [recent](http://www.bloomberg.com/news/2013-05-22/treasuries-extend-gains-as-bernanke-says-stimulus-still-needed.html) [evidence](http://www.nber.org/papers/w17555) points to the conclusion that, for better or worse, the limits of monetary policy in a liquidity trap lie in the minds of FOMC members rather than in their policy tools. And the lesson of hysteresis is a reminder that continued slow growth will cast shadows over economic possibilities for years to come.

**References**

Autor, D., D. Dorn and G. H. Hanson, “The China Syndrome: The Local Labor Market Effects of Import Competition in the US,” *American Economic Review* 103 (2013), 2121–68.

Ball, Lawrence, “The Case for 4% Inflation,” VoxEU.org, (24 May 2013).

Campbell, D. L., "Relative Prices, Hysteresis, and the Decline of American Manufacturing,"

MPRA Paper 51723, (2013), University Library of Munich, Germany.

Campbell, D. L. and J. H. Pyun. “Through the Looking Glass: A WARPed View of Real Exchange Rate History,” UC Davis Department Working Paper, (2013).

Dooley, Michael, David Folkerts-Landau, and Peter Garber. "An Essay on the Revived Bretton Woods System." *Federal Reserve Bank of San Francisco Proceedings*. No. Feb. 2005.

Fahle, S., J. Marquez and C. Thomas, “Measuring US International Relative Prices: A WARP View of the World,” *FRB International Finance Discussion Paper* (2008).

Houseman, S., C. Kurz, P. Lengermann and B. Mandel, “Offshoring Bias in U.S. Manufacturing,” *Journal of Economic Perspectives* 25 (Spring 2011), 111–32.

1. According to Paul Krugman’s sensible [definition](http://krugman.blogs.nytimes.com/2009/01/26/whats-in-a-name/). [↑](#footnote-ref-1)
2. Using PWT version 8.0, from Campbell and Pyun (2014). Aside from the rising share of trade with China, the other major difference is that WARP here uses data from the PWT version 8.0, which has multiple benchmarking, which also makes a large difference. [↑](#footnote-ref-2)
3. And, in fact, [Houseman *et al*. (2011)](http://ideas.repec.org/a/aea/jecper/v25y2011i2p111-32.html) argue that rising intermediate imports from China have biased the official manufacturing productivity statistics, and suggest a downward revision of productivity growth in the period 1997-2007 by 20-50%. [↑](#footnote-ref-3)