

FAQ on Herndon, Ash and Pollin's Critique of "Growth in a Time of Debt"

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On April 16, 2013, University of Massachusetts scholars Thomas Herndon, Michael Ash and Robert Pollin (HAP) released a [paper](#) claiming to find mission-critical coding errors in my 6-page 2010 American Economic Association [proceedings note](#) with Carmen Reinhart, that constituted our first explicit work on debt and growth. (We received their paper on the same day.) They suggested that their results called for a sweeping reassessment of “austerity” in the United States and Europe. As this FAQ shows, they make a number of claims based on misrepresentation, selective omission, and failure to cite the literature, including our later work, and the large body of supporting work by other scholars, as well as work by earlier critics.

- (1) **Did our first 2010 paper contain a mistake?** Yes, it contains a coding error that omits some countries from the overall averages. However, as HAP correctly state in the main body of their paper, and our [Errata](#) correction confirms, the coding error has relatively minor quantitative consequences. Most of the quantitative difference they highlight in one result is due to a different weighting scheme. Importantly, the coding error does not carry over to our main paper on growth and debt, “[Public Debt Overhangs](#)” (2012, joint with Vincent Reinhart), which is much longer and more complete. The 2012 paper appears as a full journal article, not as a conference proceedings note. Our 2012 paper, which HAP do not cite, had long superseded our short May 2010 paper in academic and policy research discussions, as noted for example in the June 2013 Bank for International Settlements annual report.
- (2) **Are our results or their interpretation importantly affected by the coding error?** Certainly not, there are of course many issues and subtleties, but the coding error in the original paper is of minor quantitative significance and hardly central to the debate. As research has evolved, our core result that high debt is negatively associated with growth still stands as quite robust across numerous studies. Many of these studies were written and published long before HAP, though the list now includes HAP.
- (3) **Do we ignore causality issues?** Hardly, our 2010 paper does not claim causality, and our 2012 paper shows that debt overhang episodes tend to last far longer than simple business cycles, decades instead of years. We argue that the long duration speaks strongly against the idea that debt overhang has no effect on growth. We show that in many cases, debt overhang is also associated with higher interest rates on government

debt. In fact, there is extensive discussion of the causality issue in the literature, as we cite in our 2012 paper. Recent experiences in Greece, Italy, Ireland, and Portugal strongly confirm that there can be important debt overhang effects. These experiences also support our central policy conclusion that debt write-downs are likely to be necessary in many such cases to fully restore growth.

- (4) **Do HAP appropriately cite the results of our 2010 paper?** No, they neglect to mention that we present four alternative estimates of the critical parameter, average country growth when debt is over 90% of GDP. This is not a minor omission. The three estimates they omit to mention, including the median estimate that is obviously our favored one (clear from the very first paragraph of our paper), are all very similar to HAP's own estimate, featured in their abstract. Through focusing on only one of our four alternative estimates, HAP give the false and misleading impression that an alternative parameter estimate in our paper is our primary estimate, and indeed our only estimate.
- (5) **Do HAP appropriately cite our later work?** No, they neglect to cite our two later papers on debt and growth, including our August 11, 2010, [Voxeu](#) paper and our main [2012](#) paper. The latter paper features a result on average growth across all countries with debt/GDP ratios over 90% virtually identical to the result they feature in their abstract (We have 2.3%, they give 2.2%). Our newer result, contained in the complete journal version of our research, was obviously our favored one long before their paper came out.
- (6) **Do HAP appropriately cite the other literature on growth and debt?** No. They give the impression that our 2010 paper existed in a vacuum until their April 2013 paper came along. Nothing could be further from the truth. In fact, [European Central Bank](#) and [International Monetary Fund](#) scholars published papers very shortly after ours finding broadly similar results using different data and much more sophisticated methods based on canonical growth regressions. They also take a first pass at the difficult causality issue. There were many papers after, debating and refining the topic, including research reported in the [IMF World Economic Outlook](#) in October 2012 and again in [April 2013](#). Bank for International Settlements researchers published a [very prominent paper](#) in August 2011, following the IMF/ECB approach, again finding results similar to ours. Also, HAP fail to cite earlier critics, such as [Panizza and Presbitero](#), who reproduce our short-sample bar graph, and similarly argue that although debt and growth may be negatively associated, the evidence for threshold and other nonlinear effects is relatively weak. (In fact, our 2010 paper was the first to show that debt and growth are negatively related in cross-country data, and this major finding has so far proven quite robust, our contribution is by no means only on thresholds, see (8) below.)
- (7) **Does our work show that growth changes sharply when debt thresholds of 90% of GDP are reached?** No. HAP fail to cite our August 11, 2010, [Voxeu](#) paper, in which we clarify how to interpret thresholds in our earlier note. The Voxeu paper uses an analogy to car speed and the risk of accidents. We very explicitly state that our results should not be interpreted as saying that a country would suddenly experience a significant change in expected growth as it crossed the 90% threshold. In many

presentations, we also draw on the example of a cholesterol reading of 200 as being a marker of higher risk for heart disease, but not a bright red line. The terms “threshold” and “nonlinearity” in economic research by no means imply there has to be a sharp break (no matter how much some bloggers incorrectly make that claim). Our more nuanced and perfectly conventional meaning is also clear in the context of the large literature in international finance that our paper builds on. (See Appendix for our 2010 explanation.)

- (8) **Do we say that the 90% threshold is the same for every country?** No, the [NBER](#) version of our abridged 2010 note clearly states that we believe work is needed to establish country-specific thresholds, in analogy with earlier analyses we had written on default thresholds.
- (9) **Are HAP right that we use an unconventional weighting scheme?** No, this is simply a false statement. The weighting scheme we use is completely normal in international finance and many other fields, intended to avoid overweighting possible errors and peculiarities from any one country, and to reduce the effects of high serial correlation. See the comment by [James Hamilton](#), one of the world’s leading time series econometricians.
- (10) **Is it true, as HAP assert, that our analysis contains selective omissions?** No, this is not true. HAP focus their entire analysis on the short post–World War II portion of our data set, neglecting to mention that we present extensive results for the entire sample, with no data excluded, going back to the 1800s. Of course the long data set contains far more information, which is why we use that one for the country-by-country results. We only include the short postwar data set to address the argument that this data might be cleaner; and to support that effort we excluded observations where we still had outstanding data uncertainties. Our 2012 paper, which HAP fail to cite, considerably refines, deepens and extends the data set. We use again the full data set there and do not include short-sample results at all. Our 2010 paper made use of our newly constructed archival data set on public debt, and was the first to investigate the relationship between debt and growth in cross-country data. Only with the development of our data set, which involved years of research, could one contemplate analyzing the relationship between debt and growth over long periods in cross-country data. It is deeply misleading to portray our research as involving clean modern data.
- (11) **Is there a problem with the New Zealand data in the early 2010 version of our data set?** Yes, for New Zealand we relied on the widely used Maddison data set on real income growth. This data set has been used in scores of published papers, but later [we ourselves](#) discovered and reported a probable transcription error for the early postwar data. This problem was fixed in our 2012 paper, and the implications for the 2010 paper reported in our Errata. The errant New Zealand data has little effect on the three other results we present, first because it has a much smaller weight in the long sample, and also because median estimates are more robust to this kind of archival data issue.
- (12) **Was our newly developed archival data set made publicly available?** Yes, we posted the data in 2010 even though at that time AEA proceedings notes were effectively

accorded working paper status, implying that it was not necessary to post data. Of the several dozen other papers in the same 2010 volume in which our paper appeared, only a handful appear to have posted data. Ours was among them.

- (13) **Is our work about austerity as HAP imply?** No. The word “austerity” does not appear in our 2010 paper. Indeed, our [2009 book](#) about the history of financial crises shows, in chapter 2, that countries very seldom dig their way out of debt crises through growth and austerity alone. Almost invariably, significant debt write-downs, forgiveness, and restructuring are required. In our [media interviews and op-eds](#), we argued for the need to move quickly to write down debt in the Eurozone periphery countries. Indeed, the conclusions to our 2012 paper state this point quite clearly:

“This paper should not be interpreted as a manifesto for rapid public debt deleveraging exclusively via fiscal austerity in an environment of high unemployment. Our review of historical experience also highlights that, apart from outcomes of full or selective default on public debt, there are other strategies to address public debt overhang, including debt restructuring and a plethora of debt conversions (voluntary and otherwise). The pathway to containing and reducing public debt will require a change that is sustained over the middle and the long term. However, the evidence, as we read it, casts doubt on the view that soaring government debt does not matter when markets (and official players, notably central banks) seem willing to absorb it at low interest rates – as is the case for now.” Reinhart, Reinhart and Rogoff (2012)

- (14) **Is our research politically motivated, as HAP infer?** No, we are centrists, our academic research has always been completely apolitical. See, however, [Ash](#)’s similar claim of a coding error in Deaton and Lubotsky’s study of inequality and mortality, and Deaton and Lubotsky’s [response](#). Deaton now weighs in on [uncanny similarities](#) in two critiques. See also the [Sander-Pollin](#) debate.
- (15) **Is our work cited only by conservatives as HAP’s references imply?** Hardly, our work on financial crises has been cited extensively by all sides of the political spectrum; it is even incorporated in the “[Occupy Handbook](#).” Our work formed the intellectual basis for the 2012 Obama campaign’s claim that the president’s policies were not the main cause of the long, slow recovery. Bill Clinton made frequent and extensive references to our 2009 book *This Time Is Different*, for example, in campaign speeches on [October 29](#) and [November 1](#).

(Many of the points made here can be found in my joint pieces with Carmen Reinhart, including our [April 25 New York Times op-ed](#) and our [May 25 open letter](#) to Paul Krugman. For a more general discussion of the issues on growth and debt, see our companion [April 25 New York Times article](#), as well as our [May 1 Financial Times piece](#), our May 5 [Errata](#) on the 2010 paper, and our [detailed data worksheet for the Errata](#). See also my [August 15 letter](#) to the New York Review of Books (showing that my work with Reinhart is cited extensively by both sides of the political spectrum).

APPENDIX TO FAQ on HAP: EXPLANATION AND CLARIFICATION OF DEBT THRESHOLDS: Quotation from 2010 Voxeu paper (as mentioned in item 7)

Debt thresholds and nonlinearities: the 90% benchmark

Thresholds and non-linearities play a key role in understanding the relationship between debt and growth that should not be ignored in casual re-interpretations.

(i) Thresholds. Those who have done data work know that mapping vague concepts like “high debt” or “overvalued exchange rates” into workable definitions requires arbitrary judgments about where to draw lines; there is no other way to interpret the facts and inform the discussion. In the case of debt, we worked with four data “buckets”: 0-30%, 30-60%, 60-90%, and over 90%. The last one turned out to be the critical one for detecting a difference in growth performance, so we single it out for discussion here.

Figure 2 shows a histogram of public debt-to-GDP as well as pooled descriptive statistics (inset) for the advanced economies (to compliment the country-specific ones shown in Table 1) over the post World War II period.⁵ The median public debt/GDP ratio is 0.36; about 92% of the observations fall below the 90% threshold. In effect, about 76% of the observations were below the 60% Maastricht criteria.

Put differently, our “high vulnerability” region for lower growth (the area under the curve to the right of the 90% line) comprises only about 8% of the sample population. The standard considerations about type I and type II errors apply here.⁶ If we raise the upper bucket cut-off much above 90%, then we are relegating the high-debt analysis to case studies (the UK in 1946-1950 and Japan in recent years).

Only about 2% of the observations are at debt-GDP levels at or above 120% – and that includes the aforementioned cases. If debt levels above 90% are indeed as benign as some suggest, one might have expected to see a higher incidence of these over the long course of history. Certainly our read of the evidence, as underscored by the central theme of our 2009 book, hardly suggests that politicians are universally too cautious in accumulating high debt levels. Quite the contrary, far too often they take undue risks with debt build-ups, relying implicitly perhaps on the fact these risks often take a very long time to materialise. If debt-to-GDP levels over 90% are so benign, then generations of politicians must have been overlooking proverbial money on the street.

We do not pretend to argue that growth will be normal at 89% and subpar (about 1% lower) at 91% debt/GDP any more than a car crash is unlikely at 54mph and near certain at 56mph. However, mapping the theoretical notion of “vulnerability regions” to bad outcomes by necessity involves defining thresholds, just as traffic signs in the US specify 55mph (these methodology issues are discussed in Kaminsky and Reinhart 1999).

Carmen M. Reinhart and Kenneth Rogoff [Voxeu](#), August 11, 2010

Addendum

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December 1, 2015

The general problem of debt overhang (what matters is both public and private debt as Reinhart and I emphasized) continues to weigh on economic growth; see “[Debt Supercycle not Secular Stagnation](#).” For a discussion of why Europe should have written down periphery-country debt, which patently had an adverse effect on overall growth the past five years, see “[A New Deal for Debt Overhangs](#).”

This addendum, however, narrowly adds a few points to the original FAQ.

- (1) After our book *This Time Is Different* came out in September 2009, we proceeded to go to work on posting thoroughly the data not already contained in the book, a massive multi-year project given the archival nature of the data and the need to give each series careful documentation. The giant archival data set together with source citations (above and beyond the meticulous ones already in the book) and spreadsheets for all figures and tables in the book can be found [here](#). From the first days after our book came out, we received data requests in industrial quantities, often from financial firms, perhaps averaging 20 requests per week. Much of this fell on my co-author Reinhart who maintains the database. We addressed the deluge by setting up a data website, and also by posting data on Reinhart’s webpage. As shown in the October 1, 2013 FAQ, the data set has been hugely used from the start. Indeed, there are so many downloads that it triggered an eventual cloning in November 2010 by the “Wayback Machine,” which copies only highly visited pages. We regard our book as one of the largest archival data-sharing projects in the history of international finance research. Scholars found the data in large numbers from the first, and there have now been thousands of downloads.
- (2) Although related to a later short *AEA Papers and Proceedings* note “Growth in a Time of Debt” (2010), and not to our 2009 book *This Time Is Different*, one complaint about our data policies that merits special attention are the blog posts of Dean Baker. Baker’s remarks merit attention because dozens of other bloggers seem to have relied on them. Baker indeed made a data request by email to Reinhart in 2010 for data from “Growth in a Time of Debt.” (If the request was first made to me, I would have re-directed to Reinhart for consistency.) As I understand it, she indeed did not respond to him, and at no time pointed him to the posted data. However, that is not quite the whole picture. As was reported to me at the time, Baker’s email asserted that Reinhart must be “the junior

author” in the work. One can only assume this was intended to be sarcastic (it is like calling a top golfer a caddy). However, the remark was not well received. At the time, Reinhart showed the email to her husband Vincent, who sensibly advised her that one does not respond to correspondence with this kind of insulting tone. Let me reiterate point (12) from the October 2013 FAQ that we went above and beyond the 2010 standards for data posting of *AEA Papers and Proceedings* notes, which at that time did not require anything. In fact, ours appears to be among only a handful of the several dozen papers in the 2010 volume to have ever posted their data, and we did so within a reasonable time. The situation would have been different a couple years later when the status of AEA proceedings papers changed, but one cannot retroactively apply 2013 requirements to 2010.

The evolving requirements should all be familiar to empirical economists who publish in professional journals. Consider the 2005 [Brooking Papers on Economic Activity](#), where Dean Baker and Paul Krugman are two of the co-authors of a full paper, as opposed to a proceedings note. The journal at the time did not require data or details of calculations of any sort to be posted, and none are to be found on the [journal website](#).

- (3) Separately, Robert Pollin has written a [response](#) of sorts to my October 1, 2013 FAQ. Pollin fails to address the fundamental issue of why his joint April 2013 paper (HAP) selectively omitted results of ours which were similar to theirs. Nor does he address the issue of why HAP completely ignored all other literature on the topic that followed our 2010 note. Pollin excuses this omission by saying that their paper is a “replication exercise” and not a literature review. But of course one cannot pretend to overturn an entire literature without citing it. It is hard to understand why HAP did not include a footnote saying something like “This paper is not intended to be a literature review, but the reader should understand that there have already been quite a few papers on growth and debt since 2010, including those by the International Monetary Fund (2010), the European Central Bank (2010), and the Bank for International Settlements (2011), not to mention Reinhart and Rogoff’s 2012 full-paper version of their 2010 proceedings note.”