

The 90% question

A seminal analysis of the relationship between debt and growth comes under attack

April 20, 2013

GOVERNMENT indebtedness matters. Default and financial panic are the stuff of finance-minister nightmares. Government borrowing can crowd out private investment, dragging growth down. Yet economists have struggled to specify when a country needs to worry about its debt load. In a 2010 paper Carmen Reinhart, now a professor at Harvard Kennedy School, and Kenneth Rogoff, an economist at Harvard University, seemed to provide an answer. They argued that GDP growth slows to a snail's pace once government-debt levels exceed 90% of GDP.

The 90% figure quickly became ammunition in political arguments over austerity. Paul Ryan, a Republican congressman, cited their “conclusive empirical evidence” in a budget plan calling for swingeing cuts to public spending. In a February letter to European Union finance ministers Olli Rehn, the vice-president of the European Commission, touted the “widely acknowledged” 90% limit as a reason to press on with European fiscal cuts. Such rhetoric has helped to make the Reinhart-Rogoff number the subject of bitter dispute. And this week a new piece of research poured fuel on the fire by calling the 90% finding into question.

The 2010 calculation was a relatively simple one. The authors had already drawn on two centuries of public-debt data for their seminal 2009 financial history, “This Time is Different”. In their paper Ms Reinhart and Mr Rogoff sorted the figures into four categories of indebtedness and took average growth rates for each. They found that public debt has little effect on growth rates until debt reaches 90% of GDP. Growth rates then drop sharply. Over the entire two-century sample (from 1790 to 2009), average growth sinks from more than 3% a year to just 1.7% once debt rises above the critical level. In a shorter post-war sample the decline is more dramatic; average growth drops from around 3% to -0.1% after the 90%-of-GDP threshold is attained.

The sharpness of this turning-point excited lots of attention. In economic jargon the debt-growth relationship was not “linear”, with growth rates gliding steadily downward as borrowing rises. Instead, debt levels look benign until a critical point is reached, and then they don't. The authors reckoned that beyond the 90% threshold, market perceptions of risk can jump. That could

translate into soaring interest rates or financial-market stress, forcing hard choices: austerity, inflation or default.

Time for a bit of R&R

The new paper, by Thomas Herndon, Michael Ash and Robert Pollin of the University of Massachusetts, Amherst, sought to replicate the Reinhart-Rogoff result for the post-war period. They reckon that mistakes in the analysis led Ms Reinhart and Mr. Rogoff to understate average growth at high debt levels. A coding error in their Excel spreadsheet sliced several countries out of the data set. Several critical years of post-war data from New Zealand were left out, thereby omitting a time in which both its debt level and growth rate were high. And the authors reckon the Reinhart-Rogoff method of calculating average growth gave outsize weight to unrepresentative data points (including one year of abysmal New Zealand data). Taken together, the authors of the new paper reckon that average post-war growth above the 90% threshold ought to have been reported at 2.2% rather than -0.1% (see chart).



The new paper set tongues wagging in Washington, DC, where policymakers gathered this week for the annual spring meetings of the IMF and the World Bank. Yet there is less dissonance between the two studies than you might imagine. In a response to the Herndon-Ash-Pollin paper, Ms Reinhart and Mr. Rogoff acknowledge the coding error. They also ascribe apparently "missing" data to the fact that

their data set is a work in progress. Updates of their analysis, published later in 2010 and in 2012, incorporate newly added figures, for example.

More importantly, Ms Reinhart and Mr. Rogoff point out that they did not stress any single number in their analysis, but consistently used several calculations. They computed the average over both the post-war period and the two-century time span. They also presented "median" growth rates across thresholds, as well as mean rates. In their 2010 paper, the median growth rate above the 90% threshold is 1.9% during the 1790-2009 period and 1.6% in the post-war period. Those results are in the same ballpark as the Herndon-Ash-Pollin figure, argue Ms Reinhart and Mr. Rogoff.

Both sets of authors turn up a negative association between debt and growth. But whereas the Reinhart-Rogoff work suggests a sudden jolt to growth once debt attains a certain level, Messrs Herndon, Ash and Pollin reckon growth rates merely ease downward. To make their point, they divide countries with a debt-to-GDP ratio above 90% into two subcategories: those below 120% of GDP and those above. The average growth in the 90-120% bucket is 2.4%; growth for countries with debts over the 120% threshold sinks to 1.6%. That makes the relationship look linear.

Firm conclusions on thresholds are elusive. A 2010 IMF paper turns up “some evidence” of a 90% threshold; a 2011 study by the Bank for International Settlements identifies a threshold of 85%. But another IMF analysis published in 2012 found that “there is no particular threshold that consistently precedes sub-par growth performance.” The costs of even moderately slower growth can quickly add up, however: Ms Reinhart and Mr. Rogoff warn that the average debt overhang lasts more than 20 years.

The latest dust-up does nothing to answer the question of causation. Slower GDP growth could be the cause of a rising debt load rather than the result. Ms Reinhart and Mr Rogoff acknowledge in their academic work that this conundrum “has not been fully resolved”, but have sometimes been less careful in media articles. This is perhaps their biggest mistake. The relationship between debt and growth is a politically charged issue. It is in these areas that economists must keep the most rigorous standards.
