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January 2009

Domestic Debt Helps to Explain External Defaults

One enduring mystery of international economics is why so many nations default on the debts they owe abroad even though those external debts seem relatively small. A new study by **Carmen Reinhart** and **Kenneth Rogoff** suggests that much of the answer revolves around countries' domestic debts. For example, in 89 episodes of external default between 1827 and 2003, domestic debt accounted for more than half of the nations' total public debt — except in Latin America, where it still accounted for 40 percent of the total. “[T]he data go a long ways toward explaining the puzzle of why countries so often default on their external debts at seemingly low debt thresholds,” the researchers conclude in **The Forgotten History of Domestic Debt** (NBER Working Paper No. 13946).

The overhang of domestic debt also helps to explain why some countries allow high inflation and even hyperinflation beyond what would seem reasonable. Until now, though, the domestic debt of central governments has been largely overlooked as a factor in external defaults and inflation. Many researchers have assumed it played only a minor role in such events. Reinhart and Rogoff have unearthed data from the League of Nations and its suc-

cessor, the United Nations, which tell quite a different story.

By supplementing and cross-checking that data with nations' own figures and work by other scholars, they have constructed

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what may well be a unique database of domestic and external debt for 64 countries stretching from 2007 all the way back to 1914 (and in many cases into the nineteenth century). The data challenge several misconceptions. To begin with, central governments' domestic debt is much larger than their external debt, accounting for almost two-thirds of the total public debt for the 64 countries in the sample. For advanced economies, it represented the lion's share of total debt; for some emerging markets, especially in their inflationary period of the 1980s and 1990s, it was much smaller. After Peru's hyperinflation of 1989 to 1990, for example, domestic debt only made up 10 to 20 percent of public debt — a sharp departure from the post-World War I era when it accounted for about two-thirds of total debt.

The historic data also show that emerging markets and developing countries in fact were able to borrow long term from foreign sources well before the current era. From 1914 to 1959, long-term debt rep-

resented a large share of the total debt of a significant portion of the nations studied.

Although external defaults grab international attention, defaults on domestic debt are often hidden — so much so that it has often been assumed that they almost never happen. In fact, this study documents 68 cases of overt default on domestic debt (compared with 250 post-1800 external-debt defaults). The study doesn't include *de facto* defaults, such as the 1973 and 1974 period, when India held its interbank interest rates to 6.6 and 13.5 percent, respectively, while inflation galloped ahead to 21.2 and 26.6 percent, respectively.

Large domestic debt is clearly linked to defaults in external debt, the study concludes, which helps to explain why “emerging market governments tend to default at such

stunningly low levels of debt repayments and debts to GDP.” For example, in a 2003 study the authors and Miguel Savastano found that “serial defaulters” often tended to default at external debt ratios far below 60 percent of GDP — the upper limit set by the euro area’s “Maastricht Treaty” for government debt. But in this study, the authors find that this anomaly almost completely disappears once domestic public debt is taken into account.

In the 250 episodes of external default covered in the study, the ratio of total debt to government revenues stood at 4.21 in the year of default — a far more serious level of fiscal stress than the 2.38 ratio when only external debt is counted. This huge difference was consistent across default episodes, regions, and time.

Researchers also have long puzzled over why governments seem to inflate their economies beyond the rate which would earn them the

most from printing money (seigniorage). While domestic debt may not explain every situation, it does appear to play a major role in many periods of high inflation and hyperinflation. In 1920, when Germany’s inflation surged to 66 percent, its domestic debt was nearly three times the size of its monetary base. In Brazil, domestic debt was nearly 20 times the money base.

The database has its limitations, however. It covers only central government debt, not that of state or local governments or, for that matter, the debt issued by many central banks. Including such debts would generally only make domestic debt seem even larger. Also, the authors note that it’s hard to know for sure how many domestic defaults the study is missing, even if one were to count only *de jure* episodes. Finally, the database compiles the incidence of default but not its magnitude. Nevertheless, some trends are clear. Economies contract far more dur-

ing domestic debt crises (4 percent in the year of default) than external ones (1.2 percent). Of course, conclusions must be drawn carefully because domestic defaults often come on the heels of external defaults, so the contraction is worse because the economy has little or no access to external credit. Also, inflation is higher during domestic defaults (170 percent) than external ones (33 percent). Thus, governments only default on domestic debt when macroeconomic problems are severe, the authors conclude.

Over the entire period of the study, locals and foreigners suffered about the same from defaults — although, from 1800 to 1939, foreign debt-holders did worse. In that period, the probability of an external default was about 20 percent versus 12 percent for domestic residents, the study shows.

— Laurent Belsie

Changes in Social Security Have Affected Retirement

In **How Changes in Social Security Affect Recent Retirement Trends** (NBER Working Paper No. 14105), co-authors **Alan Gustman** and **Thomas Steinmeier** find that changes in Social Security rules have changed the shape of retirement. Rule changes increased full-time work by married men aged 65 to 67 by about 9 percent between 1992 and 2004, encouraged later retirement, promoted the return to full-time work after retiring, and facilitated working part-time after retirement. All in all, they account for about one sixth of the increase in labor force participation by 65 to 67 year old married men between 1998 and 2004.

One of the main reasons for enacting the 1983 Social Security reforms in the United States was to increase the labor force participa-

and 2004 there was a 3.1 percentage point decline in the fraction of 65-to-67-year-old men who were completely retired.

“Social Security rules ... changes increased full-time work by married men aged 65 to 67 by about 9 percent between 1992 and 2004, encouraged later retirement, promoted the return to full-time work after retiring, and facilitated working part-time after retirement.”

tion rate of older workers. In 2000, Congress further expanded work incentives by abolishing the Social Security earnings test for people over the normal retirement age. As a consequence, in 2004 more men over age 65 were working than in earlier years. Overall, between 1998

But the experience of younger men was different. Labor force participation rates declined for men aged 50 to 56. And, more men were retired at younger ages in 2004 than in previous years. In 1998, 80.4 percent of men 50 to 56 years old worked full-time. By

2004, only 75.5 percent did so.

To isolate the effect of Social Security rule changes from other factors — such as the abolition of mandatory retirement ages, changes in employment and compensation policies, rising incomes encouraging early retirement, the stock market boom, and the rising labor force participation rates of women — the authors estimate a retirement model using Health and Retirement Survey data on 2,231 married men. They then simulate the effects of evolving Social

Security rules, assuming that each individual has the work history actually experienced. Individual time preference rates are varied, so that some people respond strongly to delayed incentives and others respond only to incentives that affect current consumption.

The baseline model's estimates suggest that the value of retirement leisure is increasing by 5.4 percent per year, a relatively low value, suggesting that economic incentives can change work effort in retirement. Poor health increases

the value of retirement leisure by approximately the same amount as being seven years older, and individuals may change their perception of retirement after they experience it, with some deciding to go back to work. The simulation results further suggest that differences in Social Security rules have no effect prior to age 62. This means that the decline in labor force participation observed for those in their fifties has another cause.

— Linda Gorman

Benefits of New Pharmaceuticals Significantly Exceed their Costs

In **Pharmaceutical Innovation and the Longevity of Australians: A First Look** (NBER Working Paper No. 14009), co-authors **Frank Lichtenberg** and **Gautier Duflos** find that the benefits of new pharmaceuticals significantly exceed their costs. Using 1995–2003 data on actual prescriptions from the set of about 700 drugs available under the Australian Pharmaceutical Benefits Scheme (PBS), they estimate that newer drugs increase life expectancy by 1.23 years and drug expenditures by about \$12,976.

Their results further suggest that when the population began using “newer” drugs, longevity increased. When the average number of years since introduction for prescription drugs falls by five years, the authors estimate, the mean age at death rises by eleven months. Using newer drugs also reduces the number of years of potential life lost before the ages of 65 and 70. Overall, using newer drugs to treat diseases apparently accounted for about 65 percent of the two years

of increased life expectancy enjoyed by Australians during the period studied.

A patient's health and longevity depend on the treatment he actu-

“When the average number of years since introduction for prescription drugs falls by five years, the authors estimate, the mean age at death rises by eleven months.”

ally receives. Given that a variety of drugs are often available to treat a given disease, a major problem in drug efficacy research is figuring out which drugs are actually used from the class of drugs available. Thanks to Australian data on causes of death and drugs prescribed, Lichtenberg and Duflos can combine data on the deaths from a given disease in a given year with statistical controls for the drugs prescribed for treatment of a particular condition in a given year. They also can construct a measure of how long the pool of drugs actually prescribed to treat a certain disease has been on the market.

The average PBS prescription was for a 17-year-old drug. The

measure of the age of the time since approval for the drugs prescribed to treat diseases varied considerably across therapeutic classes. For example, the cardiovascular drugs

prescribed in 2003 tended to be a decade newer than the anti-neoplastic and immune-modulating agents prescribed in the same year.

Because data on the listing dates for drugs approved by the PBS are incomplete, the authors used the FDA approval date to determine time since introduction. They believe that the FDA introduction data provides a better measure of the year of global market introduction or first use. A sample of 311 drugs for which both FDA and PBS approval dates were available suggests that the PBS approved drugs roughly 3.6 years later than the FDA.

The authors caution that their estimates may overestimate the cost

per year of life gained: they do not take into account the fact that studies using U.S. data suggest that the use of newer drugs decreases hospital and nursing home admissions and increases work effort. Innovation in medical procedures

and devices may either substitute or complement drug innovation, an effect that could lead to overestimation or underestimation of the effects of newer drugs. However, the authors also note that the use of newer drugs appears to improve

health more for those in initially poorer health. In their view, this “suggests that pharmaceutical-embodied technical progress has a tendency to reduce inequity as well as promote economic growth, broadly defined.”

—Linda Gorman

Welfare Reform Has Led to More Work but Less Education

Over many decades, welfare programs in the United States focused on education and training as a means of developing “human capital” — skills and knowledge that increase the value of labor. The goal was to help those on public assistance become self-sufficient, aiding them in the ascent out of poverty. By the mid-1990s, however, in response to increasing caseload numbers, welfare reformers turned away from the human capital approach in favor of policies requiring welfare recipients to work in order to receive benefits and making benefits time limited.

In **Effects of Welfare Reform on Educational Acquisition of Young Adult Women** (NBER Working Paper No. 14466), co-authors **Dhaval Dave, Nancy Reichman, and Hope Corman** find that while welfare reform has reduced caseloads and increased employment rates, it “significantly decreased the probability of both high school and college attendance among young adult women — by 20–25 percent.” The findings show that “work first” policies not explicitly aimed at education can nevertheless significantly affect educational acquisition.

Welfare reform in the United States began in the early 1990s culminating in the passage of the Personal Responsibility and Work Opportunity Reconciliation Act

(PRWORA) in 1996. With the goal of moving current and potential welfare recipients into the labor force, the act promoted work over education. The reforms were suc-

“Welfare reforms have reduced both the probability that women aged 21–49 will attend high school and that those aged 24–49 will attend college, by 20–25 percent.”

cessful in reducing welfare caseloads from their peak in 1994 — about one third of the 50 percent decline can be attributed to welfare reform. Employment rates for low-skilled mothers also increased during the same period, again partially attributable to the reforms. Though these employment effects are well studied, the consequences for adult education had been little examined until now even though education was commonplace among adult welfare recipients prior to welfare reform.

Using data from the Current Population Survey — a monthly survey of 75,000 households conducted by the Bureau of the Census — Dave, Reichman, and Corman examined enrollment in high school, college, and other schooling, which includes trade school, GED prep programs, and other training programs. Looking first at high school dropout rates for teenage girls, they find that welfare reform increased the probability of young women staying in high school by 9–13 percent, which

is consistent with previous literature. The incentives for teens are very different from those for adults. PRWORA requires teen mothers to attend school in order to receive

welfare and does not impose time limits or work requirements if they are full-time students. In addition, the new regime may encourage teenage girls from disadvantaged families, who have traditionally been at risk for welfare receipt, to complete high school in order to reduce their risk of needing cash assistance in the future.

Moving on to their primary focus, adult women, the authors find that welfare reforms have reduced both the probability that women aged 21–49 will attend high school and that those aged 24–49 will attend college, by 20–25 percent. These findings suggest that gains in reducing welfare caseloads have come at a cost of lowering the educational attainment of women at risk for relying on welfare.

Dave, Reichman, and Corman explain their findings as follows: Incentives to stay in school when young may increase the chances that teenage girls finish high school, but linking welfare payments to work requirements and imposing

time limits strongly motivate them to get jobs rather than continue their education when they reach majority age.

Because PRWORA granted discretion to states in deciding details, such as eligibility requirements and specific program rules, the authors are able to compare effects across states with different policies. They

find that states that support schooling as an alternative to work are able to reduce the negative impact of welfare reform on education. On the other hand, women in states with strong work incentives, such as small welfare benefits and strict work requirements, face more pressure to work at the expense of their education. The authors sug-

gest that since education is associated with higher earnings, lower future unemployment, and better health, the negative effects of welfare reform on educational acquisition of adult women may have negative implications for maternal and child well-being.

—MacGregor Campbell

Healthy, Wealthy, and Wise

Differences in education can explain a significant fraction of the variation in wages and incomes among adults, as well as the variation in many other positive outcomes. But what determines a child's educational success? Most studies point to family background as the number one factor. Children in higher income families are likely to get more education than other children, but why does income matter?

In **Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development** (NBER Working Paper No. 13987), author **Janet Currie** surveys the literature and focuses on two important questions: Do parental circumstances affect child health at early ages? And, does child health matter for future educational and labor market outcomes? The answer to both questions, she concludes, is “yes” — which means that poor children are at a double disadvantage because they are most likely to be in poor health. For example, mental health problems are a particularly important determinant of longer-term outcomes, and 12 percent of poor children have been told that they have mental health problems, compared to

about 8 percent of children who are not poor.

The evidence to date also “suggests that fetal health may be particularly important and hence that protecting the health of mothers may be one of the most effective ways to improve child health,” Currie writes. For example, there

“Child health is important not only for its own sake but also because it affects children's future prospects more broadly, as well as the prospects of their children.”

is about a 3 percentage point gap — 11.2 percent versus 8 percent — between poor and non-poor children in the incidence of low birth weight, a common summary measure of fetal health.

In her analysis, Currie surveys a number of studies on the effect on child health and future economic status of the following conditions: fetal origins, birth weight, poor nutrition, mental health, chronic physical conditions, acute conditions, and toxic exposure. She notes that this research on the whole suggests that child health is important not only for its own sake but also because it affects children's future prospects more broadly, as well as the prospects of their children. For instance, she cites evidence taken from a study of California mothers

who were sisters. In cases where one sister was low birth weight and the other was not, the low birth weight sister was 3 percent more likely to be living in a poor area and 3 percent less likely to be married at the time of the birth of her own child. Moreover, the children of low birth weight sisters were 6 percent more

likely than their cousins to be low birth weight themselves.

“Investments in prevention may have a large payoff in terms of future human capital accumulation, but it is important to learn what types of investments are most effective,” Currie writes. “Even if we find that health problems associated with low income have large causal effects on children's outcomes, this does not necessarily imply, for example, that a program of cash subsidies to parents is the most effective way to remediate the problem.”

Prior research has argued that while many in-kind programs have effectively attacked the consequences of poverty for children, there is relatively little evidence that modest cash transfers have

large effects. Even equalizing access to health care is not sufficient to eliminate gaps in health. Currie

believes that we need to understand more about the reasons why poor children suffer a higher inci-

dence of negative health events, even in utero, so that we can do more to prevent them.

—Lester Picker

Taller Folks Earn More

In **Making Sense of the Labor Market Height Premium: Evidence From the British Household Panel Survey** (NBER Working Paper No. 14007), authors **Anne Case, Christina Paxson, and Mahnaz Islam** use nine waves of the British Household Panel Survey (BHPS) to investigate the large labor market height premium observed in the data, where each inch of height is associated with a 1.5 percent increase in wages, for both men and women. They find that half of the height premium can be explained by the association between height and educational attainment among BHPS participants. Of the remaining premium, half can be explained by taller individuals selecting into higher status occupations and industries. These effects are consistent with the authors' earlier findings that taller

individuals on average have greater cognitive function, which mani-

research divided workers by sex into nine occupational catego-

“The association between height and earnings may be driven by the influence of early life health and nutrition on adult height, educational attainment, and occupational choice.”

fest in greater educational attainment, and better opportunities in the labor market.

The authors point out that their results differ from those of other researchers—who did not find simple linear height-wage premiums for tall workers—even though they used the same data source. The differences arise in part because of the BHPS samples chosen for analysis: Case and her co-authors use all data available in nine waves, Wave 7 (1997) to Wave 15 (2005), while the previous research used data from Wave 14 only. In addition, the earlier

research divided workers by sex into nine occupational categories within that one BHPS wave, which led to a very small sample to study. Case and her co-authors also note that the height premium may be masked by looking within occupation if, as is apparent in the data, taller people sort into better paid occupations.

The findings in the NBER paper suggest that the association between height and earnings may be driven by the influence of early life health and nutrition on adult height, educational attainment, and occupational choice.

—Lester Picker

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