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## LDCs' Foreign Borrowing and Default Risk

International lenders do pay attention to the risk of default by individual developing countries when they make loans, but in the second half of the 1970s the lenders apparently neglected some important factors in their assessments of risk. Those are the conclusions of a new empirical study, **LDCs' Foreign Borrowing and Default Risk: An Empirical Investigation, 1976-80,** NBER Working Paper No. 1172, by NBER Research Associate **Sebastian Edwards.**

The international debt crisis has generated considerable doubt about the ability of banks to distinguish between good and bad risks among developing countries. It has been suggested, for instance, that the inability of banks to withhold credit from countries that are poor risks has increased the possibility of global financial collapse. Edwards analyzes the spread between the interest rates charged individual countries and the London interbank rate (LIBOR) to determine the extent to which the financial community took the risk characteristics of countries into account when granting loans. If lenders did distinguish between countries with different probabilities of default, it would show up in the interest rates charged.

Several economists have explored the theoretical determinants of the risk that a sovereign borrower will default. A number of variables have been cited as possibly influencing the perceived risk of default, including the level of foreign debt, the debt-service ratio, the amount of international reserves, the propensity to invest, and the size of the current account deficit or surplus. Empirical work on the matter has found that interest rates do in fact tend to be higher for countries whose foreign debt is higher as a proportion of output. Most of the earlier studies examined interest rates at one point in time. Edwards looks at movements in interest rates on new loans over the five years from 1976 through 1980. He also considers a larger set of factors possibly influencing the perceived risk of default.

Naturally, a country would be expected to benefit by repudiating its debt—that is, defaulting—if the debt is greater than the present value of the expected costs of repudiating. Since default affects a country's ability to engage in international commerce, its cost should rise with both present and future output. Thus, the cost should rise, and the risk of default fall, as the propensity to make productivity-enhancing investments, and consequently expected future output, increases. The risk of default also should fall as international reserves increase. Reserves usually include financial assets held in foreign banks that could be seized in the event of default.

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Edwards assumes that the spread between LIBOR and the interest rate charged to a country reflects the perceived probability of default. He estimates the influence of different variables on the spread using annual data for 19 developing countries that received 727 public and publicly guaranteed loans from 1976 through 1980. The spread for each country was measured as the weighted average of the spreads on loans made in a given year. The basic data came from the World Bank's Borrowing in International and Capital Markets. Edwards includes more than ten variables as possible determinants of the spreads, including such things as the debt/output ratio, the ratio of reserves to GNP, and the propensity to invest.

Broadly speaking, the evidence shows that interest rates reflect *some* of the economic characteristics of the individual countries. The debt/output ratio is significantly positive, suggesting that a higher level of indebtedness will be associated with a higher probability of default and a higher spread over LIBOR. Similarly, the ratio of debt service to exports is also significantly positive.

An interesting finding is that the ratio of reserves to GNP apparently has a very strong influence on perceived risk and interest rates. Indeed, the coefficient on the reserves ratio is even higher than the coefficient on the debt/output ratio. The main importance of the result, says Edwards, is that countries wanting to reduce the likelihood of being shut out of international credit markets should be particularly careful in managing their reserves.

The importance of the reserves ratio is one indication that lenders may have been shortsighted in the late 1970s. Edwards's equations imply that reserves have an undeservedly large effect on the perceived probability of default. For instance, the results suggest that a 10 percent increase in the debt ratio, coupled with a 10 percent increase in the reserves ratio, will leave the spread over LIBOR unchanged. Yet foreign debt is something of a long-term liability while reserves can be depleted quickly (as the experience with Argentina and Chile demonstrated). Another indication of inadequate attention or analysis by lenders is that as late as 1980 the interest differential failed to show any important evidence of the future difficulties of Argentina, Mexico, Uruguay, or Venezuela.    AE

# Unionism, Price-Cost Margins, and Return to Capital

Unionism reduces profitability quite substantially in highly concentrated industries, according to *NBER Working Paper No. 1164* by Research Associate **Richard B. Freeman. In Unionism, Price-Cost Margins, and the Return to Capital,** Freeman uses IRS balance sheet data on 68 industries during 1965–76 and annual Survey of Manufacturing data on 139 industries from 1958–76 to reach his conclusion.

As measures of profitability, Freeman chooses two variables often studied in industrial organization. He defines the first, price-cost margins, as value added (in the production process) net of labor and advertising costs, divided by the value of shipments. The second, quasi-rent returns to capital, is also equal to the net value added, divided by costs per dollar of assets.

Regardless of which profit measure he observes, Freeman finds that unionism has a "statistically significant, quantitatively important depressant impact . . ." on profits. Freeman then asks: Is the effect of unionism limited to highly concentrated sectors where profitability would otherwise be extremely high, or do unions also reduce profits below normal levels in competitive industries? His conclusion is that "unionism has essentially no impact on profitability in the more competitive sectors but a sizeable negative effect in the concentrated industries [that is, industries with a small number of firms, each of which has a large market share]."

# Economic Development and Infant Mortality in Latin America

Despite an unprecedented decline in the infant mortality rate in Latin America in recent decades, that rate remains much higher than in other Western countries. In **Economic Development, Infant Mortality, and Their Dynamics in Latin America,** *NBER Working Paper No. 1206,* **Tadashi Yamada** asks what economic loss results from such high child mortality rates, what the major causes of childhood death are, and whether economic development is responsible for the historical decline in the infant mortality rate in Latin America.

Between the 1930s and the 1950s alone, the average life expectancy at birth in Latin America rose from 32.8 to 55.1 years. Still, the infant mortality rate in Latin America in 1975 was 20 points or more higher per 1000 live births than that rate in the United States. Estimates of the resultant economic loss to Latin America, measured in terms of net national product (NNP), vary from country to country: 0.99 percent in Uruguay to 18.93 percent in Haiti. But in 11 of the 19 Latin American countries, the loss is more than 3 percent of NNP.

What are the major causes of death in Latin America? Yamada finds that one-third or more of the total deaths in Guatemala, Honduras, Mexico, Nicaragua, Ecuador, and Peru are caused by three groups of diseases: influenza and pneumonia, enteritis and other diarrheal diseases, and other infective and parasitic diseases. Those three groups of diseases account for at least one-third of the total deaths in

Latin America as a whole, as opposed to about 4 percent of total deaths in the United States (as of 1975). Since infant deaths represent 20-30 percent of total deaths in Latin America, it is possible that these disease groups alone may be responsible for high childhood mortality.

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Moreover, Yamada observes that there are significant differentials in medical services, distribution of population, and literacy between urban and rural areas of Latin America. All of the countries except Argentina and Uruguay have 4 hospital beds or less per 1000 population. In 1976, Haiti had only 0.8 beds per 1000 people compared to 6.3 beds per 1000 in the United States in 1977.

Has economic development in Latin America caused the improvements in infant mortality? Probably not, Yamada finds. In a series of statistical tests, only Costa Rica and Mexico show a causal link between development (measured by real per capita income) and infant mortality. But the link is not strong, suggesting that development may be a minor contributing factor to the declining infant mortality rate.

Other tests suggest that in Latin America "... economic development seems to have reduced the birth rates rather than the infant mortality rates." Overall, Yamada concludes, the empirical results suggest that development of medical and health technology is the major cause of the lower infant mortality rate in Latin America in recent decades.

# Stagflation and Productivity Decline in Canada

Why was the Canadian history of growth, unemployment, inflation, and productivity from 1974 through 1982 so different from that of the preceding 20 years? NBER Research Associate **John F. Helliwell** attempts to answer that question in *Working Paper No. 1185,* **Stagflation and Productivity Decline in Canada, 1974-82,** which he describes as an exercise in "cliometrics," the application of econometrics to the interpretation of history.

He first creates a hypothetical economic history. Using actual economic information from the years before 1974, he then removes the impact of all unusual foreign variables, such as OPEC price boosts, world stagflation, and domestic policies that would "shock" the economy in the post-1974 period. In this way, he derives a "surprise-free," smooth evolution of the Canadian economy over the past nine years.

Then he adds back, either separately or in groups, the various external and internal disturbances that have taken place since 1973, attempting to explain their likely impact on the economy. If that hypothetical history, which assumes no outside shocks, settles down after 1973 to a smooth economic growth path, and if the addition of identified shocks manages to explain most of the gyrations of actual history, then it could be argued that the basic behavior of the Canadian economy has not changed dramatically—its unusual behavior is merely the result of the shocks. This would also mean that the stagflation of the 1970s was explicable and that econometric models based on economic experience of the 1950s and 1960s should still be workable. Nor would the sharp post-1973 drops in productivity growth as measured by output per employee, be a sign of collapse in the rate of technical progress or a drop in the competitiveness and efficiency of Canadian industry. Rather it would be the expected result of the external shocks and internal policies since 1973.

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Helliwell admits that creation of the hypothetical shock-free economy requires not only an econometric model based on prior economic experience but also "a certain amount of artistic license." That is because some features of the economy were already out of balance in 1974 when the new "steady-growth" regime starts. In any case, he assumes that government spending would grow from 1974 on at 2 percent in real terms, or roughly 1 percent per capita. World oil prices, and all prices of energy imports and exports, are set to grow in U.S. dollar terms at 2 percent per year plus the U.S. rate of inflation. Real incomes and prices in the United States and other industrial nations are assumed to grow at their 1952-73 average. Indirect and direct tax rates are put at their 1973 values. Interest rates are determined by a function primarily involving U.S. interest rates but also including international monetary reserves and the growth of Canada's money supply. There are other assumptions regarding interest rates, the financing of the government deficit, and fuel costs.

The hypothetical economy that results first expe-

riences a "hangover" year in 1974 (right after the hypothetical increases in energy prices) when inflation was higher and growth lower than in 1971–73. Then it quickly settles to a growth of income and prices that are still below the 1971–73 actual rates. Gross national product grows at about a 4.5 percent annual rate, inflation at a 3.5 percent annual rate, the unemployment rate varies narrowly in the 5.1 to 5.25 percent range, and so on with other economic factors.

This hypothetical steady-growth economy performs better than the actual Canadian economy, Helliwell notes. By 1981, actual GNP was more than 11 percent below the hypothetical model, and in the recession year of 1982 this gap widened to 18 percent. Unemployment in 1982, according to the steady-growth model, was less than one-half the 10.8 percent rate actually experienced. The hypothetical 1982 price level was 40 percent below the actual one.

Helliwell admits that those steady-growth figures may appear like pie-in-the-sky projections, since Canada could not escape world economic conditions in the 1970s and early 1980s. But then he adds back these real-world conditions, including both the 1973–74 and the 1978 OPEC price hikes, and domestic policies to determine how much they were responsible for the severe problems of the Canadian economy in those nine years. Using the underlying production function in conjunction with these shocks, he calculates that more than one-quarter of the decline in labor productivity by 1982 is the result of business deciding to substitute labor for more expensive energy. For instance, a company might prefer to use a manufacturing process that employed more work-ers and used machines that consumed less energy. Another one-third of the drop in labor productivity arose from unexpectedly low demand, with Canada and the world suffering from recession for some years of this period. When business does not use its plant and labor forces at full capacity, productivity suffers. Another one-fifth resulted from low profitability, with business not investing in more efficient systems.

This leaves unexplained not quite one-fifth of the drop in productivity in 1982. Looking at the results for 1981, only 4 percent is unexplained by the three factors mentioned above. There is thus very little "productivity puzzle" left to be explained by structural changes, or some combination of other factors.

Helliwell figures that higher world oil prices and the parallel greater inflation and recession in other industrial countries are responsible for most of the change in factors affecting energy/labor substitution demand for goods and services, and business profitability. Changes in government spending, taxation, and energy policies, he says, slightly smoothed the path of adjustment of GNP and prices to the OPEC shocks, but there was little or no effect on cumulative real GNP over the period. However, the government policies did have a negative effect on the 1982 recession.

The model, he adds, does not fully explain the substantial reductions in consumption and the sharp inventory reductions that worsened the 1982 recession. Further, if output in 1983 and 1984 remains as far below its potential as it did in 1982 and this is not explained by cyclical variables, then some substantial portion of the drop in productivity will remain a puzzle.                                                    DF