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A Long-Term Comparison of Income and Birth Weight

In **Unequal At Birth: A Long-Term Comparison of Income and Birth Weight** (NBER Working Paper No. 6313), NBER Faculty Research Fellow **Dora Costa** examines the relationship among income, birth weight, and infant health. Using data from the period 1910 to 1988, she finds that differences in birth weight by income class were only slightly larger in the past than they are today. Rather, it was differences in maternal height that accounted for most of the historical difference in birth weight by income class. That is, the taller the mother, the more likely she was to have a larger birth weight baby. Since maternal height is partly a function of adequate nutrition early in a girl's life, past inequalities in terms of health were transmitted across generations, Costa shows. Further, as income status grows, so does the level of nutrition, providing increased opportunity for a woman to reach her full biological potential in terms of height.

While the average birth weights of babies born in 1910–31 and in 1988 are about the same, there are huge differences in mortality during those two periods for low birth weight babies. In 1910–31, 25 percent of

babies died by day ten if they weighed between 1500 and 1999 grams; in 1988, only 3 percent of babies in the same weight range died. Further, in the past low birth weight babies weighed less than they now do on the tenth day of life—the critical neonatal period—which has significant ongoing health and mortality consequences. Costa attributes this disparity to poor obstetrical and medical practices during that time, including best medical practices which we now know produced

1988 National Maternal and Infant Health Survey. To make the data compatible, she restricted the study to white births to married mothers and examined subsamples of the data.

Many factors affect birth weight, including infectious diseases, alcohol or other drug use, smoking, and heavy physical work. Nutrition is also a key determinant of birth weight, but the relationship is not linear. In other words, nutritional deprivation must pass a threshold level before fetal development is affected significantly,

“In 1910–31, 25 percent of babies died by day ten if they weighed between 1500 and 1999 grams; in 1988, only 3 percent of babies in the same weight range died.”

insufficient feeding of the newborn. Costa notes that the data suggesting that average birth weights from 1910–31 and 1988 were similar may be misleading because many low birth weight babies in the earlier period did not survive the stresses of childbirth.

Costa used data from the New York Lying-In Hospital in Manhattan, which served the working class, primarily immigrants, during 1910–31, and compared it with data from the

since the fetus will initially draw nutrients from the mother's body resources.

Costa's research controlled for all observable variables including mother's height and age, number of children in the family, infant's time in the uterus, and sex of the newborn child. Her data suggests that modern obstetrical and neonatal technological advances, coupled with better nutrition for both mother and newborn, have improved both birth and adult health outcomes. —Les Picker

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Retirement Assets Will Come Largely from 401(k) Plans

A large fraction of families approach retirement with virtually no personal financial assets (which do not include balances in IRAs, 401(k)s, or other personal retirement accounts) saved. The median level of personal financial assets—that is, the point at which half of families own more and half less—was about \$7,000 in 1992 for family heads aged 51 to 61, according to government data gathered in the Health and Re-

In **Implications of Rising Personal Retirement Saving** (NBER Working Paper No. 6295), Poterba, Venti, and Wise simulate the assets of future generations of retirees and compare these assets with the present discounted value of Social Security benefits and the other assets of households whose members are approaching retirement now. Their results show that 401(k) assets almost surely will be an important component of the retirement wealth of future generations of retirees.

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tirement Study. A very substantial group of families rely almost exclusively on Social Security benefits for support in retirement.

But the spread of 401(k) plans could change this picture substantially, according to NBER Research Associates **James Poterba**, **Steven Venti**, and **David Wise**. In 1993, 401(k) plan contributions exceeded \$69 billion. Between 45 and 50 percent of all employees were eligible for 401(k) plans in that year. Over 70 percent of those who were eligible to contribute did in fact make contributions.

The authors find that on average a 37-year-old in 1996 would have a 401(k) balance upon retirement at age 65 of \$91,600 and a 27-year-old in 1996, retiring at age 65, would have \$125,500. These balances are measured in “1992 dollars,” that is correcting for future changes in the price level. The calculations assume that half of the 401(k) money was invested in stocks and half in bonds. If all of it was put into stocks, then the 37-year-old in 1996 would have \$181,500, and the 27-year-old \$256,000, when they reached age 65. Those asset levels assume an aver-

age annual real rate of return on corporate bonds of 2.8 percent, and on the Standard & Poor's 500 stock index of 9.5 percent, the average returns since 1926. The authors have made conservative assumptions as to what proportion of their wages employees will set aside, based on historical experience.

Based on past experience, the authors also assume that eligibility rates, participation rates, and amounts contributed will increase over time. Their projections suggest that the lowest earnings decile may have very little in 401(k) assets. But for families with lifetime earnings above the lowest two or three deciles (the bottom 20 or 30 percent of earnings), 401(k) assets are likely to be substantial relative to the value of future Social Security benefits or relative to other wealth. And for families with lifetime earnings above the median, 401(k) assets could exceed Social Security wealth. This would almost surely be true for families in the top four earnings deciles. The authors conclude that “We believe that 401(k) assets will almost surely be an important component of the retirement wealth of future generations of retirees and could be the dominant component for a large fraction of them.” —David R. Francis

Demographics Linked to Asian Miracle

Despite the numerous shocks that have recently rocked several East Asian countries, the region's rapidly accelerated growth over the past several decades still stands as a phenomenal achievement, and continues to be a seductive topic for economic analyses. Of particular interest is what sparked this surge. NBER Research Associates **David Bloom** and **Jeffrey Williamson** believe that one area deserving more attention is demographics.

In **Demographic Transitions and Economic Miracles in Emerging Asia** (NBER Working Paper No. 6268), they focus on the fact that between 1965 and 1990, East Asia experienced a particularly fortunate demographic circumstance: because of declines in infant and child mortality that began in the 1940s, followed by fertility declines, its working-age population grew much faster than its dependent population. In other words, the number of people participating in the labor force was increasing while, proportionally, the number of

people sitting on the sidelines was decreasing.

Bloom and Williamson believe that one-third to one-half of the growth experienced in East Asia between 1965 and 1990 could be attributable to the region's ability to take advantage of this “demographic gift... A third or a half certainly isn't everything, but it places population dynamics among the most important growth determinants,” the authors state. They note that East Asian economies achieved their so-called “miraculous” growth rates because

they were able to combine their “gift” with other “transitional forces,” such as the ability to adopt new industrial technologies, invest in human capital, and exploit global markets.

Of course, the demographic shift that was so beneficial to growth was not simply the result of happenstance. Bloom and Williamson trace it to the fact that after World War II, foreign aid and advances in health care came to the region in a “rush,” and governments were aggressively working to improve their social infrastructure. The effect was a sharp drop in the infant and child mortality rates that, according to Bloom and Williamson, was a driving force that “triggered one of the fastest and most dramatic demographic transitions ever.”

A key question now is how these demographics will play-out in the future development of East Asian economies. The pay-back for the gift is that as this large group of workers ages, they will produce substantial growth in the elderly dependent population.

Bloom and Williamson contend that sometime in the near future the demographic gift in East Asia will dissipate—and consequently, economic growth will tend to slow down—as the share of the elderly in the population increases. For example, they forecast that unless something happens to offset them, changing demographics will “induce a 2.0 to 2.4 percentage point decline

one interesting region that may soon realize the future beneficial effects of demographics is South Asia, where “demographic transitions began later or proceeded more slowly, and whose progress has not yet rivaled that of East Asia.” The authors see South Asia realizing a .8 to 1.4 percentage point increase in its growth rates as it “enters the ‘gift’ stage,” with the biggest gains accruing to Pakistan

“...changing demographics will induce a 2.0 to 2.4 percentage point decline in Hong Kong’s GDP per capita growth rate, a 2.5 to 3.0 percentage point decline in Singapore, a 1.9 to 2.2 percentage point decline in Korea, and a .9 to 1.1 percentage point decline in Japan.”

in Hong Kong’s GDP per capita growth rate, a 2.5 to 3.0 percentage point decline in Singapore, a 1.9 to 2.2 percentage point decline in Korea, and a .9 to 1.1 percentage point decline in Japan.” The lesson here, they say, is that “any economic effect due to the changing age distribution is only temporary.”

Bloom and Williamson believe

and Bangladesh. “Southeast Asia should register a little smaller demographic gift (.6 to 1.1 percentage points) with a lot of variance across the region,” according to Bloom and Williamson. “The biggest gainer will be the Philippines while the biggest losers will be Malaysia and Thailand.”

—Matthew Davis

Monetary Policy Rules in Practice: Some International Evidence

On the eve of the European Monetary Union, squabbling between Germany and France over governance dominated the headlines in the financial press. Beneath this bickering over leadership, however, lies a more fundamental debate: What kind of monetary policy will the new European Central Bank undertake? In addition, are there some lessons from previous historical experience with fixed exchange rate systems that may be pertinent to future policymaking?

In **Monetary Policy Rules in Practice: Some International Evidence** (NBER Working Paper No. 6254), **Richard Clarida, Jordi Gall,** and **Mark Gertler** address these

important policy questions by evaluating how the major central banks of the world have conducted monetary policy since 1979. Specifically, they analyze the behavior of monetary policy in two sets of countries: the “G3,” which includes Germany, Japan, and the United States; and (what the authors term) the “E3,” which consists of Germany’s major trading partners in Europe, the United Kingdom, France, and Italy.

The authors begin with the observation that, while world monetary policy was largely viewed as being out of control during the 1970s, it is now, for the most part held in high regard. The source of this reputation has been the apparent ability of the major central banks to engineer their economies out of an era of double

digit inflation, an effort they began in 1979, and into the current regime of relative price stability. By studying the behavior of the G3 central banks, the major central banks of the world, over a period in which monetary policy was considered effective, one can obtain lessons for how the new European Central bank might conduct policy in the future.

The authors find that a simple policy rule which has the central bank adjust the short-term nominal interest rate in response to inflation and output relative to their respective targets does a good job of characterizing monetary policy in each of the G3 countries. The kind of rule that emerges in each instance is what one might call “soft-hearted” inflation targeting: in response to a rise in

expected inflation above target, each central bank on average raised nominal rates enough to raise real interest rates. The rule thus implies a clear focus on controlling inflation. At the same time, the rule allows for a modest stabilization component: holding inflation constant, it calls for some adjustment of rates to the out-

control, international monetary policy has not been free of turmoil. A prime example is the crisis within the European Monetary System during late 1992. The inability of the major European central banks to sustain the existing fixed exchange rate system at that time obviously raises some questions about how the

Given this benchmark, the authors find that prior to the exchange rate system's collapse, each of the E3 countries was maintaining interest rates that were much higher than domestic macroeconomic conditions warranted. The pressure from high interest rates, in turn, was a likely source of the system's collapse. The reasons why rates were unduly high prior to the EMS collapse vary among countries, but two factors stand out: First, German monetary policy was unusually tight because of the pressure of unification. Second, the business cycles were not "in sync" with Germany, particularly for the United Kingdom and France. To the extent there is a threat to the system, it will come from asynchronization of economic conditions across the member countries.

—Les Picker

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put gap. The primary focus of policy, however, remains on controlling inflation, in contrast to policymaking in the pre-1979 era.

The second part of the paper considers the E3 countries. It is motivated by the observation that even though inflation is under reasonable

planned monetary union will fare. For this reason, the authors examine the behavior of the E3 over this period. They use the estimated policy rule for the Bundesbank as a benchmark to evaluate how interest rates are set in response to domestic inflation and output.

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