Saving—what do we know, and why do we care?

A recent World Bank research project shows that saving has important interactions with income and growth—with resulting implications for policy.

Saving rates vary widely around the world. East Asia saves more than 30 percent of gross national disposable income, while Sub-Saharan Africa saves less than 15 percent. Moreover, between 1966 and 1994 these differences widened, with saving rates climbing steeply in East Asia, stagnating in Latin America, and declining in Africa (figure 1). Higher saving rates tend to accompany higher income growth—suggesting virtuous cycles of saving and prosperity, along with poverty traps of undersaving and stagnation.

Why saving matters

Should such disparities make saving a matter of policy concern? In principle there is little reason people and countries facing different shocks and income streams should strive for similar, optimal saving rates. But in practice the intertemporal choices that underlie saving are subject to externalities, market failures, and policy distortions that can cause saving rates to differ from welfare-maximizing levels.

Some market imperfections—a lack of risk-sharing instruments, overly stringent mandatory saving schemes, Soviet-style rationing—can lead to socially excessive saving. Other imperfections—insufficient government saving, the negative effect on retirement saving of an anticipated public bailout of the elderly poor—can cause too little national saving. More generally, the social value of saving exceeds its private value if higher saving sets off a virtuous cycle of higher growth and further increases in saving (see below).

The social value of saving could also exceed its private value because of imperfections in global financial markets. A national saving rate broadly in line with an economy’s investment rate reduces vulnerability to sudden shifts in international capital flows driven by uncontrollable herd behavior or self-fulfilling investor expectations. Still, as East Asia’s recent crisis shows, high saving alone does not provide complete insurance against the consequences of weak financial systems or unsustainable exchange rate policies.

Figure 1  East Asia has led the way in regional saving

Note: The figure shows gross national saving rates (including net current transfers) as a percentage of gross national disposable income. Regional medians are shown at current prices for 1966–94.

Source: World Saving Data Base.
Although a large amount of literature has shed light on various aspects of consumption and saving behavior, many policy-relevant questions remain largely unanswered. A recently completed World Bank research project on “Saving across the World” addresses many of these questions:

- Why do saving rates differ so much across countries and over time?
- What is the relationship between saving and growth—and which way does the causal link go?
- Which policy measures have the largest effect on national saving—and which should not be expected to work?

**What drives private saving?**

The research project yielded a rich set of empirical results on the behavior of private (and national) saving rates over the past 30 years. It also provided a comprehensive data set on saving aggregates and related variables (box 1). So what factors account for private saving?

**Persistence**

Private saving rates show inertia—that is, they are highly serially correlated even after controlling for other factors. Thus the effects of a change in a given saving determinant are fully realized only after several years, with long-term responses estimated to be 2.3 times larger than short-term (less than a year) ones.

**Income**

Private saving rates rise with real per capita income, supporting the view that the ability to save rises sharply only after income covers subsistence consumption. Income has a larger influence in developing than in industrial countries, tapering off at medium and high income levels. In developing countries it is estimated that, other things being equal, per capita income has to double to raise the long-term private saving rate by 10 percentage points of disposable income.

But development also brings changes in demographics and urbanization, some of which tend to reduce saving. Thus the long-term effect of income on saving may be more modest than this estimate indicates. Still, the overall implication is that policies that spur development are an indirect but effective way to raise private saving.

**Growth**

Much of the relationship between growth and saving runs from the former to the latter—rather than the other way—particularly over short horizons. Empirically, a 1 percentage point increase in the growth rate raises the private saving rate by a similar amount. Although part of this effect may be transitory, sustained accelerations in growth are associated with permanent hikes in saving.

On the other hand, sustained increases in saving are often followed by accelerations in growth that persist for several years but eventually disappear. The result is a permanent rise in incomes rather than in growth rates—in line with the predictions of neoclassical growth theory.

**Demographics**

Cross-country evidence confirms the predictions of the life-cycle hypothesis, indicating that a 3.5 percentage point increase in the youth dependency ratio reduces the private saving rate by about 1 percentage point. The negative impact of an increase in the elderly dependency ratio is more than twice as large.

**Uncertainty**

Theory predicts that higher uncertainty should raise saving as risk-averse consumers set aside resources to protect against possible adverse changes in income and other

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**Box 1 Measuring saving: The World Saving Data Base**

Most empirical studies of aggregate consumption and saving use data with major shortcomings—shortcomings that relate to the use of incorrect definitions of the private and public sectors, neglect of capital gains on assets and liabilities, and the use of too narrow a concept of net worth (excluding items such as accumulation of consumer durables and human capital assets). These limitations can distort measured saving considerably.

Though it is far from perfect, the new World Saving Data Base (available at http://www.worldbank.org/research/projects/savings/data.htm) introduces major improvements over publicly available databases. It represents the largest and most systematic collection of annual time series on country saving and saving-related variables, spanning 1960-94 and 112 developing and 22 industrial countries.
factors. International evidence supports this prediction. Inflation—conventionally taken as a summary measure of macroeconomic volatility—increases private saving, holding other factors constant. A similar logic explains the fact that urbanization is negatively associated with saving. Rural incomes are more uncertain and, in the absence of financial markets through which risks can be diversified, rural residents tend to save a larger portion of their income, other things being equal.

Private saving and public policy
What implications do these findings have for policy? Four areas merit particular attention.

Fiscal issues
A permanent increase in public saving of 4 percent of gross national disposable income is estimated to raise national saving by about 3 percent of gross national disposable income within a year and by about 1.5 percent over the long term. Thus even in the long term, increases in public saving are only partly offset by declines in private saving. But there is considerable variation in the degree to which private saving offsets changes in public saving—from less than 30 percent in India to nearly 80 percent in Mexico.

The evidence also consistently shows that cutting spending is a more effective way to increase saving than raising taxes. Nevertheless, while public saving may have the quickest and most direct positive effect on national saving, other policies that affect saving indirectly—through faster income growth—may have bigger and more lasting saving effects in the long term.

The evidence on the effectiveness of tax incentives to increase saving is mixed and, overall, not promising. The elasticity of saving to net rates of return is usually found to be low or even negative. Evidence from industrial countries on the effectiveness of tax incentives for voluntary retirement saving instruments is also mixed. Overall, tax incentives have only small positive effects on national saving, particularly when their negative effects on public saving are taken into account.

Pension reform
Some developing countries, especially in Latin America, are replacing pay-as-you-go pension systems with fully funded schemes, a reform often advocated for its favorable effect on saving. Time series evidence confirms that developing countries that increase the funding in their public retirement programs tend to achieve higher saving. Countries with pay as you go systems tend to have lower saving rates, and this effect increases with system coverage. Nevertheless, the impact of pension reform on saving is not a given and in practice hinges on how the transition deficit is financed and on the reform’s efficiency gains.

Pension reform should have little short-term effect on private saving if it is financed by issuing public debt—a move that simply entails converting an implicit government liability into an explicit one. But if the transition is financed by reducing the non-pension public deficit (through reduced benefits to retirees and higher taxes on the active labor force), saving levels of future generations will increase, though not necessarily their saving rate.

In the long term, pension reform can have additional effects on saving through mandatory saving requirements. An example is Singapore’s Central Provident Fund, which requires workers to contribute at least 25 percent of their salaries. Such requirements may significantly raise the saving of low-income, borrowing-constrained workers, though the welfare implications of such a change are open to question. But pension reform can also have other positive, indirect effects on saving if it raises per capita income and growth by reducing labor market distortions and inducing capital market development.

Financial liberalization
Financial liberalization involves a bundle of measures, including liberalizing interest rates, eliminating credit ceilings, easing entry by foreign financial institutions, developing new capital market sectors, and enhancing prudential regulation and supervision. Until recently a widely held view—not least in World Bank reports—was that financial liberalization should raise saving.
Analytically, the effect of financial liberalization on private saving rates can be divided into a direct short-term effect, which is generally negative, and an indirect long-term effect, which is generally positive. The direct effect consists of price and quantity channels. The price channel works through higher interest rates and, although popularly advocated in operational documents and the financial press, empirically is seldom effective in raising private saving—suggesting that the negative income effect of higher interest rates tends to neutralize their positive intertemporal substitution effect.

The quantity channel works by expanding the supply of credit to previously credit-constrained private agents, allowing households and small firms to use collateral more widely and reducing down payments on loans for housing and consumer durables. Theory predicts that this move should reduce private saving because individuals are able to finance higher consumption at a given current income level. This prediction is well supported by cross-country evidence, which indicates that a 1 percentage point increase in the ratio of private credit flow to income reduces the long-term private saving rate by as much as 0.7 percentage points.

Nevertheless, the indirect positive effect of financial liberalization on saving should not be underemphasized. Liberalizing domestic financial markets—particularly if done by strengthening domestic banks—increases the efficiency of financial intermediation and hence investment, contributing to higher growth. Thus it is through faster income growth that financial liberalization may increase private saving rates in the long run.

External borrowing and foreign aid
As with easier domestic credit, higher foreign saving also tends to substitute for private (and hence national) saving. Taking the international evidence at face value, an increase of 2 percent of gross national disposable income in the exogenous component of foreign lending reduces private (and national) saving by about 1 percent of gross national disposable income over the long term.

The evidence on the effect of foreign aid on private saving is mixed, however. Evidence from Africa suggests that higher foreign aid tends to reduce national saving. But this may overstate the case, because aid largely accrues to poor countries at times of adverse income shocks, when saving is lowest. Closer scrutiny of countries experiencing a lasting transition from low to high saving rates indeed reveals that increases in foreign aid are positively associated with higher private and national saving. This finding could reflect a situation where countries undertake reforms that both invite aid and induce higher investment and growth, so that aid and saving rise together. The conclusion is that aid need not invariably crowd out national saving.

Further reading
The papers produced by the research project are available at the “Saving across the World” website (http://www.worldbank.org/research/projects/savings/policies.htm). See also:

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