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SPECIAL REPORT

THE NEW THRIFT ACT: MENDING THE SAFETY NET

Richard W. Lang and Timothy G. Schiller
Signed into law this past August, the FIRRE Act will mean dramatic changes for S&Ls and banks alike, while reinforcing the "federal safety net" for depositors.

UNEQUAL SUBSIDIES IN HIGHWAY INVESTMENT: WHAT ARE THE CONSEQUENCES?

Richard Voith
A new highway may be highly subsidized, but a good investment nonetheless if the time savings to motorists and the net benefits to the community are greater than the subsidy. But who ends up paying for the investment?

THE U.S. AS A DEBTOR COUNTRY: CAUSES, PROSPECTS, AND POLICY IMPLICATIONS

Stephen A. Meyer
Having a large and growing foreign debt has reversed our status from that of net creditor to net debtor. Will this debt mean lowered living standards for future generations? And will higher inflation necessarily result?

The New Thrift Act: Mending the Safety Net

*Richard W. Lang and Timothy G. Schiller**

When the Federal Reserve Banks opened their doors on November 16, 1914, the nation's financial system was on the threshold of historic change. Seventy-five years later, it faces dramatic change again. The new Financial Institutions Reform, Recovery, and Enforce-

ment Act, designed to mend the federal safety net for depositors, will not only restructure the thrift industry, but alter the banking industry as well.

Weaving the Safety Net

Just as the new legislation is intended to stem a crisis in the financial industry, the Federal Reserve Act was a response to the financial panics of the late 19th and early 20th centuries. Wanting banks to be able to meet liquidity crises, Congress created the Federal Reserve System in 1913. The 12 Federal Reserve Banks,

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which opened less than a year later, were authorized to hold reserves for member banks in their districts and to lend to them for short periods. For member banks experiencing short-term liquidity problems, the Federal Reserve was to be the lender of last resort—the first piece of the “federal safety net.”

With the Great Depression and the numerous bank failures of the early 1930s, Congress’s attention turned to two issues: deposit insur-

ance and bank powers. Many legislators believed that the 1929 stock market crash, the widespread bank failures that followed, and the onset of the Depression were all tied to abuses of the connections permitted between investment banking and commercial banking. Congress passed the Banking Act of 1933 to 1) separate commercial banking from securities underwriting and 2) insure deposits. Popularly known as the Glass-Steagall Act (named

Old Regulatory Structure

Treasury Department

- Office of the Comptroller of the Currency
 - Charters national banks
 - Supervises and regulates national banks

FDIC

- Insures deposits at commercial and savings banks
- Manages assets and liabilities of insolvent banks
- Supervises and regulates state-chartered banks that are not members of the Federal Reserve System

Federal Home Loan Bank Board

- Charters federal S&Ls
- Regulates and supervises federal S&Ls
- Oversees the FSLIC
- Oversees the 12 regional Federal Home Loan Banks

FSLIC

- Insures deposits at S&Ls
- Manages assets and liabilities of insolvent S&Ls

Federal Home Loan Banks

- Lend (make advances) to member S&Ls
- Examine S&Ls

Federal Reserve

- Supervises and regulates state-chartered member banks, bank holding companies and their nonbank subsidiaries, the international activities of banks and bank holding companies, and the U.S. banking and nonbanking operations of foreign banks
- Sets reserve requirements for all banks, S&Ls, and credit unions
- Through the 12 regional Federal Reserve Banks, provides discount-window loans to depository institutions

New Regulatory Structure

Treasury Department

Office of the Comptroller of the Currency

- No major change in duties

Office of Thrift Supervision

- Charters federal S&Ls
- Establishes S&L regulations
- Supervises both federal and state-chartered S&Ls, and S&L holding companies

FDIC

- FDIC's Board of Directors expanded from 3 to 5 members and will include the Director of the Office of Thrift Supervision

Bank Insurance Fund (BIF — same as original FDIC fund)

- Insures deposits of commercial and savings banks
- Manages assets and liabilities of insolvent banks

Savings Association Insurance Fund (SAIF — replaces FSLIC)

- Insures deposits of S&Ls
- Manages assets and liabilities of insolvent S&Ls *after 1992*

FSLIC Resolution Fund

- Manages the remaining assets and liabilities of some 200 S&Ls taken over by the FSLIC prior to 1989

Resolution Trust Oversight Board

- Oversees the Resolution Trust Corporation
- Chaired by the Secretary of the Treasury. Includes the Federal Reserve Board Chairman, the Secretary of Housing and Urban Development, and two others appointed by the President

Resolution Trust Corporation (managed by the FDIC)

- Manages the assets and liabilities of S&Ls that become insolvent between 1989 and August 1992
- Can use \$50 billion that will be raised by the Treasury and the Resolution Funding Corporation to resolve S&L problems
- Ceases to operate after 1996, when its responsibilities are shifted to the FDIC's Savings Association Insurance Fund

Resolution Funding Corporation

- Issues up to \$30 billion of long-term bonds to finance the activities of the Resolution Trust Corporation

Federal Housing Finance Board

- Oversees the 12 regional Federal Home Loan Banks

Federal Home Loan Banks

- Lend (make advances) to member institutions, which may include banks and credit unions as well as S&Ls

Federal Reserve

- No major change in duties

after its sponsors), the new law banned securities underwriting by national banks and deposit-taking by securities underwriters.

Concern about the losses incurred by depositors led Congress to include in this law a section establishing the Federal Deposit Insurance Corporation. The FDIC insured bank deposits up to \$5,000, with initial funds provided by the Treasury and the Federal Reserve Banks. The law provided for ongoing funding of the FDIC by assessing each bank a premium based on the amount of its insured deposits. By 1935, about 98 percent of all commercial bank deposits in the country were insured.

Savings and loan associations were not left out of the safety net. The Federal Home Loan Bank Act of 1932 established a regional system of Home Loan Banks to issue bonds and use the proceeds to supply liquidity to S&Ls by making loans (advances) to them. Congress followed with deposit insurance for S&Ls that were members of the FHLB System, creating the Federal Savings and Loan Insurance Corporation in 1934. Like the FDIC, both the Federal Home Loan Banks and the FSLIC initially received funds from the Treasury, but eventually became self-financing.

Extending the Safety Net

Deposit insurance for both banks and thrifts was raised to \$20,000 per depositor in 1969, and failures were rare. Indeed, Rep. Wright Patman, then Chairman of the House Banking Committee, wondered publicly whether the low incidence of failures indicated that regulators were preserving banks by preventing competition.

The FDIC did try to keep most banking offices open—not to prevent competition, but to protect depositors and reduce costs to the insurance fund. Under the purchase-and-assumption method of dealing with failing banks, the FDIC provided financial assistance to a healthy bank that purchased the assets and assumed the liabilities of a failing bank. In-

stead of closing the bank and paying off only insured depositors, the FDIC effectively protected all depositors. The FSLIC took a similar approach.

Over time, the limit on deposit-insurance coverage was increased—to \$40,000 in 1974 and to its current level of \$100,000 by the Depository Institutions Deregulation and Monetary Control Act of 1980. This Act also made the Fed's discount-window lending available to all banks, S&Ls, and credit unions having transactions accounts or nonpersonal time deposits, and levied reserve requirements on these same institutions.

Mending the Safety Net

During the 1980s the number of bank failures and insolvent thrifts increased sharply. Earnings problems for S&Ls had begun in the late 1970s, when inflation drove short-term interest rates and S&Ls' cost of funds above the interest rates these institutions were earning on their portfolios of mortgages. These problems continued in the 1980s, even after inflation and interest rates subsided, because S&Ls' cost of funds still remained high compared to their low-yielding, long-term mortgages. The deregulation of deposit interest rates and the expansion of S&Ls' powers into such areas as direct real estate investments, commercial lending, and high-yield junk bonds did not reverse the deteriorating trend for S&L losses as some had hoped. Also, problems with agricultural and energy loans caused losses for both banks and thrifts in several regions of the country. And as the energy sector continued to deteriorate in the Southwest, real estate values in the area plunged, adding to loan losses.

Because deposit-insurance premiums are assessed at a flat rate based only on the level of an institution's deposits, not on the riskiness of the bank or S&L, the deposit-insurance system did not provide an incentive for a troubled institution to avoid risk. In fact, since regulators followed a policy of "forbearance" in the

early 1980s by not enforcing strict capital requirements on many troubled S&Ls, there was actually an incentive for these institutions to take on more risk. A risky venture might pay off and bolster earnings. If it didn't, the deposit-insurance fund would be the one taking the loss.

Estimated losses at the insolvent thrifts eventually outstripped the size of the FSLIC's resources. The FSLIC's inability to meet its liabilities, as well as the first-ever operating loss for the FDIC in 1988, challenged the viability of the deposit-insurance system. In 1987, Congress passed a \$10.8 billion recapitalization of the FSLIC, but this amount proved inadequate to handle mounting thrift insolvencies. In February 1989 the Administration proposed major legislation to deal with the S&L problem, and President Bush signed the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) in August. The new Act:

1. *Provides funding for the regulatory authorities to sell or close insolvent S&Ls.* Managed by the FDIC, the Resolution Trust Corporation (RTC) will receive \$50 billion to close or sell ailing S&Ls: \$20 billion borrowed by the Treasury and \$30 billion borrowed by the Resolution Funding Corporation, the financing arm of the RTC. The total cost over 10 years for closing or selling all insolvent S&Ls (including interest on borrowed funds) is estimated by several analysts to be over \$160 billion, with the majority of the cost being paid by the government.
2. *Restructures and strengthens the deposit-insurance funds for both S&Ls and banks.* The FSLIC is replaced by the Savings Association Insurance Fund (SAIF), now under the FDIC's control. The banks' insurance fund is renamed the Bank Insurance Fund (BIF), separate from the SAIF. Deposit-insurance premiums for both S&Ls and banks are raised from their current levels, with S&Ls' premiums higher than banks' until 1998. These increases are expected to replenish the two insurance funds over the next 10 years.
3. *Restructures the regulatory framework of the financial system.* The Act abolishes the Federal Home Loan Bank Board. Its job of setting regulations and chartering federal S&Ls will be performed by the new Office of Thrift Supervision (OTS), which will be part of the Treasury. The regional Federal Home Loan Banks will be managed by a new agency, the Federal Housing Finance Board, whose members will include the Secretary of Housing and Urban Development. S&L examinations will be handled by the OTS rather than the FHLBs. As with banks, S&Ls' chartering and deposit insurance now will be regulated by separate agencies.
4. *Tightens restrictions on S&Ls' activities and raises their capital standards to increase the thrift industry's safety and soundness.* Capital standards for S&Ls will be raised to levels no less stringent than those for national banks. The Act also tightens restrictions on S&Ls' lending and investments—including investments in junk bonds, the size of loans made to one borrower, the extent of transactions with affiliates, the equity investments that can be made by state-chartered S&Ls, and the use of brokered deposits by S&Ls not meeting the new capital standards.
5. *Encourages S&Ls to focus on their more traditional role as mortgage lenders.* In addition to tightening the restrictions on S&Ls' activities, the Act redefines "qualified thrift lender" as one holding 70 percent or more of its portfolio in housing-related assets. These assets include mortgage loans, home-equity loans, and mortgage-backed securities. This QTL provision takes effect on July 1, 1991; until then, the current 60 percent QTL test ap-

plies. If an S&L fails to meet the QTL test, it will be ineligible for further advances from FHL Banks and will be subject to bank-like restrictions. If it then fails to meet the QTL test within three years, it must repay its FHLB advances.

6. *Reduces the differences in regulatory treatment of S&Ls and banks.* The structure of their regulatory agencies is now similar, and eventually so will be their insurance premiums, capital standards, and supervisory treatment. S&Ls now may take demand deposits from any commercial business, just as banks do. Banks and credit unions can become members of the Federal Home Loan Bank System and obtain advances from the FHL Banks if they have invested 10 percent of their assets in residential mortgage loans, although FHLBs must give preference to members meeting the QTL test. The Federal Reserve is directed to permit bank holding companies to acquire healthy S&Ls. And an S&L may convert to a bank charter or be merged with a bank subsidiary of a holding company, although there are exit and entry fees that must be paid to switch deposit insurance from SAIF to BIF.
7. *Increases the enforcement powers of the regulatory agencies and the penalties for banking-law violations.* For its costs of closing a failed or failing insured institution, the FDIC can obtain reimbursements from other insured institutions owned by the same parent company; it also is empowered to act more swiftly in suspending or revoking an institution's deposit insurance. Regulators are given more leeway in issuing cease-and-desist orders to banks and S&Ls. Civil and criminal penalties for violating banking laws are increased and may be applied to a broader range of individuals involved with depository institutions.

8. *Encourages the development of low-income housing and strengthens the Community Reinvestment Act's role in the banking and S&L industries.* Regulatory agencies' evaluations of CRA performance by banks and S&Ls must be made public. The Home Mortgage Disclosure Act now covers all mortgage lenders with assets of more than \$10 million and requires expanded reporting of completed applications by income, race, and sex. Each FHL Bank must establish a program to provide funding to member institutions for CRA-type activities, and subsidized funding for low-income housing. In two years, FHLB advances will be made only if borrowing institutions meet certain community investment standards established by the Federal Housing Finance Board.

The new Act will mean dramatic changes for the financial industry, affecting S&Ls and banks alike. As the Resolution Trust Corporation sells or closes sick thrifts, more consolidation of firms will occur, reinforcing a trend for S&Ls and banks already begun by increased competition and expanded interstate banking.

While the FIRREA makes major changes in the safety net, Congress still plans to examine the net more closely. In particular, Congress held initial hearings in September on one of the major unresolved issues in the pricing of deposit insurance: whether the current system of flat-rate deposit-insurance premiums should be changed to one that takes into account the different levels of risk each bank or thrift imposes on the deposit-insurance funds. The FIRREA also requires the FDIC and the Treasury to study the feasibility of risk-based premiums and to report back to Congress within 18 months of FIRREA's enactment. If the practical difficulties of designing risk-based deposit-insurance premiums can be overcome, such premiums would be one way in which the safety net could be reinforced further.

Unequal Subsidies in Highway Investment: What Are the Consequences?

*Richard Voith**

The automobile's rise to dominance has changed the face of virtually every metropolitan area in the United States. With automobiles came highways that dramatically extended the boundaries of attractive places to live and work. For people with cars, it was no longer necessary to live in the city in order to work there, and increasingly, businesses found it advantageous to locate in less congested suburban areas as

well. Thus, people and jobs have become more dispersed throughout metropolitan areas, often following developments in the highway transportation system.

The way for ubiquitous automobile travel and for attendant changes in regional development was paved not just by expenditures on cars and trucks, but also by billions of dollars of public investment in the highway transportation system. This public investment has been financed, in part, by taxes levied on motorists using the highway. These taxes, or "user fees," are the prices motorists pay to use the highway system.

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User fees, however, fail to cover the highway system's total construction, maintenance, and operating costs. Nearly \$454 billion in general tax revenues has supplemented highway user fees in the 1956-86 period, representing about 32 percent of the total investment.¹ The share of total highway expenditures covered by user fees has fluctuated considerably over the period and in 1986 stood at 61 percent (see graph below). Though user fees cover about 68 percent of the highway system's costs on average, the degree of subsidy for a particular highway may be considerably more (or less) than the average. And the price a motorist pays to use a highway often diverges from the actual cost he imposes, contributing to high-

way congestion and inefficient patterns of regional development.

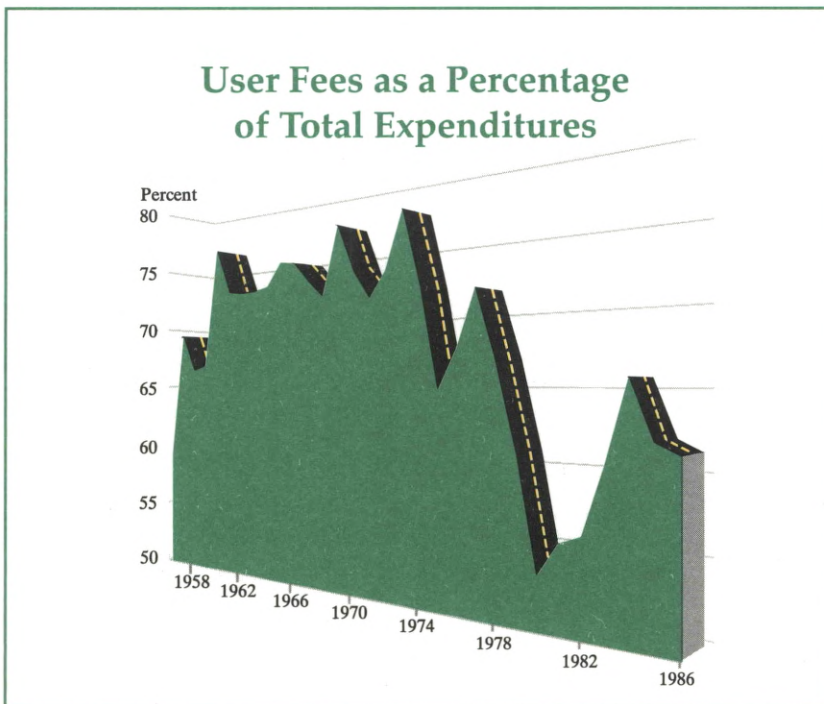
Highway subsidies not only foster increased travel and congestion, but they change the relative attractiveness of localities within a metropolitan area. An area traversed by a new highway tends to become more attractive because its transportation is improved without the residents, who get to use the highway, having to bear the full costs of the construction. Some localities will benefit economically from highway subsidies, but others, especially the older, more densely populated city centers, may suffer.

WHAT SHOULD THE MOTORIST PAY?

Encouraged by low user fees, more motorists are traveling longer distances than ever before. According to U.S. Census figures, the percentage of work-commuting trips by car increased from 69.5 percent in 1960 to 85.9 percent in 1980, and the average length of a

commuting trip increased 18 percent between 1975 and 1980. The bulk of the increase in travel has occurred in suburb-to-suburb and suburb-to-city commuting, up 58 percent and 25 percent, respectively.² The increase in suburban travel is straining the capacity of the highways that initially fos-

¹Figures are in 1986 constant dollars. In 1986, highway subsidies were \$24.5 billion, or 39 percent of the total public expenditure. Calculated from *Highway Statistics* (annual series, 1956-87), U.S. Department of Transportation, Federal Highway Administration, Table HF-10.



²These data are compiled in *Commuting in America*, by Alan Pisarski, Eno Foundation For Transportation, Westport, CT (1987). The analysis is based on data from the U.S. Bureau of the Census.

tered the suburban development. Is this level of auto travel, and the associated geographic dispersion, a good use of our resources?

According to economic theory, individuals' transportation and location decisions would be efficient if the price paid for transportation closely matched the costs imposed by the user.³ Though motorists do not pay a fee directly every time they use a highway, they do pay fees that are indirectly related to their use of the highway system.⁴ The federal Highway Trust Fund was established in 1956 to finance construction of highways, using revenues from a tax on gasoline and, to a lesser extent, from other automobile-related taxes.⁵ The tax on gasoline, a user fee, is essentially the price motorists pay to use the highway system. General governmental tax revenues augment highway expenditures, since the revenues from gasoline taxes have been insufficient to cover the capital, maintenance, and administration costs of highway use.⁶

³For discussion of the economic theory of highway pricing, see Theodore E. Keeler and Kenneth A. Small, "Optimal Peak-Load Pricing, Investment, and Service Levels on Urban Expressways," *Journal of Political Economy* (1977) pp. 1-25.

⁴Toll roads are an exception. Current federal regulations prohibit tolls on virtually all roads built with federal aid. There are, however, nine pilot projects that are federal-aid toll roads. See Michael Deitch, *New Directions of the Nation's Public Works*, Congressional Budget Office (September 1988).

⁵The federal government actually started taxing gasoline in 1932, but the funds were not earmarked specifically for highway expenditures. Federal expenditures on highways tracked gas-tax revenues fairly closely during the 1932-55 period. States taxed gasoline for highway expenditures much earlier than the federal government; as early as 1916, nearly 30 percent of states' highway expenditures came from gas-tax revenues. See Michael Deitch, *New Directions of the Nation's Public Works*, Congressional Budget Office (September 1988).

⁶State and local governments contribute most of the non-user-fee revenue for highway expenditures.

The Costs of Highway Use. Motorists impose two primary types of costs: infrastructure costs and congestion costs. Infrastructure costs include the costs of constructing, maintaining, and operating the highways. Congestion costs include time lost waiting in traffic, increased pollution, and reduced fuel efficiency. These are the costs one motorist imposes on another by competing for the same highway infrastructure. Adding another car on an already crowded road may result in slow travel not only for that car but for all others on the road.⁷ Infrastructure and congestion costs are related, as congestion costs can be reduced in the short run by more infrastructure investment. Alternatively, user fees can be raised to reflect congestion costs, reducing the demand for car travel and hence the need for additional highways.

The costs of highway use—infrastructure and congestion—often diverge from the prices motorists pay through user fees, for three reasons. The most obvious reason is that total user fees are insufficient to cover the infrastructure cost of the highway system. The second reason is that while the federal government collects user fees from all motorists, many of the expenditures from the Highway Trust Fund are concentrated on projects that only a fraction of all motorists use.⁸ Often, the user fees gener-

⁷Estimates of the costs of congestion are as high as \$5.6 billion per year (in 1981). See Steven A. Morrison, "A Survey of Road Pricing," *Transportation Research* 20A (1986) pp. 87-97.

⁸In theory, the federal portion of the gasoline tax should be used to promote interstate mobility for all U.S. citizens, while state and local user fees should cover intrastate and intrametropolitan highway investment. In practice, however, the federal government's highway investments have large effects on local commuting and development patterns, since the Highway Trust Fund provides up to 90 percent of the funds for state and local highway capital projects. Thus, some federal expenditures have primarily local effects even though they are paid for by the motorist at large. A similar problem occurs at the state level, though less severely since states spend their user fees at home.

ated from these particular projects cover only a small part of their infrastructure cost. The third reason prices and costs diverge is that not all motorists impose the same costs. Motorists traveling at peak times impose greater costs than those traveling at off-peak times. Taken together, rush-hour highway users cause higher infrastructure costs because additional lanes are needed to accommodate them. If peak highway capacity is inadequate, rush-hour motorists are likely to impose high congestion costs on one another. Yet, the price that rush-hour motorists pay in user fees is almost the same that off-peak motorists pay. Each of the three reasons for the divergence of prices and costs is easily illustrated.

A Hypothetical Example. Suppose there are only two cities in the country, Taxtown and Spendville. Taxtown is an older, compact city with little open space. Spendville is far less concentrated, with an abundance of inexpensive open land. Both cities have severe problems with rush-hour congestion; the costs of this congestion in lost time and economic activity are \$40 million for each city. Because of the availability of inexpensive land in Spendville, it is possible to build a highway there for \$30 million that, in the short run, will eliminate the congestion. In Taxtown, the lack of land and dense population drive the construction cost of a new highway up to \$50 million. Motorists in Taxtown and Spendville contribute \$20 million, \$10 million from each city, to the national Highway Trust Fund through user fees; consequently, neither city can pay for congestion-reducing investments from user fees at their current level.

From a *social point of view*, the highway in Spendville should be built, since its benefits will exceed its costs. That is, the benefits of reduced congestion (\$40 million) exceed the cost of highway construction (\$30 million). The highway in Taxtown should not be built, since the construction cost (\$50 million) exceeds the benefit (\$40 million). Under the *current system*

of financing, user fees from Spendville and Taxtown (\$20 million, by way of the national Highway Trust Fund) would be allocated to build the highway in Spendville. (The transfer of funds from Taxtown to Spendville is called a cross-subsidy.) Moreover, an additional \$10 million in general tax revenue would be required to build the Spendville highway. (This additional \$10 million in general tax revenue is a non-user-fee subsidy.)⁹

The subsidies for Spendville's highway provided by the general taxpayer and the motorists in Taxtown affect more than just Spendville's transportation system. Because two-thirds of the cost of Spendville's highway investment is subsidized, it is likely to be a more attractive place to live and work, as its transportation has been improved without its residents having to bear the full cost. Additionally, the highway subsidies would encourage more geographic dispersion in Spendville and, in the long run, more travel that would partly offset the benefits of increased highway capacity.

The residents of Taxtown, on the other hand, still pay user fees but derive no benefit from the highway investment. From a social perspective, it would be both more equitable and more efficient to increase user fees in Spendville by \$20 million and eliminate the general revenue subsidy and the cross-subsidy.¹⁰

The Importance of Fine-Tuning User Fees. Now let's examine some possible consequences

⁹The actual distribution of federal highway funds is quite complex. Some highway trust funds are allocated by formula, while others, including the interstate highway system, are allocated on a project-by-project basis.

¹⁰Note that there may be instances when it is more efficient for cities to jointly fund a project—if the project has benefits for both cities. Additionally, sometimes projects should be funded from general revenues. If the overall benefits of a project outweigh what users are willing to pay because of positive externalities, there is a good rationale for subsidies.

of increasing user fees in Spendville. Just increasing user fees to cover the costs of the new highway would likely reduce the demand for highway travel and, hence, reduce congestion. With the reduced travel, a less ambitious, less expensive new highway might suffice to eliminate the remaining congestion. Now suppose that user fees are increased only for rush-hour motorists, since these motorists impose the highest costs. This would reduce travel demand when its costs are highest, partly by shifting travel to periods when the road is underused. The reduction in peak travel would lessen the need for new highway construction while keeping user fees low for those motorists imposing only small costs.

But what of the congestion in Taxtown? Suppose congestion in Taxtown could be eliminated by improved public transportation costing \$35 million. This investment in public transportation improvement should be made, since the benefits of reduced automobile congestion (\$40 million) outweigh the costs of improved public transportation (\$35 million). However, highway user fees probably would not be used for public transportation investment, even though it is socially desirable.¹¹ Financing for public transportation would have to come from a combination of public-transit user fees and general revenue subsidies, even though automobile users directly benefit because overall congestion would be reduced.¹² It would be more efficient to increase highway user fees and invest them in public transportation than either build the highway for \$50

million or do nothing and endure the congestion cost. In this case, limiting the use of motorists' user fees to highway investments is against the interest of the motorist.

By fine-tuning user fees to more accurately reflect the costs imposed, and by investing user fees where they make the greatest contribution to mobility, it is possible to reduce congestion and the quantity of new infrastructure needed. In our example, Spendville might be able to have both low average user fees and low congestion without subsidies from general taxpayers and cross-subsidies from motorists in Taxtown. Taxtown's residents would be better off raising user fees and investing in public transportation. In either case, if pricing is ignored, new highways designed to reduce congestion are bound to become congested themselves, since the low price will attract users until congestion costs offset the benefits.

DISTORTIONS DUE TO UNEQUAL SUBSIDIES

While the example of Taxtown and Spendville is purely hypothetical, it mirrors what actually occurs in the pricing of and investment in our highway system. The extent to which travel and location decisions are distorted from the most efficient ones depends, in part, on how far prices diverge from the true costs of highway use. The degree to which the highway user is subsidized on average will affect the attractiveness of the automobile relative to other transportation alternatives, as well as the level of total travel and, in the long run, the extent of geographic dispersion. Unequal subsidies for individual highway projects will distort the relative attractiveness of locations for individuals and businesses, regardless of the average level of subsidy. Thus when examining the extent of highway subsidies, it is useful to go beyond their average level and examine those for individual highway projects.

Individual Highway Subsidies. Subsidies for individual highways may differ widely

¹¹Highway user fees are generally earmarked solely for highway investments, though there are some exceptions. For example, 1 cent of the 1982 5-cent hike in federal gasoline taxes is dedicated to public transportation. See the Highway Revenue Act of 1982.

¹²The only justification for subsidizing public transportation in this case is that it benefits riders and motorists alike. If no benefits accrued to nonriders, it would not be efficient to subsidize public transportation.

from the average subsidy. It is not necessarily true that users of any particular highway will pay the 1986 average of 61 percent of highway infrastructure costs. Some areas will generate more user fees than are spent, while others will spend more than are generated. Just as in Taxtown and Spendville, those making use of highway investment may not be financing the total investment through user fees.

For any project, several factors affect the share of the infrastructure costs covered by highway user fees. On the cost side, expenses increase with the number of lanes needed, the quality of the roadway, the cost of acquiring land, and the complexity of the project. For example, expressways through densely populated urban areas often are complex and have high land-acquisition costs. In the case of new highways, costs are often higher as special amenities, such as sound barriers, are built into the design of the highway to minimize its negative impacts on the communities it passes through.¹³ On the revenue side, user fees increase proportionately with travel so that the most heavily traveled roads generate the most revenue. Urban highways thus tend to generate more user fees than rural expressways.

The subsidy level for any particular project depends on the interaction of factors affecting costs and revenues. A rural highway may be relatively inexpensive to construct but traffic may be low, resulting in low user fees, and hence the highway may be heavily subsidized. The pattern of traffic demand affects the level of subsidy for a project in another way. Peak travel levels determine the number of lanes needed for a highway and hence the cost, but the total user fees depend only on total traffic.

¹³Some claim that the costs of these amenities often outweigh the environmental benefits. See Jose A. Gomez-Ibanez, "The Federal Role in Urban Transportation," in *American Domestic Priorities*, John M. Quigley and Daniel L. Rubinfeld, eds., University of California Press, Berkeley (1985) p. 205.

So if traffic is very heavy at rush hours but light at other times during the day, the highway built for heavy peak traffic will require higher subsidies than if demand were smooth throughout the day.

Some Real-World Examples. To get a handle on the extent to which user fees and highway infrastructure costs diverge, we examined 13 major highway construction projects—six in Pennsylvania, six in Maryland, and one in New Jersey. (See Tables 1 and 2 for a description of each project, listed in order from the most highly subsidized on a per-car basis to the least subsidized.) The projects, ranging in cost from \$97 million to \$581 million, include completely new highways and reconstructions of existing highways. The cost per mile of construction varies widely, from a low of \$6.8 million per mile to a high of \$133.3 million per mile. For all but one project, current and future travel levels are shown in Table 1.¹⁴ The current daily usage varies from 9,200 cars per day to 127,600 cars per day. The projected daily usage ranges from 26,000 to 133,800 cars per day.

For each project, yearly costs, yearly user-fee revenue, and subsidy have been calculated and are shown in Table 2.¹⁵ (For method of cal-

¹⁴The current levels refer either to the number of cars per day using the highway when it is initially opened, or, if it is a reconstruction or expansion, to the traffic level prior to the project. The projected level of travel is the number of cars per day expected by the states' departments of transportation when the transportation and land-use patterns have evolved around the highway. The years in which the projected travel levels are reached are not the same for each project.

¹⁵The cost figures include only the opportunity cost of capital and depreciation, and no allowance for maintenance, law enforcement, administration, or externalities such as pollution and personal injury from highway accidents. The revenue figures include only gasoline taxes, both state and federal, and assume that, without the investment, there would be zero user-fee revenue. On balance, the estimates of subsidy (costs–revenue) are likely to be underestimated.

TABLE 1

Project	State	Urban, Suburban, or Rural	Capital Cost (\$ million)	Miles	Current Cars Per Day	Projected Cars Per Day
Blue	PA	Suburban	581	21.5	64,000	75,000
US48	MD	Rural	202	22.1	9,200	26,000
US220	PA	Rural	97	11.0	17,000	NA*
I279	PA	Urban	405	16.0	45,000	74,000
I78	PA	Urb/Suburban	384	30.0	35,000	64,000
I97	MD	Suburban	364	20.9	43,822	72,597
MD100	MD	Suburban	197	12.4	21,581	49,935
Vine	PA	Urban	200	1.5	70,000	120,000
RTE29	NJ	Suburban	253	13.5	86,667	131,185
I68	MD	Suburban	204	10.2	75,229	105,490
US50	MD	Suburban	103	15.2	28,923	47,148
I68	MD	Suburban	158	9.8	46,510	89,176
I76	PA	Urb/Suburban	200	17.7	127,600	133,800

Notes: Gas tax (state + federal in \$/gal): Maryland=.275; Pennsylvania=.21; New Jersey=.195; U.S.=.9. Quarterly Summary of Federal, State, and Local Tax Revenue, Bureau of the Census, GT-88-Q3.

Sources: *State Report on Transportation* Vol. II, Maryland Department of Transportation, FY1988 - FY1993; New Jersey State Department of Transportation (Regional Office); Pennsylvania State Department of Transportation (Regional Offices).

*Projected value not available.

culcation, see *Calculating Cost and Revenues*, p.17.) According to these calculations, none of the projects generates sufficient user fees to cover the infrastructure investment. In fact, based on the current travel-usage figures, user fees cover 54 percent of the investment at best and 2.5 percent at worst. On a per-car basis, the subsidy ranges from \$0.16 to \$4.50 for every car using the highway. On a vehicle-mile-traveled basis, the subsidy ranges from less than 1 cent per vehicle mile to 41 cents per vehicle mile. Based on projected travel, these figures range from 0.8 cents to 23 cents per vehicle mile.¹⁶ All

¹⁶These figures do not take into account the higher subsidies accruing in years prior to the traffic reaching the projected level.

of these highway projects are very highly subsidized—some because their costs of construction are very high and others because the total travel, and hence user fees, is low.

Three Philadelphia-area Projects. Let's take a closer look at three projects, all in the Philadelphia metropolitan area. The most expensive project—I476, commonly known as the *Blue Route*—is a completely new highway cutting through suburban Philadelphia. This highway is highly subsidized, by over \$41 million per year (8 cents per vehicle mile traveled, or \$1.47 per car), because it has a relatively high construction cost on a per-mile basis (\$27 million per mile) and because the traffic level (75,000 cars per day) is not that high. The most expensive project on a per-mile basis is the *Vine*

TABLE 2

Project	Yearly Gas-Tax Revenue (\$ million)		Total Yearly Cost (\$ million)	Yearly Subsidy (\$ million)		Subsidy Per Car (\$ million)	
	Current	Projected		Current	Projected	Current	Projected
Blue	5.27	6.18	46.35	41.07	40.17	1.76	1.47
US48	1.02	2.88	16.12	15.10	13.24	4.50	1.39
US220	0.72	NA*	7.74	7.02	NA*	1.13	NA**
I279	2.76	4.54	32.31	29.55	27.77	1.80	1.03
I78	4.02	7.36	30.63	26.61	23.27	2.08	1.00
I97	4.60	7.61	29.04	24.44	21.42	1.53	0.81
MD100	1.34	3.11	15.74	14.40	12.63	1.83	0.69
Vine	0.40	0.69	15.95	15.55	15.26	0.61	0.35
RTE29	4.16	6.30	20.18	16.02	13.88	0.51	0.29
I68	3.85	5.40	16.31	12.46	10.91	0.45	0.28
US50	2.21	3.60	8.20	5.99	4.60	0.57	0.27
I68	2.29	4.39	12.59	10.30	8.20	0.61	0.25
I76	8.66	9.08	15.95	7.30	6.88	0.16	0.14

Notes: Yearly Revenue = Tax * (Miles/MPG) * (Cars/Day) * 365

Total Yearly Cost = (Int. Rate * Capital Cost)/(1-exp(- Int. Rate * Capital Life))

Yearly Subsidy = Yearly Cost - Yearly Revenue

Subsidy/Car = Yearly Subsidy/(Cars/Day * 365)

Assumed miles per gallon: 20

Assumed capital life: 30 years

Assumed interest rate: 7 percent

^aRanked by current subsidy per car.

*Projected values not available.

Street Expressway, running through the heart of Philadelphia. This project is almost five times as expensive on a per-mile basis than the Blue Route, but its projected subsidy per vehicle mile is a little more than three times as great because of the heavy traffic volume (120,000 cars per day).¹⁷

¹⁷This project is very expensive because part of the highway runs underground for aesthetic and environmental reasons.

The I76 (*Schuylkill Expressway*) reconstruction project in the Philadelphia metropolitan area is, by far, the least subsidized project. It has relatively low construction costs per mile—primarily because no additional land needed to be acquired for reconstruction. Additionally, the highway has very high traffic volumes of 133,800 cars per day. The projected subsidy on a per-mile basis for this project is less than 1 cent per mile, or 14 cents for each car using the expressway.

Each of these projects is likely to have a

different impact on the pattern of regional development in metropolitan Philadelphia. Since the I76 reconstruction serves the same area at close to the same capacity as the original high-

way, it probably will have little impact on new development. Rather, it should facilitate the continued economic health of the areas it has historically served. The effect of the Vine Street

Calculating Cost and Revenues

To calculate subsidies for a highway project, we compare the yearly costs of the highway with the yearly revenue from user fees. In computing the yearly cost of a highway project, we need to estimate the opportunity cost of the capital invested in the project, the rate at which the highway depreciates, the maintenance and operating costs, and the costs of adverse side effects from the highway, such as increased pollution. To calculate user fees, we need to know how many cars will use the road, how much gas they will use, and what the gasoline tax rate is.

Consider highway costs first. What is the opportunity cost of capital? It is the amount of money one could make by not spending the money on the highway project, but rather by investing it in some risk-free asset like a Treasury bill. For example, the opportunity cost of capital for the \$581 million spent on the Blue Route, assuming a 7 percent interest rate, is .07 times \$581 million, or \$41 million a year. The highway does not last forever, so we must take into account how much the highway depreciates each year. For our calculations, we assume that the highway lasts 30 years and that the asset delivers the same service flow throughout the life of the highway. Given these assumptions, coupled with a 7 percent rate of interest, the yearly expense for the Blue Route is \$46.35 million.* The yearly expense increases with the level of interest rate assumed; the assumed interest rate of 7 percent is less than current long-term rates, which are about 8 percent, so our cost estimate is conservative. Also, since we ignore all other costs, such as maintenance and pollution costs, our cost estimates are lower than the true costs.

To calculate the user fees generated by motorists, we use estimates of the number of cars using the highway, then assume that the average car gets 20 miles to the gallon and that it travels the entire length of the highway. The yearly revenue equals the gasoline tax multiplied by number of gallons consumed by each car on the highway times the number of cars using the highway each year. Using the Blue Route as an example, total gasoline taxes in Pennsylvania are 21 cents per gallon, the highway length is 21.5 miles, and the expected number of cars per day at the outset is 64,000, or 23.4 million cars per year. This gives total revenues of \$5.27 million per year. An implicit assumption in this calculation is that all travel on the highway is new travel—that is, it is travel that would not have occurred without the highway. Because this assumption is unlikely to be true, the estimate is likely to overstate the new user fees resulting from the project.

Subsidies are the difference between yearly costs and yearly revenues. In the case of the Blue Route, these amount to \$41.1 million initially. Because costs are probably underestimated and revenues are probably overestimated, the subsidy figure may be too low.

*The formula for calculating the annual opportunity plus depreciation costs is: $(r \times k) / (1 - \exp(-r \times L))$, where r is the interest rate, k is the total capital cost, and L is the useful life of the highway. Note that $r \times k$ is the opportunity cost, and the depreciation cost is the difference between the yearly cost and the yearly opportunity cost. For a discussion of this calculation, see Theodore Keeler and John S. Ying, "Measuring the Benefits of a Large Public Investment," *Journal of Public Economics* (1988) pp. 69-85.

Expressway, despite its high subsidy level, is uncertain; it is unclear whether it will serve primarily as a bypass for suburb-to-suburb travel or whether it will improve access and extend the boundaries of the central business district. Finally, the Blue Route is likely to have large effects on regional development, since it provides access to a large area that formerly had no interstate highway access. Whether its large subsidy will be offset by reduced congestion and by new economic development (as opposed to shifts in the location of development) is an open question.

DO WE INVEST IN HIGHWAYS EFFICIENTLY?

Just because a highway does not generate sufficient revenue under the current mechanism of pricing does not mean that the highway should not be built. The decision to build—and the type of road to be built—depends on the social costs and benefits of the highway. The benefits include the time saved from reduced congestion and the new economic activity spawned by the highway. For example, the Blue Route, though highly subsidized, may be a good investment if the time savings plus net benefits to nonusers, such as new economic development, are greater than the subsidy. But in this case, those deriving the benefit from increased local economic development should help pay the cost of the investment.

If a highway's costs are not borne by those

deriving the benefits, motorists have too large an incentive for travel, and local jurisdictions have an incentive to undertake projects that provide some benefits but not enough to justify the costs. Also, it is easier for localities to undertake a project that simply shifts development from one area to another. In the case of the Blue Route, for example, there will likely be significant economic development in the area it serves. But how much of this development would have occurred anyway, only in a different location, had the large subsidy not existed?

Our analysis indicates that all of the large highway projects considered are highly subsidized and that the subsidy levels of the 13 projects vary considerably. While many of these projects may be worthwhile from a social point of view, the obvious beneficiaries are not paying the full cost. We can assume that for each project there are some benefits enjoyed by nonusers to justify a subsidy, but there is little indication that the different subsidy levels are in any way related to the benefits to nonusers. It is also likely that the large subsidy levels are not matched by benefits to nonusers and therefore encourage too much auto travel and too much dispersion of economic activity. The best way to ensure efficient transportation and location decisions is to make those imposing the costs or deriving the benefits—whether motorists or local communities seeking development—pay for the investment.

The U.S. as a Debtor Country: Causes, Prospects, and Policy Implications

*Stephen A. Meyer**

One and a quarter trillion dollars—that is roughly the value of claims on the United States accumulated by foreigners from 1982 through 1988. Their purchases of U.S. assets far exceeded U.S. residents' purchases of foreign assets, turning the United States into a net foreign debtor in 1985. By the end of 1988, foreign ownership of assets in the U.S. exceeded our ownership of foreign assets by about \$530 billion.

Our growing status as a net debtor has raised various concerns. A major one is that future generations of Americans may face lowered living standards because they will be forced to service the foreign debt we have accumulated. A second concern is that our large foreign debt might bring the U.S. very high inflation rates in the future, like those experienced recently by some of the world's debtor nations.

To assess the validity of these concerns, we first need to understand the economic factors that generated large net capital inflows into the United States. That understanding will enable us to analyze the implications for future living

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standards and inflation. We also will be able to evaluate the prospects for reversing our position as a net debtor and weigh the role economic policies can play in that process. (See *Glossary*, pp. 30-31, for definitions of terms that appear above and elsewhere in this article.)

LARGE CURRENT ACCOUNT DEFICITS MADE THE U.S. A NET DEBTOR

A direct link exists between the current account balance and international capital flows. Understanding that link is critical to understanding how the U.S. became a net debtor.

What Does It Mean to Be a Net-Debtor Country?

There is widespread confusion about what the Commerce Department's figures mean when they show that the U.S. is a net foreign debtor. Technically, those figures show that foreigners' ownership of claims on the U.S. (including land, buildings, firms, stocks, bonds, and other financial instruments) exceeds U.S. residents' ownership of claims on foreign countries. The important point here is that *all* foreign assets and liabilities are included in this calculation, not just debt instruments.

About 30 percent of U.S. foreign "debt" is accounted for by foreign ownership of stock issued by U.S. corporations and by foreign direct investments in the United States (such as foreign-owned land, office buildings, and manufacturing and distribution facilities in the United States). For example, automobile factories built in the U.S. by Japanese auto companies show up in the official figures as foreign claims on the United States. Corporate stocks and direct investments account for nearly the same percentage of U.S. claims on foreigners.

That some of our foreign assets and "debts" are actually real investments matters for three reasons. First, direct investments produce goods and services in the U.S. and thereby generate the stream of dividends or profits that are paid to foreigners. In the process, direct investments generate output and employment in the U.S., benefiting residents as well as nonresidents. Second, while direct investments generate a stream of profits or dividends that flow to their owners, direct investments do not normally require a contractually fixed stream of payments to foreigners (such as are required by interest payments on a bond). Instead, foreign direct investments in the U.S. pay high returns when profits are strong in the U.S. and lower returns when profits are weak. In effect, we pay more to foreigners when we can best afford to. Third, direct investments are valued at their "book value" (historical acquisition cost) in the official figures, unlike financial instruments, which usually are valued at their current market value. Using book value results in a large understatement of the true value of foreign direct investments owned by U.S. residents, but a much smaller understatement of the true value of foreign-owned direct investments in the United States. Thus, valuing foreign direct investments at their book value results in a large overstatement of the true size of the U.S. net-debtor position. These three points argue that the true burden that will arise from the need to service our foreign "debts" is likely to be smaller than estimates based on official Commerce Department figures seem to suggest.

Making these and other technical adjustments to the official figures suggests that the U.S. net-foreign-liability position was at least \$350 billion *smaller* at the end of 1987 than the official figures show.* Despite the ambiguities in the official figures, however, it is clear that the balance between U.S. claims on foreigners and U.S. liabilities to foreigners has changed dramatically during the 1980s. From a large net-foreign-asset position in 1982, the U.S. almost certainly shifted to a net-foreign-liability position at the end of 1988.

*For a discussion of these issues and other measurement problems in the official statistics, and also for corrected estimates of U.S. foreign assets and liabilities, see Michael Ulan and William G. Dewald, "Deflating U.S. Twin Deficits and the Net International Investment Position," Planning and Economic Analysis Staff Working Paper 12 (Bureau of Economic and Business Affairs, U.S. Department of State, 1989).

When the U.S. imports more than it exports and runs a current account deficit, as it has each year since 1982, our receipts from abroad fall short of our payments to foreigners. To finance the excess of foreign payments over receipts, the U.S. must borrow from foreigners or sell assets to them. In each case, financial capital flows into the United States. At the same time, either our liabilities to foreigners rise or our holdings of foreign assets decline, so our *net* foreign asset position declines.¹

Current Account Deficits and Matching Capital Inflows Reflected Macroeconomic Imbalances. Fundamentally, the large capital inflows into the U.S. during the 1980s resulted from a shortfall of national saving relative to the demand for funds to finance real invest-

ment in buildings, equipment, structures, and inventories. The excess of investment spending over national saving was financed by an inflow of capital from abroad.

National saving (the sum of personal saving, business saving, and government saving) declined as a share of GNP during the 1980s. National saving declined from 16.2 percent of GNP in 1980 and 17 percent in 1981 to a little more than 12 percent in 1987 before rising somewhat in 1988. Business saving did not decline relative to GNP; it was just about the same share of GNP in 1987 and 1988 as in 1980 and was higher between 1981 and 1986. But personal saving fell from about 5 percent of GNP at the beginning of the 1980s to less than 2.5 percent in 1987. And government *dissaving* in the form of budget deficits (for all levels of government combined) grew from a little more than 1 percent of GNP to an average of almost 3.5 percent in 1982 through 1986, then declined in 1987 and 1988. Thus, about half of the decline in national saving relative to GNP was caused by falling personal saving rates and about half by rising government budget deficits.

¹A standard source for information on the U.S. trade and current account balances, and on the foreign assets and liabilities of the U.S., is the *Survey of Current Business*, published monthly by the Bureau of Economic Analysis, U.S. Department of Commerce. The March, June, September, and December issues contain detailed information on the U.S. current account balance and its components. The June issue also includes details on foreign assets and liabilities of the United States.

TABLE 1
Personal and Government Saving Fell Relative to GNP
While Investment Rose

	Investment Spending (% of GNP)	National Saving (% of GNP)	National Saving (% of GNP)		
			Business	Personal	Government
1980	16.0	16.2	12.5	5.0	-1.3
1981	16.9	17.0	12.8	5.2	-1.0
1982	14.1	14.1	12.7	4.9	-3.5
1983	14.8	13.6	13.6	3.8	-3.8
1984	17.6	13.5	13.5	4.4	-2.8
1985	16.0	13.3	13.4	3.1	-3.3
1986	15.6	12.4	12.9	3.0	-3.4
1987	15.5	12.2	12.4	2.3	-2.4
1988	15.4	13.2	12.2	3.0	-2.0

While the national saving rate fell, investment spending rebounded from its 1982 low as the economy recovered from recession. Investment spending grew especially strongly in 1983 and 1984, rising to 17.6 percent of GNP, then fell back to about 15.8 percent of GNP from 1985 through 1988. The resulting imbalance between investment spending and national saving has exceeded \$100 billion each year since 1984, generating the need for a capital inflow from abroad.²

The large current account deficits and matching deterioration in the U.S. net-foreign-debt position also reflected a decline in the international competitiveness of U.S. firms from 1980 to 1985, most of which was caused by the more than 50 percent increase in the value of the dollar during that period. That rise in the dollar's value, which has since been reversed, meant that firms in the U.S. could buy various goods abroad and import them into the U.S. at a lower cost than they would incur by producing the goods here. The resulting increase in U.S. imports, and the accompanying decline in exports, accounts for most of the growth in our current account deficit.

The imbalance between national saving and investment was an important cause of the dollar's appreciation. The shortfall of national saving relative to investment spending helped drive up real (inflation-adjusted) interest rates in the United States. The rise in real interest rates, in turn, contributed to the rise in the dollar's value that reduced U.S. international competitiveness. The interplay between these

²Data on U.S. national income and product, including saving and investment spending, are available monthly in the *Survey of Current Business*. Those data show that personal saving has been declining as a share of GNP since the mid-1970s, when it peaked at 6.5 percent. For more detail on the behavior of private and government saving in the U.S., see Behzad Diba, "Private-Sector Decisions and the U.S. Trade Deficit," this *Business Review* (September/October 1988).

factors produced the large current account deficits and matching capital inflows of the 1980s. Those capital inflows cumulated to produce our net-foreign-liability position of \$530 billion—almost 11 percent of GNP—at the end of 1988.³

WILL OUR NET-DEBTOR STATUS REDUCE OUR FUTURE STANDARD OF LIVING?

Our growing net-debtor status has raised worries that we will have to transfer to foreigners so much of our future income—in the form of interest and dividend payments to foreign owners of claims on the U.S.—that we will end up with a falling standard of living. Whether the U.S. faces reduced living standards depends upon how the capital inflows of the 1980s were used—in particular, whether they financed investment or consumption. And the answer also depends upon our future savings behavior.

If Capital Inflows Financed Additional Investment, Our Future Standard of Living Is Likely to Rise. Additional spending on new investment in plant and equipment generates higher output and incomes by making workers more productive and by creating new jobs. Only part of the increased output and income accrues to foreign investors in the form of interest and dividend payments. The remainder of the higher incomes flows to workers in the U.S. in the form of wages and salaries and to governments in the U.S. in the form of tax revenues.

Foreign capital inflows can finance additional investment either directly or indirectly. They can finance additional investment directly if they are used to build new factories,

³A shortfall of national saving relative to desired investment spending in one country can generate foreign capital inflows into that country only if other countries' saving exceeds their investment spending. That has been true for Germany, Japan, and other countries during the 1980s.

office buildings, and other structures, or if they are used to purchase new equipment. Foreign capital inflows can finance new investment indirectly if they are used to buy financial instruments (such as stocks and bonds) from Americans, who will then be able to use the funds to finance investment.

But if Capital Inflows Financed Consumption, Our Future Living Standards May Be Reduced. If the inflow of foreign capital financed only current consumption spending, including consumption by the government, then we incur future payments to service the accumulated foreign debt but gain no offsetting increase in future incomes. In this case, our future standard of living will be lower *than it otherwise would have been*, but it still may be higher than today's. Continuing technological progress and real investment financed by domestic savings will raise our future standard of living, unless interest and dividend payments to foreigners rise more than our GNP. Thus there is a possibility that foreign capital inflows could produce a burden on future generations in the form of a lowered standard of living, if those capital inflows are used to finance consumption spending rather than new investment.

More Than Half of the Capital Inflow Was Used to Finance Increased Net Investment. By comparing the net capital inflows during the 1980s with the increase in the amount of *net* investment spending undertaken in the United States, we can determine how much of the capital inflows were used, directly or indirectly, to finance additions to the capital stock. During 1980 and 1981, when there was virtually no net capital flow, net investment spending by U.S. businesses averaged about \$150 billion per year. From 1984 to 1988 there were sizable net foreign capital inflows averaging a little more than \$126 billion per year. Net investment increased to an average of about \$221 billion per year over this period, better than \$70 billion per year higher than in 1980-

81.⁴ On average, then, about 55 percent of the net foreign capital inflow from 1984 to 1988 was used, directly or indirectly, to finance additional net investment.

There is another way to look at this issue: although national saving declined from 16.6 percent of GNP in 1980-81 to about 13.2 percent in 1984-88, net investment was unchanged as a share of GNP; net investment averaged 5.2 percent of GNP during the earlier period and also during the latter years. The implication is that foreign capital inflows allowed the U.S. capital stock to grow at the same rate from 1984 through 1988 as during 1980 and 1981, despite the drop in national saving relative to GNP. In

⁴We omit data for 1982 and 1983 from this comparison because investment spending was depressed during those years as a result of the 1981-82 recession. It would be misleading to attribute either the drop in investment spending from 1981 to 1982, or the increase from 1983 to 1984, to changing foreign capital inflows. If we were to include data for 1982 and 1983, it would appear that nearly 80 percent of the foreign capital inflow financed additional net investment.

TABLE 2
More Than Half
of Net Capital Inflows
Were Used to Finance
Added Investment

	Net Capital Inflow Per Year (\$ billion)	Net Investment Spending Per Year (\$ billion)
1980-81	-4.4	150.5
1984-88	126.3	220.9
	Increase = 70.4	

the absence of foreign capital inflows, a drop in national saving relative to GNP would have to be accompanied by a drop in investment relative to GNP. The inflow of capital from abroad allowed continuing growth in the capital stock, which is likely to mean rising living standards in the future. Nevertheless, more of the returns to that new capital will accrue to foreigners, so our standard of living will grow less rapidly than if net investment had been financed by domestic saving rather than foreign saving.

A simple back-of-the-envelope calculation will give a feeling for the potential size of this effect. The ratio of net foreign debt to GNP for the U.S. was almost 11 percent at the end of 1988. Whether that ratio rises or falls in the future, and by how much, will be critical in determining the size of the burden. If that ratio rises, indicating that our net foreign debt is growing faster than our GNP, then a rising share of our total incomes will accrue to foreigners.

Projections by various economic forecasting services of the likely future paths of GNP and the current account deficit suggest that the ratio of our net foreign debt to GNP might gradually rise to 15 percent of GNP, or perhaps to as much as 20 percent, before it begins to decline sometime late in the 1990s.⁵ As a result, we would need to transfer a rising share of each year's GNP to foreigners to make the interest and dividend payments that go with our net-debtor status. The projections indicate that net interest and dividend payments to foreigners might peak at as much as 1 percent of GNP. That is the potential burden of our position as a net foreign debtor.

We can gain some perspective on the size of this potential burden by noting that net interest

and dividend payments to foreigners are projected to rise from about \$4 billion in 1988 to as much as \$90 billion in 10 years' time. But over the same 10 years our GNP is projected to roughly double, rising by nearly \$5 trillion. Some of that growth in measured GNP reflects price increases rather than production of more goods and services, and some of that growth is needed to maintain our existing standard of living as the U.S. population grows. But even after adjusting for inflation and population growth, the projections suggest that per capita real GNP less net interest and dividend payments to foreigners is likely to grow about 16 percent by 1998.

That is not to say that our growing net-foreign-debtor position will have no effect upon Americans' future living standards, however. According to these projections, growing net interest and dividend payments to foreigners will leave our per capita real income roughly 1 percent lower at the turn of the century than it would be in the absence of those payments. Such an effect is small, but noticeable.

While the projections upon which these calculations are based are necessarily subject to great uncertainty, they do give a feeling for the size of the future burden of our net-debtor position. Americans are not likely to face a lower standard of living than we enjoy today. Still, our standard of living will grow a little less quickly as a result of our growing net-debtor position.

WILL OUR FOREIGN DEBT CAUSE HIGH INFLATION?

While it is unlikely that our growing net foreign debt will mean a lower standard of living than we have today, the concern remains that our net-debtor status might generate strong inflationary pressures like those in some other debtor countries. This concern raises two related questions. First, does the U.S. face the temptation to generate higher inflation because doing so could reduce the real value of its

⁵These figures, and other numbers cited below, are based upon long-term economic projections published during the winter of 1988-89 by DRI/McGraw-Hill and The WEFA Group.

foreign debts? And second, if foreigners were to become unwilling to continue accumulating claims on the U.S., as has happened with some other debtor countries, would the result be a debt crisis that generates high inflation in the United States?

Can We Inflate Away Our Foreign Debt?

One important difference between the U.S. and other debtor countries is that much of our foreign debt is denominated in our own domestic currency while theirs is not. That fact raises the possibility that the U.S. could inflate away the real value of its foreign debt by generating higher domestic inflation so that each dollar owed to foreigners would buy fewer U.S. goods.

In assessing this possibility, it is important to note that it is only fixed-rate, long-term nominal debt whose real value can be reduced by higher inflation. That is, the real value of fixed-income securities with fixed value at maturity, such as long-term bonds, can be reduced by higher inflation. But the real value of shares of stock in U.S. firms and of real assets such as buildings, factories, or land cannot reliably be reduced by inflation; their dollar values tend to rise along with prices of goods and services. And the real value of short-term or floating-rate debt cannot be reduced by higher inflation, because interest rates on such debt would rise along with the inflation rate, thereby compensating the holder of such debt for the higher inflation. Indeed, higher inflation would actually increase the burden of servicing short-term or floating-rate claims held by foreigners, because it would quickly raise the required interest payments on such debt.

Fixed-rate, long-term debt, whose value can be reduced by higher inflation, accounts for at most 20 percent of foreign claims on the United States.⁶ The bulk of U.S. liabilities to foreigners

consists of short-term debt, equity, and investments in real property. Thus, the U.S. cannot effectively inflate away the real value of its foreign debt, even though most of that debt is denominated in U.S. dollars.

That the U.S. cannot inflate away its foreign debt may not be enough to prevent inflationary pressures. Some of the world's debtor countries have suffered very high inflation, even though their foreign debts are largely floating-rate debt denominated in currencies other than their own so that their domestic inflation does not reduce the real value of their foreign debt. Those episodes of very high inflation seem to follow or accompany debt crises, in which foreign lenders become unwilling to continue accumulating claims on a particular country.

Would the U.S. Face Very High Inflation if It Could No Longer Borrow From Foreigners?

Although very high inflation seems to be connected with debt crises, episodes of very high inflation actually have little to do with the presence of foreign debt, or with debt crises, per se. Rather, very high inflation reflects a lack of well-developed internal capital markets, governments' inability to collect taxes effectively, and governments' responses to debt crises.

Many of the world's debtor countries had large government budget deficits that they financed mostly by borrowing from foreigners,

derived by treating all U.S. government notes and bonds plus all U.S. corporate and other bonds held by foreign official and foreign private investors as long-term, fixed-rate claims, and dividing that sum by total foreign claims on the United States. (Data on foreign holdings of U.S. government debt are available in the *Treasury Bulletin*; data on foreign ownership of U.S. corporate bonds are given in the June issue of the *Survey of Current Business*.) This method for estimating how much of foreign claims on the U.S. is fixed-rate, long-term debt almost certainly produces an overestimate because much of the stock of U.S. government notes outstanding at any point in time actually has a fairly short time remaining to maturity. The rest of foreign claims on the United States, other than those cited above, are either short-term or are real assets.

⁶Twenty percent is almost certainly an overestimate. Very little data on the maturity structure of foreign claims on the U.S. are available. The 20 percent figure is an estimate

especially from international banks and multi-lateral organizations. After issuing so much foreign debt that lenders became unwilling to provide additional funds, or became unwilling to provide as large a flow of new lending as in earlier years, many of those countries found that their domestic capital markets could not absorb enough new debt to finance ongoing government budget deficits as large as those previously financed by borrowing from foreigners. Policymakers in those countries then faced a choice between reducing government spending, raising taxes to finance that spending, or simply printing new money to finance the excess of government spending over revenues. Those governments that printed money to finance continuing budget deficits generated high inflation.⁷ On the other hand, those

debtor countries that responded to the reduced availability of foreign funds by reducing their budget deficits, thereby avoiding rapid growth of their money supplies, did not experience rapid inflation.

Thus, it is not foreign debt per se, or even the inability to issue new foreign debt, that causes high inflation in debtor countries. Rather, it is continuing rapid expansion of the money supply, usually to finance large government budget deficits, that causes high inflation.

Should we expect our government budget deficits to generate high inflation in the United States? In applying the lesson from those debtor countries that have experienced very high inflation, there are three points to bear in mind. First, the U.S. has well-developed domestic

⁷For a more thorough discussion of these problems, with details of particular countries' experiences, see Thomas J. Sargent, "The Ends of Four Big Inflations," in Robert Hall

(ed.), *Inflation*, NBER and University of Chicago Press (1982), and also Rudiger Dornbusch and Stanley Fischer, "Stopping Hyperinflations Past and Present," NBER Working Paper #1810 (1986).

Comparing the U.S. to High-Inflation Debtor Countries

While foreign claims on the U.S. are large, they are much smaller relative to the size of our economy than is true for those debtor countries that have suffered very high inflation. More importantly, the growth rate of the money supply in the United States is much, much lower than in high-inflation debtor countries.

In most of the debtor countries that have experienced very high inflation, large and continuing government budget deficits caused a large shortfall of domestic saving relative to investment spending. That shortfall was financed primarily by borrowing abroad. Accordingly, those countries accumulated very large foreign debts relative to their GNP and foreigners eventually became unwilling to continue lending at the same pace.

The size of the foreign debt was not itself the cause of high inflation, however. Nor was foreigners' reluctance to continue lending the cause of high inflation. Rather it was governments' response to the reduced availability of foreign funds that was critical. When foreigners became unwilling to continue lending to the same extent, some governments responded by creating large amounts of new money to finance continuing large budget deficits. Those governments that did so generated high inflation. Comparing the U.S. to Argentina, Bolivia, Brazil, Peru, and South Korea makes the point clear. In contrast to the United States, the first four of these debtor countries have experienced very high inflation because their governments generated very rapid growth of their money supplies.

South Korea, too, has a large foreign debt relative to the size of its economy; its government, however, did not allow very rapid money growth. Thus South Korea, like the United States, did not experience high inflation. The difference in monetary policy, not in the level of foreign debt, is what separates debtor countries that experienced high inflation from those that did not.

financial markets. The U.S. government has had no difficulty financing its deficits by issuing debt in these markets, although some of that debt has been purchased by foreigners. And no such difficulty is likely to arise as long as investors perceive that the U.S. budget deficit will shrink further relative to GNP.

Second, the shortfall of national saving relative to investment has been much smaller over the past 15 years for the U.S. than for the major debtor countries that have experienced very high inflation. As a result, the foreign debt of the U.S. is much smaller relative to our GNP than is the case for those countries. And the money supply has grown much less rapidly in the United States than in those countries.

Third, the U.S. Treasury cannot finance its deficit by printing new money. The power to issue new money in the U.S. is vested in the Federal Reserve System, which is prohibited by law from issuing new money to purchase

newly issued debt directly from the U.S. Treasury.⁸ Thus we should not expect budget deficits to generate very high growth rates of the money supply or very high inflation in the United States. Still, the inflationary experience of many debtor countries makes clear the importance of conducting monetary policy so as to avoid very rapid growth of the money supply, even when government deficits put pressure on financial markets.

⁸There is a minor exception (contained in 31 United States Code, section 5301; act of September 13, 1982) that allows the Federal Reserve to buy up to \$3 billion of securities directly from the U.S. Treasury when the President of the United States declares an economic emergency. This amount is tiny relative to the roughly \$230 billion of government securities that the Federal Reserve System held during the summer of 1989 — securities that were acquired in the open market during the normal course of monetary policy operations.

Large Foreign Debts Need Not Mean High Inflation

	Argentina	Bolivia	Brazil	Peru	S. Korea	U.S.
Total external debt (public and private) as % of GNP (1986)	59	103	43	62	47	22
Avg. saving shortfall (I - S) as % of GNP						
(1973-80)	0.6	6.8	4.6	4.3	6.0	0.0
(1980-86)	4.7	8.7	3.3	4.4	3.0	1.5
Average money growth (broad money: M2) (% per year, 1980-86)	302	643	176	101	18	9
Average inflation (% per year, 1980-86)	326	684	157	100	5	4

Sources: *World Development Report 1988* (World Bank, Washington, D.C., 1988);

Survey of Current Business, June 1988 (U.S. Department of Commerce, Washington, D.C.)

Continued Increases in Net Foreign Debt Might Lead to Slightly Higher Inflation. Although the buildup of foreign claims on the U.S. is unlikely to generate high inflation, future debt increases might contribute to modestly higher inflation for several years. Theoretical models of exchange-rate behavior suggest that if U.S. current account deficits do not shrink and our net-foreign-debtor position continues to grow rapidly as a result, then the dollar would tend to depreciate gradually over time. Such gradual but continuing depreciation would be expected to make inflation as measured by the Consumer Price Index a little higher than it would be otherwise. The reason is that the dollar's depreciation would contribute to rising prices for imports and for import substitutes produced domestically.

WHAT ARE THE PROSPECTS FOR REVERSING OUR NET-DEBTOR STATUS?

We have seen that the costs of our net-debtor status, whether it affects our future living standards or inflation, are likely to be small. Still, a long-run economic perspective suggests that it may be desirable for the U.S. to eventually reverse its net-debtor position and return to being a net foreign creditor.

When large numbers of those in the "baby boom" generation begin to retire, roughly 25 to 30 years from now, they will need a large stock of assets—domestic or foreign—upon which to draw in order to finance their consumption during retirement. Americans can accumulate such a stock of assets by saving more to finance more domestic investment, or by saving more and using the funds to lend to foreigners or buy assets from foreigners. Those foreign assets can later be sold back, in exchange for the goods that members of the baby-boom generation will want to consume during their retirement. Such behavior by individuals would imply that the U.S. would need to accumulate a positive net-foreign-asset position—a position that would eventually be drawn down to

finance imports of consumer goods after the baby-boom generation retires.

Reducing Our Net-Debtor Position Will Require National Saving to Exceed Investment Spending. We saw earlier that the foreign capital inflows that produced our net-debtor status reflected a shortfall of national saving relative to investment. To reduce our net-foreign-debt position, we must generate capital outflows either to repay foreign debt or to acquire foreign assets. To generate capital outflows, national saving must exceed investment in the United States. Are there forces at work in the U.S. economy that will raise national saving relative to investment spending?

Recall that national saving is composed of personal saving, business saving, and government saving in the form of budget surpluses. Both personal saving and government saving seem likely to rise in the future.

The U.S. Personal Saving Rate Should Rise Over the Next 20 Years. Historical evidence clearly indicates that the bulk of personal saving in the U.S. is done by people 45 to 64 years old. During the past 20 years, the share of the U.S. population in that age group has fallen to a low of about 18.5 percent, and personal saving as a share of GNP has fallen too. The U.S. Census Bureau projects that as the baby-boom generation grows older, the share of those aged 45 to 64 is likely to grow to about 23 percent of the population by the year 2000 and then rise still further. Thus, the U.S. personal saving rate is likely to rise over time, contributing to a rise in national saving relative to GNP. How much personal saving will rise is not known, however.

Government Saving Is Likely to Increase Too. Large government budget deficits, especially at the federal level, as well as a declining personal saving rate, contributed to the decline in national saving relative to GNP during the 1980s. While large federal budget deficits were to be expected when the U.S. economy was in recession from 1980 to 1982 (because reces-

TABLE 3
Demographic Trends
Suggest Personal Saving
Will Rise

	Share of U.S. Population Ages 45 to 64 (%)	Personal Saving as Share of GNP (%)
1970	21.5	5.7
1975	20.3	6.0
1980	19.1	5.0
1985	18.8	3.1
1987	18.6	2.3
1988	18.7	3.0
1990	18.7	—
1995	20.2	—
2000	23.0	—

sions produce lower incomes and profits and thus lower federal revenues), large budget deficits now that the economy is at or close to full employment suggest a need for corrective policies. Those corrective policies are embodied in the Gramm-Rudman-Hollings deficit reduction legislation, which commits the U.S. government to eliminate its budget deficit by 1993. Even if that target is not met fully, the government budget deficit seems quite likely to shrink relative to GNP over the next few years, as it has since 1986.⁹

Continuing to reduce the budget deficit, or even running a budget surplus, would raise national saving relative to investment spending and thereby help transform current account deficits and net capital inflows into current account surpluses and net capital outflows. Such capital outflows will be required if

we are to reduce our net foreign liabilities and eventually return to being a net foreign creditor.

One way to reduce the shortfall of national saving relative to investment spending would be to reduce investment. Few people would argue that the U.S. should cut investment spending, because doing so would reduce our future standard of living. In addition, the U.S. already uses a smaller share of its GNP for investment purposes than do other major industrial countries. If we do not wish to reduce investment spending relative to GNP, our focus in eliminating the shortfall of national saving relative to investment must be on generating higher savings. Whether national saving will eventually rise enough to exceed investment spending, and thereby generate capital outflows from the U.S., remains an open question. Private saving is expected to rise relative to GNP in coming years, as is government saving. To close the shortfall of saving relative to investment without reducing investment as a share of GNP, national saving's share of GNP must rise by about 2.2 percentage points from its level in 1988 (or 2.8 points from its average level for the years from 1983 through 1988). Such an increase is possible, but not certain.

THE ROLE OF MONETARY POLICY

While it is clear that fiscal policy can help reduce or reverse our net-foreign-liability position by continuing to reduce the budget deficit, nothing in the preceding discussion seems to suggest much of a role for monetary policy. In fact, monetary policy can play an important role by promoting sustainable economic growth and low inflation. Too-rapid growth in the demand for goods and services in the U.S., and the attendant rise in inflationary pressures, would tend to increase our trade and current account deficits and thus contribute to higher foreign debt. But a recession, while it would reduce imports, would tend to increase the burden of our existing foreign debt because

⁹Part of the reduction in the federal budget deficit reflects the growing surplus of the Social Security trust fund. That surplus is projected to continue growing at least through the end of the century, contributing to higher government saving.

interest and dividend payments to foreigners would become a greater share of our diminished GNP.

Another way of stating the role of monetary policy—and of fiscal policy as well—is that policymakers can promote an eventual reduction in our net foreign debt by adopting policies to ensure that the domestic components of demand for U.S. goods and services (especially consumer spending and government purchases) grow less rapidly than the

economy's capacity to produce goods and services. By doing so, policymakers would allow U.S. firms to meet growing export orders without generating stronger inflationary pressures. If government deficits continue to shrink as a share of GNP, and if personal saving rates increase appreciably as demographic trends suggest, then the domestic components of demand will grow more slowly; so, in the future it may not be necessary to use monetary policy to restrain growth in demand so as to reduce our net foreign debt.

GLOSSARY

Current account balance - a broad measure of the difference between the international receipts and payments that result from transactions with foreigners. It includes the difference between our exports and imports (the trade balance), and it also includes "factor payments" such as interest and dividends, and outright gifts such as charitable donations and foreign aid. The U.S. current account balance is the difference between our receipts from foreigners and our payments to foreigners that result from all transactions *except* purchases or sales of assets (whether stocks and bonds and other financial assets, or real assets such as land and buildings and factories).

Capital inflow into the U.S. - financial capital flows into the United States when residents of the U.S. borrow abroad or when they sell existing assets to foreigners.

Capital outflow from the U.S. - financial capital flows out of the United States when residents of the U.S. lend to foreigners or when they buy existing assets from foreigners.

Net capital inflow into the U.S. - the capital inflow from abroad minus the capital outflow.

Foreign claims on the U.S. - the total value of foreign-owned assets in the U.S., including the value of loans to U.S. residents.

U.S. claims on foreigners - the total value of assets outside of the U.S. that are owned by U.S. residents, including loans to foreigners.

U.S. net-foreign-asset position - U.S. claims on foreigners minus foreign claims on the United States. A country with a positive net-foreign-asset position is a "net foreign creditor."

U.S. net-foreign-liability position - foreign claims on the U.S. minus U.S. claims on foreigners. A country with a positive net-foreign-liability position (and thus a negative net-foreign-asset position) is a "net foreign debtor." The United States is now a net foreign debtor.

SUMMARY

A look at the causes and implications of the U.S. becoming a net-debtor country yields four conclusions. First, our standard of living is unlikely to decline, although it may grow less rapidly because of the need to service our liabilities to foreigners. Second, our net-debtor status is unlikely to cause very high inflation rates like those experienced by some of the world's debtor countries. Third, we can reduce, and eventually reverse, our net-debtor

position if we save a greater proportion of our incomes in the future—especially if the baby-boom generation saves more as it enters middle age. And fourth, the government can help if it continues to reverse the budget deficit as a share of GNP, and if it chooses monetary and fiscal policies that promote sustainable, noninflationary economic growth.

Personal saving - that part of households' current after-tax income that is not spent to buy goods and services. This is the part of current income that is deposited in financial institutions, used to buy additional financial assets, or otherwise lent out. When we aggregate personal saving for the economy as a whole, we net out new consumer borrowing from the flow of new saving done by households.

Business saving - that part of businesses' revenues that is not paid out to workers, lenders, suppliers, or owners. Alternatively, the funds that are retained as cash on hand, deposited in financial institutions, or lent out. Business saving is comprised largely of retained earnings and depreciation or amortization allowances.

Government saving - the consolidated government budget surplus for all levels of government. When governments run a budget surplus they use the excess of revenue over outlays either to retire debt they had issued previously, or they buy financial assets. When governments run budget deficits, they dissave and issue new debt or money.

National saving - the sum of personal, business, and government saving. Conceptually, national saving represents the quantity of funds that can be used to finance domestic investment or that can be lent to foreigners.

Real investment - the purchase and installation of new machinery and equipment, the construction or expansion of buildings and structures, and the accumulation of additional inventory.

Net investment - gross (total) investment spending by businesses less an estimate of economic depreciation. Economic depreciation is the amount of the capital stock that wears out or becomes useless. Thus net investment is a measure of the amount by which investment spending increases the stock of capital in the economy.

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