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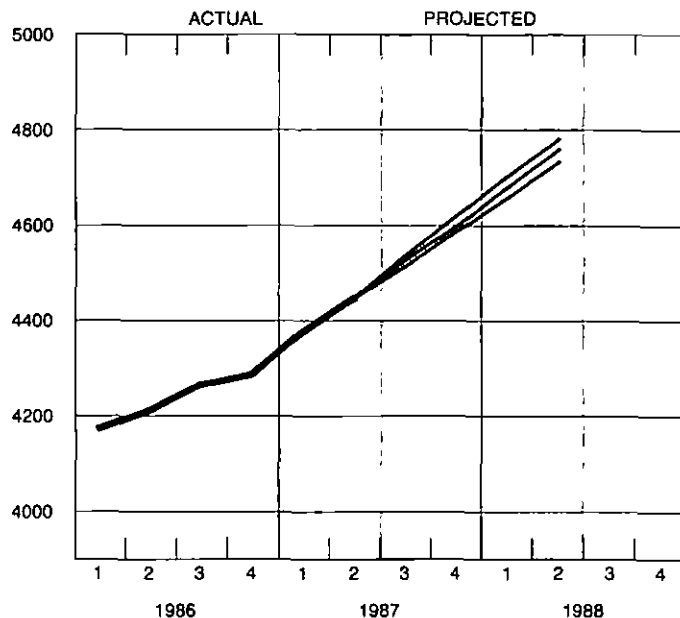
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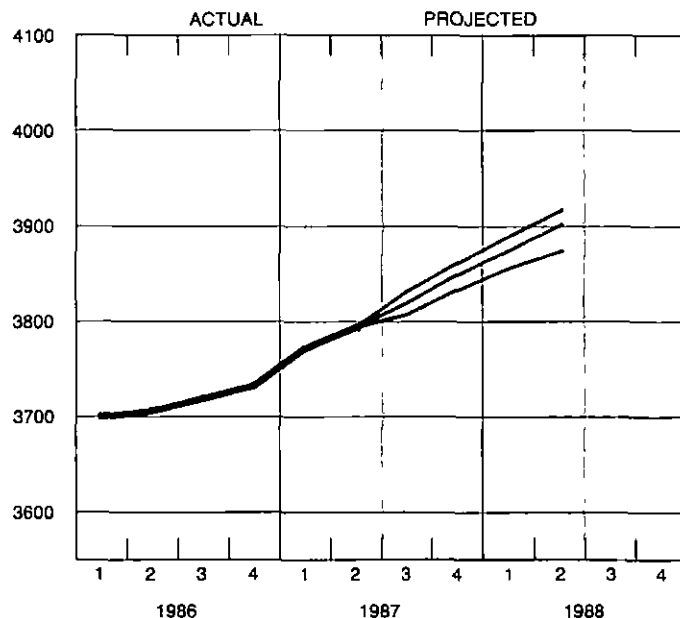
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# Economy and Culture: The Case of U.S.-Japan Economic Relations

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This paper concerns the social and cultural aspects of economic relations between the United States and Japan. What led me to this particular topic was a speech by Lester Thurow on the state of U.S.-Japan economic relations and my subsequent discussion with him of various aspects of the situation. In his remarks, he argued that what needed to be done was quite clear but that the will to act was lacking on both sides. That led me to think about what is it that we actually mean when we say "the will to act is lacking." Might not that lack of will involve social and cultural conditions? Before answering that question, however, I need to make clear some assumptions that underlie my perspective on the current crisis in U.S.-Japan economic relations.

## Assumptions about the Problem

First, both countries, by pursuing divergent fiscal policies, are responsible for the rapid buildup of trade and current-account surpluses for Japan and deficits for the U.S. It follows then that policies to correct the situation necessarily would involve both countries. Yet, politicians and commentators in both countries are all too adept at finger-pointing as they blame the other country's political and industrial leadership for the new crisis. If, during the first half of the 1980s, Japan had followed a more expansionary policy and the U.S. had followed a less expansionary one, the problems we are facing today would be far smaller. In other words, it is the divergence of U.S. and Japanese policies that have contributed greatly to the current state of affairs. This in turn suggests that there are ample opportunities for both countries to take actions now that would mitigate the problem.

Second, framing the current crisis in terms of trade barriers and linking it tightly to trade imbalances is simply incorrect. The worsening current account deficit being experienced by the U.S. cannot be attributed to increased trade barriers on the part of the Japanese. While the Japanese may have been slow about reducing these barriers, they were certainly dismantling more old ones than erecting new ones during the decade of the 1980s. Conversely, we cannot expect a greater effort in reducing these barriers to make a major contribution toward eliminating the trade imbalance. Although U.S. politicians in particular find it easy to attack the crisis in terms of trade barriers and to seek solutions in that area, they are bound to be disappointed. Trade barriers are a perfectly legitimate area of concern for affected industries and government policymakers. But there appears to be a wide consensus among economists of many different persuasions that steps taken to reduce such barriers will have only modest impact on trade imbalances. A major implication of this conclusion for my thesis is that we must look for the social and cultural conditions that underlie both the macroeconomic problems associated with the American budget deficit and

Japan's current-account surplus and those which underlie the issue of trade barriers.

Given these assumptions, what should be done now to tackle the problems? While one may debate the precise way to proceed, economists with a variety of viewpoints seem to agree on the overall outlines. We need macroeconomic policy coordination. The Americans must get the federal budget under control, trimming the growth in both defense expenditures and entitlement programs while raising taxes (a strong case can be made for an import tax on oil). Japan and West Germany must cut taxes and foster more growth. Martin Feldstein argues that, in the absence of such a package, we will see either broad-scale protectionism or the collapse of the dollar within the next few years. Either or both of these outcomes will push us into a worldwide recession. Yet policy coordination, as reflected in a willingness to alter a country's policies of taxing and spending, has yet to be demonstrated. So far, the only response to unwanted changes in exchange rates has been a willingness to alter monetary policies, mainly by adjusting interest rates.

## Is Better Communication the Answer?

But if all this is so clear to the experts, why aren't the respective parties rushing to take action? Lack of communication is one common response. At the recent seventh Shimoda conference, the periodic Japan-U.S. forum, both Japanese and American participants are quoted as saying that the current trade tensions mostly stem from poor communication and misunderstanding. In a separate interview, Clyde Prestowitz, a former high-ranking Commerce Department official, argues that a communications gap arises from a failure to agree even on a mutually acceptable definition of the word dumping. Prestowitz further argues that each country lacks an understanding of the motivations behind the other side's actions, presumably at both the governmental level and the firm level. The Japanese are said not to have much understanding of why the Americans are so upset. Similarly, the Americans, according to Nathaniel Thayer of Johns Hopkins University, are oblivious to what Japan actually considers its greatest problem, yen appreciation.

Implicit in these perspectives is the belief that cultural differences obscure our respective views. Prestowitz argues that if we could give the authority to make decisions in U.S.-Japan negotiations to Americans who really understand Japan and Japanese who really understand America, we could get rid of this communications gap. It follows that once we got rid of the gap we could settle our problems because we would know who was causing what, what constraints on decisions were operating, and so forth. The notion that communication lies at the heart of our bilateral problems has adherents on both sides of the Pacific, but it seems to have a particularly strong hold in Japan.

There are serious problems with this perspective. The reasoning is often fuzzy. The definition of dumping, to use the earlier example, is not necessarily a cultural issue between Japan and the U.S. It is a matter that has plagued GATT since its inception. Second, these arguments on communication typically lack empirical support. Once people get past their communications problems, they may find either a basis for common interest or divergent interest. There is no reason *a priori* to assume that just on the other side of the communications door we will assuredly find the gateway to common interest. To be sure, in the very broad sense that Japan and the U.S. are increasingly interdependent economies with a strong national security relationship, there is common interest in not doing anything to destroy the basic relationship. But this does not guarantee agreement on what policies best serve the mutual interest, let alone on whose interest is best served by this or that particular policy.

Thus, the Americans are no less understanding of the problems created by yen appreciation in Japan than the Japanese were of the problems created by dollar appreciation earlier in the decade. Just as the Americans found out how many American firms could compete at 250 yen to the dollar, we are now finding out how many Japanese firms can compete at 140 yen to the dollar. This has nothing to do with understanding; it has to do with whose interests are being served! We sometimes choose "not to understand" our trading partners' problems when our interests are being served by continuing current arrangements. (Incidentally, it may have served Japan's short-term interest to have a weak yen in the early 1980s; but in view of the strong world-wide reaction to their penetration of various national markets, it may not have served Japan's long-term interests.)

It is true that mutual understanding may eliminate focusing on peripheral issues and help the parties concentrate on the core issues. But the fact of the matter is that it is sometimes "better" to focus on peripheral issues that can distract the parties from intractable core areas of dispute. I am not suggesting that the core areas are always intractable, only that increased communication is not the panacea it is being held up to be.

One other observation about communication is in order. I think our communications problems internally in each nation often surpass the cross-national communications problems. That is, both American and Japanese economists have a great deal of difficulty agreeing among themselves, they have difficulty in communicating with their respective political leaders, and the politicians in both countries have a great deal of difficulty in communicating with their constituencies. We can see this clearly in the difficulty that is being experienced in convincing the Americans to cut their budget deficit and getting the Japanese to stimulate their economy and restructure their industry. These are after all complicated and sensitive issues, and it is easier for American politicians, for example, to convince the voters that they are doing something about the trade problem and lost jobs by voting for a protectionist trade bill than by taking away an entitlement program. Similarly, Prime Minister Nakasone has been much better at promising Americans that he would implement the Maekawa report for restructuring the Japanese economy toward internal growth industries than he has been at convincing the Japanese public and the

bureaucracy of the urgent need for action on these programs.

## **"Politics" as the Problem**

All this brings us to a second response as to why our politicians are not rushing to enact the solutions that we say are so obvious: *Politics* is at the root of the failure to coordinate macroeconomic policy. When Lester Thurow made his analysis of the situation, he implied that it was a lack of political will that stood in the way of action. What is "political will"? Some say that we have moved toward economic internationalization and interdependency, but that our system of politics lags behind. What does it mean to say that "politics lags behind"? Others say that it is the constraints on the domestic political process that limit our ability to coordinate economic action. What does it mean to say that the "domestic political process" is the major sticking point? It is not politics *per se* that these people are talking about. What often underlies references to politics are explanations of an economic, sociological, or psychological nature. My point here is not that politics is as overused an explanation as poor communication, but that political factors must be understood as intervening variables, with their constituent elements being economic interest combined with social and cultural factors.

When we talk about a lack of political will to take coordinated international action, we imply first that there is some sacrifice of short-term and even long-term domestic goals associated with some political action. Sacrifices involve costs; the notion of sacrifice implies that there are value preferences among sections of the electorate that aren't being met. And these value preferences are rooted in social, cultural, and economic conditions. The U.S. Congress has trouble cutting back on entitlements because over time constituents have come to see these entitlements as social rights. It is difficult for congressional representatives regardless of political coloration to vote for slow-downs in defense budgets because of powerful constituencies (including some unions) that have been built up around the country in support of these allocations. In addition, a powerful anti-Soviet ideology animates the current American political leadership, again making it difficult to cut military budgets.

President Reagan has trouble raising taxes because he and his closest advisors are prisoners of a market ideology that has powerful cultural roots in American history. In no other industrial nation is there such a celebration of the market; surely this is not accidental. By contrast, while the Japanese have effectively used the market mechanism to promote economic growth, they have a quite pragmatic view of the role of markets. They are unburdened by powerful, principled views on this matter. Based on historical experiences, the Japanese have not viewed government intervention as inevitably producing ineffective decisions, nor have they viewed the market as a panacea. That very pragmatism has evolved as part of their cultural heritage.

Similarly, when we talk about needed changes in macroeconomic policy in the Japanese case, we find that one of the factors to be reckoned with is Japan's high saving rate. There are a variety of factors responsible for that high saving rate, and economic incentives are nontrivial factors. Yet, there can be little doubt that the historical drive to catch up with the West over the last 100 years, com-

bined with some ascetic traditions, have instilled a strong anti-consumption mentality among the Japanese populace. The Japanese still think of themselves as inhabiting a poor country. These are factors to be reckoned with in trying to raise consumption; policymakers have trouble even accepting the need for such a change, so strongly imbedded is this mentality. Even when the Japanese have an orgy of consumption, as during a traditional gift-giving season, it is carefully channeled and socially regulated; it is obligatory consumption constrained in ways that remind everyone "this is the exception, not the norm."

The reason that these constraints on decision making have such potential for disrupting needed international policy coordination has to do with who votes in whose elections. Japanese don't vote in U.S. elections and vice-versa. To be sure, lobbyists for foreign countries provide a weak proxy for such direct participation, but nationalism ensures that such lobbyists not overstep "proper" boundaries. Social and cultural constraints arising from each country's unique historical experience limit that international policy coordination seen by domestic constituencies as hostile to their interests. In each country, legislators and government bureaucrats know how to horse-trade around conflicting domestic issues to arrive at policies minimally acceptable to their constituents. But we have not developed much in the way of mechanisms that allow such compromise solutions at the international level.

## Rice, Automobiles, and Culture

It is the Japanese who are more inclined to recognize the importance of culture in explaining their behavior. In a world dominated (as they see it) by Western culture, they have often been tempted to interpret their circumstances in terms of their presumed cultural uniqueness. Thus, Japanese often cite cultural differences as a barrier to Western imports: for example, "We can't let Western rice be imported because rice cultivation is part of our national heritage." The continuing strength and recent resurgence of the *Nihonjinron* literature (a literature focused on identifying and analyzing the shared set of core characteristics that make up Japanese society) underlies this perspective. Carried to its logical extreme, *Nihonjinron* literature requires a fabrication of history that constitutes the basis of nationalism.

It is precisely because culture has been used in the past for such purposes that many social scientists are inclined to dismiss culture as an explanatory variable unless they are explicitly studying nationalism. Since it can't easily be isolated and measured, economists are extremely uneasy in the presence of the culture variable; they tend to see culture as reflecting irrational or nonrational behavior. Along with most behavioral scientists, they tend to treat culture as a residual "black box"—to be invoked as an explanation only after all other explanations have been exhausted. More significant is their fundamental error in believing that if they have shown behavior to be compatible with economic rationality, they have therefore disqualified culture as an explanation. Such a view probably comes from the norms of parsimony, which require that we look for the simplest explanation (simplest in the sense of selecting the fewest possible variables). In an overdetermined model where we do have more than one explanation, we naturally tend to favor those in our own discipline. There are indeed economists who speak of culture as a consumption

good or activity, but there are relatively few who have gone beyond that statement to explore its implications and systematically incorporate culture into their models.

If culture is the sum total of historical experiences as reflected in current value preferences—the definition being used here—there is no reason why it shouldn't sometimes be quite consistent with economic rationality. We need to rescue the concept of culture from the nationalists and use it as a social science tool to understand the different value preferences that affect behavior. Social science use of the concept must not be limited to anthropologists' researching primitive societies.

If the Japanese have overemphasized culture as an explanation, Americans have tended to underestimate it. Perhaps in a multi-ethnic immigrant nation, it was easier to evolve a sense of national identity based on social change and progress. In this context, tradition and culture came to be seen as barriers to national success. We sometimes act as if we think only the Japanese have culture—an empirical impossibility given the definition of culture being used here. Even the Japanese have been inclined to dismiss culture as an explanation for American behavior. Given Prime Minister Nakasone's recent comments on race in America, the culture of pluralism seems quite beyond his ability to grasp. The Japanese have been all too adept at understanding the cultural aspects of 19th century Western imperialism, but they have been less understanding of the concept of American culture. Upon learning that the Japanese were defending their restriction of foreign rice by claiming that rice-growing was part of their culture, Senator Levin of Michigan was quoted as saying, "Well, then, automobiles are part of our culture." Now I suspect many Japanese would dismiss such an equivalence; they would ask, "How can one compare 70 years of history with 2,000 years of rice cultivation in Japan—where the very word for cooked rice is the word for meal?"

If one examines the world of automobile workers in Michigan, however, one does indeed find a rich heritage and a distinctive world view that has been shaped by their employment. This includes the employees' very standard of living, their sense of work, their dreams and aspirations, the tradition of union democracy, and hard-fought-for rights. Indeed, the very notion that the development of the American automobile industry made available the car for the mass market is at the core of the American way of life. These are not trivial matters. One craftsman I recently interviewed described how everything he had been taught as to what constituted a good union man over the last 50 years had been turned upside down when he was ordered to do the work of another craftsman. Now we may say that this is an inevitable consequence of international competition and that it is more efficient to have multi-skilled workers. But it should certainly come as no surprise that when people find their lives and values turned upside down, they will resort to political action to try to protect themselves.

One more word about rice is in order. Culture can often be used as a smokescreen to avoid opening markets. The Japanese say that their rice tastes different from American and other varieties (and they make the same argument for meat). Who is going to be the arbiter of what constitutes domestic culture? If we are not dealing with a smokescreen then the simple answer is to let the consumer decide how much more he or she is willing to pay for the luxury of eating domestic rice. In other words, if there

really is a cultural element here, then we ought to be willing to eliminate any formal trade barriers, since culture will be more effective in restricting imports in any case. As I just indicated, though, I think culture is often used as a smokescreen by government bureaucrats concerned far more with protecting domestic constituencies than with preserving culture. How would the Japanese have felt if the American government in the 1970s had said, "Americans have an innate cultural commitment to large cars; therefore we are going to impose high tariffs on small cars and thereby preserve American culture"? It is not my intent to trivialize the rice issue. Self-sufficiency in food has a powerful hold in any nation. But the strength of the emotion around the food sufficiency argument seems directly correlated with the importance of maintaining the Liberal Democratic Party's political base in rural constituencies.

It is clear that one of the more significant barriers to improving U.S. economic performance lies in the quality of its educational system. Yet, this social infrastructure has been allowed to decay without strong action being taken. Why is this the case? Again, the economic rationale is clear, but action has not been forthcoming. Why aren't the hours of schooling being lengthened to accommodate the increased information needs of a modern industrial society? Why is nothing being done to replace the loss of competent female teachers as this once captive high-quality labor seeks new opportunities in the private sector? In short, why isn't the investment being made in better salaries to attract more competent teachers? And why do we tolerate a level of illiteracy that is more befitting a developing nation than a world leader? And how is it that racism continues to stain our educational system, depriving the nation of much-needed talent? My reason for listing all these problems is to highlight the fact that the policy issues listed here are rooted in social and cultural factors. Thus, when we talk about coordinating economic policy, we need to have an understanding of the distinctive social, cultural, and political factors that are operative. These factors reflect and provide the value preferences serving as constraints on our policy decisions.

It is not my intention to suggest that culture is an irremovable obstacle to economic policy. Such a statement would be absurd, for, as already stated, culture can provide strong support for rational economic policy. When culture is an obstacle, however, it is important that not every change be viewed as a threat to the entire cultural system. Not long ago, a high-level U.S. official was quoted as saying that Japan's closed market would not be solved unless changes were made in the very cultural fabric of Japanese society. The Japanese were properly quite upset at the remark. It seemed to attack the entire way of life of the Japanese with the explicit suggestion that it would have to change to fit the norms of Western culture. While I can quite sympathize with the Japanese reaction, I also can understand what underlay that comment.

## Overcoming "Import Substitution Mentality"

In my own research on market barriers to penetration of the Japanese auto market by foreign firms, I have concluded that we are faced today with a cultural legacy of an "import substitution mentality." That is, throughout the Japanese struggle to catch up with Western industrialization, foreign advisors and products were tolerated only as

long as it took to replace them with indigenous personnel and products. If a Western country had a product or process technology desired by the Japanese, reverse engineering, intelligence from the West, and the start-up of indigenous production were the preferred alternatives to imports (even if local production was more costly in the short run). If all else failed, joint ventures and licensing were short-term strategies adopted as necessary expedients to acquire and digest foreign technology.

These kinds of sentiments and motivations come through powerfully as one reads the company histories of Japanese auto manufacturers and suppliers. A powerful nationalism drove Japanese manufacturers to be as self-sufficient as possible. Toyota Motor Co. with its reluctance to even accept foreign licensing of technology most typified this sentiment in its extreme form. We see many aspects of this view in the current debate in Japan about whether they should build their next generation of fighter planes on their own or co-produce them with U.S. manufacturers. Local firms who stand to benefit, such as Mitsubishi Heavy Industries, have argued strongly that the time is past when co-production was needed.

Throughout a good deal of the history of the Japanese auto industry, these sentiments were implicitly and often explicitly encouraged by government policy. When official controls ended in connection with Japan's assuming full status as a member of GATT, the import substitution mentality was so strongly imbued among middle-level bureaucrats in the public and private sectors that it continued to hold sway.

It will take time for a new generation of corporate decision makers to learn to look abroad for suppliers and for middle-level government bureaucrats not to instinctively sabotage efforts to make access to the Japanese market easier for foreign producers. Clearly, proper economic incentives can facilitate the process. What we have here is a cultural legacy that was economically rational in terms of Japanese efforts to industrialize rapidly. Under the changed circumstances that flow from Japan's rise to the role of economic leader and defender of the free-trade order, the import substitution mentality has become a liability. So, that cultural legacy has to change, and it *can* change without tearing apart the entire cultural fabric of Japan. Contrary to the nationalist interpretation of culture, it is not an organic system—an integrated whole—such that any challenge to it and change of it will automatically bring about its demise. In fact, historical evidence indicates that culture is remarkably elastic in responding to challenges.

In that connection there is one area where the cultural legacy of the import substitution mentality potentially has an important continuing role to play. Part of that legacy involved Japanese manufacturers' developing extremely close relationships with their suppliers and extending extensive technological, managerial, and financial support to them as they tried to bring the suppliers up to worldwide competitive standards. This reservoir of skills and experiences can now be put to good use in minimizing emerging trade tensions. As Japanese manufacturers increasingly locate facilities in the United States, their initial tendency has been to minimize local content and, when necessary, to bring their Japanese suppliers with them. Unfortunately, this has the added effect of further aggravating trade tensions through further displacement of local industry. If they instead used their accumulated expertise in upgrading

Japanese suppliers as a foundation for work with American suppliers, they would do much to minimize trade tensions. At the same time they would contribute to a technology transfer for rejuvenating American industry in the same way that they themselves benefitted in earlier years from the transfer of American technology to Japan.

We have seen here that cultural and social conditions act on both the efforts to resolve the macroeconomic coordination of policy and the specific trade issues that face the two countries. Thus, comprehending the root basis of

U.S.-Japan economic relations requires an understanding not only of economic factors but also of social, political, and cultural ones. There is no question that much of the current friction in U.S.-Japan trade relations is a function of differential economic performance. But the reasons for this differential performance and the extent to which we make successful adjustments to it are firmly rooted in political, social, and cultural factors. Lack of communication is often used as a substitute for meaningful understanding of these relationships.

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## The U.S.-Japan Economic Problem

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The deterioration in the trade balance has had serious consequences for important sectors of the U.S. economy. The diversion of domestic demand to imported goods has been the major cause of sluggish growth since mid-1984. The economy grew only 2.9 percent in real terms in 1986, down from 3.0 percent the year before. Real growth in the first half of 1987 was somewhat improved (3.4 percent at annual rate) but still not robust. Many economists believe that an improvement in the trade balance is a key to the continuation of the current economic expansion.

As the leading trader and investor, the United States has greatly benefitted from the liberalization of the world trading system. But the size of the balance-of-payments deficit has eroded support for free trade. A May 1987 poll, for example, reported that 44 percent of Americans believe that trade with Japan is bad for this country.<sup>1</sup> Doubts about the benefits of free trade were reflected in the 250 import-restricting bills introduced in the 99th Congress, which also passed the Jenkins textile-apparel bill, the first blatantly protectionist piece of legislation to pass both houses since the Smoot-Hawley Tariff of 1930. The August 1986 vote to override the presidential veto of the bill failed by only 8 votes.

The Reagan administration's commitment to free trade has frayed badly under congressional pressure. In 1986 Washington asked Japan and three other countries to limit their exports of machine tools; concluded an agreement with Japan that has raised the prices of semiconductors; signed new, restrictive textile-apparel agreements with Korea, Hong Kong, and Taiwan; and upped the ante in its agricultural export subsidy battle with the European Community.

In Japan the escalating trade surplus has created an embarrassment of riches and friction with other countries. The \$85.8 billion current account surplus recorded in 1986 was equivalent to 4.6 percent of Japan's gross national product, the highest figure recorded by an industrial country in the postwar era. Japan's current account

surplus in the first half of this year was \$43.5 billion, 22 percent higher than its surplus in the first half of 1986.

Japan's large capital outflows have made it the world's largest creditor nation, with \$180.4 billion in net external assets at the end of 1986. If current trends continue, Japan will become the largest creditor nation in history by 1990, with an unprecedented \$400 billion in net external assets and substantial net investment income adding to its current account surplus. In contrast, the United States is now the world's largest debtor country, with \$263.6 billion in net foreign debt at the end of last year.

### Causes of the Trade Imbalance

The deterioration in the U.S. trade position has focused attention on the bilateral imbalance with Japan, which accounted for more than one-third of the total deficit in 1986. Japan, as a symbol of the international trade problems of U.S. manufacturers, has become a target of protectionist legislation and a major issue in the campaigns of several presidential candidates. Trade friction between the two countries culminated in President Reagan's March 1987 decision to impose punitive tariffs on up to \$300 million worth of Japanese electronic goods, the first time in the postwar era that Washington has retaliated against Japan.

Congress continues to push for stronger trade measures. Legislation to force the administration to retaliate against countries that run large trade surpluses with the United States was included in the omnibus trade bills passed by the House and the Senate earlier this year. Senate Finance Committee chairman Lloyd Bentsen (D, Texas) said earlier this year that "we have almost a crisis in trade and this is the year Congress will try to turn it around with trade legislation."<sup>2</sup>

Political leaders have generally failed to acknowledge that the trade deficit is a macroeconomic problem that cannot be turned around by legislation to revise trade laws.

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<sup>1</sup>The poll was taken by CBS News and *The New York Times*.

<sup>2</sup>*The Wall Street Journal*, January 23, 1987.

Certainly, the rise in the U.S. imbalance with Japan from \$18.1 billion in 1981 to \$58.6 billion in 1986 (and to an annual rate of \$59.4 billion in the first half of this year) cannot be blamed on Japanese trading practices. Tokyo's eight market-opening packages since 1981 have contributed to a 23 percent rise in U.S. exports to Japan during the past five years in contrast to a 7 percent drop in total U.S. exports. While all countries, including Japan, should be encouraged to lower trade barriers, this should not be viewed as a solution to the trade deficit. According to one estimate, the removal of all Japanese import restrictions would increase U.S. exports by \$5 billion to \$8 billion, making only a small dent in the bilateral trade imbalance.<sup>3</sup>

The U.S.-Japan trade imbalance instead reflects diverging trends in saving and investment in the two countries. A nation's current account balance equals the difference between domestic saving and investment. When domestic investment and the government budget deficit do not absorb private saving, as in Japan, the remainder is invested overseas. The overseas investment must be matched by a corresponding current account surplus. A current account deficit occurs when domestic investment and the government deficit exceed private saving. The shortage of domestic saving is offset by an inflow of capital from abroad that matches the current account deficit. Changes in interest rates and currency values equilibrate the international trade and investment flows.

In 1986 gross private investment in the United States was \$686.4 billion, and the cumulative government budget deficit (including federal, state, and local government units) was \$143.1 billion. Adding these figures together, the total demand for funds was \$829.5 billion. Meanwhile, gross private saving (by individuals and corporations) totaled \$680.5 billion. Private sector saving thus fell short of the demand for funds by \$149 billion. The required inflow of foreign capital approximates (allowing for statistical discrepancy) the U.S. current account deficit of \$141.5 billion last year.

During the past five years, Tokyo and Washington have followed divergent fiscal paths. In contrast to the \$200 billion federal budget deficits run by the United States, Japan's budget deficit has been declining since 1981. With private investment as a share of gross national product smaller than in the rapid growth era, the demand for funds has been insufficient to absorb Japan's high level of private saving. As a result, Japan has invested a portion of its savings abroad, resulting in a matching current account surplus.

An analysis of the changes in the bilateral trade balances of Japan and the United States with other countries since 1981 (the last year both countries had current account surpluses) suggests that the root of the problem lies primarily in this country. If Japan were the source of the unprecedented international imbalances, one would expect to see an across-the-board improvement in its trade position. Instead, the United States and OPEC accounted for nearly four-fifths of the increase in its trade surplus during the past five years (see Table 1). Trends in its trade balance with the rest of the world, meanwhile, have been mixed.

<sup>3</sup>C. Fred Bergsten and William R. Cline, *The United States-Japan Economic Problem* (Washington, D.C.: Institute for International Economics), January 1987, p. 116.

**Table 1. Japan's Trade Balance, 1981 and 1986**  
(in billions of dollars, exports f.o.b., imports c.i.f.)

Source	1981 Trade Balance	1986 Trade Balance	Increase in Surplus	Share of Increase in Japan's Surplus
United States	\$13.3	\$51.4	\$38.1	51.5%
OPEC*	-32.1	-12.4	19.7	26.6
European Community	10.3	16.7	6.3	8.6
Newly Industri- alized Countries†	12.3	17.5	5.2	7.1
China	-0.2	4.2	4.4	5.9
Other Developed Countries	-1.3	0.8	2.1	2.9
Communist Bloc‡	2.0	1.6	-0.4	-0.5
Latin America	3.8	3.3	-0.5	-0.7
Other Developing Countries	0.5	-0.5	-1.0	-1.3
Total	8.7	82.7	74.0	100.0

\*Excludes Venezuela and Ecuador.

†Includes Taiwan, Korea, Hong Kong, and Singapore.

‡Excludes China.

Source: Japanese Ministry of Finance.

The U.S. trade balance, in contrast, deteriorated with every trading region except OPEC between 1981 and 1986 (see Table 2). While Japan accounted for the largest share of the \$116.5 billion increase in the U.S. trade deficit, the European Community, Latin America, and the newly industrialized countries of Asia also played important roles.

**Table 2. U.S. Trade Balance, 1981 and 1986**  
(in billions of dollars, exports f.a.s., imports c.i.f.)

Source	1981 Trade Balance	1986 Trade Balance	Increase in Deficit	Share of Increase in U.S. Deficit
Japan	\$-18.1	\$-58.6	\$40.5	34.8%
European Community	8.7	-26.4	35.1	30.1
Newly Industri- alized Countries*	-7.0	-30.8	23.8	20.4
Latin America	1.3	-13.0	14.3	12.3
Other Developed Countries	5.3	-5.1	10.4	8.9
Communist Bloc†	4.2	-2.3	6.5	5.6
Canada	-7.3	-13.3	6.0	5.1
Other Developing Countries	2.9	0.8	2.1	1.9
OPEC‡	-29.7	-7.4	-22.3	-19.1
Total	-39.6	-156.1	116.5	100.0

\*Includes Taiwan, Korea, Hong Kong, and Singapore.

†Excludes China.

‡Excludes Venezuela and Ecuador.

Source: U.S. Department of Commerce.

This suggests that America's trade situation is a result of domestic policies, namely the large budget deficits, a problem that cannot be blamed on the Japanese. Instead, it reflects the priorities of the administration and the Congress.

Political leaders have responded to the large deficits with various proposals intended to improve U.S. competitiveness. When measured in terms of national currency, however, U.S. labor costs in the 1980s have actually risen less than in other countries, reflecting higher productivity growth and modest wage increases (see Chart 1). This improvement in U.S. competitiveness, though, was overwhelmed by the appreciation of the dollar. The most important solution to the competitiveness problem, therefore, is to reduce the domestic saving-investment imbalance and the U.S. reliance on foreign capital by cutting the government budget deficit.

## The U.S. Trade Deficit

The U.S. trade deficit has failed to show much improvement in nominal terms despite the decline in the dollar since February 1985. During the first half of 1987, the deficit totaled \$81.9 billion, compared to \$78.6 billion during the same period in 1986. The record \$15.7 billion June deficit pushed the value of the dollar down and made many observers pessimistic about the prospects for a substantial decline in the deficit. Most economists expect the 1987 deficit to match last year's \$156.1 billion.<sup>4</sup>

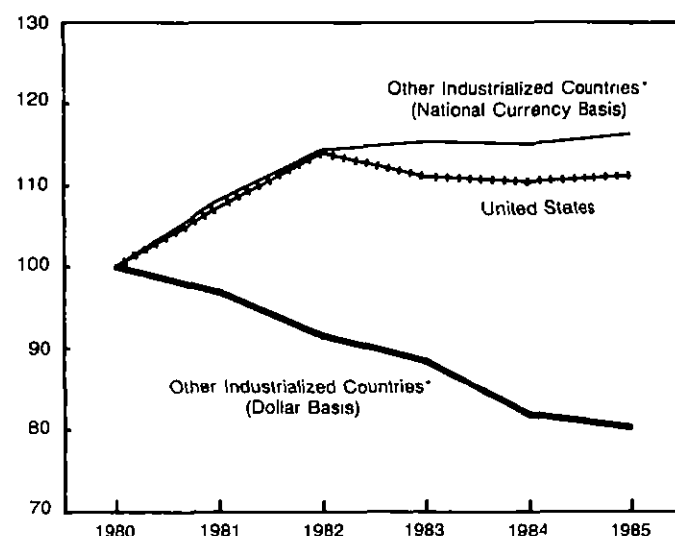
The lack of progress in narrowing the trade gap has led some observers to conclude that the realignment of exchange rates cannot adequately lower the deficit for several reasons. One is that U.S. exports are limited by sluggish growth in many of this country's important trading partners, particularly Japan and West Germany, which both recorded real growth of only 2.5 percent in 1986. In addition, the debt problems of developing countries continue to limit U.S. exports.

On the import side, it is also clear that foreign producers will not give up market share in this country without a struggle. After several years of substantial earnings, they are willing to cut costs and sacrifice profits rather than lose market share by raising prices by the full amount of the currency changes. Japanese exporters, for example, passed on in the form of price increases only a bit more than half of the yen's rise from fall 1985 to summer 1987, substantially less than the two-thirds passed on in 1978 when the yen appreciated by a smaller amount. Japanese cost-cutting efforts have been aided by less expensive industrial inputs, particularly oil, while record or near-record corporate profits in 1984-85 left firms in good shape to fight for market share.

Another line of argument holds that structural changes in the economy have lessened the effect of currency changes on the trade deficit. Outsourcing by U.S. manufacturers, for example, has made many firms dependent on Japanese imports. According to a study by the Japan External Trade Organization, about 30 percent of Japan's shipments to this country in 1984 were closely linked to U.S. manufacturing activities. Moreover, many of the products now imported, such as compact disc players and

**CHART 1. U.S. and Foreign Unit Labor Costs, 1980-85**

Index, 1980 = 100



\* Trade-weighted average of Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, and the United Kingdom.

Source: Council of Economic Advisers, *Economic Report of the President*, 1987.

video cassette recorders, are not made here in any quantity. In addition, the dollar's decline has been moderated by its failure to depreciate significantly relative to the currencies of many major developing countries. In contrast to the sharp drop against the yen and the German mark, the dollar has remained nearly constant relative to the currencies of some important trading partners, such as Canada and Hong Kong.

## Japan's Trade Surplus

The 70 percent appreciation of the yen during the past two years should lower Japanese exports by making them more expensive. Thus far, however, the revaluation has had a modest impact, reducing Japan's export volume only 1.4 percent in 1986. This reflects the reluctance of Japanese firms to pass on the yen's appreciation in export prices (despite the risk of anti-dumping charges) and the surging demand for Japanese goods in South Korea and Taiwan. Moreover, the small changes in the volume of trade have thus far been overwhelmed by the shift in the terms of trade (the J-curve effect). In dollar terms, exports rose 18.1 percent in 1986, while imports fell 4.5 percent, pushing Japan's trade surplus to a record \$92.8 billion. Frustration with the rise in the surplus led to the European Community's attempt to single out Japan for criticism at the General Agreement on Tariffs and Trade meeting in Uruguay last fall.

Although import volume did jump 13.3 percent last year, the impact of exchange rate changes is limited by the low ratio of manufactured imports in total foreign purchases. The demand for raw material imports is much less sensitive to price changes than is the demand for manufactured goods.<sup>5</sup> While manufactured goods accounted for a

<sup>4</sup>A survey of 20 American economists in *Nihon Keizai Shimbun*, August 24, 1987, reported an average forecast of \$156.5 billion for the U.S. 1987 trade deficit.

<sup>5</sup>Sumitomo Bank, *Economic Survey*, May 1986, p. 1

record 44 percent of Japanese imports in 1986, that figure is still low compared to 60 to 75 percent for the United States, West Germany, Great Britain, and France. With exports declining, it is unlikely that lower prices will boost imports for raw materials.

The sharp appreciation of the yen should eventually lower Japan's trade surplus. As profit margins are squeezed, exporters will be forced to raise their prices. In addition, currency changes have encouraged Japanese firms to manufacture overseas to remain competitive, and this will help reduce exports. The U.S. Labor Department estimates that the average manufacturing wage in Japan last year was more than six times higher than that in Taiwan, Hong Kong, and South Korea. Japanese foreign direct investment increased 82.7 percent in FY 1986 to \$22.3 billion, and this trend is likely to continue.

## Conclusion

The large U.S. external deficit is made possible by the willingness of foreign investors to increase their net lending and investment in the United States. The huge imbalance cannot continue indefinitely. Once foreign investors refuse to continue making large net investments in this country, the U.S. current account, which includes merchandise trade, services (including investment income), and transfers, will have to be balanced. Moreover, the United States will have to run a trade surplus to service its foreign debt, which could reach as high as \$600 billion by the end of the decade. Interest payments on a debt of that size will absorb as much as 2 percent annually of U.S. gross national product.

The U.S. trade balance does show signs of improvement. In constant dollar terms, the deficit has fallen about

\$40 billion at an annual rate from its peak in the third quarter of 1986. But lowering the deficit and eliminating it are two different matters. The decline in the dollar thus far is not sufficient to produce the needed improvement in the trade balance of the United States, which has lost two major sources of export growth. Latin America, which absorbed 18.7 percent of U.S. exports in 1981, accounted for only 13 percent in the first quarter of 1987, reflecting that region's foreign debt problems. Secondly, the success of the green revolution and European farm export subsidies helped reduce U.S. agricultural exports from \$43.8 billion in 1981 to \$26.6 billion last year.

Although Japan's trade surplus apparently peaked in the first half of 1987, the country will remain a surplus nation and an exporter of capital for years to come. While some observers have urged Japan to curb its high saving rate to bring its international accounts back into balance, it is unwise to encourage a rich country to consume more when developing nations are short of capital. World Bank president Barber Conable has called Japan's trade surplus a "world asset" that should be mobilized for development aid.<sup>6</sup>

Almost 90 percent of Japan's long-term capital outflow last year was invested in OECD countries. Although this has benefited the United States by preventing a rise in interest rates, it is important that Tokyo follow through on its plan to recycle \$20 billion to indebted developing countries. In addition to promoting economic development, it would also boost demand for U.S. products. An additional \$20 billion of lending to Latin America should, for example, raise U.S. exports by about \$8 billion.

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<sup>6</sup>*Nihon Keizai Shimbun*, August 3, 1986.

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# The AIDS Issue—Incidence, Transmission, and Prevention: A Summary of the Basic Scientific Evidence

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## Introduction

By most reckonings, the potential cost in lives, human suffering, and dollars makes the AIDS epidemic the most serious public health issue that has arisen in the United States and in the world over the last several decades. Much has been written on the subject, and much more will be written over the next several years. But we know enough now about the origins, incidence, transmission mechanisms, and prevention possibilities of AIDS to be able to at least lay out the upper and lower bounds of the problem, and to speculate intelligently about the likely success of various preventive mechanisms. In this article, the first of two, the basic scientific knowledge that we now

have about AIDS is examined and summarized. In the next issue, part two will examine the public policy issues in greater detail.

The illness popularly known as AIDS is a communicable viral infection transmitted from human to human by sexual contact, by transmission of blood, or by birth. In the scientific community, the virus that causes AIDS has been termed, by international agreement, the human immunodeficiency virus, or HIV.

Worldwide, about ten million people appear to be infected already, and many more tens of millions are potentially at risk of becoming infected. The disease AIDS has thus far been uniformly fatal, and while it is not yet known what percentage of HIV-infected people will become ill,

the estimate is steadily rising (to 50 percent or above) with increasing experience. The cost—both in resources and in shattered lives of the victims and their families—is staggering even if the less pessimistic assumptions prove to be correct. And finally, large elements of the world population, although not themselves at risk, are fearful that an infectious illness with typically fatal consequences will be transmitted to them or their children.

To understand the dimensions of the problem and to create a base of knowledge from which sensible and effective public policies can be formulated, several unique characteristics of the AIDS epidemic need to be understood. First, we need to understand the basic scientific facts about the AIDS virus and how it is transmitted. Second, we need to understand the quantitative dimensions of the problem, in particular the looming future problem inherent in the very large size of the infected population, despite the modest number of persons who are presently ill with AIDS. Third, we need to understand how AIDS differs from other communicable diseases, since appropriate public policies cannot be formulated unless there is general public understanding of the issue. And fourth, we need to understand the public health alternatives—the prospects for development of an effective vaccine, the prospects for development of drugs that can offer effective treatment to AIDS patients, the pros and cons of mandatory and voluntary screening, the issues involved in proposals to quarantine AIDS victims, etc.

This article takes up the set of problems relating to science—how AIDS originated, how it differs from other infectious diseases, the incidence of infected and clinically ill populations and how they can be expected to change over time, and the transmission mechanisms by which people become infected and eventually ill.

## What Is AIDS?

All of us are familiar with communicable infectious diseases, either personally or from historical memory. Some of these diseases are commonplace and not lethal—the common cold, measles, and mild forms of influenza; some are currently rare in the developed world, although historically common and sometimes lethal—smallpox, poliomyelitis, yellow fever, and malaria; some are far removed from current consciousness but clearly have had major influences on history—the Black Death.

These communicable diseases have some commonalities and some marked differences. Some are transmitted by human contact (the common cold), some are transmitted by bacteria and travel by air (strep throat and scarlet fever), and some are transmitted by insects (malaria and yellow fever). Most bacterial infections can now be cured by antibiotics if diagnosed promptly. Many acute viral infections such as measles, mumps, and polio can now be prevented by vaccines, but antiviral drugs are still in their infancy (compared to antibacterial pharmaceuticals), and very few are currently available for even the most straightforward viral infections—witness the lack of an effective treatment for the common cold.

The basic facts about AIDS are remarkably well known, given the recency with which the disease was identified by scientists. First, AIDS is caused by a virus called HIV in current scientific terminology. HIV is a member of a particular group of viruses called retroviruses; actually, it can be categorized even further, to the subgroup of retroviruses

called lentiviruses, of which there are a number of well-studied examples in other species (goats, sheep, and horses).

Retroviruses have been given their name from an acronym denoting their possession of a reverse transcriptase enzyme which has properties different from any other viral enzyme. Without going into detail, the enzyme copies the genetic information of the virus from its usual RNA form into DNA, which is qualitatively so similar to the chromosomal material of the human cell that it can be durably inserted. The functional result of this chemical process is that the virus becomes an integral part of that cell's genetic information for the life of the cell. It can be reactivated later to form complete virus particles and infect other cells; but the important point is that, once the integration occurs, it cannot be reversed or excised.

Because of this ability to integrate their genes with those of the cells they invade, retroviruses present much different problems than do most other viruses: since they may not provoke much of a vigorous immune response in order to achieve durable infection, and are sequestered within the cell nucleus, it is not surprising that standard vaccine approaches are proving disappointing. They also have a capacity to vary their genes more than most viruses—even more than influenza or the common cold virus—and this adds to their relative invincibility.

All of these features sum to the fact that a true cure for HIV infection is very remote indeed. Even chemotherapy is difficult because it requires interference with normal cellular mechanisms—to use a metaphor, it is difficult to murder the virus without seriously wounding its host. It is thus not surprising that AZT, the first antiviral drug found to be somewhat effective in AIDS patients, is attended by serious toxic side effects.

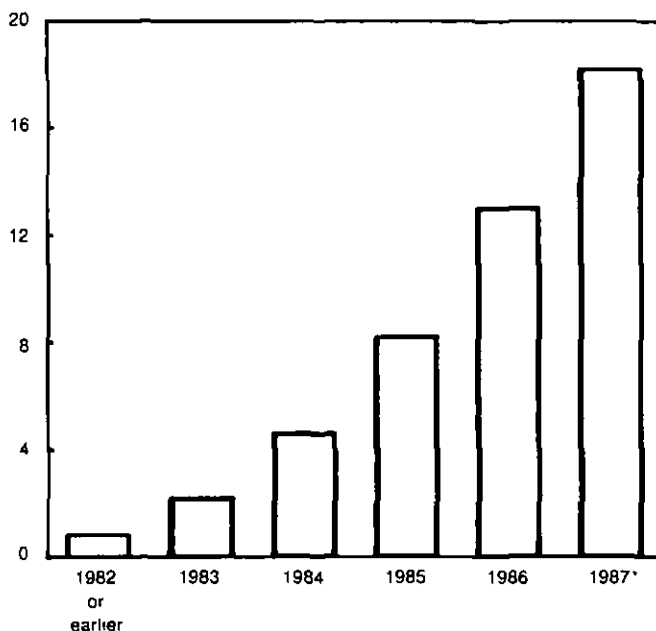
Given the remote prospects for rapid identification of a treatment, a cure, or a widely available vaccine, the picture would be grim indeed were it not for the merciful fact that HIV is sharply limited in its modes of spread: as noted earlier, only sexual, blood-borne, or perinatal (birth-associated) transmission occurs. Even in the closest family setting, with sharing of utensils, razors, toilets and the like over many months, persons caring for AIDS patients have failed to become infected unless by sexual contact. Much has been made over the few (less than 10) health care workers who seem to have become infected in the line of duty, but even they represent extreme exceptions. With an estimated 1.5 million Americans silently infected, the epidemic continues to conform to the patterns of high risk behavior: since the screening of the blood supply reduced transfusion and hemophiliac risk to extraordinarily low levels, sexual transmission, sharing of intravenous drug apparatus, or birth to an infected mother explain virtually all of the cases of HIV infection available for study.

## World Incidence

The distribution of the AIDS virus is at present quite uneven, with sub-Saharan Africa and the United States the points of greatest incidence. To date over 42,000 cases of the disease have been diagnosed in the U.S.; yearly totals since 1981 are shown in Chart 1. Nearly 140 countries have officially reported one or more cases of AIDS, and it is likely that virtually all countries have at least some representation of HIV within their borders.

**CHART 1. Newly-Diagnosed Cases of AIDS in the U.S., 1982-87**

Thousands of Cases



\*Editor's estimate based on actual cases reported 1/1/87-9/21/87.  
Source: Centers for Disease Control

The western hemisphere probably had HIV introduced in the early 1970s, and the first cases of AIDS were recognized simultaneously in the United States and in Brazil (in 1981). The Caribbean has had a particularly severe incidence; while Haiti is an especially visible locus, other Caribbean countries have as high or higher rates per capita. Australia and Western Europe seem to have followed the U.S. pattern, lagging by 1-3 years. By and large, the epidemic pattern in the United States is similar to that found in Australia and Western Europe but quite different from that found in sub-Saharan Africa and the Caribbean. In the former, HIV infection is dominantly male, with homosexual and bisexual men and intravenous drug users constituting the vast majority of cases. In Africa and, to a lesser extent, the Caribbean, male and female cases have occurred in virtually equal numbers, and heterosexual intercourse plays an unarguably important role in the transmission process.

At first this divergent distribution of cases raised the possibility that a difference in the nature of the virus itself might be the dominant explanation. But with increasing experience in the United States and elsewhere, it appears that the differences in infection pattern relate largely to accidents of history. In the United States, the initial involvement of a somewhat insular subset of the gay male community, characterized by multiple, same-sex sexual partners, amplified the observed incidence of male-to-male transmission and masked heterosexual transmission. In Africa, the pattern of multiple heterosexual partners and patronization of female prostitutes by relatively affluent men resulted in a nearly 1:1 male:female infection ratio, and an initial concentration of AIDS cases in urban men and female prostitutes.

However, both these pictures are changing. Indeed, the long incubation period between infection and illness makes it worthwhile to think of current AIDS cases as representing a "snapshot" that is at least 5 years out of date. Thus, there are now populations in Africa where as many as 30 percent of pregnant women are infected. In the United States, the male:female ratio of AIDS cases is slowly shifting: perhaps the most ominous glimpse of the future comes from recent data obtained from the U.S. military in the screening of volunteers, which indicates a significant heterosexual transmission. And in areas like New York City, where the virus has had time to diffuse into the young adult and adolescent age groups, the male:female ratio is almost equal.

Our ability to assess the dimensions of the impending epidemic is significantly influenced by the evidence relating the incidence of infection to the incidence of illness. HIV infection is established through the introduction of infected cells or bodily fluid into the bloodstream. At the time of the comprehensive Institute of Medicine/National Academy of Sciences report (1986), it was estimated that the likelihood of ultimate progression to the AIDS illness from HIV infection was about 25 percent. But since then, the ongoing San Francisco study of a cohort of gay men tested positive for HIV since 1978 has yielded the alarming observation that the rate of development of the AIDS illness actually increases after 5 years. This underscores the salient point: we do not yet know even what the median incubation period is, since the epidemic has only been recognized for 6 years. Thus, a firm prognosis regarding the ultimate fate of individuals infected with HIV cannot be made with any assurance. If extrapolation from animal models is relevant, the news is gloomy indeed: in those cases, very long incubation periods are followed by 100 percent transmission of infection into the disease.

Moreover, the evidence on the ultimate outcome for those whose HIV infection has resulted in an overt case of AIDS illness is disheartening. An AIDS diagnosis currently carries what is perceived to be a death sentence, and indeed the mortality rate is more than 85 percent for persons in whom AIDS was diagnosed more than 3 years ago. It is widely assumed that few, if any, will survive the florid form of the disease.

## How Did AIDS Originate?

AIDS is a pathological consequence of infection with HIV. But how did the virus originally get into the human species? The answers are only speculative, and are likely to remain so. The chief weapon available to explore such issues is called "sero-archaeology"—the search among stored serum samples for antibodies which might constitute evidence that a given virus had infected people before the time of that serum collection. Using that tool, researchers in central Africa have found one serum sample from 1959 which has antibodies to HIV, and none before that time. Even so, infection seems to have been very rare in Africa until the early 1970s, and it appears that HIV is really very new to the human species, at least as an epidemic virus.

A less direct line of evidence concerning the origin of viruses utilizes modern-day ability to determine the molecular sequences of individual viruses and makes comparisons among groups. When a substantial homology (nearly or exactly the same sequence of nucleic acid com-

ponents) is found, one can infer a degree of evolutionary relatedness. Using this approach it has been found that there is a distant relatedness between HIV and other known lentiviruses, a somewhat closer relatedness to some newly discovered retroviruses of certain subhuman primate species, but no "smoking gun" relationship which would allow one to assert that the evolutionary origin of HIV has been clearly ascertained.

Since such evidence is inferential anyway, it is likely that we will never know with complete assurance where HIV came from. However, other human pathogens have emerged in a similar way during recorded history (measles, for instance, is very closely related to certain viruses of dogs and cattle and by historical analysis seems to have adapted to humans rather suddenly in about 500 B.C.), so an operational answer to the question of where HIV came from is possible.

It probably adapted to mankind from another species' viral flora; this could have happened very recently or, alternatively, it could have tried and "failed" many times prior to the mid-twentieth century, when cultural, social and migrational conditions optimized its previously restrictive modes of spread. It is of interest, in this regard, that the distribution of HIV antibody and AIDS in the African nations now undergoing intense epidemics is almost exclusively urban, centering on socially mobile men with a very high frequency of sexual partners and on female prostitutes whom they patronize. Spread into rural areas has only just begun to occur, if it has happened at all (one of many powerful arguments against insect-borne transmission of HIV).

While we cannot say why HIV evolved into the human species, therefore, a circumstantial case can be developed. At the very least, this eases the concerns of those who worry about a truly "alien" virus introduction—the virus of AIDS is chemically and biologically similar to many known viruses and conforms to the biologists' "rules" in all respects. Thus, while it presents daunting problems, there is a reassuring familiarity about the known particulars.

## Transmission Mechanisms

By now, we know quite a lot about the transmission mechanisms for HIV. The most effective means of transmission from an infected individual to a susceptible host are sex, blood, and birth. Extensive epidemiological data suggest that these are the *only* means of spreading the virus: exposure by air, direct contact with bodily fluids, excreta, insects, and even extended close, nonsexual contact have failed to establish infection. The evidence on this point bears emphasis, in view of the intense, diffuse public alarm over so-called casual contact.

With respect to blood, it is now evident that transfusion of infected blood is a highly efficient transmission mechanism. In the United States, the routine screening of all donated blood and plasma has been instituted to reduce the risk of virus infection by infusion to extraordinarily low levels, although it bears repeating that voluntary self-exclusion of persons with high risk behaviors remains a crucial element in policy to maximize the safety of the blood supply.

Since infusion of blood and blood products is so effective at transmitting HIV, the obvious question to ask is why needlestick injuries and splash exposures of health care personnel rarely have resulted in transmission of the

virus. The answer may in part relate to the incidence of infected cells and blood: between only 1 in 10,000 and 1 in 100,000 white cells are demonstrably infected in the blood of persons carrying the AIDS virus, meaning that large blood volumes would be needed to be sure that the virus was even present.

Some mystery surrounds the exact mechanism by which sharing of intravenous drug apparatus sometimes results in infection rates that are extraordinarily high: in some areas, such as New York/New Jersey, well over 60 percent of intravenous drug users are infected, for example. In other areas, much lower rates of infection are observed. Detroit and San Francisco, for example, have infection rates of 10 percent or greater in the drug-addict population. But in some communities the drug-addict population seems to have remained relatively free of infection: in Los Angeles and New Orleans, for example, the virus has been present in the drug-using community for 2 or more years and yet the incidence of infection remains at or below 2 percent. Clearly, there are facets of drug-using behavior that can accelerate spread and others that minimize spread. One fairly obvious variance is in the frequency with which needles are shared *outside* of defined social groups (e.g. with strangers), but much more needs to be learned about these behaviors.

The details concerning the links between drug use and the spread of AIDS are quite central to assessment of the future of the AIDS epidemic in the United States. The focused concern and voluntary cooperation found in the U.S. gay community is almost entirely lacking in the drug-using population. Moreover, AIDS tends to take more virulent forms in the drug-using population, and these victims are likely to require expensive inpatient care due to unsettled or nonexistent home situations. It is already clear that intravenous drug use—either directly or through sexual partnership with others—counts for between 17 and 25 percent of the total U.S. cases, as much as 80 percent of the female cases, and nearly 90 percent of the children with AIDS who acquired the virus at birth. It is estimated that three-quarters of a million people in the United States are intravenous heroin addicts, and the estimated number of those who experiment with intravenous drugs at least monthly is much greater. It is evident that the sexual partners of i.v. drug users are at serious risk; and, of course, so are their offspring. Because of the legal constraints on possession of drug apparatus, it is very likely that not only the large number of intravenous heroin addicts is at high risk, but the even larger number of frequent users is at a greatly disproportionate risk of becoming infected.

Sexual transmission is clearly the dominant mode of spread in the United States. Two different points bear emphasis: first, the virus *can* be spread from man to man, man to woman, and woman to man during penetrative sexual intercourse. There seems to be a substantial gradient in the efficiency of various pairings and sexual practices, and a growing body of data will almost certainly clarify the nature of these differences.

Among homosexuals, sexual practice makes a big difference in the likelihood of transmission. Anal receptive intercourse is clearly the most efficient means of sexual spread. Even in these cases, infection is not guaranteed: there are instances of men who have been the receptive partners in unprotected anal intercourse with infected partners over many exposures without (yet) becoming in-

fected. There are very recent findings of possible genetic differences in susceptibility to virus infection, which may explain some of these puzzles if they hold up in larger studies. Other forms of male homosexual intercourse, while they can also spread the virus, do so with much reduced efficiency.

The evidence on heterosexual intercourse, while ambiguous earlier, is now becoming clarified. It has always been clear that men can infect women: the efficiency per sexual act is unknown and is a subject in urgent need of clarification. Early longitudinal studies of steady sexual partners, one of whom was initially infected, show a range of infection of the second partner from 10 percent to 70 percent over a sustained interval, even without the protection yielded by the use of condoms. Thus it is already clear that infection is not inevitable: indeed, one reasonable estimate places the likelihood of male-to-female transmission of HIV per sexual act at about 1 percent.

Early in the epidemic, it was unclear whether women could infect men. Recent studies and experience have substantiated the assertion that such transmission can occur. The evidence from Africa (where drug use appears not to be a contaminating factor) suggests that female prostitutes are the main source of female-to-male transmission of HIV. But we know less about the incidence of such transmission than about other forms of sexual transmission.

Transmission by birth (and through blood transfusions in infancy) presents truly difficult and tragic problems of AIDS transmission. At first there was a real question as to whether there were genuine cases of AIDS in babies, since a number of genetic and other pediatric syndromes share some features with the new disease and since children tend to have relatively atypical illnesses. Testing for the presence of positive antibodies of AIDS has clarified the issue. It is now evident that children become infected by two major routes: either they are born to infected mothers or they have received multiple blood transfusions.

The latter group represents a sad trade-off for progress, for babies with AIDS are often the survivors of extreme prematurity, who often weigh a pound or less at birth. Only a decade or so ago, such infants had virtually no chance for survival, and the fact that they now live into childhood and beyond is testimony to the advances made in neonatal intensive care. The application of these advances, however, requires close monitoring of infants, including frequent blood tests; and the total blood volume of such babies is so miniscule that frequent replacement transfusions are necessary. Thus, such children may receive donations from a dozen or more individuals over the weeks that they fight their way from one pound to five, and prior to the advent of blood screening capability in 1985, these multiple transfusions served to put them at risk of blood-transmitted AIDS. Such cases no longer occur, but they have been replaced by those resulting from the dissemination of virus through drug use.

## The Future Path of the Epidemic

The future of the U.S. epidemic was carefully assessed at a conference held by the U.S. Public Health Service in June 1986, and reassessed by the Institute of Medicine/National Academy of Sciences study panel in 1987. It was predicted that in the upcoming 5 years the number of U.S. AIDS cases would increase at least tenfold. Since that

estimate was based on an assessment that about 25 percent of infected cases would eventually become actual AIDS cases, and on an assumption that the incubation period was 4–5 years, the predicted increase may be quite low: recent experience suggests that both figures are serious underestimates.

It was further predicted that female AIDS would increase at a relatively greater rate than male, due to a combination of intravenous drug use and sexual partnership with intravenous drug users or bisexual men. The disproportionate number of minorities among AIDS cases in the United States, which is already twice what would be expected given the size of the relevant populations, was also predicted to increase and to become even more evident in female and, therefore, in pediatric AIDS, the vast majority of the latter being expected to occur by birth of children to infected mothers. By 1991, for example, it was predicted that over 90 percent of children with AIDS would be either Black or Hispanic.

These U.S. predictions for 1991 could turn out to be conservative but are unlikely to be excessive. Because of the long incubation period, most of the individuals who will get AIDS between now and 1991 are already infected and are incubating their disease. However, what happens thereafter could be modified by efforts at preventive education and by specific preventive measures such as the use of condoms and spermicide.

The rest of the industrialized world has followed the same pattern of epidemic increase as the United States and is likely to continue, at least for a while. The African situation is much more dire. Here, it is not certain what weight should be given to various modes of spread, but it is clear (even though the first cases were recognized only at about the same time as in the United States) that between 5 and 10 million people in Africa are now infected and that by 1991 that number will increase tenfold. The cataclysmic potential of AIDS in areas where 10 percent or more of the young adults in urban areas and 30 percent of pregnant women are infected is self-evident, and serious discussions are ongoing concerning possible destabilization in such populations and jurisdictions.

Several general comments can be made about these estimates of future infection rates and AIDS cases. First, they are based on less than 6 years' experience with a new human pathogen. This lack of experience is grimly illustrated by the steadily increasing estimate of the length of incubation periods and the equally steady increase in the estimates of the rate at which the presence of the AIDS virus will yield actual AIDS cases.

One crucial piece of information about the potential virulence of the epidemic is the degree to which the virus spreads among heterosexual men and women in the United States. In part, this depends on how long infected individuals remain infectious. While the idea that infectiousness might wane during chronic infection, thus limiting the potential for spread through heterosexual contact, is a relatively optimistic one, it is not well supported by experience. Indeed, HIV is regularly recoverable from the blood of asymptomatic HIV-positive individuals for many years. The prognostications sketched out here are chosen because they project most closely to actual experience to date. While that procedure is not guaranteed to provide valid projections, it seems the only rational basis on which to formulate public policy.

## Prevention and Public Policy

Given that we have a very large pool of HIV-infected members of the population, and a much smaller number of actual AIDS cases, what can be done to both limit the damage from existing actual and potential cases and to prevent the future spread of both infection and actual AIDS illness?

The only two factors that can reduce the potential damage from the AIDS epidemic are discoveries on the biomedical side (development of an effective vaccine, for example) and developments on the side of changing people's behavior. Both can be influenced by public policy, although the first is in some sense more tractable than the second in that it does not depend on the responses of individual members of the population but only on progress within the scientific community.

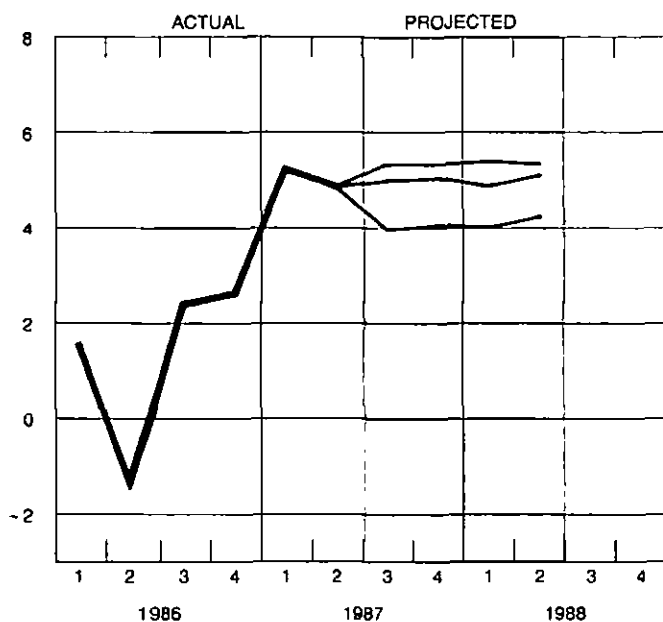
In the next issue of this publication, the public policy issues will be discussed at greater length. In particular, we discuss the possibilities for biological/medical innovations, the possibilities for educational interventions to modify behavior, and the kinds of policies that are needed to promote gains along either or both of these paths. We also

discuss the issue of whether casual contact is a potential transmitter of the AIDS virus and examine the public policy issues involved in various proposals for screening, quarantining infected groups, etc.

Just to preview that analysis, there is every reason to be skeptical that a technological fix can solve the problem—that biological/medical developments can intervene in time to prevent either the translation of HIV-infected cases into actual AIDS illness or the spread of AIDS infection and subsequent illness through the sex, blood, or birth channels discussed above. If that is so, the only feasible means of limiting the damage is by way of changing the behavior of populations at risk or potentially at risk, difficult though that may be and counter to our national preference for technological fixes rather than the slower-moving and less dramatic behavioral change route. And finally, the evidence clearly suggests that AIDS cannot be transmitted by casual contact. Even though the natural instincts of people generally are to avoid such contact because AIDS is an illness that, at the moment, is always terminal, those instincts must be modified by public education so that we are not driven to draconian measures on irrational grounds.

## CONSUMER PRICE INDEX

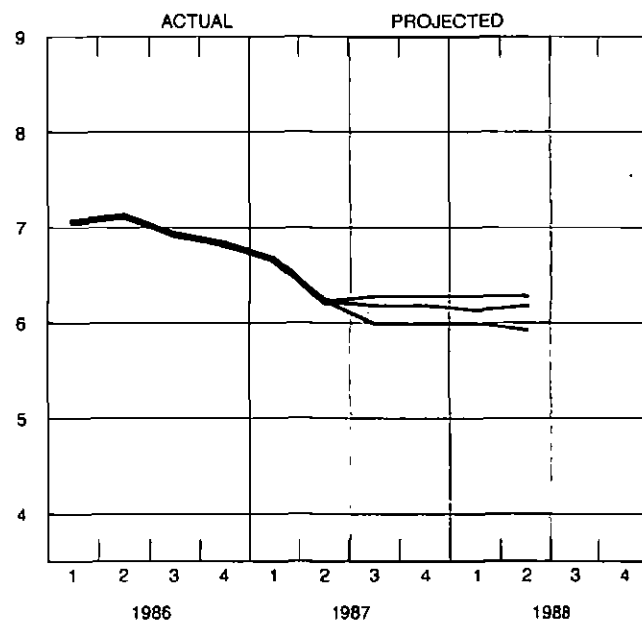
Percent Change  
at Annual Rate



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

## UNEMPLOYMENT RATE

Percent



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

# The Distribution of Wealth in the U.S. Economy: Part 1

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## Introduction

There has been a great deal of interest among academic economists in patterns of wealth holdings and in wealth accumulation processes in the U.S. Wealth affects consumer spending behavior, in its real capital formation aspect it influences productivity and economic growth, and in its distribution among the population it affects retirement living standards, the transmission of economic status from generation to generation, and the distribution of economic (and probably political) power. In this article, and in a second article in the next issue of this publication, we examine some of the recent data on wealth and wealth distribution. This article focuses primarily on the distribution of total wealth among households in the U.S., and on the composition of that wealth among various types of assets. We also look at the incidence of wealth holdings of various types among the U.S. population, and take an initial look at the distribution of different types of wealth holdings by income class. In the next issue, wealth distribution and wealth concentration issues will be examined in more detail.

## Basic Data

The basic data in this paper come from a survey of net worth conducted by the Survey Research Center in 1983. It differs from the usual wealth survey data in that there was substantial representation of households with very high incomes. Some procedure of that sort is essential if survey data are to capture the full range of the wealth distribution, since wealth holdings are known to be highly skewed. Thus a normal probability sample of the population would contain very few such households, those few are likely to be atypical of wealthy households, and wealth estimates consequently will tend to be seriously underestimated. For the 1983 survey, a sample of households with very high income volunteered to participate in the study, and the analysis below results from merging data from a probability sample of the population with supplementary data from a small sample of households with very high incomes.

For purposes of this discussion, wealth or net worth is defined as the sum of financial asset holdings less the sum of liabilities. Financial asset holdings include liquid assets (checking accounts, savings accounts, CDs, Treasury bills, etc.), other financial assets (common stock, corporate and traded government bonds, IRA and Keogh accounts, investment trusts, etc.), equity in tangible assets (cars and owner-occupied homes, including seasonal homes), business assets (the value of ownership shares in unincorporated businesses and farms and the value of shares in closely held corporations), investments in real property other than owned homes, loan assets, and the cash surrender value of life insurance. Liabilities include mortgages on owned homes, installment debt on cars and

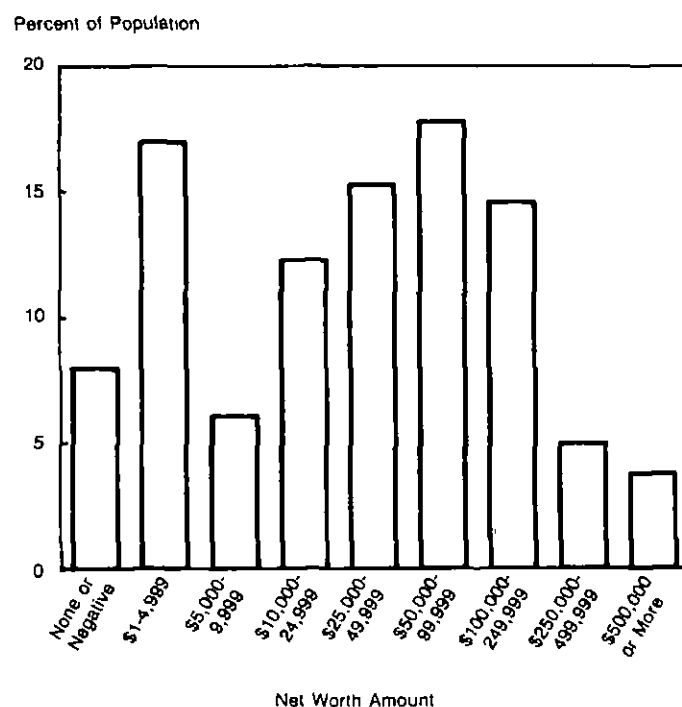
other durables, brokers' loans, credit card debt, medical loans, line-of-credit loans, etc. For most categories of assets, liabilities are netted in the estimate: that is, the value of shares of an owned business or farm is intended to represent the gross value less the indebtedness, hence the net value. The same is true for owned homes, real estate investment property, and automobiles. Hence the debt figures are exclusive of debts which are basically subtracted from other asset categories, and are therefore much less than total liabilities.

It should be noted that these estimates of net worth do not include certain types of assets that clearly have value to households. For example, rights in pension funds, whether contributory or not, are not included; the value of households' rights to Social Security benefits—a form of public pension funds—are not included; assets that take the form of the skills embodied in people (represented by investments in schooling or other formal or informal training) are not included in the estimate; and so on.

## Overall Distribution

Chart 1 shows the distribution of total net worth among the U.S. population in 1983. At one extreme, almost 4 percent of the population has over half a million dollars of

**CHART 1. Distribution of Total Net Worth among the U.S. Population, 1983**



**TABLE 1. Amounts of Four Types of Assets Held by U.S. Households (Percentage Distribution)**

Type of Asset	Amount of Asset Held								
	None or Negative	\$1-4,999	\$5,000-9,999	\$10,000-24,999	\$25,000-49,999	\$50,000-99,999	\$100,000-249,999	\$250,000-499,999	\$500,000 or more
Liquid Assets	11.9	51.7	10.0	12.8	6.7	4.4	1.9	0.4	0.1
Housing Equity	36.3	3.4	4.0	12.3	19.5	17.3	6.1	0.9	0.2
Common Stock	79.7	10.1	3.0	2.7	1.6	1.3	0.8	0.5	0.4
Real Estate Investment Equity (non-housing)	79.1	2.3	2.8	4.3	4.6	3.6	2.0	0.8	0.5

net worth, as defined above, while nearly 9 percent has a quarter of a million dollars or more. At the other extreme, 8 percent have either zero or negative net worth (negative meaning that their liabilities exceed their assets). More generally, close to half the population has net worth under \$25,000, while a little more than half has net worth in excess of that amount. As noted below, most of the assets of households with relatively low net worth consists of housing equity and small amounts of liquid assets.

## Incidence

Table 1 shows the proportion of the U.S. population who owns various types and amounts of assets. We have singled out four types of assets which display different patterns—liquid assets, equity in owned housing, holdings of common stock, and ownership of “investment” real estate assets (not including owned homes).

For liquid assets, about 10 percent of the population reports no holdings at all, while a very large proportion (over 50 percent) reports holding some such assets but less than \$5,000 worth. The proportion of households holding relatively large amounts of liquid assets tends to decline steadily in size classes over \$25,000, with only 1/10 of 1 percent of the population having liquid asset holdings of over half a million dollars.

Housing equity, the asset most widely held in the population after liquid assets, is owned by about two-thirds of U.S. households. Holdings of very small amounts are relatively rare, as are holdings of very large amounts. In most size categories, housing assets are the most commonly owned type of asset.

The pattern of holdings of common stock and real estate investment property is interesting and may be surprising to some. Only about 20 percent of the population own either common stock or real estate investment property. But while the proportion of households with varying amounts of common stock holdings declines monotonically from the lowest size category to the highest, the proportion of households holding real estate investment assets is smaller than common stock holdings for small amounts, but exceeds the proportion owning common stock in all the size categories above \$10,000. Thus large holdings of real estate investment property among U.S. households is more common than large holdings of common stock. To some extent, that impression may be misleading because these data do not count in common stock holdings the amounts of corporate equities held by pension funds,

which of course are assets technically owned by households. The total amount of assets (mainly stocks and bonds) held in that form is somewhat larger than the total holdings of common stock that are individually owned. Still, it may be surprising that real property investments are so pervasive among U.S. households.

## Assets and Liabilities Totals

Table 2 shows the average size of holdings of various types of assets and liabilities, arrayed according to the size of net worth categories. This table tells us something about the portfolio mix of American consumers in different wealth size groups. The table shows average wealth holdings of equity in tangible assets (houses and cars); average holdings of financial assets divided into liquid assets, common stock and other financial assets; equity in business assets including both unincorporated businesses and farms, closely held corporate assets, and real estate investment assets; and miscellaneous assets along with liabilities not already netted out of the figures. Total net worth is also shown.

From Table 2 it is clear that, in the small and moderate size net worth categories, equity in tangible assets (houses and cars) plus liquid asset holdings comprise the lion's share of consumers' portfolios. Even in the net worth category between \$100,000 and \$250,000, almost two-thirds of total assets are either tangible asset equity or liquid assets. In the smaller size categories, the sum of these two asset types ranges from 80 percent to over 100 percent.

In contrast, the larger portfolios—those over a quarter of a million dollars—are dominated by business assets. In the largest net worth size category, business assets are more than half the total, while in the next-to-largest category, they are more than a third of the total. Conventional financial assets—stocks and bonds—are virtually invisible in financial portfolios for households with less than \$100,000 of total assets, comprise about 10 percent of total assets for households with between \$100,000 and \$500,000 in total net worth, and comprise less than a third of total net worth for consumers with more than half a million of total assets.

The data on total assets and liabilities at the bottom of Table 2 bear out this general pattern. Of total net worth of about ten and a half trillion dollars, about a third is represented by equity in tangible assets, about 40 percent by equity in business assets, and about 30 percent by financial assets. Of the financial assets, about a third in turn is

**TABLE 2. Average Values of Financial Assets and Liabilities among U.S. Households in Various Net Worth Categories (1983 dollars)**

Net Worth Category	Asset or Liability Category									Total Net Worth
	Equity in Tangible Assets		Financial Assets				Equity in Business Assets	Other Assets	Other Debts	
	Vehicles	Houses	Liquid Assets	Common Stock	Other	Total				
0 or negative	\$407	\$142	\$467	\$26	\$18	\$510	\$43	\$89	\$3,172	\$-1,979
\$1-4,999	1,282	308	601	177	276	1,054	52	244	1,027	1,915
\$5,000-9,999	2,401	2,440	1,800	123	127	2,050	412	1,094	1,199	7,180
\$10,000-24,999	2,643	8,939	3,010	364	423	3,797	1,214	1,849	1,675	16,768
\$25,000-49,999	3,232	23,277	4,266	737	868	5,871	3,301	2,743	1,508	36,917
\$50,000-99,999	4,257	43,292	9,584	1,505	1,306	12,395	8,929	4,235	2,045	71,062
\$100,000-249,999	5,928	64,759	25,632	6,596	4,906	37,134	35,951	9,086	2,500	150,367
\$250,000-499,999	7,759	94,627	40,556	20,972	28,557	90,085	140,389	12,693	2,475	343,078
\$500,000 or more	11,617	204,865	93,059	267,365	241,325	601,749	885,390	38,762	24,233	1,718,109
ALL	3,675	34,602	12,303	12,587	11,737	36,627	48,038	4,956	2,711	125,188
Total Assets or Liabilities (billions)	\$308	\$2,904	\$1,032	\$1,056	\$984	\$3,072	\$4,031	\$425	\$227	\$10,505

liquid assets, while the other two-thirds (dominantly held by households in the highest net worth category) is represented by stocks and bonds along with other financial assets (investment trusts, IRAs and Keogh plans, etc.).

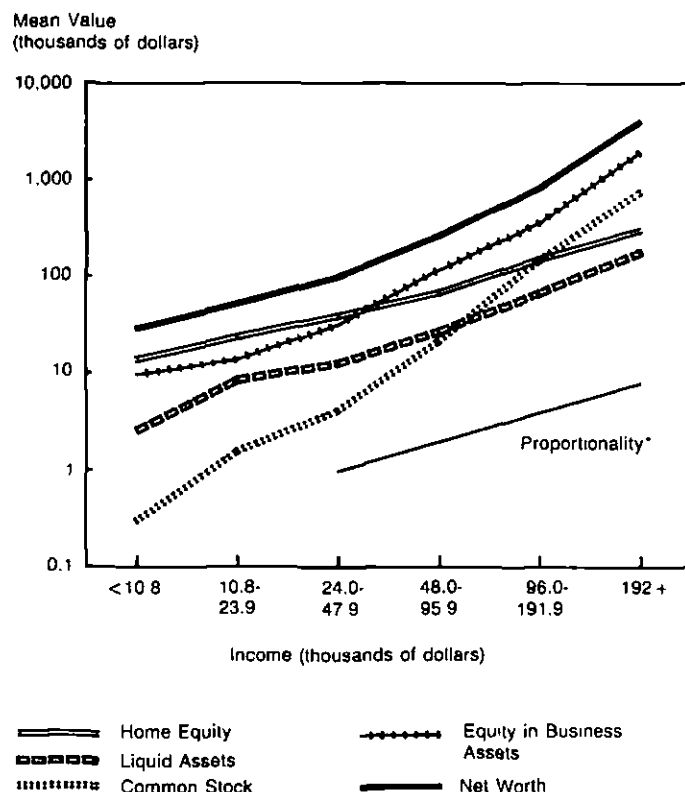
As noted earlier, that picture would be somewhat modified if we were to take account of the value of holdings of pension assets, which are not represented in this table. In addition, if the data related to 1987 instead of 1983, the value of common stock holdings would be substantially greater, given the substantial rise in stock prices over the last four years. But the general configuration of the data in Table 2 would still be about the same.

## Income Patterns

A preliminary look at the relation between income and wealth is shown in Chart 2. Here, we show the average holdings of several types of assets according to income class. Both the income categories and the net worth scale are roughly in logarithmic form, although the scales are different so that a 45 degree slope does not represent proportionality.

As a rule, average holdings of all types of assets except housing equity grow more than proportionally as income increases. This is especially true for holdings of common stock and equity in business assets but appears to be roughly true even for liquid asset holdings. Household portfolios are dominated by common stock and equity in business assets for income groups over \$100,000, while they are dominated by housing equity and liquid assets for income groups under \$25,000.

**CHART 2. Net Worth and Components by Income**



\*The slope of this line indicates equal percent changes on both axes.

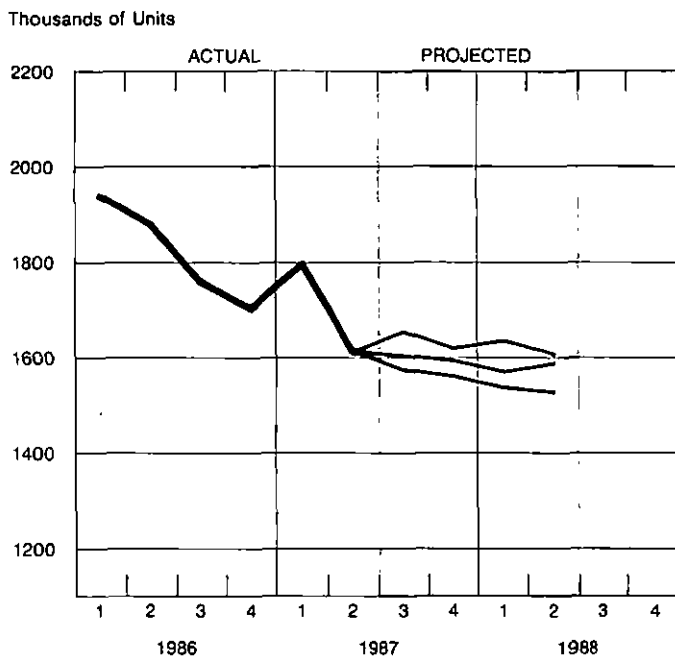
These data provide some interesting insights into the financial behavior of U.S. households. Even though the data are a few years old, their general characteristics are unlikely to change much except for differential changes in asset prices. Thus, for example, it is pretty clear that common stock holdings would be a larger share of household net worth in 1987 than they were in 1983, because common stock prices have risen relative to most other asset prices. Still, the structure is likely to be similar.

From that perspective, these data have at least two interesting insights to offer about the effect of wealth patterns on economic behavior. First, it seems unlikely that even a dramatic rise in stock prices would have a major influence on consumer spending behavior. The reason is displayed visibly in Tables 1 and 2. Table 1 indicates that only about 5 percent of U.S. households own more than \$25,000 worth of common stock, and the great majority (80 percent) don't own any—except for the common stock associated with whatever pension rights they have. Table 2 indicates that, even in net worth classes as high as a quarter of a million dollars to half a million dollars, average holdings of common stock are only about \$20,000, and it is not until one gets to households with more than half a million of net worth that common stock holdings represent a very large number (over a quarter of a million dollars on average). Thus even dramatic changes in stock prices do not affect the wealth position of very many U.S. households, and for those households where the effect is large, saving and asset accumulation motives may well be more focused on bequests and estate considerations than on using wealth to finance consumption. This is not to say that wealth changes have no influence on consumption—they clearly appear to, given most analyses. But the effects are much more modest than many would expect.

Second, the distribution of total wealth by asset characteristics seems to suggest a much more modest role for financial intermediaries in translating consumer saving into investment than is often implied by macroeconomic analyses. Although the data discussed here represent accumulated wealth, wealth is the sum of savings accumulated over the historical past adjusted for capital gains or losses. Thus saving flows are implicit in these wealth estimates. And although we cannot use these data directly to describe the relation between saving and investment flows, we can make some plausible inferences about that relation from the data.

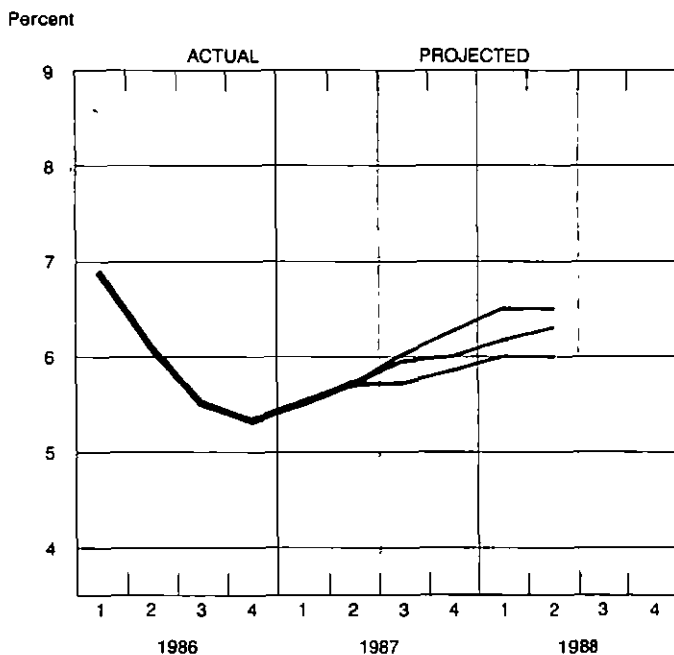
Generally speaking, the characteristics of wealth holdings do not suggest that the dominant pattern of household saving is one of being channeled into capital markets to be borrowed by business firms for productive investment. Of total household wealth (and presumably accumulated savings) about a third is equity in tangible assets (houses and cars), where household saving largely finances household investment. Almost 40 percent of household wealth represents equity in business assets like unincorporated businesses and farms, closely held corporations, and real estate other than owner-occupied housing. For households with these types of assets, saving and investment decisions are likely to be closely related—the saving is invested directly—rather than being conducted through financial intermediaries. Less than a third of household saving is represented by financial claims of a sort that might represent funds channeled into the business sector, and much of that represents funds flowing into owner-occupied housing.

## NEW PRIVATE HOUSING UNITS STARTED



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

## 3-MONTH TREASURY BILL RATE



Sources: Actual data are from U.S. Department of Commerce; projected data are from ASA-NBER Panel of Forecasters, revised when necessary to be consistent with latest actual data. The 3 lines display 3rd, 2nd (median), and 1st quartile values from the array of forecasts.

# Actual and Projected Economic Indicators

seasonally adjusted

SERIES FORECAST BY THE ASA-NBER PANEL													
ECONOMIC INDICATOR	Quarterly Data										Annual Data		
	Actual					Projected					Actual	Projected	
	1986:2	1986:3	1986:4	1987:1	1987:2	1987:2	1987:3	1987:4	1988:1	1988:2	1986	1987	1988
GROSS NATIONAL PRODUCT*	4,211.6	4,265.9	4,288.1	4,377.7	4,445.1	4,439.5	4,519.7	4,589.9	4,672.6	4,751.3	4,235.0	4,483.9	4,793.0
GNP IMPLICIT PRICE DEFLATOR* (index, 1982 = 100)	113.7	114.7	114.9	116.1	117.1	117.3	118.4	119.6	120.8	121.9	114.1	117.9	122.6
CORPORATE PROFITS AFTER TAXES*	122.3	130.2	134.0	129.0	134.5	137.1	138.8	139.8	144.6	148.7	128.3	135.8	149.8
UNEMPLOYMENT RATE (percent)	7.13	6.93	6.83	6.67	6.23	6.55	6.50	6.50	6.45	6.50	6.99	6.58	6.50
INDUSTRIAL PRODUCTION (index, 1977 = 100)	124.4	125.0	126.0	127.0	128.3	127.0	128.2	129.3	130.4	131.6	125.1	128.0	132.0
NEW PRIVATE HOUSING UNITS STARTED (millions)	1.878	1.758	1.702	1.795	1.612	1.710	1.700	1.690	1.665	1.685	1.819	1.730	1.660
CONSUMER PRICE INDEX (annualized percent change from prior quarter or year)	-1.30	2.43	2.66	5.26	4.90	4.25	4.35	4.40	4.25	4.45	1.92	3.80	4.50
3-MONTH TREASURY BILL RATE (%)	6.13	5.53	5.34	5.53	5.73	5.72	5.95	6.00	6.18	6.30	5.97	5.80	6.29
NEW HIGH-GRADE CORPORATE BOND YIELD (percent)	9.06	9.14	9.05	8.62	9.65	9.00	9.10	9.25	9.40	9.60	9.23	8.99	9.59
GNP IN 1982 DOLLARS*	3,704.7	3,718.0	3,731.5	3,772.2	3,795.3	3,793.3	3,818.2	3,848.3	3,873.6	3,900.4	3,713.3	3,809.7	3,911.5
PERSONAL CONSUMPTION EXPENDITURES (1982 dollars)*	2,434.3	2,477.5	2,480.5	2,475.9	2,487.5	2,484.4	2,500.6	2,514.7	2,531.9	2,546.0	2,450.5	2,492.2	2,553.6
NONRESIDENTIAL FIXED INVESTMENT (1982 dollars)*	441.0	437.7	443.2	426.0	437.9	454.5	458.2	463.5	466.1	471.1	443.8	456.4	473.7
RESIDENTIAL FIXED INVESTMENT (1982 dollars)*	196.5	201.1	202.2	198.2	196.8	199.0	199.0	196.9	195.9	196.9	196.4	199.0	197.2
CHANGE IN BUSINESS INVENTORIES (1982 dollars)*	28.1	6.1	-14.4	47.6	39.0	12.1	13.6	10.1	18.2	20.2	13.8	17.2	20.9
NET EXPORTS (1982 dollars)*	-146.8	-161.6	-151.8	-135.2	-132.7	-130.3	-127.3	-120.2	-115.5	-110.0	-145.8	-127.3	-106.0
FEDERAL GOVERNMENT PURCHASES (1982 dollars)*	330.6	332.6	344.6	327.3	332.6	338.8	342.0	343.9	341.9	342.4	332.5	340.8	344.4
STATE AND LOCAL GOVERNMENT PURCHASES (1982 dollars)*	421.0	424.6	427.1	432.3	434.1	431.2	433.3	435.3	436.3	439.3	422.1	432.3	439.4
SERIES FROM THE CURRENT-DOLLAR GNP ACCOUNTS													
ECONOMIC INDICATOR	Quarterly Data										Annual Data		
	1985:1	1985:2	1985:3	1985:4	1986:1	1986:2	1986:3	1986:4	1987:1	1987:2	1984	1985	1986
GROSS NATIONAL PRODUCT*	3,921.1	3,973.6	4,042.0	4,104.4	4,174.4	4,211.6	4,265.9	4,288.1	4,377.7	4,445.1	3,772.2	4,010.3	4,235.0
PERSONAL CONSUMPTION EXPENDITURES*	2,549.9	2,602.0	2,665.4	2,700.1	2,737.9	2,765.8	2,837.1	2,858.6	2,893.8	2,943.7	2,430.5	2,629.3	2,799.8
GROSS PRIVATE DOMESTIC INVESTMENT*	638.6	648.4	628.6	650.8	683.4	679.4	660.8	660.2	699.9	702.6	664.8	641.6	671.0
NET EXPORTS*	-51.5	-77.3	-84.7	-103.5	-93.8	-100.8	-110.5	-116.9	-112.2	-118.4	-58.9	-79.3	-105.5
GOVERNMENT PURCHASES*	784.1	800.5	832.8	857.0	846.9	867.2	878.5	886.3	896.2	917.1	735.9	818.6	869.7
DISPOSABLE PERSONAL INCOME*	2,762.2	2,848.4	2,847.2	2,906.6	2,966.0	3,022.4	3,038.2	3,061.6	3,125.9	3,130.6	2,668.6	2,841.1	3,022.0
PERSONAL SAVING RATE* (percent of disposable income)	4.8	5.7	3.4	4.1	4.7	5.5	3.6	3.6	4.4	3.0	6.2	4.5	4.4

Note: (1) All data are at annual rates and in billions of current dollars unless otherwise indicated. (2) To facilitate comparison and evaluation of forecasts, both actual data, released in late September, and projected data, released by ASA-NBER in June, are displayed for second quarter 1987.

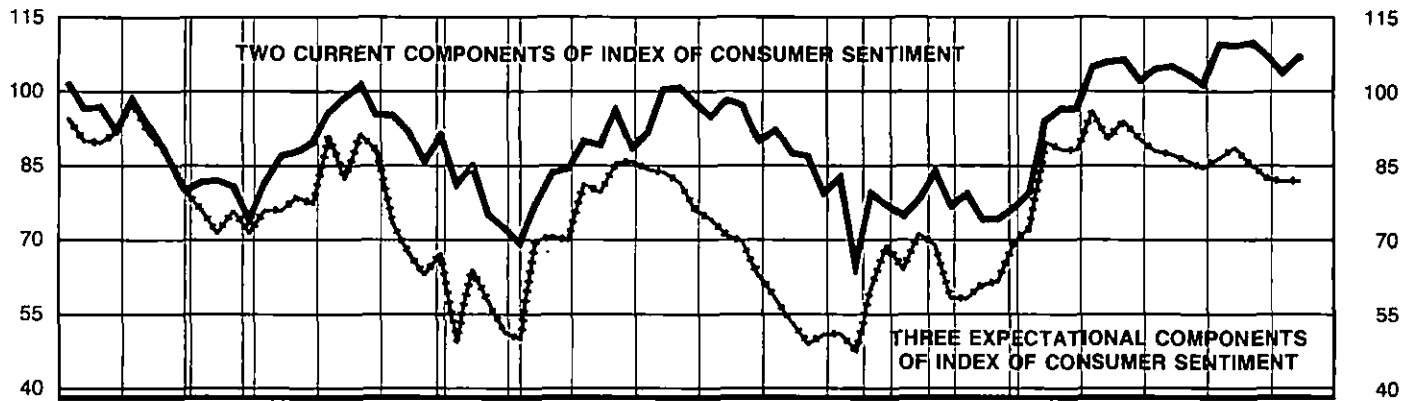
Sources: Projections: American Statistical Association—National Bureau of Economic Research panel of forecasters.  
Actual Data: U.S. Departments of Commerce and Labor, Board of Governors of the Federal Reserve System.

\*Substantial revision of the data for series marked with an asterisk has occurred since the last printing.

# SRC MEASURES OF CONSUMER ATTITUDES

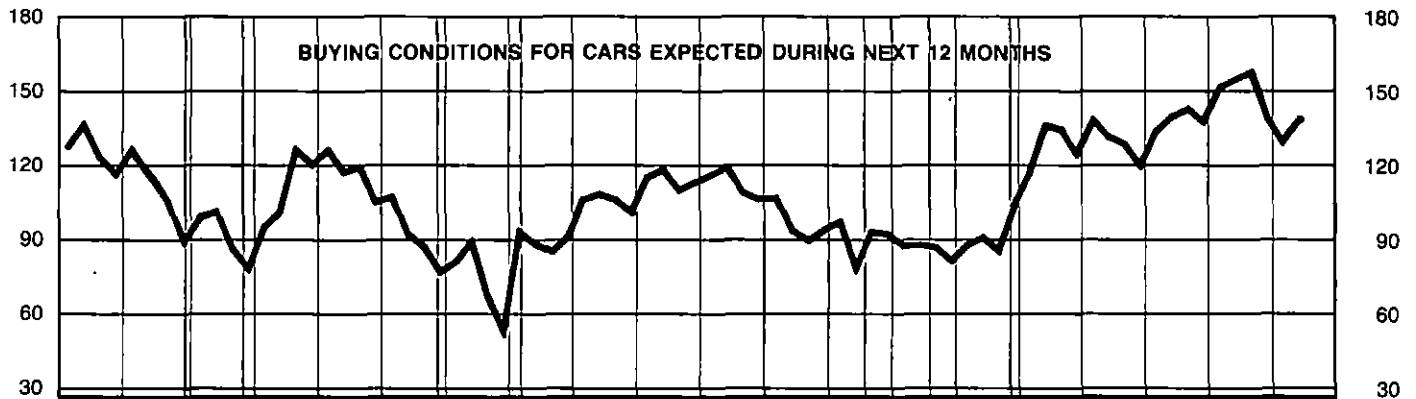
Index Value

Index Value



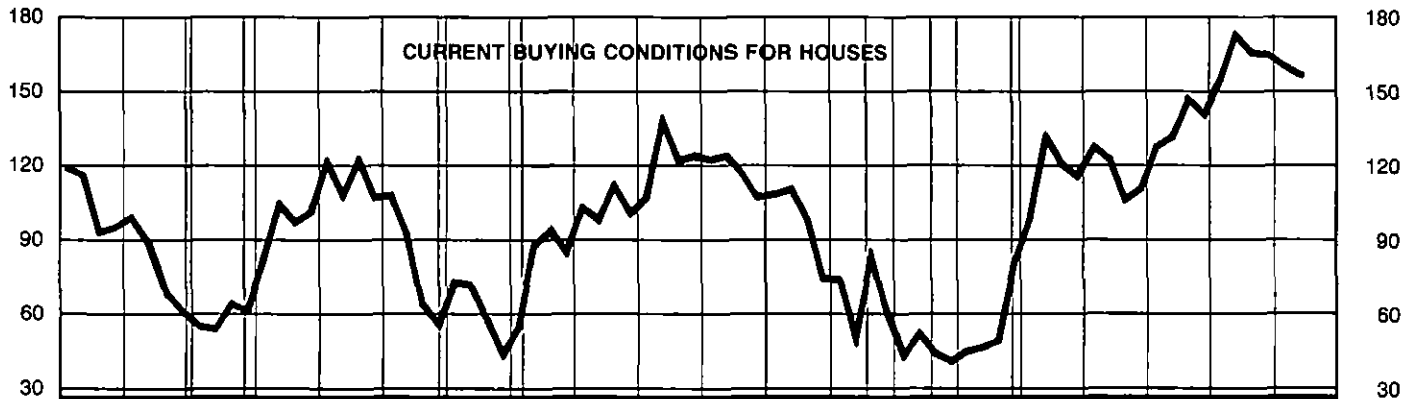
Percent "Good" Minus Percent "Bad" Plus 100

Percent "Good" Minus Percent "Bad" Plus 100



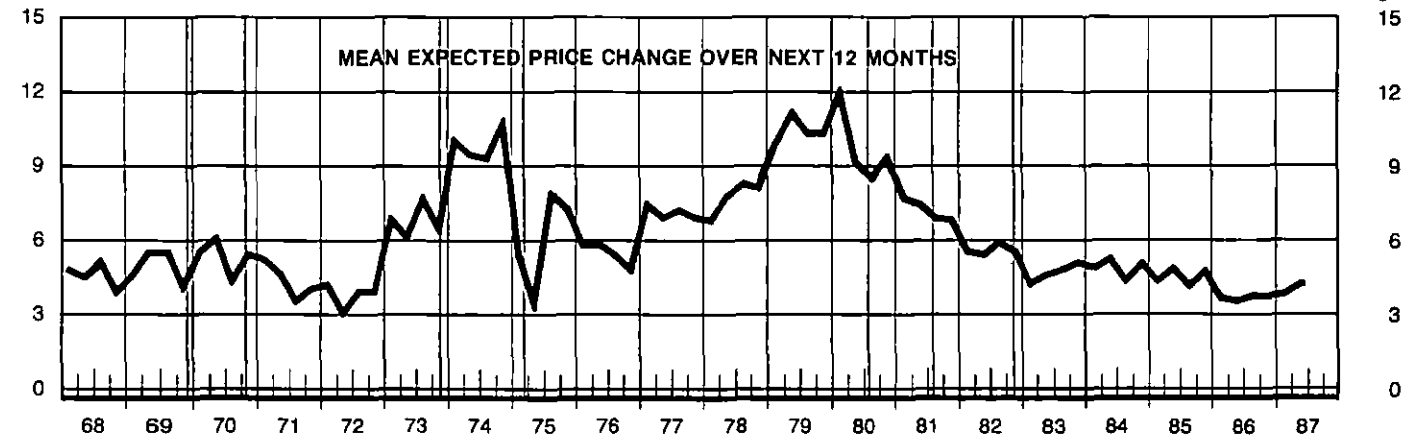
Percent "Good" Minus Percent "Bad" Plus 100

Percent "Good" Minus Percent "Bad" Plus 100



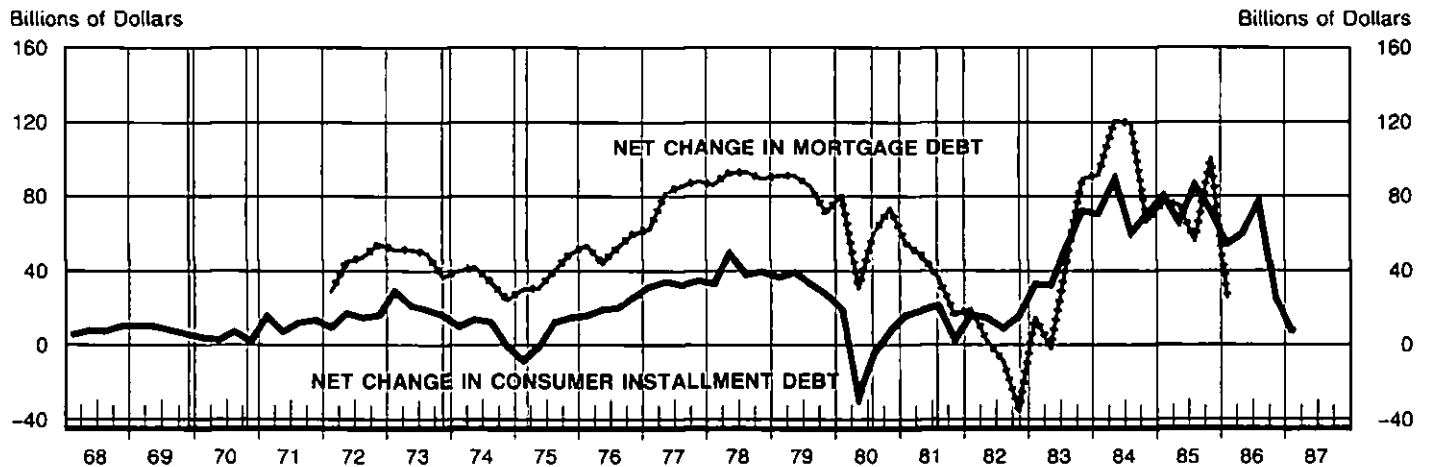
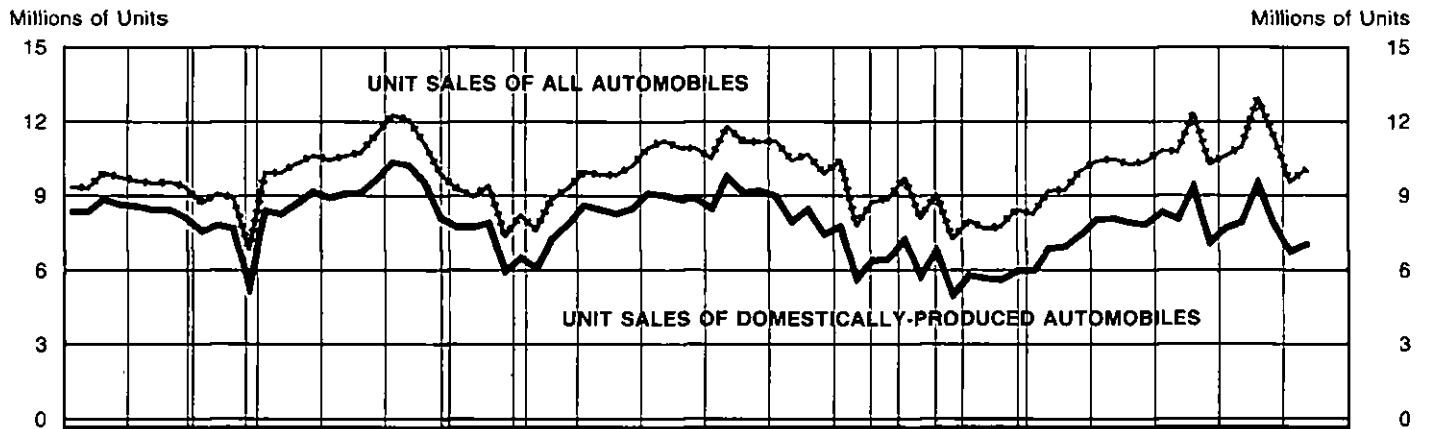
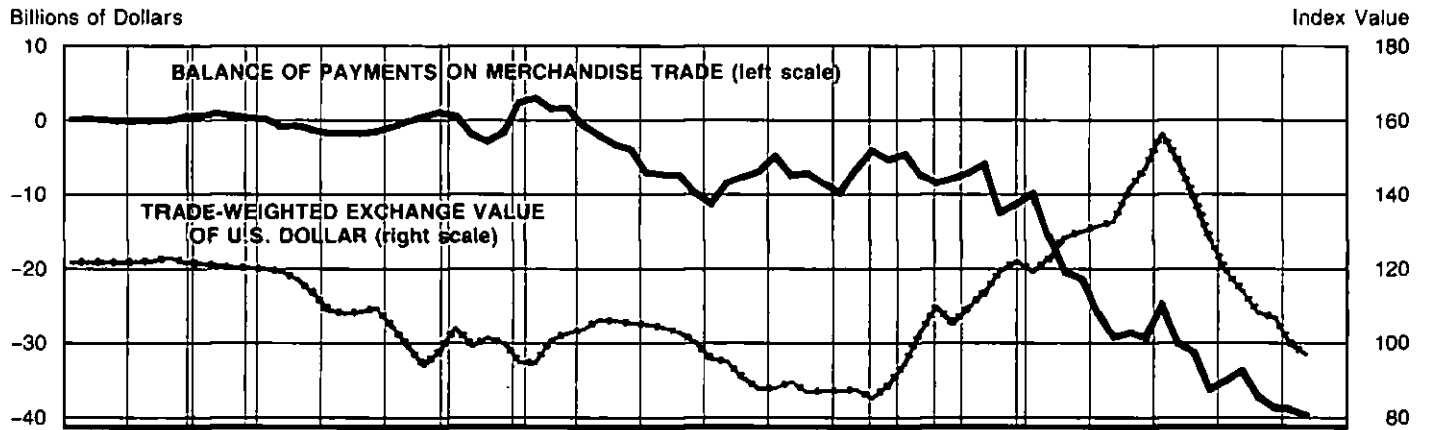
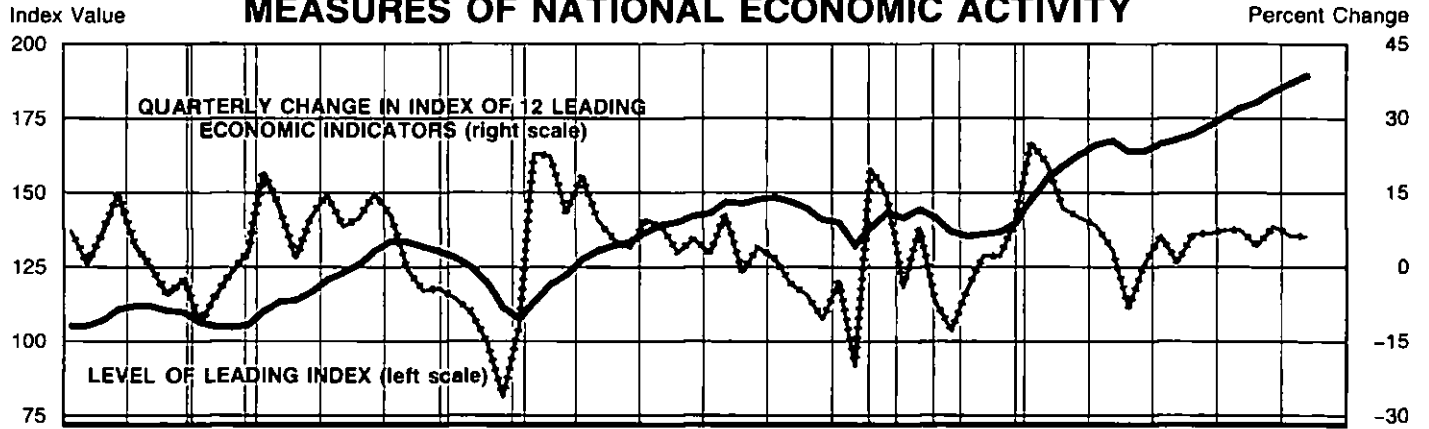
Percent Change

Percent Change

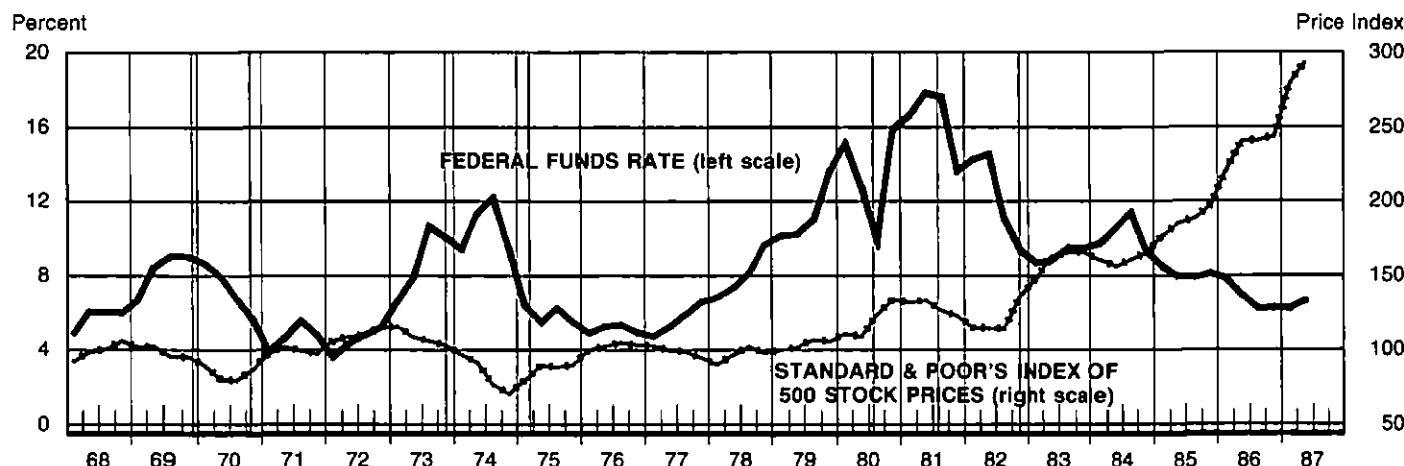
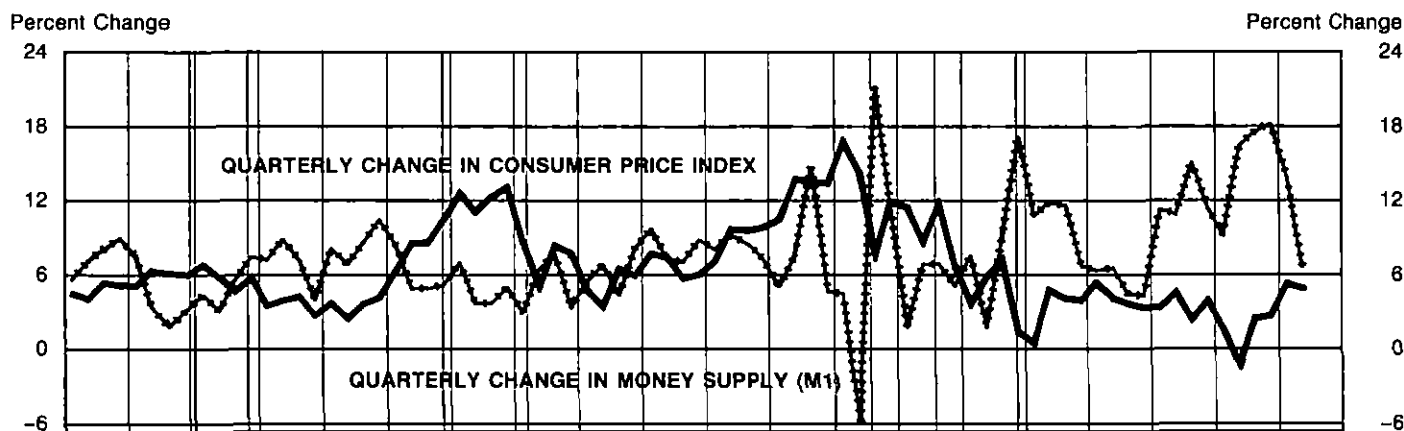
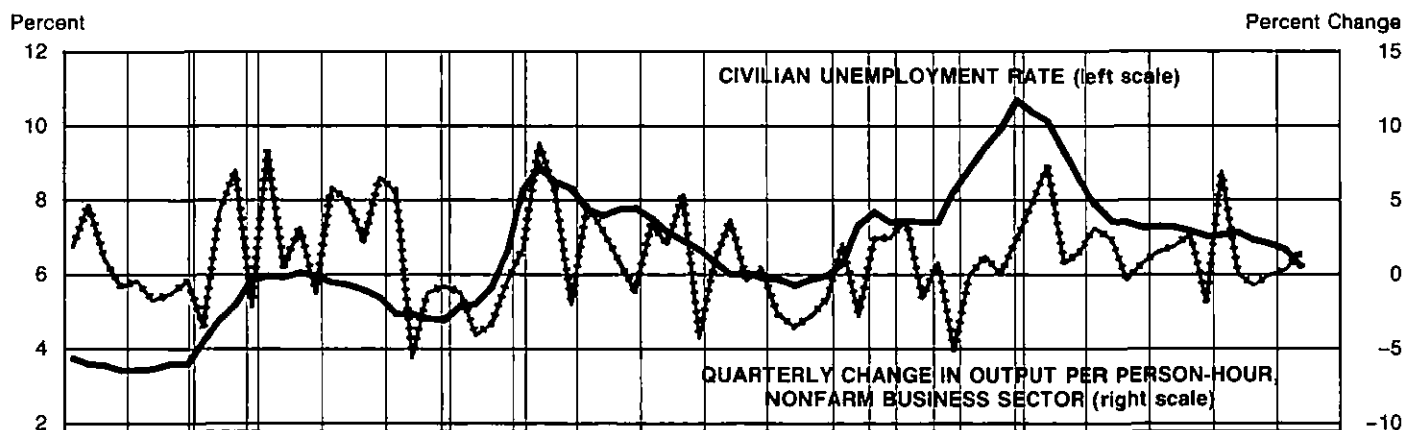
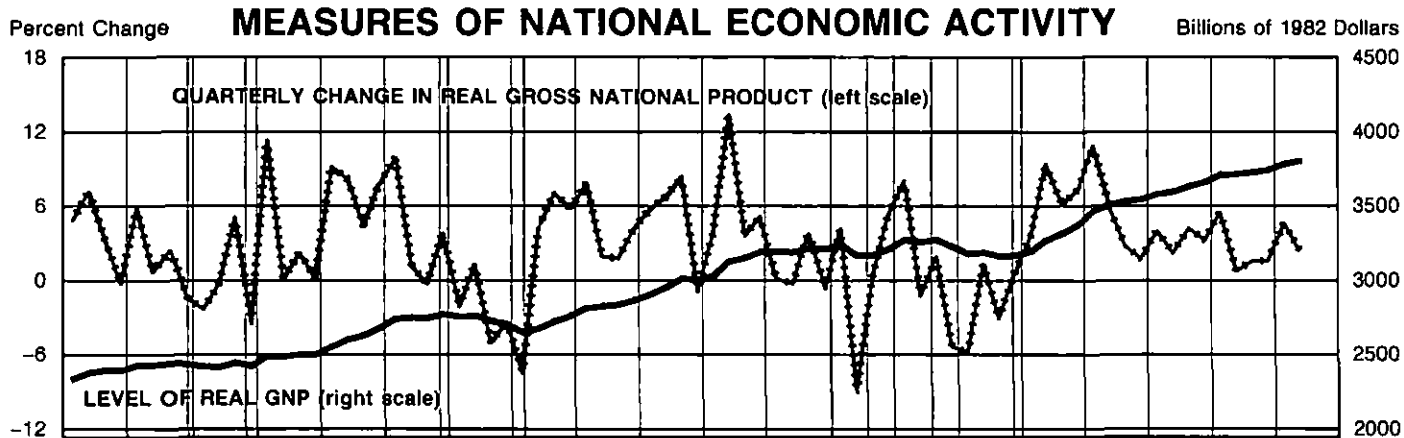


Note: Shaded areas indicate recession periods as designated by the National Bureau of Economic Research, Inc.

# MEASURES OF NATIONAL ECONOMIC ACTIVITY



Note: Shaded areas indicate recession periods as designated by the NBER; percent changes are at annual rates.



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