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**SURVEY RESEARCH CENTER**  
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ECONOMIC OUTLOOK USA is designed to aid private and public decision makers in achieving a better understanding of the economic and social environment in which they will be operating. The analysis of this publication incorporates direct measurements of the expectations, attitudes and plans of both consumers and business firms with the economic and financial variables traditionally used in forecast models. The philosophy of this publication is that a blend of anticipatory and traditional measures provides richer insights into prospective developments, insights which will produce more consistently reliable forecasts of both economic and social change.

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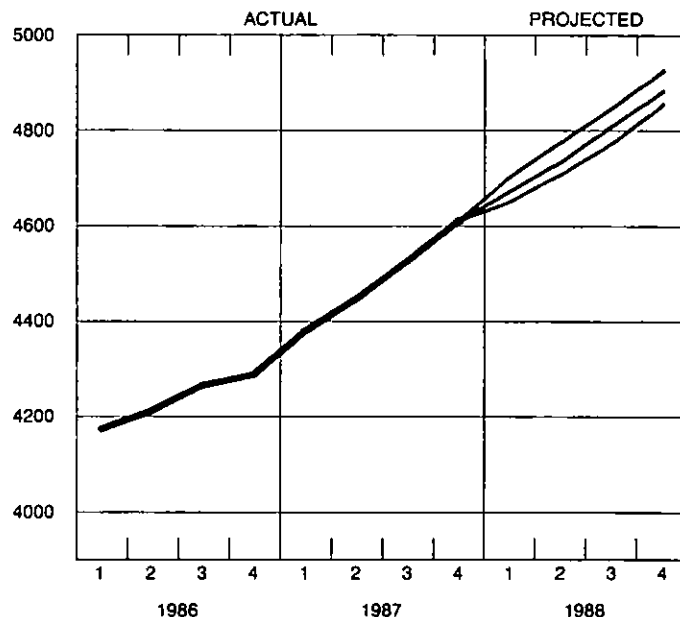
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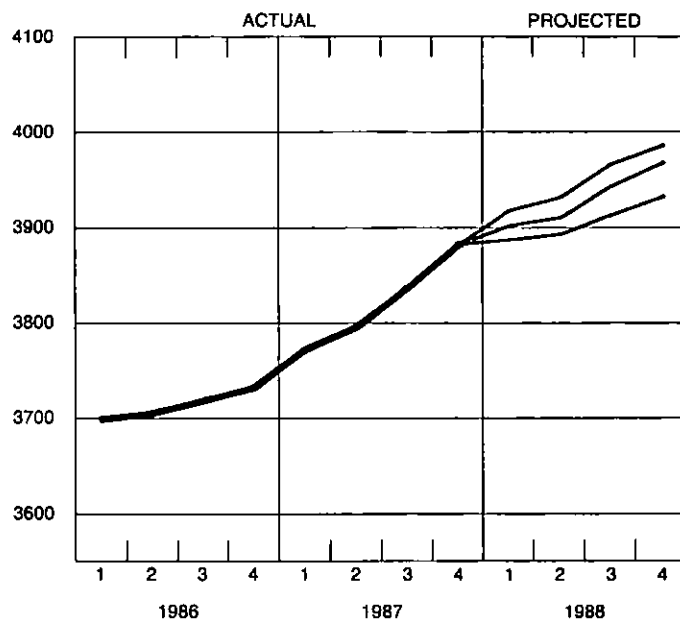
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IN CONSTANT 1982 DOLLARS  
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# AIDS and Public Policy<sup>1</sup>

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## Introduction

In the Summer 1987 issue of this publication, the scientific issues relating to incidence, transmission, and prevention of AIDS were examined. In this article, we turn to the public policy issues related to AIDS. 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 (HIV) and examine the public policy issues involved in various proposals for screening, quarantining infected groups, etc.

## Biological/Medical Innovation

Americans are accustomed to a technological-fix solution to most medical problems. We know from past history that the polio virus no longer strikes down thousands of people, because an effective vaccine was developed that prevented the spread of infection from victim to host. We know that there was apprehension a few years back about the spread of the swine flu virus, that extensive vaccination plans were developed by public health officials, that these plans were never fully implemented for a variety of reasons, but that the virus spread ceased unpredictably and a swine flu epidemic never appeared. And we also know in our historical memory that measles, diphtheria, and the black plague no longer afflict societies with adequate public health institutions and facilities. Why should AIDS be different?

The fact is, AIDS is different. Unfortunately, it is not different because it is *easier* to develop an effective vaccine or other technological fix, but because, due to the specific nature of the virus infection,<sup>2</sup> it is apparently *much more difficult and may well be impossible*. This is true not only for development of a vaccine to prevent the appearance of AIDS illness, but also for development of drugs which could provide effective treatment for AIDS victims without severe toxicity.

The virus vaccines currently available all mimic known mechanisms of immunity in natural infection: either they provoke the kind of antibodies known to be protective or they actually imitate the natural infection in its entirety (through use of live, attenuated strains of virus). These approaches cannot be used with HIV, for it is not yet clear what (if any) immune response is useful in natural infection, and the subtleties of the new virus make attempts at attenuation too risky.

Several other features also complicate vaccine strategies. First, there are no good animal models other than chimpanzees in which to study and test vaccine candidates. Second, even in the context of other retroviruses in their host species, most vaccines have failed, and those that exist have not proved unequivocally effective. And finally, HIV shares a property of other lentiviruses (and of influenza) of changing its antigens with such ease that vaccines might be only transiently effective even if some of the other hurdles were overcome.

In the face of these considerations, work toward a vaccine is proceeding along the most reasonable lines currently evident; but thus far every avenue that has been explored has failed in the chimpanzee model. Clearly it will be years before a widely available vaccine joins our armamentarium against AIDS.

Even assuming that a scientifically exemplary and theoretically sound vaccine could be developed, the pragmatic barriers to implementation — testing, licensing, and marketing — are staggering. Appropriately large groups of willing human subjects at high risk of infection would have to be located so that the efficacy of the vaccine in protecting them from subsequent exposure to HIV could be demonstrated. The safety of the candidate vaccine would also have to be confirmed, with issues of reliability for perceived complication of immunization looming even larger than they already do with existing vaccines for familiar infectious diseases. Finally, target groups on whom use of such a vaccine was deemed desirable would have to be defined and then persuaded of its merits.

If, as an alternative, public health authorities decided that universal vaccination was the best strategy for containment, we would be faced afresh with all the problems and issues that made the swine flu immunization campaign of 1976 so difficult for the public and for public health officials alike. Since vaccine-adverse reactions are initially logged by recording any untoward events that occur within several weeks following immunization, mass immunization automatically brings to the surface all the ills to which humans are prone, many of which have unknown causes and are therefore ascribed to the vaccine by a litigious public. It should be recalled that more than \$4 billion in claims were brought against the government before the campaign of mass immunization against swine flu was aborted. Thus the practicalities surrounding a vaccine approach to the AIDS epidemic are truly daunting.

Treatment prospects are not much more promising. The early-touted candidate drugs were extremely toxic and proved ineffective when put to controlled test. In 1986 the drug AZT was licensed for use in AIDS patients (under some defined circumstances). It clearly increases the well-being and longevity of those patients who can tolerate its substantial toxicity; but even among those who can keep taking it, it has a serious adverse effect on the bone marrow, and as many as 25 percent of such patients become dependent on repeated transfusions to maintain their

<sup>1</sup>Parts of this discussion also appeared in the author's note recently published in *The New England Journal of Medicine* (318:7, Feb. 18, 1988, pp. 444-447).

<sup>2</sup>This was discussed in the article which appeared in the Summer 1987 issue.

clinical well-being. It is possible that use of AZT earlier in HIV infection might have less toxicity, and that issue is currently under study.

The net social impact of AZT is very complex. Certainly it is a welcome ray of hope for persons with AIDS. It extends life expectancy, thus allowing more AIDS patients to outlast the two years usually required to qualify for Medicare; and it costs \$7,000 to \$10,000 per year. That cost may be offset somewhat by reduced need for hospitalization, but since the financing of inpatient and outpatient medical care tends to be from different sources, the equation is not a straightforward one, and there is considerable room for concern about unequal access to care. The strategies may have potential relevance for infected persons who have not yet progressed to the illness stage, but they present difficult tradeoffs for actively ill AIDS sufferers.

## Changing Human Behavior

As with many other diseases, the most attractive opportunity for coping with the AIDS epidemic is prevention. In simplest terms, breaking the string of transmission has great likelihood of containing the virus in view of its present, very limited means of spread. The high-risk groups are at high risk for behavioral reasons that are generally well understood: infected intravenous drug paraphernalia is known to be dangerous; homosexual risk increases dramatically with numbers of partners and with certain sexual practices. The risks to hemophiliacs and transfusion recipients have probably been interrupted already, with the advent of mass screening of donated blood and plasma.

The awareness that heterosexual transmission of AIDS is a definite means of spread, albeit less efficient than homosexual, should sound familiar alarms about the dangers of sexually transmitted diseases in the context of promiscuity. A significant proportion of AIDS cases in females occurs in prostitute populations, especially in the context of intravenous drug abuse; and it is likely that bisexual men have played an important role in establishing the virus in these populations.

What are the prospects that significant changes in behavior could, in fact, be accomplished, given people's sexual preferences and habits? We do not know for certain the answer to that question, but in view of the evidence summarized above, it is clearly important that we should try seriously and that campaigns of public education and information need to play a major role in public policy towards the AIDS epidemic.<sup>3</sup>

## The Extent of the Disease

Before examining the prospects for changing behavior in the groups that are at risk, it might be well to remind ourselves what may happen if we are unsuccessful either at developing an effective vaccine/treatment or at preventing

the spread of AIDS through public education and information.

The potential magnitude of an AIDS epidemic in the U.S. is daunting. Although the first cases of AIDS were not diagnosed until 1981, by now about 55,000 persons have died or are dying of AIDS. In addition there are well over 100,000 others who are already seriously ill with problems related to their HIV infection, and it is thought that perhaps 1.5 million Americans are silently infected. The likelihood that these people will become ill is going up relentlessly. Early in the epidemic it was thought that less than 10 percent of HIV infections would proceed to AIDS and that the incubation period was about two years. With increasing time and experience, both estimates have been steadily extended and may yet have to be increased again. Now it appears that the interval between the onset of infection and advent of AIDS may more typically be 5, 8, or even 10 years, and that 50 percent or more of infected individuals ultimately will become ill. Current projections, which are probably on the low side, indicate that by 1991 there will be a cumulative 270,000 cases of AIDS, with 179,000 of them already deceased. The estimates (made in 1986) have been quite accurate for the first year of the projection.

Epidemiologic trends have also been projected. To date, the U.S. epidemic has had a fairly constant pattern. Of those affected, 93 percent are men and 7 percent are women. A preponderance of cases occur among men who are gay (66 percent) or both gay and IV drug users (8 percent). As a group IV drug users account for 25 percent of the AIDS epidemic. While this general pattern is expected to hold true, it is predicted that by 1991 the sex ratio will shift to 91 percent men and 9 percent women — and remember that those are percentages of a number ten-fold greater. That change is expected to result from increasingly frequent HIV transmission from male IV drug users and bisexual men to their female sexual partners through heterosexual intercourse.

Increasingly, it is expected that heterosexual intercourse *per se* will become a contributory risk behavior when multiple sexual partners are involved. It is not yet a common occurrence, but there are well-documented cases in which the virus has been passed sequentially, by intercourse, from an infected man to a woman and, later, from that infected woman to another man. It would be correct to say that the heterosexual mode of spread is not yet the dominant mode in the U.S., although it certainly is elsewhere in the human family; but in guiding a path through the tangle of this epidemic, we need to talk to people about what *can* happen, not just about what happens with a high statistical frequency. Heterosexual spread has been a fact of the epidemic from its very beginning, and, as the virus prevalence increases, it can only grow.

As if the problems weren't complicated enough, minority populations in the U.S. have tended to view the AIDS epidemic as a so-called "gay white man's disease." What a deadly mistake that is! By 1986 the numbers of AIDS cases among blacks (25 percent of total cases) and Hispanics (14 percent) was disproportionately high in all behavioral risk groups, exceeding the representation of those ethnic groups in the U.S. population by two-fold. The overrepresentation of minorities is and will be most striking among women and children: by 1991 over 80 percent of women and over 90 percent of children with AIDS will be black or Hispanic. This reflects the increasing role

<sup>3</sup>Incidentally, we in the scientific community should also be very careful about promising quick-fix results. An anecdote illustrates the point vividly: in 1984 the Secretary of Health and Human Services announced that the virus of AIDS had been identified and predicted the likelihood of a blood test within 6 months and a vaccine within 2 years. In Los Angeles, bath-houses specializing in anonymous homosexual contact, which had stood empty for months out of fear, were suddenly filled and had four-hour waiting lines.

of IV drug use and heterosexual intercourse in patterns of spread, but it also reminds us that bisexuality goes by many names or no name and is probably a constant element across all human cultures.

Since these data were reported, we have acquired some additional data to lend insight into more recent spread of HIV, and they are not reassuring. The U.S. military has been screening their recruits for HIV antibody and rejecting those who test positive. They have tested several hundred thousand young Americans this way — individuals who have probably selected away from at least habitual high risk behaviors, since it is well known that both homosexuality and drug use are illegal in the military. Among the trends they have documented is an increasing equality of incidence of infection between men and women. Nationally the rate in male volunteers was 1.6 per 1,000, and the rate in females was 0.6 per 1,000. The 3:1 ratio contrasts ominously with the 11:1 ratio of AIDS cases in the general population. Among recruits from the New York City area, the trend toward equality in the sexes is even sharper: 1.6 per hundred men and 1.3 per hundred women tested positive. Bear in mind that AIDS cases represent an out-of-date snapshot — infections that occurred 5 or more years ago — and that these young seropositives will populate the AIDS epidemic of the future.

### Transmission via Casual Contact

An important issue of public policy relates to the question: can the AIDS virus be transmitted through casual contact, or are the only transmission mechanisms sex, blood, and birth? The question is obviously crucial, since every week brings fresh evidence that both the public and many politicians clearly act as if they thought that AIDS could be transmitted by proximity.

First, what is the evidence that AIDS cannot be spread other than by sex, blood, or birth? Although there are no laboratory experiments which could prove conclusive on this point (because of the marked species specificity of the virus for man), there have been, in fact, a large number of natural experiments in which other modes of transmission have been examined in human settings. The results have been dramatically reassuring.

How could one convince a skeptic that this was true? There are several things that might be done. First, you might set up an experiment in which dying AIDS patients were hugged and kissed, where household items were shared over a period of weeks and months, and then test the people so exposed. As it turns out, the "experiment" has been done. In dozens of families where loved ones died slowly of AIDS, the Centers for Disease Control tested family members thus exposed, not once but numerous times, over the succeeding months. Not a single person ever became infected without sexual contact.

If that were not enough, you might turn to hospitals where AIDS patients are concentrated and to health care workers who had to care for profoundly ill AIDS patients even before they were identified as such, handling all manner of secretions and tending to every bodily function. It turns out that this "experiment" has also been done — the Centers for Disease Control studied that, too, and out of many hundreds of health care professionals who have been carefully followed, not a single person who did not have high-risk behavior has ever become infected.

And if even that were insufficient as evidence, you might try the ultimate experiment — take needles and scalpels used directly for AIDS patients and poke other people with them. It turns out that that "experiment" has been done, too, and of over 1,300 such accidental exposures, none developed AIDS, only 3 resulted in evidence of HIV, and only one of those lacked discernable risk factors besides the accidental puncture.

Some new evidence on the issue was reported early in March by the Centers for Disease Control in the *Journal of the American Medical Association*. CDC researchers who looked at every case of AIDS reported since the epidemic began concluded that the disease has only been transmitted through the sex, blood, and birth mechanisms mentioned here. In their words: "despite theoretical concerns and anecdotal reports, there is no evidence to suggest that the AIDS virus has been transmitted through saliva, tears, urine, eating utensils, vaccine, casual contact, or insects."

### Administration Attitudes

The record of the current administration on their perception of the need for public awareness and education is not reassuring, although the recent pronouncements of the chairman of the President's Commission on AIDS offer a ray of hope. But up to now the U.S. is behind every industrialized country in the world in public education on AIDS, despite the fact that the epidemic is more serious in the U.S. than in any other developed country.

October 1987 was heralded as AIDS Awareness and Prevention month in the U.S. The U.S. Public Health Service tried to use every gambit they could maneuver past the censor in order to communicate about AIDS, but their efforts added up to little more than a whisper! With language as the only weapon in this war, their vocabulary has been artificially limited, and their phrases have been written with careful cognizance of official morality.

Even then their efforts at restraint apparently weren't good enough, for in late September the brochure that was to have gone to every household as part of the October campaign was once again rejected by the administration censor; it is terribly hard to discuss transmission of the AIDS virus without mentioning multiple sexual partners, drug abuse, and the like; and the administration seems to feel that to mention is to condone. When someone complained that the \$20 million specifically designated by Congress for a nationwide mailing was being impounded by default, the head of the president's Domestic Policy Council commented that anyone who didn't already know that AIDS was transmitted by sex and drugs was the sort of person who didn't read his mail! Mr. Bauer is probably correct — but does that mean that we shouldn't expand the education of those who do? Does it follow that those who are functionally illiterate should be denied any access at all?

The latter point is of great concern, for, as the epidemic progresses, our disadvantaged citizens are proving to be at special risk; and yet it appears that we won't be using TV for a while. We seem not to be able to afford prime-time TV and will have to settle for radio while hoping that the public-spiritedness of the networks will inspire them to donate a few minutes here and there. Shouldn't critical public health issues at least get equal time with the U.S. military recruiting advertisements?

And how astonishing it is, after even a random sampling of daytime soaps or nighttime fare, to learn that we are worrying about tastefulness as we take to the American airwaves in the name of public health! We need to talk frankly about multiple sexual partners and unsafe sexual practices, about experimentation with drugs, about bisexuality, and about the ways to minimize risk. But to address those matters, we must use words that no one is supposed to use; and we must acknowledge that real life mores do not yield instantly to the admonition "just say no."

We have had more than 6 years to become inspired to our preventive task, and, except for Surgeon General Koop's courageous stance, we have yet to talk publicly about anything but monogamy and chastity — as if that approach would rivet the attention of persons at high risk or as if failure to mention morality with every breath would turn us into advocates of sexual anarchy and licentious drug abuse!

In some of the public discourse, there has been an ugly tendency to talk about certain AIDS patients (such as those infected through blood transfusion) as "innocent victims." We do not talk about guilt to patients with lung cancer, although the behavioral component to its etiology is even more systematic; and yet concerning AIDS we speak about the innocence of certain patients while implying, by the symmetry of language, that others are "guilty." If we really mean to withhold our compassion that way, what an extraordinary deviation from our country's dedication to the worth of the individual. If the next generation becomes infected through failure to warn, where will the guilt lie? With the dying?

## Public Policy Options

The AIDS epidemic is putting our social and political skills to an extreme test, but we should celebrate the fact that in just 6 short years biomedical and epidemiologic scientists have constructed a firm foundation of abundant data on which to build carefully focussed policies which are responsive to the precise contours of the epidemic. The good news is that our seemingly extravagant investments in basic research were in the nick of time, and for the first time in human history we are in a position to respond to a major plague without panic and without resort to draconian extremes of social action.

Given these facts, much of the AIDS dialogue these days seems to be predicated on stark unrealism. The general public indulges itself in complaints about the tastelessness of condom advertising, and many public policy makers seem to be operating on the notion that we are coping with a short-term or finite problem: that the "good old days" will return in 1991 or soon thereafter. Some people talk as if the projected ten-fold increase in AIDS cases won't necessarily happen or, if it does, that the numbers will magically stop there and go no further.

Let us dispense with those dreams quickly: AIDS is here to stay and will be a fact of life for our children's children; we can exert great influence on how *dominant* a force it will be, but we cannot make it disappear. The projections of a quarter-of-a-million Americans dead or dying of AIDS by 1991 are based on sufficiently valid data that, while they might be low, they will assuredly not be high. And nothing says that there won't be a further stepwise increase in 1992 in the absence of public education

and effective warnings — a national effort still not launched in the U.S. one year after these solidly-based projections were issued at a national meeting on AIDS.

The unreality about policy shows up clearly in public discussions of such measures as quarantining and mandatory testing. Let's look at quarantine as an illustration of the problem. In America we are talking about as many as two million individuals, in whom infection and infectiousness are lifelong. They do *not* represent a threat to others except by the closest kind of consensual behavior, and yet in public opinion polls quarantine has the support of 25 percent of those surveyed. The logistics would be daunting, to say the least: how would we do that, even if we could find an appropriate island or enclave? Would we feed them? Would we have them make license plates for a living? We would certainly have to guard them to keep them from slipping out, and probably to prevent family members and loved ones from slipping *in*. This all sounds so perverse that I hate to discuss it; but the societal winds leading in this irrational and dangerous direction are blowing strong, and silent contemplation of such atrocious options haunts the public policy debate in significant ways.

For instance, I suspect that some thought of quarantine lies in the back of the minds of policy makers who seem to be positively *possessed* by the remarkably tenacious wish to screen. When pressed to justify their position, advocates of mandatory or very widespread antibody testing to detect asymptomatic infected individuals fall back on the rationale that it would be desirable to know with greater accuracy how many people are infected. Since they aren't doing much with the information we already have in hand, that argument is peculiarly unconvincing. And anyway we don't need to violate people's privacy and autonomy to do that; we can get a very good idea of virus prevalence through anonymous samplings of sera collected for other reasons.

But a more profound argument arises concerning mandatory testing: given that the very restricted modes of transmission are consensual and private in nature, limitation of virus spread — which is the other presumed goal of such programs — is based of necessity on voluntary changes in behavior. In fact, if mandatory approaches worked we would not have an epidemic of illicit drug use to serve as a major vehicle for further spread of the AIDS virus. Since intravenous drug use is already illegal, the use of mandatory urine testing for drugs in the U.S. serves as an interesting "trial run." Thus far, the chief results of such programs seem to be, first, a black market in "negative" urine and, second (in reaction to that), a level of intrusion in observing the donation of the urine sample to verify its authenticity that makes one shiver at the implications for AIDS control, but does not inspire confidence about the impact on drug use.

Similarly, mandatory contact tracing for the presence of AIDS is proposed by some with the argument that it is a "tried and true" method of control of sexually transmitted diseases; and premarital screening of blood for HIV antibodies is argued for on the same basis. But if such mandatory measures had really been effective, why were we already undergoing epidemics of a dozen sexually transmitted diseases at the time AIDS first appeared?

In fact, it has been well argued by Allan Brant — in his fascinating book on the history of the American response

to sexually transmitted diseases entitled *No Magic Bullet* — that our coercive social programs didn't work at all well. Even common sense would argue that *mandatory* contact tracing works only as well as the cooperation of the index case will allow. And there are those who contend that efforts to enforce such heavy-handed public health approaches will simply ensure that the epidemic will go "underground" and that anonymous sexual encounters will continue.

As to premarital screening for syphilis, its inefficacy and unwarranted cost have led increasing numbers of states in the U.S. to abandon it in favor of more focussed policies. As *The New York Times* remarked dryly in an editorial last May opposing such broad-brush responses to the AIDS epidemic, the premarital syphilis test was dropped in New York state recently because "the results were not worth the cost, and because of suspicion that some couples nowadays have sex before marriage."

Thus, in two of the hottest of the current political debates concerning AIDS, the epidemiologic and scientific facts of the epidemic are not factored in at all. The very gravity of our epidemic situation demands that we be honest in our critical assessment of past policies. If we *are* honest with ourselves, then we must admit that penicillin, rather than public health officialdom, deserves the credit for curtailing syphilis; and the explosive spread of antibiotic-resistant gonococci and the advent of chlamydia and a host of untreatable sexually transmitted diseases among both homosexuals and heterosexuals should warn us not to be so uncritical of past strategies.

Let us be very clear: the horror of AIDS and its inexorable progress to an unpeaceful death is such that any political or ethical analysis would mandate whatever public health policies were best designed to abort the epidemic at the earliest opportunity. As to civil liberties and public health, it is a happy fact that the data lead to the conclusion that *wise policies will optimize them both*.

Just to keep screening issues in perspective, let me describe what I believe to be the proper uses of screening. First, mandatory screening of the donors of blood and blood products and of organs/tissues/cells is clearly important and warrants the investments in its deployment that have been made. Second, I am fully in favor of voluntary testing in the context of counselling, confidentiality, and anonymity (if deemed necessary by the participant). We should facilitate use of the test, but there is much work to be done here, for many communities have located their alternate test sites in the heart of the inner city or in the sexually-transmitted-diseases clinic, and the social disincentive to use their services can be quite strong for the worried well. Furthermore, the medical profession is not yet well educated about the epidemic. Bisexuality, closet homosexuality, and the patronization of prostitutes — not to mention experimental use of illicit intravenous drugs — are not common topics of discussion in the present-day doctor-patient relationship. Our policies should recognize this and facilitate realistic testing opportunities so that worried individuals can learn their status and behave responsibly toward their loved ones, as most wish to do.

In short, we haven't tried the voluntary approach to control of the AIDS virus nearly as energetically as I believe we must. Our data tell us that in both the U.S. and Europe, when high-risk individuals have been educated to

recognize the specific behaviors that put them at risk, the results in terms of behavior modification have been truly astonishing. Compared to prior efforts of any sort at health education, much less sex education, the magnitude of change has been dramatic. Public education is particularly urgent for individuals who have yet to adopt lifestyles — adolescents and children. We need their willing attention, not their surly compliance; the tone of our preventive programs will do much to determine which we get.

Let us look at some other things we *should* be doing, besides optimizing the use of the antibody test through well-conceived programs of voluntary participation. As I mentioned before, we should have been conducting public education campaigns long since; it is embarrassing that we are one of the few industrialized countries which have yet to mount a coordinated program of public education about AIDS. With merely two dozen or two hundred cases, the majority of countries who can afford it have deployed the full power of their media and government access to warn their people of the new threat; and we, with well over 50,000 cases, 1-2 million infected, and the experience from which they are all learning, are officially mute. Failure to warn about the new virus and its lethal consequences is an extraordinary punishment for unapproved sexual activity, and it seems to me that we are ethically bound to say what we know about prevention.

Condoms, for instance, are quite effective (although not foolproof) in preventing the spread of the AIDS virus during intercourse when used appropriately; and it is hard to believe, when condoms are among the perilously few defenses we have in limiting the spread of a killer, that someone could perceive silence as an ethically defensible stance. Not only do we not have national educational programs about this in the U.S., but many public laws — attempting to enforce an unreal morality — militate against prudent behavior.

What about drug users. And needles — how about free needles? As commonly happens with a good catch-phrase, the notion of "free needles" sets morals aflame and distorts the discussion. In the U.S. most states have laws which make it illegal even to *possess* injection apparatus, and it is contended that easy access to needles and syringes would encourage drug use! I don't know whether it would or not — some European countries have needle exchanges which have worked well and have not had that effect. Clearly the issue is not a simple one; but the fact is that drug use is the open avenue to the epidemic's future, and we simply do not know what impact such policies would have. Quarrelling about morality will not resolve the issue, and it is surely worth finding out. For these reasons, the Institute of Medicine/National Academy of Sciences study group recommended that this be put to experimental test.

The needle argument is a distraction, of course, from the shocking shame of our so-called "war on drugs." Some "moral" crusade, when no accommodation is made for prisoners of war! There are not now enough treatment slots in the United States to take care of those addicts who already want out, and this was true well before the bad news about AIDS hit the drug community. It has been said that warnings about AIDS haven't yet made an impact on drug users, but how would we know, when there is no opportunity for them to react? I believe we should not

consider our policies even vaguely rational with respect to the AIDS epidemic (not to mention the drug epidemic) until the treatment centers have openings going begging and until sexual partners of addicts are found, organized, and mobilized into self-help groups. My colleagues in the drug field tell me that there is nothing suicidal about drug users, that they are truly terrified and want help!

It is difficult to overemphasize the role drug users will play in the U.S. epidemic: the previously-mentioned expected increase in the percent of women involved will be largely due to drug use or sexual partnership with a drug user. More than 90 percent of pediatric AIDS in 1991 will be the direct or indirect result of drug use — and pediatric AIDS is a disaster beyond imagining, coupling as it does the sustained and desperate illnesses of immunodeficiency with the likelihood of orphan status, minority status, and neurologic decline. Even in the context of female prostitution, the likelihood of a prostitute being infected and therefore potentially infectious tracks dominantly with IV drug use.

## Conclusion

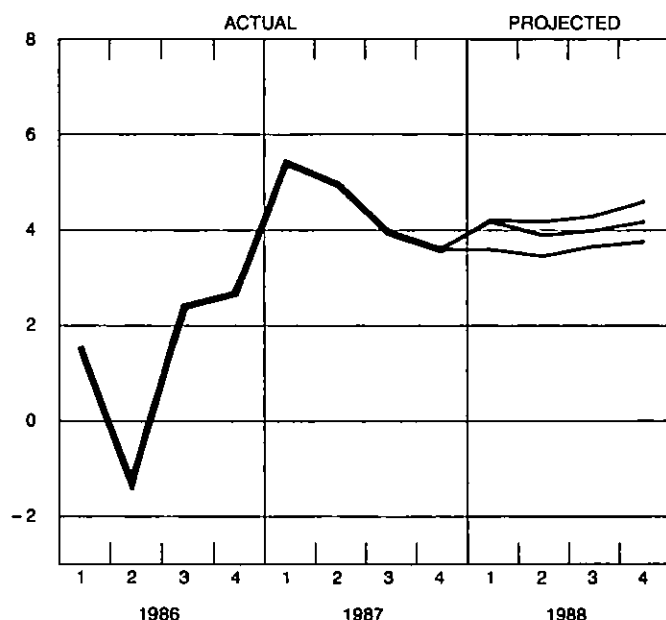
So those are some of the facts that should drive our public programs and should underlie our political decisions. Some of the necessary words are hard to say out loud in public, but one gets used to that; and the fas-

tidiousness that dictates against talking in plain language is predicated on the assumption that the situation is temporary, that this will all go away. It won't, of course, and the savvy politician doesn't have to feel very brave, for the future will bear out the wisdom of frank and sensible approaches. We must remind ourselves that, in looking at cases of AIDS, we are looking at a snapshot that was taken 5 to 10 years ago — for, as I mentioned, the incubation period is at least that long. While that picture from the past tells us what happened then, the glimpses of the present — coming, for instance, from the military's screening of volunteers — tell us that worse things are coming.

If we wait long enough before acting, the inefficiencies of heterosexual spread could be overcome in the U.S. and throughout the world, as they seem to have been from the start in Africa. Surely there will be ways that clever politicians can say that acceptably; and I am pleased to say that in recent weeks a number of powerful political figures in the U.S. have at last begun to stir and show signs of entering the fray in helpful ways (I am not referring to Messrs. Reagan, Bush, or Bennett). I can hardly wait, for there has been an almost ghostly silence from many responsible quarters thus far; and I worry, as does Jim Curran of the Centers for Disease Control, that in 1990 people will be shaking their fists at us saying "Why didn't you tell us?"

## CONSUMER PRICE INDEX

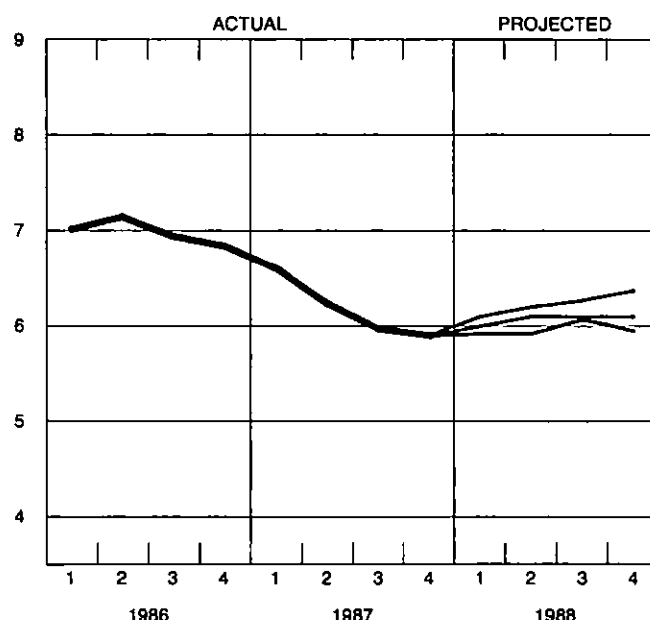
Percent Change  
at Annual Rate



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 2

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## Introduction

A previous article in this publication provided an overview of the size distribution of wealth holdings among U.S. households and provided a few details about the relationship between wealth holdings and household income. In this article we take a more detailed look at the structure of wealth holdings, including both the asset and liability sides of the balance sheet, and also examine evidence on the concentration of wealth holdings in the U.S.

## General Characteristics of Wealth Holdings

The amounts of wealth held by various types of American households are of interest partly because of the potential influence that wealth has on spending behavior. Other things equal, a household with a given set of characteristics (income, age, orientation toward the future, etc.) and large wealth holdings is apt to have larger consumption than a similar household with smaller wealth holdings.

One useful way to describe the characteristics of household wealth holdings in the U.S. is to calculate the average amounts of wealth held by households with different incomes, distinguishing between the most widely held types of wealth and those types of assets or liabilities that are much less frequently owned. A useful distinction is to aggregate household wealth into three categories — con-

sumer durables (assets such as houses and cars); liquid assets such as checking and saving accounts, CDs, government savings bonds, money market funds, etc.; and all other assets (common stock, bonds, investment trusts, real property except for personal residences, ownership of a business or farm, etc.). In this tabulation, debts are netted against the appropriate asset category, so that the data for housing and cars show net equity rather than gross value; and other assets are reduced by household liabilities such as credit card debt, line of credit debt, unclassified loans, etc. Table 1 shows both the average amount in dollars and the percent distribution (in parentheses) of these three types of wealth holdings for households in the various income and age categories.

The basic message from this tabulation is both clear and unsurprising. Most of the asset holdings of households with annual incomes of under roughly \$50,000 are in the form of either equity in tangible assets (cars and houses) or liquid assets. While those under age 45 have much smaller asset holdings than those age 45 or older in each income category, the distribution of assets by type is roughly similar for households in the two age groups. But for households with incomes of (roughly) over \$50,000, which comprise about 10 percent of U.S. households, proportions of total asset holdings ranging from about a third to about a tenth are in the form of equity in tangible assets and liquid assets, while the bulk of their assets are in other

TABLE 1. Average Dollar Amounts of Net Worth and Components  
Held by Persons in Various Income Categories  
(Percent Distribution in Parentheses)

| Income Class       | Age Less than 45                |                   |                                           |                       | Age 45 or More                  |                   |                                           |                       |
|--------------------|---------------------------------|-------------------|-------------------------------------------|-----------------------|---------------------------------|-------------------|-------------------------------------------|-----------------------|
|                    | Equity in<br>Cars and<br>Houses | Liquid<br>Assets  | Other<br>Assets<br>Less<br>Other<br>Debts | Net<br>Worth          | Equity in<br>Cars and<br>Houses | Liquid<br>Assets  | Other<br>Assets<br>Less<br>Other<br>Debts | Net<br>Worth          |
| Less than \$10,800 | \$5,737<br>(54%)                | \$569<br>(5%)     | \$4,394<br>(41%)                          | \$10,700<br>(100%)    | \$21,974<br>(53%)               | \$3,949<br>(10%)  | \$15,366<br>(37%)                         | \$41,288<br>(100%)    |
| \$10,800–23,999    | \$14,218<br>(56%)               | \$2,377<br>(9%)   | \$8,570<br>(34%)                          | \$25,166<br>(100%)    | \$42,575<br>(49%)               | \$16,077<br>(19%) | \$28,048<br>(32%)                         | \$86,700<br>(100%)    |
| \$24,000–47,999    | \$30,047<br>(48%)               | \$5,501<br>(9%)   | \$26,876<br>(43%)                         | \$62,424<br>(100%)    | \$65,369<br>(43%)               | \$22,808<br>(15%) | \$63,687<br>(42%)                         | \$151,864<br>(100%)   |
| \$48,000–95,999    | \$58,153<br>(37%)               | \$15,567<br>(10%) | \$82,220<br>(53%)                         | \$155,940<br>(100%)   | \$91,383<br>(26%)               | \$37,016<br>(10%) | \$227,427<br>(64%)                        | \$355,826<br>(100%)   |
| \$96,000–191,999   | \$95,817<br>(23%)               | \$41,214<br>(10%) | \$280,602<br>(67%)                        | \$417,633<br>(100%)   | \$195,540<br>(19%)              | \$81,152<br>(8%)  | \$745,558<br>(73%)                        | \$1,022,250<br>(100%) |
| \$192,000 or More  | \$262,937<br>(17%)              | \$117,642<br>(8%) | \$1,126,571<br>(75%)                      | \$1,507,149<br>(100%) | \$341,851<br>(7%)               | \$197,682<br>(4%) | \$4,117,563<br>(88%)                      | \$4,657,095<br>(100%) |

forms — common stock, equity in a business or a farm, investments in real property, etc. By age, older households have substantially greater asset holdings than younger ones. Older households who have less than roughly \$50 thousand in income (the great bulk of older households) are also likely to have a larger proportion of their asset holdings in the form of equity in tangible assets plus liquid assets, especially the latter.

## Financial Assets

The distribution of financial asset holdings by asset type varies substantially according to the household level of income. In Panel A of Chart 1 we show the average values of five types of liquid assets for households in different income categories, while in Panel B we show the distribution of five types of less liquid financial assets. The first set of categories includes checking accounts, money market funds and brokerage call accounts, savings accounts and credit union shares, certificates of deposit, and U.S. government savings bonds. The assets portrayed in the right half of the chart include corporate and foreign bonds, common stock and mutual fund shares, IRA or Keogh accounts, trust accounts, and other assets (principally the cash surrender value of life insurance policies).

There are strikingly different sensitivities to income level with respect to holdings of the various types of liquid assets. Savings accounts and credit union shares show the

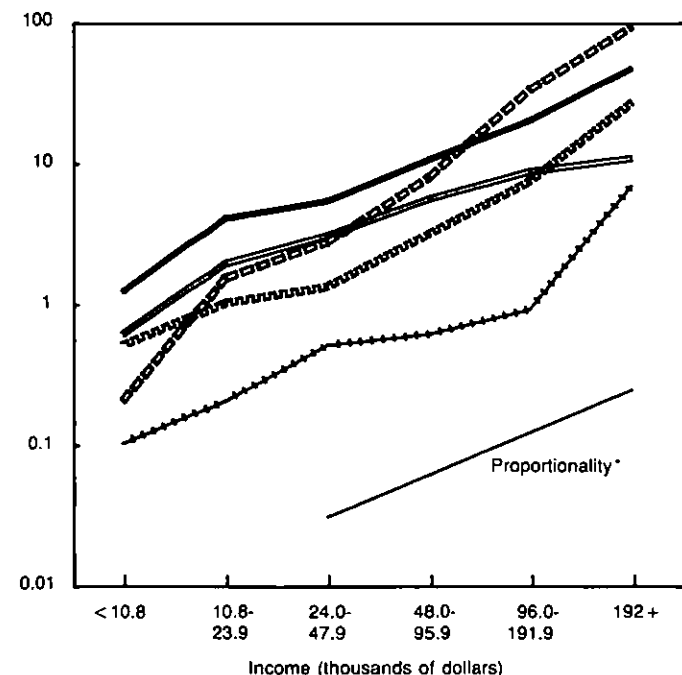
least response to differences in income levels, while money market funds and brokerage call accounts show the most. A simple summary measure of the income patterns is to calculate the proportion of total asset holdings of the various types that are held by households in the two highest income classes shown in the chart, corresponding to households with annual incomes in excess of about \$100,000. About two percent of U.S. households have incomes above that amount, and these households account for about 9 percent of total holdings of savings accounts and credit union shares but almost 40 percent of total holdings of money market funds and brokerage call accounts. Comparable figures for the other liquid asset categories are in between, with CDs being closer to savings accounts, and government savings bonds and checking accounts being closer to money market funds and brokerage call accounts.

The relationship between income level and ownership of less liquid financial assets is quite different. For these forms of assets, the rise in average wealth as the income level increases is much steeper than for any of the liquid asset categories, with the sole exception of assets held in the form of IRA or Keogh accounts — where the relationship with income is much like that of money market funds and brokerage call accounts. But for bonds, common stock and mutual fund shares, and trust accounts, average holdings rise much more steeply with income than was true for any of the liquid asset categories. The proportion

**CHART 1. AVERAGE FINANCIAL ASSET HOLDINGS BY INCOME CLASS**

### A. Relatively More Liquid Assets

Thousands of Dollars  
(Logarithmic Scale)

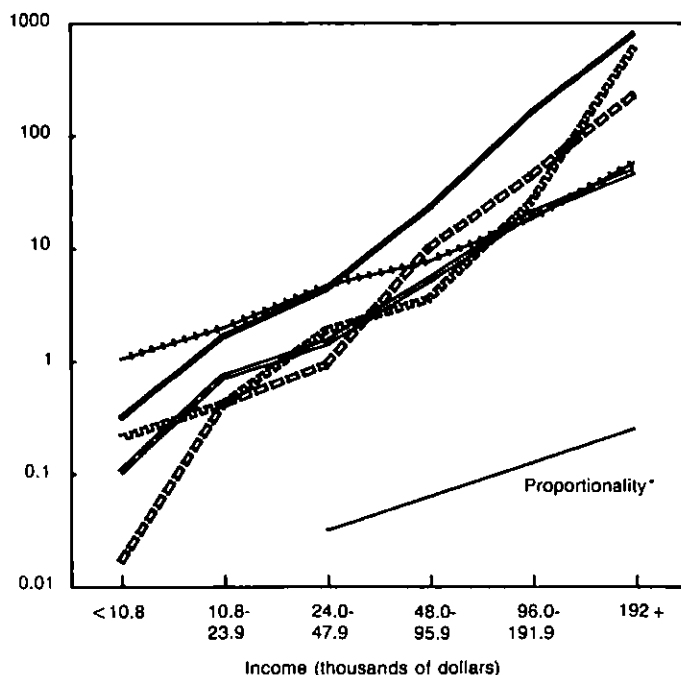


— Certificates of Deposit      — Savings Accounts  
 □ Money Market Funds      — Gov't. Savings Bonds  
 ~~~~~ Checking Accounts

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

### B. Relatively Less Liquid Assets

Thousands of Dollars  
(Logarithmic Scale)

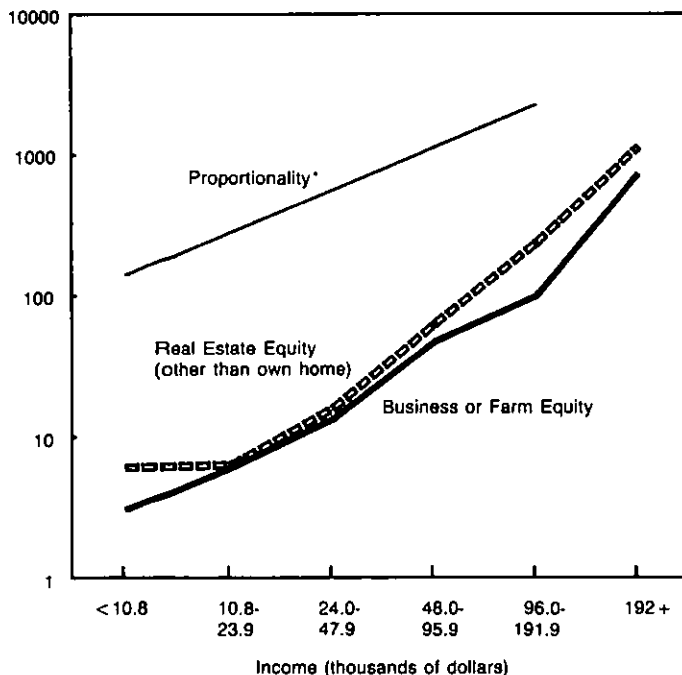


— Common Stock      — IRA and Keogh Accounts  
 □ Corporate Bonds      — Other Financial Assets  
 ~~~~~ Trust Accounts

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

## CHART 2. Average Real Investment Asset Holdings by Income Class

Thousands of Dollars  
(Logarithmic Scale)



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

of such assets held by households in the two highest income groups — those with annual household incomes in excess of roughly \$100,000 — is about 68 percent for bonds and common stocks and over 80 percent for trust accounts. Thus the degree of concentration in holdings of these financial assets is very substantial.

### "Real" Investment Assets

An important component of wealth for many households is their ownership of real investment assets — real estate investments other than the household's own home, and ownership or part ownership of a business or farm. Altogether, these types of assets make up about a third of total household net worth, and they are distributed among income classes as indicated in Chart 2.

Roughly speaking, the relationship between these types of assets and income class is somewhere between the pattern described above for liquid financial assets and the pattern for the less liquid financial assets. Almost half the total holdings of both real estate investment assets and ownership of businesses or farms is represented by the holdings of households in the two highest income classes, in contrast to the roughly 20 percent of liquid assets owned by households in those groups and the roughly 60 percent of other financial assets owned by such households. What generally seems to be the pattern for assets in this category is that the average value of holdings is likely to be much greater than financial assets like bonds and stocks in the lower income categories, but about the same in the highest income categories — thus the differential association with income.

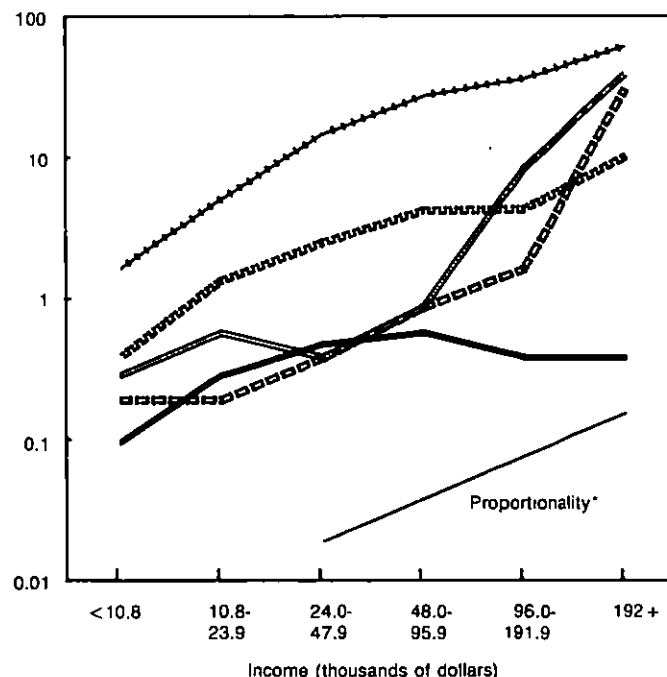
## Debt

One might suppose that the distribution of debt among households in the U.S. would look very different than the distribution of assets. Since debt usually involves paying a higher interest cost than is obtainable from the yields on most assets, it might be thought that households with substantial amounts of assets are likely to have little or no debt, while households that have debt are likely to be ones that lack the assets to make outright purchases. While that general picture tends to be more or less true of certain types of debt, it is clearly not true generally.

Chart 3 shows the pattern of average debt outstanding for households in the different income categories, dividing debt into credit card debt, open lines of credit, installment and non-installment debt that is close-ended in nature, and mortgage debt. The only two debt categories that show an actual decline in average amounts of debt outstanding in the higher income groups are credit card debt and automobile installment debt (not shown in the figure). But debt incurred on open lines of credit and non-installment debt show about the same relationship to income as holdings of real investment assets and holdings of financial assets like stocks and bonds, while installment debt shows about the same relationship to income as was found for savings accounts or certificates of deposit. Not surprisingly, real estate debt has about the same income pattern as real estate holdings, although it rises somewhat less strongly than the latter.

## CHART 3. Average Debt Outstanding by Income Class

Thousands of Dollars  
(Logarithmic Scale)



— Credit Card Debt      — Non-installment Debt  
- - - Open Lines of Credit      - - - Home Mortgage Debt  
~~~~~ Installment Debt

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

## Wealth Concentration

Studies of the degree of concentration of wealth have been of great interest to both economists and policy-makers for many decades. Because wealth is so hard to measure, especially the wealth holdings of the very wealthy, most such studies have been based on data from estate tax filings, using mortality rates to go from a sample of the deceased (estate tax filers) to a representation of the wealth of the living.

From the survey data described above, it is possible to estimate the degree of wealth concentration, although not with a high degree of precision. One difficulty is the simple fact that the single largest wealth figure obtained in the survey is not nearly large enough to represent what is known (from external sources) about the wealth holdings of the wealthiest U.S. households. For example, the *lower* limit of the estimated wealth of the richest U.S. households from such sources as *Forbes* (the 400 richest people in America — the *Forbes* 400) is several times higher than

the largest wealth figure obtained in the survey. Hence the calculation from the survey data is bound to be an underestimate of the actual degree of concentration, although not necessarily by a large amount given the tiny number of households in the “extremely wealthy” category.

The data on wealth concentration that can be obtained from the survey can be summarized by the calculations that a little over 30 percent of total household wealth is owned by the top one percent of wealth-holders, almost two-thirds is owned by the top 10 percent, and the remaining third is owned by the bottom 90 percent. These percentages do not appear to be much different than similar estimates for earlier decades. However, these wealth data relate to the early part of 1983. There have been substantial gains since then in the relative importance of common stock in total wealth holdings, and common stock ownership is very heavily concentrated among wealthy households. Thus a survey of current wealth holdings would almost certainly show a higher degree of concentration than the data examined above.

## Update on the U.S. Economy

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On the evidence to date, the U.S. economy has weathered the storm created by the financial panic last October, and is likely to resume a modest upward path of economic growth after a sluggish first quarter in 1988. In brief, what seems to have happened is that:

1. While consumer spending tailed off substantially in the fourth quarter of 1987, presumably because of the uncertainty associated with the stock market crash in October, consumption now seems likely to resume its modest upward path during the balance of 1988.
2. The uneasiness among consumers, reflected by the sharp decline in consumer optimism in the fall, appears to have been fully dispelled — by February, the Index of Consumer Sentiment had recovered all of the sharp decline caused by the market crash.
3. While the strong fourth quarter 1987 increase in real GNP was largely the result of inventory accumulation caused by weak consumer spending, that effect will be largely worked off after the first quarter of 1988.
4. On balance, other sectors of the economy seem to have been largely unaffected by the events of last year — the real trade balance is continuing to improve (although more slowly than many would like), the public sector will be a little weaker this year, and private investment looks to be about what was expected, with some weakness in housing being offset by strength elsewhere.

Overall, it now looks as if the great crash of 1987 will be recorded as an interesting non-event — not that stock prices didn't have the sharpest one-day decline in history,

but there appears to have been very little cumulative consequence of that event on the real economy. The major concern here always was that consumers would react sharply and push the economy into recession, but that depended on a scenario where the uncertainty induced by the stock price decline was followed by adverse changes in the real economy, leading consumers to believe that their initial concerns about the future of the economy were well founded. Instead, the Federal Reserve Board acted quickly to allay concerns, interest rates dropped sharply, and the economic events that consumers interpret as signals about the economy — prices, employment, unemployment, interest rates, etc. — gave no indication that there was trouble ahead. Thus consumers appear to have concluded that the stock price decline was an event whose only impact was to wipe out a few speculators on Wall Street, but that it didn't mean anything for them. Thus their hesitation in late 1987 was replaced by “back to normal” behavior in 1988.

That result comes as a surprise to many analysts, including this writer. Of course, it is also true that the real problems that the economy has shown over the last couple of years have not disappeared. We still have a massive trade deficit, the budget deficit is in not much better shape than it was, and the dollar continues to be weak with its mixture of plus and minus implications for the economy. Further, U.S. competitiveness in world markets, the low rate of productivity growth, and the low rate of personal saving continue to be sources of concern. But these are longer-term problems, and they will certainly not be ameliorated in an election year. The next president will have lots to worry about and, unfortunately, precious few degrees of freedom.

# An International Perspective on the Income and Poverty Status of the U.S. Aged\*

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## Introduction

The income of the aged in the United States has increased significantly in real terms since 1970. This increase is due in part to substantial increases in social security benefits and in part to the better wage histories of those who are now retired compared to the retired of 15–20 years ago.

The trend toward an improved economic status for the aged in the United States is not an isolated phenomenon; it has occurred in the five other industrial countries examined in this paper. In fact, the increase in incomes for the aged in the United States in the 1970s may actually be less than occurred elsewhere. Nevertheless, the income of the U.S. aged is higher relative to the national average income than similar ratios in any of the other countries examined. At the same time, the U.S. elderly have more income inequality than the elderly of the other five countries examined, and — because of this income inequality — the U.S. elderly also experience more poverty than the aged in every country but one.

Most of the data in this paper comes from the Luxembourg Income Study (LIS), which has created comparable national income microdata files for nine countries for the years 1979 or 1981. Thus, the LIS comparisons of the aged in these countries are cross-sectional. In order to provide a broader context for the cross-sectional discussion, this paper briefly summarizes recent income trends for families in general and the aged in particular in several countries, drawing from the International Data Base on Aging produced by the U.S. National Institute on Aging and the U.S. Bureau of the Census' Center for International Research (NIA/CIR).

We begin by discussing trends in social security benefit increases in the six LIS countries and changes in labor force participation of the aged in those countries. These trends and changes have been the antecedents to the detailed picture the LIS data provides of the income of the aged in the 1979–81 period — aged income relative to the national income, income distribution among the elderly, and the resulting poverty rates.

## Trends in Family Income

Incomes for elderly households have increased substantially in the three countries for which time series data are available. However, the available data in each country are not for the same years, and definitions of the aged differ — from households with a reference person age 65 and over in the United States and Canada to those single elder-

ly who are retired in the United Kingdom. These intertemporal comparisons, therefore, create broad-brushed impressions rather than well-focused photographs of the income changes for the general and aged population over a 10-year period. Given the limitations of these data and the imprecision of the comparisons, small differences in either levels of income or changes in those levels should not be emphasized. But they do provide a useful perspective for better understanding income trends in the United States.

In the three countries studied, the income of the aged increased slightly more than the general family income in Canada but substantially more in both the United Kingdom and the United States (Table 1). In the United Kingdom, income of the retired could be calculated only for retired one-adult families, but the increase for this type of family income was more than three times as great as for family income in general. In the United States, as in other economies, increases in income are particularly sensitive to the time span used. Yet, regardless of the selection of different end points, the increase in income of aged households is much higher than that of all households in the United States. In fact, during the period 1973–84, overall U.S. income fell by 8.7 percent, while the income of the aged rose by more than one-fifth. Moreover, were we to compare increases in the income of the aged to those for other "dependent" family types, such as single-parent families, the improvement in aged incomes would be even more dramatic in all three countries, but especially in the United States.

## Increases in Social Security Benefits

A large part of the improvement of the incomes of the aged in real terms and relative to the incomes of the rest of

TABLE 1. Percent Change in Income  
by Type of Family for Selected Countries

| Country        | Average Real Household Income Changes |       |       |
|----------------|---------------------------------------|-------|-------|
|                | Time Frame                            | All   | Aged* |
| Canada         | 1970–80                               | +28.5 | +30.2 |
| United Kingdom | 1973–84                               | +6.9  | +23.2 |
| United States  | 1970–80                               | +0.4  | +20.1 |
|                | 1973–84                               | –8.7  | +21.3 |

\*Households with a reference person age 65 or over for Canada and the United States; retired one-adult households for the United Kingdom.

Sources: *Changes in Income*, Statistics Canada, 1985. Family Expenditure Surveys, 1973, p. 86; 1984, p. 64; Department of Employment, Government Statistical Service (United Kingdom). United States *Current Population Surveys*, various years.

\*This paper, which is adapted from a presentation to the American Economic Association in December 1986, has not had the detailed statistical review usually given to publications that use U.S. Bureau of the Census data. The views of the authors are not necessarily the views of the U.S. Bureau of the Census or Vanderbilt University.

the population (Table 1) derives from social security benefit increases (in real terms) in every country examined except Germany. Not only have social security benefits increased relative to inflation, but benefits as a percent of average wages in manufacturing have also risen. As seen in Table 2, increases in this ratio have occurred for both the single worker and the aged couple in every country except Germany. And the gain for single workers has been greater than that for couples, except in the United States. Among aged couples, the ratio of social security benefits to the average earnings in manufacturing in 1980 varied from 47 percent in the United Kingdom to 83 percent in Sweden. Canada and Germany replaced approximately half of these average earnings through their social security pension programs, while the United States replaced two-thirds. The increase in replacement rates of the social security systems in most countries represents an important and dependable improvement in economic security for retired populations.

### Declines in Labor Force Participation Rates

The increased generosity of retirement programs has had a predictable effect on labor force participation rates: for persons age 60 or older they have generally declined since 1960 in the countries examined in Table 3. Because male participation rates were much higher initially, the decline has been more pronounced for men than for women. Among those age 55–59 years, male rates show a fairly modest decline since 1960 in every country except Japan. In the age group 60 to 64 years, the declines increase substantially. Among men age 65 and over, however, the decline has continued to be substantial even in Japan, which has the highest participation rates of all countries examined here.

The relatively recent general increase in the number of women in national labor forces has meant that female participation rates for ages 55 to 59 have actually increased since 1960 in every country examined. And in some countries their increases more than offset the decline in male rates at this age. Even in the age group 60 to 64 years, women's participation rates increased in four of the seven countries. For women age 65 and over, participa-

tion rates have declined in every country, though again by less than those for males.

Although the pattern of declines in labor force activity is fairly consistent across countries, the range in levels of participation can be enormous. Even though income of the aged in Japan is not a major focus of this paper, data on labor force participation rates in Japan are included here for contrast. Japan's "retirement age" is 55 years, but nearly half of elderly (age 65 and over) Japanese men were economically active in 1980, a rate more than six times higher than that of France and Sweden. Likewise, elderly Japanese women are much more likely than other nationalities to be in the labor force. Such high rates result from the fact that many Japanese retirees take part-time jobs and hence remain in the labor force on a reduced basis.

In 1982 aged males and females in the United States had higher labor force participation rates than those in any other country examined except Japan. This is despite the fact that the United States has an earnings test on its social security benefits and most other countries do not. In the United States, if people under age 72 earn more than a certain income, they are not considered fully retired; therefore, their social security benefits are reduced. The United Kingdom is the only other country with a retirement test that continues (for men) beyond age 65.

The retirement test theoretically creates a disincentive to work for people above retirement age. Thus, it is curious that the United States, with an earnings test, still has a higher labor force participation rate among people age 65 and over than do many other countries. In Germany and Sweden, with no earnings test, aged male labor force participation rates are less than half that in the United States.

### Recent Economic Status of the Aged

The recent income levels of the aged in various countries are in part the net result of the trends discussed above. The increase in social security benefits and the accompanying decrease in labor force participation rates means that income from social security has increased over time for the aged, and income from earnings almost cer-

TABLE 2. Social Security Old-Age Pensions as a Percent of Average Wages in Manufacturing, 1969, 1975, and 1980

| Country*       | Single Worker |      |      |                            | Aged Couple |      |      |                            |
|----------------|---------------|------|------|----------------------------|-------------|------|------|----------------------------|
|                | 1969          | 1975 | 1980 | Percent Increase 1969–1980 | 1969        | 1975 | 1980 | Percent Increase 1969–1980 |
| Canada         | 24            | 33   | 34   | 41.7                       | 41          | 47   | 49   | 19.5                       |
| West Germany   | 55            | 51   | 49   | –10.9                      | 55          | 51   | 49   | –10.9                      |
| Sweden         | 42            | 57   | 68   | 61.9                       | 56          | 73   | 83   | 48.2                       |
| United Kingdom | 27            | 31   | 31   | 14.8                       | 43          | 47   | 47   | 9.3                        |
| United States  | 30            | 38   | 40   | 33.3                       | 44          | 58   | 66   | 50.0                       |

\*Data from Norway are not available.

Sources: Leif Haanes-Olsen, "Earnings Replacement Rate of Old-Age Benefits, 1965–75, Selected Countries," *Social Security Bulletin*, January 1978, pp. 3–14; and Jonathan Aldrich, "The Earnings Replacement Rate of Old-Age Benefits in 12 Countries, 1969–80," *Social Security Bulletin*, November 1982.

TABLE 3. Labor Force Participation Rates, by Sex, for Selected Age Groups and Years

| Country and Year | Males        |              |                 | Females      |              |                 |
|------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
|                  | Age 55 to 59 | Age 60 to 64 | Age 65 and Over | Age 55 to 59 | Age 60 to 64 | Age 65 and Over |
| Canada           |              |              |                 |              |              |                 |
| 1961             | 86.7         | 75.8         | 28.5            | 27.9         | 20.3         | 6.7             |
| 1971             | 84.9         | 74.1         | 23.6            | 38.7         | 29.1         | 8.3             |
| 1981             | 84.4         | 68.8         | 17.3            | 41.9         | 28.3         | 6.0             |
| 1961-81 Change   | -2.3         | -7.0         | -11.2           | +14.0        | +8.0         | -0.7            |
| West Germany     |              |              |                 |              |              |                 |
| 1961             | 88.7         | 72.5         | 22.8            | 32.2         | 21.0         | 8.4             |
| 1970             | 86.8         | 68.8         | 16.0            | 34.5         | 17.7         | 5.7             |
| 1980             | 82.3         | 44.2         | 7.4             | 38.7         | 13.0         | 3.0             |
| 1961-80 Change   | -6.4         | -28.3        | -15.4           | +6.5         | -8.0         | -5.4            |
| Japan            |              |              |                 |              |              |                 |
| 1960             | 89.5         | 81.9         | 54.5            | 45.8         | 39.1         | 21.4            |
| 1970             | 94.2         | 85.8         | 54.5            | 53.8         | 43.3         | 19.7            |
| 1980             | 94.0         | 81.5         | 46.0            | 50.7         | 38.8         | 16.1            |
| 1960-80 Change   | +4.5         | -0.9         | -8.5            | +4.9         | -1.3         | -5.3            |
| Norway           |              |              |                 |              |              |                 |
| 1960             | 95.0         | 88.1         | 37.7            | 27.0         | 23.1         | 7.6             |
| 1970             | 91.4*        | 73.6†        | 15.7‡           | 46.8*        | 28.0†        | 3.7‡            |
| 1980             | 87.7*        | 62.7†        | 12.6‡           | 61.0*        | 32.2†        | 2.9‡            |
| 1960-80 Change   | -7.3         | -25.4        | -25.1           | +34.0        | +9.1         | -4.7            |
| Sweden           |              |              |                 |              |              |                 |
| 1960             | 92.3         | 82.5         | 27.1            | 31.8         | 21.5         | 4.6             |
| 1970             | 88.4         | 75.7         | 15.2            | 41.1         | 25.7         | 3.2             |
| 1980             | 84.4         | 65.9         | 8.1             | 66.4         | 41.4         | 2.6             |
| 1960-80 Change   | -7.9         | -16.6        | -19.0           | +34.6        | +19.9        | -2.0            |
| United Kingdom   |              |              |                 |              |              |                 |
| 1961             | —            | —            | 24.7            | —            | —            | 5.4             |
| 1971             | 95.1         | 86.4         | 19.4            | 50.7         | 27.8         | 6.4             |
| 1981             | 91.5         | 74.6         | 10.7            | 52.0         | 22.5         | 3.7             |
| 1971-81 Change   | -3.6         | -11.8        | -8.7            | +1.3         | -5.3         | -2.7            |
| United States    |              |              |                 |              |              |                 |
| 1960             | 87.7         | 77.6         | 30.5            | 39.7         | 29.5         | 10.3            |
| 1970             | 86.8         | 73.0         | 24.8            | 47.4         | 36.1         | 10.0            |
| 1982             | 81.1         | 57.9         | 17.7            | 50.2         | 34.2         | 7.9             |
| 1960-82 Change   | -6.6         | -19.7        | -12.8           | +10.5        | +4.7         | -2.4            |

\*Refers to age 50 to 59 years. †Refers to age 60 to 69 years. ‡Refers to age 70 years and over.

Sources: U.S. Bureau of the Census International Data Base on Aging; International Labour Office, *Year Book of Labour Statistics 1967*, Geneva, table 1.

tainly has fallen. Unfortunately, there is no good source of data on how the composition of income for the aged has changed over time. The only comparable international microdata on income and its composition come from the Luxembourg Income Study.

As noted earlier, the LIS is a cross-sectional comparison of income data from national household surveys taken in several different countries between 1979 and 1981. The data from these surveys were adjusted for definitional differences of both income and housing units. The LIS data base currently includes the six countries used in this analysis (Canada, Norway, Sweden, the United Kingdom, the United States, and West Germany); it also includes Israel, Australia, and Switzerland. Israel's economic situa-

tion is so anomalous compared with the other countries that it is not included here, while data from Australia and Switzerland are just now becoming available and could not be included in this paper. Each national survey covers at least 92 percent of the noninstitutionalized population, 96 percent excluding Germany. While some ethnic groups, such as Laps in Norway or Aleuts in the United States, have too small sample sizes to be representative, the age cohorts which are our major concern in this paper are well represented.

The LIS data set contains 35 income and tax variables and 30 demographic variables, allowing researchers to define income as called for in their studies. The income concept used in Tables 4, 6, and 7 of this paper is dis-

posable family income. It includes all forms of cash income (earnings, property income, all cash transfers) net of direct taxes (that is, employer and employee payroll taxes and income taxes). In Table 5 we examine the composition of gross (before direct tax) cash income among the elderly.

The household income variables can be further adjusted for differences in family size and composition. The equivalence scale employed in Tables 4 and 6 is positioned between per-capita income, which counts each person in a three-person family as .33 equivalent adults, and household income unadjusted for the number of people in the household. It counts the first person as one equivalent adult and adds .50 equivalent adults for each additional person. While the equivalence scale is simplistic in nature, it is virtually identical to that used by the Organization for Economic Cooperation and Development (OECD) and some other researchers. Adjusted income is calculated by dividing disposable income by the equivalence scale appropriate to each family size and age composition. The equivalence scale is normalized to a family of three persons (thus, the factor for this unit is 1.00).

### Age and Average Income

In every country except Germany, average household income is highest in the 55 to 64 age group. Then there is a significant decline in income in the 65 to 74 age group, when most people retire. Table 4 compares after-tax and after-transfer income by age of household head for the 1979-81 period in six countries. Because most aged households are smaller than non-aged households, household income is adjusted for the size of the household using the LIS equivalence scale.

As can be seen, persons age 65 to 74 appear to have slightly lower income than non-aged households but on average have 92 percent of the national mean income. The countries that have relatively high average income in this age group are also the countries that tend to have high labor force participation rates. The two countries with low average income, Germany and the United Kingdom, also

have fairly low labor force participation rates. However, Norway and Sweden also have low participation rates, but a high relative income for people age 65 and over, suggesting that their pensions are very generous. The income of people age 75 and over is, on average, 14 percentage points lower than the income of the 65 to 74 age group. Households with heads age 75 and over have the lowest incomes of all households of any age group except for very young families in the United States. The ratio of mean income of the elderly to mean income of the total population is highest in the United States, which has the second highest ratio for the 65 to 74 age group and the highest for the 75 and over age group.

### Sources of Income of the Aged

The sources of income of the aged differ both by age of the household head and by country. Table 5 shows the relative importance of public pensions, private pensions, property income, and earnings in the recent income of the aged in our six countries. The role of social insurance transfers increases with the age of the recipient in every country examined. By the time people are 65 to 74 years old, social insurance transfers provide two-thirds to three-fourths of their income in Germany and Sweden. In the other countries the role of social insurance as a percent of total income varies from 35 to 46 percent. By age 75 and over, however, social insurance transfers provide at least 75 percent of the income in three of the six countries; in Canada and the United States they provide 45 percent of total income.

Earnings play a more important role in the average income of the aged 65 to 74 years old than many people suspect. And, of course, earnings play a more important role in those countries that have relatively higher labor force participation rates. For the age group 75 years and over, earnings play a very small role; and the decline in this role partly explains the decreased average income of that age group relative to those 65 to 74 years old.

It is also interesting to note that the proportion of welfare benefits (means-tested transfers) in the average in-

**TABLE 4. Ratio of Adjusted Disposable Household Income\* to National Mean for Selected Age Groups and Countries**

| Country (Year)        | Age of Household Head |                   |                   |                   |                   |                   |                      |
|-----------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|
|                       | Less Than<br>25 Years | 25 to 34<br>Years | 35 to 44<br>Years | 45 to 54<br>Years | 55 to 64<br>Years | 65 to 74<br>Years | 75 Years<br>and Over |
| Canada (1981)         | .87                   | .96               | .96               | 1.11              | 1.15              | .94               | .81                  |
| West Germany (1981)   | .86                   | .88               | .94               | 1.30              | 1.07              | .85               | .79                  |
| Norway (1979)         | .81                   | .96               | .99               | 1.04              | 1.18              | 1.01              | .79                  |
| Sweden (1981)         | .86                   | 1.00              | .98               | 1.12              | 1.17              | .96               | .78                  |
| United Kingdom (1979) | .99                   | .97               | .97               | 1.20              | 1.17              | .76               | .67                  |
| United States (1979)  | .77                   | .93               | .95               | 1.13              | 1.21              | .99               | .84                  |
| Six-Country Mean      | .88                   | .96               | .96               | 1.13              | 1.17              | .92               | .78                  |

\*Disposable income is post-tax-and-transfer income. The adjustment of disposable income for family size is done using the LIS equivalence scale discussed in the text.

Source: Luxembourg Income Study.

TABLE 5. Composition of Gross Income of Elderly Households in Selected Countries

| Country and Age Group of Household Head | Income before Tax |                 |                      |                            |                        | Other Income | Total |
|-----------------------------------------|-------------------|-----------------|----------------------|----------------------------|------------------------|--------------|-------|
|                                         | Earnings          | Property Income | Occupational Pension | Social Insurance Transfers | Means-tested Transfers |              |       |
| Canada (1981)                           |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 56                | 17              | 6                    | 18                         | 2                      | 1            | 100   |
| 65 to 74 Years                          | 28                | 22              | 12                   | 35                         | 2                      | 1            | 100   |
| 75 Years and Over                       | 13                | 30              | 8                    | 45                         | 2                      | 2            | 100   |
| West Germany (1981)                     |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 43                | 2               | 8                    | 46                         | 1                      | 0            | 100   |
| 65 to 74 Years                          | 17                | 2               | 12                   | 67                         | 1                      | 0            | 100   |
| 75 Years and Over                       | 8                 | 4               | 12                   | 75                         | 1                      | 0            | 100   |
| Norway (1979)                           |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 61                | 5               | 3                    | 30                         | 0                      | 0            | 100   |
| 65 to 74 Years                          | 41                | 6               | 7                    | 45                         | 0                      | 1            | 100   |
| 75 Years and Over                       | 6                 | 8               | 10                   | 75                         | 1                      | 1            | 100   |
| Sweden (1981)                           |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 39                | 7               | —                    | 51                         | 3                      | 0            | 100   |
| 65 to 74 Years                          | 12                | 9               | —                    | 76                         | 3                      | 1            | 100   |
| 75 Years and Over                       | 2                 | 13              | —                    | 78                         | 7                      | 1            | 100   |
| United Kingdom (1979)                   |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 54                | 7               | 8                    | 28                         | 3                      | 0            | 100   |
| 65 to 74 Years                          | 26                | 9               | 15                   | 46                         | 3                      | 1            | 100   |
| 75 Years and Over                       | 17                | 10              | 12                   | 54                         | 7                      | 0            | 100   |
| United States (1979)                    |                   |                 |                      |                            |                        |              |       |
| 55 Years and Over                       | 58                | 13              | 8                    | 19                         | 1                      | 0            | 100   |
| 65 to 74 Years                          | 32                | 18              | 13                   | 35                         | 2                      | 0            | 100   |
| 75 Years and Over                       | 17                | 24              | 12                   | 45                         | 2                      | 0            | 100   |

Source: Lea Achdut and Yosi Tamir, "Comparative Economic Status of the Retired and Nonretired Elderly," Luxembourg Income Study-CEPS Working Paper No. 5, Luxembourg, July 1985.

come of the aged is remarkably small. This does not mean that there are no aged who are poor. Rather, it suggests that the aged in the countries studied who are eligible for welfare benefits have relatively low participation rates in welfare programs. As a result, the total benefit amount given to the poor aged is small.

There is a wide variance in annual property (or capital) income — interest, rent, dividends, and annuity income — among the elderly across these six countries. The Germans and Norwegians have little income from capital according to the LIS databases, while Canadian and U.S. elderly have much more property income. In all countries the proportion of income from capital increases with age.

Finally, occupational pensions from private or public employers in all of the countries provide only 10 to 15 percent of the average income of the elderly. Several countries are making private pension benefits mandatory, which may affect their future role in the income security of the aged. But private pensions in the early 1980s were not a major source of income in any country.

### Income Inequality

The U.S. elderly have by far the highest level of income inequality compared with their peers in other countries, as shown in Table 6. Income inequality increases when

moving from the 65 to 74 age group to the 75 and over age group only in the United States and Germany; income inequality is less for the oldest age group in all other countries. The Gini ratio for the very elderly in the United States is .355, 25 percent larger than the .282 ratio in Germany. At the other end of the spectrum, Swedish and Norwegian income inequality among the elderly is very low. Canadian and German elder inequality ratios are closer to U.S. levels, though still far below.

### Poverty Status

Poverty among the elderly is the result of both the level of average income and the degree of income inequality that exists within the aged cohorts. Even though the U.S. elderly have a high average income relative to the other countries, the percentage of U.S. elderly with low incomes (defined as adjusted income less than one-half the median income) is higher than that in any other country except the United Kingdom (Table 7). This paradox of high mean income and larger numbers of low income elderly is because of the distribution of the elderly around the mean as measured in Table 6. If, however, the official U.S. absolute poverty measure is used, then the poverty rate is considerably less than the rate of elderly who have low income. Both Norway and the United Kingdom have higher

**TABLE 6. Gini Coefficients\* for Distribution of Adjusted Disposable Income, for Selected Age Groups and Countries, 1981**

| Country          | Age Group          |                |                |                |                |                |                   | Total |
|------------------|--------------------|----------------|----------------|----------------|----------------|----------------|-------------------|-------|
|                  | Less than 24 Years | 25 to 34 Years | 35 to 44 Years | 45 to 54 Years | 55 to 64 Years | 65 to 74 Years | 75 Years and Over |       |
| Canada           | .332               | .295           | .285           | .286           | .296           | .309           | .291              | .299  |
| West Germany     | .304               | .267           | .317           | .452           | .342           | .258           | .282              | .340  |
| Norway           | .296               | .249           | .214           | .229           | .229           | .250           | .229              | .243  |
| Sweden           | .236               | .209           | .192           | .216           | .195           | .143           | .126              | .205  |
| United Kingdom   | .279               | .264           | .253           | .246           | .253           | .266           | .240              | .273  |
| United States    | .345               | .313           | .304           | .303           | .331           | .342           | .355              | .326  |
| Six-Country Mean | .299               | .266           | .261           | .289           | .274           | .261           | .253              | .281  |

\*Higher Gini coefficients indicate more income inequality.

Source: Peter Hedstrom and Stein Ringen, "Age and Income in Contemporary Society," Luxembourg Income Study-CEPS Working Paper No. 4, Luxembourg, September 1985.

levels of poverty (U.S. definition) than the United States, while the German poverty rate is virtually the same.

In four of the six countries examined (Germany, Norway, Sweden, and the United Kingdom), the U.S. poverty line (converted into the appropriate national currency using OECD purchasing power parities) was higher than one-half the adjusted median income, and therefore the poverty rates were higher than the low income rates. In the United States and Canada the poverty line was lower than one-half the median income line, resulting in lower poverty rates.

Comparing these (relative) low income and (absolute) poverty rates across countries for the aged as a whole, wide differences can sometimes be noted. For instance, in Norway only 5.6 percent of the elderly were below the low income line. However, once the low income line was raised by 5.8 percent to the U.S. poverty line, 18.7 percent were poor. Coupled with the low degree of inequality among the Norwegian elderly in Table 6, it is clear that there are fairly large numbers of elderly persons clustered around half of adjusted median income. The situation in the United Kingdom seems to be much the same.

**TABLE 7. Absolute Poverty among the Aged in Selected Countries**

| Country (Year)        | Adjusted Absolute Poverty Line as Percent of Median Adjusted Income* | Relative Low Income Rates† |              |                 | U.S. Absolute Poverty Rates‡ |              |                 | Percent of Absolute Poor Who Are Single Women Living Alone |                 |
|-----------------------|----------------------------------------------------------------------|----------------------------|--------------|-----------------|------------------------------|--------------|-----------------|------------------------------------------------------------|-----------------|
|                       |                                                                      | Age 65 and Over            | Age 65 to 74 | Age 75 and Over | Age 65 and Over              | Age 65 to 74 | Age 75 and Over | Age 65 to 74                                               | Age 75 and Over |
| Canada (1981)         | 39.5                                                                 | 17.2                       | 13.7         | 23.9            | 4.8                          | 4.0          | 6.2             | 41.4                                                       | 68.7            |
| West Germany (1981)   | 56.0                                                                 | 11.1                       | 8.1          | 14.2            | 15.4                         | 12.5         | 20.4            | 45.6                                                       | 70.4            |
| Norway (1979)         | 55.8                                                                 | 5.6                        | 3.1          | 9.0             | 18.7                         | 10.8         | 29.3            | 63.9                                                       | 70.5            |
| Sweden (1981)         | 51.2                                                                 | 0.8                        | 0.5          | 1.3             | 2.1                          | 0.8          | 4.0             | 2.0                                                        | 66.1            |
| United Kingdom (1979) | 52.9                                                                 | 29.0                       | 24.1         | 39.1            | 37.0                         | 31.5         | 48.5            | 46.8                                                       | 60.1            |
| United States (1979)  | 42.1                                                                 | 23.9                       | 19.8         | 31.7            | 16.1                         | 13.4         | 21.5            | 46.0                                                       | 59.6            |

\*Each country's disposable income is divided by the number of equivalent adults normalized to a 3-person family using U.S. poverty line equivalence scales to arrive at adjusted income. This column displays the ratio of the 3-person U.S. poverty line for the given year to the median adjusted income in each country.

†Relative low income rates are the percentages of persons of a given age living in families with adjusted incomes less than 50 percent of each country's median adjusted income.

‡U.S. absolute poverty rates are the percentages of persons of a given age living in families with adjusted incomes less than the official U.S. 3-person poverty line for the given year, where the U.S. poverty line was converted to other currencies using OECD purchasing power parity indexes for the appropriate year.

Source: Luxembourg Income Study.

Perhaps of more interest are the low income and poverty rates for the 75 and over age group as compared to the 65 to 74 year old elderly. In every country in Table 7, the older group's low income and poverty rates are higher than those of the younger aged by a substantial amount. Moreover, the percentage of all poor elderly who are single women living alone is very high and increases with age. In every country examined, between 60 and 70 percent of the poor age 75 and over are single women living alone (last column of Table 7). If we were to add elderly females living in couples or in other arrangements (for example, with children in extended families), the percentages shown for the 75 and over age group would rise to between 70 and 80 percent for each country.

### **Economically Disadvantaged Aged**

As seen in Table 4, the average household income of people 65 years and over in the six countries examined is roughly 75 to 90 percent of the national household income of those countries. The United Kingdom has the lowest aged household income relative to the average, while the United States and Norway have the highest. But the averages obscure the more important issue of who within the aged population need more economic support than they are now getting. The data in Table 4 suggest that the oldest old have less income than the recently retired. These are the people who often no longer have any option of working even part time to supplement their retirement pension. And their pension, if based on past wage histories, is lower than the pensions of the recently retired, because wages in the more distant past were generally lower than wages in the near past. Coupling this information with the low income and poverty rates in Table 7 indicates that the most economically needy aged are in the oldest age group.

This comparative analysis suggests that the elderly are more heterogeneous than casual generalizations suggest. People who are age 75 and over look very different economically than people who are age 65 to 74. They have less income in general; they have less earned income and more social security benefits. They also have more poverty. And if income inequality is a measure of diversity, then the U.S. aged are the most economically diverse of all the elderly studied.

To these facts we add two additional pieces of information: 1) as measured by low income or poverty status, the large majority of the disadvantaged aged are women, particularly women living alone; and 2) according to OECD demographic forecasts, the proportion of aged who are age 75 and over in the six countries examined in this paper will increase from 35-39 percent in 1980 to well over 40 percent and even up to 48 percent in Norway and Sweden by the year 2000. In the United States alone, the percentage of all elderly persons who are age 75 and over will rise from 36 to 42 percent by the end of the century; at the

same time, the proportion age 80 and over will rise from 20 percent to 29 percent of all elderly.

Hence, the oldest old, who are increasingly females (widows) living alone and who are the poorest among the elderly, will be an increasing concern in Western society as this century progresses. Recent research indicates that pensions, both public (social insurance) and private, and survivor's benefits under social insurance schemes, are lower for women than for men. As single elderly women, who are usually widows, continue to depend very heavily on survivor's benefits, it seems incumbent upon governments to carefully evaluate the adequacy of these benefits. While a more complete examination of this issue is beyond the scope of this paper, based on the evidence presented here, a well-targeted increase in survivor's benefits or a higher widow's pension would help reduce the high levels of poverty among aged women.

### **Conclusion**

In the last 20 years, the population of every country examined in this paper has become considerably older, and every national government has devoted a larger share of its own domestic product to ensure the economic security of this increasingly older population. Increased government expenditures were required in part because of the growing number of beneficiaries, due to both the general aging of the population and the liberalization of retirement ages in most countries, and because of growing medical expenditures. Larger expenditures also were required because of rising average benefit levels relative to wages in the economy.

The result of the increasing generosity of social security programs is that the aged in the countries studied have income levels that are between 75 and 90 percent of the national average income. A recent study for the United States indicates that if non-cash income in the form of subsidized health care, implicit rent on owner-occupied housing, and food were also included, this ratio of net incomes would increase to near parity. And if leisure has any value at all, then the well-being of the aged is at least comparable to that of the non-aged. This is a remarkable achievement for national governments, who have increasingly assumed the responsibility of providing economic security to this growing dependent population.

But improving the income of the aged in general still may not address the twin problems of the distribution of benefits and poverty levels among the aged, particularly single elderly women. The U.S. aged, who enjoy the highest average income of all the countries studied, also have the highest inequality of all the countries and one of the highest poverty rates. As Joseph Quinn has observed, when examining the economic status of the elderly, "beware the mean." The international comparisons of the income of the aged discussed here reinforce his warning.

# Actual and Projected Economic Indicators

seasonally adjusted

| SERIES FORECAST BY THE ASA-NBER PANEL                                           |                |         |         |         |         |           |         |         |         |         |             |         |           |
|---------------------------------------------------------------------------------|----------------|---------|---------|---------|---------|-----------|---------|---------|---------|---------|-------------|---------|-----------|
| ECONOMIC INDICATOR                                                              | Quarterly Data |         |         |         |         |           |         |         |         |         | Annual Data |         |           |
|                                                                                 | Actual         |         |         |         |         | Projected |         |         |         |         | Actual      |         | Projected |
|                                                                                 | 1986:4         | 1987:1  | 1987:2  | 1987:3  | 1987:4  | 1987:4    | 1988:1  | 1988:2  | 1988:3  | 1988:4  | 1986        | 1987    | 1988      |
| GROSS NATIONAL PRODUCT                                                          | 4,288.1        | 4,377.7 | 4,445.1 | 4,524.0 | 4,607.4 | 4,575.0   | 4,634.4 | 4,696.5 | 4,770.5 | 4,842.5 | 4,235.0     | 4,488.6 | 4,737.0   |
| GNP IMPLICIT PRICE DEFLATOR<br>(index, 1982 = 100)                              | 114.9          | 116.1   | 117.1   | 117.9   | 118.7   | 118.8     | 119.8   | 120.8   | 121.9   | 123.1   | 114.1       | 117.5   | 121.4     |
| CORPORATE PROFITS AFTER TAXES                                                   | 134.0          | 129.0   | 134.5   | 141.9   | 144.2   | 138.0     | 138.0   | 138.5   | 140.0   | 139.5   | 126.9       | 137.4   | 138.3     |
| UNEMPLOYMENT RATE (percent)                                                     | 6.83           | 6.60    | 6.23    | 5.97    | 5.90    | 6.00      | 6.10    | 6.20    | 6.20    | 6.20    | 6.98        | 6.18    | 6.15      |
| INDUSTRIAL PRODUCTION<br>(index, 1977 = 100)                                    | 125.9          | 126.9   | 128.2   | 130.9   | 133.2   | 132.0     | 132.5   | 133.1   | 134.2   | 134.8   | 125.1       | 129.8   | 134.0     |
| NEW PRIVATE HOUSING<br>UNITS STARTED (millions)*                                | 1.717          | 1.779   | 1.606   | 1.619   | 1.533   | 1.600     | 1.550   | 1.550   | 1.550   | 1.550   | 1.812       | 1.634   | 1.565     |
| CONSUMER PRICE INDEX (annualized<br>percent change from prior quarter or year)* | 2.66           | 5.38    | 4.94    | 3.94    | 3.59    | 4.20      | 4.50    | 4.20    | 4.30    | 4.50    | 1.89        | 3.70    | 4.20      |
| 3-MONTH TREASURY BILL RATE (%)                                                  | 5.34           | 5.53    | 5.73    | 6.03    | 6.00    | 5.90      | 5.75    | 5.76    | 5.95    | 5.90    | 5.97        | 5.83    | 5.90      |
| NEW HIGH-GRADE CORPORATE<br>BOND YIELD (percent)                                | 9.05           | 8.62    | 9.65    | 10.14   | 10.37   | 10.20     | 10.10   | 10.16   | 10.30   | 10.50   | 9.23        | 9.69    | 10.20     |
| GNP IN 1982 DOLLARS                                                             | 3,731.5        | 3,772.2 | 3,795.3 | 3,835.9 | 3,880.8 | 3,852.9   | 3,873.0 | 3,881.0 | 3,914.0 | 3,937.0 | 3,713.3     | 3,821.0 | 3,897.0   |
| PERSONAL CONSUMPTION<br>EXPENDITURES (1982 dollars)                             | 2,480.5        | 2,475.9 | 2,487.5 | 2,520.7 | 2,504.6 | 2,514.9   | 2,525.5 | 2,536.0 | 2,548.0 | 2,560.5 | 2,450.5     | 2,497.2 | 2,542.5   |
| NONRESIDENTIAL FIXED<br>INVESTMENT (1982 dollars)                               | 443.2          | 426.0   | 437.9   | 463.8   | 465.6   | 467.4     | 468.0   | 472.0   | 474.5   | 480.5   | 443.8       | 448.3   | 472.0     |
| RESIDENTIAL FIXED<br>INVESTMENT (1982 dollars)                                  | 202.2          | 198.2   | 196.8   | 193.5   | 197.0   | 195.0     | 193.0   | 194.0   | 191.0   | 197.0   | 196.4       | 196.4   | 191.0     |
| CHANGE IN BUSINESS<br>INVENTORIES (1982 dollars)                                | -14.4          | 47.6    | 39.0    | 24.6    | 60.5    | 20.0      | 15.0    | 15.0    | 15.0    | 11.8    | 13.8        | 42.9    | 14.3      |
| NET EXPORTS (1982 dollars)                                                      | -151.8         | -135.2  | -132.7  | -138.4  | -135.8  | -128.0    | -119.4  | -113.0  | -108.0  | -104.0  | -145.8      | -135.5  | -111.0    |
| FEDERAL GOVERNMENT<br>PURCHASES (1982 dollars)                                  | 344.6          | 327.3   | 332.6   | 336.3   | 347.6   | 344.0     | 339.0   | 340.0   | 340.0   | 341.0   | 332.5       | 335.9   | 340.0     |
| STATE AND LOCAL GOVERNMENT<br>PURCHASES (1982 dollars)                          | 427.1          | 432.3   | 434.1   | 435.4   | 441.3   | 440.0     | 443.0   | 445.5   | 447.9   | 450.4   | 422.1       | 435.8   | 446.0     |

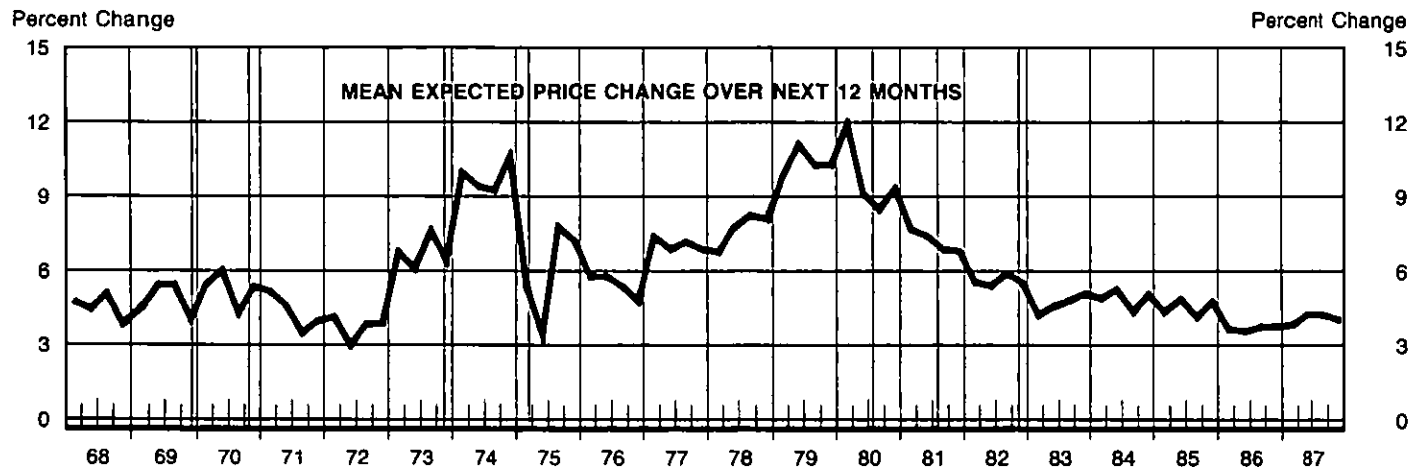
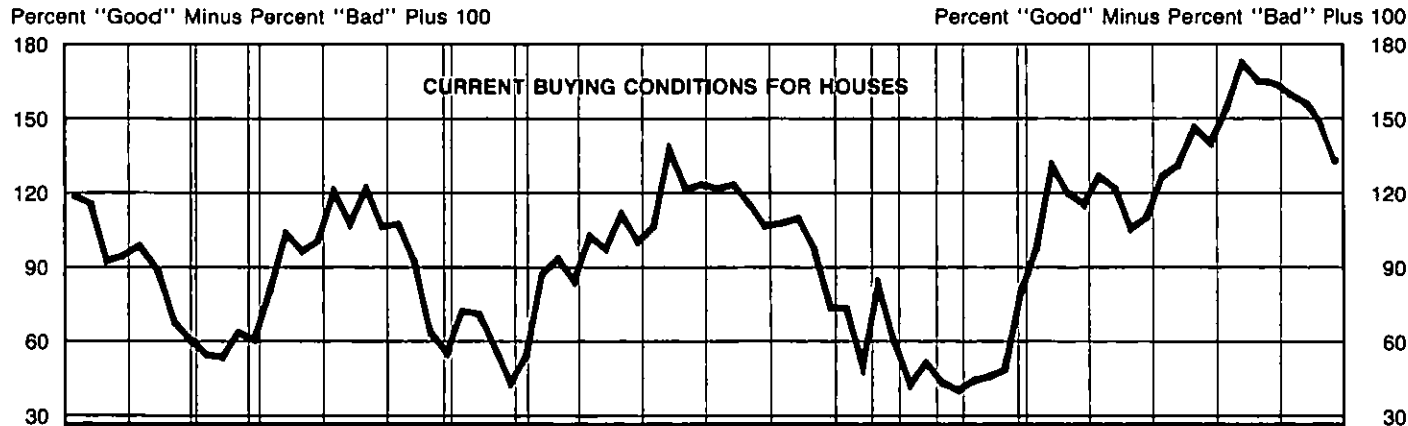
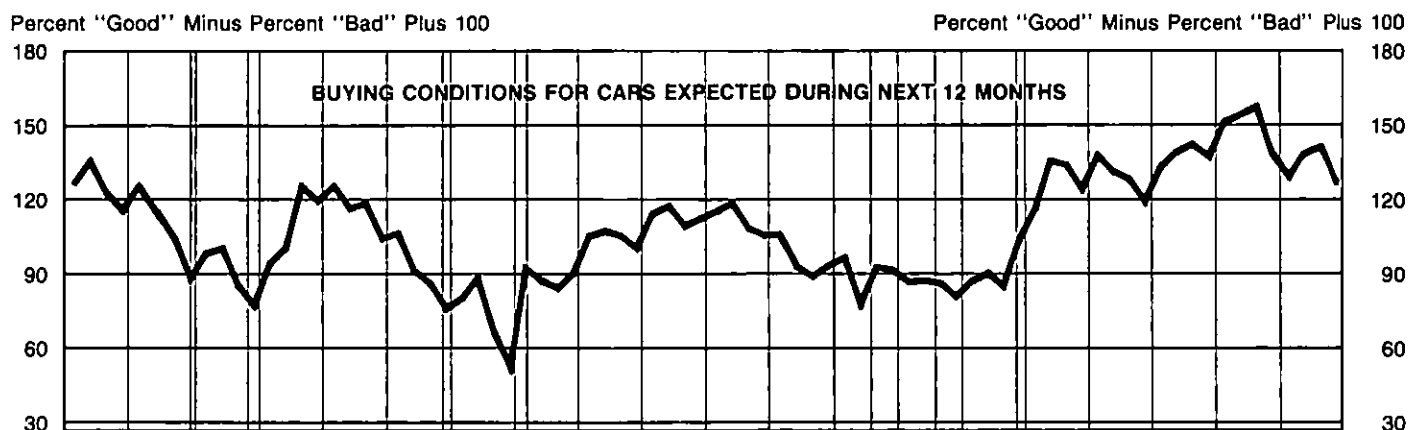
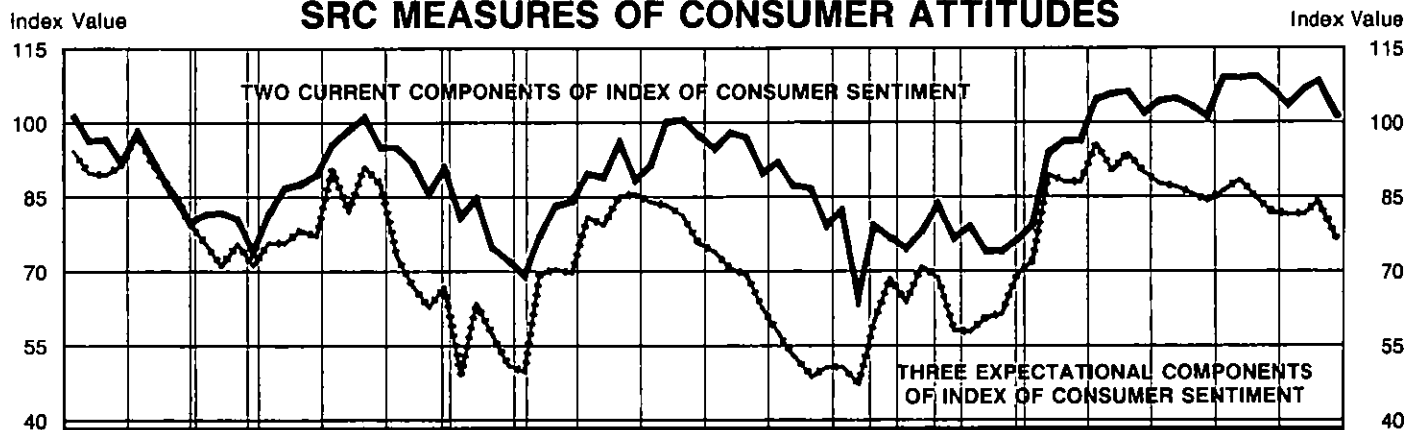
| SERIES FROM THE CURRENT-DOLLAR GNP ACCOUNTS            |                |         |         |         |         |         |         |         |         |         |             |         |         |
|--------------------------------------------------------|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|---------|---------|
| ECONOMIC INDICATOR                                     | Quarterly Data |         |         |         |         |         |         |         |         |         | Annual Data |         |         |
|                                                        | 1985:3         | 1985:4  | 1986:1  | 1986:2  | 1986:3  | 1986:4  | 1987:1  | 1987:2  | 1987:3  | 1987:4  | 1985        | 1986    | 1987    |
| GROSS NATIONAL PRODUCT                                 | 4,042.0        | 4,104.4 | 4,174.4 | 4,211.6 | 4,265.9 | 4,288.1 | 4,377.7 | 4,445.1 | 4,524.0 | 4,607.4 | 4,010.3     | 4,235.0 | 4,488.6 |
| PERSONAL CONSUMPTION<br>EXPENDITURES                   | 2,665.4        | 2,700.1 | 2,737.9 | 2,765.8 | 2,837.1 | 2,858.6 | 2,893.8 | 2,943.7 | 3,011.3 | 3,022.6 | 2,629.4     | 2,799.8 | 2,967.8 |
| GROSS PRIVATE DOMESTIC<br>INVESTMENT                   | 628.6          | 650.8   | 683.4   | 679.4   | 660.8   | 660.2   | 699.9   | 702.6   | 707.4   | 760.2   | 641.6       | 671.0   | 717.5   |
| NET EXPORTS                                            | -84.7          | -103.5  | -93.8   | -100.8  | -110.5  | -116.9  | -112.2  | -118.4  | -123.7  | -124.3  | -79.3       | -105.5  | -119.7  |
| GOVERNMENT PURCHASES                                   | 832.8          | 857.0   | 846.9   | 867.2   | 878.5   | 886.3   | 896.2   | 917.1   | 929.0   | 948.8   | 818.6       | 869.7   | 922.8   |
| DISPOSABLE PERSONAL INCOME                             | 2,847.2        | 2,906.6 | 2,966.0 | 3,022.4 | 3,038.2 | 3,061.6 | 3,125.9 | 3,130.6 | 3,195.3 | 3,275.0 | 2,841.1     | 3,022.0 | 3,181.7 |
| PERSONAL SAVING RATE<br>(percent of disposable income) | 3.4            | 4.1     | 4.7     | 5.5     | 3.6     | 3.6     | 4.4     | 3.0     | 2.8     | 4.8     | 4.5         | 4.4     | 3.8     |

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 March, and projected data, released by ASA-NBER in January, are displayed for fourth 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.

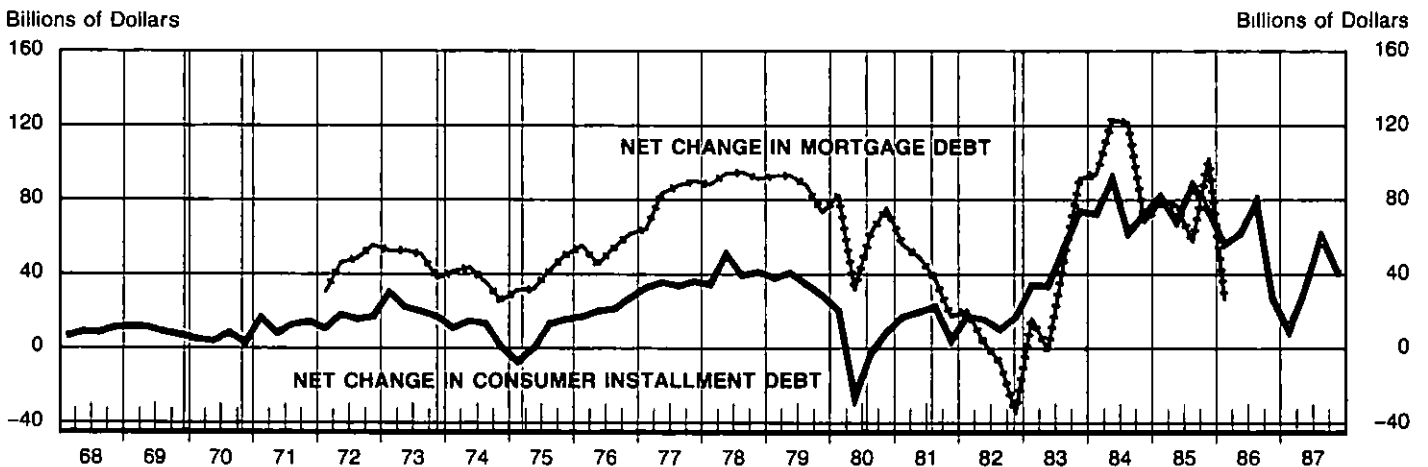
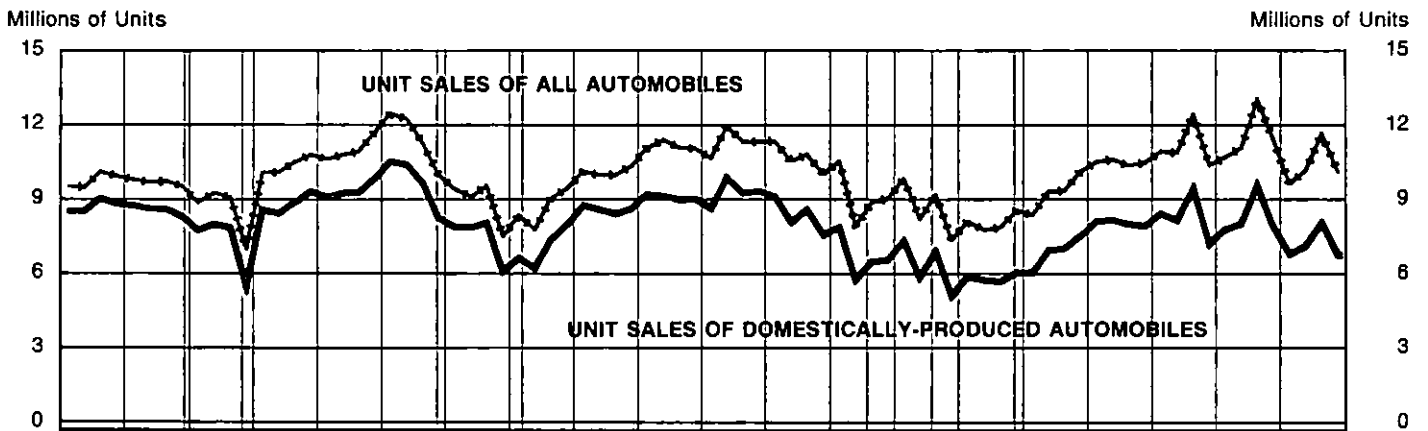
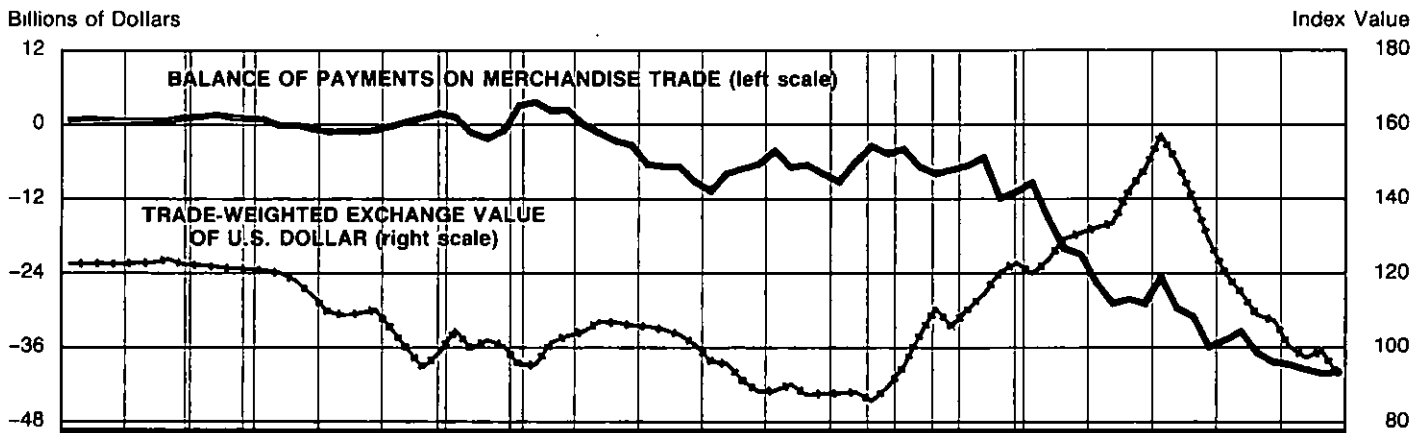
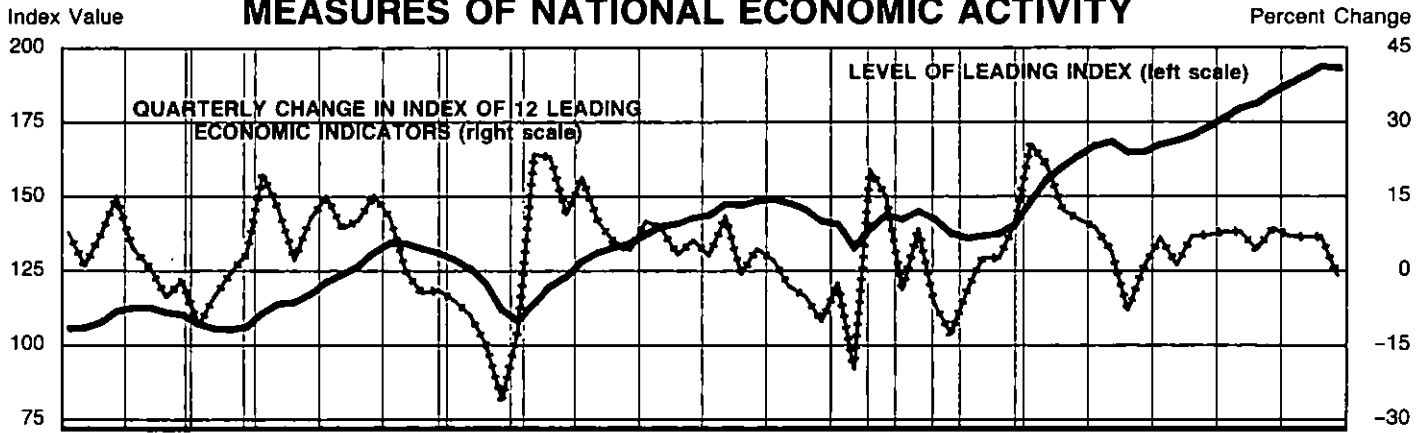
\*Substantial revision of the data for series marked with an asterisk has occurred since the last printing.

# SRC MEASURES OF CONSUMER ATTITUDES

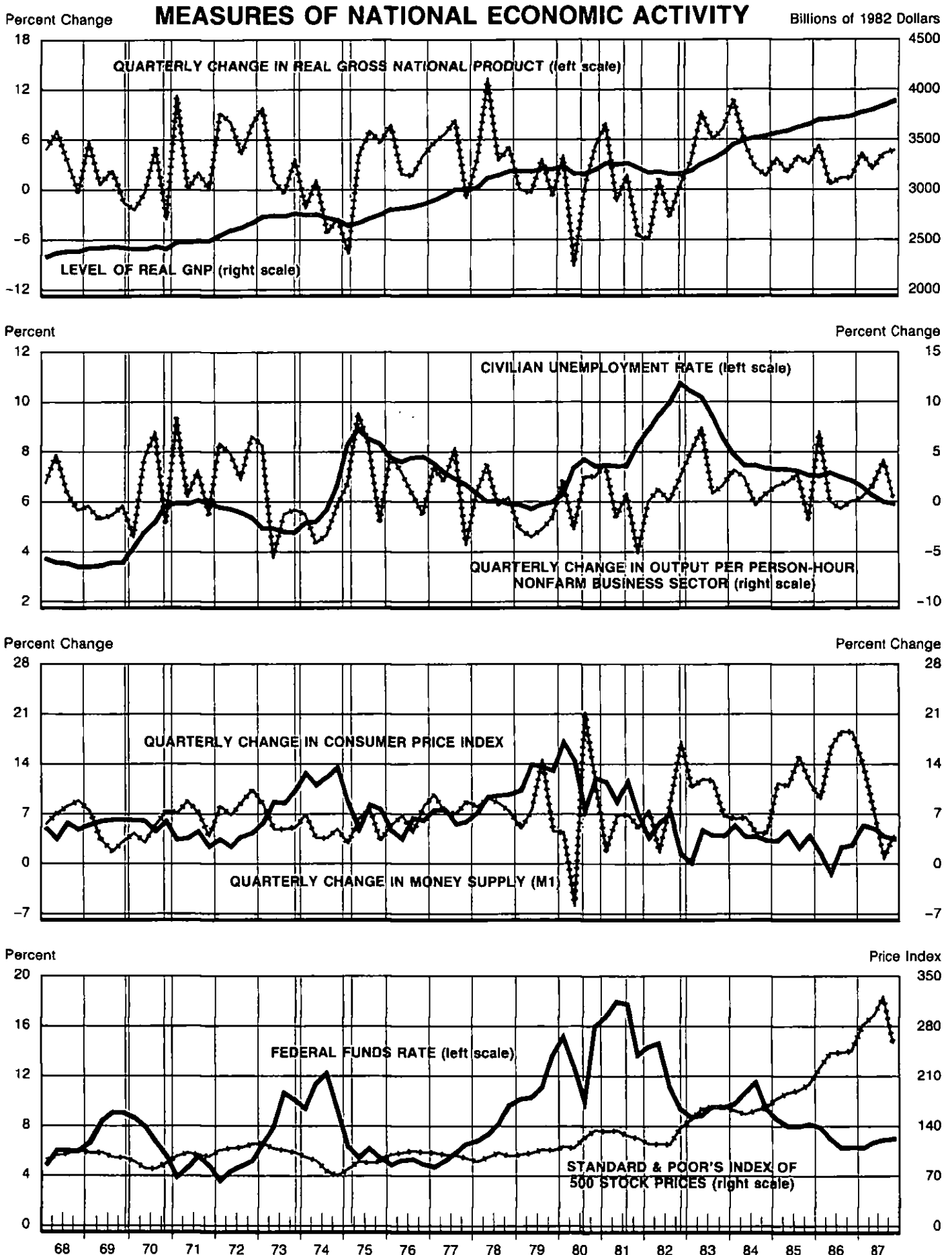


Note: Shaded areas indicate recession periods as designated by the National Bureau of Economic Research, Inc.

# MEASURES OF NATIONAL ECONOMIC ACTIVITY



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



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