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THE RATIONALE FOR FUNDAMENTAL PENSION REFORM IN GERMANY AND THE UNITED STATES: AN ASSESSMENT

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Abstract

This paper considers the arguments for fundamental pension reform in Germany and the United States. The two countries have recently made or are considering reforms that would reduce the generosity of the traditional, pay-as-you-go pension system. Some or all of the lost benefits would be replaced by pensions from newly created individual, defined-benefit, retirement accounts. The paper addresses three questions that are relevant for assessing fundamental reform: (1) Should the pension system move toward advance funding of future benefit obligations? (2) What financial assets should be accumulated to back future pension promises? (3) Should the existing system be reformed to include individual retirement accounts?

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The Rationale for Fundamental Pension Reform in Germany and the United States: An Assessment

by
Gary Burtless

Germany and the United States, along with all other major industrial countries, face the prospect of growing much older over the next five decades. By 2050, the ratio of people past age 64 relative to those age 20-64 will exceed 50 percent in every G-7 country except Canada and the United States. In Germany, the aged dependency ratio will approach 55 percent. While the predicted rate will be lower in the United States, the U.S. dependency rate in 2050 is expected to be 80 percent higher than it is today (see Chart 1).

The cost of providing pensions and medical care for the elderly will place major strains on government budgets at a time of reduced growth or actual decline in the size of the labor force. While aging is an issue of common concern, however, there are important differences in the magnitude and timing of the demographic changes across countries (see Chart 2). The U.S. Census Bureau forecasts significant declines in the populations of Germany, Italy, and Japan, whereas the U.S. population is predicted to increase more than 40 percent. The implications for public sector budgets also differ across countries because of major differences in the structure and generosity of public programs for the elderly.

For most industrialized countries the projected budget cost associated with population aging is so large that governments will be forced to make major changes in the structure of programs now providing income and health insurance to the elderly. Policymakers in several rich countries show interest in following the example of Chile and replacing part or all of their public pension systems with private systems organized around individual retirement accounts. Advocates of this kind of reform point to Chile's success in introducing an individual account system to replace its failing pay-as-you-go system, which the government began to phase out in the early 1980s. So far, Chile's private pension system has received high marks for sound administration, good returns, and broad political acceptance. The expected surge in public retirement costs in rich industrialized countries has made voters and policymakers in these countries receptive to the idea of a private alternative to existing public systems.

This paper considers the arguments for fundamental pension reform in Germany and the United States. The two countries have recently made or are now considering reforms that would eventually reduce the generosity of the traditional, pay-as-you-go pension system. Some of the lost benefits would be replaced by pensions from individual, defined-benefit accounts. In May 2001 the German legislature passed a reform plan that will create defined-contribution pensions for millions of active workers. Working people will be permitted to contribute a maximum of 1 percent of their gross earnings to voluntary pension plans beginning in 2002. Allowed contributions will be gradually increased to a maximum of 4 percent of gross earnings, and workers' voluntary contributions will be subsidized with government payments that will be particularly generous in the case of low-wage workers and workers with child dependents. At the same time, public pensions under the existing retirement system will be modestly scaled back for younger and middle-aged workers. One goal of the reform is to limit the future contribution rate for the public retirement system -- currently about 19 percent of gross pay -- and replace the lost retirement benefits with pensions financed out of individual investment accounts.

In May 2001 President George W. Bush appointed a national commission to propose designs for a new individual retirement account system that would provide supplements to pensions provided by the existing U.S. social security system. Like the new German individual account system, the proposed revision of the existing American system would be voluntary. Harsh critics of existing the existing pension system, both in Germany and the United States, urge an even more drastic overhaul of the system, which they regard as excessively burdensome on workers and future government budgets.

The discussion in this paper is organized around three questions that go to the heart of the current controversy over pension reform.[1] Many critics of public pensions believe that the debate over pension reform revolves around only a single question: Will a system of capital-funded individual accounts provide pensions at lower cost than the existing pay-as-you-go system? Economists who have studied public pensions recognize that this question is impossible to answer simply or accurately. In a fully mature capital-funded system, many contributors would obtain better pensions at lower cost than they can obtain under the existing

[1] The questions are among those posed by an expert panel on social security privatization established by the National Academy of Social Insurance, a panel on which I served. See Diamond (1999), pp. 1-31.

pay-as-you-go system. Unfortunately, along the transition path to a fully mature capital-funded system, many contributors and taxpayers are likely to obtain worse pensions or make higher tax payments than they can anticipate under the existing system.

This paper addresses three questions that are helpful to thinking about pension reform:

1. Should rich countries move toward more advance funding of their future pension obligations, or should they retain a system in which most public pensions are financed on a pay-as-you-go basis?

2. If pensions are partially or fully funded, should the pension system diversify its portfolio to include, for example, equities and foreign holdings, or should it maintain a conservative strategy of holding only domestic government bonds?

3. Should national pension systems move toward creation of individual (defined-contribution) accounts, or should they retain a collective system of shared risk under a defined-benefit pension system?

Strong proponents of individual retirement accounts believe they already know the answers to these questions. Rich countries should move toward more advance funding. The reformed pension system should invest in an appropriately broad portfolio of capital market instruments, including corporate equities. It should establish individual investment accounts, and contributors should be given broad discretion to invest their contributions as they please. Workers should be allowed wide latitude on the form and timing of their withdrawals from retirement accounts.

Economists and other pension specialists are uncertain whether these answers are the correct ones. The advantages of capital funding over pay-as-you-go financing are less obvious than many people suppose. The advantages of broad portfolio diversification are much more persuasive in the case of a private pension fund than they are for a collective public fund. If a country adopts a capital-funded system, individual investment accounts have important disadvantages that must be weighed against their well-known advantages. Giving workers complete discretion in the investment and withdrawal of their retirement funds may allow many of them to reach advanced old age with no assets to finance their retirement consumption. The pension system will not have accomplished its main objective, which is to assure a minimum and reasonably secure income in workers' old age.

1. Should we move toward more advance funding?

In a pay-as-you-go public pension system, the benefits paid to current pensioners are financed with the earmarked contributions of current workers or the tax payments of other taxpayers. In this kind of system, it is natural to respond to the budget pressure of an aging population by scaling back pension benefits or increasing the contribution rate . These responses to the system's financing problem are inherently divisive, because they force generations and income classes into conflict over which group will have to make the larger sacrifice in order the maintain the solvency of the system. If pensions are reduced immediately, the retired population will make income sacrifices to hold down tax burdens on current and future workers. If contribution rates are increased, active workers must make an income sacrifice to protect the pensions of the retired.

The logic of higher saving. It is possible to reduce this conflict by increasing the future national income that will finance the consumption of both future workers and retirees. To achieve this, the current generation could increase its saving to finance more of its own retirement. In neoclassical growth theory, increased saving is one of the few mechanisms that can boost future aggregate income. Larger accumulations in the retirement system could raise the nation's capital stock or foreign asset holdings and thus increase future national income. Over the next several decades, a nation with an aging population would still be forced to spend a rising percentage of its national income on pensions, but it would pay for these obligations out of a larger economic pie, leaving a bigger slice for future workers. From the point of view of pension fund contributors, advance funding is also a way to increase the rate of return on their contributions. Part of each worker's retirement benefit would be financed out of earnings on capital investments, and the rate of return on these investments can easily exceed the return obtainable in a pay-as-you-go retirement program.

Moving away from pay-as-you-go financing toward advance funded pensions could provide a mechanism for increasing national saving. A capital-funded program differs from pay-as-you-go financing in that it implies a buildup of saving within the pension system and potentially a larger stock of capital prior to a cohort's retirement. As a result of this buildup, a portion of pensions is financed out of capital income rather than current wage taxes alone. Furthermore, future workers gain because the larger capital stock boosts their wages, and thus a given level of benefits can be financed with a lower effective contribution rate.

Advance funding does not have to occur within private pension funds or individual investment accounts, of course. It could also take place within the existing public pension system. Nor is advance pension funding necessary to boost a nation's saving rate. Countries' can boost national saving by increasing government surpluses (public saving) or encouraging greater household or business saving (private saving). Because future pension spending is one of the main sources of increased pressure on public budgets, however, it is natural to link the increase in saving to pension financing, either inside or outside the public sector.

Many American economists, including me, favor a policy of more advance funding of public (or publicly mandated) pensions. We believe that advance funding can be achieved in a way that leads to higher national saving, which must the ultimate goal of any policy that is aimed at reducing the future burdens of an older population. If advance funding does not result in greater aggregate saving, it is hard to think of valid arguments in favor of such a policy. Unfortunately, many proposals to move toward advance funding would not accomplish the goal of increasing national saving.

The success of an advance funding policy in boosting saving depends on the fiscal behavior of other parts of the public sector and on the response of private saving to the pension reform. If the annual surplus of the reformed capital-funded system is simply used to finance higher spending in the public budget (through pension fund purchases of government bonds), no net addition to national wealth results from the "funded" system. Reliance on advance funding in public pension programs is controversial because many observers doubt that governments can resist using a large and growing public pension fund surplus to pay for other public consumption programs. Moreover, if the move toward more advance funding causes workers or pensioners to save less in their other private savings accounts, the effect of advance funding on aggregate saving will be reduced and possibly eliminated.

Well-informed proponents of fundamental pension reform recognize, of course, that the transition to a more funded system does not automatically produce higher saving. For example, if workers are given a rebate of their public pension taxes in order to make deposits into new pension accounts, the public retirement system will be deprived of revenues that are needed to pay current pension obligations. The public pension system would then have a smaller surplus or a larger deficit, forcing the government to raise taxes, to reduce other spending, or to borrow extra money. If the government borrows all the extra money, as some

advocates of advance funding suggest, the policy could easily *reduce* national saving. The flow of national saving in a given year is the sum of saving that takes place in the private sector plus saving of the government. Total government saving is the sum of saving in the public retirement system plus the surplus or deficit in non-pension government operations. If all the public pension surplus were diverted into new funded pension accounts, the government budget deficit would rise, reducing saving in the government sector and forcing the government to issue more bonds.

To be sure, the flow of funds into workers' new pension accounts would increase saving in the private sector. If private saving rose by the full amount of extra government borrowing, national saving (which is the sum of government and private saving) would be unchanged. But it is unlikely that private saving would grow by the full amount of extra government borrowing. Some workers may already have retirement saving plans connected to their jobs. Many of these plans may be almost indistinguishable from the new voluntary or compulsory retirement accounts that would be established if a new funded system were established. At least a few workers or firms would reduce their contributions to existing occupational pension plans if they were forced or allowed to save in new government-mandated accounts. Any reduction in the flow of saving into old retirement accounts would offset part of the effect of the flow of saving into the new retirement accounts. Private saving would then climb by less than the extra government borrowing.

In order to boost national saving, a privatization plan must reduce someone's consumption. The plan could reduce the public pension benefits -- and thus the consumption -- of people who are already retired or who will soon retire. Alternatively, it could increase the combined contributions that workers make to the old pension system and new funded pension accounts and thereby reduce their consumption. For example, if benefit payments were cut $10 billion, the public pension surplus would be $10 billion larger and the government deficit $10 billion smaller. National saving would then be $10 billion higher. Alternatively, if workers were required to contribute an additional $10 billion of their pay to the old public pension system and new retirement accounts, the revenue flowing into the public pension fund and the new retirement accounts would be $10 billion larger. This policy, too, would raise national saving.

Some plans to increase pension funding have a good chance of boosting aggregate saving. Plans with the best chance of success would follow one or both of the following strategies: (a) Increase the combination of payroll taxes for the existing pension system and mandated or voluntary contributions into new pension accounts; or (b) Cut benefits to current pensioners or workers who will retire in the next few years without lowering contributions to the system.

The case for advance funding in Germany and the United States. Assuming that a policy of advance funding is desirable, is the case for funding more compelling in Germany or the United States? Germany faces a more dramatic change in its population age structure than the United States, and for that reason pension reform is a more urgent policy concern than it is in the United States (see Charts 1 and 2). Germany also provides more generous public pensions than the United States. On an after-tax income basis, the public pension of an average-wage German worker replaces about 63 percent of the pre-retirement wage. The comparable replacement rate in the United States is only 50 percent. The combination of an older population and a more generous pension formula means that Germany must devote more of its national income to pensions. German public pensions consume a share of GDP that is more than twice as high as it is in the United States -- 11.1 percent of GDP in Germany versus 5.1 percent of GDP in the United States.[2]

German public pensions are not only unfunded, they also require large annual transfers from the general government budget. In contrast, the U.S. social security system has accumulated reserves equal to 12 percent of GDP. The growing annual surpluses of the social security system account for much of the improvement in U.S. public sector finances over the past decade. According to the latest forecast of the U.S. Social Security Administration, the reserves of the system will reach a peak equal to 23 percent of GDP in 2017. Thus, in comparison with public pensions in Germany, U.S. public pensions are already partially funded.

Chart 3 summarizes the most recent forecast of the future financial operations of the U.S. public pension system. The dark horizontal line shows the annual income of the social security system, excluding interest payments, measured as a percentage of taxable earnings. Since virtually all social security income, except interest, is derived from payroll taxes, the

[2] These estimates refer to 1995. See Bosworth and Burtless (1998), pp. 8-9.

income of the system is slightly more than 12.4 percent of taxable wages, the combined payroll tax imposed on workers and employers.[3] The lighter curved line shows total social security receipts, including interest payments on social security reserves. Interest payments now represent 12 percent of total social security revenues, and they are expected to reach 22 percent of revenues by 2015. The chart also shows social security benefit payments and administrative costs, measured as a percentage of taxable wages. If the U.S. social security system were a strictly pay-as-you-go system, this line would represent the payroll tax rate needed to keep the program solvent. However, tax and interest revenues are currently substantially higher than benefit payments, so the program has large annual surpluses (bottom line in Chart 3). By 2015 the retirement of the baby boom generation will cause benefit payments to exceed payroll and income tax revenues, and by 2025 benefit payments will exceed the combined income from taxes and interest earnings. The reserve fund will then begin to decline, and it will be exhausted in 2038 unless the benefit formula is changed or the contribution rate is increased. If the U.S. public pension system is to remain solvent after 2038, the payroll tax rate must be increased in that year by 4.6 percentage points (to 17 percent) or benefits will have to be cut about 25 percent.

Although the long-term outlook for U.S. public pensions is poor, the outlook for the German pension system is much worse. The German contribution rate is already 19.5 percent of wages, more than 7 percentage points higher than the comparable rate in the United States and higher than the U.S. tax rate that will be needed after the American baby boom generation has retired. Even a 19.5-percent contribution rate is not high enough to pay for current German pensions, however. The IMF estimates that about one-quarter of German public pensions are financed by a transfer from general government funds. Unless these transfers rise or benefits are cut, the IMF predicts that the required contribution rate in the German system will increase to 23 percent by 2020 and to 30 percent by 2040 (IMF, 2000, pp. 87-90). In comparison, the required payroll tax rate in the U.S. system in 2040 is just 17 percent (see Chart 3).

The contrast between Germany and the United States is even more striking once we take account of occupational pensions in the two countries. Slightly more than one-half of all

[3] The system also derives income from the federal income tax imposed on social security pensions. Since these income taxes are predicted to rise in the future, the total income of the system, including payroll and

active workers in the United States (including a large majority of workers with above-average wages) are covered by an employer-sponsored -- or "occupational" -- pension scheme.[4] By law, employer-sponsored plans are fully funded. In addition, many workers make voluntary contributions to Keogh plans (for the self-employed), 401(k) or 403(b) plans (for private company and nonprofit institution employees), or Individual Retirement Accounts (primarily for employees not covered by an employer pension plan). These schemes are by definition fully funded pensions. According to estimates of the World Bank, the assets of occupational pension plans were equal to almost 60 percent of U.S. national income in 1996 (see Chart 4). Germany has a much smaller occupational pension system. Deutsche Bank estimates that the total assets of company pension plans represented 15 percent of German GDP in 1996, but about half of these assets were held as book reserves on company balance sheets (IMF, 2000, p. 83). Thus, the combined assets of the public and private pension systems in the United States are many times larger than they are in Germany. Comparing the balance sheets of public and private pension plans and the future pressures of an aging population, the case for moving toward advance funding of pensions seems much more compelling in Germany than the United States.

It is not obvious, however, whether the higher level of funding of pension obligations in the United States has led to increased national saving. Chart 5 shows gross domestic saving rates in the G-7 countries, measured as a percentage of GDP. The United Kingdom, the United States, and Canada, which have the highest levels of advance funding among the G-7 countries, also have the lowest rates of gross saving.[5] What is more, the rate of net private U.S. saving has declined significantly during the past 15 years, in spite of the rapid accumulation of assets in pension funds (see top panel of Chart 6). Pension saving in occupational pension funds is included in household saving. As a fraction of U.S. GDP, net household saving fell from an average of 7.3 percent during the twenty-five years after 1960 to just 2.5 percent between 1996 and 2000. Even as private pension funds were accumulating substantial amounts of assets, other components of household saving fell.

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income tax payments, will rise slowly in comparison with the taxable wage base.

[4] Among working American families where the head of household is less than 65 years old, 57 percent of families have at least one member who participates in an occupational pension plan (EBRI, 2000).

[5] See Disney (2000) Table 3, for statistics on the funding status of pensions in the industrialized countries.

The accumulation of funds in the social security reserve has helped to offset the large drop in U.S. private saving. The growing social security surpluses have contributed to a recent surge in government saving, helping to reverse a long-term trend toward lower overall saving rates (see the bottom panel of Chart 6). Nonetheless, net saving in the United States remains far below average levels in earlier decades and significantly below the rates in other industrialized countries, including Germany. Net U.S. investment has remained strong only because of a large swing in foreign investment flows. Foreign savers are now investing much more in the United States than Americans are investing abroad, reversing the pattern of cross-border saving flows that characterized the first decades after World War II. Even though U.S. investment remains reasonably robust, an increasing share of the income flow from U.S. investment will be earned by foreign savers rather than Americans.

The low net saving rate of Americans relative to Germans suggests that it is the United States, rather than Germany, that is in greater need of a policy to spur additional saving. Unfortunately, the cross-national evidence does not offer any persuasive evidence that advance pension funding will automatically provide a stimulus to higher private or aggregate national saving. Mackensie et al. (1997) find no clear association between the size and degree of funding of occupational schemes, on the one hand, and the level of national saving, on the other (see also IMF, 2000, p. 86). Thus, even though the case for higher national saving may be more persuasive for the United States than it is for Germany, it is not clear that faster accumulation of funds in private pension accounts will actually spur higher private or aggregate saving. On balance, the U.S. evidence suggests that faster accumulation of funds in the *public* pension system is more likely to result in higher aggregate saving through its effect on government saving.

2. Should the pension fund accumulation be held in a diversified portfolio?

Assuming that a nation chooses to move toward greater advance funding of pensions, it must still decide how to hold the savings that will pay for future pensions. (If a country continues to pay for pensions with a pay-as-you-go mechanism, the choice of how to hold pension system assets is not very important. No matter which investment strategy is selected, the reserves of the system will be small and the effects of alternative investment strategies trivial.) One way to resolve the question about appropriate investment strategy is to leave the choice of investments to individual workers. In an individual retirement account system

where workers are offered wide latitude in selecting investments for their retirement savings accounts, the choice of investment strategy is not made by public officials but by individual workers. In this system, the appropriate investment strategy is not made just once but is made at many points in time by millions of workers.

As noted above, advance funding can be accomplished outside of individual retirement accounts, however. The government could continue to provide defined-benefit pensions, financed in part out of current tax contributions and in part out of the investment earnings of a large and growing reserve fund. In this case, policymakers must decide how the growing reserves of the system will be invested. As the reserves of the fund grow, the investment decisions of the fund managers become more important. If the U.S. social security system were a fully funded pension program, it would require assets equal to somewhat more than U.S. GDP in order to pay off the future pension claims that have been accumulated so far. As the American population grows older, the discounted value of future pension claims will increase relative to national income. For purposes of comparison, the national wealth of the United States in 1995 was about 2.8 times GDP. Thus, future public pension claims are equal to roughly one-third of U.S. national wealth. If these claims were fully funded, the public pension system would hold a large share of national wealth. The investment choices of the fund managers could then have an enormous influence on the economy.

The best investment strategy for individual workers is not necessarily the best strategy for public pension fund managers. An individual worker should select a portfolio of marketable securities and other saving instruments to provide him with the highest expected return consistent with his tolerance for risk. In the United States, corporate stocks and bonds have a higher expected return than U.S. Treasury bonds because they are riskier. The higher return on private equities and bonds compensates investors for differences in the risk they assume when buying these securities relative to the risk they accept when buying Treasury bonds. Almost all American private pension managers and individual workers who are offered a broad menu of investment options choose to invest a large majority of pension savings in riskier assets, such as stocks and corporate bonds (Engen and Lehnert, 2000, p. 805). They are willing to accept a higher level of risk in exchange for a higher expected return.

Political issues. It is not obvious that public pension managers should adopt the same strategy for investing pension reserves as individual workers adopt when they invest their own pension savings. The public managers could certainly obtain a higher expected return with tolerable risk if they invested pension reserves in a broadly diversified portfolio consisting of government and company bonds, corporate equities, mortgage debt, and real estate. In fact, such an investment strategy would reduce the pension fund's exposure to risk compared with a strategy of investing all holdings in government bonds.

Investing in corporate equities and bonds or in the corporate stock of foreign companies requires that government fund managers make choices about which companies and industries to invest in. Even if the government adopted a passive investment strategy and invested broadly across a large number of private securities (for example, proportional holdings of all publicly traded companies in the United States), the policy of investing in private securities would force the government to make difficult decisions about how to exercise the right to vote in corporate elections. Many Americans, including the Chairman of the Federal Reserve, are very uneasy about granting to government officials this kind of influence over the allocation of investment funds and the management decisions of private companies. They are skeptical that elected politicians could refrain from interfering in investment and business decisions. Critics of government stock ownership believe elected officials would be under heavy pressure to direct investment toward favored industries and to cast votes in corporate elections to obtain politically popular goals. If legislators bowed to these pressures, investment might be allocated in a suboptimal way and businesses might be forced to operate less efficiently than would be the case if the public pension fund did not hold corporate stock.

These objections to government investment in private companies seem less important in Germany, where there is a long tradition of public ownership of private company stock. However, they may be decisive in the United States, where government ownership of private companies arouses fierce opposition.[6]

Aggregate effects. Most economists who favor advance funding support the policy because they hope it will produce higher aggregate saving. Almost all of the economic

benefits from higher saving will occur whether or not the pension fund holds corporate equities or foreign assets. Whether the pension fund surpluses add to aggregate investment, and hence to future economic growth, depends mainly on whether they add to national saving, not on the particular assets in which they are invested. U.S. social security reserves are now invested entirely in U.S. Treasury securities, where they earn a modest but low-risk return. If the social security portfolio were broadened to include corporate bonds and equities, the expected return of the reserve would increase. Investment earnings of the Trust Fund would rise, and the need for future tax hikes or benefit cuts would shrink. The effects of the portfolio shift on the wider economy would be very modest, however. If the Trust Fund sold $1 billion in Treasury Bonds to purchase $1 billion dollars in corporate equities, some private investors would hold an extra $1 billion in Treasury Bonds and $1 billion less in corporate equities. For the aggregate economy, the main effect of the portfolio shift is the change in ownership of particular securities, which does not materially change the level or composition of U.S. output or investment. Hence, the shift in ownership has little effect on U.S. economic growth.[7]

Even though the most important economic benefits of advance funding do not depend on whether pension reserves are invested in stocks or government bonds, investing the reserves in a balanced portfolio can increase their expected return with a manageable level of risk. If the reserve fund earns a higher rate of return, workers can contribute less to the fund and still receive the same promised benefit. Even though the *aggregate* benefit of a broad investment strategy is dubious, the gain for tax payers and workers should be obvious: They will not have to contribute as much to keep the pension system solvent. Note, however, that this gain to workers and tax payers can only occur if the reserve of the pension system becomes large in relation to future pension claims. If the reserve remains small, then it does

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[6] This opposition is ironic, because federal, state and local government officials already appoint the trustees of public employee pension plans. Nearly all public employee pension plans, including the one for Federal Reserve Board employees, own bonds and equities of private corporations.

[7] If private investors wish to hold a riskier portfolio than the one they initially hold after the social security Trust Fund sells Treasury bonds and buys corporate equities, the interest rate on Treasury bonds might rise slightly and private investors might compensate for their larger Treasury holdings by purchasing other risky assets, including, for example, small company or foreign company stock. In the long run, large-scale government purchases of one particular class of marketable security can have important effects on the market value and relative return of that asset class. These effects are small in comparison to those of an advance funding policy that significantly increases the aggregate saving rate.

not matter whether the return on pension assets is high or low. A 20-percent annual return on investments is no better than a 1-percent return if assets held by the pension fund are negligible.

Assuming that public pension policy is changed so that the reserve becomes large, an advantage of the broad diversification strategy is that workers who have few financial assets get to share in the higher expected returns on riskier investments. If a large percentage of workers is prevented by borrowing constraints from investing in high-expected-return assets, then investing part of the pension reserve in high-risk / high-return assets will allow these workers to enjoy the favorable returns they earn. This argument may be stronger in Germany, where comparatively few households hold financial assets with above-average risk and high expected returns and where the cost of buying and holding such assets is high. Even in the United States, however, many young workers and low-wage workers do not participate in the equity and corporate bond markets, probably because of borrowing constraints.

3. Should the pension system shift to defined-contribution individual accounts?

A retirement system based on individual accounts would look very different from the present public pension system in both Germany and the United States. Instead of contributing to state-sponsored social security, workers would be required to build up retirement savings in individually owned and directed private accounts. Workers would be free to decide how their contributions are invested, at least within broad limits. They would withdraw funds from their accounts when they became disabled or reached the retirement age. To ensure that retired workers do not out-live their retirement savings, some or all of the funds in workers' accounts could be converted on a mandatory basis into annuities when workers retire.

Individual defined-contribution accounts differ from traditional public pensions in an important way. The worker's ultimate retirement benefit would depend solely on the size of the worker's contributions and the success of the worker's investment plan. Workers who make larger contributions receive bigger pensions, other things equal. Workers whose investments earn high returns collect larger annuities than workers who invest poorly.

Advantages. There are three principal advantages of an individual account system compared with a traditional defined-benefit system. Only one of these advantages is strictly economic. The other two represent political advantages, although these political advantages may have important economic consequences. The only economic advantage of an individual

account system relative to a defined-benefit system is that workers are allowed to choose their own investment strategy for retirement savings. Workers who prefer to accept greater risk in exchange for higher expected returns are permitted to select an investment strategy that reflects this preference. Workers who are less tolerant of risk and willing to accept lower expected returns can choose an investment portfolio based on this preference. In a collective retirement system that pays for all workers' benefits out of the same investment fund, workers must accept the risk-return characteristics of the portfolio selected by pension fund managers. Workers with a high tolerance for risk are likely to find that returns in the collective system are unacceptably low. Workers with a low tolerance for risk would accept a somewhat smaller expected pension in exchange for reduced exposure to financial market risk.

Of course, workers who have savings in addition to their pension fund accumulation can partly or fully offset the investment choices of the pension fund manager by choosing a more or less risky strategy when investing their nonpension assets. As noted earlier, however, many workers, especially low-income and young workers, have few financial assets of their own. They must accept the portfolio choices of the pension fund manager, regardless of their own attitudes toward financial market and expected returns. The principal economic advantage of an individual account system is that it allows workers to follow their own investment preferences.

One political advantage of an individual account system is that government officials do not have to decide how to invest the assets accumulated in the pension fund. If retirement savings are invested in corporate equities, public officials do not have to decide how to vote in corporate elections. These decisions can be left to millions of individual workers when they choose how to invest their retirement savings. Even though government officials would not be directly involved in these decisions in an individual account system, they might still play an important indirect role through their regulatory power over private pension funds and workers' investment choices. Nonetheless, the influence of public policymakers over retirement investment decisions in an individual account system is considerably smaller than it would be under a collective, defined-benefit system. This political advantage is much less important in Germany than it is in the United States, where there is deep skepticism about the regulatory instincts of political officials.

A second advantage of individual accounts is that the funds accumulated in such accounts are difficult for legislators to use to pay for nonpension public spending. In contrast, it is straightforward for legislators to use growing surpluses in a public pension system to cover growing deficits in nonpension government programs. Many critics of the U.S. social security surpluses in the late 1980s claimed that these surpluses were being used by Congress and the President to obscure the true size of the government deficit. Congress and the President acted as though the surplus of payroll tax revenue over pension benefits was available for spending on other public services, such as national defense and health care. (This criticism seems less plausible today, when the surpluses in social security account for an overwhelming percentage of net government saving.) If the pension surpluses had instead been accumulated in millions of individual retirement accounts, the federal government would have found it more difficult -- though not impossible -- to spend them on nonpension programs or imprudent tax reductions. This political advantage may be crucial if the move to advance funding is to produce an increase in national saving. If the government moves toward advance funding of pensions, but then spends the pension surpluses on current operations, no change in national saving will occur.

Disadvantages of individual accounts. Along with the economic and political advantages of individual accounts policymakers must consider some important disadvantages. Just as the accumulation of additional funding in a *public* pension program can encourage legislators to increase nonpension deficits, the accumulation of additional funding in *private* investment accounts can induce workers to reduce other forms of household saving. If the new funded pensions are very similar to existing occupational pensions, the extra funds accumulated in new accounts may be partly or fully offset by reduced saving in the old pension schemes. This consideration is much more important in the United States than it is in Germany, because many more Americans are already covered by a fully funded occupational pension scheme. On the other hand, household saving is considerably higher in Germany than it is in the United States, so there is much greater scope for reductions in German private saving. Of course, many workers do not participate in voluntary pension schemes and do not have much financial wealth. These workers do not have much room to offset compulsory contributions to a new funded pension system through reductions in other forms of household

saving. If they are enrolled in a new compulsory retirement saving plan, they will be forced to reduce current consumption, thus boosting aggregate saving.

The major disadvantages of an individual account system are economic. One disadvantage is that the administrative burden of an individual account system is substantially higher than the cost of managing a single retirement fund. If workers are offered a large number of investment options, it can be costly to collect contributions and allocate them to the appropriate investment fund. Even if the number of investment choices is limited, competition among private fund managers does not necessarily lead to low administrative costs. It can lead, as it has in Chile, to costly sales campaigns that attempt to differentiate fund companies through advertising and extraneous services rather than through differences in funds' net rates of return.

The cost disadvantage of an individual account system may be even greater at the stage when pension accumulations are converted into annuities. Under a collective pension plan, all workers' contributions can be converted into compulsory and fair annuities at the point of retirement. This is much more difficult and costly for a private retirement fund, since each private fund must be concerned about the possibility of adverse selection among the workers who have elected to invest pension savings and purchase annuities from the fund. This problem may lead many pension funds to impose heavy charges when savings are converted into an annuity, greatly reducing the rate of return workers can obtain on their retirement savings. Of course, these problems and others can be handled through sensible regulation. But supervision of private investment managers and annuity companies is costly, and, as the experience of Great Britain suggests, regulation itself is fraught with error.[8]

Probably the most important shortcoming of an individual account system is that it virtually eliminates the risk pooling across workers and generations that is inherent in a collective retirement system. Because the connection between individual contributions, investment returns, and pension benefits is very straightforward in a defined-contribution pension program, such a system offers less scope to insure workers against poor investment

[8] The United Kingdom established a system in which workers could opt out of the state-provided earnings-related pension system if they found a private pension provider which offered benefits meeting government minimum requirements. Many workers were persuaded by private providers to opt out of the state-provided scheme, even though the benefits provided by the private alternative were less generous than those obtainable under the state-provided scheme.

returns. Workers who make foolish investment decisions or who have the misfortune to invest when financial market returns are low can end up with extremely small pensions. To duplicate the traditional pension system's success in keeping down poverty among the elderly, a private system would have to supplement the pensions from individual retirement accounts with a minimum, tax-financed pension or with public assistance payments.

When contributions are invested prudently, defined-contribution retirement accounts ordinarily provide good pensions, at least in the United States. Assume, for example, that workers can purchase fair annuities and earn the historical U.S. stock market return on their pension contributions. Under these assumptions American workers who contribute 6 percent of their pay to a defined-contribution plan over a 40-year career can anticipate receiving an initial pension that replaces 50 percent to 60 percent of their peak annual earnings. This pension compares favorably with the initial pension received by average workers under the U.S. social security system. American workers who earn average U.S. wages collect social security pensions that are between 34 percent and 43 percent of pre-retirement earnings, depending on the age when benefits are first claimed. If a worker has a dependent spouse who never worked, the social security pension would range between 51 percent and 65 percent of the pre-retirement earnings of an average-wage worker.[9]

A defined-contribution system allocates risks in a very different way than the traditional, defined-benefit system, however. Under the German and U.S. systems, workers born in the same year who have similar earnings records are assured similar retirement benefits. Because of political constraints on democratically elected legislators, the benefit formula changes very slowly and only after protracted political debate. Since this debate involves both contributors and beneficiaries, changes in contribution and benefit formulas tend to reflect a compromise between the interests of the two groups. The adverse effects of unanticipated demographic, labor market, and financial market developments are rarely if ever borne by a single cohort. They are spread across a number of cohorts through gradual changes in contribution rates and benefit levels. In contrast, workers participating in a defined-contribution system bear much more of the risk associated with financial market fluctuations. Workers who invest wisely and redeem their retirement savings when asset

[9] The after-tax replacement rates for average-wage workers are somewhat higher than this, because social security benefits are more lightly taxed than wages.

prices are high will enjoy comfortable retirements. Workers who invest foolishly or redeem their savings when asset prices are low will collect small pensions.

I have analyzed these risks for U.S. workers by considering the hypothetical returns workers would have obtained between 1911 and 2000 if they had accumulated retirement savings in individual accounts (Burtless, 2000a and 2000b). The 90 hypothetical contributors are assumed to have identical careers and to contribute a fixed percentage of their wages to private investment accounts. When contributors reach retirement age, they convert their retirement savings into level annuities. To make the calculations comparable across time, all contributors are assumed to have an identical career path of earnings and to face the same mortality risks after retirement. Contributors differ only with respect to the stock market returns, bond interest rates, and price inflation they face over their careers. These differences occur because of the differing start and end dates of the workers' careers.

Chart 7 shows real U.S. stock market returns over the past century. Because stock market prices fluctuate so much from year to year, the chart shows the annual rate of return on a dollar invested in the stock market 15 years before the indicated year. This method of calculation averages out much of the annual variability in real returns, but it still reveals the wide variability of returns over different 15-year periods. The 15-year trailing return was negative in 1920 and 1980, but it exceeded 12 percent in the mid-1930s, 1960s, and late 1990s.

One way to summarize a worker's success in saving for retirement is to calculate the real internal rate of return on his contributions. Chart 8 shows the time series pattern of internal rates of return for workers retiring between 1911 and 2000. I assume that workers have the standard age-earnings profile observed for American men and that economy-wide average wages rise by 2 percent per year over the worker's 40-year career. Worker's invest a constant percentage of their wages in a pension fund. The returns shown in the chart indicate the internal rate of real return that a worker has obtained at the end of his 40-year career. The top line in the chart shows the returns workers would have obtained if they invested all their contributions in the U.S. stock market. The average real return on contributions, measured at the point of a worker's retirement, is 6.3 percent. Real stock market returns have been somewhat higher in recent years. If we exclude careers that began before 1924 (that is, retirements that occurred before 1964), the average real return on contributions in a U.S.

stock-market pension fund was 6.7 percent. The range of returns is surprisingly wide, however. The lowest return, attained by a worker retiring after the U.S. stock market collapse after World War I, was just 1.5 percent, more than 4½ points below the long-term historical average. The highest return, almost 10 percent, was achieved by workers retiring in the mid-1960s. These workers had the happy experience of accumulating stocks during lengthy periods when stock market prices were depressed and converting their retirement savings into annuities when stock prices were exceptionally high. Workers retiring in the late 1990s enjoyed similar good fortune.

The fluctuations in realized returns, even over short periods, are startling. Between 1921 and 1929 the internal rate of return on contributions rose from 1.5 percent to 8.4 percent, and the real return then plunged to 4.1 percent in 1933. The return fell from 8.5 percent in 1973 to 5.0 percent in 1975 and to 3.6 percent in 1982 before recovering to 9.3 percent in 1999. While it is certainly true that U.S. common stocks offer exceptionally good returns compared with alternative investments, it is also true that no American worker can be confident of achieving the historical average return over an investment career that spans just 40 years. Chart 8 shows realized returns for 90 workers. Among these workers, 57 percent achieved a real return that was below the 6.3 percent historical average, and more than 10 percent achieved a return that was less than two-thirds of the historical average.

Workers can follow a couple strategies to reduce the riskiness of their pensions. One is to invest a portion of their retirement savings in bonds rather than stocks, diversifying their investment portfolio. This strategy reduces the volatility of the worker's replacement rate, but it also sharply reduces the expected value of the annuity. The historical real return on low-risk U.S. bonds has been about 5 percentage points below the equivalent return on U.S. common stocks. The lower lines in Chart 8 show the real returns U.S. workers would have obtained if they invested some or all of their pension savings in bonds rather than stocks. Workers who invested all of their pension accumulation in U.S. Treasury bonds would have obtained a real return that averages 5.8 percent below the return they would have obtained if they invested all their savings in U.S. equities. Note that the real return on U.S. government bonds has historically been less than the return that workers can expect under the present social security system, even if benefits are scaled back to keep the program solvent.

This analysis suggests that the financial market risks of a private retirement system are empirically quite large. The risks are of two kinds. Two workers who have the same career earnings and who retire in the same year can obtain widely different pensions depending on the investment strategy they follow. The results in Chart 8 show that workers who invested in U.S. stocks would have received much better returns during the twentieth century than workers who invested in government bonds. Workers also face a substantial risk that they will retire when asset prices are low. Rates of return are quite uncertain, and differ widely for workers who end their careers in different years, even if the workers followed an identical investment strategy when investing their retirement savings.

Although some of these risks are also present in a public retirement system, a public system has one important advantage over private pensions. A public retirement system is backed by the taxing and borrowing authority of the state. It can therefore spread risks over a much larger population of potential contributors and beneficiaries. This makes the risks more manageable for active and retired workers, many of whom have little ability to insure themselves privately against financial market risk.

While it would be interesting to compare financial market risks in Germany with those in the United States, that exercise will not be undertaken here. Americans' investment portfolios suggest they have a higher tolerance for risk than Germans. Gross personal financial wealth is more likely to be held in the form of pension assets and equities in the United States, whereas household financial wealth in Germany is much more likely to be held as currency and bank deposits (see Chart 9). Note also that a large percentage of U.S. pension assets are invested in corporate equities. This difference between German and American tastes for financial market risk suggests that Americans would be more willing to tolerate the risk associated with individual retirement accounts which are invested in equities. The difference in tastes is reflected in the pension systems of the two countries. The U.S. system contains a smaller defined-benefit collective pension, in which risks are broadly shared across the population, and a larger defined-contribution individual pension, in which financial market risks are borne by individual workers. On average, American workers derive an important advantage from their system, because along with higher risk they also earn higher average returns on their pension contributions. Unfortunately, the less generous public pension also means that a much higher percentage of America’s elderly have disposable

incomes that fall below 50 percent of the nation's median income. Chart 10 shows that the poverty rate of the U.S. aged population is three times the rate among West Germans who are 65 years old and older (Smeeding, Burtless, and Rainwater, 2001). Although much of the difference between U.S. and German poverty rates is due to differences in the nature of the two countries' retirement systems, some of the difference would also be present if both countries had an identical system. Wages are more unequally distributed in the United States than in Germany, so retirement incomes would also be more unequally distributed, even if the United States and Germany shared the same pension system. Nonetheless, the important difference between the two countries' pension systems tends to boost the relative poverty rate of the United States.

The Outlook for Public Pension Reform

Germany and the United States will have to support their retired workers out of the national incomes available when future generations reach retirement age. Whether retirees receive most of their income from public pensions, as they do today, or from private pensions, as they would under a system of individual accounts, their consumption will be derived from the output of future workers and the future capital stock. If productivity grows rapidly, the elderly can be generously supported and active workers can enjoy steady increases in their after-tax incomes. This is true whether old-age pensions are provided under the existing public pension program or under a system of private investment accounts. If productivity grows slowly, future workers will have to accept lower after-tax incomes and retirees will have to accept smaller pensions unless workers can be persuaded to delay their retirement. The implications of slow growth will be the same whether pension incomes are derived from a public or private system.

Moving the retirement system toward advance funding of future pension obligations can help increase productivity and future national income, but only if it results in higher national saving. Advance funding can be achieved by reforming the existing public, defined-benefit system or by introducing individual, defined-contribution pension accounts. In either case, higher saving will require a consumption sacrifice in the short run. This is true whether pension reserves are invested in a broad portfolio of financial assets or held as government bonds. The economic advantage of an individual account system is that contributors to the pension system have the opportunity to choose the investment portfolio that most closely matches their taste for risk and expected reward. The political advantage is that it reduces the scope for political interference in investment selection and company decision-making. The offsetting disadvantages are that such a system is more costly to manage, thus reducing workers' ultimate pensions, and fails to spread financial market risk broadly across workers and generations.

All workers would welcome the opportunity to earn better returns on their contributions to the retirement system. Individual defined-contribution accounts can provide better returns than the existing pension systems of both Germany and the United States, but they would expose workers to a substantial hazard that their pensions would be too small to finance a comfortable retirement. The most often cited benefit of private retirement systems is that they can provide better returns to covered workers. If public systems were reformed to include advance funding and prudent investment of reserves, they could provide the same expected return to workers with far less financial market risk.

The choice between the public and private reform alternatives depends ultimately on political rather than economic considerations, because the economic advantages of neither system are decisive (Burtless and Bosworth, 1997). Advocates of privatization are skeptical that elected officials can be trusted to manage the accumulation of a big retirement fund. They fear that larger public pension surpluses would be spent on other government consumption (and hence not saved) or that fund accumulation will be invested unwisely. Opponents of privatization believe that scaling back the public program so that it provides only modest, poverty-level benefits will cause the public component to be viewed as a public assistance program. This could undermine the political popularity of the program and possibly threaten the continuation of redistribution to the low-income elderly. A public plan

offers stronger assurances to low-wage workers, but a private plan is more appealing to workers who want a better return on their contributions.

Germany has already begun moving toward a retirement system in which a large fraction of the workforce will contribute to individual pension accounts on a voluntary basis. The most recent German reform will modestly scale back benefits in the traditional, pay-as-you-go retirement program. Even when the reform is fully implemented, however, Germany's public pension program will remain much more generous and costly than the equivalent system in the United States. It remains to be seen whether additional reform will be needed to shrink the German public system still further. Pension reform has not advanced as far in the United States as in Germany, in part because the U.S. has a more affordable public retirement system and much more extensive and generous private pensions. While the United States has less need for reform than Germany, its voters have a greater tolerance for financial market risk and a stronger aversion to high taxes. In the long run, these preferences could be crucial in determining the ultimate course of pension reform.

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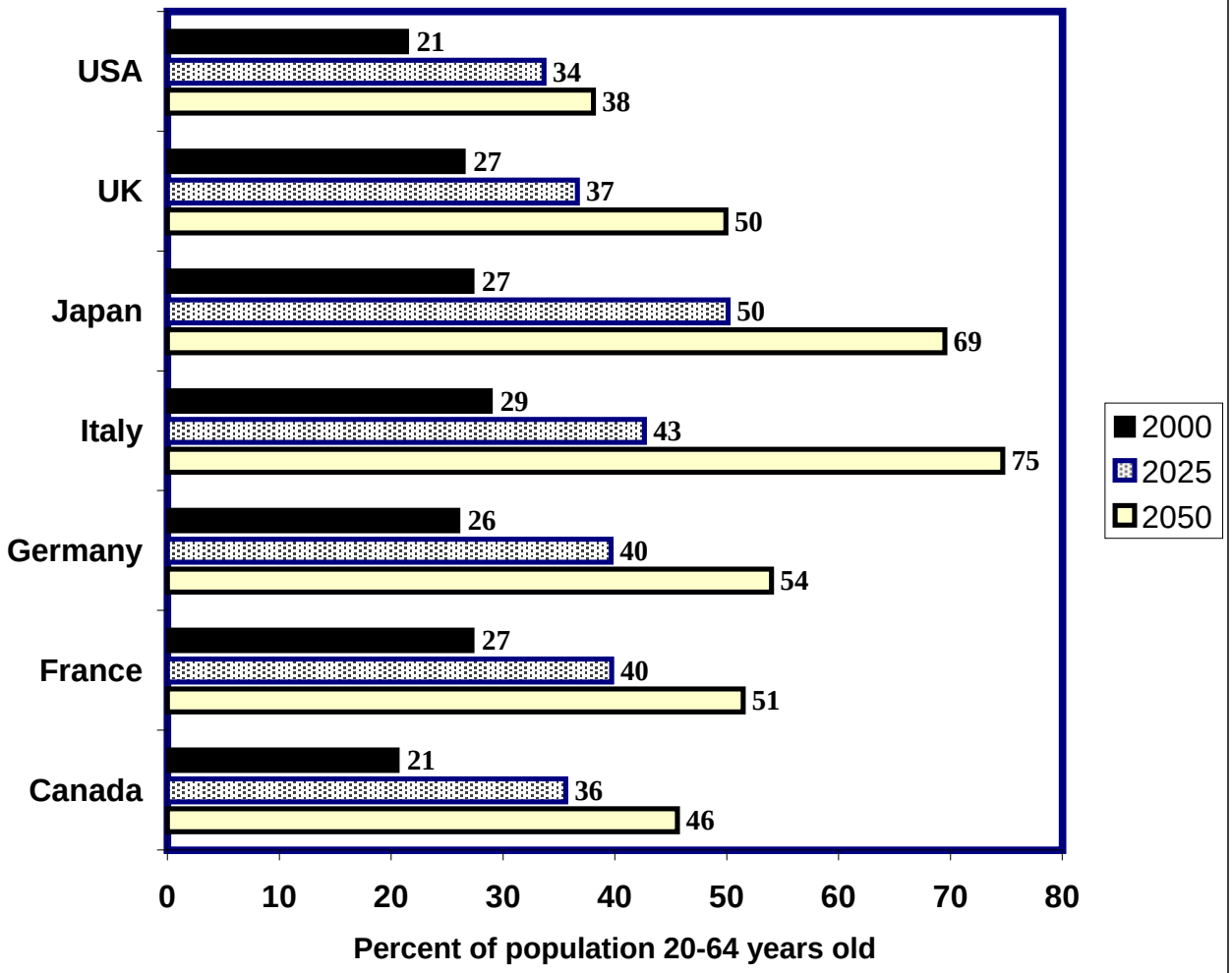
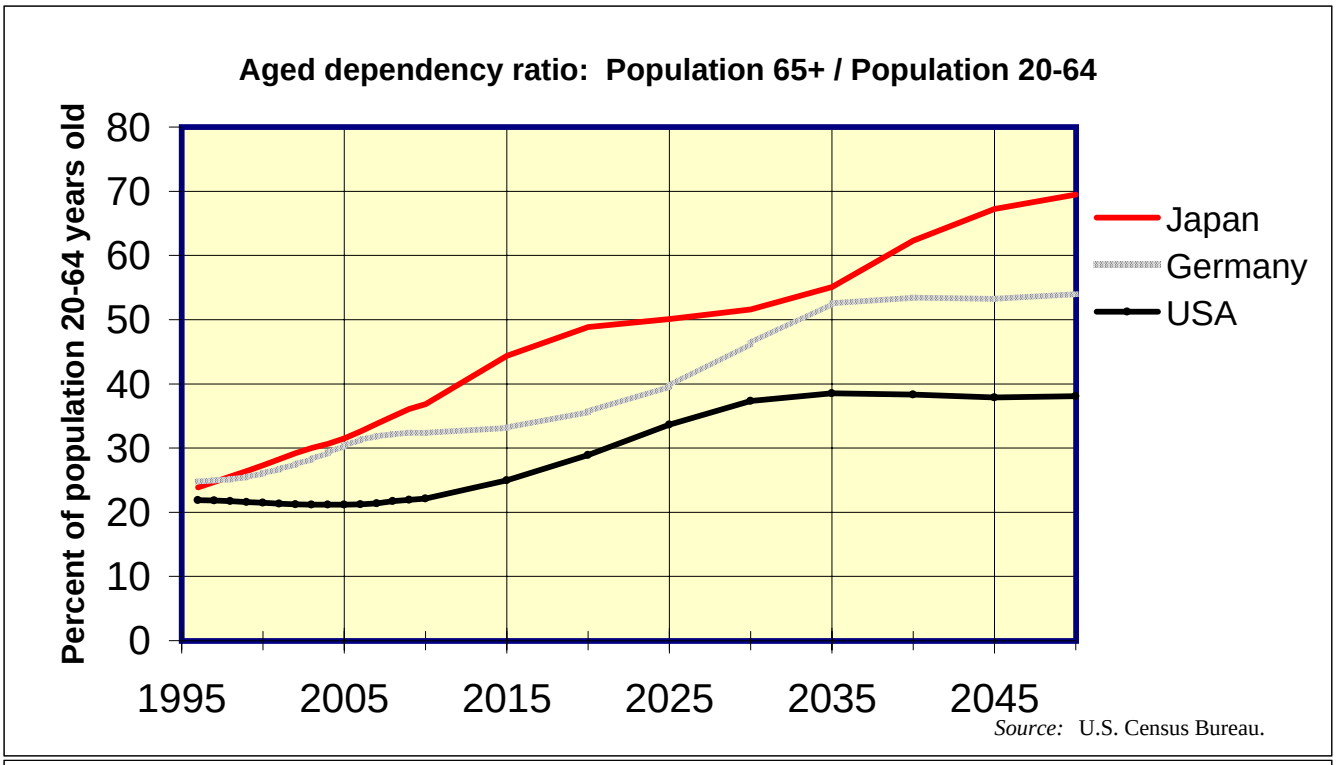
Chart 1. Aged Dedpendency Ratio in G-7 Countries, 2000-2050

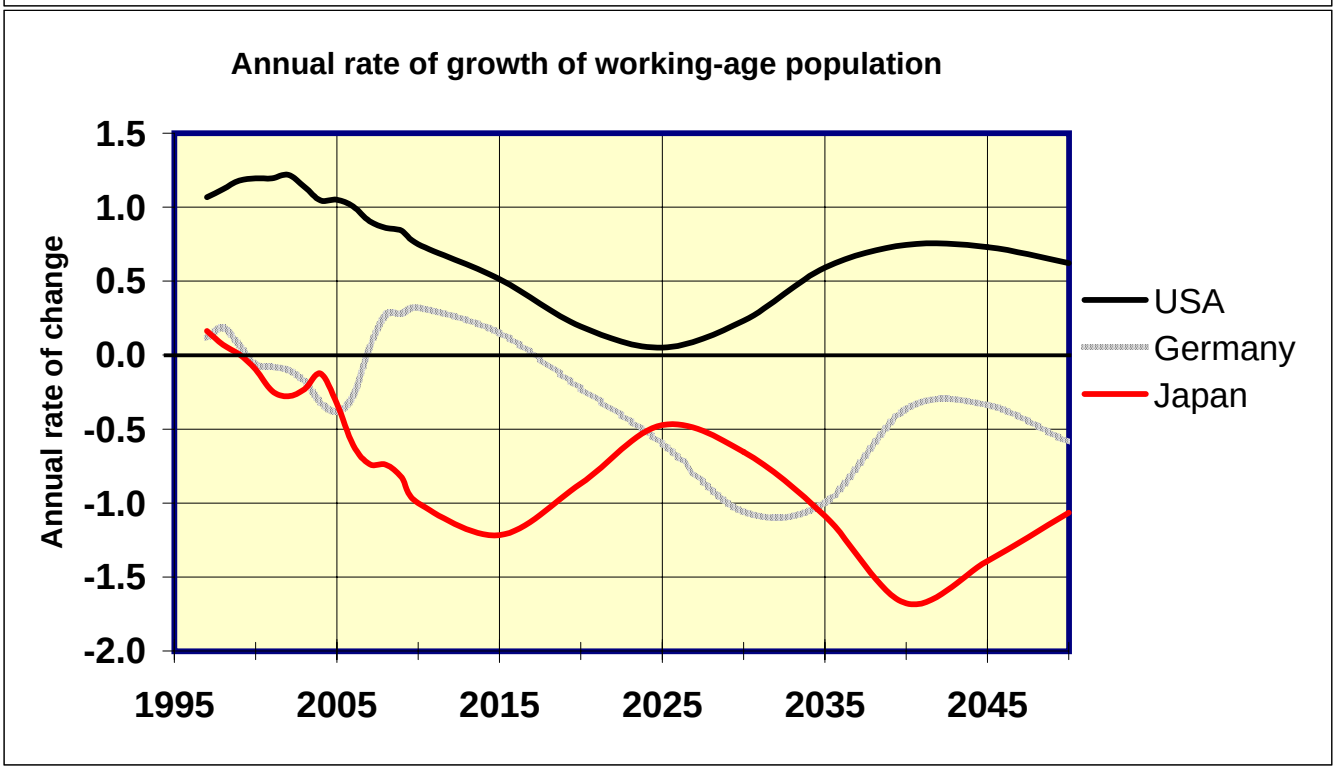


Note: Aged dependency rate is the ratio of persons 65 years and older to persons 20-64 years

Chart 2. Population Trends in Germany, Japan, and the United States, 1995-2050

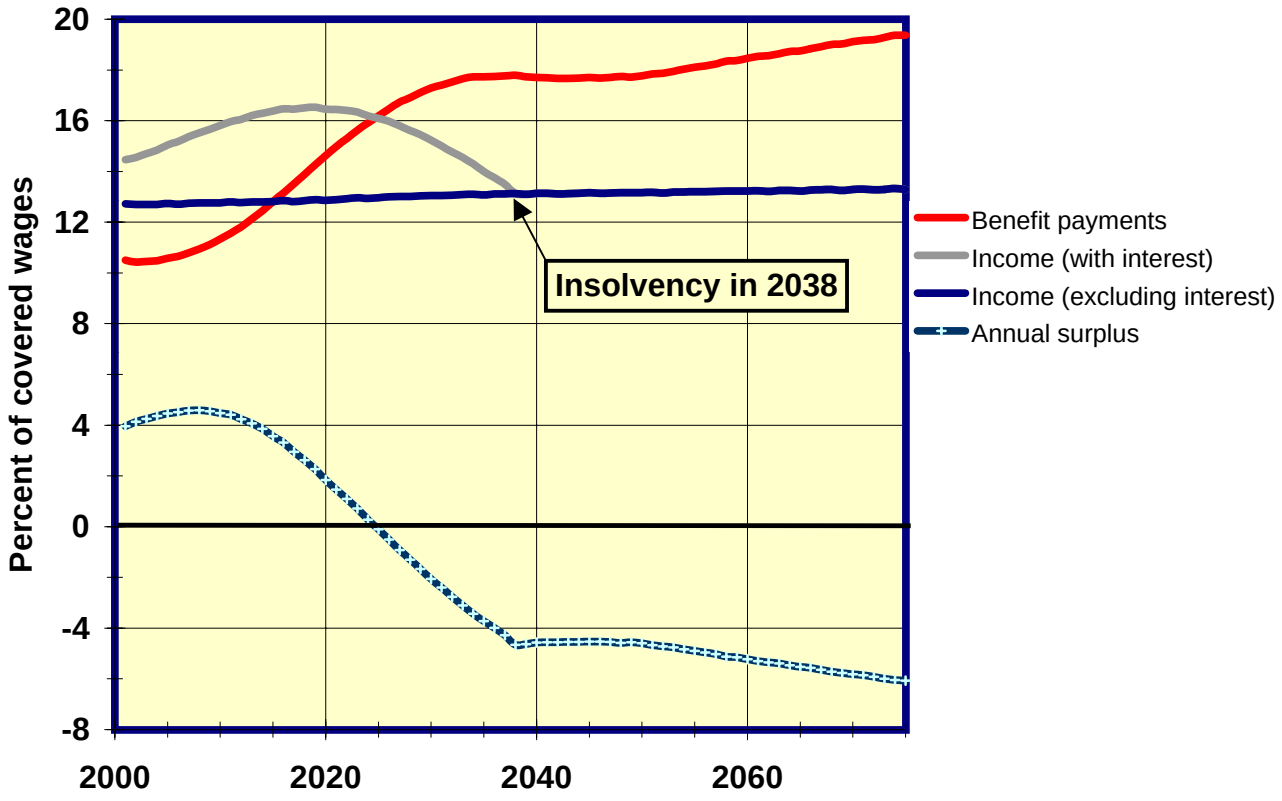


Source: U.S. Census Bureau.



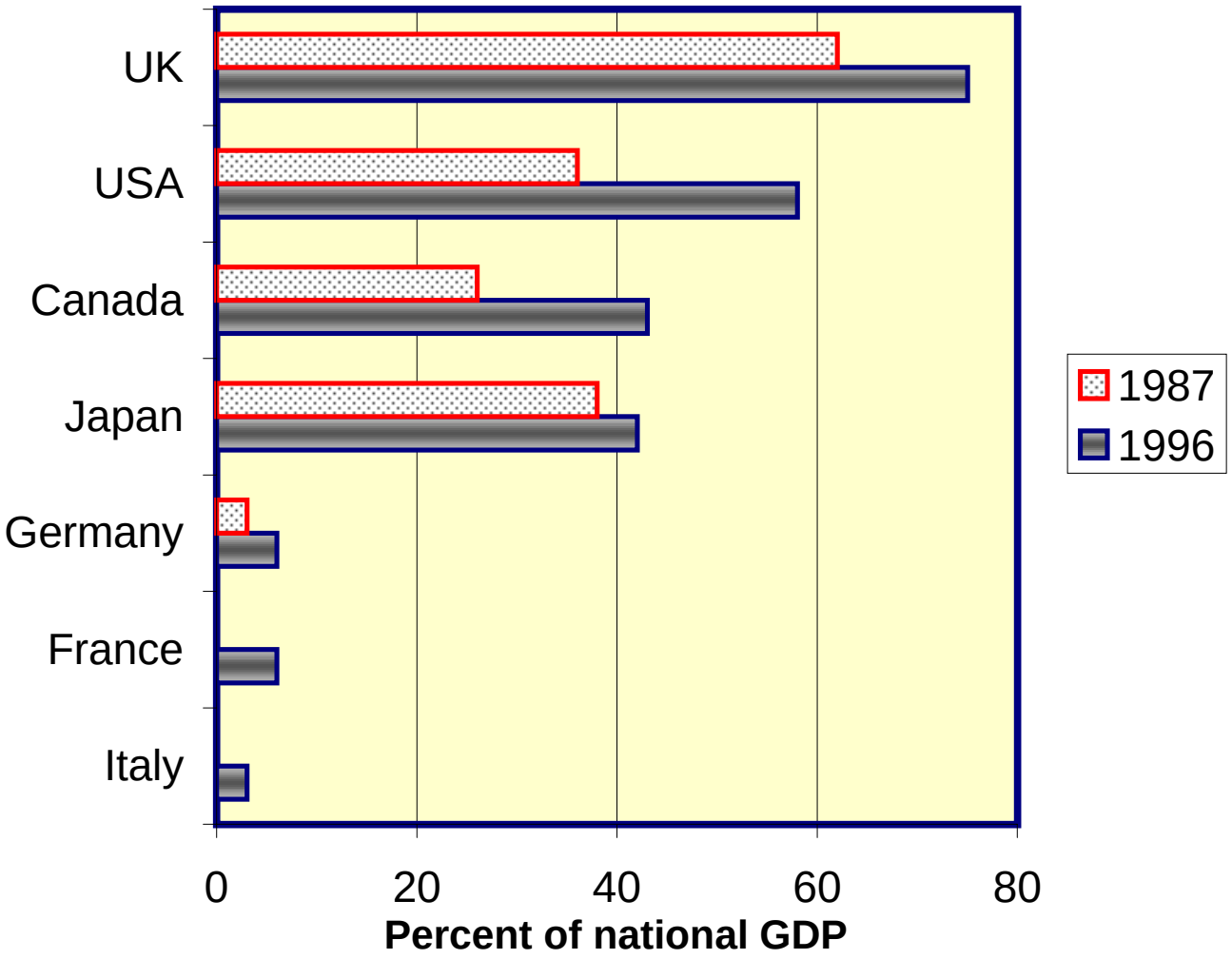
Source: U.S. Census Bureau.

Chart 3. U.S. Social Security Operations as a Percent of Taxable Payroll, 2001-2075



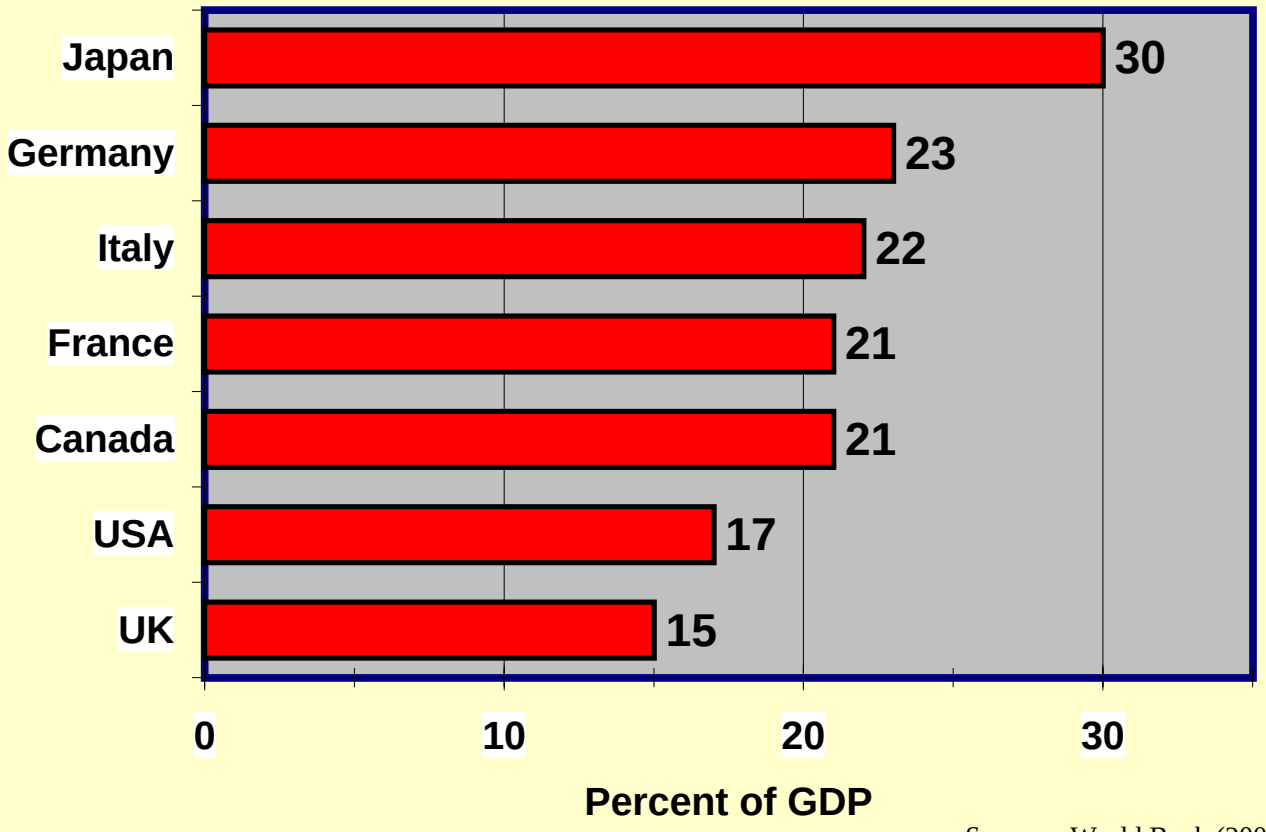
Source: Author's tabulations and OASDI Trustees, *Annual Report* (2001).

Chart 4. Pension Assets as a Share of GDP, 1987 and 1996



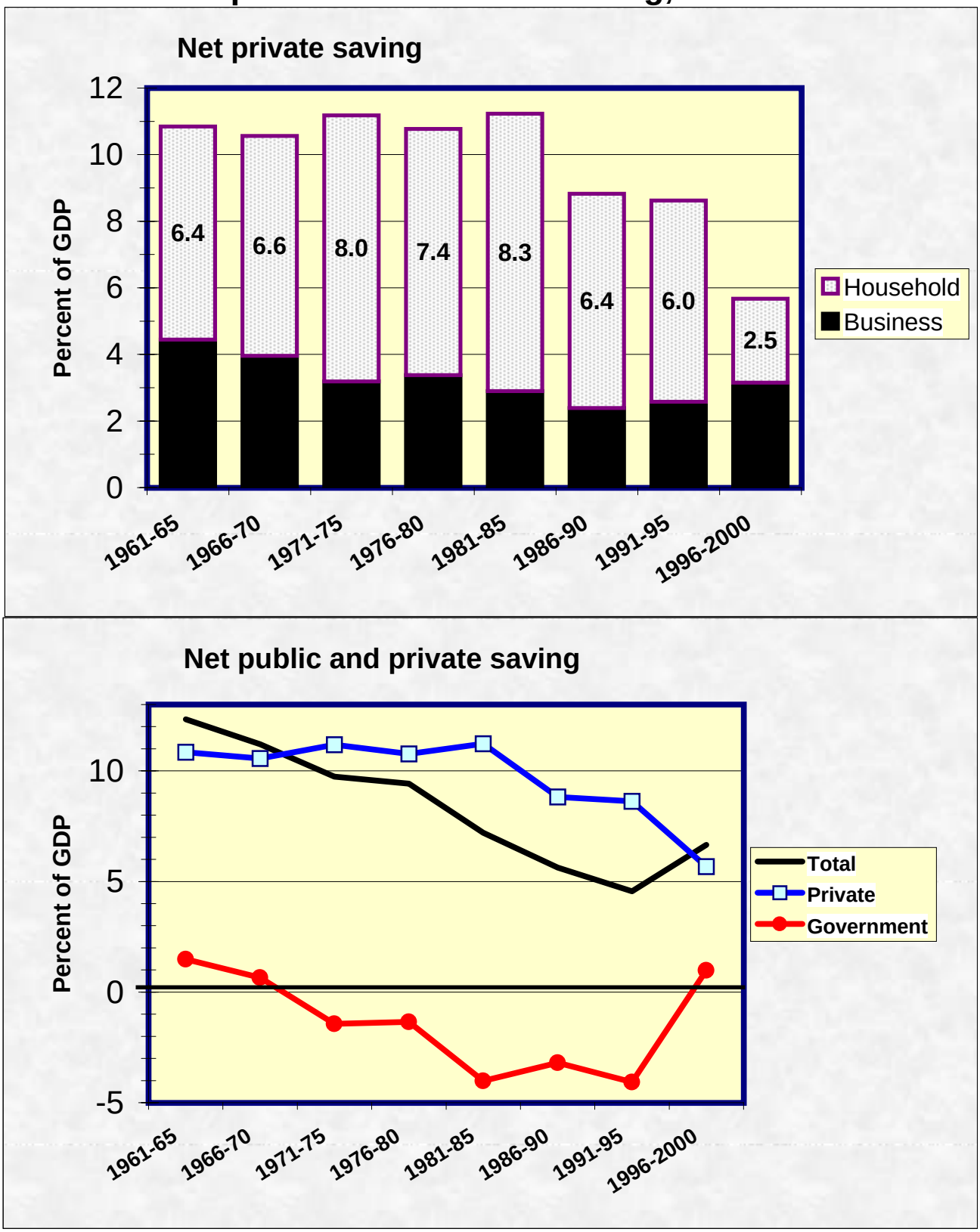
Source: Disney (2000), Table 3.

Chart 5. Gross Domestic Saving in G-7 Countries, 1998



Source: World Bank (2000).

Chart 6. Components of Net U.S. Saving, 1961-2000



Source: U.S. Department of Commerce, BEA, National income and product accounts.

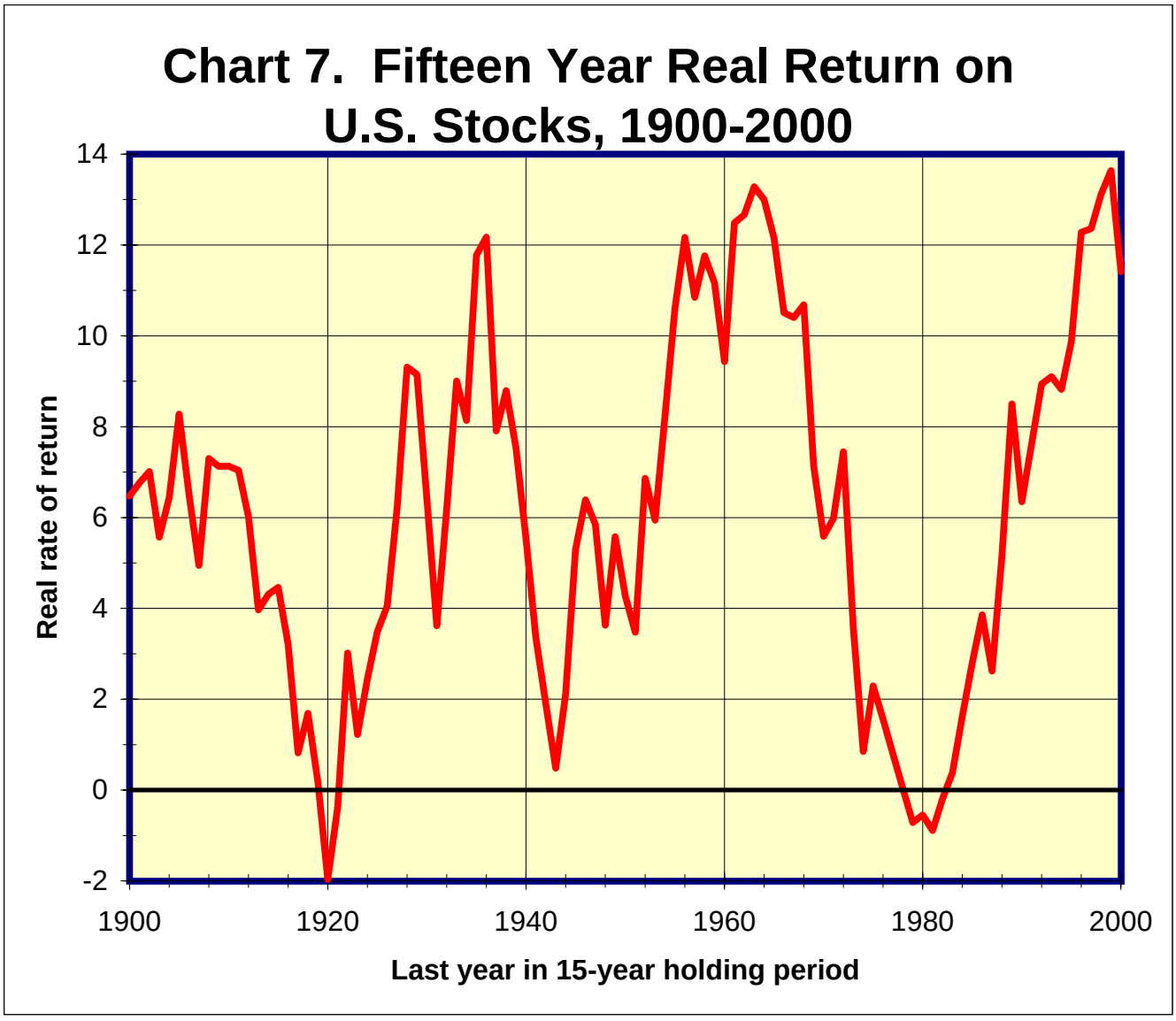


Chart 7. Fifteen Year Real Return on U.S. Stocks, 1900-2000
Real rate of return
14
12
10
8
6
4
2
0
-2
1900
1920
1940
1960
1980
2000
Last year in 15-year holding period

Chart 8. Real Rate of Return under Alternative Investment Strategies after 40 Years of Investing in U.S. Capital Markets, 1871-2000

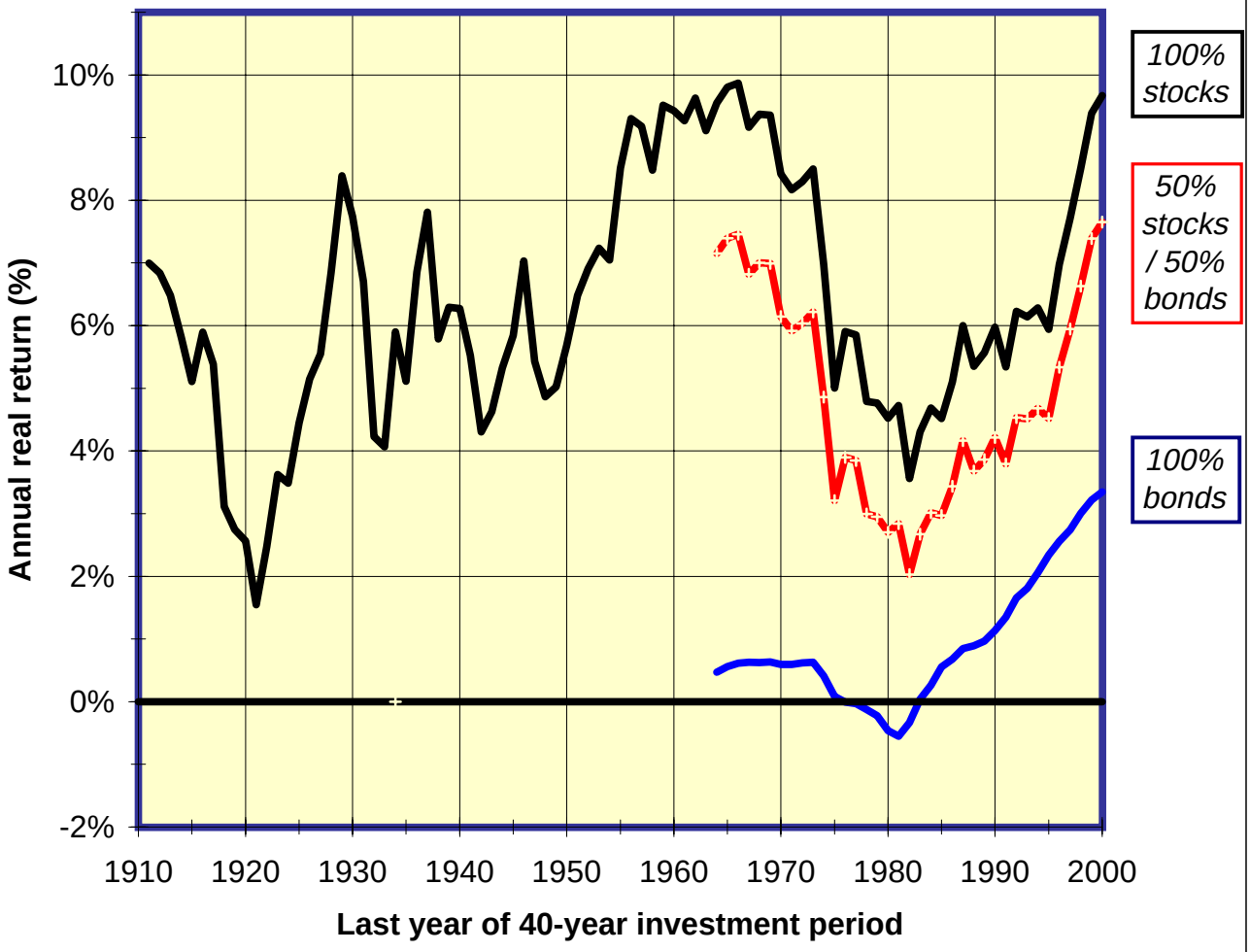
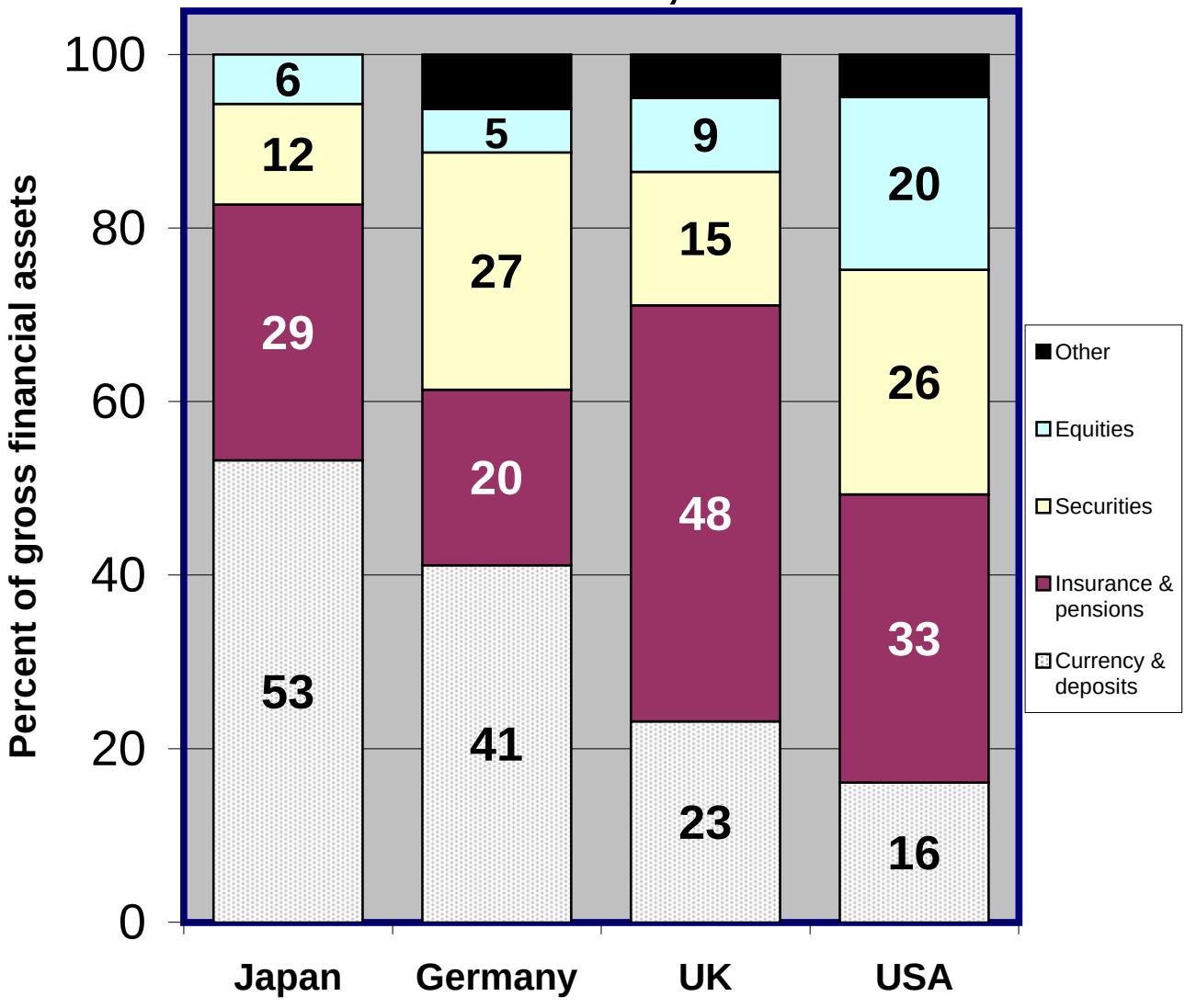
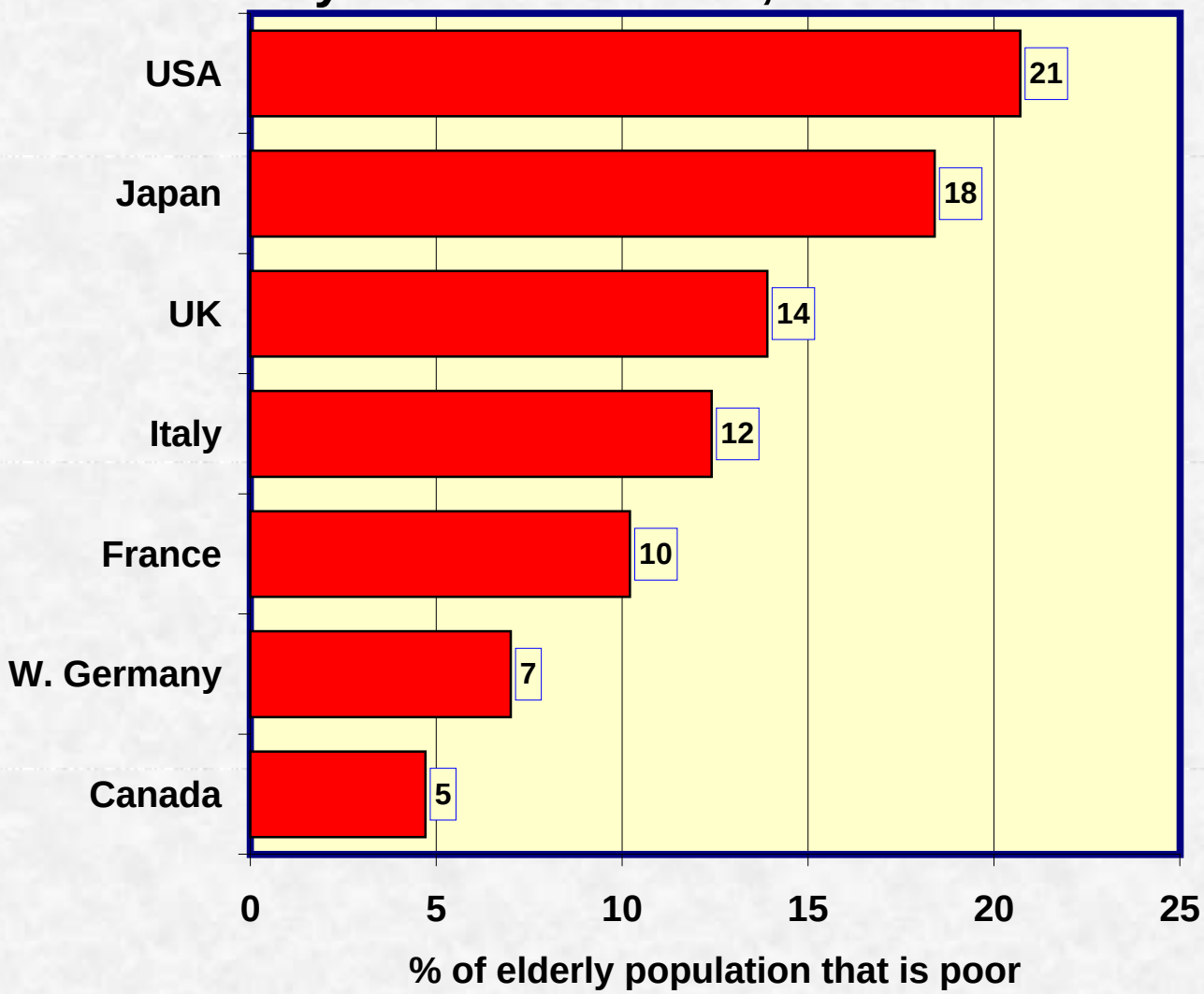


Chart 9. Personal sector gross financial assets, 1995-96



Source: U.S. Federal Reserve and Bank of Japan.

Chart 10. Poverty Rates among the Elderly in G-7 Countries, Mid-1990s



Source: Smeeding, Rainwater, and Burtless (2001).