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SWITZERLAND

Selected Issues

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Approved by the European Department

May 13, 2005

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I. Intertemporal Policy Consistency in Switzerland: Is the Current Social Insurance System Sustainable?[1]

A. Introduction and Summary

1. **Switzerland's short-term fiscal position is improving, but, because of population aging, the long-term outlook remains challenging.** The 2004 structural deficit is estimated at 0.7 percent of GDP and public debt stands at 56 percent of GDP. Although high, public debt is not out of line relative to peer OECD countries. However, Switzerland has one of the lowest rates of output growth, and this may decline further as population aging progresses. Also, and despite considerable assets held in the funded second- and third-pillar pension funds, public spending on pensions, health, and long-term care is expected to grow substantially in the next decades. Official projections suggest that by 2040 there will be 550,000 *more* persons over 65 and 480,000 *fewer* persons of working-age than today; this swing of well over 1 million persons in a country with a population of 7.3 million will almost halve the ratio of workers to elderly from 3.2 to 1.8. Population aging is a slow-moving but powerful force, and, given its long-tern influence, it is necessary to calibrate policies well before it peaks around 2035.

2. **Aging can have a wide-ranging impact on the economic and social fabric**:

- The shrinking working-age population will **lower GDP growth** unless offset by increases in the participation rate, immigration, or productivity gains. In turn, lower GDP growth would complicate fiscal policies, especially if these accumulate unfunded liabilities.

- **The social services sector will expand**, and because it is characterized by relatively low productivity, this reallocation of resources could lower overall productivity growth.

- **Aging populations tend to be risk averse and reluctant to change**. And with voters over 50 becoming the majority sooner in Switzerland than in other industrial countries, passing reforms may become even more challenging. This could further slow reforms and lower productivity growth.

- **In the absence of corrective measures, the finances of the redistributive, pay-as-you-go first pillar of the social security system will be strained** because, with the rise in the dependency rate, public spending on pensions and health and long-term care will increase faster than revenue. The strain will be exacerbated by the high income elasticity of demand for health care services and above average price increases in this sector.

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[1] Prepared by Anastassios Gagales.

- When retirees from the baby-boom generation decide to run down their assets, there is a risk that **asset prices could drop**, straining the financial position of the funded pension schemes and putting pressure on public guarantee schemes. The magnitude of this effect is difficult to gauge and still debated in the literature, but it is worth bearing in mind when thinking of the role of the funded second and third pillars and their regulatory environment, as well as the macroeconomic conditions for debt sustainability in the public sector.[2]

- Some policy responses to aging could have **unintended consequences**. For instance, raising payroll taxes to finance social security could, by discouraging labor supply, lower GDP growth further.

3. **This paper attempts to quantify the impact of the demographic shift on growth and public finances in Switzerland, examines the intertemporal consistency between current policy plans and unfunded liabilities, focusing primarily on social security, and explores policy options**. The main findings are as follows:

- So far, the impact of aging on the economy has been moderate. The number of pensioners has risen in recent years, but this is due mainly to early retirees taking advantage of the generous disability and pension systems. The main impact of aging will come after 2015.

- Aging is projected to reduce the annual growth rate from around 1½ percent at present to ¾ percent a year in about a decade unless structural reforms boost productivity.

- Despite having large second and third pillars, Switzerland does not appear fully prepared to meet the burden of aging. Under current policies, the first pillar of the social security system is expected to generate persistent primary deficits that would peak at 5 percent of GDP around 2035, raising debt to 250 percent of GDP. To put this challenge in perspective, an immediate but permanent fiscal adjustment of 3 percent of GDP would be needed to prevent this imbalance; the adjustment required becomes larger if corrective action is delayed.

- The debt brake rule, with focuses on the current level of federal debt and abstracts from the present value of future deficits in the general government, does not capture the full challenge of aging.

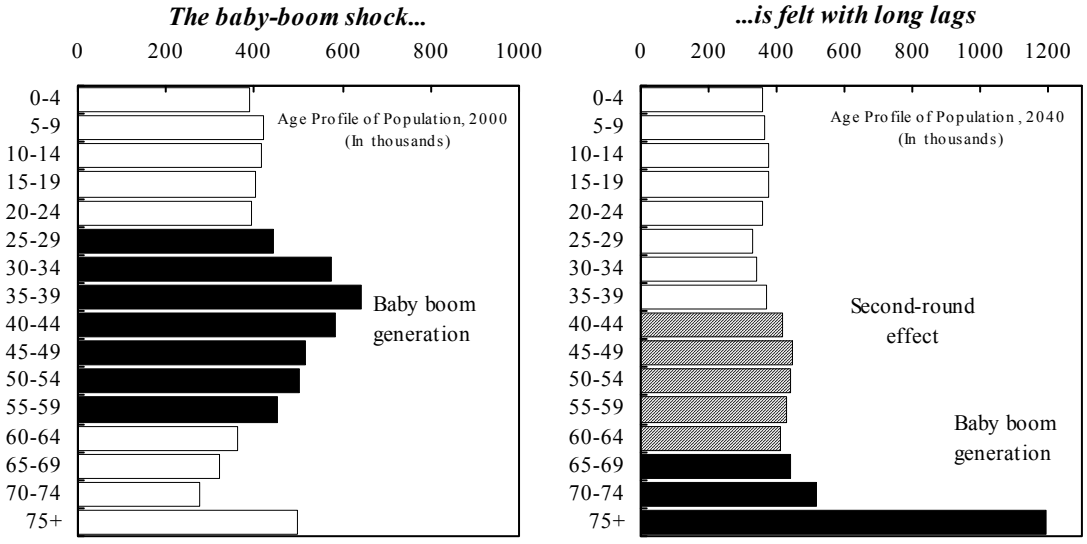
4. **The paper is structured as follows**: the next section discusses Swiss demographic developments and prospects in an international context. Section C examines the effects of

[2] To the extent that a drop in asset prices will be accompanied by higher yields, it would become more difficult to fund any fiscal deficit.

aging on growth. Section D looks at the impact of aging and moderating growth on public finances. Section E explores reform options and the need to recalibrate current policies with the long-term fiscal challenges. Section F concludes.

B. The Demographic Outlook for Switzerland in International Context

5. **Demographic developments are driven by four main elements: increasing longevity, declining fertility, bursts in immigration, and the baby-boom generation**. Life expectancy in Switzerland has increased by 9 years since 1960 and is currently second only to Japan's. Meanwhile, the fertility rate has declined to 1.5, and is in line with the European Union (EU) average (Figure I-1). Immigration has been substantial, and the share of foreign-born population has risen from 15 to 20 percent (one of the highest among industrial countries). While longer life expectancy and lower fertility have lasting effects on the population pyramid, the baby boom is a one-off shock that will eventually pass through the cohorts, although lagged effects will be visible for a long time.

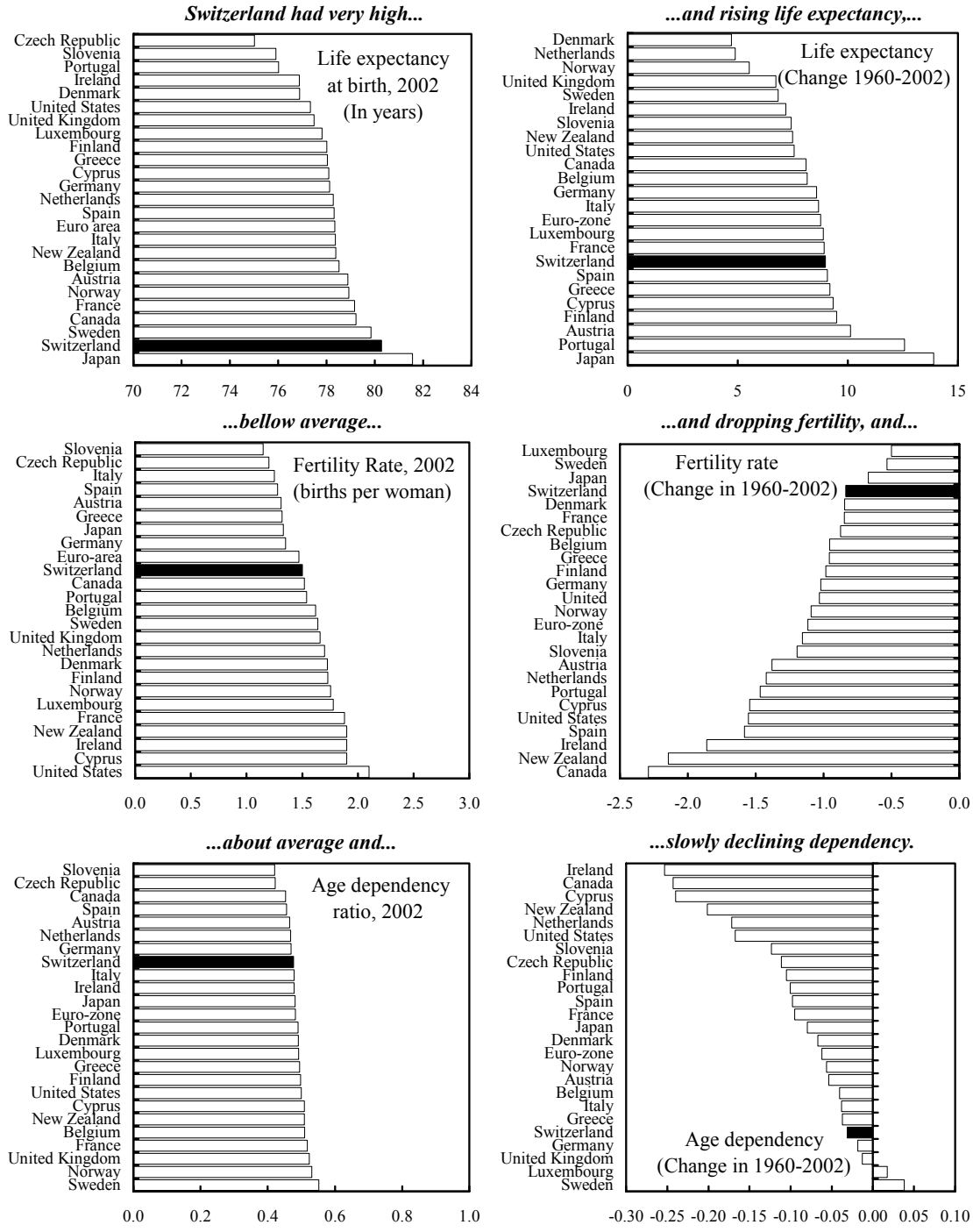


6. The main features of the Swiss demographic transition, drawing from these four elements, can be summarized as follows:[3]

- The effect of aging on the population pyramid is only now beginning to emerge, as indicated by the relatively stable share of working-age population thus far and, indeed, the small *decline* in the old age dependency ratio since 1960 (Figure I-1). The full force of aging is projected to be felt from 2015 onward.

[3] To facilitate international comparisons, the discussion in this section is based on the World Bank's multicountry population projections.

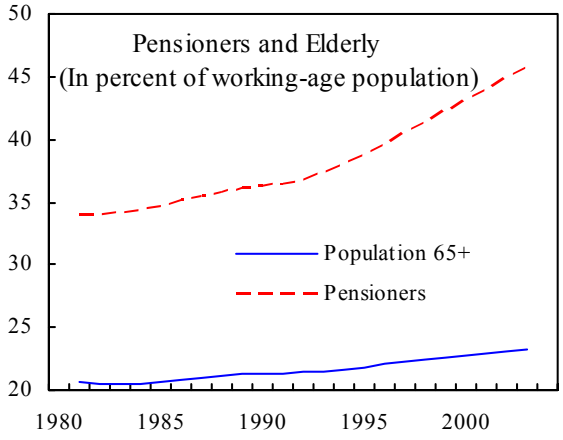
Figure I-1. Switzerland: Demographic Developments, 1960-2002.



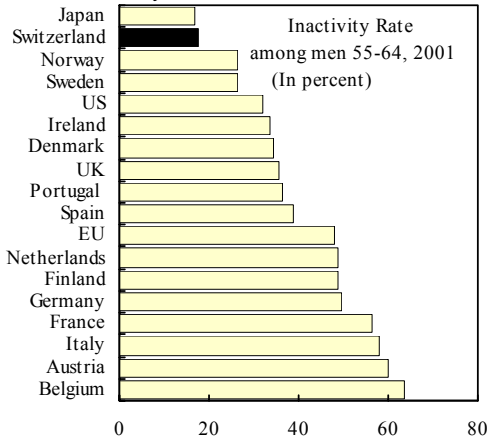
Source: World Bank Development Indicators.

- The rapid increase in the number of pensioners in relation to the working-age population has been remarkable. This is related to the increasing generosity of the social security system, *not aging itself*, and the tendency to contain long-term unemployment during the protracted stagnation of the 1990s. Since 1990, the number of pensioners increased by 35 percent while persons over 65 by only 17 percent. Still, early retirement has been less prevalent in Switzerland than in other industrial countries.

Although the number of pensioners increased faster than the number of population over 65...



...the inactivity rate in Switzerland is low by international standards.



- By 2040, the baby boomers will crowd at the top cohorts of the population pyramid and their lagged effect will be visible in the middle of the pyramid.
- The population is projected to grow until the mid-2010s and decline by a cumulative 18 percent thereafter until the end of the century.
- The effect of aging on the working-age population is pronounced: working-age population is projected to peak earlier, around 2010, and decline faster and further (by a cumulative 28 percent) than total population.

Working age population is projected to decline faster than total population.

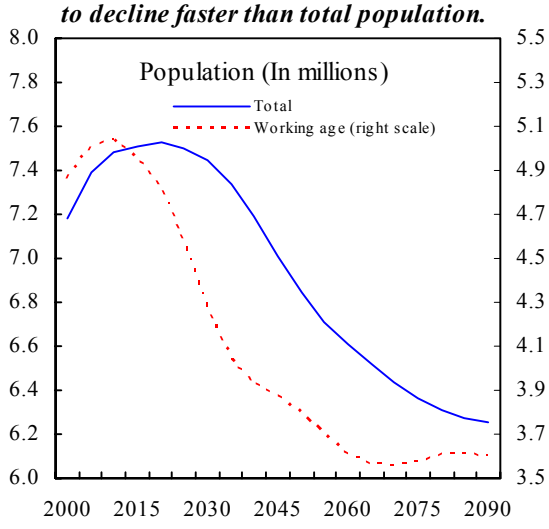
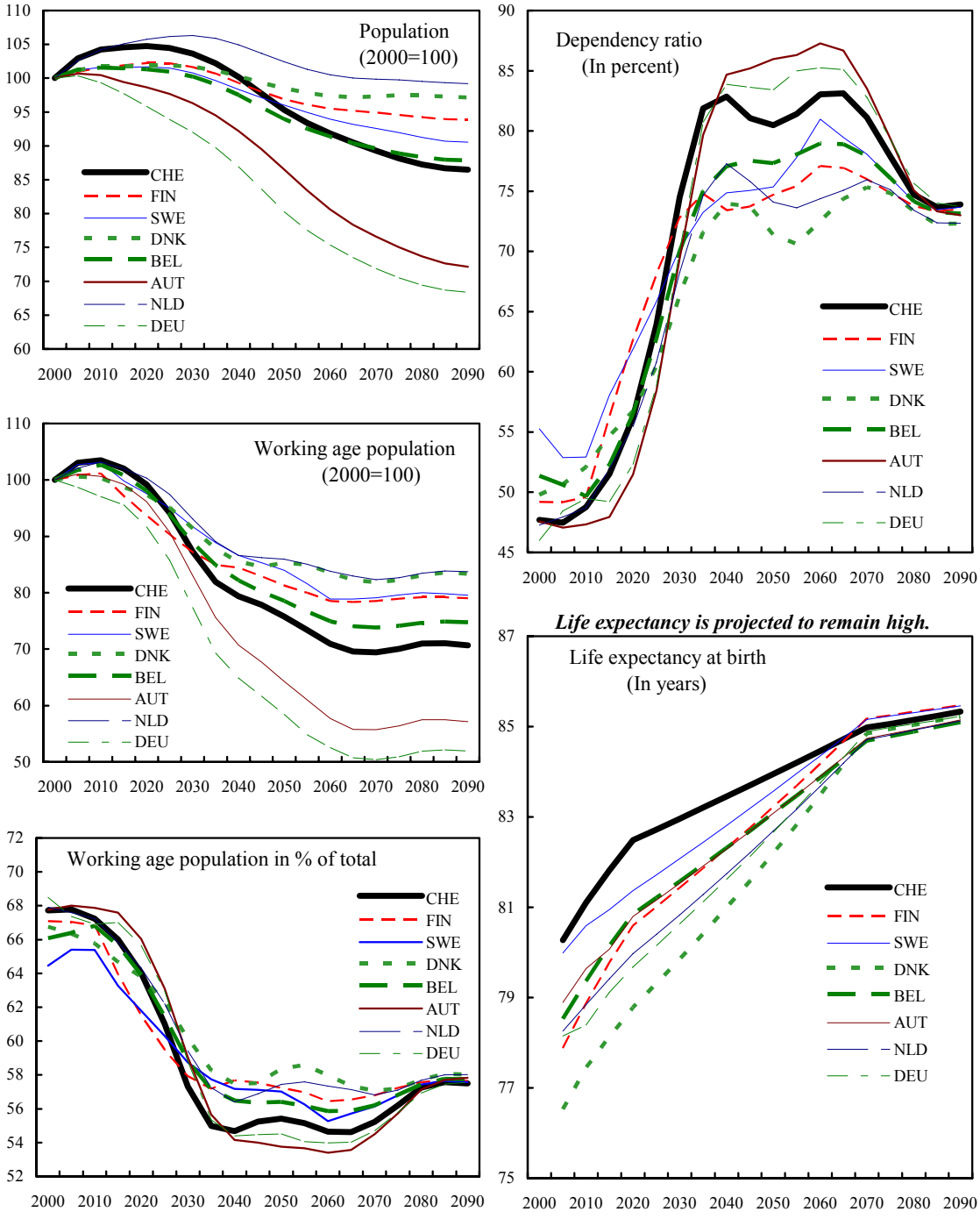


Figure I-2. Switzerland: Population Projections, 2000-90

Population is projected to age faster than in other industrial countries.



Life expectancy is projected to remain high.

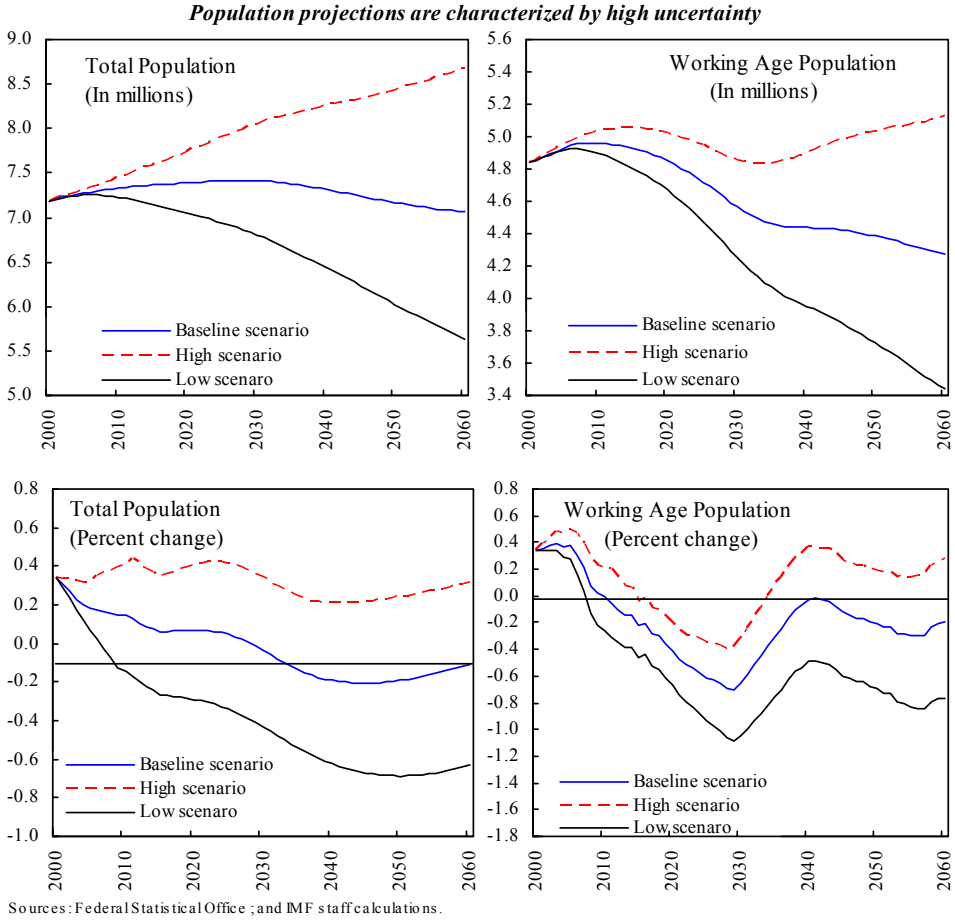
Source: World Bank, and IMF staff calculations.

- Working-age population, in percent of total population, is projected to recover after 2070, when the lagged effects of the baby-boom generation have dissipated (Figure I-2). Projections do not show an improvement in the dependency rate until after 2070.

7. **Switzerland's demographic shift resembles that of most other mature industrial economies** (Figure I-2). The population decline and the rise of the dependency rate are on the high side, but less pronounced than in neighboring Germany and Austria. Life expectancy is significantly higher than in other countries, although the gap is expected to narrow in the future.

8. **Not surprisingly, long-term demographic projections are subject to a substantial margin of error**. The postwar baby boom and the subsequent sharp decline in the fertility rate were not predicted at the time. Looking forward, it is equally difficult to extrapolate trends and current policies. One big uncertainty is the public attitude toward immigration in an environment of declining population. Reflecting such uncertainties, the range between the high and low scenarios of the Swiss Federal Statistical Office (BfS) is for population 2.2 million persons, and, for working-age population, 1.3 million persons (Figure I-3).

Figure I-3. Switzerland: Population Scenarios



Sources: Federal Statistical Office ; and IMF staff calculations.

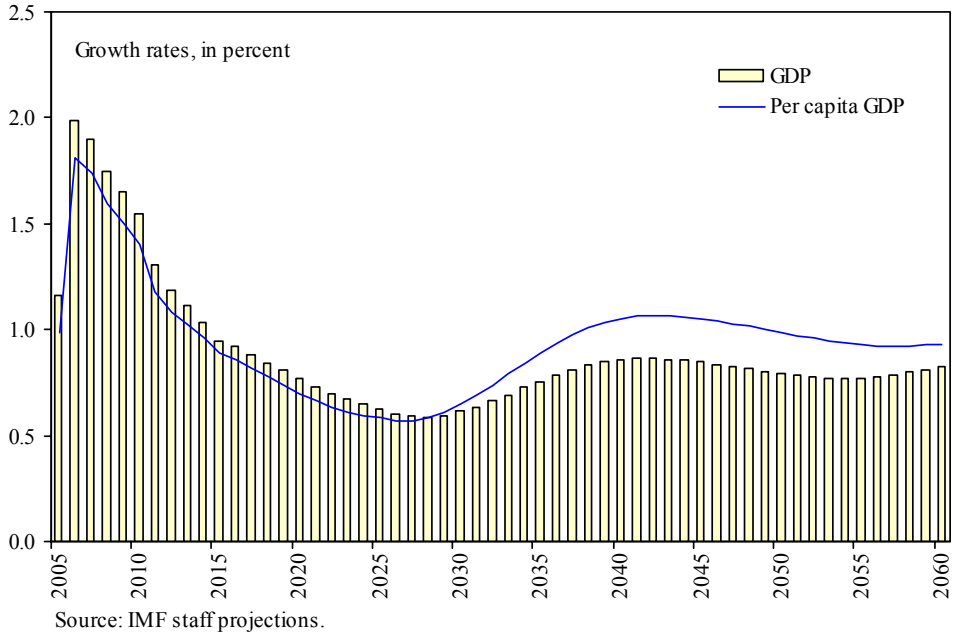
9. **The World Bank's projections are more pessimistic than those of the BFS's.** They envisage somewhat larger declines in total and working-age population. However, the time profile of population decline is broadly similar. To enter into more analytical detail, the subsequent sections of the paper use BFS's projections, which are of more recent vintage.

C. Impact of Demographic Shift on Growth: The Best Years Are Behind

Baseline Scenario

10. **Potential growth is projected to drop from 1½ percent currently to ¾ percent a year after 2020, mainly as a result of slowing labor input**. Capital deepening and technological progress are assumed to keep annual labor productivity growth just over 1 percent, close to its historic average (Table I-1). But the decline in the population and the rise in old-age dependency will reduce total hours worked and shave almost 0.2 percentage point off GDP growth. Increases in the retirement age would provide a temporary relief; participation is already high, and immigration cannot be relied on to sustain growth, given that Switzerland already has the largest share of foreigners in the population (after Liechtenstein and Luxembourg). Structural reforms could boost total factor productivity (TFP) growth, and the baseline calculations in this note assume some TFP increase as a result of reforms under way. If these reforms were to falter, however, potential growth could be lower than envisaged in the baseline.[4]

Output growth is projected to decelerate.



Source: IMF staff projections.

[4] The Swiss Economic Secretariat projects a similar pattern for growth (SECO, 2004).

11. The long-term growth outlook is based on projections for labor and capital inputs and TFP embedded in a two-factor Cobb-Douglas production function. The analytical framework of the projections is outlined in Appendix I.

12. **Labor input, the first component of growth, is projected to peak around 2020 and start declining thereafter dragging down GDP growth** (Figure I-2). Labor input is measured in hours and is calculated as the product of population, the share of working-age population, the participation rate, the employment rate, and average hours worked per employed. Population projections come from the baseline scenario of the BfS. The following are assumed for each component:

- **Population** will start declining around 2025 when the dynamics become dominated by the declining Swiss population. Total population is projected to decline by a cumulative 2.8 percent between 2005 and 2060, despite a 9 percent increase in immigration. The share of foreigners will rise from 20 percent to 22.8 percent over this period.

- With declining fertility and rising life expectancy, the **share of working-age population** is projected to decline from 68 percent to 61 percent between 2005 and 2060, exacerbating the decline in population.

- The **participation rate** is projected to rise further as women continue to take up work and early retirement dissipates. However, increases are likely to be smaller than in other OECD countries since the Swiss participation rate is already one of the highest in the group. In any case, the increases should be strong enough to offset the effect of aging for the next few years. But after 2010, no further contribution from the participation rate is expected and, as result, the labor force will start declining.

- The **employment rate** is projected to increase over the next few years, in tandem with the decline of unemployment toward the NAIRU, which is estimated at 2.3 percent. With both unemployment and NAIRU already low by international standards, the rise in the employment rate is expected to be limited. An increasing preference for semiretirement and a rising effective retirement age could, however, raise the employment rate.

- **Average hours worked per employed** have been declining since 1970 as a result of more holidays, shorter workweeks and rising part-time employment. This shortening of the workweek may now have reached a limit. Part-time employment is expected to continue expanding as more women enter the labor force, the elderly move into semiretirement, and enterprises rely increasingly on flexible employment arrangements to utilize labor better. As a result, the ratio of hours worked per full-time employee to hours worked per part-time employee is projected to rise slightly. The net effect of these factors is a small further decline in average hours until 2020 and constant hours thereafter.

13. **Capital accumulation affects growth via its impact on capital deepening**. Capital input is measured as the product of capital stock (excluding residential structures) times its utilization rate. Capital stock projections are based on a constant real investment rate of 18 percent of GDP and a depreciation rate of 5 percent, both of which correspond to their averages over the past 15 years. The investment rate does not affect the steady state GDP growth rate; however, it affects the trajectory on which the economy is approaching the steady state. In particular, the growth rate of the capital-labor ratio eases, driving down the growth rate of labor productivity to 1 percent (Table I-1).

14. **Total factor productivity, the third component of growth, is assumed to grow by just under 1 percent a year over the projection period and is the main contributor to long-term GDP growth**. Despite a small increase since the mid-1990s, Swiss TFP growth remains the lowest among OECD countries. Production function estimates suggest that TFP growth was 0.5 percent a year in 1970-81, 0.4 percent in 1982-94, and 0.9 percent in 1995-2004.

15. **The risks to the TFP growth scenario appear balanced**. On the downside, aging may depress TFP growth as older societies could be less innovative and flexible; moreover, the expansion of the services sector (especially elderly care) could slow overall productivity growth. On the upside, the bilateral agreements with the EU, the opening up of the domestic sheltered sectors, and a delayed productivity response to information technology investments would be beneficial for growth.[5] Moreover, structural reforms could raise TFP growth permanently by making the environment more conducive to innovation.

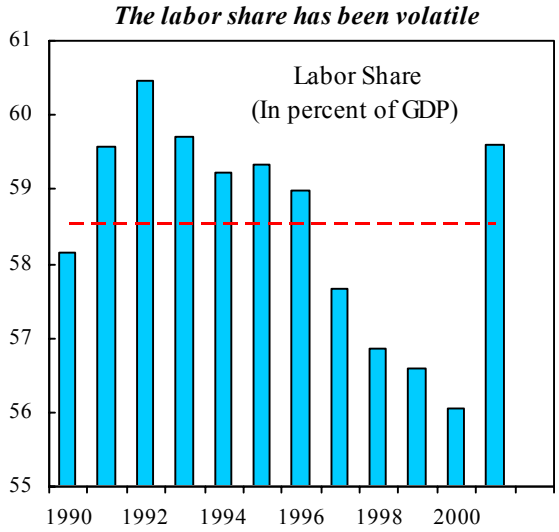
[5] Product market reforms could add ½ percentage point to growth in the medium term: Gagales (2002) estimates that reducing markups to the OECD average could boost productivity growth by 0.1-0.3 percentage point. The OECD (2002) estimates an even stronger effect (a cumulative increase of 4-7 percent of GDP over a ten-year period) from the liberalization of the health, agriculture, electricity, and gas sectors. These results are confirmed by growth regressions, which suggest that, had Switzerland pursued structural reforms more vigorously and maintained its relative rank in terms of market openness, average annual growth could have been ½ percent faster over a five-year period.

Table I-I. Switzerland: Long-Term Growth and its Determinants

	1970-79	1980-89	1990-99	2000-04	2005-09	2000-09	2010-19	2020-29	2030-39	2040-49	2050-59	1970-2009	2010-59
	(Annual rates of change, in percent)												
GDP growth	**0.9**	**2.1**	**1.1**	**1.3**	**1.7**	**1.5**	**1.1**	**0.7**	**0.7**	**0.8**	**0.8**	**1.4**	**0.8**
Labor productivity	**1.4**	**1.0**	**0.9**	**1.4**	**1.3**	**1.3**	**1.2**	**1.2**	**1.1**	**1.0**	**1.0**	**1.2**	**1.1**
TFP growth	0.4	0.2	0.4	0.7	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.4	0.7
Capital deepening	1.1	0.8	0.5	0.6	0.4	0.5	0.5	0.5	0.4	0.3	0.3	0.7	0.4
Total hours worked	**-0.6**	**1.1**	**0.1**	**-0.1**	**0.4**	**0.1**	**-0.2**	**-0.5**	**-0.3**	**-0.2**	**-0.2**	**0.2**	**-0.3**
Hours worked	**-0.4**	**-0.7**	**-0.4**	**-0.8**	**-0.3**	**-0.5**	**-0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**-0.5**	**0.0**
Hours per full-time employee	-0.1	-0.4	0.0	-0.4	-0.2	-0.3	-0.1	0.0	0.0	0.0	0.0	-0.2	0.0
Hours per part-time employee	-0.1	-0.4	0.0	-0.4	-0.1	-0.2	0.0	0.1	0.0	0.0	0.0	-0.2	0.0
Share of part-time employment	2.6	1.9	2.0	1.5	0.6	1.1	0.4	0.2	0.0	0.0	0.0	1.9	0.1
Employment growth	**-0.1**	**1.8**	**0.5**	**0.7**	**0.7**	**0.7**	**0.0**	**-0.5**	**-0.3**	**-0.2**	**-0.2**	**0.7**	**-0.2**
Unemployment, change	0.0	0.0	-0.2	-0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
Participation rate	-0.5	0.9	0.2	0.5	0.4	0.4	0.2	0.1	0.0	-0.1	0.0	0.3	0.0
Activity rate	0.2	0.3	-0.2	0.1	0.0	0.1	-0.3	-0.6	-0.2	0.1	-0.1	0.1	-0.2
Population	0.2	0.5	0.7	0.3	0.2	0.2	0.1	0.0	-0.1	-0.2	-0.2	0.4	-0.1
Memorandum items:													
Per capita real GDP growth	0.7	1.6	0.3	0.9	1.5	1.2	1.0	0.6	0.9	1.0	0.9	1.0	0.9
Capital-output ratio, level	2.2	2.4	2.7	2.9	2.8	2.8	2.9	3.1	3.1	3.1	3.1	2.6	3.1
Capital-output ratio, rate of change	3.2	0.9	1.3	0.8	0.0	0.4	0.3	0.4	0.1	0.0	0.0	1.4	0.2
Capital-labor ratio, rate of change	3.7	2.9	1.7	2.2	1.2	1.7	1.5	1.6	1.2	1.0	1.1	2.5	1.3
Depreciation rate	3.9	4.0	4.6	4.8	4.9	4.9	5.0	5.0	5.0	5.0	5.0	4.3	5.0
Investment rate	15.1	15.9	18.0	18.8	18.4	18.6	18.0	18.0	18.0	18.0	18.0	16.9	18.0
Unemployment rate	0.2	0.6	3.0	2.5	3.3	2.9	2.3	2.3	2.3	2.3	2.3	1.7	2.3
Participation rate	79.4	80.1	86.8	87.4	89.2	88.3	90.7	91.6	92.2	91.7	91.6	83.7	91.5
Activity rate (=1-dependency rate)	65.4	68.1	67.9	67.5	67.9	67.7	67.0	64.0	60.9	61.1	61.0	67.3	62.8

Sources: Federal Statistical Office; OECD; and IMF staff calculations.

16. **The labor elasticity of output in the Cobb-Douglas production function is set at 70 percent**.[6] This econometric estimate exceeds the national accounts estimate of labor share of 58 percent. The most likely explanation is the presence of monopolistic conditions, which introduce a wedge between price and marginal cost. As shown in Hall (1988), the labor elasticity of output can be expressed as the product of the labor share times a markup.[7] The latter is around 20 percent, which is reasonable given the pervasiveness of sheltered sectors and the tendency of Swiss firms toward niche markets. The possibility that part of labor income from self-employment in the national accounts is classified as capital income may also have contributed to the wedge between labor elasticity and labor share.



How Robust is The Baseline Growth Scenario?

17. **Long-run GDP growth is driven by three parameters**: growth in hours worked ($\hat{H}$), TFP growth ($\hat{A}$), and the labor elasticity of output (θ). They are related to GDP growth ($\hat{Y}$) through the equation $\hat{Y} = \hat{H} + (1/\theta)\,\hat{A}$ (see Appendix I). In the baseline scenario with TFP growth and labor elasticity each equal to 0.7, labor productivity grows by 1 percent a year; with population and, thus, hours declining by 0.2 percent a year, average GDP grows by 0.8 percent over the period 2010–60. To gauge the robustness of the baseline scenario, several alternative scenarios are described below. These suggest that the long-run average growth rate of real GDP could vary between 0.5 percent and 1.2 percent a year, with the

[6] The Cobb-Douglas production function fitted the data (1972–2004) reasonably well but the estimated parameters were not very precise. The confidence interval for the labor elasticity of output ranged from 60 to 90 percent but estimates across alternative specifications were centered on 70 percent.

[7] Euler's theorem for homothetic functions implies that, in the case of Cobb-Douglas production functions, labor elasticity is equal to $\theta=(w\cdot L)/(c\cdot Q)$, where w and c stand for the wage rate and the marginal cost (the latter equals price in perfect competition). If market power introduces a wedge between the price of output and its marginal cost, $1+\mu = p/c$, then $\theta=S_L\cdot(1+\mu)$, where $S_L=(w\cdot L)/(p\cdot Q)$ is the estimate of the labor share in the national accounts.

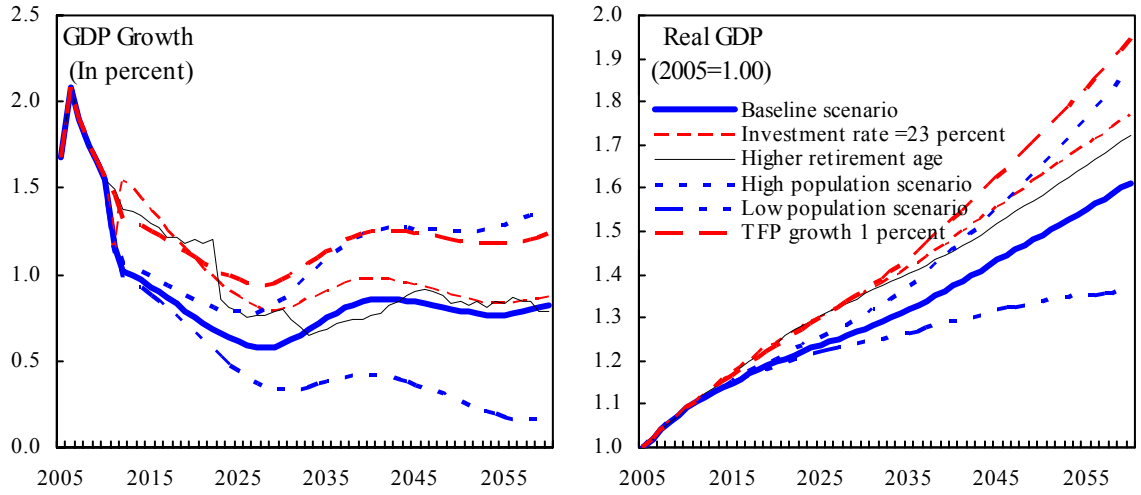
lower bound reflecting the lower-population growth scenario, and the upper bound reflecting the potential impact of reforms on TFP growth.

18. **An increase in the retirement age by 3 years postpones the time when the labor force starts declining**. Such an increase, which is assumed to be phased in over a period of 12 years, does not affect the long-term growth rate but raises the level of GDP by 7 percentage points by 2060 (0.1 percent additional growth a year on average). An increase in the retirement age of 3 years would only partially offset the rise in life expectancy over the past 30 years and its prospective increase over the next 20 years.

Table I-2. Switzerland: Alternative Growth Scenarios

	2010-19	2020-29	2030-39	2040-49	2050-59	2010-59
	(Annual average GDP growth rates, in percent)					
Baseline scenario	1.0	0.6	0.7	0.8	0.8	0.8
Low population growth	1.0	0.5	0.4	0.4	0.2	0.5
Retirement age raised by 3 years	1.3	0.9	0.7	0.8	0.8	0.9
Investment rate raised from 18 to 23 percent	1.3	0.9	0.9	0.9	0.8	1.0
High population growth	1.1	0.8	1.1	1.3	1.3	1.1
TFP growth raised from 0.7 to 1 percent	1.3	1.0	1.1	1.2	1.2	1.2

Source: IMF staff projections.

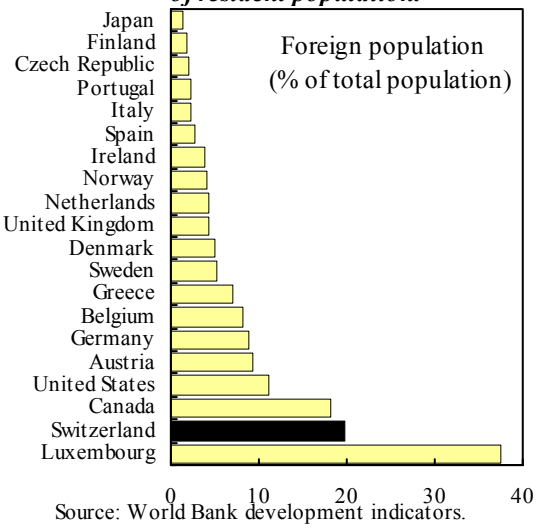


19. **The investment rate affects the *level* of the GDP trajectory but not its long-run *growth rate*.** Nevertheless, a higher level is important for fiscal sustainability because it reduces fiscal imbalances in flow terms. If as a result of reforms that make Switzerland more attractive as a business location, the investment rate increases by 5 percentage points over its baseline of 18 percent, the level of GDP would be higher by 10 percentage points by 2060. Average growth would be 1.0 percent a year, compared with 0.8 percent in the baseline.

20. **The forecast is sensitive to assumptions on TFP growth**. Raising TFP growth by 0.3 percentage point raises GDP growth by 0.4 percentage point (from an average of 0.8 percent a year in the baseline to an average of 1.2 percent a year). This "magnifies" growth by a factor of *(1/θ)* because higher TFP growth raises the steady state capital/labor ratio and, through this channel, adds an additional 0.1 percentage point to labor productivity growth.

21. **The "high" population scenario would raise average growth in 2010-2060 from 0.8 to 1.1 percent; the "low" population growth scenario would reduce it to 0.5 percent**. An important ingredient of this projection is immigration, which is assumed to continue until 2020 and raise the share of foreigners from 20 to 23 percent. With the opening up of the labor market in 2003 under the bilateral agreements with the EU, immigration would be governed by relative labor market conditions and transaction costs. Moreover, the public could become less skeptical about the size and costs of immigration once the working-age population starts declining.

Foreigners constitute a large portion of resident population.



Source: World Bank development indicators.

22. **The above projections abstract from interactions among growth, the fiscal situation, and policies.** For example, if along any of these paths public debt reaches a level that makes investors uncomfortable, credit ratings could suffer and interest rates rise, exacerbating the pressure on public finances. As a result, investment and growth would also suffer. Policies can also affect behavior and distort choices. For example, to improve the fiscal situation the authorities may need to raise taxes, which could discourage work and capital accumulation and reduce growth. These important considerations can be analyzed properly only in connection with very specific policy proposals, which is beyond the scope of this paper.

D. Impact of Demographic Shift on Public Finances: Pressures Likely to Intensify

Current Fiscal Situation

23. **The social security system has come under increasing pressure** because of population aging, the growing generosity of the pension system, and the rapid increase in the costs of health care:

- The **first pillar** of the pension system—combining old-age and survivor pensions (AHV) and disability pensions (IV)—has been running deficits, notwithstanding a revenue injection from an earmarked value-added tax (VAT) increase. Indeed, the deficit has more than doubled in percent of GDP since the beginning of the 1990s and is projected to reach 2.7 percent of GDP in 2005 (Table I-3). [8] The main reason for this deterioration has been the greater propensity for early retirement and disability pensions allowed by the generosity of the system. Population aging by itself has not yet had a large impact on the pension system.

- **Health care** expenditure has been rising rapidly, but the impact on public finances so far has been tempered by the increase in co-payments, which have risen to an effective rate of nearly 13 percent of household expenditure from 7½ percent in the early 1990s. Public expenditure for health care, which mainly takes the form of subsidies to low-income households (KV) and hospitals, is projected to reach 2.8 percent of GDP in 2005.[9]

24. **To offset these deficits, the general government has been running large primary surpluses before transfers to social security**. In 2000–05, the primary surplus before transfers to social security averaged 6 percent of GDP resulting in an overall primary surplus of 0.6 percent of GDP (Table I-3).

25. **With gross debt at 56 percent of GDP (50 percent in net terms) and end-2004, Switzerland is no longer a low debt country.**[10] Despite repeated consolidation efforts at all levels of government, the debt ratio has nearly doubled since the early 1990s as the very low nominal GDP growth has led to unfavorable debt dynamics.

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[8] The primary deficit of social security is defined as the difference between noninterest expenditure and revenue from contributions, co-payments, and earmarked taxes. It is financed with subsidies from the federation and the cantons, plus a run-down of assets.

[9] For a detailed discussion on the growing costs of health care, see Chapter II on "The Need for Health Care Reform."

[10] The proceeds from the sale of excess gold reserves that were transferred to the federation and cantons in 2005 could reduce public debt by up to 4.6 percent of GDP.

Table I-3. Switzerland: Fiscal Accounts, 1990-2005

	1990	1995	2000 1/	2005 2/	2000-05
	(In billions of Swiss francs)				
Overall balance	**-0.7**	**-8.0**	**9.1**	**-6.6**	**...**
Interest service, net	-3.6	-6.5	-6.9	-6.8	...
Overall primary balance	2.8	-1.5	16.0	0.2	...
Primary balance, excl. transfers to social security 3/	13.6	15.8	36.0	25.7	...
Social security primary balance 4/	-10.8	-17.3	-20.0	-25.4	...
Old age and disability pensions (first pillar)	-4.0	-9.3	-10.3	-12.4	...
Health care 5/	-6.8	-8.0	-9.7	-13.0	...
	(In percent of GDP)				
Overall balance	**-0.2**	**-2.1**	**2.2**	**-1.4**	**-0.9**
Interest service, net	-1.1	-1.7	-1.7	-1.5	-1.6
Overall primary balance	0.9	-0.4	3.8	0.1	0.6
Primary balance, excl. transfers to social security 3/	4.2	4.3	8.7	5.6	6.0
Social security primary balance 4/	-3.3	-4.6	-4.8	-5.6	-5.4
Old age and disability pensions (first pillar)	-1.2	-2.5	-2.5	-2.7	-2.7
Health care 5/	-2.1	-2.1	-2.3	-2.9	-2.7
Memorandum items:					
Nominal GDP, in SwF billions	327.6	372.3	415.5	455.2	...
Gross debt	29.9	45.8	49.9	50.6	...

Sources: Federal Finance Administration; and IMF staff calculations.

1/ The balance in 2000 was buoyed by temporary strong stamp duty revenues, estimated at about 1 percent of GDP.

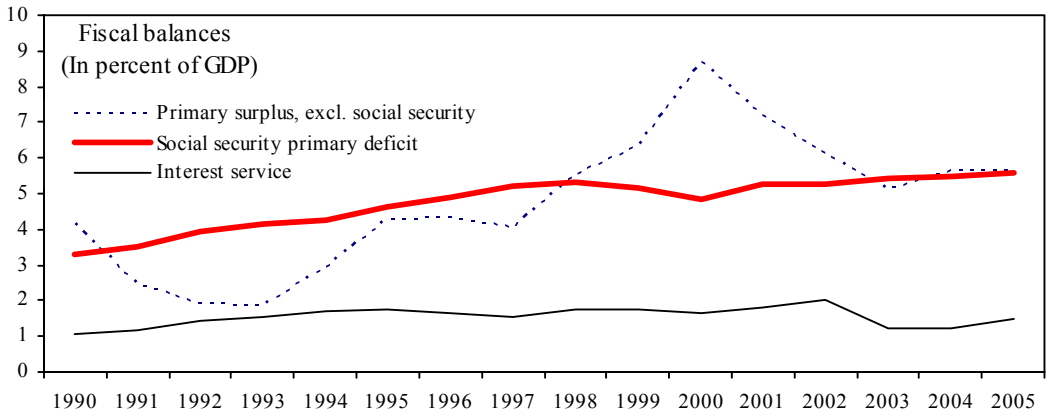
2/ The proceeds from the gold sale (4.6 percent of GDP) that were transferred in 2005 to the federation and the cantons are excluded from revenue but are assumed to be applied toward debt reduction in that year.

3/ Includes the federation, cantons and communes.

4/ Includes revenue from earmarked taxes and contributions but excludes net interest revenue and transfers from the federation and cantons. Excludes also transfers to unemployment insurance (ALV).

5/ Comprises the operational balance of health insurers (KV) and budgetary subsidies to hospitals.

The deficit of social security has been trending upwards.



Long-Term Fiscal Outlook

26. **Under current policies, aging is projected to raise the fiscal deficit and public debt to unsustainable levels.**[11] By 2040, the social security primary deficit is projected to have deteriorated by 5½ percentage points of GDP from its current level (Figure I-4). Subsequently, the deficit is projected to decline slightly as an improvement in the position of the first pillar should more than offset the steadily widening deficit in health care. Throughout the projection period, only a small part (½ percent of GDP) of the increase in the primary deficit of social security will be offset by the primary surplus in general government. As a result of the widening overall primary deficits, the public debt ratio is projected to reach 265 percent of GDP and the overall deficit 10 percent of GDP in 2060, even under the technical (and untenable) assumptions of unchanged interest rates and an unimpaired credit rating.[12] The present value of future primary deficits is equivalent to 170 percent of GDP.

[11] The projections incorporate, in addition to the aging-related assumptions outlined in Section I-C, the following assumptions:

- The nominal interest rate is set at 0.4 percentage point over nominal GDP growth, the average differential in the past 20 years.
- The general government runs a structural primary surplus (excluding transfers to the first pillar and health care) of 6 percent of GDP, its level at the base year of the projections adjusted for the effect of ongoing fiscal consolidation measures.
- Benefits in the first-pillar pension system grow at half the rate of productivity growth and the incidence of early retirement and disability declines after 2015 (Appendix III).
- In health care (Appendix IV), expenditure on health per insured person (deflated by GDP) grows faster than productivity, reflecting (i) a unitary income elasticity of health care demand; (ii) health care costs that grow at a faster pace than inflation; and (iii) the increasing share of elderly in the population (evidence from other industrial countries suggests that the health care expenditure of persons in the 75+ and 55-74 age cohort are, respectively, about four and two times higher than the expenditure of persons in the 0-54 cohort). These assumptions are considerably more optimistic than the baseline projections on health expenditure presented in the accompanying health care chapter. Underpinning these assumptions is the assessment that the rapid increase so far reflects the transition to a new, more technologically intensive environment, and the expectation that benefits from the bilateral agreements with the EU and further progress in strengthening competition will temper price increases in the health care sector. Nevertheless, a more difficult outcome cannot be excluded.

[12] A discussion of the concept and measurement of fiscal sustainability can be found in Appendix II.

This implicit and yet unfunded liability would be additional to the already existing registered net public debt of 45 percent of GDP (including the proceeds from the gold sale).

Present Value of Primary Balances
(In percent of GDP)

Primary balance of gen. government excl. soc. Security (baseline scenario)	-30
Old Age and Survivor Pensions, AHV	81
Disability Pensions, IV	62
Health Insurance, KV, plus hospitals	56
Total	**170**

27. **The fiscal adjustment needed to reverse the projected deterioration is large**. To restore the net debt position to 45 percent of GDP by 2060, the general government would need to raise permanently as from 2007 its primary surplus to 4⅓ percent of GDP (Figure I-5), which would imply an overall surplus of the general government of 1.7 percent of GDP on average in 2007–20. This would be equivalent to raising the basic VAT rate by 5½ percentage points to 13 percent,[13] increasing income tax revenue by 35 percent, cutting consolidated government expenditure by 9½ percent across the board, or raising contribution rates by 6⅓ percentage points.[14] Other measures—for instance, raising the effective retirement age, reducing the indexation of pensions, and better linking pension benefits to lifetime earnings—would reduce the magnitude of the required fiscal adjustment.

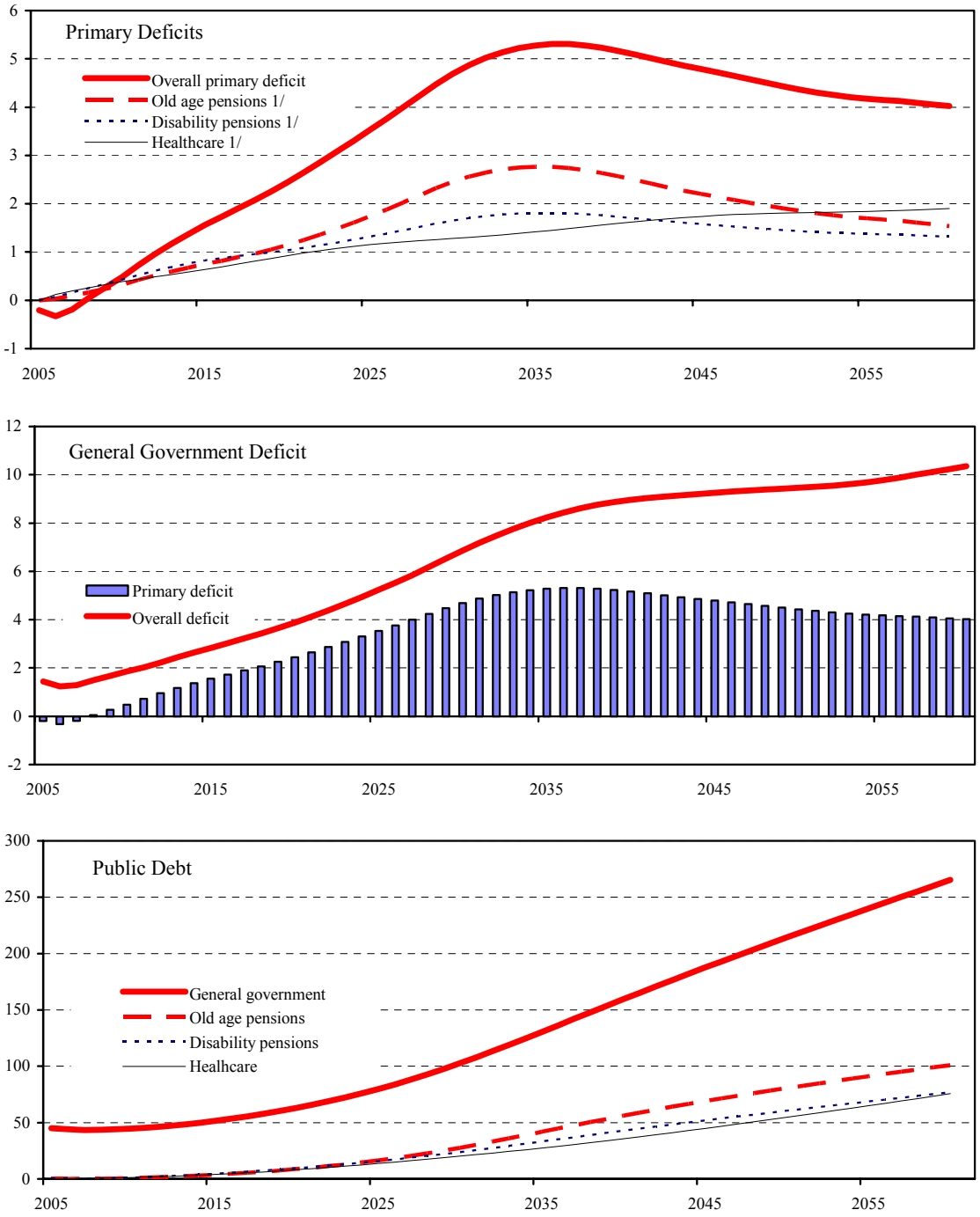
28. **The use of GNP rather than GDP as the scale factor does not alter the assessment that the required adjustment is large**. The point is made that Switzerland has a very large current account surplus in factor services—currently about 9 percent of GDP—that is captured by GNP rather than GDP (e.g., Kohli, 2004, 2005). However, even if this surplus were all part of Swiss private income, it would not be a source of social security contributions. Moreover, being very mobile internationally, these assets are not likely to be available as a tax base to fund the public part of social security and would therefore not alleviate public finance pressures.

29. **Delaying the adjustment would necessitate a larger fiscal adjustment in the future**. A delay of, say, ten years would mean that the adjustment in the primary balance would have to be raised by 0.9 percentage point of GDP in order to offset the additional debt that would have accumulated during the delay (Figure I-5). Correspondingly, the VAT rate that would restore fiscal sustainability would need to raise to 14.2 percent (1.2 percentage points higher than in the previous scenario). There is a limit to the trade-off between the timing and the size of the adjustment: the fiscal adjustment should take place before debt reaches a level that starts making financial markets uncomfortable.

[13] The authorities recently proposed a phased rise in the VAT rate of a cumulative 2.5 percentage points, but this was rejected in a referendum.

[14] These calculations abstract from the adverse effects that such a fiscal measures would have on output.

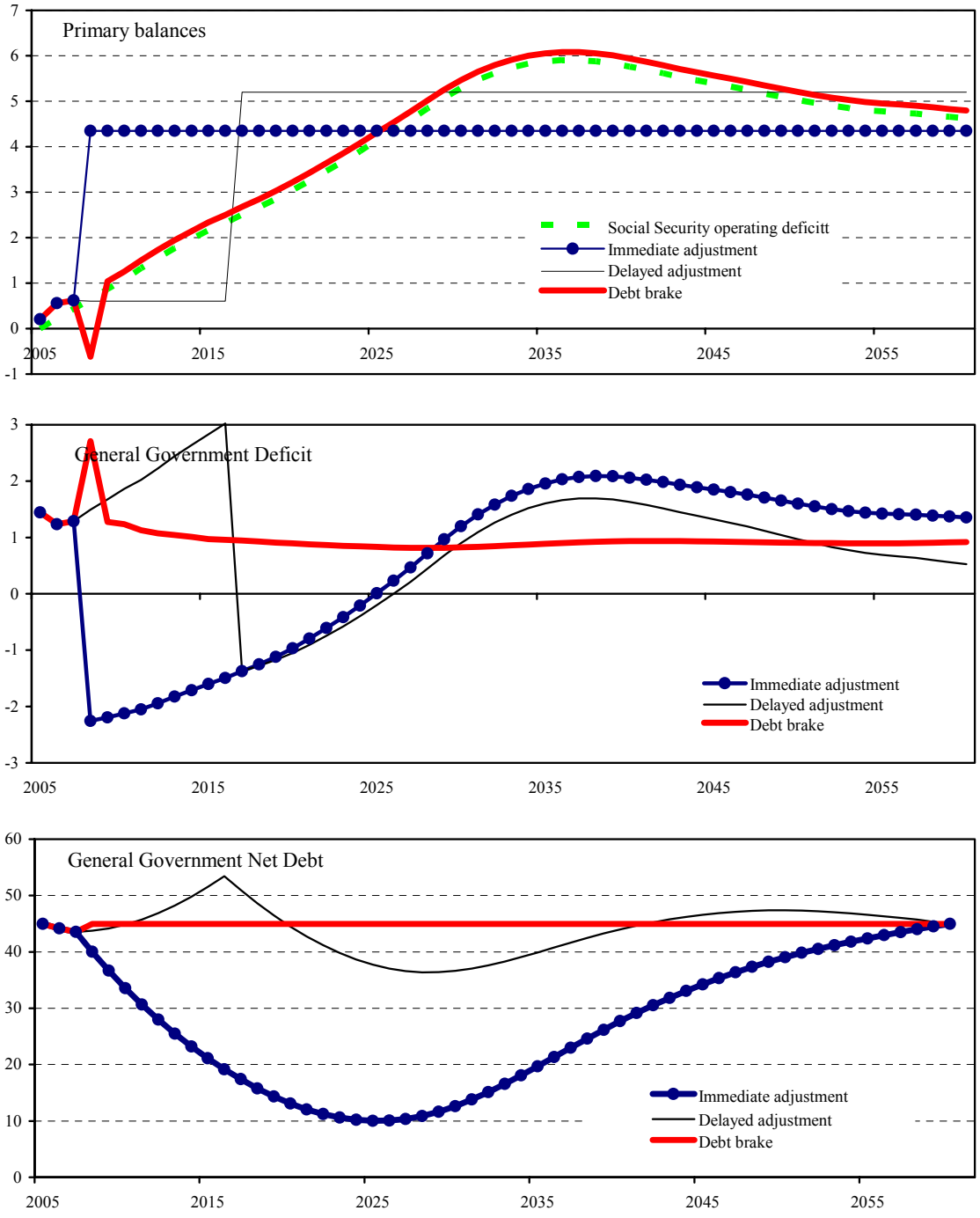
Figure I-4. Switzerland: Debt Dynamics, 2005-60
(In percent of GDP)



Source: IMF staff calculations.

1. Change since 2005.

Figure I-5. Switzerland: Adjustment Scenarios, 2005-60
(In percent of GDP)



Source: IMF staff calculations.

30. **The debt-brake rule is helpful, but even if applied at the level of the general government it would not prevent a painful adjustment**.[15] To stabilize the debt ratio at its present level requires the general government (excluding social security) to run growing primary surpluses to offset the growing operating deficit of social security: by 2035, the primary surplus would need to rise by 6 percent of GDP above its current level (Figure I-5).

How Robust Is the Baseline Fiscal Scenario?

31. **The conclusion that the required fiscal adjustment is substantial is robust, notwithstanding uncertainty about several key parameters**.

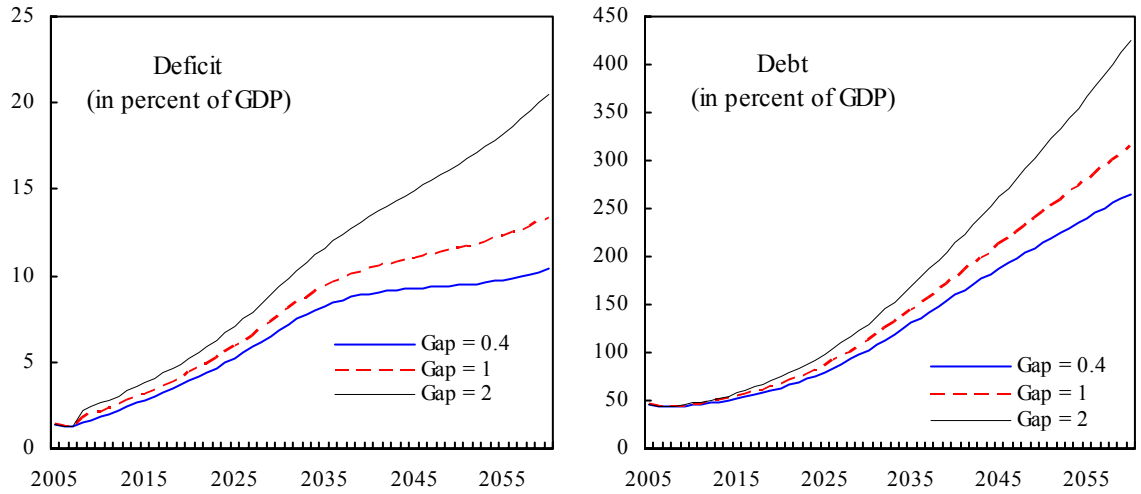
- **Public debt.** Contingent liabilities related to guarantees for certain pension funds could add 5-10 percentage points to the debt ratio. However, privatization revenue could offset some of these additional liabilities. Moreover, proceeds from the sale of the gold reserves could be used to lower debt.[16] This paper assumes that all the proceed (4.6 percent of GDP) are used for this purpose.

- **Discount factor.** Any forecast of the differential between the interest rate and nominal growth 50 years hence is little more than an educated guess. A higher differential would raise the debt service and thus accelerate the timing and the magnitude of the adjustment. It would also lower growth. At the same time it would ease, in present value terms, the fiscal burden since future deficits would be discounted at a higher rate. In the baseline scenario, raising the differential between the interest rate and nominal GDP growth from 0.4 to 1 percent over the projection period (but keeping the path of output growth unchanged), reduces the required (instantaneous) increase in the primary surplus from 3.7 to 3.9 percent of GDP. It also

[15] The debt-brake rule, which was introduced in 2002 in response to the doubling of federal debt in the 1990s, requires the federal accounts to be in balance after adjusting for the business cycle. In operational terms, expenditure is set equal to projected cyclically-adjusted revenue. Unanticipated deficits must be reversed in the following years. The ceiling under the debt-brake rule can be over-ridden in exceptional circumstances if supported by a majority of members in both chambers of parliament. This was done in 2004, when loans to the Unemployment Insurance (ALV) were excluded from the ceiling under the debt-brake rule in an effort to allow automatic stabilizers to operate fully.

[16] Between May 2000 and March 2005, and in coordination with the ECB and European national central banks, the SNB sold 1,300 tons of gold raising SwF 21 billion or 4.6 percent of GDP. The parliament has decided to allocate ⅓ of these proceeds to the federal government and ⅔ to the cantons.

raises eventually the deficit and the public debt would exceed 10 and 300 percent of GDP, respectively.



- **Pensions.** The calculations are sensitive to the incidence of early retirement and indexation rules. Critical aspects are the ratio of the average pension to the average productivity of labor and the indexation rule.

- **Health care.** The scenarios are sensitive to the income elasticity of demand and the differential between health care and overall inflation. The companion paper on health care (Chapter II) models the incidence of health care subsidies that would be required for low-income families; it projects that, on the basis of unchanged policies and past trends, public subsidies could grow by 8 percentage points of GDP through 2050.

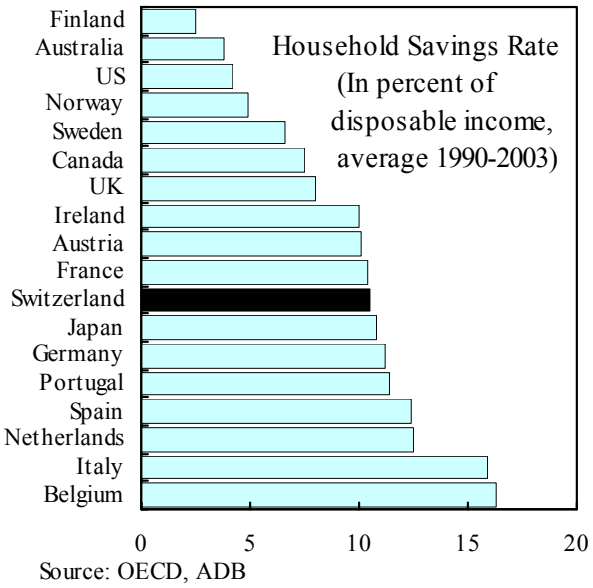
- **Primary structural surplus.** If the primary surplus turns out to be lower than the baseline estimate of 0.4 percent of GDP, the size of the fiscal adjustment would need to be raised accordingly.

- **Underfunding in the second pillar, especially in defined-benefit plans.** This could burden public finances via explicit and implicit public guarantees to the second pillar and demands on the social safety net. Barring a financial meltdown, the fiscal implications from underfunding in the second pillar are generally expected to be of second-order importance relative to the prospective problems in the first pillar and health care.

E. Some Policy Options

32. **Switzerland has substantial funding in its second and third pension pillars and is better prepared than many other countries; nevertheless, the aging challenge is significant**. The outlook for the financial cost of aging is comparable to that for other industrial countries.[17] However, Switzerland may have more degrees of freedom to address the problem since (i) its first pillar accounts for only 40 percent of pensioners' income; (ii) the fully funded second pillar accounts for 30 percent of pensioners' income [18] and had accumulated assets worth 107 percent of GDP in 2003;[19] and (iii) the thrifty Swiss households save about 10 percent of their disposable income and also have accumulated significant private assets.

Swiss households are thrifty.



Source: OECD, ADB

33. **The projections suggest two policy inconsistencies.** The social security system does not have enough resources to honor its promises to future generations and the current fiscal stance, barring corrective measures, is inconsistent with long-run fiscal sustainability. Meeting the challenge of population aging requires corrective measures in three areas: benefits rationalization, structural reforms to boost growth, and fiscal adjustment. Given the size of the problem, any viable solution would probably require a combination of these ingredients.

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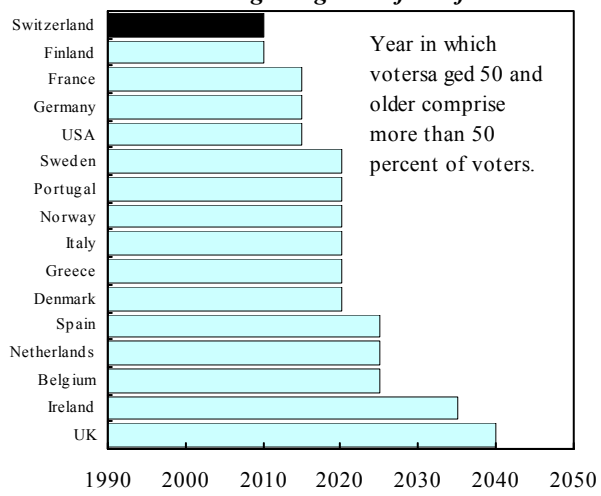
[17] See Kraemer (2005), European Commission (2002), Frederiksen (2001) and recent IMF staff reports, for instance, Country Report 05/36 for Finland.

[18] This compares with 40 percent in the Netherlands, 25 percent in the United kingdom, 13 percent in the United States, and only 5 percent in Germany. See Deutsches Institut für Altersvorsorge (http://www.dia-vorsorge.de).

[19] This compares with 95 percent in the United Kingdom, 84 percent in the United States, 7 percent in Germany, 5 percent in France, and 4 percent in Austria. See Deutsches Institut für Altersvorsorge (http://www.dia-vorsorge.de).

34. **With respect to the first area, benefits rationalization, generous pension benefits need to be recalibrated and made contingent on life expectancy.** This would entail removing incentives for early retirement, creating incentives to work longer, aligning the statutory retirement age with the rising life expectancy, reducing the replacement rate, reducing the weight of wages in the pension indexation formula, and/or lowering the frequency of pension adjustment (currently, every two years). On equity grounds, the rationalization of benefits should be means tested and accompanied by a strengthening of the social safety net for low-income pensioners. A balanced mix of incentives to work longer and disincentives to retire early may be the least distortionary of policy options and may also boost growth by encouraging labor supply. Given that (i) the elderly are expected soon to constitute a majority and (ii) the measures will be felt fully only after long lags because of grandfathering clauses, there is a strong political economy argument not to delay action.

Time is getting short for reforms.



Source: World Economic Outlook, September 2004.

35. **The option of increasing the retirement age should be considered seriously.** Although less extensively used than in other industrial countries, early retirement has been instrumental since the mid-1990s in Switzerland in holding down long-term unemployment in the 55-65 age cohort. A rise in the statutory retirement age would need to be phased in gradually and accompanied by actuarially fair adjustments for those who decide to retire early or work longer. Asking the elderly to work longer might also require more flexible work arrangements (for instance, temporary employment and telecommuting), as well as structural reforms that would raise output and employment growth.

36. **Benefits rationalization could be accompanied by a rethinking of the role of the pay-as-you-go first pillar and its significance relative to the fully funded second pillar**. Relevant questions worth considering are the following: What level of benefits is affordable? Should the first pillar meet only basic needs of pensioners, with anything beyond provided from private saving? Would the current level of private saving and rates of return provide replacement incomes commensurate with household expectations?

37. In **health care**, the hardening of budget constraints (for instance, by making investment in new facilities conditional on the availability of local financing), the consolidation and more efficient utilization of the health care infrastructure (i.e., reducing fragmentation), and higher co-payments could reduce costs. Moreover, increasing

competition in health care services and liberalizing imports of pharmaceuticals and generics could also limit costs.

38. **Structural reforms that raise productivity and employment growth—the second kind of corrective measure—would ease the burden of fiscal adjustment, provided that pension benefits are not fully indexed to productivity gains**. In this spirit, a structural reform agenda was launched in 2004 (SECO, 2004). Immigration is not a panacea. It will boost output growth and strengthen the finances of the first pillar, but the costs of integrating immigrants into society are not negligible. Finally, in Switzerland GNI exceeds GDP both in levels and growth rates, but factor income is very mobile and is unlikely to provide a meaningful tax base.

39. **Fiscal adjustment—the third area where corrective action can be taken—needs to be tilted toward expenditure containment**. The scope to raise income taxes is limited by tax competition, and higher payroll taxes could lower growth. However, moderate increases in revenue from the VAT, as the authorities are already contemplating, might be employed, as the VAT is seen as a less distortive tax.

40. **The fiscal policy framework needs to be recast in a form suitable for addressing the long-term challenges of population aging**. First, fiscal policy would benefit from stronger cooperation between the levels of government. The current arrangement whereby responsibility for financing the first pillar is shared between the federal and cantonal governments diffuses responsibility and nurtures inaction. In practice, the burden of adjustment tends then to be shifted to the federal budget, which accounts for only one-third of general government resources. Second, there is scope to supplement the current three-year rolling financial plan of the *federal* budget with a long term fiscal sustainability plan for the *general government* that has a horizon sufficiently long to capture the effects of aging. In this connection, the preparation of a comprehensive periodic report on the financial position of social security would deepen public awareness of the aging pressures and available options, and facilitate consensus towards a solution. [20]

F. Concluding Remarks

41. **Unless policies are changed, population aging in Switzerland is expected to hamper growth and generate fiscal pressures over the longer-term**. Delays in addressing

[20] Currently, the Federal Social Security Service (Bundesamt für Sozialversicherung) prepares an annual report on the state of social security, including prospects for the next five-ten years. This horizon, however, fails to capture the problem since the effects of population aging are expected to peak around 2040. Occasional reports cover longer horizons—for instance, Bundesamt für Sozialversicherung 2003, 2004a, 2004c, Keel et.al. 2003, and Borgmann and Raffelhüschen 2004—but these are not an integral part of long-term budgetary planning.

the problem would make the solution more difficult in the future. Ultimately, the phasing in of fiscal adjustment would reflect social time preferences, views on intergenerational equity, and political economy considerations.

42. **The fiscal policy framework needs fine-tuning.** A forward-looking target path for public debt and improved coordination of fiscal policies among the various levels of government are needed to ensure the intertemporal consistency of fiscal policy.

Appendix I. The Framework for Long-Term Growth Projections

Production function: $Y_t = A_t\,(u_t \cdot C_t)^{1-\theta} H_t^{\theta} = (u_t \cdot C_t)^{1-\theta}(B_t \cdot H)_t^{\theta}$
Total factor productivity: $A_t = (1+\hat{A}) \cdot A_{t-1}$
Capital accumulation: $C_t=(1-\delta) \cdot C_{t-1}+i \cdot Y_{t-1}$
Hours worked $H_t = L_t \cdot h_t$
Hours per employed: $h_t = hf_t \cdot (1-\pi_t) + hp_t \cdot \pi_t$
Employment: $L_t=(Population)_t \cdot (activity\ rate)_t \cdot (participation\ rate)_t \cdot (1-UR_t)$

where the circumflex ^ denotes percent change
Y = real GDP
A = total factor productivity, which grows at a constant rate $\hat{A}$
B = Harrod neutral technical progress, related to total factor productivity by $A_t = B_t^{\theta}$
u = capacity utilization. It is constant after the completion of the current cycle.
C = capital stock
H = total hours worked
hf, hp = hours worked per full-time and per part-time employee
π = share of part-time employment
L = employment
UR = unemployment rate. It is set equal to the NAIRU after the completion of the cycle.

The above model enables us to express GDP growth as the sum of seven components:

$\hat{Y} = [\hat{A} + (1-\theta)(capital\ deepening)] + \hat{h} + (population\ growth) + (aging) + (participation\ growth) - (unemployment\ decline)$

where the bracketed term equals average productivity growth.

At the steady state, the following relations hold among the key variables:

- Output growth is the sum of growth in labor productivity and hours worked: $\hat{Y} = (1/\theta)\,\hat{A} + \hat{H}$.
- The output-capital ratio remains unchanged: $\hat{Y} = \hat{C}$.
- The capital-labor ratio, expressed in efficiency units, $C_t/(B_t \cdot H_t)$, remains constant.
- Expressed in physical units, the capital-labor ratio increases at the rate of $\hat{C} - \hat{H} = (1/\theta)\hat{A}$.
- Labor productivity per hour worked depends on TFP growth and the labor elasticity of output: $\hat{Y} - \hat{H} = \hat{A} + (1-\theta)(\hat{C} - \hat{H}) = (1/\theta)\,\hat{A}$.

Appendix II. Fiscal Sustainability: Some Theoretical Considerations

43. For analytic purposes it is useful to divide public expenditure into three categories: public pension payments and medical benefits, S_t; all other expenditure excluding interest, G_t; and interest on public debt, $R_t \cdot D_{t-1}$, where D_t denotes the end-of-period level of net debt and R_t is the nominal interest rate on this debt. The distinction between the assets of the public pension system and public debt is only of accounting nature because, ultimately, the public sector will be responsible for the unfunded pension liabilities of the first pillar and, through guarantee schemes, for the second pillar. In view of this, the discussion below is cast in terms of net public debt, i.e. gross debt minus the assets of social security.[21]

44. Debt dynamics are governed by the one-period government budget constraint:

$$D_t = (1+R_t) \cdot D_{t-1} + (G_t + S_t - T_t - NT_t),$$

where T_t denotes tax revenue plus contributions, NT_t nontax revenue, including seigniorage, and $(G_t + S_t - T_t - NT_t)$ the primary deficit. In terms of ratios to GDP, indicated by lowercase letters, the evolution of public debt is governed by

$$d_t = (1+\zeta_t) \cdot d_{t-1} + (g_t + s_t - \tau_t - n\tau_t), \qquad (1)$$

where $(1+\zeta_t) = (1+R_t) \cdot (1+\eta_t)^{-1}$ and η_t stands for the growth rate of nominal GDP. Assuming for simplicity and without loss of generality that ζ_t is constant, equation (1) can be solved recursively to give the financial worth of the public sector as the present value of future stream of primary deficits, PV, plus the initial level of debt:

$$(1+\zeta)^{-n} \cdot d_n = d_0 + \sum_1^{n-1} (1+\zeta)^{-j} \ (g_j + s_j - \tau_j - n\tau_j) = d_0 + PV. \qquad (2)$$

45. Since PV is additive in the stream of primary balances $\{(g_j + s_j - \tau_j - n\tau_j)\}$ it can be expressed as the sum of present values of the primary deficits of general government (excluding social security), PV_G, and those of social security, PV_A, PV_I, PV_K (old age and survivor pensions, disability insurance, sickness insurance):

$$(1+\zeta)^{-n} \cdot d_n - d_0 = PV_G + PV_A + PV_I + PV_K \ . \qquad (3)$$

---

[21] The aggregation of assets and liabilities into net debt is not innocuous when the return on assets differs from the interest rate paid on government debt. However, with assets amounting to only 10 percent of net debt and return on the public pension system's portfolio being moderate owning to a conservative investment strategy, the quantitative implications of this simplifying assumption are of second order of importance. The relation between the interest rates on net and on gross debt and assets (respectively, R_N, R_D, R_A) is given by $R_N = R_D + (R_D - R_A) \cdot A / (D-A)$.

We can use equation (3) to quantify how much each individual component of social security contributes to the increase of public sector's indebtedness.

46. Because of its additivity, PV can be further decomposed as $PV=PV(\mathscr{B})+PV(\mathscr{V})$, where the indicators $\mathscr{B}$ and $\mathscr{V}$ denote, respectively, the stream of primary balances in the absence of any further population aging and the impact of the impending population aging on the future stream of primary balances. Substituting this in equation (3) gives

$$(1+\zeta)^{-n} \cdot d_n - d_0 = PV(\mathscr{B}) + PV_A(\mathscr{V}) + PV_I(\mathscr{V}) + PV_K(\mathscr{V}). \qquad (4)$$

That is, the increase on public indebtedness is equal to the present value of the general government primary balance in the absence of aging plus the present value of the change in the primary balance due to aging.

47. Following Blanchard (1990), we define fiscal policy as sustainable if the current policies can be continued in the future without raising the public debt-to-GDP ratio to levels that the market is not prepared to finance at prevailing interest rates. In a partial equilibrium model like the present one, the critical level of debt is determined outside the model and, as a first approximation, it is set equal to the current level of debt. Thus, $[(1+\zeta)^{-n} \cdot d_n - d_0]$ measures the size of the fiscal imbalance.

48. **Neither the metric of the imbalance nor the definition of sustainability is unique**. The **metric** can also be expressed in terms of revenue/expenditure (e.g. by how much should taxes be raised to restore sustainability) or specific measures (e.g. how much is the need to raise contribution rates or cut public pensions to sustain the current generosity of the pension/health care system). The **definition** of sustainability may be strengthened to ensure that the debt/GDP ratio does not exceed a certain ceiling at all times. Cast in a generational context, policies can be defined as sustainable if their burden is affordable and equitably distributed among generations (e.g., Kotlikoff, 2001).

49. **The present value metric of fiscal imbalance is sensitive to the choice of the discount factor**. If future fiscal balances are projected to be in deficit, the present value is monotonically decreasing in the discount factor, ζ, since future deficits are discounted at a higher rate. Depending on the choice of the discount factor, this could lead to a situation where the present value of future deficits is low while at the same time future deficit and debt reach levels that could lead to serious downgrading of credit ratings and refinancing problems that, in turn, could trigger a disorderly fiscal adjustment. Thus, the present value metric is not a sufficient summary measure of the fiscal imbalance and a low present value does not obviate the need to look at the future path of debt. A useful supplementary indicator is the number of years it would take for debt to reach a critical threshold beyond which rating agencies are likely to start downgrading the public sector's creditworthiness.

Appendix III. A Framework for Old Age and Disability Pension Projections

50. The **primary expenditure** for old age and disability pensions can be modeled as the product of the average pension (which for simplicity and without loss of generality includes also administrative costs) times the number of pensioners, and in percent of GDP can be expressed as[22]

$$E = a \cdot I / (p \cdot Y) = a\,(I / PO) \cdot (PO / E) \cdot E / (p\,Y) =$$

$$= a \cdot i \cdot \xi \cdot / (p \cdot y) =$$

$$= (a \cdot p^{-1} \cdot y^{-1}) \cdot i \cdot \xi ,$$

where a = average nominal pension, including administrative costs. It is based on lifetime earnings (adjusted for inflation), it is subject to a ceiling (2004: SwF 2110 per month for individual pensioner) and the replacement rate for an average income earner is 45 percent.
$i = I / PO$ = pensioners in percent of the elderly, which depends on the coverage of the pension insurance and the extent of early retirement. The ratio is boosted by the existence of pensioners, primarily former foreign workers, who live outside Switzerland.
$\xi = PO / E$ = old-age dependency, that is the number of elderly per employed. It can be expressed as the share of elderly in the population divided by the activity rate, the participation rate and the unemployment rate: $\xi = (PO/POP) \cdot (POP/POPT) \cdot (POPT/LF) \cdot (1+UR)$
$y = Y/E$ =average labor productivity.

51. Thus, **the change of primary pension expenditure** (in percent of GDP) relative to base period expenditure is given by

$$E_t = E_0 \cdot \{ (a_t / p_t) \cdot i_t \cdot \xi_t / y_t \} / \{ (a_0 / p_0) \cdot i_0 \cdot \xi_0 / y_0 \}$$

$$= E_0 \cdot [(a_t / a_0) \cdot (p_t / p_0)^{-1} \cdot (y_t / y_0)^{-1}] \cdot (i_t / i_0) \cdot (\xi_t / \xi_0) .$$

Pension expenditure increases when (i) the average pension rises faster than inflation plus labor productivity growth, (ii) the share of pensioners in the elderly rises, and (iii) old age dependency rises. In the past quarter century, average pensions increased at an annual rate of 2.7 percent, practically at the same rate as the growth of the GDP deflator plus labor productivity, leaving the bracketed term roughly unchanged.[23] As a result, the evolution of

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[22] Alternatively, expenditure can be expressed in terms of per capita GDP and the share of pensioners in the population: $E = a \cdot (I / POP) / [p \cdot (Y/POP)]$. The disadvantage of this simpler formulation is that it conceals the role of fundamental variables such as old-age dependence, participation rate, and productivity.

[23] Pensions are adjusted every two years for the increase in consumer prices and inflation, each with 50 percent weight, which is equivalent to full indexation for inflation plus half the increase in real wages. However, average pensions increase is faster due to wage drift.

expenditure has been driven by the rise in old-age dependence (ξ) and early retirement (i). Higher immigration reduces pension expenditure in percent of GDP to the extent that it reduces old-age dependence (ξ). Similarly, an increase in the effective retirement age reduces pension expenditure by raising the participation rate.

Annual average rate of change in 1980-2003

Old age and survivor pensions	2.7
Disability pensions	2.6
GDP deflator	2.3
Labor productivity	0.4

52. **Primary revenue** of the pension system comprise contributions and earmarked VAT rates:

$$R = c \cdot W \cdot B / (p \cdot Y) + v \cdot h$$

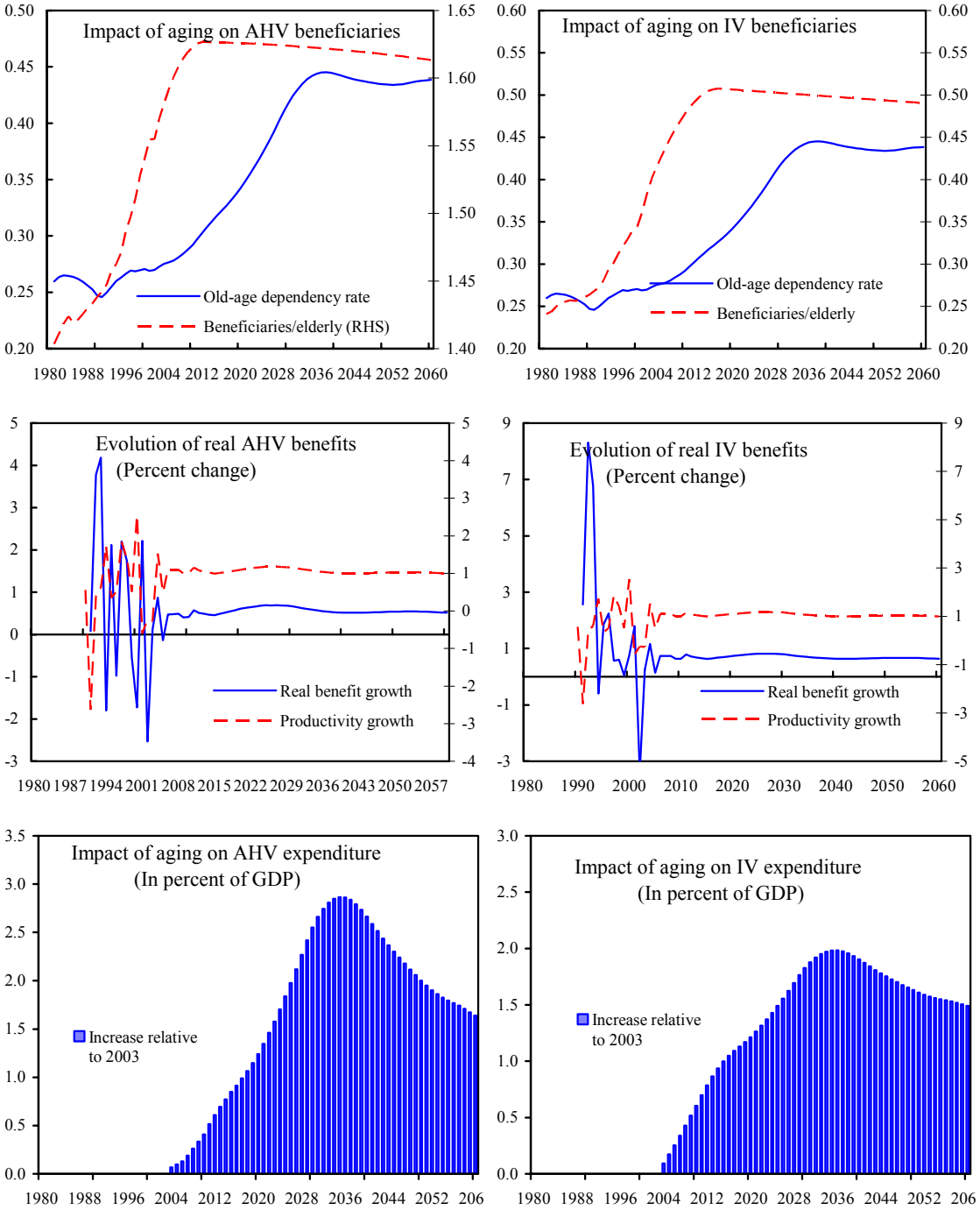
$$= c \cdot (B/E) \cdot (W / p) / y + v \cdot h ,$$

where
W= average nominal wage
B = persons contributing to the pension system (includes also Swiss working abroad)
v = the VAT rate that is earmarked for the financing of pensions, and
h = incidence of VAT.

53. If, as it has been the case in Switzerland, real wages increase in line with labor productivity (leaving the labor share practically unchanged) and the ratio of contributors to employment remains constant, revenue dynamics are driven by the evolution of contribution and earmarked VAT rates. An increase in the effective retirement age or immigration would raise revenue in absolute terms but not in percent of GDP. Hence, in the absence of measures the evolution of the primary balance of the first pillar is driven exclusively by expenditure.

54. The projected increases in the deficit of old age and disability pensions, along with the evolution of the number of pensioners and the ratio of benefits vis-à-vis productivity growth, are given in Figure I-6.

Figure I-6. Switzerland: Impact of Aging on Pension Expenditure



Source: Bundesampt für Sozialversicherung; and IMF staff calculations.

Appendix IV. A Framework for Health Care Projections

55. **Primary health care expenditure** is modeled as the product of the average expenditure per insured times the number of insured persons and, in percent of GDP, is expressed as

$$E = h \cdot (I/POP)\cdot(POP/E) / (p\cdot y) =$$

$$= (h/p) \cdot i \cdot e^{-1} \cdot y^{-1} =$$

$$= (h\, p^{-1} y^{-1}) \cdot i \cdot e^{-1} ,$$

and the evolution of expenditure relative to the base period is given by

$$E_t = E_0 \, [(h_t/h_0)\,(p_t/p_0)^{-1}\,(y_t/y_0)^{-1}]\,(i_t/i_0)\,(e_t/e_0)^{-1} ,$$

where

h = average health care expenditure per insured person. It depends on inflation in the health care sector, the generosity of the health care system (how extensive is the list of covered diagnostic procedures and treatable illnesses) and the average age of the insured (expenditure increase rapidly for persons over 50 and for octogenarians they are four times the expenditure for person under 50).

i = insured individuals in percent of the population.

e = employment as percent of the population, which equals the product of the activity rate, participation rate and the unemployment rate.

56. **Primary revenue** is modeled as the product of the contribution rate, c (which is defined to include co-payments by insured), times the number of insured persons. In percent of GDP, revenue are given by

$$R = c \cdot (I/POP)\cdot(POP/E) / (p\cdot y) =$$

$$= (c/p) \cdot i \cdot e^{-1} \cdot y^{-1} =$$

$$= (c\, p^{-1} y^{-1}) \cdot i \cdot e^{-1} .$$

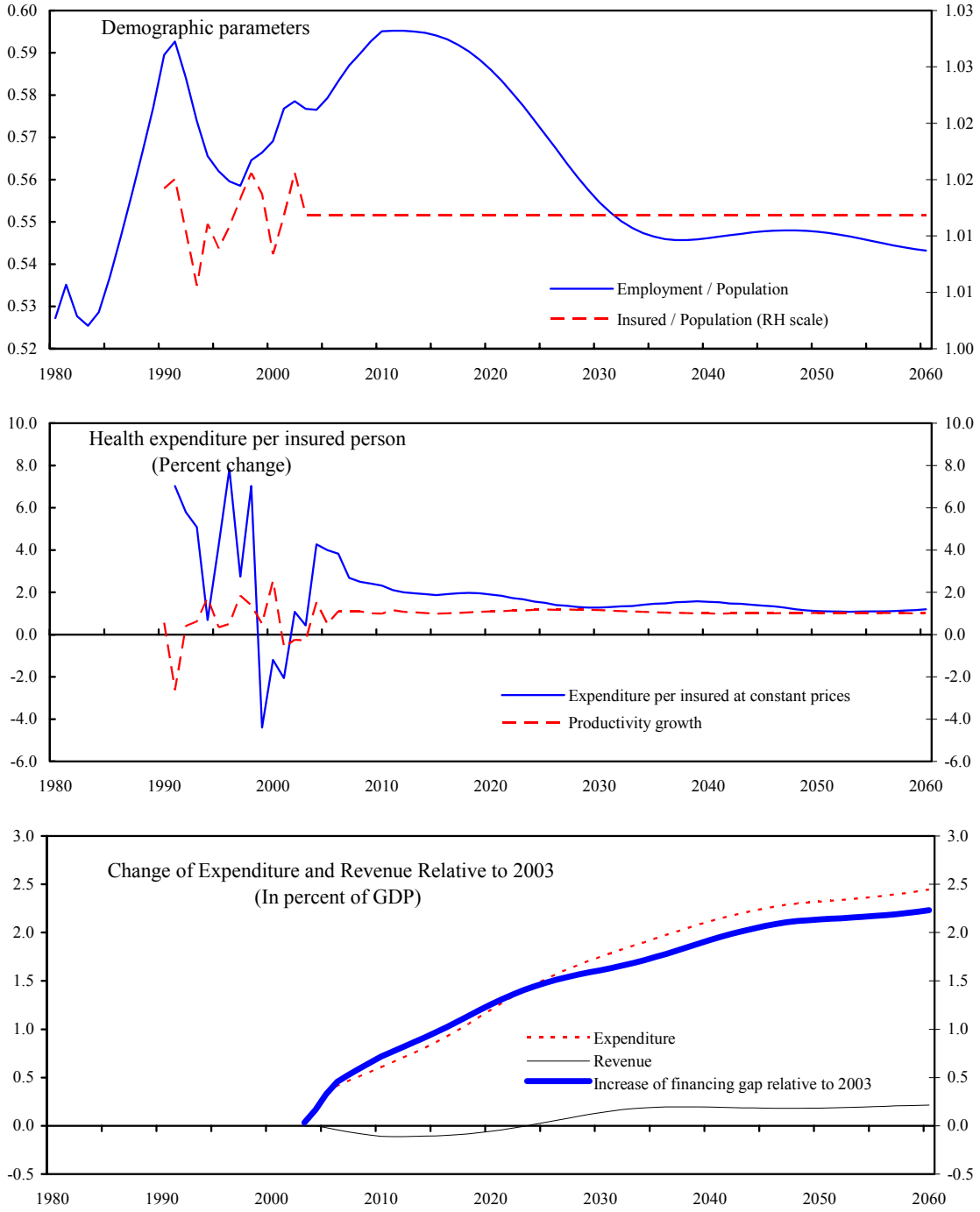
57. Thus, the **operating balance** and its evolution relative to the base year are given by

$$E - R = [(c-h)\, p^{-1} y^{-1}] \cdot i \cdot e^{-1} \quad \text{and}$$

$$(E_t - R_t) = (E_0 - R_0)\,[(c_t - h_t)/(c_0 - h_0)]\,(p_t/p_0)^{-1}\,(y_t/y_0)^{-1}]\,(i_t/i_0)\,(e_t/e_0)^{-1} .$$

58. The evolution of the deficit (Figure I-7) is driven primarily by the shortfall of the contribution rate from per capita expenditure *(c–h)* and employment rate *e*. The projections assume that the contribution rate and the government subsidy (in percent of GDP) remain unchanged at their present level.

Figure I-7. Switzerland: Impact of Aging on Health Expenditure



Source: Bundesamt für Sozialversicherung; and IMF staff calculations.

Appendix V. Data Sources

59. **Population and working-age population**: OECD Analytical Data Base (ADB) until 2000. From 2001 onwards, the two growth rates are set equal to the ones reported in BfS' baseline scenario.

60. The **labor force** series is constructed as the sum of employment and registered unemployment. **Employment** figures up to 2003 are obtained from ADB. The 2004 estimate is based on the rate of change reported in the BfS employment statistics. From 2005 onward, employment is linked to GDP and is based on the assumption that labor productivity will grow at an average rate of 1.1 percent per year. The **registered unemployment** series is from ADB. Unemployment is projected to decline to the NAIRU (2.3 percent) by 2010.

61. Data on **hours worked**, with a breakdown between full- and part-time employed, are available since 1991 from the Federal Statistical Office, BfS. The series are backcasted using the product of the number of work-weeks per year times the average contractual hours per week as reported by BfS. In 1991-2002, full-timers worked 2.5 times more hours than part-timers. This ratio, which has been fairly stable, is used to link the hours of full- and part-time workers in earlier years.

62. The share of **part-time employment** in total employment is derived from the hours statistics.

63. In the absence of official estimates, **capital stock** is computed from investment at constant prices (excluding residential construction)[24] using as starting value the 1968 capital stock estimate in Lüscher and Ruoss (1996) and applying exponential depreciation. Depreciation rates are based an expected life of 50 years for structures, 15 years for machinery and equipment, and 4 years for software. These values are similar to those used by the Federal Statistical Office. In addition to ordinary depreciation, additional depreciation is applied in years of extensive restructuring, such as in the period after the oil shocks and the protracted recession in the 1990s. With the composition of investment changing over time, the average depreciation rate rose gradually from 4 percent in early 1970s to 5 percent in the early 2000s.

64. **Capacity utilization** in industry is obtained from the KOF data bank. Due to a break in the series, pre-1999 values are reduced by 3 percentage points.

[24] Pre-1980 investment figures are obtained by linking the ESA78 and ESA95 series. Figures on residential construction are from the ADB.

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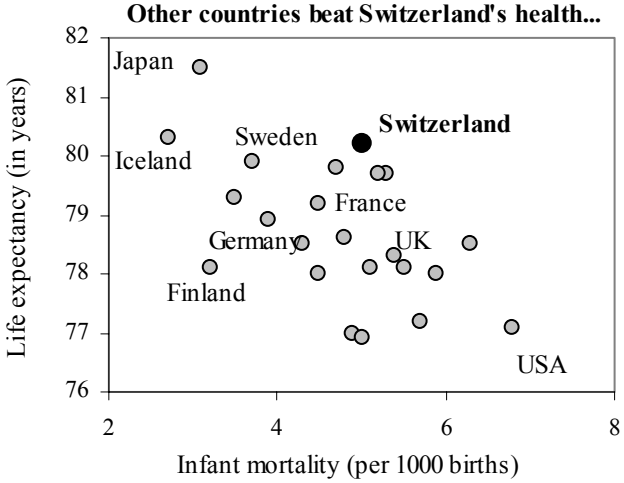
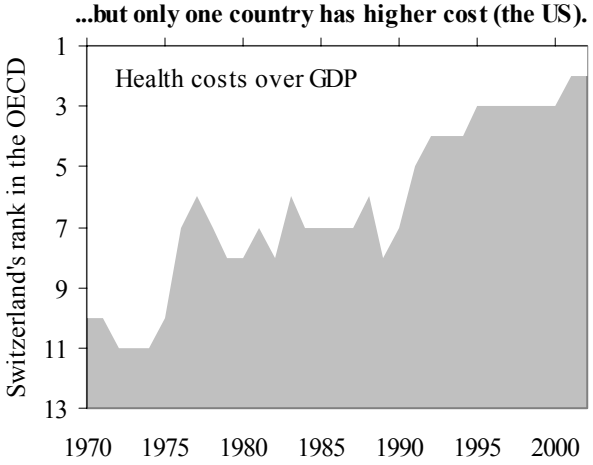
II. THE NEED FOR HEALTH CARE REFORM [25]

A. Health Care Spending in Switzerland

65. **Switzerland's health care system produces good results**, thanks to a high quality of services. Switzerland's life expectancy of 80½ years is second in the world to Japan, but infant mortality is twice as high as in the best performing countries. Overall, the Swiss population is paying a high price for these results. Cost increases have resisted several attempts at reform—most recently in 1996—and are turning into a fiscal problem.



66. **Switzerland has the second-highest ratio of health spending to GDP in the world**. The country spends 11.5 percent of GDP on health care, more than any other industrialized country except the United States with 14.6 percent. This share has more than doubled from 5.4 percent of GDP since 1970, the steepest increase in the OECD.



67. **Much of the rise in the Swiss health care ratio is due to slow growth—the denominator effect**. The table below shows that real per capita health care spending even grew below the OECD average. Disaggregated spending items were also well aligned with OECD averages. Overall, Swiss health care spending is not extraordinary by international standards. Rather, it has become incompatible with the country's poor growth record.

68. **Continued discrepancy between health care costs and income growth could put pressure on the Swiss economy.** If the private sector bears the cost, lower income classes would suffer; if the public sector bears the cost, fiscal imbalances would widen. Either way, a health care sector that absorbs an ever larger share of resources will eventually lower GDP growth further. In contrast, it may be worth noting that Scandinavian countries, in particular

[25] Prepared by Benedikt Braumann.

Finland and Sweden, have managed to contain or even reduce their health-to-GDP ratios over time.

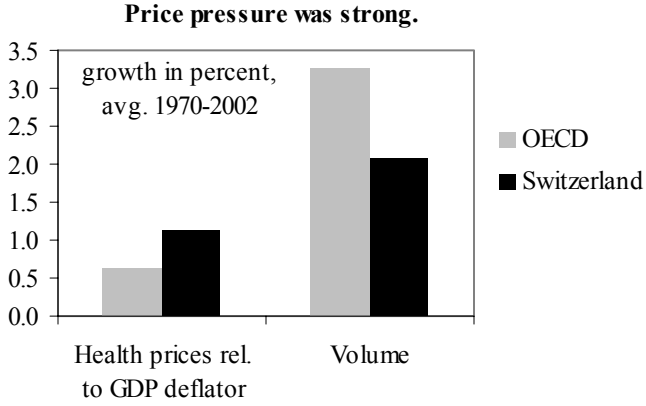
Health Care Spending in Switzerland
Median values for 1970-2002 (OECD average in brackets)

	Distribution in percent	Real per-capita growth
Total health care spending	100 (100)	3.1 (3.6)
Hospitals	47 (47)	3.1 (3.1)
Doctors, nurses	33 (33)	3.1 (3.7)
Medical goods	13 (14)	2.1 (3.8)
Collective health care	7 (6)	4.4 (2.7)

Source: OECD Health Data (2004).

B. High Prices and Their Causes

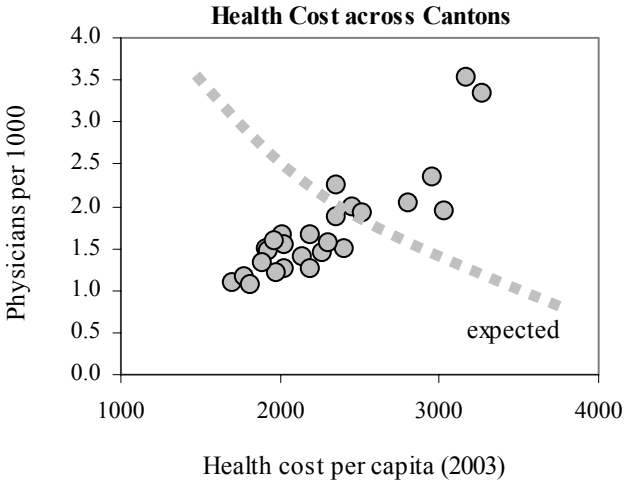
69. **Swiss health care is expensive mainly because of high prices rather than large quantities**. Volume grew less than the OECD average, but relative prices grew faster. This points to distortions on the supply side of the sector. In particular, four problems may be identified: (1) regional fragmentation, (2) financial fragmentation, (3) supply-induced demand, and (4) insufficient competition.



- **Regional fragmentation limits competition and economies of scale.** In the Constitution, the provision of health care is assigned to cantons. This has led to a proliferation of hospitals, as most cantons strive to provide the full spectrum of health care services. Switzerland has the third-highest number of hospitals per capita in the OECD, most of them small and not very specialized. The canton of Bern alone e.g. has the same number of hospitals as Sweden. Operating costs of public and subsidized hospitals are fully reimbursed by compulsory sickness insurance and cantons, removing incentives for hospital managers to control cost. Similarly, Switzerland has the third-highest number of physicians per capita in the OECD. Specific regional regulations and licensing cause a bunching of physicians in the cities and inhibit national competition. Insurers must cover treatment by every doctor, even the most expensive ones, which complicates cost control.

- **Financial fragmentation further weakens incentives to limit cost.** Three different institutions finance health care in Switzerland. Most treatments are covered by private health insurers (KV). In addition, more generous financing is available from public accident (UV) and disability insurance (IV). The lines between the three are not always sharp and give providers room to shift patients from one scheme to the other. Disability insurance in particular has grown rapidly in recent years, and there are indications that it is being used for early retirement. This is leading to a pooling of risks in the (generous) disability insurance.

- **Supply-induced demand may lead to overly expensive forms of treatment.** Widespread information asymmetries characterize health care markets. Patients cannot accurately assess the quality and price of a product in advance. They often lack the medical expertise or are physically impaired, in particular when they need urgent treatment, and cannot negotiate on price. Thus, market power is concentrated on the supply side—doctors and hospitals—which leads to higher cost. Compared to other European countries, the Swiss health care system is highly decentralized, and shows strong evidence of supply-induced cost inflation, as documented by OECD (1991) and Oggier (2004): Switzerland has the third-highest number of nurses and (expensive) MIR and CT equipment per capita in the OECD, and the second-longest hospital stays. A widely documented correlation exists between cost and the density of physicians (Phelps, 2003). In a more typical market, a higher number of suppliers would lead to lower prices—this effect often fails in health care markets, and particularly so in Switzerland, as the figure shows: cantons with a higher density of physicians actually have higher health care cost per capita.



- **Finally, pharmaceutical prices are elevated due to import restrictions and possible collusive practices.** Prior to 2000, a powerful cartel (Sanphar) managed prices and distribution channels of drugs. While antitrust authorities declared price fixing illegal in 2000, Sanphar continues to exist, and there is no evidence of a relative decline in drug prices in the CPI. In addition, parallel imports of drugs remain illegal. On the other hand, high prices have facilitated research and development and the emergence of strong multinational pharmaceutical companies. For these companies, the high-price Swiss market provides a testing ground, not unlike the (equally expensive) US and German markets for US and German companies.

C. Financing of Health Care

70. **Internationally, one can distinguish three basic types of health care systems**. Following Oggier (2004), the key distinction is related to their financing:

- **National health services** are financed by general taxes. Medical infrastructure is organized by the state, and treatment is free of charge for every citizen. Examples include the UK and Scandinavian countries. Because the tax system tends to be progressive, health care cost are financed mostly by higher income brackets.

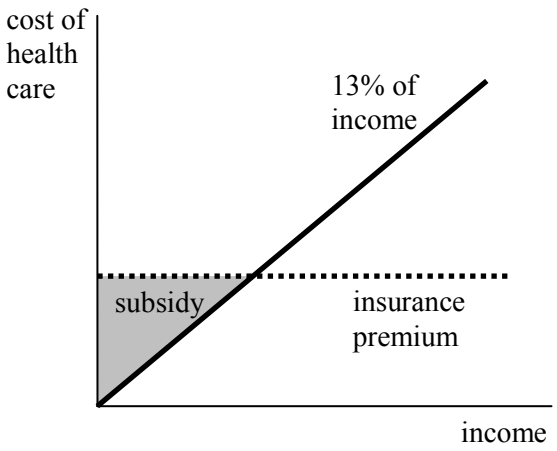
- **Social security models** are financed by payroll taxes. Membership is compulsory, but services can be provided by both private and public institutions. Examples include Germany, France, and the Netherlands. Because payroll tax rates tend to be flat, these systems have fewer redistributive effects.

- **Insurance systems** are financed mostly by insurance premia (voluntary or compulsory). These premia vary according to risk factors and bear no relation to income. Accordingly, these systems tends to be regressive. The US and Switzerland are predominantly insurance systems.

71. **Similar to the US, Switzerland has a mostly private health care system.** Three quarters of health care costs are financed by the private sector, setting the country apart from the rest of Europe. About 40 percent of private health care costs are covered by health insurers, and the remaining 34 percent is paid by individuals out of their pockets (co-payments). Switzerland has the highest percentage of private co-payments in the OECD, where the average is only 13 percent. The state covers the remaining 26 percent of health care costs. Cantons and communes finance hospitals, while the Confederation and the cantons subsidize insurance premia of the poor. The public disability and accident insurances cover the costs for qualifying persons.

72. **The strong reliance on insurance financing raises equity issues.** The average private health care bill was more than SwF 5,000 per individual in 2002. Insurance premia and out-of-pocket payments have a regressive effect on income distribution—they are unrelated to income. Most affected are dependent individuals outside the labor force such as children, housewives and some of the elderly. For these persons, health care can be a considerable burden.

The state subsidizes health costs of the poor.



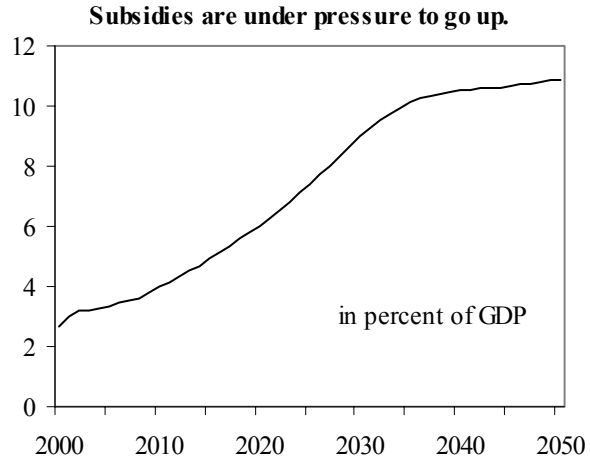
73. **To alleviate the high cost of health care to the poor, the state subsidizes their insurance premia.** The subsidy is income-related, and ensures that insurance premia currently do not exceed about 13 percent of household income. However, the mechanism is imperfect and strong regional disparities exist. Both premia and subsidies vary widely across regions. Insurance premia range from a minimum of SwF 2,300 per year in Nidwalden to a maximum of SwF 4,800 per year in Geneva (2004). They tend to be highest in cantons with a high number of physicians. Subsidies also vary greatly. While 33 percent of Swiss households received subsidies in 2004, regional values ranged from 23 percent in Aargau to 60 percent in Appenzell Innerrhoden. The Confederation contributes the lion's share, while cantons can top up and control the distribution of subsidies. For budgetary reasons, cantons sometimes do not disburse all the funds allocated to them.

74. **The subsidies for low-income households try to minimize economic distortions.** Unlike payroll or income taxes, they have no immediate negative effect on labor supply and growth. As a result, the Swiss design of health care has attracted considerable attention from other European countries. However, subsidies can avoid distortions only as long as their volume does not become too large.

D. Fiscal Burdens

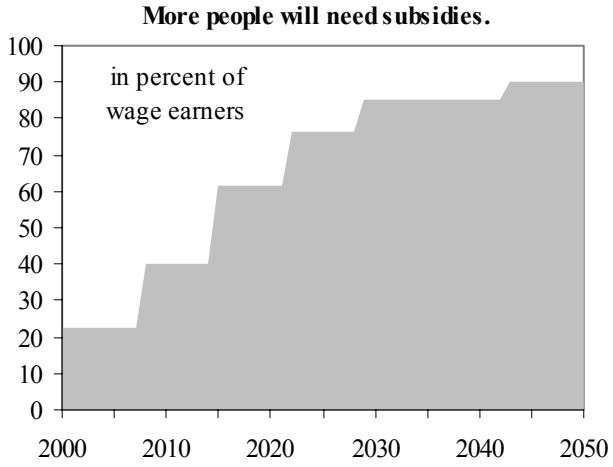
75. **On present trend, health care can become an important fiscal problem.** If the growth of health expenditures relative to income continues, more and more households would need subsidies. Recent simulations suggest that such additional expenditures could amount to 8 percentage points of GDP by 2050, which would be a serious threat to the public finances. The corresponding increase in tax rates could slow growth.

76. T**he effects of rising health costs on public finances and the economy can be analyzed in a general-equilibrium growth model.**[26] For the coming 40 years, it was assumed that the quantity and price parameters of health care would evolve as in the past decade. In particular, the quantity of health care was assumed to have an income elasticity of 2, while health care prices would increase a quarter percentage point faster each year than the GDP deflator. Some additional cost pressures were modeled based on the rising old-age dependency ratio, to capture the effects of aging, mainly in the years 2010-35.



77. **To avoid income disparities, the central government would need to step up its subsidies.** Direct public outlays for hospitals were assumed to grow in line with nominal GDP to keep cantonal finances in equilibrium. Increased health care cost would then be born by the private sector. Without higher subsidies, income inequality in Switzerland would increase significantly: a simulation suggests that the Gini coefficient could rise from 28.5 to 33.5. To assess the amount of subsidies necessary to keep inequalities constant, the threshold for private health spending was kept at 13 percent of household income, with subsidies covering the excess health care costs for qualifying income brackets.

78. **A continued increase in health care costs would make private contributions to health insurance unaffordable for more and more households**. The government would need to subsidize more and more income brackets. The model suggests that the share of subsidy recipients would rise to 41 percent of households in 2008, and to over 60 percent in 2015. The stepwise increase in the figure is due to the simplifying assumptions of the model; it would be smooth in reality. By 2050 around 90 percent of the population



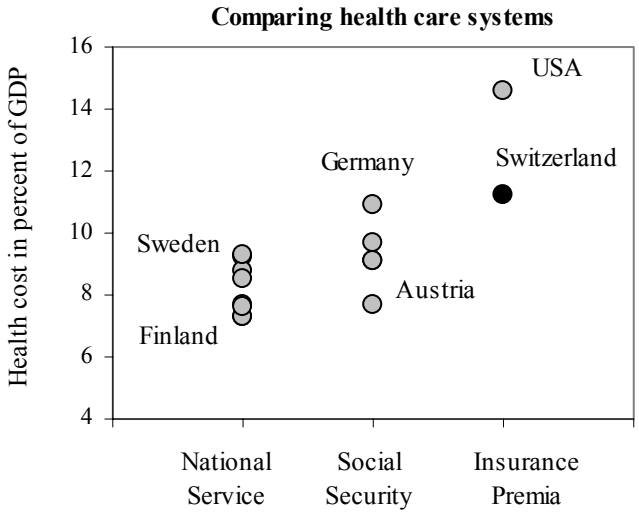
[26] The basic framework is described in the Chapter I "Intertemporal Policy Consistency in Switzerland: Is the Current Social Insurance System Sustainable?" For this health-care chapter, we added the health care sector, and a feedback loop to labor supply.

would depend on government subsidies. Swiss health care would be transformed into an essentially government-run system.

79. **The fiscal costs would be very high.** Subsidies would rise from 3 to 4 percent of GDP during the present decade, and accelerate with the onset of aging after 2010. By 2050, fiscal spending on health care would be more than 8 percentage points of GDP higher than today. To avoid an unsustainable build-up of public debt (as required by the constitutional debt brake), taxes would need to rise.

80. **Tax increases of up to 8 percentage points of GDP would slow GDP growth, especially if these are affecting payrolls.** With lower growth, the tax base would then narrow, and tax rates would have to increase even more to obtain the desired financing. Preliminary simulations suggest that the slowdown in annual GDP growth could reach more than 0.3 percentage points per year, which would lower the level of Switzerland's real GDP by a cumulative 7 percentage points by 2050 compared with a scenario that does not require these tax increases.

E. Conclusions



81. **Switzerland spends a high share of GDP on health care, and the current dynamics of health spending are incompatible with slow growth**. Health care may thus evolve into a significant fiscal problem in coming years, unless progress is made in tackling distortions in the market for health care. The literature stresses the importance of economies of scale in health care. More centralized systems tend to have lower average cost. Switzerland in particular could reap benefits from overcoming the regional fragmentation of its health care infrastructure. The lack of coordination between cantons, and the limited regulatory powers of the Confederation make cost controls difficult. Large degrees of freedom for health providers and automatic reimbursement of costs, appear to inflate the supply of medical services. Increased government cooperation, at all levels, should thus be encouraged. In addition, potential reforms in the financing schemes could reduce incentives to accumulate higher risks in the public-sector insurance plans. Finally, consumers could benefit from a more competitive market for pharmaceuticals and the liberalization of drug imports.

Data Sources

Figures 1, 2, 3 and 9, and Table 1: OECD Health Data (2004), CD-Rom.
Figure 4: Swiss Ministry of Health; and Swiss Physician's Association (FMH).

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III. The Political Economy of Adjustment and Reform in Switzerland[27]

82. Switzerland's unique system of direct democracy is sometimes mentioned as contributing to the country's slow growth. Voters can decide on many aspects of policy, including structural reforms and fiscal management. Since reforms are rarely popular, it is argued that frequent referenda introduce a status-quo bias, and could over time cause growth to fall behind that of peers. This paper tries to shed empirical light on this hypothesis. The issue is important, given that Switzerland will need deep reforms to control the cost of pensions and health care. While other countries confront these challenges as well, none gives so much power to the voters than Switzerland. Three questions appear of particular interest:

- Does popular participation impede fiscal adjustment or reform?
- Under what circumstances do voters accept change?
- Are there well-defined windows of opportunity?

After a brief review of political institutions, the paper will try to answer these questions.

A. Political Institutions[28]

83. **Switzerland is a decentralized state with strong elements of direct democracy**. Since consensus is important to help guide legislation through referenda, the federal government has included the four largest parties since 1959: the populist right-wing Swiss People's Party (SVP), the center-right Radical Democratic Party (FDP), the centrist Christian Democratic Party (CVP) and the left-wing Social-democratic Party (SP).

84. **The government has been very stable**. The Federal Council is the highest executive body. Its seven members are elected individually by parliament, and each heads a ministry. One federal councilor is elected president for one year. The presidency rotates among federal councilors and has only representative purposes. Between 1959 and 2003 a so-called magic formula fixed the representation of the four main parties. It gave the SP, the FDP and the CVP two seats and the SVP one. However, after becoming the strongest party in the elections of 2003, the SVP gained a second seat and the CVP lost one.

85. **The legislative power of referenda supersedes that of parliament**. Parliament has two chambers, the National Council (lower house) and the Council of States (upper house), which are elected every four years. The 200 members of the National Council are elected by proportional representation. The Council of States comprises two representatives from each of the 23 cantons. All legislative proposals have to pass both chambers of parliament.

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[27] Prepared by Benedikt Braumann.

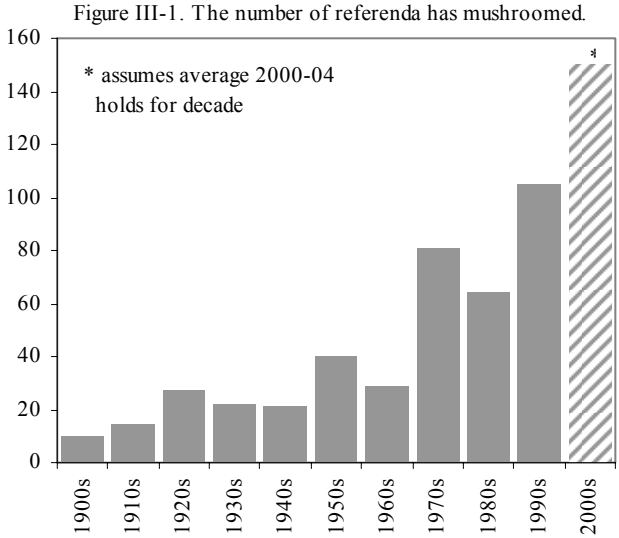
[28] See also the Economist Intelligence Unit country report on Switzerland, December 2004.

Referenda are held at the federal, cantonal and local level. Two main instruments exist at the federal level.

- A ***people's initiative*** can be called to change the federal constitution, provided it gathers more than 100,000 signatures.
- A ***referendum*** can be called on laws and many international treaties passed by parliament, provided more than 50,000 voters sign a petition.

86. **The number of referenda has increased rapidly over time,** from 10 or 20 per decade in the early 20th century to currently around 140 per decade (see chart). This number easily doubles if one includes cantonal and local referenda as well. Voter turnout is usually less than 50 percent, but has remained stable since the 1960s despite the sharp increase in the frequency of referenda. This suggest that voters in Switzerland are dedicated and well-informed.

Figure III-1. The number of referenda has mushroomed.



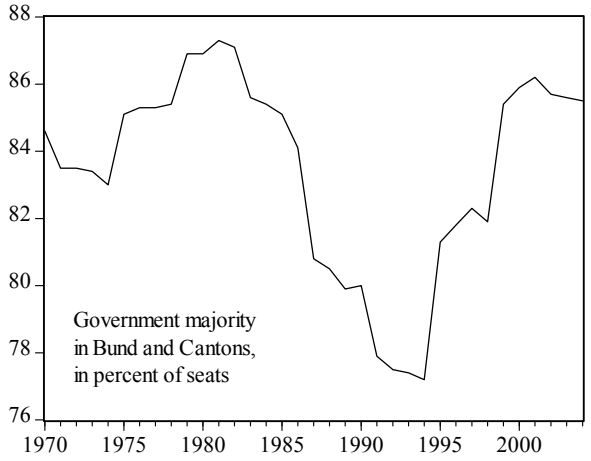
87. **Lower levels of government enjoy a great deal of autonomy.** Because of historical tensions between different languages and religious groups, Switzerland's constitution gave strong autonomy to the cantons. Although the tensions have long subsided, cantonal autonomy remains very important. The federal government is therefore comparatively weak, and it accounts for less than a third of public spending. It is responsible for foreign policy, defense, pensions, post, telecommunications, railways, and the currency. All other responsibilities are handled by cantons, including economic regulation, education, health care, and most judiciary functions. Within cantons, communes in turn enjoy a high degree of independence, in particular in fiscal policy.

88. **This political system makes for slow legislation.** Bills go to parliament only after an extensive consultation process with all interest groups involved. The subsequent parliamentary debate can be lengthy, as members of parliament do not obey strict party discipline. After that, the bill may be rejected in a referendum despite the efforts to ensure consensus. Once approved, however, implementation is quite rapid and efficient.

B. Political Variables

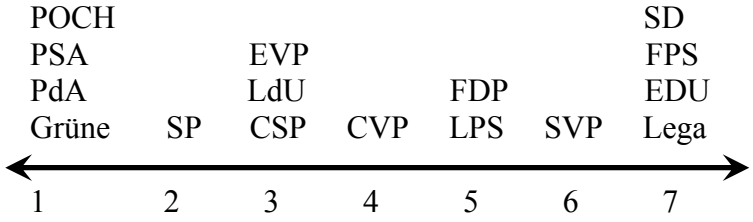
89. **The government's parliamentary majority is usually ample.** In most countries, the extent of a government's majority in parliament defines the coherence of its economic policies. In Switzerland, this majority is rarely challenged, as the four largest parties rule in coalition. Figure III-2 shows a measure of the political majority of the combined federal and cantonal governments. It reflects the share of seats of the four large parties in the federal lower house and the parliaments of the five largest cantons, weighted by population. The majority usually fluctuates around 85 percent of the seats, only declining to 76 percent during the severe economic downturn of the mid-1990s.

Figure III-2. The government's large majority dipped in the 1990s.



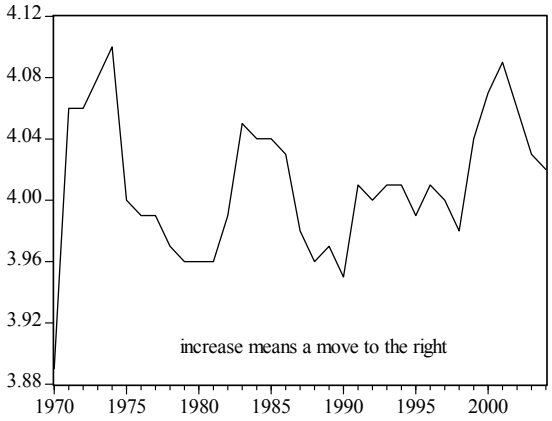
90. **The government spans a wide ideological spectrum.** One can arrange the political parties of Switzerland along an political left-right axis: Figure III-3 follows the relative ranking of the Federal Statistical Office (2004) and assigns numerical values to ideological positions (as shown below). Values increase from left to right persuasion and range from 1 to 7. These values are then weighted by seats in parliament, both at federal and cantonal elections, to form an index of the weighted average political position of the voters. The lower house represents the federal level, while the five largest cantons (ZH, BE, VD, AG, SG) represent the cantonal level. These cantons together account for over half of the Swiss voters.

Figure III-3. Classification of Political Parties



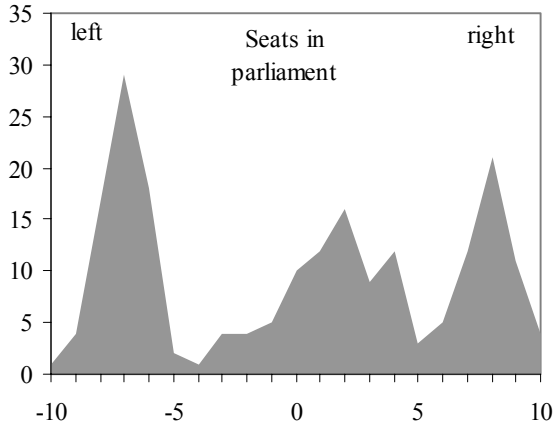
91. **The average political position of voters has been fairly stable over time**. The index for the period 1970–2004 is given in Figure III-4. It shows no trend to either left or right, but some cyclical fluctuations. The electorate tended more to the right in the early-1970s, the early-1980s and toward 2000, and more to the left in the late 1970s, late 1980s and in recent years. Statistical tests failed to correlate this left-right pendulum, which swings about every seven years, to economic patterns.

Figure III-4. The average political position has been stable.



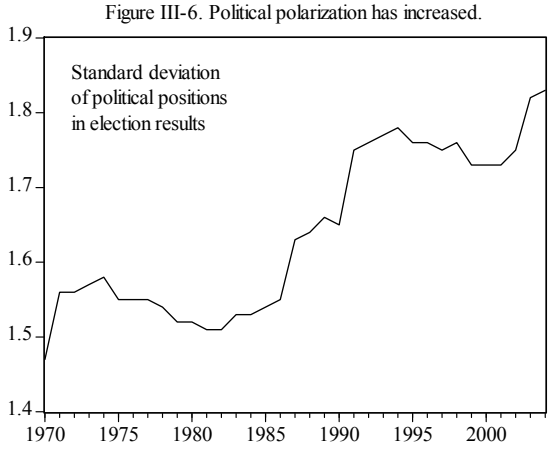
92. **However, the political distribution has several peaks**. Positions of Swiss voters and parties are multi-modal, and the system of proportional representation has impeded a gravitation towards the center. The number of Swiss parties remains high, and the largest two (SVP and SP) have fairly contrasting programs. Figure III-5 shows the political distribution in parliament, using data from Jeitziner and Hohl (2004). The authors rate parliamentarians according to their voting record, revealing three distinct frequencies, with the center being the weakest today.

Figure III-5. The political distribution is multimodal.



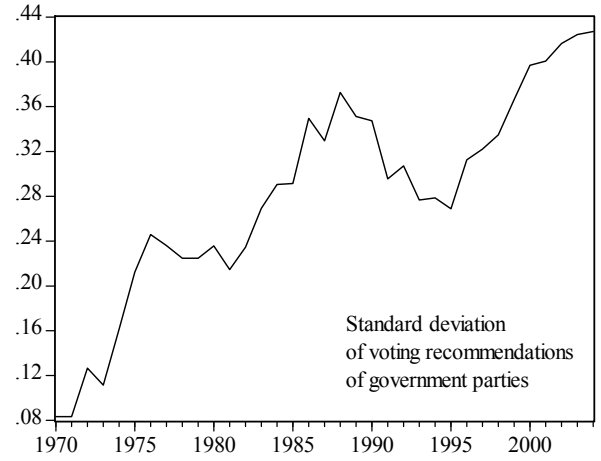
93. **Within the political spectrum, there has been increasing polarization**. While the average of the left-right index remained fairly stable, its variance has widened. Figure III-6 shows the standard deviation of ideology for the period 1970–2004. The dispersion of voters around the mean has increased in a stepwise fashion. This poses a threat to the consensus-based political system of Switzerland as extreme positions make compromise more difficult, and encourage disruptive referenda.

Figure III-6. Political polarization has increased.



94. **Even within the federal government, tensions have increased**. The Statistical Office publishes voting recommendations of the four government parties. These recommendations have increasingly diverged. The period 1970–2004 saw 325 referenda in Switzerland. Each of the four government parties issued voting recommendations, which are given numerical values ("no" = 0, "yes" = 1, and "without recommendation" = 0.5). The standard deviation of this measure is an indicator of tensions in the government. Figure III-7 shows that tensions have again built up after a lull in the mid-1990s. Contradictory positions can undermine the government's overall strength in persuading voters.

Figure III-7. More tensions in the government in recent years.



95. **Political polarization partly follows the economic cycle (i.e., is procyclical)**. The secular trend towards increasing polarization may be due to Swiss society becoming less homogeneous. Families are getting smaller, while individualism, globalization, and affluence gradually loosen traditional values. Around this long-run trend, a cyclical pattern emerges that can be linked to the economy. Figure III- 8 compares the (detrended) polarization index with staff estimates of the output gap, lagged by two periods. Economic upturns were associated with increased polarization, while recessions favor moderation and unity. Voters thus seem less inclined to political experimentation in difficult times. In fact, a statistical test indicates that the output gap Granger causes a change in polarization (Table III-1).

Figure III-8. Upswings tend to favor political polarization.

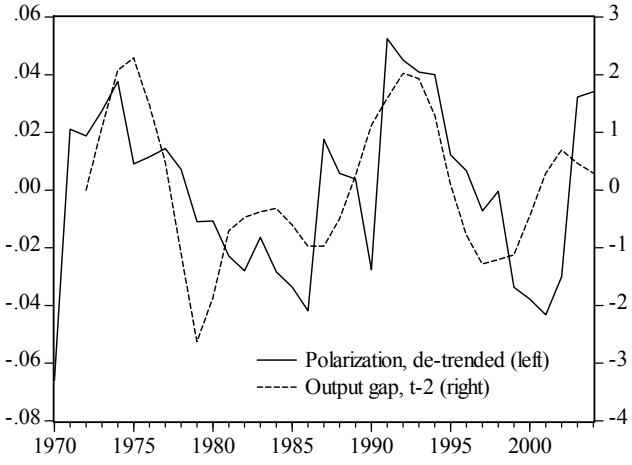


Table III-1. Granger Causality between Output Gap and Polarization

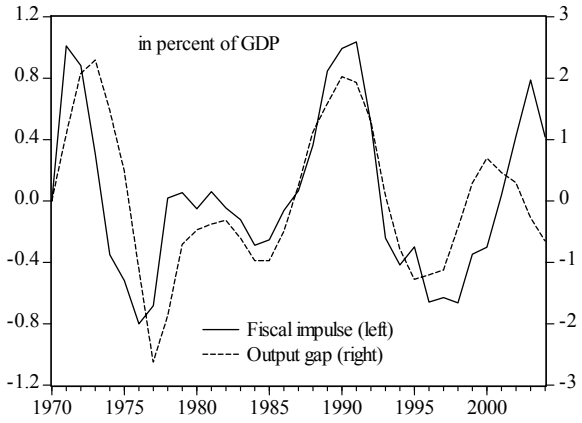
Null hypothesis	F-Statistic	Probability
"Change in Polarization" does not cause "Output Gap"	2.78	0.0795
"Output Gap" does not cause "Change in Polarization"	13.19	0.0001

Sample: 1970-2004

C. Fiscal Adjustment

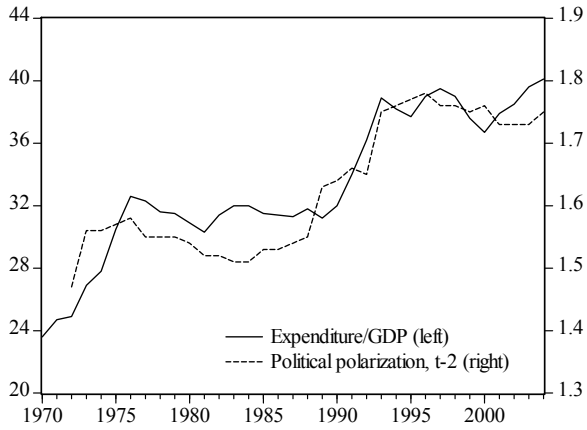
96. **Reflecting political pressures, Swiss fiscal policy has been procyclical**. Fiscal adjustment mostly occurred during recessions, when the public was more unified. Figure III-9 plots the fiscal impulse together with the output gap. The two series are highly correlated. Slippages occurred during economic upturns, when the electorate was more polarized.

Figure III-9. Swiss fiscal policy has been highly procyclical.



97. **Indeed, the structural balance deteriorates mainly through a loss of expenditure control,** as show Figure III-10 shows. Recessions restore moderation and fiscal discipline. The inclusive political system of Switzerland is not hostile to fiscal adjustment, but needs a downturn to become active. This makes fiscal policy procyclical.

Figure III-10. Polarization drives expenditure higher.



98. **Table III-2 presents formal econometric evidence on the link between fiscal policy, politics, and the cycle**. Five-year centered moving averages are used to eliminate short-term noise. The fiscal impulse is the dependent variable, while the output gap and (lagged) unemployment represent cyclical conditions. The procyclicality of fiscal policy is

statistically significant. Ideology, government majority and polarization are political variables. A shift in the political climate to the right seems to favor fiscal adjustment, consistent with the preference of conservative parties for smaller government. In contrast, the size of the government's majority is insignificant, possibly because of offsetting ideological positions. Finally, increasing polarization has the expected negative effect on fiscal adjustment, as it makes expenditure control more difficult.

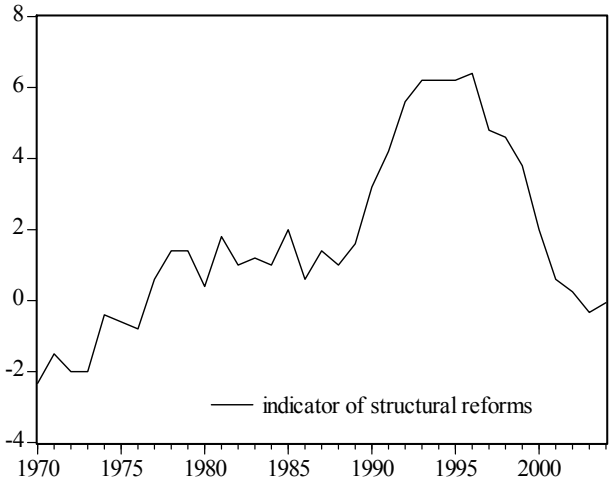
Table III-2. Political Economy of Fiscal Adjustment

Dependent variable: Fiscal impulse		
Variable	Coefficient	t-Statistic
Output gap	0.21	3.28
Unemployment rate (t-1)	-0.38	3.79
Ideology	-2.86	3.25
Majority	4.65	1.74
Polarization	4.70	3.83
Sample: 1970-2004		
Adj. R^2: 0.60		

D. Structural Reforms

99. **The many checks and balances of the political system make experiments difficult and encourage a status-quo bias**. Nevertheless, the system is able to reform under pressure. We constructed an indicator of structural reform for the years 1970–2004 (see detailed Appendix table). The indicator is based on the results of 162 referenda and 17 unchallenged laws on structural reform. Changes that reduced economic distortions or government regulations have a positive sign. Reforms were classified according to significance, from 1 (least significant) to 3 (most significant). To account for referenda bunching and random lags in the consultative process, the raw numbers were averaged over a rolling five-year period. Figure III-11 plots the resulting time series of structural change. Positive values indicate faster and deeper reform.

Figure III-11. A long recession in the mid-1990s facilitated reforms.



100. **During the mid-1990s, severe economic pressure led to a wave of reforms.** An inherently conservative electorate slowed the expansion of the welfare state in Switzerland in the 1960s and 1970s, but also resisted structural reforms later on. Only a prolonged recession in the 1990s and a sharp increase in unemployment created the necessary pressure to persuade the Swiss of the need for changes. The mid-1990s saw important reforms of pension and unemployment benefits, competition law and antitrust, the privatization of telecoms and airports, bilateral treaties with the EU, and the introduction of a VAT. The subsequent economic upturn again reduced the reform drive.

101. **The introduction of the VAT is an instructive case study.** The reform was widely regarded as welfare-enhancing, and the precursor sales tax as highly distortive. Nevertheless, two attempts to introduce a VAT failed in 1977 and 1979. In both years, economic growth was around 2 ½ percent, unemployment was low, and the electorate felt no urgency for structural change. The third attempt finally succeeded in 1993, when Switzerland faced a recession, high unemployment and a soaring fiscal deficit. In this situation, voters even approved a rate increase. The pressure was off again in 2004, when another rate increase to finance pensions fell victim to economic recovery.

102. **Table III-3 shows a regression of the indicator of reform on the same explanatory variables as above.** While the output gap turns out to be insignificant, unemployment increases the pressure for structural reform. Ideology is not significant, as the broad range of structural reforms ran across party lines. However, both a large government majority and political polarization detract from reforms. The government majority in parliament reached a low point during the mid-1990s in part because of dissatisfaction with the status quo. Opposition parties gained support, and put pressure on the main parties to act. Subsequently, however, much of the protest vote was absorbed by SVP and SP. This reduced the need for the government to make difficult reforms, and also increased internal tensions.

Table III-3. Political Economy of Structural Reform

Dependent variable: Indicator of reform		
Variable	Coefficient	t-Statistic
Constant	78.30	3.61
Output gap	-0.12	0.42
Unemployment rate	2.14	4.19
Ideology	-4.13	0.76
Majority	-45.51	4.69
Polarization	-15.34	2.50
Sample: 1970-2004		
Adj. R^2: 0.76		

E. Conclusion

103. **The Swiss political system of direct democracy can adopt reform under economic pressure when the political climate favors compromise.** Under these conditions, reforms can be significant and quick, as in the mid-1990s. Once in place, the consensus-based system ensures that reforms are not easily reversed. The present combination of economic expansion, political polarization, and internal stress in federal and cantonal governments, make fiscal adjustment and economic reform difficult.

104. **That the system is able to make progress is shown by the recently introduced constitutional "debt brake."** The debt brake is an explicit attempt to break the pattern of procyclical fiscal policy, by stressing structural, not actual balances. In its three years of operation, the debt brake has upheld fiscal discipline in a difficult political-economic environment. For the first time, fiscal adjustment is taking place during an upturn.

Switzerland: Referenda with Economic Content 1970-2004

Date	Subject	Type	Participation	Rate of Approval	Scope	Direction	Index of Reform
Nov-04	New financial equalization scheme	O	36.1	64.4	1	1	153
Nov-04	Extend federal income tax to 2020	O	36.1	73.8	1		152
Sep-04	Against liberalization of postal service	I	53.4	49.8			152
Sep-04	Maternity insurance	O	53.4	55.4	2	-1	152
May-04	Lower family taxation	F	50.8	34.1			154
May-04	Increase in VAT	O	50.8	31.4			154
May-04	11. revision of first-pillar pensions	F	50.8	32.1			154
Feb-04	New interstate highway construction	O	45.6	37.2			154
May-03	Public guarantee for apprenticeships	I	49.6	31.6			154
May-03	Financing health care trough taxes	I	49.7	27.1		0	154
Feb-03	Cantonal contributions to hospitals	F	28.7	77.4	1	1	154
Feb-03	Referendum auch gegen Staats Vertraege	O	28.7	70.4		0	153
Nov-02	Compulsory unemployment insurance	F	47.6	56.1	1	-1	153
Sep-02	Liberalization of electricity	F	44.8	47.4			154
Sep-02	Gold sales to benefit cantons and federation	G	45.2	46.4			154
Sep-02	Gold sales to benefit AHV	I	45.2	46.4			154
Mar-02	Shorter work week	I	58.3	25.4			154
Dec-01	Postal reform	L			1	1	154
Dec-01	Bailout of Swissair/Swiss	L			2	-1	153
Dec-01	Capital gains tax	I	37.8	34.1			155
Dec-01	Tax increase for pensions	I	37.8	22.9			155
Dec-01	Debt brake	O	37.8	87.7	3	1	155
Mar-01	Liberalize imports of pharmaceuticals	I	55.7	30.9			152
Mar-01	EU membership	I	55.8	23.2			152
Nov-00	Limit hospital fees to 250 SwF.	I	41.7	17.9			152
Nov-00	No pension to working old	I	41.7	46.0			152
Nov-00	Yes pension to working old	I	41.7	39.5			152
Sep-00	Increase energy taxes, reduce income taxes	O	44.9	44.5			152
Sep-00	Increase energy taxes, reduce income taxes, alternative plan	G	44.7	45.3			152
Sep-00	Increase energy taxes	II	44.7	31.3			152
May-00	Bilateral agreements with EU	F	48.3	67.2	2	1	152
Jun-99	Privatizing Zurich Airport	L			2	1	150
Jun-99	Removing guarantees to cantonal banks, centralizing supervision	L			2	1	148
Jun-99	Reform of SBB	L			1	1	146
Jun-99	Reform of disability insurance (IV)	F	45.6	30.3			145
Feb-99	Liberalizing zoning laws	F	38.0	55.9	1	1	145
Feb-99	Tax breaks for house owners	I	38.2	41.3			144
Nov-98	Flat corporate taxes	L			1	1	144
Nov-98	Liberalization of PTT. Separation of Post and Swisscom, partial privatization	L			2	1	143
Nov-98	Liberalizing labor laws	F	38.1	63.4	2	1	141
Nov-98	Liberalizing grain and bread markets	O	38.0	79.4	1	1	139
Nov-98	Expansion of railway tunnels	O	38.3	63.5	2	1	138
Sep-98	Decreasing retirement age for women	I	51.6	41.5			136
Sep-98	Eliminating agricultural subsidies	I	51.6	23.0			136
Sep-98	Truck taxes	F	51.8	57.2	1	0	136
Jun-98	Deficit target and reduction	O	40.9	70.7	2	1	136
Sep-97	Cutting unemployment benefits	F	40.6	49.2	3	1	134

Type:
O = compulsory referendum (obligatorisches Referendum)
F = non-compulsory referendum (fakultatives Referendum)
I = people's initiative (Volksinitiative)
G = government counter-proposal (Gegenentwurf)
L = unchallenged law

Direction:
1 = decrease in taxations, regulation, distortion
-1 = increase in taxation, regulation, distortion

Switzerland: Referenda with Economic Content 1970-2004 (Continued)

Date	Subject	Type	Participation	Rate of Approval	Scope	Direction	Index of Reform
Dec-96	Liberalizing labor laws	F	46.7	33.0		0	131
Jun-96	Liberalizing agriculture	O	31.4	77.6	1	1	131
Mar-96	Eliminating parking subsidies	O	31.0	53.9	1	1	130
Mar-96	Eliminating brandy subsidies	O	30.9	80.8	1	1	129
Mar-96	Saving military costs	O	31.0	43.7			128
Jun-95	Founding of technical universities	L			1	1	128
Jun-95	Internal market law	L			2	1	127
Jun-95	Antitrust Law	L			2	1	125
Jun-95	Liberalizing real estate purchases	F	40.3	46.4			123
Jun-95	Expanding 1st pillar pension, reducing 2nd pillar pension	I	40.3	27.6			123
Jun-95	10th reform of 1st pillar pension, same retirement age for men and women	F	40.4	60.7	3	1	123
Mar-95	Expenditure brake	O	37.9	83.4	2	1	120
Mar-95	Subsidies for marketing agricultural products	F	37.9	33.6			118
Mar-95	Liberalizing milk quotas	F	37.9	36.5			118
Mar-95	Liberalizing agriculture	G	37.9	49.1			118
Dec-94	Financing health care trough taxes	I	44.0	23.4			118
Dec-94	Free choice of health insurance	F	44.0	51.8	3	1	118
Sep-94	Eliminating bread subsidies	F	45.9	54.6	1	1	115
Jun-94	Subsidies for the arts	O	46.6	51.0	1	-1	114
Feb-94	Truck taxes linked to emissions	O	40.8	67.1	1	1	115
Feb-94	Subsidies for airports	F	40.7	61.1	1	-1	114
Feb-94	Truck taxes	O	40.8	72.2	1	1	115
Feb-94	Highway user fees	O	40.8	68.5	1	1	114
Nov-93	Transform car tax into fuel tax	O	45.4	60.6	1	1	113
Nov-93	Increasing VAT to 7.5%	O	45.4	62.2	1	-1	112
Nov-93	Increasing VAT to 6.5%	O	45.4	57.7	1	-1	113
Nov-93	Introducing VAT at 6.2%	O	45.4	66.7	3	1	114
Sep-93	Health care reform, higher co-payments	F	39.8	80.5	2	1	111
Sep-93	Cutting unemployment benefits	F	39.7	70.4	2	1	109
Mar-93	Liberalizing gambling	O	51.2	72.5	1	1	107
Mar-93	Increasing energy taxes	F	51.3	54.5	1	-1	106
Nov-92	Corporate law reform, accounting standards	L			2	1	107
Nov-92	Security market reform	L			2	1	105
Dec-92	Beitritt zum EWR	O	78.7	49.7			103
Sep-92	Liberalizing agricultural real estate	F	45.7	53.6	1	1	103
Sep-92	Decreasing stamp duty	F	45.7	61.5	1	1	102
Sep-92	Salaries for parliamentarians	F	45.6	27.6			101
Sep-92	NEAT (railway tunnels)	F	45.9	63.6	1	-1	101
May-92	Law for IMF, WB membership	F	38.8	56.4	1	1	102
May-92	Membership in IMF, WB	F	38.8	55.8	1	1	101
Feb-92	Health insurance choices	I	44.4	39.3			100
Jun-91	Public finances	O	33.3	45.7			100
Mar-91	Subsidies for public transport	I	31.2	37.2			100
Sep-90	Busting banking cartel: bond issuance, brokerage fees	L			1	1	100
Sep-90	No new nuclear power plants	I	40.4	54.5	2	1	99
Apr-90	Subsidies for wine growers	F	40.8	46.7		1	97

Type:
O = compulsory referendum (obligatorisches Referendum)
F = non-compulsory referendum (fakultatives Referendum)
I = people's initiative (Volksinitiative)
G = government counter-proposal (Gegenentwurf)
L = unchallenged law

Direction:
1 = decrease in taxations, regulation, distortion
-1 = increase in taxation, regulation, distortion

Switzerland: Referenda with Economic Content 1970-2004 (Continued)

Date	Subject	Type	Participation	Rate of Approval	Scope	Direction	Index of Reform
Jun-89	Subsidies for smallholders	I	36.0	48.9			97
Dec-88	Reduction reserve requirement	L			2	1	97
	Stop speculation in land (Stadt-Land Initiative)						
Dec-88		I	52.8	30.8			95
Jun-88	Lowering of retirement age	I	42.0	35.1			95
Jun-88	Subsidizing public transport	O	41.9	45.5			95
Dec-87	Swiss interbank clearing	L			2	1	95
	Schutz der Moore (Rothenthurm Initiative)						
Dec-87		I	47.7	57.8			93
Dec-87	Maternity insurance	F	47.7	28.7			93
Apr-87	Subjecting military spending to referenda	I	42.4	40.6			93
Dec-86	Truck taxes	I	34.7	33.9			93
Dec-86	Rent control	O	34.7	64.4	1	-1	93
Sep-86	Sugar subsidies	O	34.9	38.2			94
Sep-86	Apprenticeship guarantee	I	34.8	18.4			94
Sep-85	Second pillar of pensions	L			3	1	94
Sep-85	Risk guarantees for small enterprises	F	40.9	43.1			91
Jun-85	Eliminating grain subsidies	O	35.3	57.0	1	1	91
Jun-85		O	35.2	72.3	1	1	90
Jun-85	No stamp duty for the cantons	O	35.2	66.5	1	1	89
Mar-85	Subsidize higher education	O	34.4	47.6			88
Mar-85	Eliminating federal subsidies to health care	O	34.4	53.0	2	1	88
Mar-85	Free elementary schooling	O	34.4	58.5	1	-1	86
Dec-84	Maternity insurance	I	37.6	15.8			87
May-84	Stop speculation in land	I	42.5	48.9			87
May-84	Abolishing banking secret	I	42.5	27.0			87
Feb-84	Highway user fees	O	52.8	53.0	1	-1	87
Feb-84	Truck taxes	O	52.8	58.7	1	-1	88
Feb-83	Fuel taxes	O	32.4	52.7	1	-1	89
Nov-82	Pricing abuse monitor	O	32.9	21.6			90
Nov-82	Pricing abuse	O	32.9	56.1	1	1	90
Nov-81	Fiscal adjustment program	F	30.4	69.0	1	1	89
Nov-80	Eliminating grain subsidies	G	41.9	63.5	1	1	88
Nov-80	Revenue sharing for alcohol tax	I	41.9	71.0	1	1	87
Nov-80	No stamp duty for the cantons	O	41.9	67.3	1	1	86
May-79	Introducing VAT	O	37.7	34.6			85
Dec-78	Milk subsidies	F	43.2	68.5	1	-1	85
May-78	Subsidies for universities	F	48.9	43.3	1	1	86
May-78	Eliminating bread subsidies	F	48.7	54.8	1	1	85
Feb-78	Anticyclical fiscal and monetary policies	O	48.0	68.4	1	-1	84
Feb-78	Reducing retirement age	I	48.3	20.6			85
Feb-78	9th reform of first-pillar pensions AHV	F	48.3	65.6	2	1	85
Dec-77	Fiscal adjustment program	F	38.2	62.4	2	1	83
Dec-77	Capital gains tax	I	38.3	44.4			81
Sep-77	Rent control	G	51.6	41.2			81
Sep-77	Rent control	I	51.6	42.2			81
Jun-77	Tax harmonization	O	49.9	61.3	1	-1	81
Jun-77	Introducing VAT	O	50.0	40.5			82
Mar-77	Stop immigration, 5th initiative	I	45.2	33.8			82
Mar-77	Stop immigration, 4th initiative	I	45.2	29.5			82

Type:
O = compulsory referendum (obligatorisches Referendum)
F = non-compulsory referendum (fakultatives Referendum)
I = people's initiative (Volksinitiative)
G = government counter-proposal (Gegenentwurf)
L = unchallenged law

Direction:
1 = decrease in taxations, regulation, distortion
-1 = increase in taxation, regulation, distortion

Switzerland: Referenda with Economic Content 1970-2004 (Concluded)

Date	Subject	Type	Participation	Rate of Approval	Scope	Direction	Index of Reform
Dec-76	40-hour work week	I	45.2	22.0			82
Dec-76	Price abuse monitoring	O	45.1	82.0	1	1	82
Dec-76	Monetary policy	O	44.8	70.3	1	-1	81
Sep-76	Public insurance for bicycles and motorbikes	I	33.5	24.3			82
Jun-76	Introducing unemployment insurance	O	34.5	68.3	3	-1	82
Jun-76	Loan to IDA (World Bank)	F	34.5	43.6			85
Mar-76	Closing tax loopholes	I	39.3	42.2			85
Mar-76	Mitbestimmung (GG)	G	39.4	29.6			85
Mar-76	Mitbestimmung (VI)	I	39.4	32.4			85
Dec-75	Liberalizing agricultural trade	F	31.1	52.0	1	-1	85
Dec-75	Liberalizing water	O	30.9	77.5	1	-1	86
Dec-75	Facilitating immigration	O	30.9	75.6	1	1	87
Jun-75	Expenditure brake	O	36.8	75.9	1	1	86
Jun-75	Increasing income taxes	O	36.8	56.0	1	-1	85
Jun-75	Reducing custom tariffs	F	36.8	48.2			86
Jun-75	Financing highway construction	F	36.8	53.5	1	-1	86
Jun-75	Kapitalkontrollen Verlaengerung	O	36.8	85.5	1	-1	87
Mar-75	Konjunktur Artikel der BV	O	28.4	52.8	2	-1	88
Dec-74	Health care insurance (gov. proposal)	G	39.7	31.8			90
Dec-74	Health care insurance (people's initiative)	I	39.7	26.7			90
Dec-74	Expenditure brake	O	39.5	67.0	1	1	90
Dec-74	Fiscal adjustment program	O	39.6	44.4			89
Oct-74	Limiting immigration	I	70.3	34.2			89
Dec-73	Limiting depreciation allowance	O	35.0	68.0	1	-1	89
Dec-73	Public infrastructure program	O	35.0	70.4	1	-1	90
Dec-73	Banking law	O	35.0	65.1	2	1	91
Dec-73	Price and wage controls	O	35.0	59.8	2	-1	89
Mar-73	Subsidies for research and development	O	27.5	64.5	1	1	91
Dec-72	Pension reform (gov. proposal)	G	52.9	74.0	1		90
Dec-72	Pension reform (communist initiative)	I	52.9	15.6			90
Jun-72	Capital controls	O	26.7	87.7	2	-1	90
Jun-72	Cooling construction sector	O	26.7	83.4	1	-1	92
Mar-72	Rent control	O	35.7	85.4	1	-1	93
Mar-72	Cutting construction subsidies	G	35.7	58.5	1	-1	94
Jun-71	Credit restrictions	L			2	-1	95
Jun-71	Reforming federal income tax	O	37.8	72.8	2	-1	97
Nov-70	Finanzordnung des Bundes	O	41.4	55.4			99
Sep-70	Recht auf Wohnung	I	43.8	48.9			99
Jun-70	Gegen Ueberfremdung	I	74.7	46.0			99
Feb-70	Reducing sugar subsidies	F	43.8	54.2	1	-1	99

Type:
O = compulsory referendum (obligatorisches Referendum)
F = non-compulsory referendum (fakultatives Referendum)
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1 = decrease in taxations, regulation, distortion
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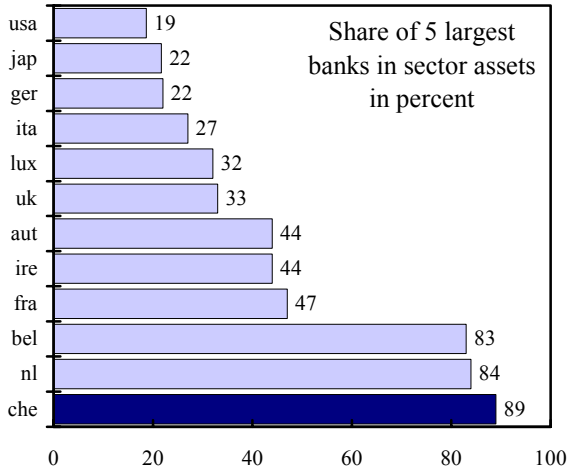
Federal Statistical Office (2004): *Statistical Yearbook*, p. 754.

Jeitziner, B., Hohl, T. (1997): Measuring Political Preferences: Ratings for Members of the Swiss National Council. *Schweizerische Zeitschrift fur politische Wissenschaft,* 3 (4), 1-27. Figure III-5 is based on the most recent data for 2004, available under www.parlarating.ch.

IV. Characteristics of the Swiss Financial System in International Comparison[29]

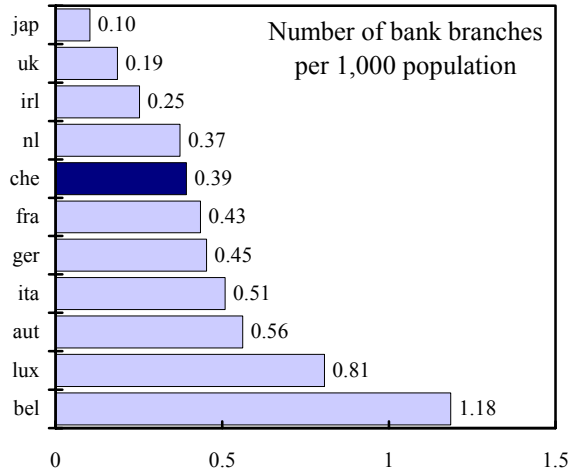
105. **The Swiss financial system is large, well developed, and internationally oriented.** Assets of banks and investment funds, and assets under management and custody in banks total around 15 times the Swiss GDP (Table IV-1). Value added in the financial services sector (banking and insurance) amounts to 13.6 percent of GDP, more than any other sector in the economy, and the sector employs more than 190,000 people (4.5 percent of total employment in the economy).

The banking system is highly concentrated.



Source: Bankscope, World Bank.

Number of branches per population is about average.



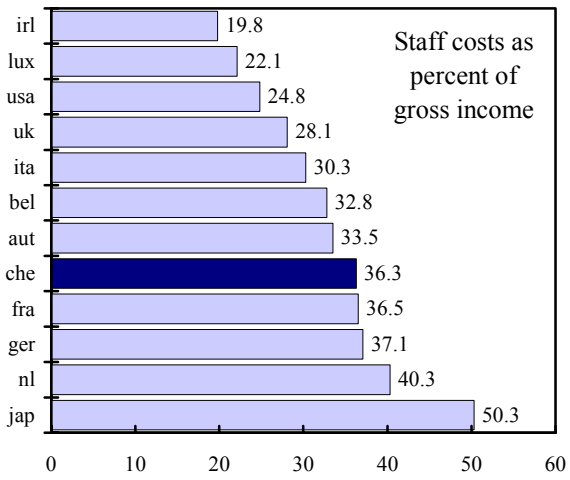
Source: ECB; and OECD Bank Profitability.

106. **The financial sector is well diversified.** It consists of two large, internationally active banks (Credit Suisse Group and Union Bank of Switzerland), private banks offering extensive services in wealth and asset management, regional and savings banks, cantonal banks, a large number of foreign or foreign-controlled banks, and various insurance and reinsurance companies. Structures, activities, and balance sheets of most institutions are divided across sectors, regions or countries, and asset types, bringing benefits to the system through diversification and the spreading of risk. Nevertheless, because the two international banks are large compared to those more focused on the domestic market or specialized in niche activities, the Swiss banking sector is highly concentrated by international comparison. The insurance sector is less concentrated, even though the two largest players—SwissRe and Swiss Life—are also large international companies (Table IV-2).

[29] Prepared by Magdalena Polan.

107. **In response to domestic and external developments, in recent years the Swiss financial sector has undergone consolidation and reorganization, and has expanded further its activities abroad**. Reflecting similar trends in other countries with an active period of mergers and takeovers, the number of banks shrunk by 17 percent between 1990 and 2004.[30] In response to increased international competition and with a need to expand beyond the small and relatively slow-growing domestic market, the larger banks, insurance, and reinsurance companies have stepped up their activity outside Switzerland. In private banking, banks expanded by offering financial services to their customers in their home countries (rather than from Switzerland as a base). Moreover, UBS and Credit Suisse have become global players in investment banking. In both banking and insurance, these developments have resulted in a division between a small number of global financial service providers on the one hand, and a large number of specialized niche players on the other.

Staff costs are close to average.



Source: ECB; and OECD Bank Profitability.

108. **Swiss firms hold a large market share in international wealth management.** Swiss banks manage around one third of all private assets invested across borders[31], more than any other international financial center. Some 83 percent of the assets under management and 56 percent of assets held in custody belong to foreign investors. Switzerland's strength in wealth management reflect the strong reputation that Swiss banks enjoy with their high quality of service, attention to individual customer needs, and the benefits of tax management. Virtually all assets under management are invested outside Switzerland, reflecting the relatively small size of the domestic capital market.

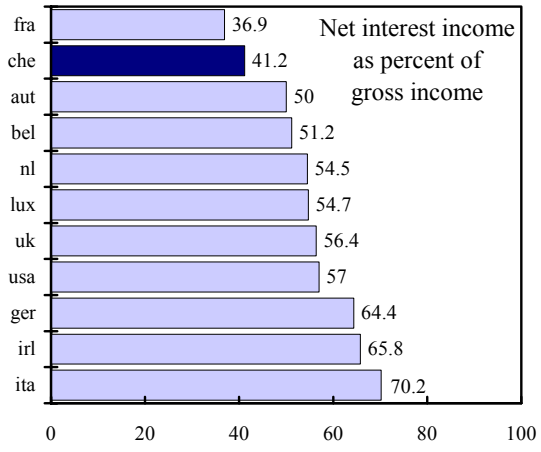
109. **Due to its activities in international asset management, the banking system obtains an large share of its income from fees and commissions**. This makes the performance of the system less dependent on interest margins, but more dependent on asset prices (especially equity), since fees and commissions are typically linked to asset values. As a result, international financial market developments, such as the sharp valuation drop in

[30] The Swiss insurance industry has not experienced such a consolidation. The number of insurance companies remained unchanged and employment was fairly stable during the same period.

[31] Source: Economist Intelligence Unit.

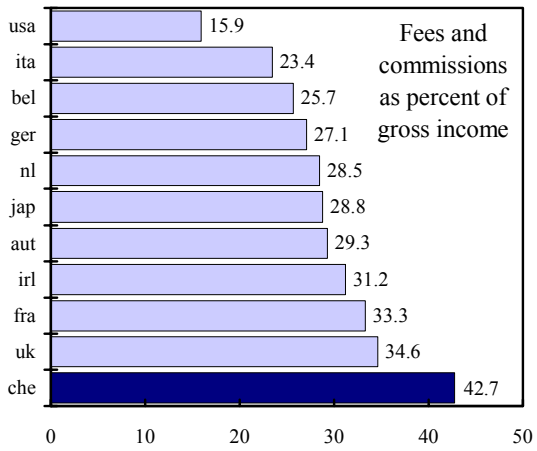
many stock markets in 2001, tend to have a large impact on the profitability of the Swiss system. Indeed, global imbalances as a risk factor are keenly monitored by Swiss regulators and bankers.

The share of interest income is relatively low.



Source: ECB; and OECD Bank Profitability.

Income from fees and commissions is high.



Source: ECB; and OECD Bank Profitability.

110. **Regulatory capital ratios of Swiss banks remain high in European comparison and the overall risk profile of the sector is low.** The sector is prudently managed and has high quality assets (Table IV-3). At the same time, Swiss banks, because of their specific services profile, are vulnerable to operational and reputation risk. To protect the strong confidence in the operational and reputational integrity of the system, Swiss banks are subject to stricter prudential requirements than those proposed as international standards under the Basle II accords.

111. **The Swiss insurance sector is large and active in international markets, and includes some of the global players.** At SwF 530 billion, assets of insurance companies were equal to 122 percent of GDP in 2003 (Table IV-1). Premiums collected in 2003 totaled SwF 51.6 billion, of which life insurers collected 62 percent. With annual premium volume of SwF 7,000 per capita (private direct insurance only), Switzerland has the highest insurance density in the world. The domestic market is very contested and attractive to Swiss and foreign companies alike. International insurance business is important as 70 percent of group premiums are generated abroad, and 95 percent of the turnover of reinsurance companies is abroad. In contrast, health and social insurance companies tend to focus on domestic clients.

112. **The insurance sector is generally well managed, but has still not fully recovered from the financial asset price collapse in 2001, and it continues to be affected by the long-lasting low interest rate environment.** Low interest yields also continue to put strain on the Swiss second pillar pension funds, which are taking steps to reduce under-funding (Table IV-4). In addition, slow or insufficient adjustment in regulated parameters affecting

life insurers and pension funds, such as minimum returns on policies, discount rates (for actuarial assessments), and annuity conversion rate (determining annuity benefits paid from accumulated capital), have complicated the management of these companies' balance sheets. With the return to growth in the economy, insurance companies and pension funds have recovered some ground lost in 2004, but their stock market valuations remain well below previous peaks.

Table IV-1. Switzerland: Structure and Size of the Financial System

	2002	2003	2004
Number			
Banks	356	342	338
Cantonal banks	24	24	24
Large banks	3	3	3
Regional and savings banks	88	83	83
Raiffeisen banks	1	1	1
Other banks	200	190	188
Trading banks	11	9	9
Stock exchange banks	62	55	53
Other banks	5	4	4
Foreign controlled banks	122	122	122
Branches of foreign banks	25	26	25
Private banks	15	15	14
Insurance companies - Life	24	24	...
Insurance companies - General	123	124	...
Pension funds (second pillar)	...	8,134	...
Concentration			
Banks 1/	64.7	63.4	66.3
Insurance companies - Life 2/	15.2	14.1	...
Insurance companies - General 3/	7.5	7.4	...
Assets (in SwF billion)			
Banks	2,251.9	2,237.0	2,491.0
Cantonal banks	312.8	310.7	314.4
Large banks	1,444.5	1,408.7	1,643.5
Regional and savings banks	78.8	80.6	81.5
Raiffeisen banks	92.7	102.1	106.1
Other banks	290.4	301.5	313.7
Trading banks	40.6	42.0	43.3
Stock exchange banks	80.9	82.9	85.7
Other banks	3.2	3.1	3.5
Foreign controlled banks	165.7	173.5	181.3
Branches of foreign banks	16.4	16.0	14.9
Private banks	16.2	17.4	16.8
Insurance companies - Life	300.6	311.1	...
Insurance companies - General	506.1	529.6	...
Pension funds	440.6	...	...

Sources: Swiss National Bank; and Swiss Federal Banking Commission.

1/ Share of total sector assets (in percent) of three largest institutions.
2/ Herfindahl's index--6 companies control 90% of the market.
3/ Herfindahl's index--11 companies control 90% of the market.

Table IV-2. Switzerland: Financial Development in Major Financial Institutions, 2002-04

	2002	2003	2004
Union Bank of Switzerland (SwF millions)			
Profit 2/	3,530	6,239	8044
Operating Income	34,107	33,790	37402
S&P Credit Ratings	AA+	AA+	AA+
Credit Swiss Group (SwF millions)			
Profit 2/	-4,448	770	5,628
Operating Income	47,245	51,353	54,014
S&P Credit Ratings	AA-	A-1	A-1
Zurich Financial Services (US$ millions)			
Profit USD millions 2/	-3,503	3,611	3,786
Operating Income	40,302	57,208	59,678
S&P Credit Ratings	A	A	A-
Swiss Life (SwF millions) 1/			
Profit 2/	-1,847	477	1,009
Operating Income	20,624	21,088	22,342
S&P Credit Ratings	A-	A-	A-
Swiss Re (SwF millions)			
Profit (SwF millions) 2/	-91	1,702	2,475
Operating Income	34,415	36,430	36,093
S&P Credit Ratings	AA+	AA	AA
Total			
Profit (SwF millions) 2/	-8,316	14,051	21,916
Profit (percent of GDP)	-1.9	3.3	6.6
Operating Income (SwF millions)	199,206	219,700	224,881
Operating Income (percent of GDP)	46.6	51.0	67.8

Sources: Company reports; and IMF staff calculations.

1/ Data for Swiss Life is for the first half of the year.
2/ Profit before taxes and minority interests.

Table IV-3. Switzerland: Core Set of Financial Soundness Indicators

	2002	2003	2004
Banks			
Regulatory capital as percent of risk-weighted assets	12.1	11.2	11.0
Regulatory Tier I capital to risk-weighted assets	12.6	12.2	11.6
Non-performing loans net of provisions as percent of tier I capital	23.3	16.5	12.1
Non-performing loans as percent of gross loans	3.1	2.3	1.6
Gross profits as percent of average assets (ROAA)	1.1	0.9	0.9
Gross profits as percent of average equity capital (ROAE)	18.3	16.0	16.7
Net interest income as percent of gross income	37.6	42.9	38.6
Non-interest expenses as percent of gross income	66.6	67.8	66.5
Liquid assets as percent of total assets	21.6	26.1	27.0
Liquid assets as percent of short-term liabilities	47.9	52.9	54.9
Sectoral distribution of bank credit to the private sector			
Households	61.3	64.1	65.5
Agriculture and food industry	0.7	0.7	0.7
Industry and manufacturing	5.1	4.6	4.1
Construction	2.4	2.2	2.1
Retail	4.5	4.0	3.6
Hotels and restaurants / Hospitality sector	1.5	1.5	1.4
Transport and communications	1.0	1.1	1.1
Other financial activities	3.0	2.2	2.2
Insurance sector	0.7	0.5	0.5
Commercial real estate, IT, R&D	12.3	12.2	12.2
Public administration (excl. social security)	3.5	3.3	3.2
Education	0.2	0.2	0.2
Healthcare and social services	1.4	1.3	1.3
Other collective and personal services	1.6	1.5	1.5
Other	0.5	0.5	0.5

Sources: Swiss National Bank; and IMF staff calculations.

Table IV-4. Switzerland: Encouraged Set of Financial Soundness Indicators

	2002	2003	2004
Banking sector			
Capital as percent of assets 1/	5.4	5.2	5.0
Geographical distribution of bank credit as percent of total foreign credit			
Switzerland	65.1	68.0	64.6
EMU countries	4.9	4.7	4.7
Other developed countries	21.2	16.7	18.9
Central and eastern European countries	0.4	0.5	0.5
Emerging markets and developing countries	8.4	10.2	11.3
Trading income as a percent of gross income	12.6	7.5	11.8
Personnel expenses as percent of non-interest expenses	57.0	59.7	60.7
Customer deposits as percent of total (non-interbank) loans	98.4	104.8	105.0
Foreign currency loans as percent of total loans	31.6	31.6	31.6
Foreign currency liabilities as percent of total liabilities	55.1	54.8	57.8
Pension funds			
Under-funding as percent of total liabilities	22.6	19.6	...
Share of underfunded funds (as percent of all pension funds)	19.8	11.9	...
Households			
Household debt as a precentage of GDP	85.7	88.5	90.1
Real estate markets			
Annual percent increase of real estate prices	2.8	2.3	2.3
Mortgage loans as percent of total loans	69.9	71.5	69.7

Sources: Swiss National Bank; and IMF staff calculations.

1/ Simple ratio of capital to total assets, without risk weighting.