November 2004

Is Switzerland in a Great Depression?

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Abstract_____

Abrahamsen, Aeppli, Atukeren, Graff, Müller and Schips (2004) object to Kehoe and Prescott's (2002) characterization of the Swiss economy as being in a great depression over the period 1974-2000. They argue that (1) depressions should be defined in terms of declines in labor productivity rather than in GDP; (2) examining deviations from trend in GDP is equivalent to examining levels; (3) Swiss data from the 1970s should be ignored because it is of low quality and because the 1970s were a period of turmoil in the Swiss labor market; (4) Swiss GDP data should be adjusted to account for appreciations in the terms of trade; and (5) the change in Swiss national accounts from a system based on SNA68 to one based on SNA93 will make Swiss economic performance look better. In this note, we find that none of these arguments have merit except for, possibly, the need to adjust GDP data for changes in the terms of trade. We conclude that Switzerland has indeed suffered a great depression and, in fact, is mired in it even today.

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1. Introduction

In developing a methodology for analyzing great depressions, Kehoe and Prescott (2002) use the economic experience of the United States over the twentieth century to find criteria for defining a period as a great depression. As shown in Figure 1, real GDP per working age (15-64) person has grown consistently by 2 percent per year in the United States, with the major exceptions of the U.S. Great Depression of the 1930s and the subsequent World War II buildup. Kehoe and Prescott define a great depression as a period of large decline in GDP from a trend growth path. Looking at data from the period after World War II, they find that — outside of some countries in Latin America — the only two relatively prosperous, market economies that have had periods that satisfy their definition of a great depression are New Zealand and Switzerland.

Abrahamsen, Aeppli, Atukeren, Graff, Müller, and Schips (2004) object to Kehoe and Prescott's (2002) characterization of the Swiss economy as being in a great depression over the period 1974-2000. They argue

1. The Kehoe-Prescott definition of great depression based on deviations of real GDP per working age person from a 2 percent per year growth trend is flawed. They argue that declines in real GDP per hour worked provide a better measure.

2. The inclusion of the growth trend in the Kehoe-Prescott definition is irrelevant.

3. We should throw out data from the 1970s because the Swiss data from the 1970s is of low quality and, because of problems in government policy regarding unemployment insurance for migrant workers, the 1970s were a period of turmoil in the Swiss labor market.

4. If we adjust the concept of real GDP to account for the large appreciation in the Swiss terms of trade that occurred in the 1980s and 90s, Swiss economic performance does not look as bad.

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5. We should expect the switch in the Swiss national accounts from SNA68 to SNA93 to make Swiss economic performance over the period 1980-2000 look even better[1].

Abrahamsen et al. reach the conclusion that Swiss economic performance over the period 1980-2000 is not noticeably worse than that of the United States and that, therefore, Kehoe and Prescott are not justified as classifying the Swiss experience 1974-2000 as a great depression.

In this note, we reply that

1. Given the U.S. experience and economic theory, the Kehoe-Prescott definition of a great depression is appropriate for detecting large negative deviations of an economy from its potential growth path. Declines in productivity are not the same as depressions. Furthermore, even as a measure of productivity, the measure presented by Abrahamsen et al. has serious problems because of the construction of their data on hours worked before 1990.

2. Trend growth is an important part of the theory behind the depressions methodology. Comparing data to the trend growth rate is essential for determining how large is the negative deviation from trend and, consequently, for determining whether or not a great depression has occurred.

3. It is unfortunate that Swiss data from the 1970s is not of high quality. Using standard techniques to deal with the best available Swiss data, however, we see that Swiss economic performance in the 1970s was abysmal. Furthermore, the sorts of policy changes that caused the turmoil in the Swiss labor market in the 1970s are exactly what the Kehoe-Prescott great depressions methodology has been designed to detect and analyze.

4. Adjusting GDP for appreciation in the terms of trade does indeed make Swiss economic performance look better. This is a topic that needs to be studied more.

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[1] The Swiss national accounts have recently switched from a system based on the European Commission's European System of Accounts of 1979 (ESA79) to a system based on ESA95. ESA79 in turn was based on the United Nations' System of National Accounts of 1968 (SNA68), and ESA95 is based on SNA93. We follow Abrahamsen et al. in referring to these two systems of national accounts as SNA68 and SNA93.

5. The Swiss SNA93 data have recently been published. Using SNA93 data rather than SNA68 data does make Swiss economic performance look slightly better if we do not make the adjustment for changes in terms of trade. The SNA93 data show much less of an appreciation in the Swiss terms of trade, however, especially in the 1990s. If we adjust for the appreciation in the terms of trade, the overall effect of using SNA93 data rather than SNA68 data is to make Swiss economic performance look worse.

We conclude that Swiss economic performance over the period 1974-2000 is much worse than that of the United States. If we do not adjust for changes in the terms of trade, Swiss economic performance easily satisfies the Kehoe-Prescott definition of a great depression. If we do adjust for changes in the terms of trade, the case is closer to the borderline, but expanding the period slightly to 1974-2001, Swiss economic performance still satisfies the Kehoe-Prescott definition. A minor aside: Using data adjusted for changes in the terms of trade, we see that the Swiss great depression actually starts in 1973, rather than 1974.

2. The Kehoe-Prescott Definition of Great Depression

Kehoe and Prescott (2002) use economic theory to guide their view of economic data. GDP per capita — or, as in their case, per working age person — is widely used to measure the performance of an economy, because it is the relevant measure as determined by widely accepted economic theory. This theory is formalized in the workhorse model of general equilibrium macroeconomics, the neoclassical growth model. The model features an aggregate production function of the Cobb-Douglas form,

$$Y_t = A_t K_t^\alpha L_t^{1-\alpha}, \tag{1}$$

where Y_t is output, A_t is total factor productivity (TFP), K_t is capital and L_t is labor input. If population grows at a constant rate, $N_t = N_0 \eta^t$, and TFP grows at a constant rate, $A_t = A_0 (1+\gamma)^{(1-\alpha)t}$, then the economy has a balanced growth path in which all quantities per working age person grow at the rate γ except hours worked per working age person, which is constant. Most notably, output per working age person grows at the

rate γ. It is this implication of the growth model that drives the widespread use of GDP per capita as a measure of economic performance. Economists who study growth look at the determinants of this trend in GDP per capita; other economists study deviations from this trend. Small deviations from trend in GDP per capita are called business cycles in the tradition of Schumpeter (1935) and Lucas (1977). Large deviations from trend are called great depressions.

Kehoe and Prescott (2002) motivate their definition of a great depression by examining data on real GDP per working age person in the United States over the twentieth century depicted in Figure 1. The straight line in the figure is a 2 percent per year growth trend, which is the average growth rate of GDP per working age person in the United States over the last 100 years, or more. A period in which GDP per working age person is below trend is a *great depression* if it meets the following three conditions:

1. There is at least one year in which output per working age person is at least 20 percent below trend.

2. There is at least one year in the first decade of the great depression in which output per working age person is at least 15 percent below trend.

3. There is no significant recovery during the period in the sense that there is no subperiod of a decade or longer in which the growth of output per working age person returns to rates of 2 percent or better.

This definition is motivated by the data in Figure 1, where the period 1929-1939 in the United States satisfies the great depression criteria. Figure 2 depicts the analogous data for Switzerland. In Switzerland, the periods 1930-1944 and 1974-2000 both satisfy the great depression criteria. In terms of fall in output from trend, 1974-2000 is worse than 1930-1944 in Switzerland.

Kehoe and Prescott (2002) rewrite the production function (1) as

$$Y_t / N_t = A_t^{1/(1-\alpha)} \left(K_t / Y_t \right)^{\alpha/(1-\alpha)} \left(L_t / N_t \right). \tag{2}$$

They note that, along a balance growth path, when A_t grows at a constant rate, the capital-output ratio K_t / Y_t and hours worked per working age person L_t / N_t are constant. Figure 3 depicts the decomposition of the growth of output per working age Y_t / N_t in the United States over the period 1970-2000 into the three factors $A_t^{1/(1-\alpha)}$, $\left(K_t / Y_t \right)^{\alpha/(1-\alpha)}$, and L_t / N_t. Notice that the U.S. growth path is close to balanced: the growth in Y_t / N_t is close to that in $A_t^{1/(1-\alpha)}$, and $\left(K_t / Y_t \right)^{\alpha/(1-\alpha)}$ and L_t / N_t are close to constant. To be sure, there are deviations from balanced growth behavior. Over the period 1982-2000, output per working age person Y_t / N_t rises faster than does the productivity factor $A_t^{1/(1-\alpha)}$, for example, because hours worked per working age person L_t / N_t steadily increase.

The Swiss data depicted in Figure 4 are strikingly different from the U.S. data.[2] The poor performance of the Swiss economy is accounted for by the stagnation in the productivity and by the drops in hours worked per working age person in the 1970s and 1990s. Abrahamsen et al. look at data on output per hour worked,

$$Y_t / L_t = A_t^{1/(1-\alpha)} \left(K_t / Y_t \right)^{\alpha/(1-\alpha)}, \tag{3}$$

ignoring fluctuations in hours worked per working age person L_t / N_t.

Cole and Ohanian (1999, 2004) and Fisher and Hornstein (2002) find that much of the 1929-1939 great depression in the United States and the 1928-1937 great depression in Germany is accounted for by drops in hours worked per working age person in the form of massive unemployment. If we measure economic performance only in terms of drops in output per hour worked, both the U.S. experience and the German experience look mild. By the criteria of Abrahamsen et al., it would be hard to call either experience a great depression. Since the term "great depression" is associated precisely with experiences like that in the United States and Germany in the 1930s, we therefore reject the criteria of Abrahamsen et al.

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[2] The data used in this paper, together with documentation, can be found on http://www.econ.umn.edu/~tkehoe/. These data do not come the Penn World Table. Nor do the data used by Kehoe and Prescott (2002), contrary to the assertion of Abrahamsen et al.

As an aside, we note that there is something wrong with the hours worked data employed by Abrahamsen et al. Figure 5 contrasts the data employed by Abrahamsen et al. with the data employed by Kehoe and Ruhl (2003). Notice that the data of Abrahamsen et al. seem to have been constructed by linearly connecting data from the 1990s with two data points, one in 1987 and one in 1980 or earlier. Abrahamsen et al. have obtained these data from the Groningen Growth and Development Centre (GGDC). The GGDC data have since been corrected, however, and the data on hours worked in Switzerland on the GGDC web site at the time this note has been written (November 2004) are close to those of Kehoe and Ruhl (2003). If Abrahamsen et al. were to reconstruct their graphs 1 and 2 using the corrected GGDC data, the performance of Swiss GDP per hour worked in the 1980s would look much worse.

3. Detrending

Kehoe and Prescott (2002) argue that the trend growth of two percent per year experienced by the United States during the twentieth century was technologically feasible for other countries. Countries that improve their institutions, thereby allowing themselves to adopt the most efficient technologies more rapidly, to accumulate capital more rapidly, or to work more, could grow even faster. Kehoe and Prescott define great depressions as large losses in potential output defined in terms of this two percent trend growth. Abrahamsen et al. argue that, since the detrending factor is constant across countries and time, one could skip the detrending step, "set a higher value of the depression signal and arrive at exactly the same results."

As a mater of simple algebra, the argument of Abrahamsen et al. is wrong. If we accept the Kehoe-Prescott premise that potential output is growing, then loses in potential output are seen much more clearly in detrended data like that depicted in Figure 6 than they are in non detrended data like that depicted in Figure 7. To see if an economy during some period of time satisfies Kehoe and Prescott's criterion 1 for being in a great depression in Figure 6, for example, we merely check whether output per working age person normalized to 100 in the year before the period falls below 80 at some point during the period. In contrast, with the non detrended data in Figure 7, the criterion is a moving one. We have to check whether output per working age person falls below 81.6

(=80×1.02) in the first year, or below 83.2 in the second year, or below 84.9 in the third year, and so on. Figure 6 makes it easy to make statements like: By the year 2000, Switzerland has fallen 30.4 percent below trend since 1973, while the United States is 4.5 percent below trend. Figure 7 does not.

4. The Swiss Downturn in the 1970s

The most striking difference between the graph of Swiss economic performance presented by Abrahamsen et al. and those presented by Kehoe and Prescott (2002) and by Kehoe and Ruhl (2003) is the treatment of data for the 1970s. The Kehoe-Prescott and Kehoe-Ruhl graphs show real GDP per working age person rapidly falling by 4.6 percent from 1973 to 1978, dropping 12.6 percent below trend. Abrahamsen et al. ignore the data for the 1970s. One of the arguments that they employ to justify ignoring these data is that the underlying Swiss GDP data for the 1970s is based on an old income-based system of national accounts, rather than more modern systems based on SNA68 or SNA93 that systematically account for both income and expenditures. Kehoe and Prescott (2002) and Kehoe and Ruhl (2003) employ the same sorts of techniques for splicing together the different Swiss GDP series as do, for example, the International Monetary Fund and the Organisation for Economic Co-operation and Development.

The various studies of historical episodes in the Federal Reserve Bank of Minneapolis's Great Depression Project (Kehoe and Prescott, 2002, 2004) use the best GDP data available. Fisher and Hornstein (2002), for example, analyze the German great depression of 1928-1937 using GDP data not constructed in accordance with SNA. The poor quality of data obviously presents potential problems in the analysis but does not justify ignoring important historical episodes. Nor does it mean that we cannot refer to the experiences like that of Germany in the 1930s — or that of Switzerland over the past 30 years — as great depressions.[3]

The second argument that Abrahamsen et al. employ to justify ignoring Swiss data from the 1970s is that the lack of mandatory unemployment insurance for migrant

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[3] The poor quality of Swiss economic data is notorious even today. A recent IMF report on Switzerland concludes, "Additional resources need to be allocated to the improvement of economic statistics to strengthen the basis for sound economic analysis and policy" (International Monetary Fund 2004).

workers meant that the severe recession of the mid 1970s forced many of these workers to leave Switzerland. Since these migrant workers had very high labor force participation rates, this meant that the working age population left in Switzerland had a lower participation rate. The Swiss government implemented a reform in 1978 that mandated unemployment insurance for migrant workers, and Abrahamsen et al. argue that it is not fair to look at Swiss data before this reform was implemented. The Kehoe-Prescott great depressions methodology has been designed precisely to detect and analyze episodes like those in Switzerland in the 1970s. That we can understand why Switzerland did so poorly in the 1970s does not imply that we should ignore this episode.

5. Terms of Trade Adjustments to GDP

Changes in the terms of trade have been large and favorable in Switzerland compared to the United States. Abrahamsen et al. argue that adjusting GDP for the terms of trade appreciation — which is not done in Kehoe and Prescott (2002) — improves the graph of Switzerland's economic performance. Kehoe and Ruhl (2003) address this issue; we revisit it here.

In an open economy, favorable changes in the terms of trade increase the amount of goods and services an economy can produce in ways that are not captured in the usual definition of GDP. In standard national accounting, changes in the ratio of the price of exports to imports — the *terms of trade* — are treated as price phenomena. An increase in the price of exports would show up in the price deflator for exports, for example, and, if other real quantities did not change, real GDP would not change. The increase in the price of exports, however, means that a country can get more imported inputs for the same amount of export goods; the change in the terms of trade increases the amount of goods and services a country can produce. Rather than think of changes in the terms of trade as price phenomena, we can think of them as changes in technology. To do this, the United States' Bureau of Economic Analysis computes *command-basis GDP* in which the trade balance (exports minus imports) is deflated by the implicit price deflator for imports. This method values nominal exports in terms of the import goods that they can purchase. For a comprehensive analysis of the terms of trade and GDP measurement beyond the simple command-basis GDP approach see Kohli (2004).

We plot command-basis GDP and traditionally measured real GDP for Switzerland in Figure 8. Real GDP and command-basis GDP move together over 1970-1981; the terms of trade change little during this period. Beginning in 1982, the terms of trade in Switzerland quickly appreciate, which leads to higher growth in command-basis GDP than in real GDP. By 2000, command-basis GDP per working age person has fallen only 18 percent below trend while real GDP per working age person has fallen 30 percent below trend. Accounting for changes in the terms of trade does indeed have an impact on our evaluation of the economic performance of Switzerland.

6. Changing Systems of National Accounts

Abrahamsen et al. argue that differences in national accounting systems may be systematically understating growth in Switzerland. The data used in Kehoe and Prescott (2002) and Kehoe and Ruhl (2003) were collected when Switzerland was still using a system similar to SNA68 while the United States was using as system similar to the SNA93. As discussed in Kehoe and Ruhl (2003), a major difference between these two systems is that computer software is treated as an intermediate good in SNA68 while it is treated as investment in SNA93. If the real value of software was growing faster than the other components of output, GDP calculated under SNA68 would grow more slowly than that calculated under SNA93. Abrahamsen et al. did not seem to have access to the recently released Swiss GDP calculated under SNA93 when they wrote their note. They use the difference in U.S. GDP under the two systems to infer how Switzerland's GDP might change when compiled under SNA93. Over the period 1980 to 1997, Abrahamsen et al. show that U.S. GDP per capita grew an average of 0.31 percent more per year under SNA93 than SNA68.

With the release of GDP data for Switzerland compiled under SNA93, we can see how Switzerland has faired under the new system of accounts. As expected, GDP compiled under SNA93 grows faster than that compiled under SNA68, mostly during the period 1985 to 1990. The boost in growth, however, is not as large as that in the United States. Over the period 1981 to 1997 the average increase in the annual growth rate from SNA68 to SNA93 was 0.16 percent, about half that found in the United States over the same period. Over the period 1981 to 2000 this increase is about 0.17 percent and over

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the period 1981 to 2001 — the longest period in which we have data under both systems — the difference falls to 0.15 percent. The cumulative effect of these adjustments is small. As can be seen in Figure 9, SNA93 GDP per working age person in Switzerland grows only 2.8 percent more over the period 1981-2000 than does the comparable SNA68 data.

Another difference in the Swiss data collected under SNA93 — a difference not anticipated by Abrahamsen et al. — is a large change in the measured terms of trade. Under SNA93 the terms of trade decline beginning in 1996, while the SNA68 measured terms of trade continue to increase. By 2000, the SNA93 measured terms of trade have appreciated 13.4 percentage points less than the terms of trade measured under SNA68. While we would expect the change in accounting systems to have some impact on the terms of trade, the difference between the two series in Figure 10 is large. If we are to adjust GDP for changes in the terms of trade, as argued by Abrahamsen et al., and we are to use SNA93 data, then we must look at command-basis GDP as measured under SNA93. The smaller appreciation of the terms of trade implies that command-basis GDP based on SNA93 data grows less than the command-basis GDP in Figure 8, which was computed using the SNA68 data.

As discussed above, the change to SNA93 has two effects on GDP in Switzerland. The inclusion of software in investment leads to more GDP growth in the SNA93 data, but the change in the terms of trade leads to less command-basis GDP growth. Quantitatively, the effect of the latter is larger than the effect of the former. This can be seen in Figure 11, which plots command-basis GDP using SNA93 data. By 2000, the SNA93 command-basis GDP per working age person had fallen 1.5 percent more below trend than the SNA68 measured data. After taking into account all of the changes associated with the adoption of SNA93, Switzerland's economic performance, measured using command-basis GDP, is even worse than it was with SNA68, contrary to the conjecture of Abrahamsen et al.

7. Switzerland Is in a Great Depression

Abrahamsen et al. have pointed to a number of issues with the measurement of GDP per working age person. The adjustment that has the most impact, as can be seen in

Figure 11, is the adjustment for the terms of trade in the computation of command-basis GDP. After making the adjustments, we return to the question, "Is Switzerland in a Great Depression?"

Though Abrahamsen et al. believe that command-basis GDP, or some concept like it, is the proper measure of a country's output, there is no clear consensus on this point. This point needs further study. With this in mind, we consider the Swiss data in two ways. The first is using the standard definition of real GDP, but adjusting from SNA68 to SNA93 as discussed above. The second is using the same SNA93 data, but computing command-basis GDP.

Making the adjustment to SNA93 data changes the picture of the situation in Switzerland very little. In Figure 11 we plot GDP per working age person computed with SNA68 data, as in Kehoe and Prescott (2002) and Kehoe and Ruhl (2003) and GDP per working age person computed with the SNA93 data as called for in Abrahamsen et al. The SNA93 data easily satisfies the criteria for a great depression. In 1982 GDP per working age person has fallen 17.9 percent below trend since 1973 and by 1987 has fallen 20.3, satisfying conditions 1 and 2 in the Kehoe-Prescott definition of a great depression. It can be easily verified from Figure 11 that condition 3 is satisfied as well. Making the adjustments to SNA93 data, as called for by Abrahamsen et al., does not reverse the findings of Kehoe and Prescott (2002) and Kehoe and Ruhl (2003). In fact, looking at the most recent data, we see that things seem to be getting worse for Switzerland. In 2003, real GDP fell by 0.4 percent, driving Switzerland's GDP per working age person 33.4 percent below trend since 1973.

We also present the data adjusted for the terms of trade in Figure 11. Command-basis GDP has Switzerland's growth last on trend in 1972, one year before Kehoe and Prescott's (2002) start date for the Swiss great depression. This makes a negligible difference, but is necessary to be precise in answering the question at hand. Figure 11 plots GDP per working age person for Switzerland, measured using SNA93 and the command-basis GDP adjustments for changes in the terms of trade. As can be seen in the figure, command-basis GDP per working age person was 16.6 percent below trend in 1982 and had fallen to 21.1 percent below trend by 2001, satisfying conditions 1 and 2 in the Kehoe-Prescott definition of a great depression. The higher rates of growth in the late

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1980s and early 1990s do represent a modest recovery for Switzerland and need to be examined in more detail. Command-basis GDP per working age person grew faster than trend in 5 of the ten years between 1984 and 1994. The recovery from 1985-1988 is mostly driven by the adjustment made for the terms of trade. The largest growth comes during this period, with command-basis GDP per working age person growing 2.7 percent more than trend in 1986. Condition 3 in the Kehoe-Prescott definition of a great depression is met, however, in that GDP per working age person did not grow by more than trend for at least 10 years, so Switzerland is in a great depression beginning in 1972. Even using command-basis GDP, Switzerland can still be classified as being in a great depression, although the case is on the borderline.

It is fair to say that making the terms of trade adjustments to the data implies that Switzerland grew faster than Kehoe and Prescott (2002) first believed, particularly in the late 1980s and early 1990s. The increase in GDP growth, however, should be taken in the context of the overall growth path of the last 32 years, which seems to be the overlooked by Abrahamsen et al. The authors write: "…neither the general public, nor policy makers, nor academic economists [in Switzerland] would readily agree with the idea that they have just witnessed a 'great depression' at home."

Not all Swiss economists are as complacent about recent Swiss economic performance as are Abrahamsen et al. Lambelet and Mihailov (2000), for example, ask the questions, "Did the Swiss economy really stagnate in the 1990s, and Is Switzerland really all that rich?" The answers that they come up with are, respectively, yes and no. Even the popular press in Switzerland has expressed concern for the poor performance of the Swiss economy. Markus Schneider, writing in the Swiss weekly news magazine *Die Weltwoche* in October 2003, discusses Kehoe and Prescott's (2002) characterization of Switzerland as being in a great depression and the response of Abrahamsen et al. He agrees with Kehoe and Prescott that the Swiss economy has suffered from poor growth since 1973 and goes on to note that a recent OECD report projects Swiss economic performance to be better only than Japan's among industrialized nations. It seems, contrary to the beliefs of Abrahamsen et al., that there are people in Switzerland — including the general public, policy makers, and academic economists — who agree that they are witnessing a period of poor economic performance.

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The size of Switzerland, as well as its relative importance in the world economy, has kept much of the international attention away from its poor growth. To appreciate the importance of this, we only need to look to Japan. Detrended output per working age person in Japan has fallen by about 11 percent over the period 1991-2002.[4] Figure 12 displays detrended output per working age person for Japan. A comparison of output per working age person in Japan and with that in Switzerland reveals that the current downturn in Japan is much milder than the first decade of the depression in Switzerland. Japan's importance in the world economy, however, has attracted attention to its situation. The 16 February 2002 cover of *The Economist* reads "The Sadness of Japan" and features a special report on Japan's troubled economy. Two weeks later, the 3 March 2002 issue of *The Economist* reports that "by several measures, Japan's slump is now worse than America's was in the 1930s." Japan's economy may be headed into a great depression. The general public, policy makers, and academic economists agree that the lack of economic growth in Japan is a serious concern. If Switzerland were as large and important as Japan, the situation might be as widely publicized and fretted over. People know that Japan is in trouble, and not just experiencing slow growth.

Switzerland's small size may not be the only reason that its growth performance is overlooked. Finland, a country of 5.2 million people — small even compared to Switzerland's 7.1 million — experienced a large deviation from trend in GDP per working age person in the early 1990s. Although the Finnish experience does not quite qualify as a great depression by the Kehoe-Prescott criteria, it is close. Figure 12 shows that GDP per working age person in Finland fell 19 percent below trend in 4 years, compared to Switzerland's fall of 11 percent in the first 4 years of their Great Depression. Finland, in contrast to Switzerland, recovered quickly and was less than 8 percent below trend in 2000. Although, compared to Switzerland, the Finnish downturn was mild, a quick scan of the economic journals of Finland turns up titles such as: "The Great Depression of the 1990s in Finland" (Kiander and Vartia, 1996) and "Labor Markets in

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[4] Because of the rapid aging of Japan's population, it makes a difference how we define working age. If we define working age as 20-69 years, for example, the drop in real GDP per working age person between 1991 and 2002 was about 14 percent.

Finland during the Great Depressions of the Twentieth Century" (Bockerman and Kiander, 2002).

8. Conclusion

We began by asking "Is Switzerland in a Great Depression?" Abrahamsen et al. argue that Switzerland is not in a great depression and that the poor Swiss economic performance is an artifact of the poor quality of Swiss data. After adjusting the data as called for in Abrahamsen et al., we find that Switzerland is in a great depression and that, in fact, it appears to be worsening.

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Figure 1

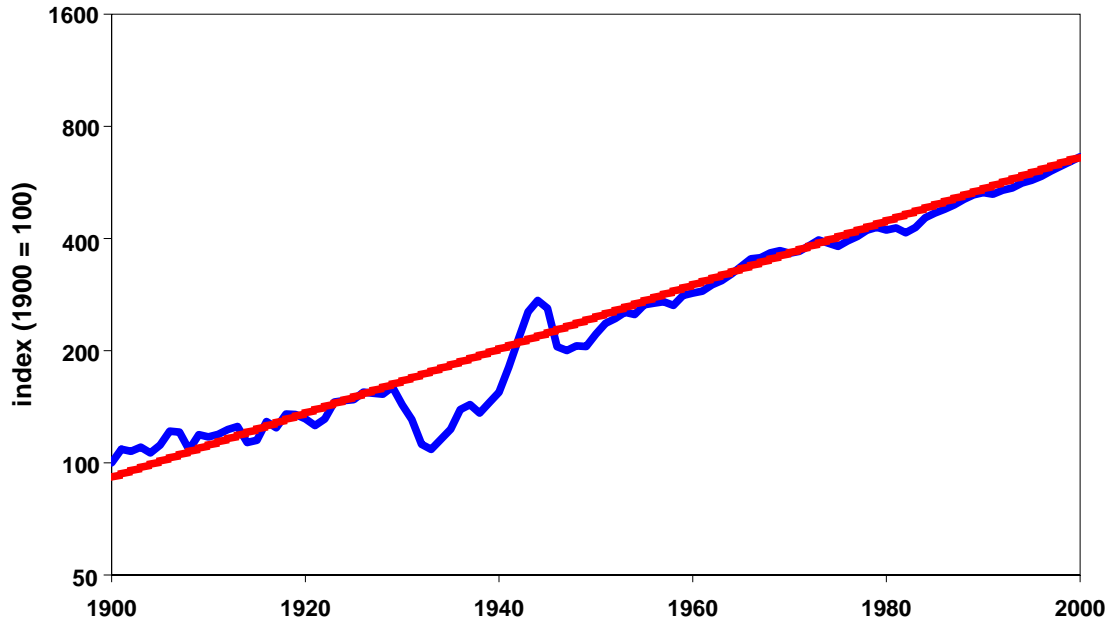### United States GDP per working age person
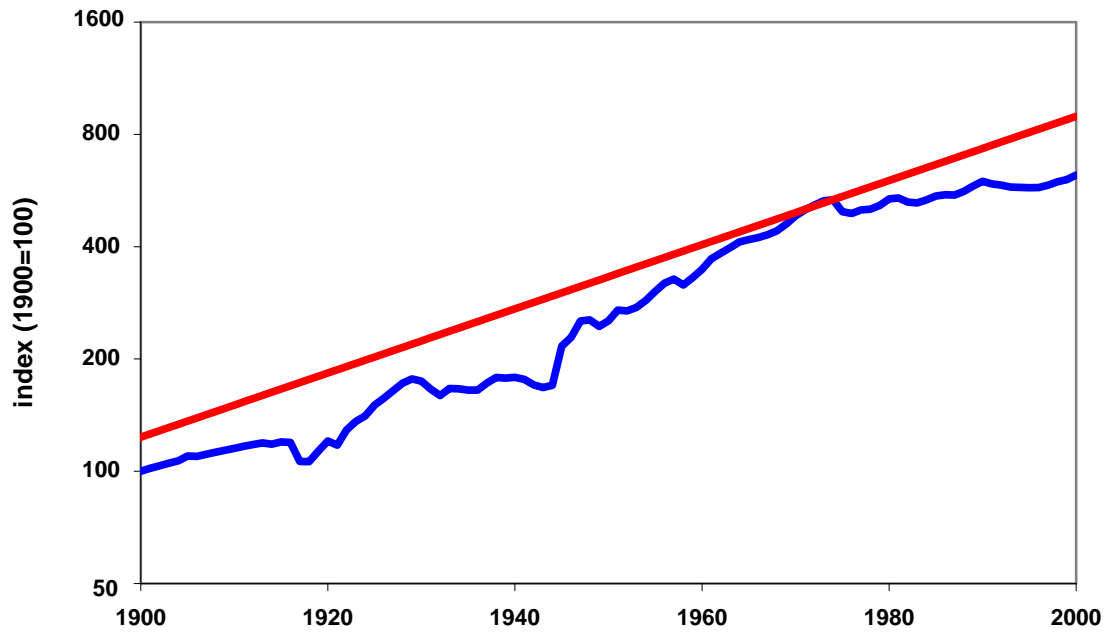

Figure 2

Switzerland GDP per working age person

Figure 3

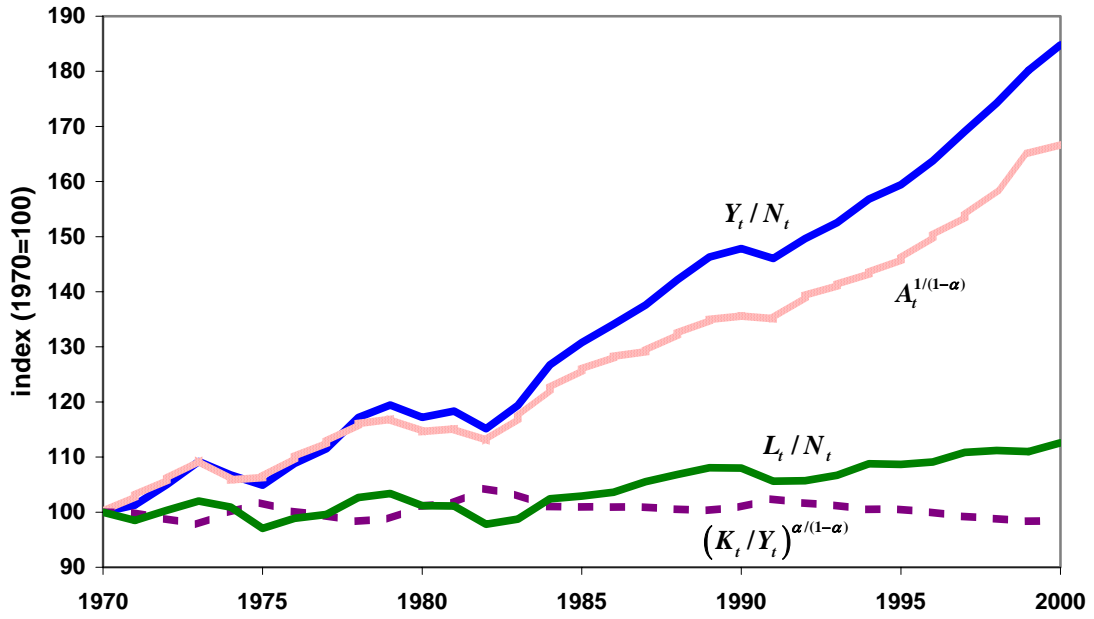**Growth accounting for the United States 1970-2000**

Figure 4
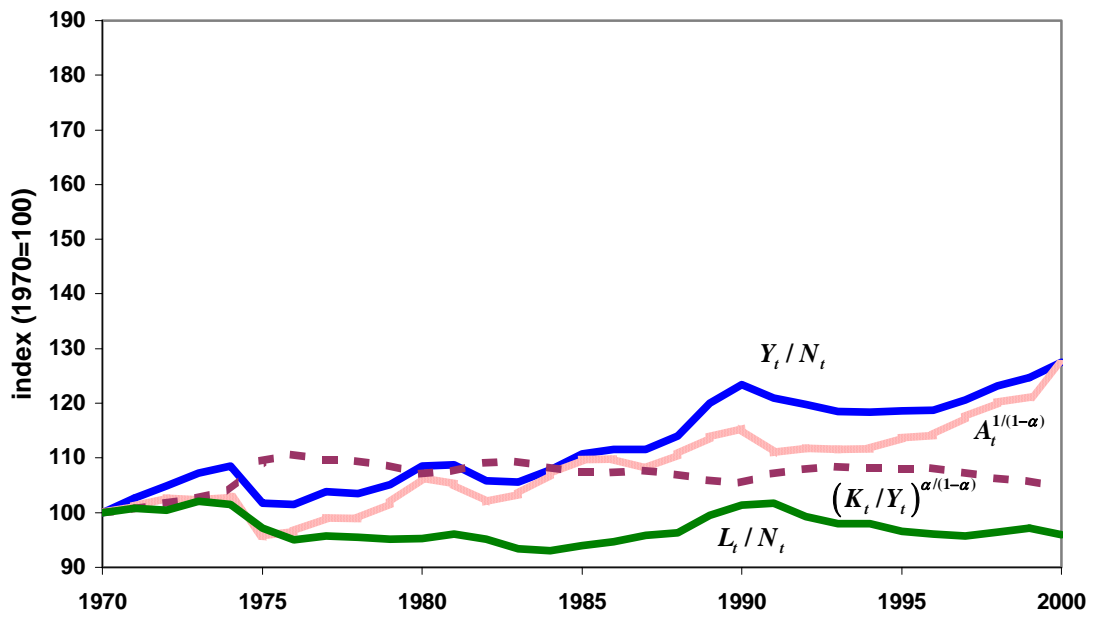
Growth accounting for Switzerland 1970-2000

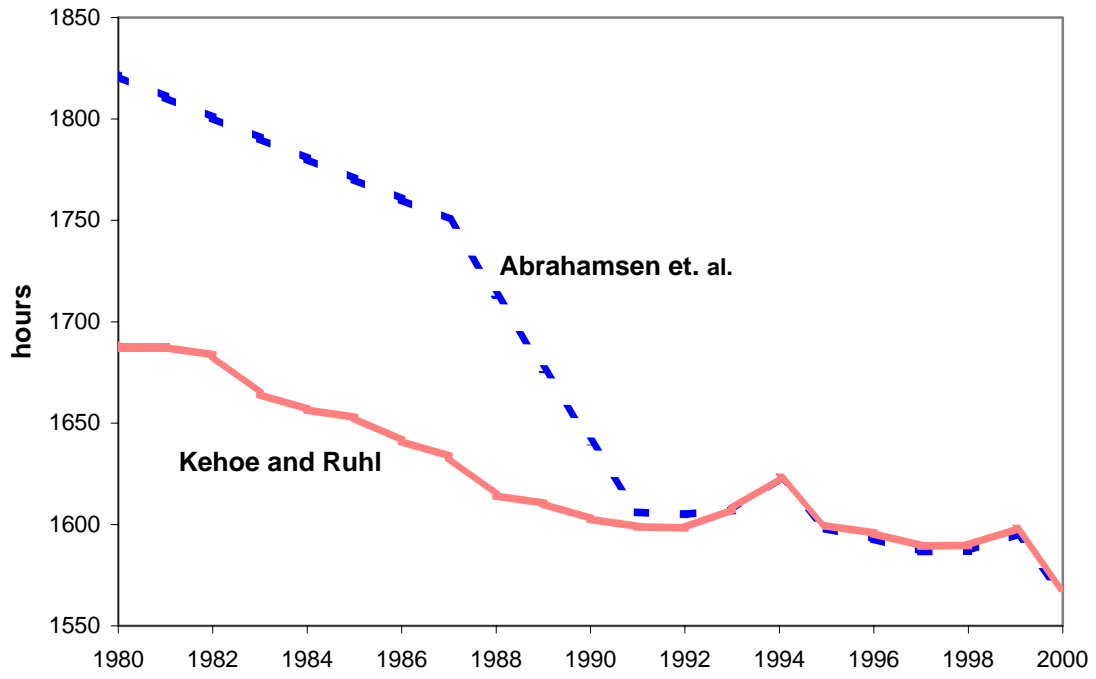**Figure 5**

Switzerland annual hours worked per worker
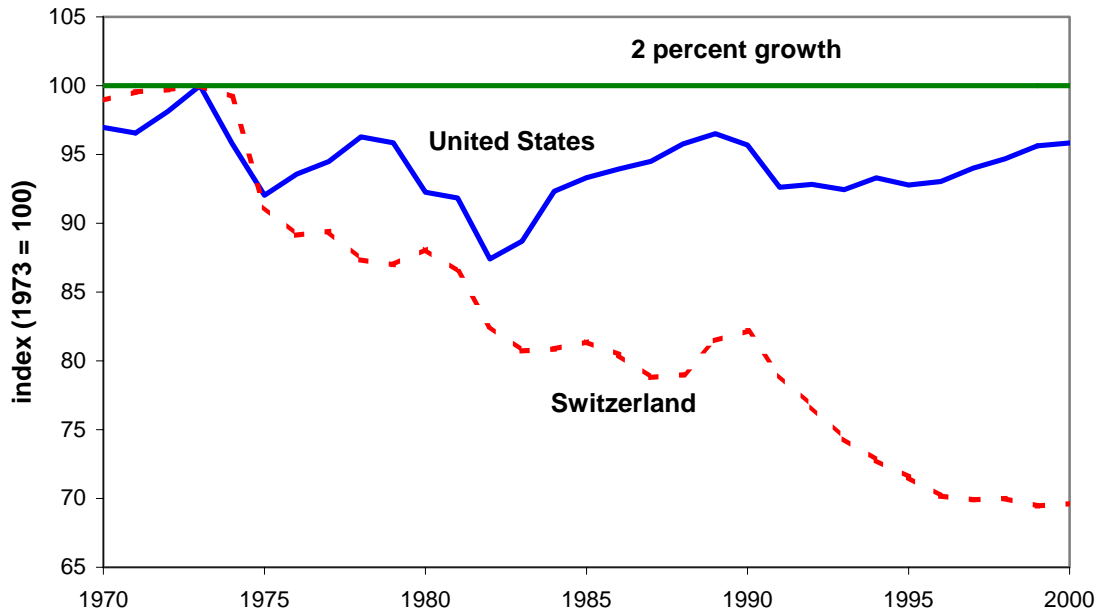
Figure 6

GDP per working age person, 2 percent trend removed

Figure 7

GDP per working age person
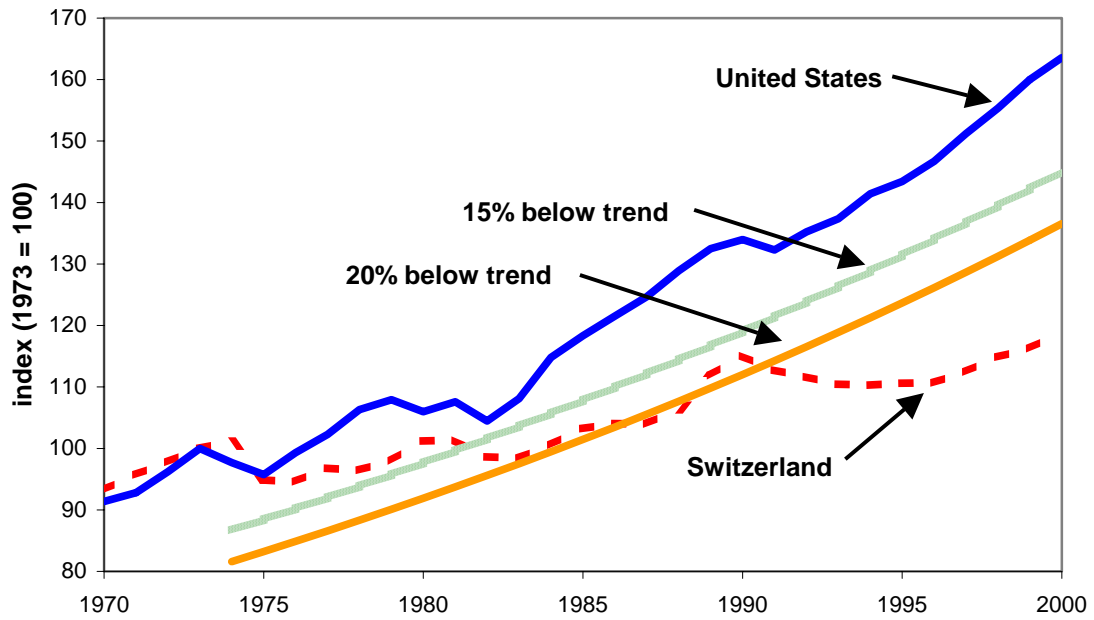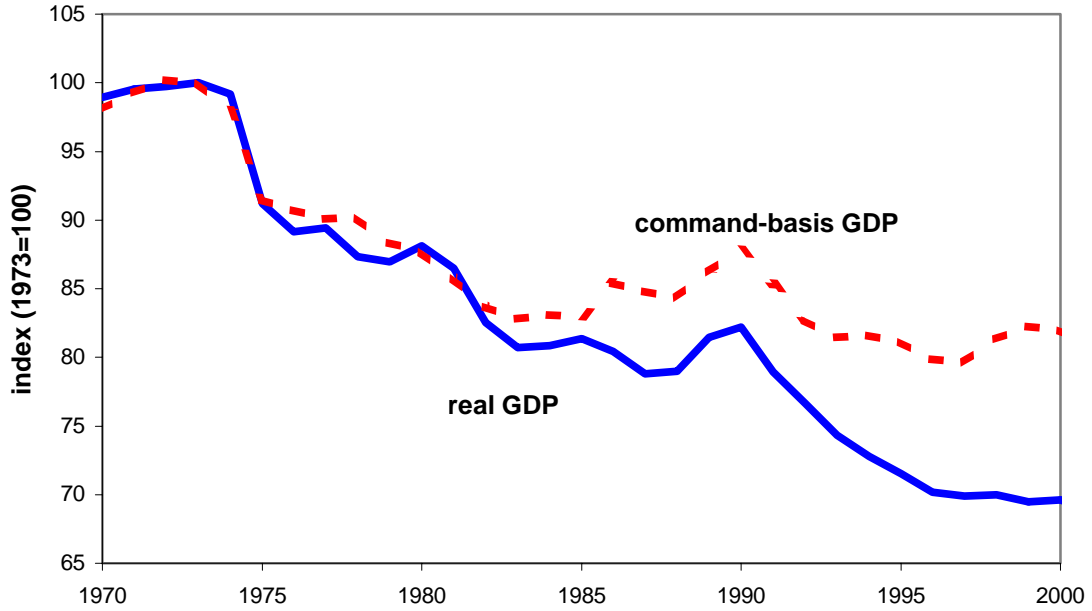
Figure 8

Swiss GDP per working age person, 2 percent trend removed

Figure 9

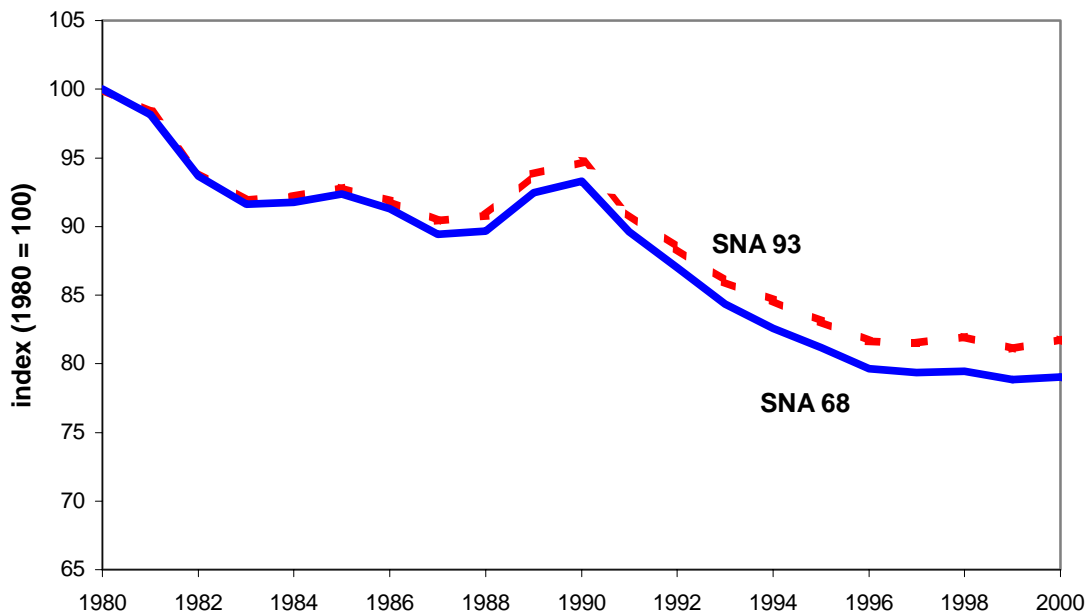**Swiss GDP per working age person, 2 percent trend removed**

Figure 10

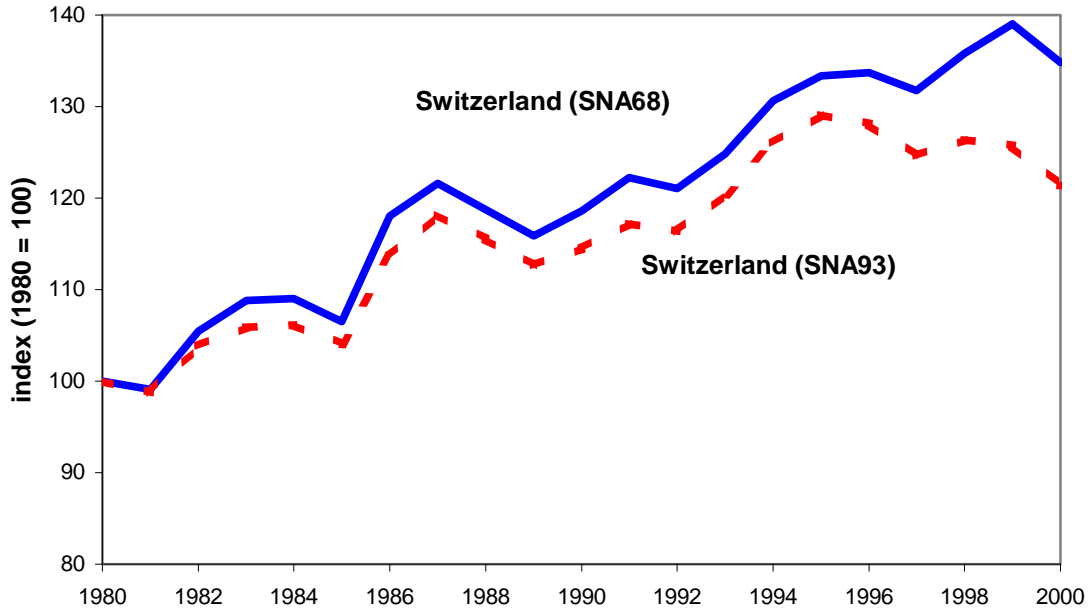### Terms of trade in Switzerland

Figure 11

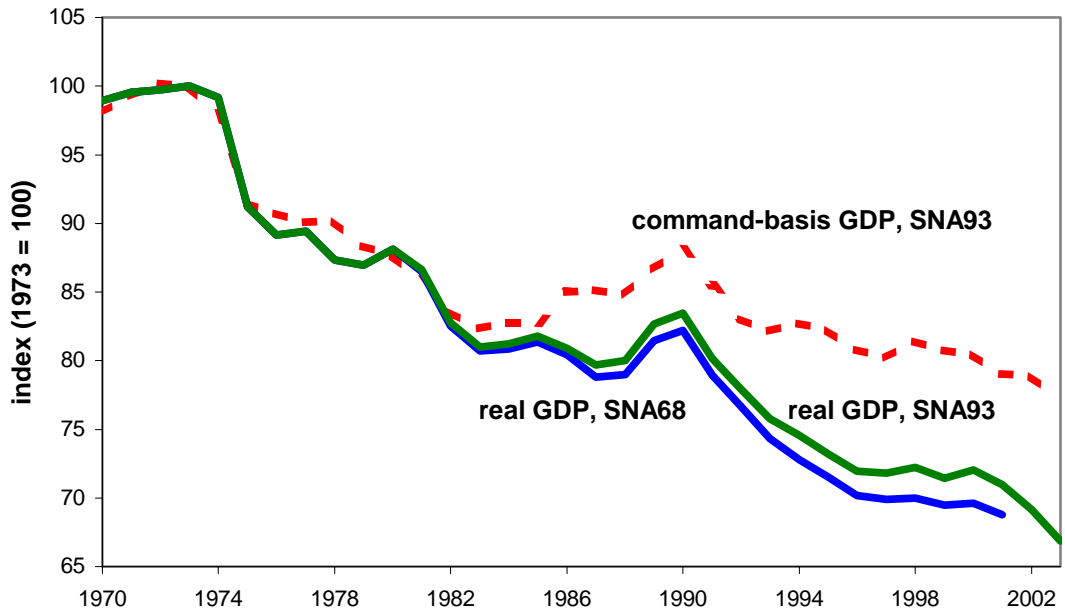### Swiss GDP per working age person, 2 percent trend removed

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Figure 12

GDP per working age person, 2 percent trend removed