Is Europe a large Switzerland? Or Switzerland a small Europe? A monetary and fiscal policy parallel

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Abstract The recent decision by EU's finance ministers to suspend the Stability and Growth Pact has shown some weaknesses in EMU's economic policy framework. This is not surprising given the still short-lived EMU's history and the ongoing challenges posed by the European construction. While a new pact is badly needed, Switzerland's experience can provide some important insights in the current debate in Europe. Switzerland is per construction a small Europe. Like in the EU, Swiss states (cantons) are diverse in terms of income and industrial specialization. They operate in a monetary union with interest rates set out at a federal level and a flexible exchange rate determined in global financial markets. Like the euro area, Switzerland can hardly be defined as an optimal currency area. In addition, Switzerland is a multilingual country, which makes it more similar to the EU rather than to the US. Switzerland, however, differs from the euro area in terms of economic policy settings. Regarding monetary policy, the Swiss framework is relatively similar to the European one, but its fiscal policy strongly differs. The cleverly designed Helvetian fiscal policy framework is based on tax competition between cantons, full implementation of the subsidiarity principle, and a mechanism through which rich cantons transfer funds to poor ones. This perequation attenuates the negative side-effects of tax competition (e.g. no race to the bottom) by providing all cantons with sufficient resources to supply an adequate level of public goods. The mix of monetary integration, a credible monetary authority, and an effective fiscal setting makes the Swiss economic policy framework more stable and flexible than the European one. The European Central Bank's credibility is coupled with a fiscal policy framework based on clumsy tax harmonization and a rigid and arbitrary Stability and Growth Pact.

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1 Le pacte est mort, vive le pacte!

Last fall, EU's finance ministers (ECOFIN) suspended the ill-named Stability and Growth Pact (SGP) which was memorably dubbed "stupid" by the European Commission's president, Romano Prodi. This pact supposedly limits budget deficits to no more than 3% of gross domestic product (GDP), on pain of fines as big as 0.5% of GDP. To the disapprobation of both the Commission and small EU member states, French and German representatives persuaded their fellows to let them off the hook. Nobody failed to see the irony that it was Germany which, in the late 1990s, had insisted on such an agreement as the price for giving up its currency.

This incident illustrates what economists have been asserting for many years: A monetary union needs flexibility. It calls for granting more fiscal discretion to member states, not less, to cope with asymmetric shocks that afflict them at home and that do not affect the whole union.[1] The suspended SGP clearly did not allow of that.

Highlighting its rigid and arbitrary nature, many authors (e.g. Eichengreen and Wyplosz, 1998) have advised to improve the SGP in various ways. As critically assessed by Haan et al. (2003), the Commission, for example, suggested taking into account the business cycle, which sounds more flexible, but still fails to consider structural differences between European economies. Another unconvincing example, due to its lack of concreteness, was proposed by Uhlig (2002) who drew a homework sheet summing up a set of rules aiming at guaranteeing a better fiscal coordination among member states. The most flexible example is, however, the one postulated by a group of economists (Fatás et al., 2003) who recommend creating a panel of independent experts evaluating the fiscal situation and outlook of each member state and providing recommendations to ECOFIN. The use of fiscal policy instruments would be entirely left to the national governments.

Although we agree that these suggestions go in the right direction, we note that, up till now, a complete rethinking of EMU's fiscal policy framework has never been suggested. Despite the admitted consensus about the need to replace the pact as soon as possible,[2] the proposals are often a list of loose measures lacking an encompassing framework. The question does not only concern the introduction of rules guaranteeing discretion in the setting of taxes and expenditure to each country, it is also about building up a fiscal environment which is conducive to economic growth and job creation, thus permitting to maximize the economic benefits of a common currency.

[1] See Chari and Kehoe (2004) for an overview about fiscal constraints in a monetary union and Obstfeld and Peri (1998) for an application to the European case.

[2] See Artis and Winkler (1997) for some rationales behind the birth of the SGP.

The current timing represents a unique chance to set up a completely new fiscal policy framework. First, new member states have already announced that they want to join the EMU sooner rather than later. The integration of countries with both low income level and different structures calls for more flexible fiscal rules to make an "enlarged" EMU work effectively.[3] Second, with the exception of a few countries as France and Germany, the overall budget situation in the EU is relatively sound and recovery is on its way. Experience shows that radical reforms are more likely to be implemented in a benign economic situation. Third, structural challenges, such as ageing population and its impact on public expenditure, are certainly important but not heavily binding yet, giving thus some scope to design and implement a new fiscal policy framework.

In this paper, we assess that credible, effective, and flexible fiscal policy frameworks already exist in decentralized countries. The rethinking of EU's fiscal rules should start by using the experience gained by such countries, and in particular by Switzerland. There are of course other candidates which are also federal and monetary unions. They are, however, less suitable as cases in point. For example, the US transfer large funds between states but perform poorly in terms of tax competition within its territory.

Switzerland seems more suitable for several reasons.[4] It is historically and culturally very similar to Europe. It is a multilingual confederation with sharp cultural differences across the country. The subsidiarity principle has been implemented for decades and in a successful way when judging its postwar economic performance. As Switzerland necessitated a free flow of goods between cantons and a common currency to face the challenges of early industrialization and modernization, Europe opted for a common trade area earlier and a single currency later to face the challenges of post-industrialization and globalization.

The first innovation of this paper is to highlight the similitude between the two unions in order to show that Switzerland can be viewed as a small Europe. Then, the second innovation is to imagine the EU as a large Switzerland and to extrapolate the current Swiss economic policy framework at the European level. Both the EU and Switzerland are monetary unions, but no perfect optimal currency area (OCA). Both monetary policies are credible

[3] The demand for more flexibility in an "enlarged" EMU does not only concern the fiscal policy framework, it also applies to the EMU as a whole. For example, the European Central Bank (ECB) has already taken into account the enlargement in the last revision of its monetary policy concept (ECB, 2003).

[4] Looking at the Swiss experience is no new approach in the non-economic fields, i.e. law and political sciences. See, for example, Frey and Eichenberger (2000) and Kalin (1998) for more details.

and successful. However, and this is our first thesis, in the long run, the EU needs a fiscal policy framework to maintain this success. Switzerland has been ensuring this long-term framework by a three-pillar fiscal system consisting of decentralized tax competition, full implementation of the subsidiarity principle, and fiscal perequation. Our second thesis asserts that such a framework should inspire the new SGP.

Some precisions are necessary. First, we are aware that it may seem naive to imagine that the EU is going to analyze the Swiss case during its SGP redesign. Second, we admit and illustrate that the current Swiss system has some shortcomings. However, we still think that this comparative exercise makes sense because past experience often means more than textbook examples and Europe has the advantage to correct the revealed shortcomings.

2 Switzerland is a small Europe

We use key macroeconomic variables (e.g. population, income, inflation, unemployment, and taxes) to illustrate that Europe is as heterogeneous as Switzerland in economic terms. Thus, the reported suggestive evidence confirms that the Swiss experience can provide some important insights in the current debate concerning the SGP redesign.[5]

Table 1 reports the dispersion of these variables across Switzerland and across three different geographic definitions for Europe, namely the euro area, the EU before enlargement (EU15), and the current enlarged EU (EU25). Although the euro is not used in all EU countries, it makes sense to look beyond the current euro-area borders considering both the long nature of any fiscal policy framework and the likely integration of more EU member states into the euro area in the next few years.

The reported figures express the standard deviation in percent of the mean based on the most recent observations available over the period 1990-2003. When we have several years of observations, the figures are based on averages in order to eliminate any distortion due to economic-cycle effects. Besides, reported figures are only comparable between geographic areas, but not within a specific geographic region.

[5] In order to avoid some confusion between our comparative exercise and the current integration debate in Switzerland, we do not consider the latter in this paper. Regarding its own integration policy, Switzerland has been following a twofold procedure. On one hand, it has formally applied to join the EU by a date which is still open. This ongoing process will probably last for more than a decade before Switzerland eventually becomes an EU member state. On the other hand, it is currently negotiating with all member states bilateral agreements on major economic and social issues.

Population data reveals that Europe is as heterogeneous as Switzerland. Both Switzerland and Europe show the coexistence of large and small member states/cantons. This population assessment is confirmed by its corollary, the relative size (surface in squared kilometers) of each member state in both unions (not reported).

In terms of income per head, EU15 does not look different from Switzerland. Only when EU25 is considered, the measured heterogeneity in income almost doubles as a result of the integration of countries with a lower level of development. When purchasing power parity income per head is used, heterogeneity substantially falls in Europe whereas it remains almost unchanged in Switzerland, reflecting the low inflation dispersion across Switzerland.

The higher inflation dispersion across Europe, when compared to the one in Switzerland, calls for some comments. In a common-currency area, which prevents member states from using the exchange rate to gain competitiveness, inflation rate differentials indicate differences in competitiveness of one member state vis-à-vis the other member states. Thus, each member state competes with the others in the most efficient allocation of resources. The higher dispersion within Europe than within Switzerland might indicate that, after the introduction of the euro in 1999, the real adjustment in the allocation of resources between European countries is still in full swing. For example, the lower German inflation rate than the euro-area average might not only be the result of low growth in that country but rather the recoup of competitiveness in German exports with respect to other euro-area countries. Conversely, the permanently higher inflation rate in Italy might indicate a lower competitiveness which was compensated by several realignments of the lira before the euro introduction.

This observation reinforces the need for more flexible fiscal rules to facilitate (rather than to prevent or delay) the real adjustment in the allocation of resources between euro countries. In Switzerland, this adjustment has taken place through time with each canton competing with the others since the postwar period. It has been facilitated by a flexible fiscal policy framework which permits each canton to choose its preferred (and therefore more effective) mix of taxes and expenditure. Accordingly, the higher dispersion in growth rates in Switzerland than in Europe might indicate that the euro area is wearing a too tight jacket which does not permit to take advantage of the improvement in the allocation of resources, which is one of the most important potential gains arising from a common-currency area.

Quite striking is the dispersion in unemployment rates across both Europe and Switzerland, which looks pretty similar. This indicates that both areas are no OCA, i.e. there is still a lack of labor mobility which prevents the labor market from clearing across the whole area rather than within each individual national/cantonal labor market. This phenomenon is a bit more subtle in Switzerland because it takes place mainly at the level of the three linguistic regions. Both the French and Italian speaking regions display higher unemployment rates than the German speaking area. Besides, there are only minor differences within each linguistic region. This shows, essentially for cultural reasons, that the labor mobility is relatively high within each linguistic region, but relatively low between them.

Figures concerning the tax level give some hints about the presence of a genuine tax competition within Switzerland compared to the euro area characterized by strong harmonization movements in the fiscal sphere. The increase in dispersion after the enlargement of the EU does not reveal an increased tax competition, but just reflects, once again, different degrees of development.

Finally, both Switzerland and Europe show the same level of heterogeneity from a structural point of view, measured by the share of the primary, secondary, and tertiary sectors in total national product. In particular, it is interesting to note how both Switzerland and the EU have some member states/cantons with a relatively higher share of national product (and employment) in agriculture. Like the EU, Switzerland finances quite high agriculture subsidies, but as we see in the next section in a completely different fiscal policy framework when compared to the European model.

3 Europe is a large Switzerland

After having seen that both unions are relatively similar in terms of economic dispersion, we focus now on two theses, where the Swiss experience offers some insights in the debate about the replacement of the SGP. The first thesis concerns the monetary policy framework and the second one is about the fiscal policy framework.

Thesis 1: The ECB needs a transparent and rule-based fiscal policy framework to guarantee its long-term mandate and credibility

Monetary unions are generally similar constructs. Both EU's and Switzerland's unions are born through analog historical processes, they are both no OCA, and the ECB's and Swiss National Bank's (SNB) monetary policies are credible and successful. Such a success is short-lived for the ECB; this has been true for almost 100 years for the SNB. However, a major difference appears, because the SNB is operating in a monetary union with a well-established fiscal policy framework (in particular since the end of the war), which is not the case of the ECB. In the long run, the ECB needs a fiscal policy framework to maintain its long-term mandate and credibility.

The two central banks being relatively similar, a comparison of both monetary policy concepts is beyond the scope of this paper. Henceforth, the considered similarities mainly concern both their birth process and their non-OCA features. The SNB was established in 1907, date when the current currency union in Switzerland was cemented. This creation followed a long period when almost each canton had different currencies and borders were a reality between cantons. At the SNB's birth, all cantonal currencies disappeared like the euro replaced the European currencies.[6]

The OCA concept was clearly no discussion at the time the SNB was created. It was, however, very topical when the EU set up the ECB. Surprisingly, and this is a striking similitude between both unions, ECB is no more an OCA than Switzerland. It is of course too early to see whether this will become an issue in Europe in the future. Concerning Switzerland, the SNB has achieved an excellent performance in terms of price stability over the last century. The SNB and the Swiss economic policy framework allowed Switzerland to grow at a quick pace after the war and to sustain an envious position, measured in terms of GDP per head, after the breakdown of Bretton Woods.

At different occasions, history showed that Switzerland was no OCA. Typically, asymmetric shocks in several regions (e.g. in the French speaking part during the 1980s) could not be absorbed by devaluation, cantons having ceded their currency to the federal level. Henceforth, the three-pillar fiscal framework characterized by tax competition, subsidiarity, and perequation allows the concerned cantons to absorb these shocks and to reform their local economy quite quickly (e.g. the cantons of Jura and Neuchâtel restructured thus their unique leading sector – the watch industry – in a few years only).

We are aware that it is almost impossible to empirically measure the marginal contribution of the three-pillar fiscal framework when analyzing the absorption of shocks. We are also aware that other mechanisms, e.g. social insurances, probably play an important role in the absorption of the asymmetric shocks. However, the role of the fiscal policy framework, in particular the perequation, helps to smooth the economic difficulties of various regions faced by local shocks. Transfers from rich cantons compensate the diminishing income and in turn tax revenues in the cantons facing difficulties. The three-pillar fiscal framework also makes monetary policy easier, in the

[6] See SNB (1982) for more details about the birth of the SNB.

sense that the monetary authority does not have to worry about a specific region while implementing its policy. Henceforth, the SNB can focus on its primary goal of price stability for whole Switzerland. The three-pillar fiscal framework is in charge of the regional tasks.

It is too early to see the ECB under pressure over the lack of fiscal policy framework. It was therefore astonishing to see no reaction in financial markets when the SGP was suspended. We would have expected a strong and sustained depreciation of the euro. Despite this absence of reaction, the Swiss experience confirms that in the long run the ECB might be under growing pressure if it does not have a fiscal policy framework letting and helping it fully achieve its goal of price stability. This lack of fiscal policy framework jeopardizes the current short-lived credibility of the ECB.[7]

Thesis 2: A sustainable fiscal policy framework in the EU is based on tax competition, subsidiarity, and perequation

Switzerland has been ensuring this long-term fiscal policy framework by decentralized tax competition, full implementation of the subsidiarity principle, and fiscal perequation.

Income and wealth taxation in Switzerland, for both individuals and legal entities, is characterized by the triple tax sovereignty of the federal government, cantons, and communities. The federal government and the cantons have their own tax law, whereas taxes of the communities are based on the cantonal tax laws and constitute a specified multiple of the cantonal tax. Therefore, there are significant differences in taxation among the 26 cantons, as already shown in table 1, which are only mitigated through a purely formal tax harmonization.

The differences in taxation are alternatively expressed in figure 1 summing up the financial power index of Swiss cantons. The tax burden is only one factor of this index which also includes cantonal income, tax base, and the presence of mountains in the considered canton. This index is primarily used to calculate the funds to transfer between cantons in the perequation system. The lower the income, the higher the tax rate, the lower the tax base, and the more mountains a canton has, the more it will receive through the perequation flows.

The mentioned formal tax harmonization does not hinder, in any manner whatsoever, the freedom of the cantons to determine the tax rates and

[7] See ECB (2004) for its relatively lukewarm position with respect to the SGP and its suspension or Kopits (2004) for the view of a new member state.

the tax-exempt amounts, i.e. the effective tax burden (Rossi and Dafflon, 2003). Many detailed empirical research papers (Feld and Kirchgässner, 2001a, 2001b, Pommerehne et al., 1996) illustrate the presence of tax competition for both individuals and legal entities between Swiss cantons. In addition, these studies show that this competition does not lead to a race to the bottom at all. On the contrary, it brings a high level in public goods and it maintains a low level of aggregate debt. Moreover, there are no visible side effects as fiscal externalities (e.g. poor cantons still attract people and firms; not everybody is living in the financially powerful canton Zug).[8]

The current perequation is based on the index of financial power reported in figure 1. This index is calculated every two year in order to take into account the development of the cantons. Figure 3 shows the net balance per head for each canton. We see that the net balance – to finance or to receive – is negatively correlated to the level of the power index. This system implies that each inhabitant of the canton Zug pays on a yearly basis € 740 (1.4% of cantonal income) and that each inhabitant in the canton Jura receives € 1200 (5.3%). Figure 2 shows how the standard deviation of the different subindexes evolves over time, in order to see whether the gap between cantons decreases or increases. We see, for example, that the gap in terms of income decreases during the 1990s, but that it is now rapidly increasing again. The gap in terms of taxation also increases in the late 1990s. Evidently, we see that the standard deviation of the mountain criterion does not evolve over time.

Two main shortcomings characterize the current perequation: the high level of transfers, represented by the virtual steep slope of the bars in figure 3, and the presence of massive geographic externalities. Both shortcomings should be corrected with the new perequation coming by 2007 if Swiss citizens and people accept it (Swiss Federal Department of Finance, 2002, Schips, 2004). It should essentially have a new interpretation of the subsidiarity principle, which implies that the funds moving between cantons should decrease substantially, and thus increase in turn the efficiency of the system. Each task between the federal government and the cantons should be newly defined in order to disentangle the historically grown task distribution between the state entities. Geographic externalities which are linked to the size of the cantons (e.g. small cantons around large-city cantons gain without financing them) should also decrease following the new subsidiarity interpretation.

EU does not have a three-pillar fiscal framework. The EU fiscal policy framework mainly consists of the national tax systems and of the suspended

[8]Durrer (2000) argues that the presence of fiscal externalities is not a problem per se and that they are just an aspect of competition as for other goods and services.

SGP. In addition, the EU budget is fixed at 1.27% of EU GDP. EU revenues are duties on imports from non-EU countries (15% of total revenues), a VAT-based contribution (35%), and member state's contributions based on the size of their gross national income (GNI, 50%). The redistribution is the result of the combination of the contribution by member states to the EU budget, the expenditure on the Common Agriculture Policy (CAP), and the so-called Structural and Cohesion Funds (SF). In figure 4, we illustrate the net balance per head for each member state. Ten of the member states were net contributors and four were net receivers. The four net beneficiaries are the so-called cohesion countries (i.e. SF receivers, Spain, Greece, Portugal, and Ireland). Greece and Ireland receive almost € 400 per head on a yearly basis. In percent of GNI, Greece receives approximately 2.4%, Portugal 2.1%, Ireland 1.5%, and Spain 1.3%.

The current EU fiscal transfer framework between member states and regions is aimed at providing additional funds to less developed (SF) or rural regions (CAP) in order to favor income convergence across the EU. Thus, it is not a fiscal perequation scheme but rather a long-term "structural" policy aimed at improving infrastructures (SF) or supporting the income of farmers (CAP). Such a framework was not designed in preparation of the EMU but rather in preparation of further integration within Europe based on the argument that too large discrepancies in income might disrupt the integration process. The same argument is applied today to accession and new member states that are net beneficiaries of EU funds to support the catching-up with EU.

For several reasons, the current fiscal policy framework is not valid in the context of an EU enlargement. First, the CAP is today considered as an inefficient and unfair protectionist policy with most of its cost falling on less developed countries outside the EU. Its feasibility in an enlarged EU is also in doubt given its enormous fiscal cost imposed on the largest EU countries. Second, the record to date of SF in reducing income disparities across the EU and within individual countries (e.g. Mezzogiorno versus Northern Italy) is mixed and the level of inefficiencies is perceived as being large. Success stories like that of Ireland which has reduced its income gap with the rest of the EU are probably more due to other factors (such as, for example, labor and product market liberalization) rather than to the SF effects. Third, in the context of a common currency, the potential short-term effects of asymmetric shocks become more important than the long-term income convergence and thus call for a different fiscal policy framework.

Henceforth, the implementation of a model[9] in the EU mimicking the

[9] See Fatás (1998) and Kletzer and Hagen (2001) for a similar analysis, i.e. monetary

Swiss three-pillar fiscal system is more valid in the context of an enlarged EMU. It should bring a long-term stability correcting the flaws of the current budget policy in the EU. It should bring, not only a framework for absorbing asymmetric shocks, but also a fair scheme for regional policy and regional development. Last but not least, it should eventually restore tax competition in the EU before direct tax rates are harmonized at a too high level.

The EU has the advantage to correct and improve the revealed shortcomings of the Swiss system. First, the size of the cantons in Switzerland is seen as a shortcoming in the perequation scheme being conducive to geographical externalities. The size issue might also be a problem in the EU, but in the other direction. The regional level would be more adequate for a European application of the three-pillar fiscal system. This would imply that the perequation could also help the sensitive cross-border regions between different member states to develop in harmony. Second, the EU has to think about the moral hazard problem related to the perequation, because it could be more dramatic than in small Switzerland. This phenomenon was never properly measured in Switzerland, but it is clear that the perequation system might be misused by some member states, seeing it as a sort of "lender of last resort". Third, we say in the introduction that the fiscal policy framework should sustain growth. Switzerland has been lagging the OECD countries over the last decade in terms of growth. To some extent the direct democracy, but essentially cartels, price agreements, and red tape have been designated as the bad pupils. Accordingly, the three-pillar fiscal system has never been challenged and, thus, still represents an adequate fiscal policy framework for a monetary union.[10]

4 Conclusion

Is Switzerland a small Europe? To a large extent yes, as shown by the similar economic heterogeneity measured by key macroeconomic variables. Given the different size of the two unions, the similarity looks quite striking.

Is Europe a large Switzerland? Though still short-lived, the ECB's monetary policy framework at the moment is as credible and successful as the over-100-year old SNB's monetary framework. However, the SNB has been operating in a very different fiscal policy framework based on decentralized tax competition, full implementation of the subsidiarity principle, and fiscal

union and federalism, in more general terms.

[10] Within its structure, the three-pillar system is, however, regularly challenged by new elements such as, for example, the introduction of a flat tax rate for individuals and legal entities (Schneider, 2003).

perequation. The Swiss economic policy framework allowed Switzerland to grow fast in the postwar period and to become one of the richest countries in the world. Conversely, the current EU fiscal policy framework looks like a too tight jacket. In the long run, the ECB might be under growing pressure over the lack of a stable and effective fiscal policy framework and its credibility might be jeopardized.

The EU needs a much more innovative and flexible fiscal policy framework than the one represented by the suspended SGP. We are not suggesting that the EU has to take one-to-one the Swiss three-pillar fiscal framework, but we believe that the Swiss experience should be considered when a reform of the EU fiscal policy framework will take place. This could be done by a group of independent experts along the lines of Fatás et al. (2003). In addition, the recent discussion held in Switzerland concerning the reform of the perequation and the new interpretation of the subsidiarity principle, both based on past experience, can also provide useful insights in the forthcoming debate in Europe.

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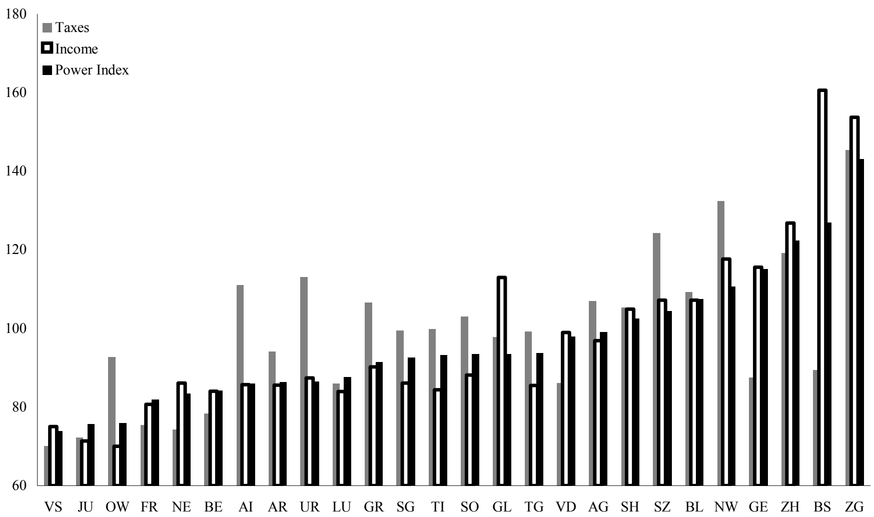
Table 1 Relative dispersion in Switzerland and in Europe

	Switzerland	Euro area	EU15	EU25
Population	104.5	114.4	106.6	129.0
Income	28.5	40.1	36.5	65.1
Income PPP	28.9	30.1	26.5	42.7
Inflation	17.2	32.3	31.6	57.1
Growth rate	502.3	56.2	53.9	68.2
Unemployment	48.5	44.0	41.0	48.7
Taxes	18.8	8.1	12.4	14.5
Sector I	67.1	59.4	59.8	51.2
Sector II	20.1	23.2	21.1	22.3
Sector III	14.0	8.3	7.5	8.6

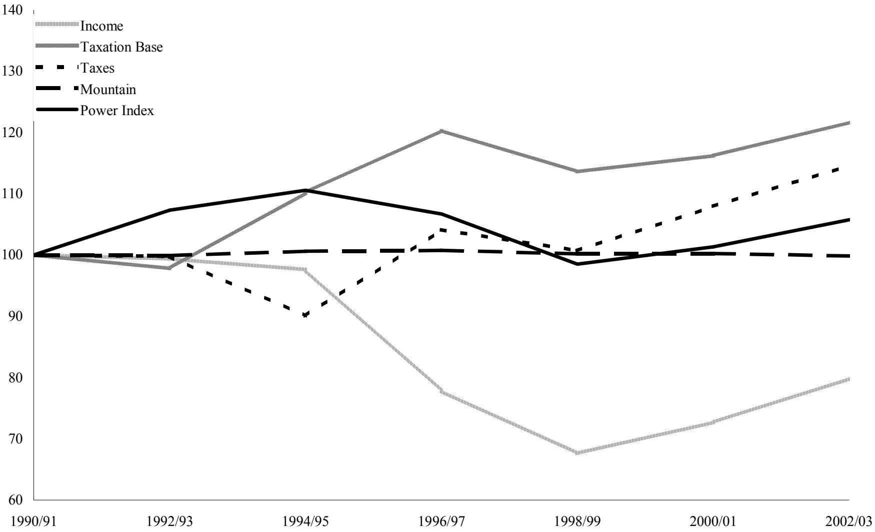
Notes: Reported figures express the standard deviation in percent of the mean within each entity. a) Different national account measures (e.g. GDP or GNP) are not taken into account. b) PPP = Purchasing power parity. c) There are no official inflation rates at the cantonal level in Switzerland; reported figures are estimated using a few representative items such as, for example, health insurance premiums. d) Due to a relatively low average growth rate in Switzerland during the 1990s, substantial differences between cantons expressed in percent of the mean appear extremely large with respect to the European figures; Swiss figure stays anyway above the European figures when other growth periods are considered (not reported). e) EU15 = EU before enlargement; EU25 = current enlarged EU. Source: Swiss Federal Statistical Office, national statistics and EU statistics, average 1990-2001.

Figure 1 Financial power index of Swiss cantons



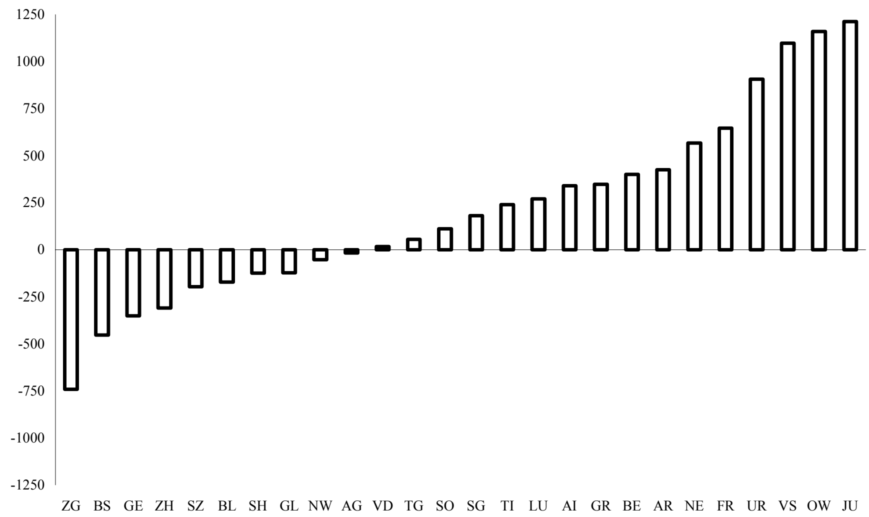
Notes: The power index shows the financial strength of Swiss cantons. Tax level (Taxes) and economic performance (Income) are subindexes used to calculate the financial power index (Power Index). The higher the income and the lower the tax level, the higher the financial strength. Values are normalized around the Swiss average (100). Swiss cantons are Aargau (AG), Appenzell Ext. Rh. (AR), Appenzell Int. Rh. (AI), Basel-Land (BL), Basel-Stadt (BS), Bern (BE), Freiburg (FR), Genève (GE), Glarus (GL), Graubünden (GR), Jura (JU), Luzern (LU), Neuchâtel (NE), Nidwald (NW), Obwald (OW), St.Gallen (SG), Schaffhausen (SH), Schwytz (SZ), Solothurn (SO), Thurgau (TH), Ticino (TI), Uri (UR), Valais (VS), Vaud (VD), Zug (ZG), Zurich (ZH). Source: Swiss Federal Statistical Office.

Figure 2 Standard deviation of the financial power index elements



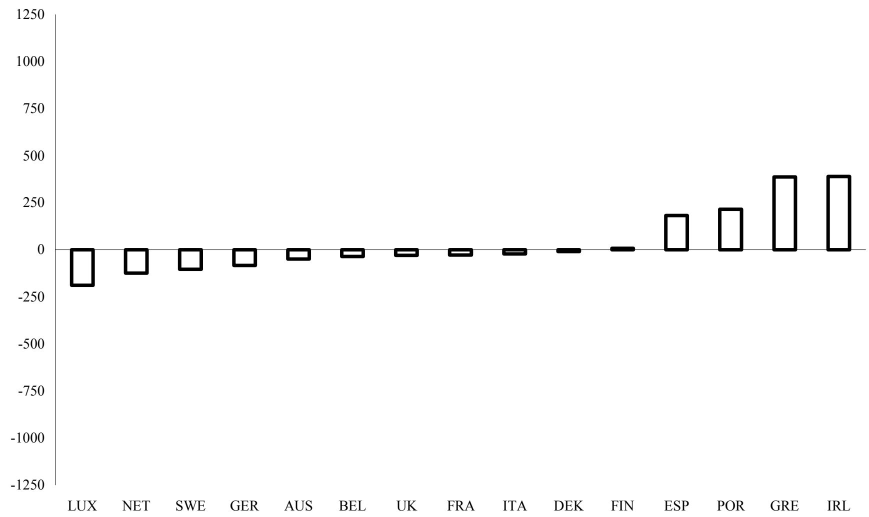
Notes: Reported figures represent the evolution of the dispersion (standard deviation) calculated for the financial power index of Swiss cantons and each subindex making it. Values are normalized to 100 in the beginning of the 1990s. An increase indicates a growing gap between cantons. Source: Swiss Federal Department of Finance.

Figure 3 Transfers per head between Swiss cantons in €



Notes: Annual average 2002-2003. See figure 1 for abbreviations. Source: Swiss Federal Department of Finance.

Figure 4 Transfers per head between European states in €



Notes: Annual average 2000-2003. Net balance is calculated by taking into account VAT-based and GNI-based contributions by member states. Import duties are considered as pure EU revenues. Austria (AUS), Belgium (BEL), Denmark (DEK), Finland (FIN), France (FRA), Germany (GER), Greece (GRE), Ireland (IRL), Italy (ITA), Luxemburg (LUX), Netherlands (NET), Portugal (POR), Spain (ESP), Sweden (SWE), United Kingdom (UK). Source: National statistics and EU statistics.