OECD Economic Surveys
SWITZERLAND

NOVEMBER 2013

OECD

OECD Economic Surveys: Switzerland 2013

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Please cite this publication as:
OECD (2013), *OECD Economic Surveys: Switzerland 2013*, OECD Publishing.
http://dx.doi.org/10.1787/eco_surveys-che-2013-en

ISBN 978-92-64-18316-2 (print)
ISBN 978-92-64-18317-9 (PDF)

Series: OECD Economic Surveys
ISSN 0376-6438 (print)
ISSN 1609-7513 (online)

OECD Economic Surveys: Switzerland
ISSN 1995-3402 (print)
ISSN 1999-0464 (online)

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Photo credit: Cover © Shutterstock/Fulcanelli.

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.

Table of contents

Tables

Figures

This Survey *is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.*

The economic situation and policies of France were reviewed by the Committee on 7 October 2013. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 23 October 2013.

The Secretariat's draft report was prepared for the Committee by Petar Vujanovic and Richard Dutu under the supervision of Peter Jarrett. Research assistance was provided by Patrizio Sicari.

The previous Survey of Switzerland *was issued in January 2012.*

BASIC STATISTICS OF SWITZERLAND, 2012

(Numbers in parentheses refer to the OECD average)[a]

LAND, PEOPLE AND ELECTORAL CYCLE

Population (million)	8.0		Population density per km^2	192.7	(34.5)
Under 15 (%)	14.4	(18.1)	Life expectancy (years, 2011)	82.8	(80.0)
Over 65 (%)	18.1	(15.3)	Men	80.5	(77.3)
Foreign-born (%, 2011)	27.3		Women	85.0	(82.8)
Latest 5-year average growth (%)	1.0	(0.5)	Last general election	October 2011	

ECONOMY

Gross domestic product (GDP)			Value added shares (%, 2011)		
In current prices (billion USD)	631.3		Primary	0.8	(2.5)
In current prices (billion CHF)	591.9		Industry including construction	26.9	(27.7)
Latest 5-year average real growth (%)	1.2	(0.6)	Services	72.3	(69.8)
Per capita, PPP (thousand USD)	53.5	(37.2)			

GENERAL GOVERNMENT

Per cent of GDP

Expenditure[b]	34.1	(42.6)	Gross financial debt (2010[b])	43.2	(110.7)
Revenue[b]	33.8	(36.2)	Net financial debt (2010[b])	6.9	(72.5)

EXTERNAL ACCOUNTS

Exchange rate (CHF per USD)	0.937		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	1.389		Chemicals and related products, n.e.s.	37.0	
In per cent of GDP			Miscellaneous manufactured articles	24.3	
Exports of goods and services	52.3	(53.5)	Machinery and transport equipment	19.0	
Imports of goods and services	41.9	(50.0)	Main imports (% of total merchandise imports)		
Current account balance	11.1	(-0.5)	Machinery and transport equipment	25.7	
Net international investment position	151.8		Chemicals and related products, n.e.s.	22.2	
			Miscellaneous manufactured goods	20.7	

LABOUR MARKET, SKILLS AND INNOVATION

Employment rate (%) for 15-64 year olds	79.4	(65.0)	Unemployment rate (%)	4.2	(7.9)
Men	85.2	(73.1)	Youth (%)	6.1	(16.2)
Women	73.6	(57.0)	Long-term unemployed (%)	1.5	(2.7)
Average worked hours per year (2011)	1 636	(1 765)	Tertiary educational attainment		
Gross domestic expenditure on R&D (% of GDP, 2008)	2.9	(2.4)	25-64 year-olds (%, 2011)	35.2	(31.5)

ENVIRONMENT

Total primary energy supply per capita (toe)	3.2	(4.2)	CO_2 emissions from fuel combustion per		
Renewables (%)	20.5	(8.5)	capita (tonnes, 2010)	5.6	(10.1)
Fine particulate matter concentration			Water abstractions per capita (1 000 m^3, 2006)	0.3	
(urban, PM10, µg/m^3, 2010)	19.8	(20.1)	Municipal waste per capita (tonnes, 2010)	0.7	(0.5)

SOCIETY

Income inequality (Gini coefficient, 2009)	0.298	(0.308)	Education outcomes (PISA score, 2009)		
Relative poverty rate (%, 2009)	9.5	(10.7)	Reading	501	(493)
Public and private spending (% of GDP)			Mathematics	534	(496)
Health care (2011)	11.0	(9.5)	Science	517	(501)
Pensions (2008)	12.4	(7.9)	Share of women in parliament (%, July 2013)	27.2	(25.8)
Education (excluding tertiary, 2010)	4.0	(4.0)	Net official development assistance (% of GNI)	0.5	(0.4)

Better life index: *www.oecdbetterlifeindex.org*

a) Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exists for at least 29 member countries.

b) 2011 for the OECD.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund, Inter-Parliamentary Union and Swiss National Bank.

Executive summary

Main findings

Macroeconomic policy faces tensions

Switzerland's economy has performed well in recent years. At the same time, it has faced an extremely strong currency, in large part resulting from safe-haven capital inflows. This has precipitated two years of mild deflation and posed a threat to activity in the Swiss economy. Accordingly, policy interest rates have been reduced essentially to zero. The "minimum exchange rate" (a cap on the value of the Swiss franc against the euro), adopted two years ago, has resulted in a very large expansion of the central bank's balance sheet. House prices have been increasing strongly, especially in a number of hotspots, driven by low interest rates as well as supply constraints and robust demand, especially from recent immigrants. Despite macro-prudential tightening measures, the housing market has shown few signs of cooling. The minimum exchange rate remains in place as inflation is still zero, there are still risks of renewed safe-haven flows, and there is still some slack in the economy. The fiscal balance remains sound both at the federal level and in most cantons, thanks to healthy economic growth and the debt-brake rule, which has restrained expenditure growth through the cycle.

Meeting environmental targets and simultaneously maintaining energy security poses challenges

Switzerland is likely to achieve its Kyoto 2008-12 targets in large part by relying on international offsets. Meeting the 2020 target of a 20% reduction in domestic emissions from 1990 levels will be more challenging. The government's Energy Strategy 2050 sets out the path from nuclear energy, which is to be phased out, to renewable sources. Until 2020, the Strategy relies on support for commercially immature technologies to achieve future supply targets, in combination with ambitious efficiency improvements. Thereafter, this system is to be gradually replaced by energy taxes. Therefore, replacement of the no-longer available nuclear electricity will predominantly be by renewable energies and through the more efficient use of electricity. Remaining demand could be covered by natural gas-fired power plants or electricity imports.

Long-term growth and productivity gains have been weak

Over the past several decades GDP growth has been driven by immigration and since the turn of the century by highly skilled labour from the European Union. Productivity outcomes *vis-à-vis* other OECD countries have slipped steadily and are now significantly below the best performers. As the population ages and immigration slows, the focus of economic policy will need to shift even more to promoting productivity growth, exploiting underutilised labour resources, in particular women (see below), and further improving the integration of first- and second-generation immigrants, including by lifting their educational performance. While R&D and innovation are strong in the established sectors, entrepreneurship and small business formation are relatively weak, due in part to administrative barriers. The relative productivity of the agricultural sector is among the lowest in the OECD, and the sector relies heavily on direct government payments, which are still not sufficiently linked to environmental and productivity-boosting outcomes.

Women's potential in the economy has been poorly tapped

Swiss women represent 45% of the labour force and about half of tertiary graduates. If better utilised, their human capital could provide a new source of GDP growth. However, a number of obstacles prevent better use of the potential female workforce. One is the paucity and very high cost of childcare and out-of-school-hours care. With high implicit marginal income tax rates and work disincentives in social benefits for second earners, the high female participation rate is coupled with one of the OECD's highest incidences of female part-time work. Another barrier women face is cultural hurdles in the workplace. The result is that women are still significantly underrepresented as managers, directors and entrepreneurs.

Key recommendations

Reconciling macroeconomic policy tensions will involve trade-offs

- When inflation pressures reappear on the horizon and the risks in the world economy are more balanced, the SNB should return to a free float and raise the policy rate.
- Take further macro-prudential measures, such as increasing the counter-cyclical buffer, should imbalances in the mortgage and housing markets increase.
- Within the constraints of the debt brake rule, a re-evaluation of spending priorities may be warranted; in particular, a shift towards productivity enhancing public expenditures would be appropriate in the medium term.

Reaching environmental targets poses challenges

- Put greater emphasis on market mechanisms in the transition from nuclear to renewable energy.
- Implement a CO_2 levy on transport fuels so as to better exploit the low costs of meeting emissions-reductions targets in the transport sector relative to other sectors.
- Further promote private- and public-sector energy-related research, and continue engagement with foreign researchers to facilitate realisation of the Energy Strategy 2050.

Boosting long-term growth and productivity will be challenging

- Accelerate the pace of agricultural sector reform, including moving entirely to direct payments to farmers, and by further integrating the entire food value chain in international trade.
- Address issues with academically weaker students within the integrated school system as part of a comprehensive integration policy. Focus teacher-training programmes more on developing practical remedial teaching skills.
- Examine the roots of, and propose remedies for the poor productivity performance, including by creating a productivity commission.

Expanding women's role in the economy

- Increase women's labour-market options by increasing public spending on childcare and out-of-school-hours care and by setting applicable regulations to enhance the range of available price-quality choices.
- Remove the so-called marriage tax penalty at the federal level by introducing individual, as opposed to family, taxation or some equivalent measure.
- Implement a corporate governance code establishing gender goals to increase women in senior management.
- Increase the proportion of women on company boards by setting ambitious targets combined with the "Comply or Explain" practice or by setting quotas.

Assessment and recommendations

The economy is doing well, thanks to solid domestic demand and accommodative monetary policy

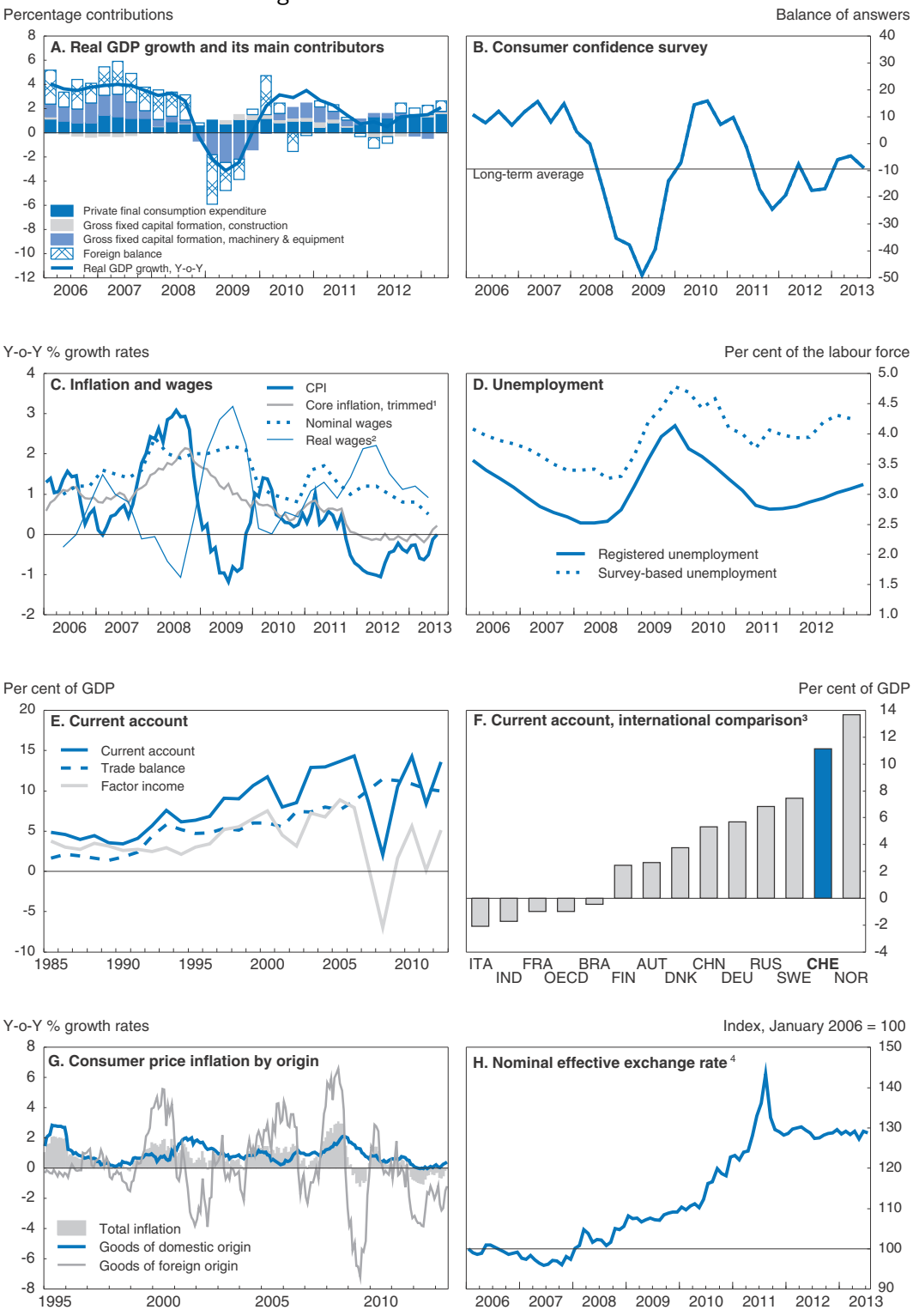
Switzerland is one of the rare western European countries that has managed to grow over the past few years, thanks primarily to solid domestic demand (Figure 1, Panel A). Household consumption growth has been supported by strong immigration, sustained consumer confidence and rising real wages (Panels B and C). Dynamic demography and historically low interest rates are boosting housing construction. Yet the unemployment rate has been edging up since mid-2011 (Panel D). Strong population growth, averaging around 1% per annum in recent years, has meant that in per capita terms, growth has been less impressive.

Exports have been relatively sluggish by historical standards, although Swiss firms have managed to make modest gains in market share in recent quarters. Robust growth in emerging markets has propelled a sustained increase in demand for Swiss luxury goods but has been insufficient to offset weakness in Europe, which absorbs more than 50% of exports. Nevertheless, the current account surplus remains large, at 11% of GDP in 2012, driven primarily by financial services exports and investment income. Switzerland has the OECD's highest net outward FDI stock, the returns to which have contributed to many years of large current account surpluses (Jarrett and Letrémy, 2008), matched only by some oil exporters (Figure 1, Panels E and F).

Year-on-year consumer price (CPI) inflation has been negative since the second quarter of 2011 (Figure 1, Panel C) due to a decline in imported and domestic goods prices, in large part reflecting the lagged effects of the past currency appreciation (Figure 1, Panels G and H). According to Stulz (2007), a 1% appreciation lowers consumer prices by 0.09% after three months and by 0.18% after one year. As the effects of the appreciation wear off, inflation is expected to turn positive again. However, although surveys show that households do not expect deflation to persist, an extended period of deflation cannot be excluded, especially in the event of prolonged world commodity price weakness.

In September 2011 the Swiss National Bank (SNB) introduced a "minimum exchange rate" of 1.20 francs to the euro to fend off additional appreciation, which resulted in deflation, posing an acute threat to the Swiss economy. The IMF in its latest Article IV assessment estimates that this level of the exchange rate implies an overvaluation of between 5 and 10% (IMF, 2013). As a result of its defence, the SNB's balance sheet has quadrupled in relation to GDP, reflecting massive reserve accumulation (Figure 2, Panels A and B), which increased risk exposure in multiple dimensions (Archer and Moser-Boehm, 2013).

Figure 1. **Macroeconomic indicators**



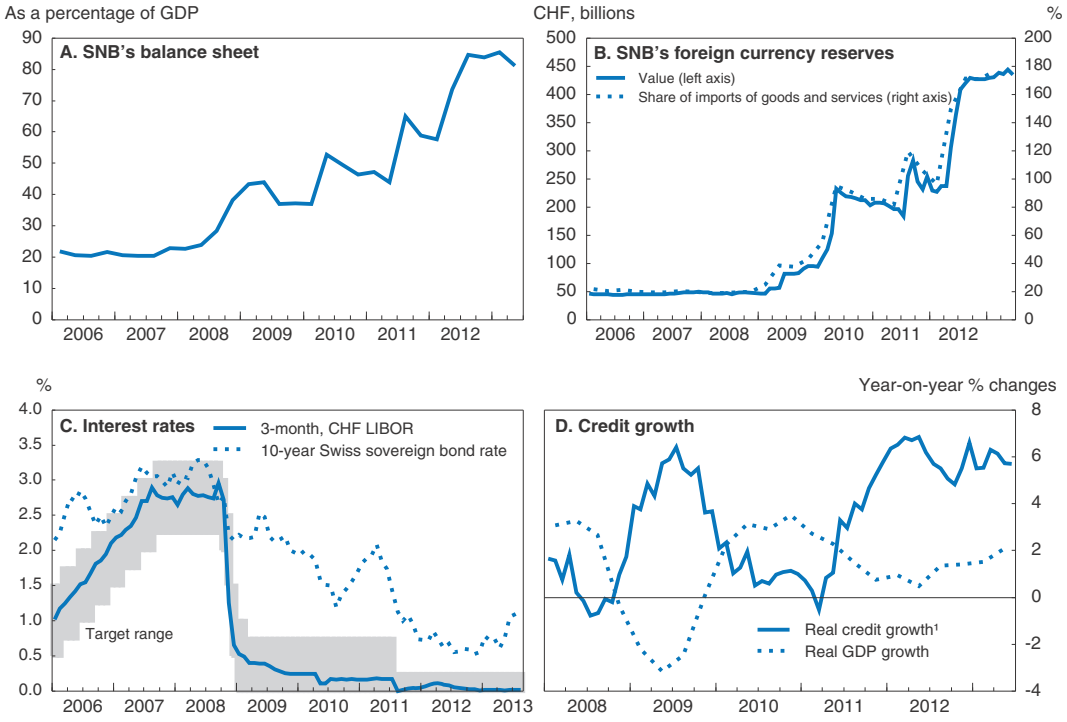
1. Excludes goods with upward and downward fluctuations exceeding the CPI percentage change by more than 15%.
2. Deflated by CPI.
3. Average of the decade ending in 2013. OECD is simple average of member countries.
4. Export weighted, based on 40 partner countries.

Source: OECD, *OECD Economic Outlook 93 Database* and updates; SECO; SNB.

StatLink http://dx.doi.org/10.1787/888932939220

Monetary policy has been supportive since the beginning of the crisis, with near-zero policy rates since 2009 (Figure 2, Panel C). The minimum exchange rate has helped to contain deflationary shocks that cannot be addressed by further lowering the interest rate. Nevertheless, credit growth has been outpacing GDP expansion (Panel D). This monetary policy stance is still appropriate in the near term, given the absence of inflationary pressures and a small negative output gap. However, the output gap is estimated to close in 2015, and zero interest rates may be contributing to a build-up of pressures in the housing sector (see below). When inflation pressures reappear on the horizon and the risks in the world economy are more balanced, the SNB should return to a free float and raise the policy rate.

Figure 2. **Monetary policy has been accommodative**



1. Deflated by CPI.

Source: Swiss National Bank, *Monthly Statistical Bulletin* September 2013; OECD, *OECD Economic Outlook 93 Database* and updates.

StatLink http://dx.doi.org/10.1787/888932939239

Fiscal policy is broadly neutral. A small general government surplus and economic growth should be sufficient to push gross government debt down further from its level of 44% of GDP in 2012. Public infrastructure (which will come increasingly under strain in the medium term due to sustained population growth and the transition to renewable energy sources), education and R&D might all be areas warranting public investment increases. Moreover, the budget will have to adjust to several structural pressures, including rising aging-related medical, disability and pension spending, and the broad array of existing and future subsidies including those foreshadowed in the government's climate change and nuclear phase-out strategy (see below). These measures would need to be consistent with the debt brake rule and may therefore require a revision of spending priorities.

Several of these areas have been on the political agenda for a number of years but with mixed progress. For example, several disability pension reforms successfully passed over the past decade. However, the last reform – aiming at a further improvement on the cost side – failed. More problematic was the reform of the first pillar of the pension system, which since 2000 has failed twice, once in a referendum and the second time in Parliament. In the matter of old-age pensions, the pension-eligibility age should rise in line with increasing life expectancy; the government will need to start by doing a better job of communicating this challenge to the public. Moreover, the average effective exit age from the labour market should be brought closer to the pension-eligibility age. Potential funding shortfalls in the second-pillar pension system could constitute a risk as well, especially if interest rates remain so low. In the health-care sector a Diagnostic Related Group (DRG) system was introduced for acute-stay hospitals at the beginning of 2012. A broader package of reforms aimed at improving efficiency in this sector has been held up. Finally, Switzerland is under pressure to revise its corporate tax system (including at the canton level) in order to limit any ring-fencing effect (privileged taxation of foreign-sourced profits compared to domestic sourced profits); the potential impact on public finances is yet to be determined.

Despite low income tax progressivity and modest cash transfers to households compared to other OECD countries, Switzerland enjoys a relatively equal distribution of disposable income, ranking around tenth most equal across the OECD. This results from a relatively flat wage distribution and very high rates of employment. However, while data are not available for income, the intergenerational persistence of educational outcomes is high (Causa and Johansson, 2010). More generally, while educational attainment is high, drop-out rates are low and PISA scores are above average, the variance in educational outcomes is high and mainly related to general disadvantage. This is particularly evident among the large foreign-born student population. The early tracking of students into academic competency streams may exacerbate this persistence (see below).

The short-term outlook is positive, but significant risks exist

In recent quarters, growth has picked up on the back of rising consumer spending. Yet weak investment, especially in stockbuilding, and exports due to weakness in global market conditions, have delayed further acceleration. The short-term outlook points to slowly rising growth (Table 1). The cyclical and structural deficiencies of the euro area will continue to act as a drag, but a strengthening recovery in the United States and Japan, and solid consumer spending should underpin aggregate demand. However, growth may not be sufficient to reduce unemployment.

Risks to the Swiss outlook are both domestic and external. On the positive side, if euro concerns recede further, Switzerland would be well placed to profit from improved confidence and stronger foreign demand, and exchange rate tensions would diminish. On the downside, a persistently high franc may slow the expansion and, with policy rates already at zero, the price impact of any future appreciation may be stronger and more persistent than heretofore. Low interest rates may keep fuelling house price appreciation to unsustainable levels, with potential implications for household balance sheets, financial stability and the construction sector (see below). Unwinding the combination of very low interest rates, the exchange rate floor and a central bank balance sheet that is now over 80% of GDP, may prove difficult, especially given limited experience with such a combination. Also, the changing structure of the current account presents risks, with the

Table 1. **Macroeconomic indicators and projections**

	2010	2011	2012	2013	2014	2015
	Current prices CHF billion	Percentage changes, volume (2005 prices)				
GDP	572.7	1.8	1.0	1.9	2.2	2.7
Private consumption	331.8	1.1	2.4	2.6	2.4	2.7
Government consumption	62.9	1.2	3.2	1.7	1.0	1.1
Gross fixed capital formation	115.0	4.5	-0.4	0.9	2.6	2.8
Of which: Business	83.2	5.6	2.1	2.2	2.8	3.3
Housing	18.5	2.2	1.8	1.9	2.0	2.3
Government	13.3	0.4	1.3	0.6	0.4	0.5
Final domestic demand	509.8	1.8	1.8	2.1	2.3	2.5
Stockbuilding[1]	1.1	-0.1	-0.6	-0.7	0.0	0.0
Total domestic demand	510.9	1.7	1.2	1.3	2.3	2.5
Exports of goods and services	296.3	3.8	2.5	2.3	3.5	5.0
Imports of goods and services	234.6	4.2	3.1	1.1	4.1	5.1
Net exports[1]	61.8	0.2	0.0	0.8	0.1	0.5
Other indicators (% change, unless otherwise specified):						
Potential GDP	-	1.9	1.9	1.9	2.0	2.0
Output gap[2]	-	-0.2	-1.0	-1.0	-0.8	-0.2
Employment	-	2.3	1.0	0.8	0.9	1.2
Unemployment rate[3]	-	3.9	4.1	4.4	4.4	4.1
GDP deflator	-	0.4	0.1	0.0	0.6	0.8
Consumer price index	-	0.2	-0.7	-0.4	0.2	0.6
Core consumer prices	-	-0.1	-1.0	-0.3	0.2	0.4
Household saving ratio, net[4]	-	12.8	13.6	13.4	12.9	13.1
Trade balance[5]	-	10.4	10.4	10.8	10.8	10.9
Current account balance[5]	-	8.9	11.1	12.8	12.4	12.6
General government financial balance[5]	-	0.7	-0.2	0.1	0.0	0.0
Underlying government primary balance[2]	-	1.0	0.4	0.7	0.5	0.2
General government gross debt[5]	-	42.3	42.4	42.3	42.1	41.9
General government net debt[5]	-	6.0	6.2	6.0	5.9	5.7
Three-month money market rate, average	-	0.1	0.1	0.0	0.1	0.6
Ten-year government bond yield, average	-	1.5	0.6	0.8	1.1	1.4

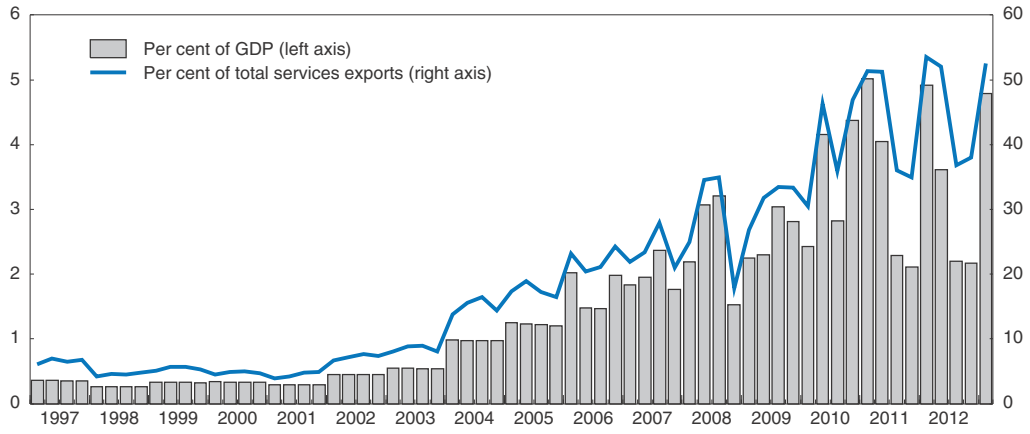
1. Contributions to changes in real GDP, actual amount in the first column.
2. As a percentage of potential GDP.
3. As a percentage of the labour force.
4. As a percentage of household disposable income.
5. As a percentage of GDP.

Source: OECD Economic Outlook 94 Database.

importance of the financial sector likely to continue to decline – especially if certain EU initiatives are implemented – and with the growing prominence of merchanting and luxury-good exports adding volatility and uncertainty.

Merchanting, which mostly involves the purchase and resale of commodities such as oil, gas and metals that do not enter the country, has emerged as the largest single export category (Figure 3). The vast majority of transactions are conducted offshore and in foreign currencies, so there is negligible impact on the value of the franc, and little domestic employment is involved (approximately 10 000 jobs). The volatility of merchanting revenues is considerable, and if merchanting's GDP share continues to grow, this volatility may soon have macroeconomic implications.

Figure 3. **Merchanting exports have grown strongly**



Source: Swiss National Bank.

StatLink http://dx.doi.org/10.1787/888932939258

While the authorities continue to do a good job in adopting best-practice financial regulation and have recently supported measures to address international concerns regarding bank secrecy (including from the United States; see below), the sector faces major challenges. The global discussion with regard to international tax policy and enforcement might have an impact on Switzerland's attractiveness as a location for private banking and wealth management in the coming years (Figure 2.2 in PwC, 2013). The Swiss authorities have expressed concern that mooted financial market regulatory reforms of the European Union (MiFID II), in particular the scope of the branch requirement, could significantly inhibit the cross-border services by Swiss financial institutions.

A number of popular initiatives, if adopted, could also have a serious impact on Switzerland's economic prospects. The proposal to adopt a monthly minimum wage of 4 000 francs, which at around two-thirds of the average wage, would be the highest in the OECD, would significantly erode Switzerland's international competitiveness. Another would limit firms' top salaries to 12 times those at the bottom, threatening their ability to attract senior management. Finally, the initiatives to limit immigration would require a renegotiation of the free movement of persons agreement with the EU, which could threaten the accompanying raft of economic treaties, seriously harming the Swiss economy.

Switzerland is pursuing reforms of its financial sector

The financial sector has long had an important role, accounting for 10.5% of GDP in 2012, and bank assets are five times GDP. The banking sector is also highly concentrated, with approximately half of all assets (according to SNB data) held by the two biggest banks, UBS and Credit Suisse (CS). The 2012 *Survey* included a special chapter on the financial system and made a number of recommendations to reduce the risks that the sector poses to the broader economy. A number have been implemented, including measures related to the "Too Big To Fail" (TBTF) framework and macro-prudential instruments.

On 1 January 2011 the regulatory changes recommended by the Basel Committee on Banking Supervision were adopted, one year ahead of schedule, and follow-up Basel III risk-weighting and capital requirements were implemented on 1 January 2013. In its assessment of June 2013, the Basel Committee on Banking Supervision found that

Switzerland is compliant with Basel III capital standards, having acted to rectify 20 areas of divergence during the assessment process, even if simplified rules that can lead to noncompliant capital requirements for a few smaller banks will be phased out only in 2018. The TBTF legislation entered into force on 1 March 2012. UBS and CS were subsequently designated as systemically important financial institutions, implying that both must now hold additional capital (totalling 19% of risk-weighted assets) and liquidity, and must ensure that systematically important functions can be continued in the case of imminent failure. Also under the Basel III framework, the government is currently in the process of formulating rules for bank liquidity. This is currently at the working-group stage, with the new rules expected to be in place by 2018. Since July 2012, a number of macro-prudential measures were taken, including activating the counter-cyclical buffer (CCB) in February 2013 to limit housing lending (see below) and strengthening resilience (the primary goal of the CCB).

Most cantonal banks enjoy either explicit (21 of 24) or implicit unlimited guarantees from cantonal governments. A similar arrangement exists between PostFinance and the Federal government but will be abolished in 2017. This arrangement implies contingent fiscal liabilities and grants an unfair competitive advantage by lowering perceived risk and funding costs. These guarantees should either be eliminated, or, second best, made explicit, with banks required to pay a reasonable fee for the guarantee. The fee arrangement is already in place in a number of cantons, and it should be applied universally.

Switzerland has moved a long way in ensuring greater transparency and cooperation on international tax matters. The government has made it clear that Switzerland no longer wishes to attract undeclared assets to its financial system. It is improving international co-operation in combating tax evasion, notably by revising its tax treaties with partner countries to incorporate fully the international standard on the exchange of information on request between tax administrations. Notably, Switzerland signed the Convention on Mutual Administrative Assistance in Tax Matters in October 2013.

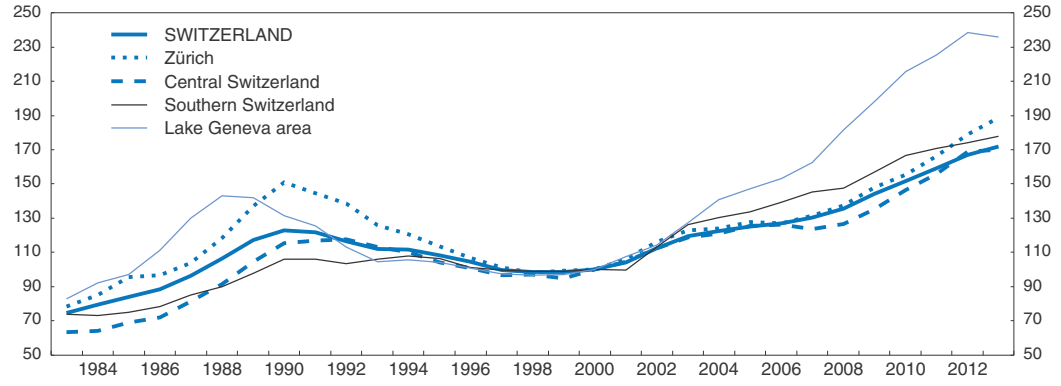
Nonetheless, the peer review of Switzerland conducted by the OECD Global Forum on Transparency and Exchange of Information for Tax Purposes in 2011 identified a number of deficiencies in its exchange-of-information framework. The review recommended in particular, that Switzerland introduce measures to identify the owners of bearer shares and bring its tax treaty network into line with international standards to ensure it can exchange information effectively. The review concluded that a Phase 2 review of Switzerland to assess its exchange of information practices would be held, provided Switzerland brings a significant number of its exchange of information agreements into line with the standard. Since then, apart from revising a number of its treaties, the government has prepared a Bill on the identification of owners of bearer shares, to be introduced before the end of 2013. The Tax Administrative Assistance Law, which entered into force in February 2013, began to address the recommendations made by the Global Forum. A further revision of this law to allow exceptions to certain notification requirements will be proposed to the Federal Council before the end of 2013. However, it still has some way to go to fully implement this work. In addition, Switzerland will have to face the challenge of moving towards automatic exchange of information, which is becoming the new global standard already endorsed by the G20. Switzerland is contributing actively, within the scope of the OECD, to the development of a single standard for the automatic exchange of information to ensure tax compliance, which should be global and comprehensive.

The housing market may be overheating

Policymakers, including the SNB, have in recent years expressed growing concern about the risks in the residential real estate market and follow-on threats to banking-sector stability. Since the late 1990s, average real estate prices across Switzerland have increased by around 50%, but in some regions by much more. Average owner-occupied apartment prices have increased by 70% since 2000, close to 4% per annum and up to 6% in the Lake Geneva area (Figure 4). Average single-family house prices have increased by over 50% over the same period.

Figure 4. **Real estate prices by region**

Owner-occupied apartments (2 to 5 rooms), Index 2000 = 100



Source: SNB (Indices of Wüest & Partner AG).

StatLink http://dx.doi.org/10.1787/888932939277

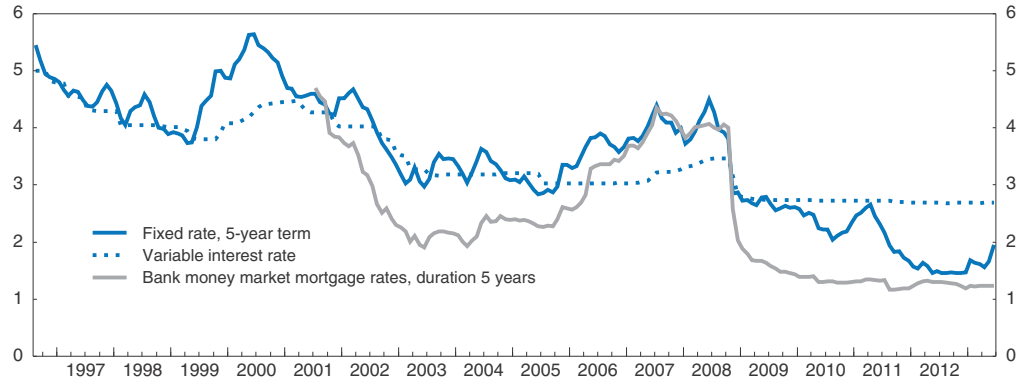
It is of course difficult to determine if these price increases are sustainable, and, as usual, the indicators are mixed. Nevertheless, policy responses to a large extent depend on such a judgement. A number of factors suggest that part of the price appreciation has been driven by fundamentals:

- Population increases (in large part reflecting an average recent immigration rate of some 1% of the population) that have outpaced new housing construction since 2007.
- Demand from foreign and expatriate investors, drawn by Switzerland's safe-haven status.
- Strict zoning laws and rigorous construction standards that restrict supply (Bourassa and Hoesli, 2010), resulting in housing investment that is still relatively low as a share of GDP (3.2% in 2012, one point below the OECD average) and shortages in the rental market (vacancy rates are reported to be as low as 0.1% in Zurich and 0.3% in Geneva). A revised federal law on territorial planning will take effect in 2014; it will require cantons to adapt their cantonal directive plans to adjust building zones to the need of the next 15 years; on the one hand communes will have to make available additional land for residential construction where demand warrants and on the other hand they will have to downsize existing building zones where demand is lacking.
- Lock-in effects from capital-gains taxation (Aregger et al., 2013).

Yet, other factors point to price increases beyond what the fundamentals might suggest:

- Historically low mortgage interest rates for an extended period (Figure 5), a feature that has been associated with bubbles (Hott and Jokipii, 2012).
- Mortgage lending growth that has exceeded increases in household disposable income (Figure 6).
- Low rental yields as low as 3% in some cities (Wüest & Partner, 2013), implying house-price overvaluation, although they may also be attributable to rent controls.
- Historically low returns on financial assets might be driving a "search for yield", which could be contributing to strong house price rises. Private home ownership, at around 37%, is very low by OECD standards: much of the housing stock is owned by investors, including institutions like pension funds and insurance companies.

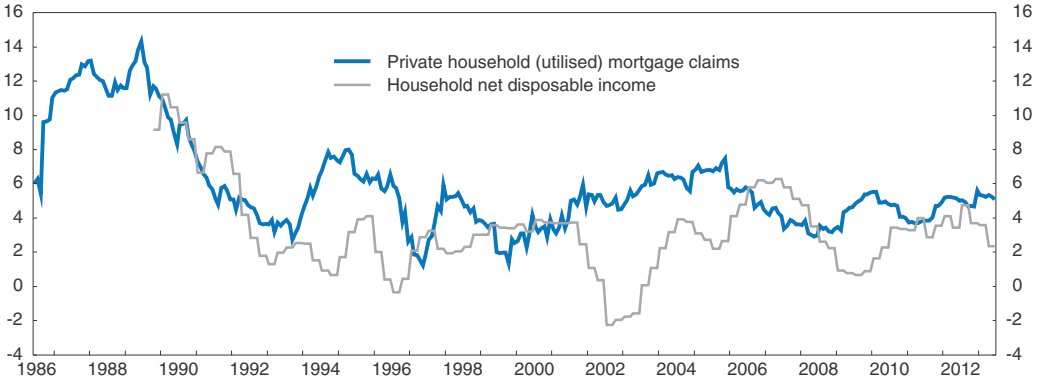
Figure 5. **Mortgage interest rates**
Percentage points



Source: Swiss National Bank.

StatLink http://dx.doi.org/10.1787/888932939296

Figure 6. **Mortgage volumes and household disposable income**
Year on year growth, per cent

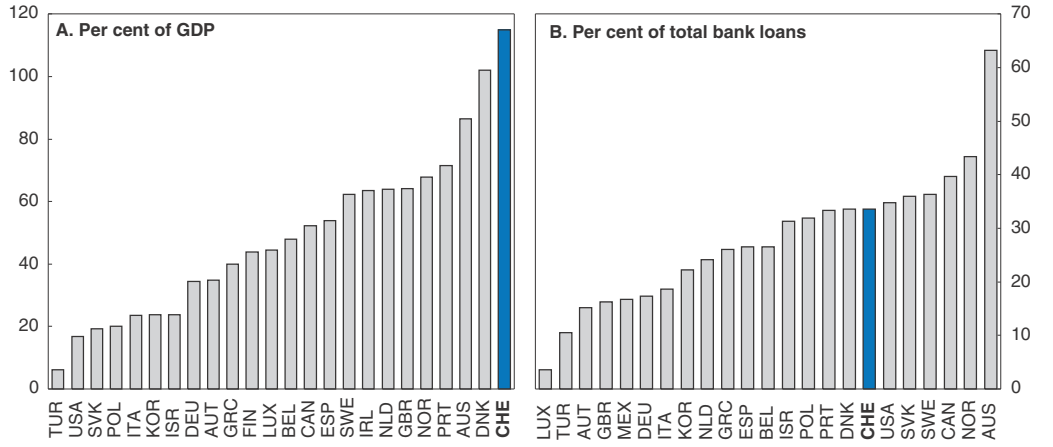


Source: Swiss National Bank; *OECD Economic Outlook 93 Database*; and OECD calculations.

StatLink http://dx.doi.org/10.1787/888932939315

The consequences of a hypothetical sharp price correction are also difficult to assess but would probably be severe, including for government whose revenue share from housing has doubled to over 15%. The stock of residential mortgages, at 116% of GDP, is very high by OECD standards (Figure 7, Panel A). This points to possible vulnerabilities at the household level if interest rates were to rise significantly. Moreover, while mortgages are only 35% of total bank loans (Panel B), if CS and UBS are excluded that ratio jumps to around 70%. Forestalling a possible bubble by raising policy rates is complicated by concerns about the high value of the franc and threats of deflation. This suggests an initial use of macro-prudential measures, such as higher bank capital requirements for mortgage lending or direct limits on loan-to-value and debt-to-income ratios. Such measures could address risks more directly and with lower spill-over costs than with the blunter instruments of monetary or fiscal policy (Crowe et al., 2011). Also, as recommended in the previous *Survey*, tax deductibility of mortgage interest expenses for owner-occupied housing should be eliminated. The taxation of implicit rents of owner-occupied housing should be removed as well.

Figure 7. **Stock of residential loans relative to GDP and total bank loans, 2013 Q1**[1]



1. For Switzerland 2011 Q4.

Source: IMF, *Financial Soundness Indicators* (FSI); OECD, *OECD Economic Outlook 93 Database* and updates; and OECD calculations.

StatLink http://dx.doi.org/10.1787/888932939334

In June 2012, the Federal Council agreed a package of measures to reduce housing risks. It included restrictions on the use of pension savings as collateral for borrowing (effective July 2012), stricter capital requirements for mortgages with high loan-to-value ratios (effective January 2013), and, as recommended in the 2012 *Survey*, the so-called counter-cyclical buffer (CCB). The CCB was activated by the Federal Council in February 2013 after being proposed by the SNB, requiring banks to hold capital in the amount of 1% of their risk-weighted positions associated with residential-mortgage lending by end September 2013. There is provision to increase the supplementary capital requirement to 2.5%, which would also require Federal Council approval. Banks have also taken self-regulatory measures, which are applied to new mortgages. These include requiring a minimum 10% cash deposit. In addition, amortisation of one third of the value of a mortgage within 20 years will be imposed. Loans not fulfilling these self-regulation guidelines will be subject to a risk weighting of 100%. While to date this suite of measures seems to have had an insufficient effect to bring down the dynamics of housing prices to a sustainable path, the impact on banks' resilience appears to have been significant. In any case, continued close monitoring would be appropriate.

Box 1. **Recommendations for macroeconomic, financial and housing policies**

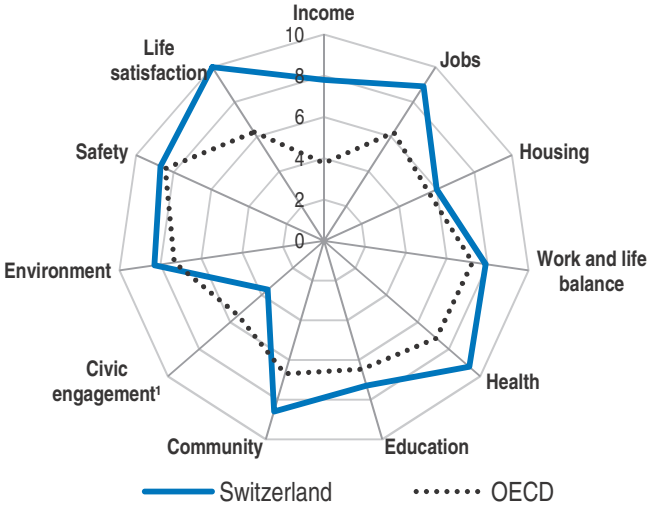
Key recommendations:

- When inflation pressures reappear on the horizon and the risks in the world economy are more balanced, the SNB should return to a free float and raise the policy rate.
- Take further macro-prudential measures, such as increasing the counter-cyclical buffer, should the imbalances in the mortgage and housing markets increase.
- Within the constraints of the debt brake rule, a re-evaluation of spending priorities may be warranted; in particular, a shift towards productivity-enhancing public expenditures would be appropriate in the medium term.

Bolstering long-term growth, productivity and well-being

Switzerland performs very well in overall well-being, ranking among the top OECD countries in a large number of relevant aspects as tracked by the OECD's Better Life Index (Figure 8). It is also one of the wealthiest OECD countries measuring in terms of GDP per capita, thanks to its strong education outcomes, flexible and well regulated labour and product markets, high levels of investment in both physical capital and R&D, a robust financial sector, and high-performance and innovative export industries. However, it faces challenges in maintaining its living standards – for example, because of expected future headwinds in its large financial sector – and, on some measures, has already started to fall behind. For instance, it has been losing export market shares since the late 1980s faster than most other OECD countries, raising questions about its international competitiveness. Moreover, trade (exports plus imports over GDP) is less extensive than

Figure 8. **The OECD Better Life Index for Switzerland**



1. The civic engagement index is partially based on average voter turnout. Direct democracy in Switzerland means that there are a disproportionately large number of national polls, leading to relatively low average turnout.

Source: OECD Better Life Index, *www.betterlifeinitiative.org*.

How to read this figure: Each well-being dimension is measured using one to three indicators from the OECD Better Life indicator set with equal weights. Indicators are normalised by re-scaling to be from 0 (worst) to 10 (best). Switzerland receives a higher ranking than the OECD average on all well-being dimensions, except for civic engagement (see Footnote 1 above).

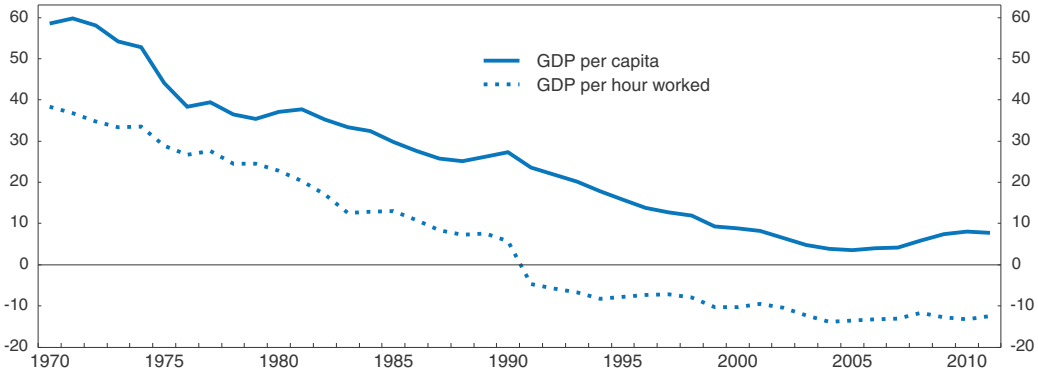
StatLink http://dx.doi.org/10.1787/888932939353

what would be expected for a small country located at the heart of Europe (Chapter 1). The recently concluded Free Trade Agreement (FTA) with China is a positive step in this regard, even though not all existing trade restrictions will disappear, notably in agriculture and light manufacturing.

Even if measurement issues abound, especially surrounding quality improvements over time, Swiss labour productivity growth has been comparatively low since the mid-1970s (Figure 9), and there is a large multifactor productivity gap with leading countries (Johansson et al., 2013), the causes of which are poorly understood. Like in most other countries, there is also a large variation in the productivity performance across industry sectors. For instance, the FSO productivity database shows that over the period between 1997 and 2010 sectors such as energy, water supply, accommodation and education recorded sharp declines in labour productivity, while other sectors such as chemicals, pharmaceuticals, telecommunications and insurance enjoyed significant productivity gains. Like in the agricultural sector (see below) substantial improvements in aggregate productivity could be achieved by policies aimed at boosting the competition in the various subsectors of the economy.

Figure 9. **Swiss productivity gap with best performing OECD countries**

Gap to the upper half of OECD countries,[1] per cent



1. Percentage gap with respect to the simple average of the highest 17 OECD countries in terms of GDP per capita and GDP per hour worked (in constant 2005 PPPs).

Source: OECD, *Going for Growth 2013*.

How to read this figure: Swiss GDP per capita was initially nearly 60% above the average level among the top 17 OECD countries, but that advantage has fallen to less than 10% of late. Similarly, hourly productivity is now more than 10% below the average of the 17 best performing OECD countries.

StatLink http://dx.doi.org/10.1787/888932939372

While Chapter 1 looks at a number of pressing issues that are holding back longer-term Swiss productivity and output growth, the scope for additional analytical and policy work is large, and the viability of a body dedicated to exploring these issues in depth and proposing measures to address them should be examined within the Swiss context. A productivity commission such as those in Australia and New Zealand, or the ad hoc body recently established in Denmark, provide possible models. Since 2002, the Federal Council has adopted three reports focused on improving Switzerland's productivity performance and subsequently conceived three growth packages. However, these were to some extent watered down by parliament, in particular the latter packages.

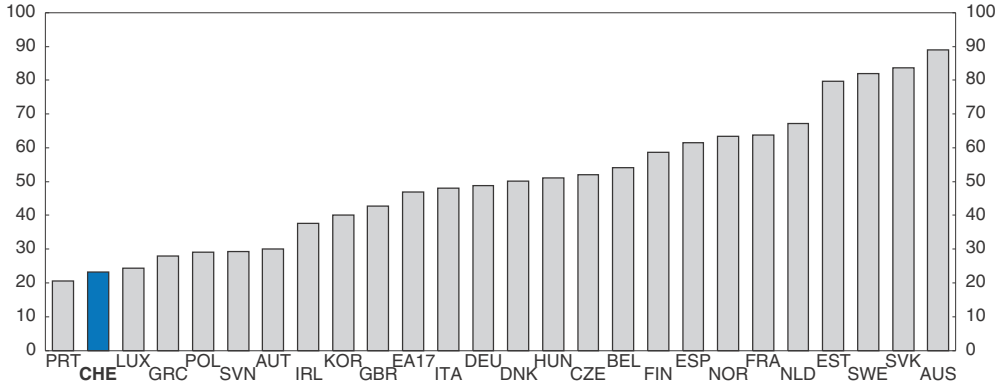
The 2012 *Survey* included a number of recommendations focused on boosting long-term growth, in particular through changes to the tax system. Reforming elements of the tax system was also cited as one of five top priorities in the most recent *Going for Growth* exercise for Switzerland (OECD, 2013a). The recommendations included: modifying the VAT (by removing exemptions and, in the medium term, raising the rate), reducing personal income taxes and lowering the tax wedge on second earners.

Deeper reforms to agriculture could have a significant longer-term productivity dividend

The Swiss agricultural sector is small, about ¾ of a per cent of GDP (compared to the median OECD country's 2%), but it absorbs close to 4% of employment, implying relative labour productivity that is amongst the lowest in the OECD (Figure 10; Jarrett and Moeser, 2013). As an illustration, if the surplus labour could be shifted to the rest of the economy, output could rise by nearly 3% if used according to best practice, or more than 1% if only an average level of relative productivity is assumed (OECD, 2012a).

Figure 10. **Nominal value added per employee in agriculture relative to the total economy, 2010**

Per cent



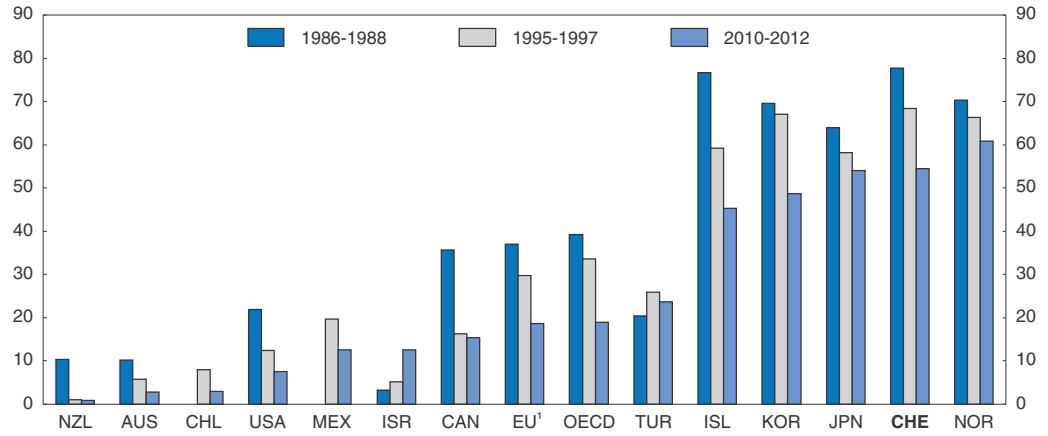
Source: OECD, *National Account Database*.

StatLink http://dx.doi.org/10.1787/888932939391

The sector is dominated by small, family farms (only about 100 are larger than 100 hectares) whose high costs are not fully accounted for by topographical disadvantages. They are sustained by heavy government support, with budgetary outlays reaching CHF 3½ billion (0.6% of GDP) in 2011 (Figure 11). Support takes a variety of forms: market price support (mainly for meat and milk), direct payments (some of which are for ecological purposes), input subsidies and tax breaks, and border protection. Exporters of processed foods are also compensated for the high costs of locally produced inputs; average farm-gate prices are around 150% of world prices. The sector is also protected by quotas and tariffs, which average about 32%, compared to a world average of 16%, and this is often a stumbling block to achieving trade agreements. Even with all this support, domestic food prices average 28% above those in neighbouring countries.

Some progress has been made to liberalise the sector in recent years. Most recently, in March 2013, Parliament approved a new policy regime for 2014-17: total spending will continue to be CHF 3½ billion per year, and direct payments (CHF 2¾ billion) will be shifted

Figure 11. **Producer Support Estimate (PSE) as a percentage of gross farm receipts in OECD comparison**



1. EU15 for 1986-88 and 1995-97; EU27 for 2010-12.
Source: OECD, *PSE/CSE Database 2013*.

StatLink http://dx.doi.org/10.1787/888932939410

toward broader public-interest objectives, mainly supply security and the environment. Yet, nearly half a billion francs will continue to be spent each year (mainly in dairy) on the most distorting forms of market price support. The government should pick up the pace of reform and eliminate such forms of support. Impediments to structural change in land law should be removed. In particular, inheritance rules favouring the passing on of farms between generations should be abolished. In addition, the sector could be a useful ally in achieving worthwhile environmental goals if: all direct payments were contingent on environmental outcomes; a tax on fertilisers were imposed to account for their negative externalities; farmers' exemption from mineral oil tax was ended; and sectoral greenhouse gas emissions (mainly methane from livestock) were priced.

Improving labour-market outcomes, especially for women and immigrants

Aggregate labour-market outcomes continue to impress. By OECD standards, labour force participation and average hours worked are both high. Moreover, market wage inequality is low. The Swiss economy has absorbed substantial immigration, about 1% of the population annually in recent years. However, as aging bears down on labour supply, Switzerland will have to rely even more on immigration to sustain GDP growth. This poses challenges, not only in attracting and keeping workers with the right balance of skills, but also in promoting broader social cohesion. Looming labour shortages also point to the need to expand female labour supply (see below) and to extend the working life of older workers.

Foreign-born residents currently make up over one quarter of the population, and this could increase significantly in coming decades. Since the Agreement on the Free Movement of Persons (AFMP) between Switzerland and the EU and European Free Trade Association (EFTA) came into force in 2002, inflows from EU countries have surged and now comprise the majority (67%) of inflows. Many are highly educated professionals who do well in the labour market. However, low-skill migrants usually do less well: they are overrepresented in disability programmes (although this may be in part due to the types of jobs undertaken by migrants), have considerably longer average unemployment spells and participate less in active labour market programmes (Chapter 1).

The labour market integration of immigrants in Switzerland has been a success in international comparison, partly attributable to good overall labour market conditions and other factors such as the strong role of apprenticeship. However, more could to be done to integrate migrants into the labour force more efficiently and society more generally. Greater emphasis should be put on the early activation of those who are struggling to find work. Use of job-insertion allowances, which have proved effective in the past, should be increased. Incentives for rapid labour-market integration, of humanitarian migrants in particular, need to be strengthened. Also, there is evidence that foreign-born residents face significant labour-market discrimination (Fibbi et al., 2006). Consideration should be given to reinforce measures against discrimination in the labour market. However, policy needs to go further, including education campaigns and diversity initiatives.

Since 2011, the cantons together with the Federal Office of Migration have been developing cantonal integration programmes based on a Federal Council integration plan of 2011 with 3 pillars: information and counselling, education, and labour-market and social integration. These are to be implemented at the beginning of 2014. A reform at the federal level is on-going with the aim of a more binding and coherent integration policy in the fields of education and labour market within the existing structures.

Addressing efficiency and equity issues in the education system

Human capital is one of Switzerland's main comparative advantages. The education system is highly effective in preparing young people for work, yielding low levels of youth unemployment. The comprehensive and well integrated vocational education and apprenticeship system functions admirably, including for academically weaker students (Fazekas and Field, 2013).

Despite this success, the educational paradigm faces challenges as the structure of the economy evolves. Skills shortages certainly do exist, as evidenced by the large inflows of skilled workers. In particular, the vocational and academic streams might have to be reviewed to provide more of the skills needed for high-skill sectors. This could include increasing access to tertiary type-A studies (courses which result in qualifications for entry to advanced research programmes and professions with high skill requirements) for those from lower socio-economic and immigrant backgrounds.

Swiss education also faces access and equity issues, and the dispersion in educational outcomes is high. While the gender divide in educational outcomes has disappeared (Chapter 2), the gaps between students of different socio-economic status, and between native-born and immigrant students, are substantial. Particularly troubling are the enduring significant gaps relative to native-born students for first- and second-generation immigrant children. Measures should be taken to address these issues as part of a strengthened comprehensive integration policy. Within the school system, lessons could be learned from teacher-training programmes in other countries, most particularly in Finland, which focus on helping teachers develop practical remedial skills that are applied in classrooms where students of different abilities learn together.

Swiss students are typically tracked by aptitude and ability at age 13, which is later than it used to be, but is still early. While all cantons have agreed to delay tracking, two cantons have not yet implemented this change. While the option to switch streams is available, it typically requires additional schooling. Such early tracking based on academic competency reinforces the effects of students' socio-economic background (Bauer and

Riphahn, 2006; Schütz et al., 2008; and OECD, 2012b). Indeed, the likelihood of a Swiss student whose parents have low educational attainment entering higher education is one of the lowest in the OECD (Chapter 1). The practice of early tracking should be re-examined.

Promoting innovation by unleashing entrepreneurship

Swiss firms are among the most innovative in the world: well over half have introduced either product or process innovations. Government spending on innovation is close to the OECD average (0.8% of GDP in 2010), but direct funding to business is very low, and there are no specific R&D tax incentives. Three-quarters of total Swiss R&D activity is conducted by the business sector, amongst the highest in the OECD. However, while R&D is not the only source of innovation, private R&D activity is concentrated in a small number of sectors, and pharmaceuticals accounted for almost 40% of all business expenditure on R&D in 2008 – the highest pharmaceuticals share in the OECD. Moreover, the tri-annual Konjunkturforschungsstelle (KOF) Innovation Surveys show that the share of Swiss firms undertaking innovation activities fell from over 80% in the early 1990s to around 55% in 2009-11 (KOF, 2013). Similarly, the proportion of those involved in patenting declined from around 75% to below 40%.

Entrepreneurship and the emergence of dynamic start-ups are important drivers of innovation and productivity growth, and Switzerland performs below the OECD average in this regard. Firms less than five years old did less patenting over 2007-09 than elsewhere. It appears that for those OECD countries for which there are data, lighter restrictions on doing business, as measured by the OECD's PMR barriers-to-entrepreneurship sub-index, are correlated with higher patenting activity by young firms (Chapter 1). More needs to be done to ease impediments to starting a business, including by reducing the number of procedures and the time required, and also streamlining procedures for winding down businesses, including bankruptcy rules. These and other measures, such as increased business angel funding and reducing the stigma of bankruptcy, should be considered in order to encourage smaller firms' innovation.

Achieving GHG emissions targets and simultaneously maintaining energy security poses challenges

The government faces significant challenges in reconciling its climate-change commitments with its plans to phase out nuclear power. It is aiming to cut greenhouse gas (GHG) emissions consistent with the global two-degree global-warming target ceiling. Given that nuclear power, which accounts for about 40% of Switzerland's electricity production (Figure 11), has virtually a zero GHG footprint, its elimination means that this capacity will need to be replaced by a combination of greater energy efficiency, renewables, increased electricity imports and gas-fired power plants. The government has chosen to meet the resulting technical challenge by promoting certain yet commercially immature energy technologies using feed-in tariffs, rather than relying on a broad market-based framework. There are plans to adjust and eventually replace the feed-in tariff scheme by introducing lump-sum investment support and other more market-oriented measures. In addition, as from 2020, the government proposes to move to a system that relies exclusively on tax measures. The 2012 *Survey* (OECD, 2012a) included a number of recommendations on how GHG emissions could be reduced in a cost-effective way largely by using market mechanisms.

Box 2. **Recommendations for boosting long-term growth and productivity**

Key recommendations:

- Accelerate the pace of agricultural sector reform, including moving entirely to direct payments to farmers, and by further integrating the entire food value chain in international trade.
- Address issues with academically weaker students within the integrated school system as part of a comprehensive integration policy. Focus teacher-training programmes more on developing practical remedial teaching skills.
- Examine the roots of, and propose remedies for the poor productivity performance including by creating a productivity commission.

Other recommendations:

- Streamline the process for starting a business by reducing the number of procedures and the time required. Simplify procedures for winding down businesses, including bankruptcy rules.
- Improve labour-market outcomes for women and immigrant workers and make better use of their potential. Immigrant workers would be assisted by reinforcing the initiated measures in fields such as early activation and labour-market anti-discrimination measures.

Under the Kyoto Protocol, Switzerland committed to reduce its GHG emissions from 1990 levels by an average of 8% between 2008 and 2012. Recent government estimates indicate that average emissions for 2008-11 were only 0.5% lower than in 1990 (after an unusually large 7.5% decline in 2011). To meet its Kyoto commitments, the Swiss government mandated the Climate Cent Foundation, a private-sector initiative of the oil industry financed by 1.5 cents per litre surcharge on transport fuel, to acquire offsets equivalent to 5.7% of base-year emissions per year. Also, credits from forest management are taken into account.

In order to meet these targets, in January 2008, a CO_2 levy was introduced on the direct use of heating and process fuels, including for marginal electricity generation. Also, new fossil-fuel-fired power plants are required to fully offset their CO_2 emissions (a maximum half of which by Kyoto offset mechanisms). Furthermore, new fossil-fuel-fired power plants will be subject to Emissions Trading Scheme (ETS) rules once the Swiss and European systems are linked. Smaller energy-intensive firms including those whose competitiveness may be harmed by the CO_2 levy are exempt from it if they achieve legally binding emissions cuts. Large emitters will be subject to the ETS. The Swiss carbon market is still fairly small, involving some 50 firms producing around 5 million tonnes of CO_2 annually, with little trading. Negotiations with the EU on linking the Swiss to the EU ETS are on-going, a move that would resolve the liquidity issue of the Swiss carbon market and would cut abatement costs faced by large emitters.

Looking ahead Switzerland has undertaken to cut its domestic (without foreign offsets) GHG emissions by 20% from 1990 levels by 2020. On 30 November 2012, the Federal Council approved the legal framework for Switzerland's 2013-20 climate policy. The aggregate reduction target is shared between sectors based on their emissions share: 40% in the buildings sector, 10% in transport, 15% in industry, and 35% in the remaining sectors. Interim targets have also been set, and, if developments suggest that they will not be

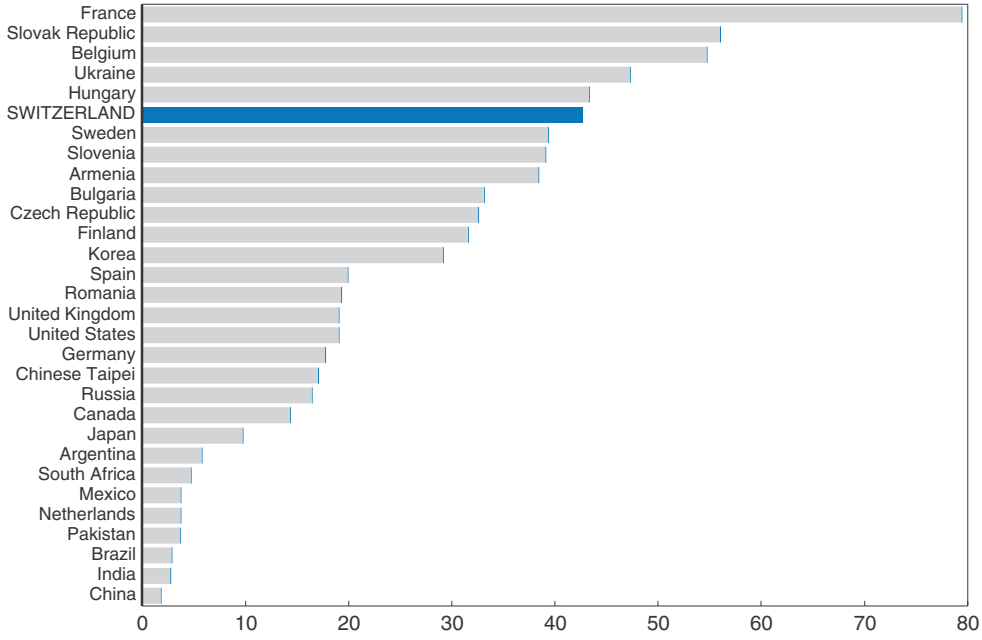
reached, additional measures may be taken. For example, because heating and process fuel targets were not met in 2012, the CO_2 levy on heating and process fuels will be increased from the current CHF 36 to CHF 60 per tonne of CO_2 as of 1 January 2014. Further intermediate targets, which could trigger an increase of the CO_2 levy rate, have been set for 2014 and 2016. A fund was recently established financed with CHF 25 million a year of CO_2 levy revenue to provide credit guarantees for companies with innovative abatement technologies. One-third of the CO_2 levy revenue, to a maximum of CHF 300 million, is earmarked for a buildings programme supporting retrofitting and renewable-energy heating systems.

Emissions from the transport sector have increased. Gasoline and diesel are not subject to the CO_2 levy, but they were subject to the Climate Cent Foundation surcharge, which expired at the end of 2012. Measures in place are CO_2 targets for newly registered passenger cars, set at 130 g CO_2 per km by 2015 in line with EU regulations, and an obligation for transport fuel importers to offset (within Switzerland) 10% of CO_2 emissions of the transport sector by 2020. As recommended in the special chapter on reducing GHG emissions in the previous *Survey*, Switzerland should implement a CO_2 levy on these fuels to better exploit the low relative cost of meeting emissions-reduction targets in the transport sector.

As in Belgium and Germany, in May 2011 the Swiss authorities decided to phase out nuclear power by not building new installations. The existing plants may produce power as long as they are safe. Nuclear power currently accounts for around two-fifths of Switzerland's generation (Figure 12), and replacing this capacity will be challenging, especially as Switzerland's emissions-reduction targets imply greater use of electricity to replace fossil fuels, particularly in heating.

Figure 12. **Share of nuclear power in total electricity generation**

2011, per cent



Source: IAEA PRIS.

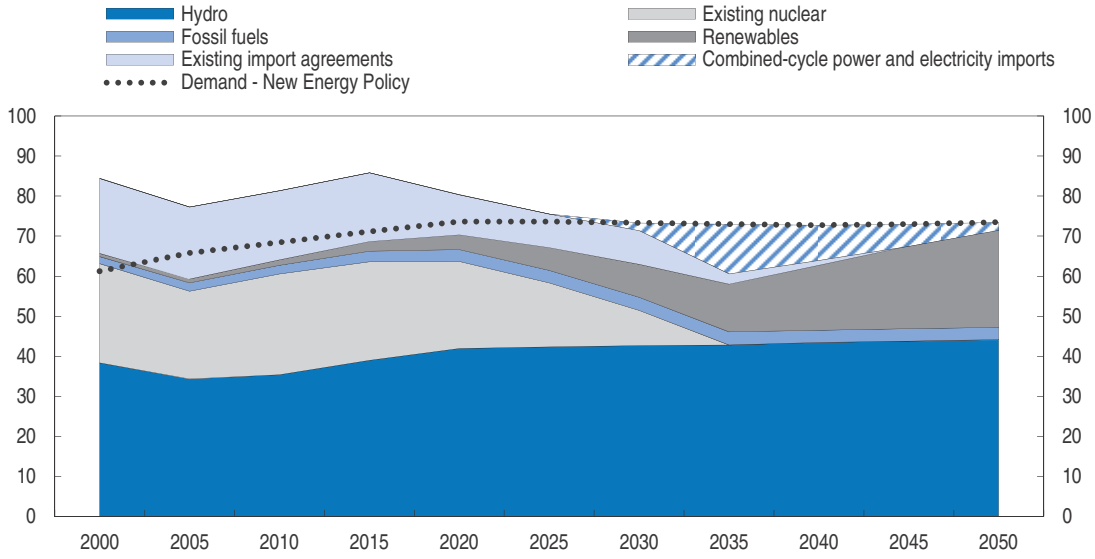
StatLink http://dx.doi.org/10.1787/888932939429

The strategy for guaranteeing electricity supply during the transition and beyond and the assessment of its environmental impact have been set out in the "Energy Strategy 2050" and accompanying legislative package. It stresses increased energy efficiency, the expansion of hydropower, the use of new renewable energy, temporary use of fossil-fuel-based electricity production (if necessary), and electricity imports. The Strategy calls for the country's electricity grid to be expanded and energy research to be intensified. It also includes several measures to accelerate the process of obtaining permits for renewable-energy projects. It relies significantly on direct support for commercially immature energy types, in combination with substantial efficiency efforts, rather than on market mechanisms. Some of the conservation measures, like a levy on energy consumption to be used as a buffer to achieve long-term energy and climate goals, are left until after 2020.

To substantiate its Energy Strategy 2050, the government has conducted a number of supply and demand scenarios under different assumptions about technology, efficiency and fuel mix. Figure 13 shows the Swiss government's main scenario of electricity demand and supply, given the Government's objectives of security of supply and CO_2 reductions. The theoretical gap could be filled in a number of ways, including by electricity imports and gas-fired power, but each has its own environmental and energy-security implications. Switzerland traditionally imports substantial electricity from France and exports similar volumes to Italy. Facilitating imports by closer international integration would require strengthening cross-border transmission infrastructure and upgrading domestic networks. Closer alignment with the EU's electricity policies would assist in integration.

Figure 13. **Energy Strategy 2050 demand and supply scenario**

Hydrologic year terawatt hours[1]



1. Hydrological years ending in September.

Source: Prognos 2012; Botschaft *zum ersten Massnahmenpaket der Energiestrategie 2050 (Revision des Energierechts) und zur Volksinitiative "Für den geordneten Ausstiegaus der Atomenergie (Atomausstiegsinitiative)".*

StatLink http://dx.doi.org/10.1787/888932939448

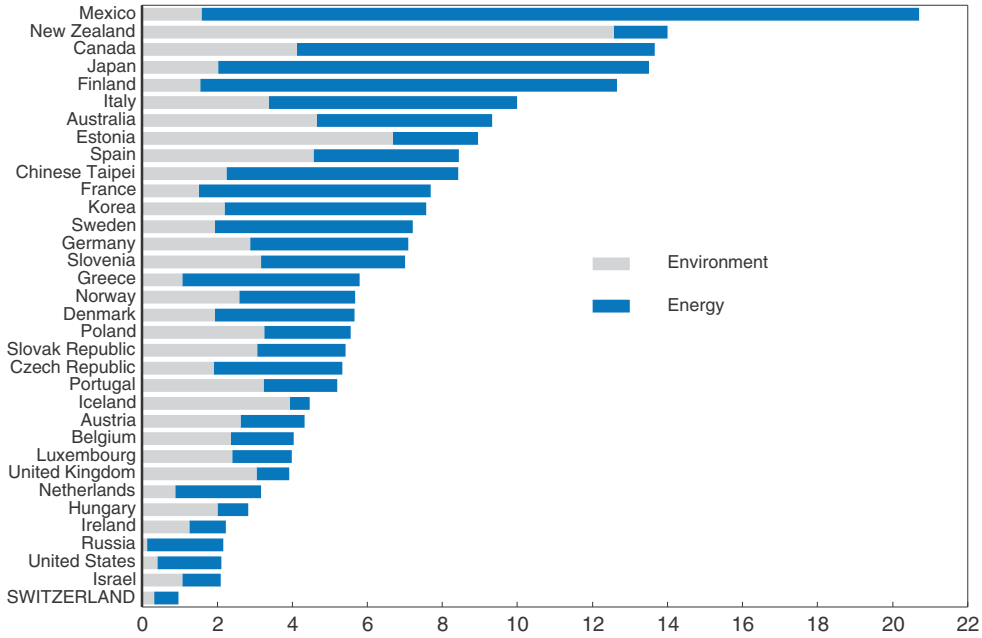
Renewable power sources have been supported since the beginning of 2009 under a feed-in scheme covering production costs. Feed-in tariff appropriations are funded by a grid surcharge, which is currently capped at 1 Swiss cent/kWh (yielding CHF 210 million

p.a.) and due to increase to 1.5 Swiss cents/kWh by 2014. The Strategy assumes the feed-in scheme will be overhauled: feed-in periods will be shortened from the current 20-25 years to 15 years; and one-off investment support covering a maximum of 30% of investment costs will be offered to small photovoltaic systems, waste incineration and sewage plants. The scope for further hydro development is limited by geography and local environmental concerns. Wind and solar capacity, which are both negligible now, are slated for increases: generation from wind is to increase more than tenfold by 2020. Solar power is expected to play a major role, particularly as costs come down in the longer term, and as domestic load-balancing possibilities imply that its intermittency could be handled.

While leading the world in R&D activities in some sectors (Chapter 1), Switzerland accounted for only 1.4% of world patents related to energy generation from renewable and non-fossil sources in 2007-09. On a per capita basis this is not bad but still lags countries like Denmark, Sweden and Israel – all countries less ambitious with regard to plans for technological progress in the energy sector. Public-sector investment is even weaker (Figure 14). Given the ambitious assumptions regarding technological advances that underpin Energy Strategy 2050, more needs to be done if they are to be realised. Policymakers have started to address this shortfall. For instance, the Federal Council recently announced measures to promote energy research. In March 2013, Parliament voted an additional CHF 202 million in public energy R&D over the 2013-16 period (that is a 25% increase). It involves the creation of research networks between higher education institutions and the Swiss Competence Centres for Energy Research (SCCERs), which will pursue research in seven action areas. Efforts should continue to be made to engage strongly with foreign work in this field.

Figure 14. **Government R&D budgets for energy and the environment, 2012**

As a percentage of total government R&D budget



Source: OECD, *Research and Development Statistics (RDS) Database.*

StatLink http://dx.doi.org/10.1787/888932939467

Box 3. **Key recommendations on environmental sustainability**

- Put greater emphasis on market mechanisms in the transition from nuclear to renewable energy.
- Implement a CO_2 levy on transport fuels so as to better exploit the low costs of meeting emissions-reductions targets in the transport sector relative to other sectors.
- Further promote private- and public-sector energy-related research, and continue engagement with foreign researchers to facilitate realisation of the Energy Strategy 2050.

Expanding women's role in the economy

At 45% of the labour force and about half of tertiary graduates, women are playing an increasingly important role in the Swiss economy. However, the paucity and high cost of childcare, dissuasive effective marginal tax rates on second earners, the cultural hurdle in society and in companies' management and stereotyping prevent better use of female potential in the workforce and generate heavy incidence of part-time work and a positive, albeit shrinking, net wage gap between men and women (about 7%). In addition, by comparison to their share of the labour force, women are still underrepresented as managers, directors and entrepreneurs.

The overall educational attainment gap has vanished, but study choices differ substantially by gender

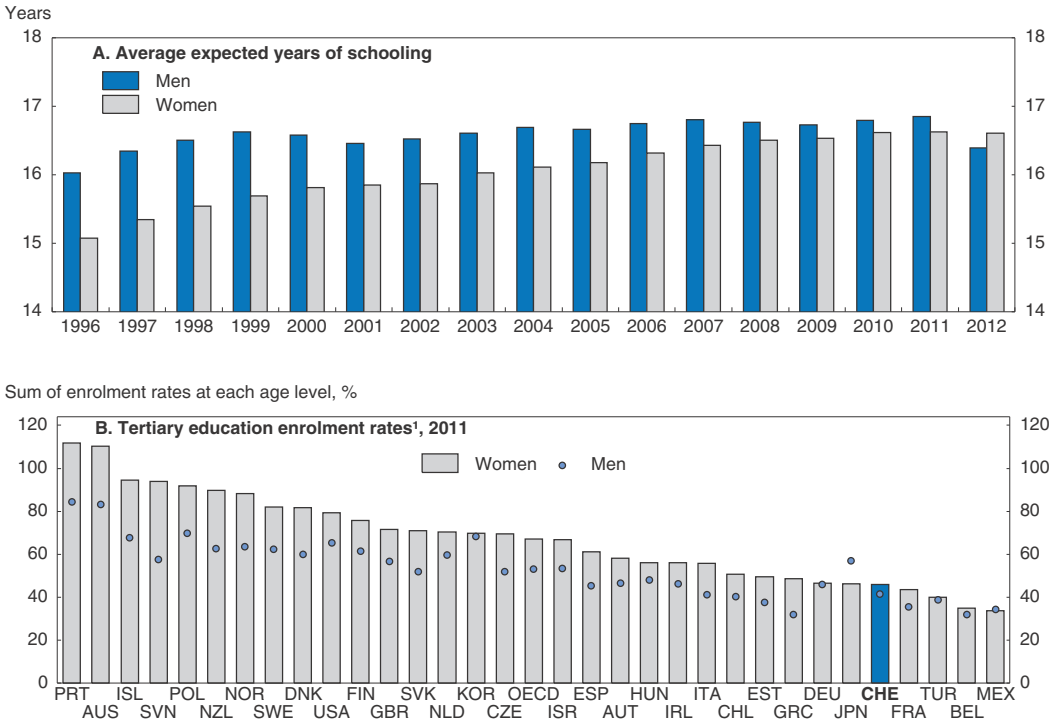
Throughout the OECD, young women have been steadily catching up and even surpassing young men in educational attainment (OECD, 2013b). Switzerland is no exception. Expected years of schooling are now equal for both sexes at 17 years (Figure 15, Panel A), and in the 2009 PISA survey (which assesses 15 year-olds' competencies) girls outperformed boys in reading, but boys performed better in mathematics and natural sciences.

Girls and boys have the same graduation rate from secondary education (94%), but a higher proportion of boys graduated from professional secondary education (75.7% versus 64.4% for girls) in 2010 while a higher proportion of girls' graduated from general secondary graduation (29.1% versus 18.1%). As a result, girls are the majority recipients of gymnasium (general) "matura" (diplomas) (57%), but the minority when it comes to professional matura (47%).

Women's enrolment rates in tertiary general education are now also on par with men's (Figure 15, Panel B). As in secondary school, however, their study choices differ substantially. Men form the majority in traditional male subjects, such as engineering and IT, architecture and construction, whereas women are over-represented in social work, psychology, languages, health and teaching. That women do not rush into scientific careers may simply reflect individual preferences. But the choice of a career may also be influenced by family values, perceptions of career opportunities and stereotypes.

Role models, such as inviting successful female engineers and scientists to visit schools, could be used to make science, engineering and mathematics more attractive for girls. They can also raise awareness of the consequences of educational choices for career and earnings prospects. Similarly, education, arts, humanities and health could be made more tempting to boys. More numerous and clearer pathways across fields of studies could also facilitate greater mobility across career choices by reducing the importance of the early tracking system.

Figure 15. **Women's relative educational outcomes**



1. Enrolment rates represent the estimated percentage of an age cohort that is expected to enter a tertiary type-A programme over a lifetime. Entry rates can be above 100% when large numbers of foreign students enrol at university, for instance.

Source: FSO (Panel A); OECD, *Education at a Glance 2013 Database* (Panel B).

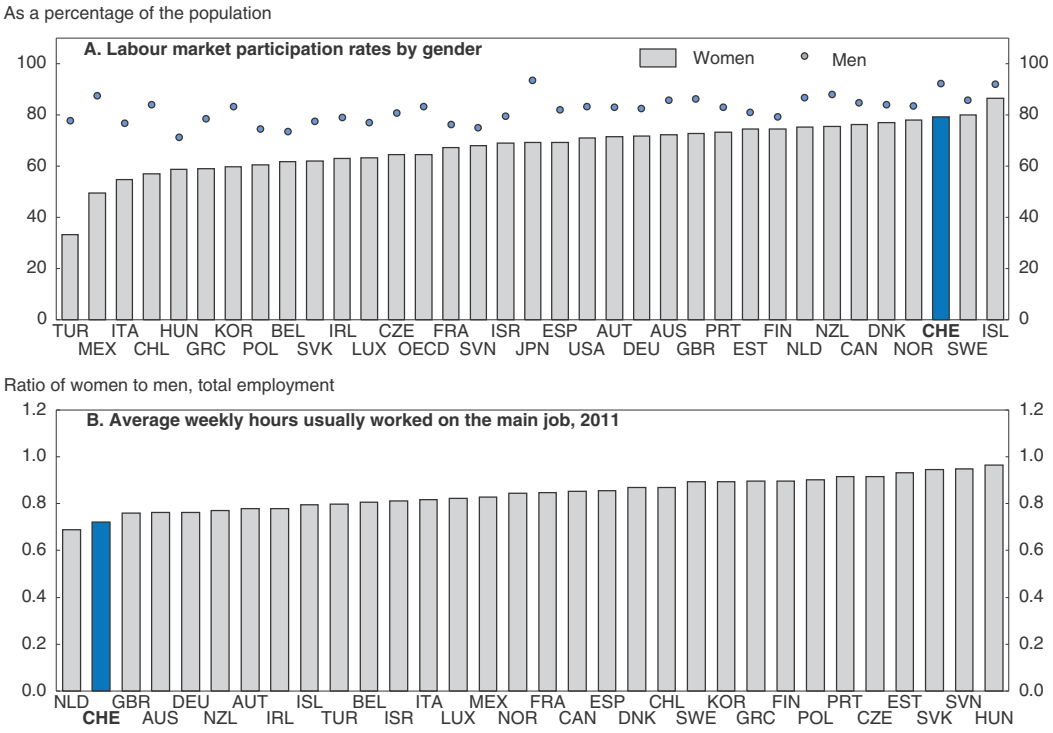
StatLink http://dx.doi.org/10.1787/888932939486

Despite a high participation rate, women face difficulties reconciling work and family life

Women's labour force participation, at 78.5%, is high (Figure 16, Panel A) and projected to rise further. As a result, the labour force has been moving towards a more equal gender mix, from 34% female in 1960 to 45% in 2012, making Switzerland very similar to the Nordic countries. At the same time a very high proportion of women (59%) are in part-time work. As a result, Swiss women have the OECD's second lowest supply of paid work compared to men (Panel B).

Childcare provision is one of the main impediments to women working longer hours. In particular, there is a lack of facilities, and costs are high. In 2005 almost 30% of the mothers of children aged less than 15 said that they had to reduce their working hours because of the lack of childcare facilities (SECO, 2007). Within the OECD, Switzerland is among the countries with the lowest public spending on childcare and pre-primary education as a share of GDP (Figure 17). However, data reported here do not include all local government spending and therefore underestimate public spending on childcare in federal countries like Switzerland. The supply of childcare facilities has risen by 79% since 2004, but shortages persist, and unsubsidised care reaches more than CHF 100 per child per day (the most expensive in the OECD), raising affordability problems and narrowing options for low-income women in particular. The federal government has recently introduced a tax deduction for childcare costs. And there also exist deductions at the cantonal level. While

Figure 16. **Swiss female labour market indicators, 2012**

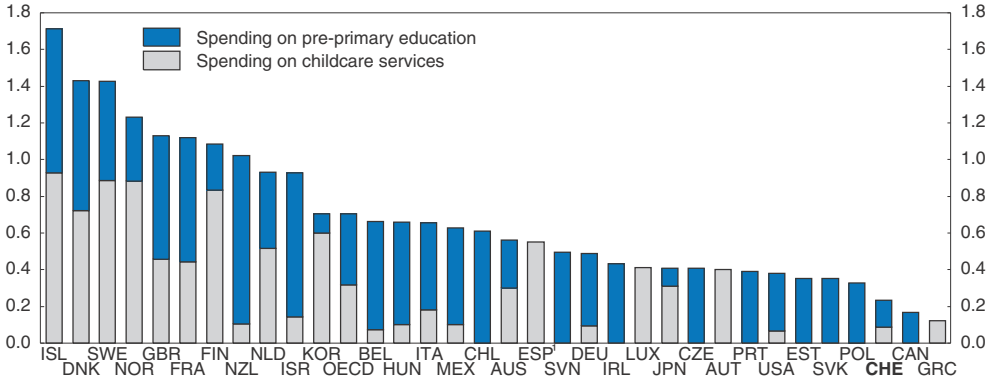


Source: OECD, *Labour Force Statistics Database 2013*.

StatLink http://dx.doi.org/10.1787/888932939505

Figure 17. **Public spending on childcare and pre-primary education, 2009**

As a percentage of GDP



1. Disaggregated spending data are not available for Spain. For other countries where only one spending item is shown, the other is indeed zero. Data reported here do not include all local government spending and therefore underestimate public spending on childcare in federal countries like Switzerland.

Source: OECD, *Family Database*.

StatLink http://dx.doi.org/10.1787/888932939524

these favour high-income parents, they reduce parents' effective cost. Currently, out-of-school-hours care is a major headache for parents, particularly those with several young children, especially as the mandatory school age has recently been lowered to four in most cantons. Indeed, all-day solutions are necessary to reconcile work and family life, especially as children typically also go home for lunch, since school cafeterias are rare. If

the government (cantons and communes) wishes to boost provision, it faces a trade-off of increasing direct public spending on additional facilities against allowing a broader range of price and quality options when setting the sector's regulatory requirements.

Childcare policy is managed at the municipal and cantonal levels, resulting in both considerable heterogeneity and some innovative initiatives, such as employer contributions to cantonal funds that subsidise childcare facilities in three cantons (Vaud, Neuchâtel and Fribourg) and a voucher scheme in the Lucerne area. Enhanced early education and childcare options would also foster the integration and improved learning outcomes of children from immigrant backgrounds and facilitate mothers' access to the labour market.

Maternity leave, 14 weeks paid at 80% of the normal salary, and 16 weeks protection against dismissal, are quite short by international standards, and especially relative to Scandinavian countries. A short leave may keep women close to the labour market, but it may also mean that some drop out altogether. In addition, there is no federal statutory paternity leave, which creates a labour-market asymmetry for parents. Creating such a leave, or a take-it-or-leave-it parental leave to be divided between parents consecutively could facilitate mothers' post-maternity reintegration into the labour force and reduce the asymmetry while possibly also raising fertility.

The fact that income tax is levied on a family basis is another impediment to women working longer hours as this translates into a high marginal tax rate for the second earner, typically the wife. Reducing this so-called marriage penalty would encourage more female work. The Federal Council has recently launched a consultation exercise on how to ensure equal treatment for married and unmarried couples by allowing them to pay the lowest of the married or unmarried tax bills. Another option would be to replace family with individual taxation.

Progress is slow in reducing the wage gap and lifting the glass ceiling

The Swiss gross gender pay gap – the difference between men's and women's median wage – was 18.4% in 2010 down from 23.7% in 1994. Among full-time workers there are twice as many men in the highest annual income bracket – more than CHF 104 000 – than women (27% and 13%, respectively). By contrast the share of men among those earning less than CHF 52 000 is much smaller (9%, compared to 24%). These outcomes are consistent with the fact that the gap is larger the higher one goes up the managerial hierarchy. The gross gender pay gap differs substantially across sectors. Financial services top the ranking with a gross gap of 48%, whereas construction, forestry, hotels, restaurants and postal services all have gross gaps below 10%. Rising levels of education for women is probably the main factor behind the decade's decline in the gross gap.

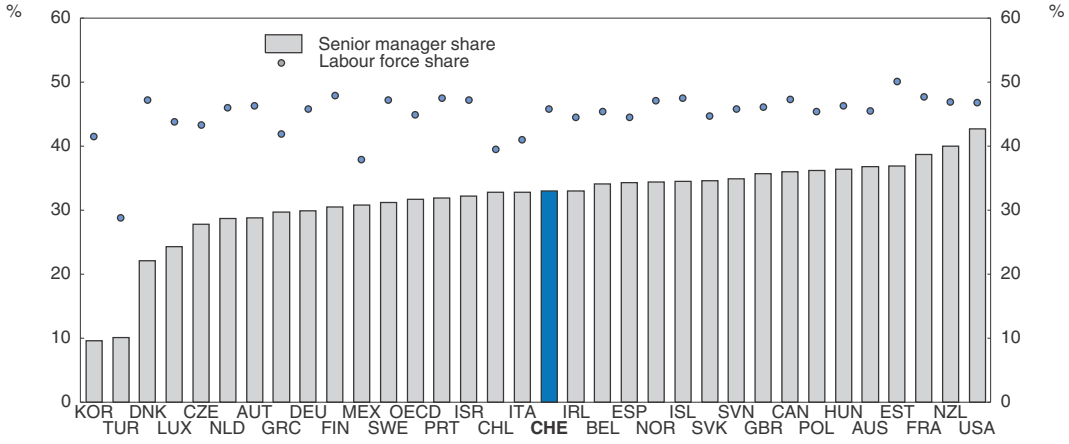
A large part of the gross gap can be explained by differences in occupations and sectors, educational attainment, work experience and seniority. The residual (or net gap) is due to unmeasured factors, including discrimination. In Switzerland, this residual was 6.9% in 2010, down from 8.8% in 1998. The Swiss Earnings Structure Survey is the only available source of information on the net gap. A better understanding of its magnitude can be achieved by encouraging a more diverse set of studies to ascertain the robustness of the estimate and the true amount of gender wage discrimination. Narrowing and ultimately eliminating this discrimination can follow a number of paths, such as better enforcement of the existing legal framework or promoting pay transparency. First

principles and some evidence (Black and Strahan 2001; Hellerstein et al., 2002) points to increasing competition and reducing regulation within sectors as potential ways to encourage the replacement of old discriminatory habits with a hunt for talent.

Despite noticeable progress, women are still underrepresented as entrepreneurs and in leadership positions across OECD countries (Figure 18). In Switzerland, women make up 32% of employees in managerial and supervisory positions, about the same as for the OECD as a whole, but well below their 45% share of employment. Progress could be achieved by following the Swedish "Comply or Explain" model. It requires businesses to follow a corporate code of good practises regarding promoting women to leadership positions. Shareholders and media have the right to ask about progress being made towards achieving their goal. Advantages relate to a non-coercive, efficient approach that has proven successful in several countries. The main disadvantage is the risk of maintaining the status quo. The situation on company boards is similarly unbalanced. Data compiled in the Schilling Report (2013) on the 100 largest Swiss companies show that there were only 95 women on their company boards in 2012, or 12% of the 820 total board positions. This would seem to justify policymakers setting ambitious quantitative targets, combined with a "Comply or Explain" practice, or implementing quotas.

Women are also underrepresented as entrepreneurs. While EU indicators point to self-employment being less favoured by women than by men, in Switzerland this may also reflect the low level of government support for female entrepreneurs. According to a 2003 study conducted by the Global Entrepreneurship Monitor, Switzerland ranked second to last on a composite support index that combines measures of social infrastructures for women with families, society's view on female entrepreneurs and chances of success. A more positive image of entrepreneurship should be fostered by inducing successful women entrepreneurs to tour educational institutions and to coach and mentor aspiring young female entrepreneurs.

Figure 18. **Women's shares of the labour force and of senior management,[1] 2010[2]**



1. Senior managers include legislators, senior officials and managers.
2. Data refer to 2008 for Australia, Canada, Israel, Korea, Mexico, New Zealand and the United States; to 2002 for Chile.

Source: OECD, *OECD Employment Database 2013*; ILO.

StatLink http://dx.doi.org/10.1787/888932939543

Box 4. **Recommendations for expanding women's role in the economy**

Key recommendations:

- Increase women's labour-market options by increasing public spending on childcare and out-of-school-hours care and by setting applicable regulations to enhance the range of available price-quality choices.
- Remove the marriage penalty in the tax system at the federal level by introducing individual, as opposed to family, taxation or some equivalent measure.
- Implement a corporate governance code establishing gender goals to increase women in senior management.
- Increase the proportion of women on company boards by setting ambitious targets combined with the "Comply or Explain" practice or by setting quotas.

Other recommendations:

- Create paternity leave, and consecutive "take-it-or-leave-it" parental leave to be shared between fathers and mothers.
- Use role models to make hard sciences more attractive for girls and social sciences and health more tempting to boys, and raise awareness of career and earnings prospects associated with study choices.

Bibliography

Archer, D. and P. Moser-Boehm (2013), "Central bank finances", *BIS Papers*, No. 71, Bank for International Settlements, April.

Aregger, H., M. Brown and E. Rossi (2013), "Transaction Taxes, Capital Gains Taxes and House Prices", *Swiss National Bank Working Papers*, 2013-2. *www.snb.ch/n/mmr/reference/working_paper_2013_02/source/working_paper_2013_02.n.pdf*.

Bauer, P. and R. Riphahn (2006), "Timing of school tracking as a determinant of intergenerational transmission of education", *Economics Letters*, Vol. 91, 1, pp. 90-97.

BIS (2013), "Regulatory Consistency Assessment Programme, Assessment of Basel III regulations – Switzerland", Bank for International Settlements, June.

Black, E. and P. Strahan (2001), "The Division of Spoils: Rent-Sharing and Discrimination in a Regulatory Industry", *The American Economic Review*, Vol. 91, No. 4, pp. 814-831.

Bourassa, S. and M. Hoesli (2010), "Why Do the Swiss Rent?", *The Journal of Real Estate Finance and Economics*, Springer, Vol. 40, No. 3, pp. 286-309, April.

Bush, C. and C. Wipf (2013), "Comment le capital financier se transforme en capital physique?", *La Vie Économique*, 5-2013, pp. 4-5.

Causa, O. and Å. Johansson (2010), "Intergenerational Social Mobility in OECD Countries", *OECD Journal: Economic Studies*, Vol. 2010.

Crowe, C., G. Dell'Ariccia, D. Igan and P. Rabanal (2011), "How to Deal with Real Estate Booms: Lessons from Country Experiences", *IMF Working Paper*, WP/11/91, April.

De Michelis, A., M. Estevão and B. Wilson (2013), "Productivity or Employment: Is it a Choice?", *IMF Working Paper*, WP/13/97, May.

Egger, P. and S. Nigai (2013), "Energy Reform in Switzerland: A Quantification of Carbon Taxation and Nuclear Energy Substitution Effects", *KOF Working Paper Series*, No. 327, *www.kof.ethz.ch/en/publications/p/kof-working-papers/327/*.

Fazekas, M. and S. Field (2013), *A Skills beyond School Review of Switzerland*, *OECD Reviews of Vocational Education and Training*, OECD Publishing.

Fibbi, R., M. Lerch and P. Wanner (2006), "Unemployment and Discrimination against Youth of Immigrant Origin in Switzerland: When the Name Makes the Difference", *Journal of International Migration and Integration*, Vol. 7, No. 3, pp. 351-66.

Financial Times (2013), "Swiss government acts to dilute laws over banking secrecy", 29 May.

FOE (2011), *Schweizerische Elektrizitätsstatistik*, Publi.-Nr. 805.005.11.

Grätz, J. (2012), "Swiss Nuclear Phaseout: Energy Supply Challenges", *CSS Analysis in Security Policy*, No. 120, September.

Hellerstein, J., D. Neumark and K. Troske (2002), "Market Forces and Sex Discrimination", *Journal of Human Resources*, University of Wisconsin Press, Vol. 37(2), pp. 353-380.

Hott, C. and T. Jokipii (2012), "Housing Bubbles and Interest Rates", *Swiss National Bank Working Papers*, 2012-7, *www.snb.ch/n/mmr/reference/working_paper_2012_07/source*.

IEA (2010), *Technology Roadmap: Nuclear Energy*, OECD Publishing, *www.iea.org/publications/freepublications/publication/nuclear_roadmap.pdf*.

IEA (2012), *Energy Policies of IEA Countries: Switzerland 2012*, OECD Publishing.

IMF (2013), Switzerland: 2013 Article IV Consultation – Staff Report.

Jarrett, P. and C. Letrémy (2008), "The significance of Switzerland's enormous current account surplus", *OECD Economics Department Working Papers*, No. 594, OECD Publishing, March.

Jarrett, P. and C. Moeser (2013), "The Agri-Food Sitaution and Policies in Switzerland", *OECD Economics Department Working Papers,* OECD Publishing, forthcoming.

Johansson, A., Y. Guillemette, F. Murtin, D. Turner, G. Nicoletti, C. de la Maisonneuve, G. Bousquet, and F. Spinelli (2013), "Long-term growth scenarios", *OECD Economics Department Working Papers*, No. 1000, OECD Publishing.

KOF (2013), "Innovationsaktivitäten in der Schweizer Wirtschaft", *Strukturberichterstattung*, No. 49.

Liebig, T. (2011), "Citizenship and the Socio-economic Integration of Immigrants and their Children: An Overview across European Union and OECD Countries", in: OECD, *Naturalisation: A Passport for the Better Integration of Immigrants?*, OECD Publishing.

OECD (2012a), *OECD Economic Survey of Switzerland 2012*, OECD Publishing.

OECD (2012b), *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD Publishing.

OECD (2013a), *Going for Growth*, OECD Publishing, March.

OECD (2013b), *Education at a Glance*, OECD Publishing.

PwC (2013), *Navigating to tomorrow: Serving clients and creating value,* Global Private Banking and Wealth Management Survey 2013.

Schilling Report (2013), *Transparency at the Top. The Executive and Supervisory Boards of the one 100 largest Swiss companies*, Zurich.

Schütz, G., H. Ursprung and L. Wößmann (2008), "Education Policy and Equality of Opportunity", *KYKLOS*, Vol. 61, No. 2, pp. 279-308.

SECO (2007), "Familienergänzende Kinderbetreuung und Erwerbsverhalten von Haushalten mit Kindern", Vereinbarkeit von Beruf und Familie Nr. 3, Istituto di Microeconomia e Economia Pubblica (MecoP), Università della Svizzera italiana INFRAS, Forschung und Beratung, Zürich.

Steinhardt, M., T. Straubhaar and J. Wedemeier (2009), "Studie zur Einbürgerung und Integration in der Schweiz: Eine arbeitsmarktbezogene Analyse der Schweizerischen Arbeitskräfteerhebung", Study for the Swiss Federal Office for Migration.

Stulz, J. (2007), "Exchange rate pass-through in Switzerland: Evidence from vector autoregressions", *Economic Study* 2007-4, Swiss National Bank.

UBS (2013), *Swiss Real Estate Market*, 13 May.

Werczberger, E. (1997), "Home ownership and rent control in Switzerland", *Housing Studies*, Vol. 12, No. 3, pp. 337-53.

Wüest & Partner (2013), "Property Market Switzerland", 2013|2.

ANNEX

Progress in structural reform

This table reviews action taken on recommendations from previous *Surveys*. Recommendations that are new in this *Survey* are listed at the end of the relevant chapter.

Recommendations in previous Surveys	Action taken since September 2011
A. Competition	
Apply the prohibition principle to all hard-core cartels. Raise ComCo's resources and ensure its independence by excluding members that represent economic interests.	A draft revision of the Federal Cartel Act was submitted by the Federal Council to the Parliament for approval in February 2012 and establishes an independent competition authority. It will conduct enquiries and submit its proposals to an independent tribunal of first instance with decision-making power. It also bans certain forms of hard-core horizontal and vertical agreements unless justified by efficiency reasons. The Significant Impediment of Effective Competition test shall be introduced for merger control.
Consider introducing criminal sanctions to punish people responsible for anti-competitive behaviour.	Proposals to introduce administrative and criminal sanctions against private persons were submitted to public consultation and are being discussed in Parliament with the revision of the Cartel Act.
Reform the bankruptcy law to reduce the prescription period and facilitate the use of the "concordat" procedure.	Reform of the bankruptcy law was passed in June 2013 and should enter into force by January 2014. The new law will introduce an improved procedure for reorganisation ("concordat procedure"), but the prescription period was not changed. A draft reform of prescription laws is expected by the end of 2013.
Strengthen the independence of sector regulators.	The Postal Services Commission (PostCom) was established by the new Postal Services Act in October 2012 as an independent postal market regulatory authority with the power to impose fines. As of January 2012, the electricity market regulator was made more independent from the Federal Office of Energy.
Privatise remaining government ownership in potentially competitive market segments of network industries.	None.
In the electricity sector, introduce ownership separation between generation and transmission, strengthen the powers of the regulator, introduce price caps and benchmark regulation, use regulatory accounting rules for the determination of network access prices.	The strengthening of the separation of the Swiss transmission system operator Swiss grid from other activities is in force. Ex ante benchmark regulation of access prices is under consideration.
In telecommunications, apply ex ante regulation to access conditions to the local loop and to interconnection charges.	A March 2012 Federal Council report on the telecommunications market confirmed the necessity of regulatory change. The Council intends to draft a legal reform during the current legislature (by 2015).
In railways, make tendering of regional passenger services compulsory, ensure non-discriminatory access to rolling stock and allow competitors to propose investment projects. Base investment decisions on an independent cost-benefit assessment.	The rules governing tendering were set out in detail at law and ordinance level in the second stage of rail reform (Rail Reform 2.2) with effect from 1 July 2013. Provisions on bus services were put in place including the introduction of compulsory tendering. In rail transport, regional passenger services may be put up for tender, but there is no obligation to do so. Co-ordination regarding investment projects among the infrastructure operating companies, transport companies and the authorities have been introduced, but not in freight.

Recommendations in previous Surveys	Action taken since September 2011
B. Labour market	
Improve the integration of foreign workers. Harmonise the rules on the lengths of residency for naturalisation.	Since 2011 the cantons have been developing integration programmes based on a Federal Council integration plan with 3 pillars: information and counselling, education and labour-market integration and social integration. They are to be implemented at the beginning of 2014. A reform at the federal level is on-going with the aim of a more binding and coherent integration policy in the fields of education and labour market. A study on the integration of EU citizens was published in 2011, and a thematic review by the OECD in 2012. Draft legislation that would grant Swiss citizenship after 8 instead of 12 years of residency and limit the power of the local authorities in setting the duration of residency is before Parliament.
C. Education	
Introduce a national voucher scheme and a national system of accreditation of facilities to support childcare provision for children below the age of 4.	A national voucher scheme has not been considered, but childcare provision for children below the age of 4 is steadily expanding, thanks in part to a national incentive programme that has created 40 000 new childcare places since 2003 and has been prolonged until January 2015. A national forum on quality of early childhood education and care will be held this autumn.
Strengthen the capacity of early childhood education and childcare facilities to support children with specific education needs. Promote access of the foreign population to early childhood care services.	All cantons are integrating the support of special-needs children into the public education system. Federal support of model projects in the area of early education and care for migrant children in 2009-11 is going to be continued. A manual for successfully implementing early education programmes has been published.
Strengthen accountability of schools for education outcomes. Conduct regular external testing over the school career at all schools, and benchmark the results against the newly defined competency objectives.	Regular evaluation of the achievement of the national competency objectives based on sample classes will start in 2016.
Reinforce school autonomy with respect to defining teaching content and materials.	None.
Improve the system for recognising immigrants' qualifications, and implement plans to validate skills acquired through experience. Further improve the supply of language teaching for immigrants.	Under the Swiss-EU Agreement on the Free Movement of Persons, Switzerland has adopted the EU's system of mutual recognition of foreign qualifications issued by EU member states. Third-state nationals are also entitled to apply for recognition of their foreign credentials. The process for validating skills to obtain a Federal diploma has been defined for 17 professions, and more will be included in line with demand. The Federal Office for Migration has developed support measures helping government agencies and teachers to improve immigrant language teaching. Cantons are strengthening courses in the language and culture of origin for immigrant children with federal financial aid.
In higher education, consider a rise in tuition fees, while making government-sponsored loans widely available, coupled with income-contingent repayment.	The inter-cantonal agreement aiming at harmonising scholarships and loans (Stipendien-Konkordat) entered into force in March 2013 with half the cantons having ratified it. The Federal Council's goal is to accelerate and harmonise the cantonal efforts by revising the federal law governing cantonal contributions to the Confederation regarding tertiary education support measures as an alternative to the "Grant Initiative" that was recently proposed by the Swiss Student Union.
D. Health care	
Do away with the mixed hospital funding system, assigning the funding responsibility to insurers.	The Federal Council approved a report on uniform funding of hospital and outpatient services by the compulsory health-care insurance scheme.
Eliminate cantonal policies that allow practicing doctors to dispense drugs.	The Federal Department of Home Affairs will submit a new proposal following the failure of a Federal Council proposal in 2009.
E. Old-age and disability insurance programmes	
Consider indexing the retirement age in the first-pillar system to changes in average life expectancy. Deal with lack of sustainability through adjustments to contribution rates, benefits and required years of contributions.	None.
Introduce incentives for prolonging work after the standard retirement age.	Incentives have been raised in the second pillar; no action taken in the first pillar.
Allow pension funds to set the conversion rate.	None. This could violate the Constitution's social objective of a minimum benefit level.
Reassess the generosity of tax incentives for the occupational pension schemes.	Securing retirement income is a priority objective. With tax postponed until the pension (or the capital) is paid there is a strong incentive to accrue retirement assets.

Recommendations in previous Surveys	Action taken since September 2011
Reduce the marginal effective tax rates on labour income of disability insurance beneficiaries. Regularly test their work capacities during the first few years of receipt and randomly thereafter.	A government proposal to reduce disincentives to resume work was rejected by Parliament in June 2013. The 2012 Invalidity Insurance reform strengthened the reassessment of beneficiaries as to their ability to take on work and their vocational integration.
F. Regulation of financial intermediaries	
Give FINMA the authority for imposing administrative penalties for serious violations of its regulations.	Such measures have been available since FINMA's 2009 inception, including prohibition from practising a profession, confiscation of profit and revocation of licence but not imposing administrative fines.
Consider periodic rotation of the outside auditors responsible for particular financial institutions, and widen the range of authorised external auditors.	No additional measures. Regular rotation of lead auditors is mandatory.
Strengthen FINMA's liquidity regulation and oversight of the largest institutions and extend it in simplified form to other financial institutions over time. Consider including a core liquidity ratio applied to foreign-currency-denominated assets.	The new regulatory liquidity regime has been implemented. The introduction of a Net Stable Funding Ratio concept following the Basel committee's proposals will be considered. For the other banks, the new Basel liquidity standards will be introduced following the international schedule.
Broaden top-down stress tests of risks to the financial system; include disturbances based on recent market stress and very low probability scenarios.	FINMA plans to extend the scope of stress testing beyond the currently examined 2 large banks with the aim to cover up to 15 banks. The soundness and effectiveness of the 2 large banks' internal stress-testing approaches is regularly assessed. Stress test design and scenarios are developed jointly by FINMA and the SNB. FINMA and the SNB have put in place a formal revision process in close collaboration with the two banks. "Loss Potential Analysis" has been introduced to better identify the impact on the large banks in case of a further drastic market deterioration. An analogous approach has been applied to some medium-sized banks since the beginning of 2011.
Consider broadening the core colleges of supervisors for the Big-2. Co-operate with foreign counterparts to develop contingency plans so as to deal with future crises.	International co-ordination of resolvability and resolution plans is being developed.
Implement the proposed capital adequacy requirements (CAR) for the Big-2 banks as envisaged at the least. A stricter leverage ratio requirement should be implemented.	The new capital requirements for the Big-2 banks have been introduced and are currently phasing in. The leverage ratio will be adapted to the Basel III standard.
Complement the accounting triggers for the contingent convertible bonds (CoCos) by market indicators. FINMA could, for example, be required to request an independent audit of the bank's book value when market indicators drop below predefined values. A higher trigger of 7% of common equity relative to risk-weighted assets should be introduced for all CoCos. Authorities should prepare a scenario in which the Big-2 banks would convert their CoCos simultaneously.	None. Market indicators are not a part of the Swiss CoCo framework in order to prevent death spirals.
The envisaged resolution plans for the Big-2 should be extended to the group-level of the large Swiss financial institutions and discussed in the supervisory colleges.	Recovery and resolution plans for both big banks in accordance with FSB standards and timetables have been developed and discussed in the Crisis Management Groups.
Develop resolution plans for the large Swiss insurers.	FINMA is currently considering the establishment of recovery and resolution plans.
Consideration should be given to improving appointment procedures for cantonal banks' management, for example, by introducing independent appointment commissions consisting of experts.	The 24 cantonal banks are subject to the same governance requirements as other banks under the supervision of FINMA. In August 2012 FINMA specified requirements with regard to the board of directors of banks and securities dealers.
Explicit government guarantees to the cantonal banks should be eliminated.	Cantons are free to abolish the formal guarantee for their cantonal banks. Several cantons have already done so.
The deposit insurance scheme should be partially funded.	None. The Swiss deposit insurance arrangements were last adjusted in 2008.
Allow macro-prudential requirements to be introduced, such as countercyclical buffers in bank balance sheets or temporary measures to slow excessive lending growth without requiring legislation. The SNB could be given the necessary power.	A countercyclical capital buffer (CCB) was activated in Switzerland in February 2013. The primary goal of this instrument is to increase the banking sector's resilience against the consequences of excessive credit growth. Two important characteristics are embedded in the Swiss CCB framework: i) the buffer can be implemented on a broad basis or can target specific segments of the credit market; ii) in line with Basel III, the maximum level of the CCB is set at 2.5% of total domestic risk-weighted assets of an individual bank. The Federal Council, upon official proposal by the SNB, activated the sectoral CCB in February 2013, with an implementation period extending to end September 2013. The capital buffer is targeted at mortgage loans financing residential property located in Switzerland and is set at a level of 1% of associated risk-weighted positions. The SNB will continue to closely monitor developments on the mortgage and real estate markets and will regularly reassess the need for an adjustment. It may suggest, after consultation of FINMA, to the Federal Council to either adjust the level of the CCB or deactivate it if it is deemed necessary.

Recommendations in previous Surveys	Action taken since September 2011
Monitor closely further developments in mortgage lending growth and house prices. If they are excessive, regulatory measures should be taken, for example, to limit the loan-to-value ratio or the debt service-to-income ratio.	SNB, FINMA and the Federal Department of Finance exchange views. SNB continuously monitors a broad range of indicators – among them asset prices, credit volumes – and their implications for financial stability. FINMA has also implemented a macroeconomic monitoring process, which concentrates both on the Swiss domestic real estate market and selected foreign asset markets. The results are used inter alia to design and calibrate stress scenarios. Several regulatory measures have been taken over the past 2 years to dampen the real estate and mortgage markets: i) revision of self-regulation rules for mortgage loans requiring, among others, a 10% cash down-payment coming from a source other than occupational benefits provision (second pillar) as from July 2012; ii) stricter capital requirements for mortgages with a high loan-to-value (as from January 2013); and iii) activation of the CCB in February 2013.
The role of the SNB in micro-prudential regulation should be strengthened to ensure that system-wide risks are taken into account in such regulation. For example, the SNB could be required to propose measures to incorporate system-wide risks in regulation.	One of the legislated tasks of the SNB is to contribute to the stability of the financial system. Micro-prudential competences related to system-wide risks include the mandate to oversee payment and settlement systems as well as the designation of systemically important banks. Moreover, in March 2012 the Financial Stability Working Group (FDF, SNB, FINMA) recommended the creation of a right for the SNB to directly access information on financial market participants beyond its existing entitlement to statistical data. Regarding system-wide risks, the SNB is consulted and, where common areas of interest exist, allowed to ask FINMA to take measures within FINMA's area of responsibilities and competences. Finally, there is a regular exchange of information and views on financial stability and system-wide risks between the authorities.
G. Improving the tax system	
Widen the VAT base by removing exemptions and unifying tax rates. Over the medium term raise tax rates. Explore the technical feasibility of applying a VAT on banking services. If such a VAT is not introduced, consider an additional tax on financial institutions' profits and remuneration.	Several VAT reform proposals have been rejected by the Parliament. No VAT on banking services or additional tax on profits and remuneration in financial intermediaries is planned.
Lower the tax wedge on second earners, for example, by introducing separate assessment of partner income. Set up uniform rules concerning the taxation of several earners within one household across levels of government.	Despite a lack of recent progress, the Federal Council remains committed to suppress the fiscal penalty for married couples. It supports the popular initiative "Yes to Family, No to the Marriage Penalty".
Replace progressive cantonal corporate taxes with proportional taxes and abolish capital taxes. Remove taxes on the issuance of equity and debt securities.	No action with respect to progressive cantonal corporate taxes and cantonal capital taxes. The stamp duty on the issuance of debt securities was abolished in March 2012. The elimination of the stamp duty on the issuance of equity is being discussed in Parliament.
Limit the tax deductibility of interest expenses of households from personal income tax to mortgage interest on rental housing and phase out the deductibility of other interest payments. Remove the taxation of implicit rents of owner-occupied housing.	None.
Remove tax advantages for early withdrawal of 2nd and 3rd pillar pension fund assets for mortgage repayment.	None.
Start taxing capital gains on households' financial assets.	None.
Stop earmarking real estate tax revenues for public infrastructure development in residential areas. Consider assigning real estate tax to municipalities in full and limiting local governments' capacity to levy personal income tax.	None.
Abolish the lump sum tax regime for rich individuals who are not economically active in Switzerland. Subject all residents to standard personal income taxation.	Lump-sum taxation has been abolished in a number of cantons, while others have decided to maintain it but with stricter rules. More stringent measures and increasing the assessment basis will apply from 2016 for the Confederation and the cantons. A popular initiative calling for lump-sum taxation to be abolished throughout Switzerland entitled "Stop the tax privileges for millionaires (abolition of lump-sum taxation)" was submitted in October 2012.
H. Housing	
Remove restrictions on the setting of a new rental price when a new tenant moves into a dwelling.	None.
Ensure that yearly rent increases for existing tenants can at least compensate for inflation, regardless of contract duration. Allow rent adjustment to market prices for incumbent tenants over longer periods, while protecting them against high increases over short periods.	None.

Recommendations in previous Surveys	Action taken since September 2011
Review construction norms so as to reduce costs. Harmonise local and cantonal regulations. Do not require firms to pay the wages for certain professions prevailing in the canton of the construction project.	A working group to review construction norms was established, as is a concordat to harmonise certain regulations. To date 13 cantons have joined the concordat and more are preparing to join.
I. Reducing greenhouse gas emissions	
Increase the CO_2 levy in line with the national greenhouse gas emission reduction target.	The revised CO_2 Act (covering the period to 2020) maintains the CO_2 levy on heating and process fuels. Since the 2012 target for heating and process fuels was not met, the CO_2 levy on heating and process fuels will be increased from CHF 36 to CHF 60/tonne as from January 2014. Further increases are possible in 2016 and 2018.
Raise the transport fuel tax, combined with the introduction of a variable congestion charge that would be higher in geographical areas under stress and periods of peak demand.	In June 2013 the Federal Council sent a proposal to public consultation to set up a "National Motorway Network and Urban Transport Fund" (NAF) at constitutional level and to increase the transport fuel surtax. Also, the Ministry of the Environment, Transport, Energy and Communications is preparing a concept report on "Mobility Pricing". It will elaborate pricing options across all modes of transport.
Feed proceeds from car-related taxes and charges into the general budget.	Earmarking is regarded as tried and tested. In fact, the above-mentioned NAF proposal foresees greater earmarking of transport-related revenues in order to close the future funding gap for transport infrastructure.
Base the definition of energy-saving renovations and the extent to which rents can be raised on clearly defined criteria.	The authorities believe that the Ordinance on the Rental and Leasing of Residential and Business Premises (Art. 14) contains clear criteria.
Continue efforts to link the Swiss emissions trading system with the EU system.	Switzerland and the EU are in formal negotiations to link their respective emissions-trading schemes, with a fourth round of high-level talks in summer 2013. Both sides hope to conclude technical aspects by year-end.
Require Swiss firms to either pay the CO_2 levy or participate in the emissions-trading system.	No action considered necessary. The revised CO_2 legislation maintains the option for energy-intensive companies from certain sectors (with a high ratio of CO_2 levy to value added and facing strong international competition) to be exempted from the levy. In return, they need to commit to emissions cuts. Large, energy-intensive companies are obliged to participate in the emissions-trading system (ETS).
Set emissions targets in the form of binding emissions caps that are valid for the industry as a whole. The government should also gradually auction emissions allowances, in line with the EU ETS.	The revised CO_2 legislation sets binding absolute emissions targets, based on the cap-and-trade principle. Only the quantity of emissions allowances required for CO_2-efficient production are issued for free to firms participating in the ETS. This quantity is calculated on the basis of benchmarks (consistent with EU benchmarks). In line with EU ETS regulations, Switzerland will auction the remaining emissions allowances.
Prohibit dominant positions that impair competition in the Swiss ETS.	In the revised CO_2 law, emissions allowances can only be used by firms within the ETS. Non-ETS companies are not allowed to meet their emissions-reduction targets with ETS allowances. This reduces past problems with market power in the Swiss ETS. However, dominant positions of bigger market players might remain a problem, given the small market. A link with the EU ETS would attenuate it.
Introduce stricter monitoring of the internally financed international emissions-reduction projects, either domestically or through stronger co-operation with the UN or the EU.	The revised CO_2 legislation specifies quality requirements for the recognition of emission reductions achieved abroad. The requirements have to at least ensure that reductions are additional, that they contribute to the sustainable development of the partner country and that they have no negative social or environmental impacts. Since the quality of emissions savings varies by project type, the ordinance lists the types of projects that are not recognised.
Further reduce input- and output-based agricultural support, and target remaining support at those activities with the highest potential for environmentally friendly production processes.	The Agricultural Policy 2014-17 will enter into force 1 January 2014. At its core is a new direct payments system with less production-linked payments and a coherent focusing of all payments on common goods. It includes incentives for environmentally and animal-welfare-friendly production processes.
Combine this with the introduction of a levy on emissions- producing inputs, e.g. on fertilisers.	No levies on emissions-producing inputs have been imposed, but extra support for resource-efficiency programmes and renewable energy investment.

Chapter 1

Policies for sustainable long-term growth

Switzerland has a well performing economy that has relied on utilising its human and physical capital resources extensively in order to maintain a high standard of living. Moreover, with a strong budgetary position and low public debt, it is well positioned to meet the challenge of achieving sustainable long-run growth. The outward-looking focus of the economy brings dynamism. However, labour productivity growth has lagged that of peer countries over recent decades and the level of multifactor productivity is well inside the international frontier. The lack of competition in the domestic sector remains a considerable barrier for growth, while trade intensity could be improved. Innovation and entrepreneurship are also areas in which Switzerland has a mixed record. While there is a high level of spending on research and development by both business and government and of patent and trademark activity by Swiss-based firms, entrepreneurship is lagging, with low numbers of start-ups and significant administrative barriers to business formation. Policies need to be refined to smooth the way for small, high-growth enterprises to bring to market new products and services, and to create jobs. In the long term Switzerland is expected to continue to rely on a growing population to drive growth, most of which will take the form of immigrants. While, the labour market integration for immigrants in Switzerland is highly favourable by international comparison, measures need to be reinforced to fully utilise the entire pool of available labour. In particular, this means putting in place measures that improve the educational performance of all recent migrants and their children, as well improving opportunities for a greater role for women.

Switzerland faces challenges in maintaining high levels of GDP per capita

Switzerland is among the world's richest countries, with GDP per capita of around USD 49 000 (current prices and PPPs) in 2012, the third highest in the OECD. This success is attributable to its dynamic, market-based economy, well designed institutions and a strong global presence in a number of industries. Part of this dynamism comes from having an outwardly focused economy: exports account for over half of GDP. This includes globally prominent banks, chemical and pharmaceutical companies, dynamic watch-making and precision instrument industries and emerging activities like merchanting (commodities trading). Moreover, its labour and product markets are generally flexible and well regulated. Nevertheless, rigidities remain in the heavily supported agri-food industry (Jarrett and Moeser, 2013), which, while fairly small, reduces households' welfare through substantially higher food prices, and in network industries, where scale economies make reconciling competition and efficiency challenging.

Moreover, Switzerland's integration in global value chains is well developed (OECD, 2013b). That said, there is evidence that, given its size and close geographical proximity to major trading partners, Switzerland actually underperforms with regards to its degree of openness to trade (Box 1.1). Since the late 1980s Switzerland has lost ground in its share of world trade more rapidly than many other comparable countries (Figure 1.2). This trend deterioration in trade outcomes reflects its weakening international competitiveness and productivity performance more generally.

Switzerland's comparative advantage is in knowledge-based services and innovative manufacturing. Success in these industries can be attributed to a number of economic strengths:

- Levels of educational attainment are high by OECD standards, with a mean number of years of schooling for the entire population of over 13 years, the fourth highest in the OECD (Bouis et al., 2011). Moreover, 87% of adults aged 25-64 have earned the equivalent of a high-school diploma, much higher than the OECD average of 74% (OECD, 2012a). Furthermore, Switzerland is a top-performing OECD country in youths' core skills (OECD, 2010a) as measured by mean PISA test scores in reading literacy, maths and science. It has also had great success in attracting high skilled labour from abroad, especially since 2002 when free movement of persons with the European Union (EU) began. However, some challenges remain in the education system, particularly if it is to keep up with the best performing countries. These challenges are examined more closely below.
- Switzerland's labour market functions extremely well by comparison with many other OECD countries. It is flexible, and, while there is some evidence of a modest deterioration in job-matching efficiency over the past decade (a shift outwards in the so-called Beveridge curve; OECD, 2012b), unemployment has remained low, averaging just 4.0% over the decade to 2012. Youth unemployment is also very low. Labour force participation, at almost 87% of the working-age population, is the highest in the OECD. Participation of both men and women is high, but part-time work is very prevalent

amongst women, resulting in less impressive average hours worked per capita. The role of women in the Swiss economy is covered in depth in the next chapter of this *Survey*. Migrants play a major role in the labour market as well and are, in general, well integrated. Nevertheless, major policy challenges do exist in some segments of the migrant workforce, where there is a prevalence of lengthy spells of unemployment and of work disability. Resolving these problems will only become more pressing as Switzerland's reliance on migrant labour mounts and the number of foreign-born workers and their families continues to rise.

- Switzerland is also an innovative country with high levels of R&D spending, and impressive levels of patenting activity, process innovation and trademarking. However, much of this is concentrated in a small number of very large multinationals, whereas smaller firms are less involved. In other OECD countries, dynamic young firms account for a significant part of innovation. In Switzerland, entrepreneurs face barriers that, if eased, might promote a greater role for dynamic young firms in innovation and new sources of growth.

Box 1.1. **Trade intensity and trade-gravity models**

Switzerland is a small open economy located at the heart of Europe, with duty-free access to the markets of several very large and affluent nations that surround it. In 1972 Switzerland became a signatory to the EFTA Convention and came to a Free Trade Agreement (FTA) with the European Union (EU), though it is not a signatory to the European Economic Area agreement, relying on a series of bilateral accords instead. Furthermore, Switzerland currently has a network of 27 FTAs with 36 partners outside the EU, including one recently finalised with China. Given the relatively small domestic market, Swiss companies should naturally look to exploit free trade opportunities, especially with the large external markets on the country's doorstep. Moreover, proximity and free trade mean that imports should in general be competitive in relation to domestically produced consumer and investment goods. However, despite these advantages, Switzerland's trade share (exports plus imports as a ratio of GDP), at about 92%, is relatively low when compared to similarly sized and located countries – for example Austria, Belgium, Denmark, and the Netherlands where foreign trade shares range from 110 to 170% of GDP.

Studies show that trade costs can be significant even compared to the actual production costs for export goods, implying that they are important determinants of a country's comparative advantage (Anderson and van Wincoop, 2003). Clearly distance to market is one important element in such costs. Less tangible costs of trade, related to accessing information about foreign markets and finding trade partners, also tend to impede more distant trade (Rauch, 1999). This suggests that large reductions in transport costs and major improvements in communications technology, such as have materialised over the past few decades, should reduce the importance of geography and generate substantial trade growth. Indeed, the volume of world trade has trebled since 1980 compared with only a 75% increase in world real GDP. Nevertheless, there is disagreement in the literature as to whether distance has actually become less of a determinant of trade patterns over time, with a number of studies suggesting that it has been a stable or even a more important determinant of trade patterns (the so-called "missing globalisation puzzle"; see for example Berthelon and Freund, 2008; and Leamer and Levinsohn, 1995), while other studies do find a decline in the importance of geography, particularly since the 1990s (see, for example, Coe et al., 2007).

Box 1.1. **Trade intensity and trade-gravity models** *(cont.)*

Trade gravity models can be used to predict a country's degree of trade openness on the basis of the distance to and size of all its potential trading partners – that is, every other country in the world. The term "gravity" refers to the use of a form of the famous Newtonian gravity equation in assessing the potential trade "pull" from the constellation of potential trading partners. The GDP mass of each potential trading partner is divided by the square of its geographical distance from the country in question. In the case of Switzerland, the trade gravity index should be high because of the close proximity of large EU trading partners. A country like Australia, on the other hand, would have a low trade gravity index because the only geographically close potential trading partner is New Zealand, which is relatively small in GDP terms. These models also take account of the size of the domestic market by including terms for population or GDP, and measures of free trade agreements, population density, landlocked countries, contiguity, common language and colonial ties. While disequilibria, like over-valued exchange rates and the economic cycle, which impact unevenly across countries, might bias the results, the nominal trade to GDP ratio in most countries does not vary a great deal over the medium term. The average annual elasticity of total nominal trade (import plus exports) with respect to nominal GDP is around 1.2 for OECD countries (also 1.2 for Switzerland) over the period 1960 to 2012.

Table 1.1 presents results of estimations of such a linear trade model using a cross section of 34 OECD countries in 2011. For the first two models, the gravity index for each OECD country is constructed by summing GDP divided by distance (Model 1) or distance squared (Model 2) between capital city pairs across 132 potential global trading partners. For Switzerland the (squared distance) index is 29 compared to 76 for Belgium, 11 for Finland, 9 for Italy and 0.2 for Australia, for example. The problem with using distances between capitals is that capital cities do not necessarily correspond to the economic centre of a country, which is more relevant in this context. For instance, Berlin is Germany's capital, but its economic centre is closer to Bonn. For Germany's neighbouring countries, like Switzerland, Belgium and France, this makes a large difference in the calculation of their trade gravity indexes. For instance, Switzerland's (distance-squared) aggregate (132 country) trade gravity index using Bonn rather than Berlin is 26% higher. A better way to capture these "economic distances" between countries is to use GDP-weighted geographic grids within individual countries. For Models 3 and 4 the trade gravity indices for all countries in the sample are calculated using such grids.

Table 1.1. **Trade gravity model estimation results**

	Model 1	Model 2	Model 3	Model 4
Intercept	-2.39* (-1.87)	2.28*** (3.65)	-2.85** (-2.33)	2.32*** (4.22)
Population	-0.18** (-4.93)	-0.18*** (-5.09)	-0.18*** (-5.33)	-0.19*** (-5.95)
GDP gravity[1]	0.52*** (5.26)		0.57*** (5.90)	
GDP gravity squared[1]		0.20*** (5.22)		0.24*** (6.37)
Adjusted R squared	0.69	0.68	0.72	0.74
Standard error	0.30	0.30	0.28	0.27

Note: t-statistics in parentheses; * significant at 10% level; ** significant at 5% level; *** significant at 1% level.

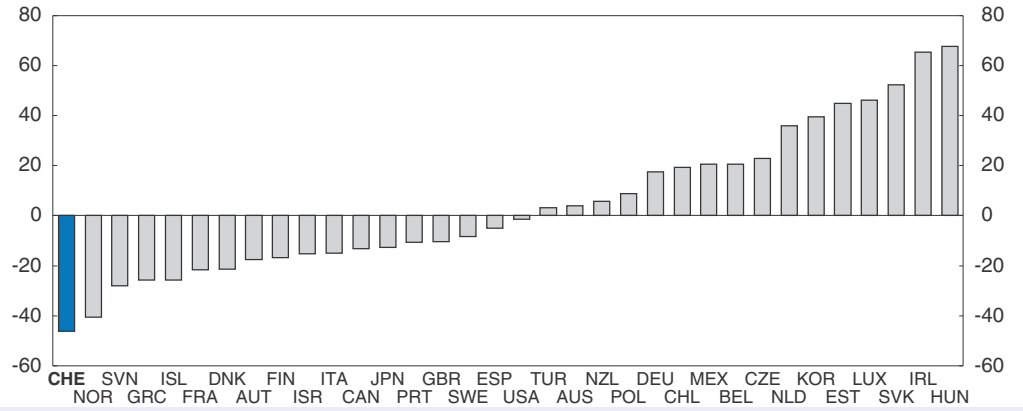
1. Gravity index constructed using: i) distances between capital city pairs across all potential global trading partners for Models 1 and 2; and ii) distances between GDP-weighted grids (G-Econ: *http://gecon.yale.edu/*) for Models 3 and 4.

Box 1.1. **Trade intensity and trade-gravity models** *(cont.)*

All four models fit the data quite well, particularly given the parsimony of the specification. The models that use the square of the distance between capitals in calculating the GDP gravity variable perform marginally better. And the two models using the GDP-weighted grids outperform the capitals-based methodology. The size of the estimated residuals can be interpreted as the degree to which countries over- or under-perform in terms of their trade openness relative to other countries in the sample. Figure 1.1 plots their value for each country using Model 4. The plotted residuals are transformed into the gap between actual and predicted trade openness (in percentage points of GDP). The results suggest that Switzerland is considerably under-performing, with the model implying that trade openness should be some 140% of GDP, rather than around 95%.

Figure 1.1. **Estimated over-performance in trade openness**

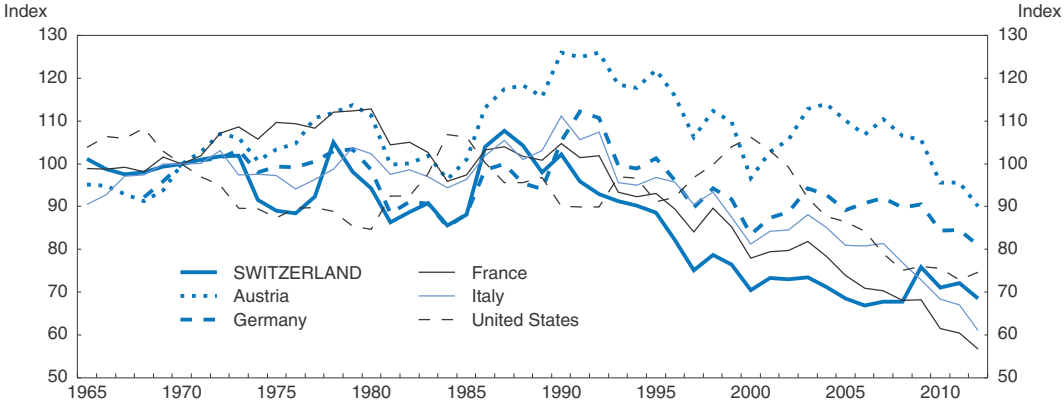
Percentage points of GDP



StatLink http://dx.doi.org/10.1787/888932939562

Figure 1.2. **Shares in world trade for selected countries**[1]

Index 1970 = 100



1. Sum of exports and imports in 2005 USD.

Source: OECD, *OECD Economic Outlook 93 Database*.

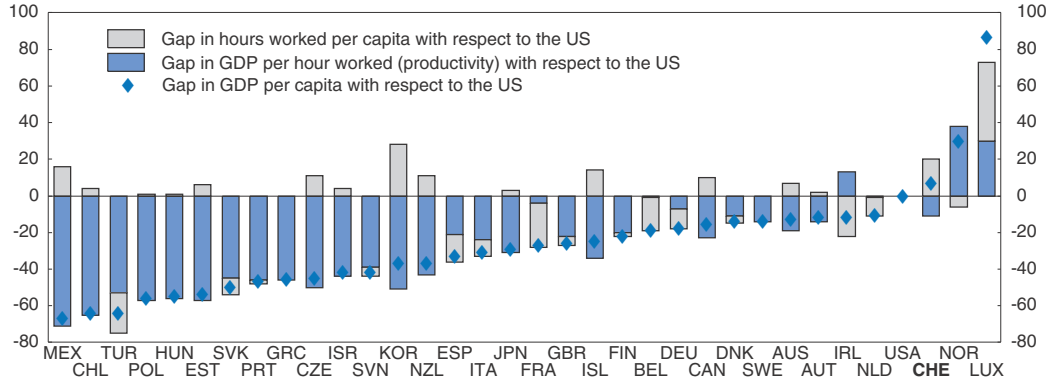
StatLink http://dx.doi.org/10.1787/888932939581

GDP per capita growth has been weak

While by no means the sole measure of well-being, GDP per capita is a fundamental metric of economic welfare and is highly correlated with many other welfare measures such as health, security, environmental quality and stratification (including income and gender inequality). As noted earlier, Switzerland enjoys high GDP per capita, around 7% higher than that of the United States in 2012 (measured on a PPP basis) (Figure 1.3). The positive gap with the United States is explained by the net of two opposing factors. Hours worked per capita are around 20% higher than in the United States, and this is offset to some extent by 11% lower labour productivity (GDP per hour worked). As noted above, with very high levels of labour force participation and low unemployment, Switzerland's hours worked per capita are very high by OECD standards, despite the prevalence of female part-time work.

Figure 1.3. **Contributions to gaps in the level of GDP per capita, OECD countries, 2012**

Percentage point gaps with respect to the United States



Note: Underlying GDP data are from OECD, Annual National Accounts and converted in current USD using 2011 PPPs. The differences in income levels can be decomposed into the differences in labour productivity levels and in the extent of labour utilisation.

Source: OECD, *Productivity Database*; OECD calculations.

StatLink http://dx.doi.org/10.1787/888932939600

The challenge for wealthy countries like Switzerland is to maintain growth consistent with high levels of per capita income (i.e. consistent with the outward movement of the international technology frontier), thereby ensuring a high standard of living into the future. However, Switzerland's growth in real GDP per capita has been slow even compared to countries that enjoy similarly high standards of living. Average real per capita growth in the 10 most affluent OECD members between 1995 and 2011 was close to 2% per annum, while Switzerland's averaged just 1.1%, the lowest rate in this group.

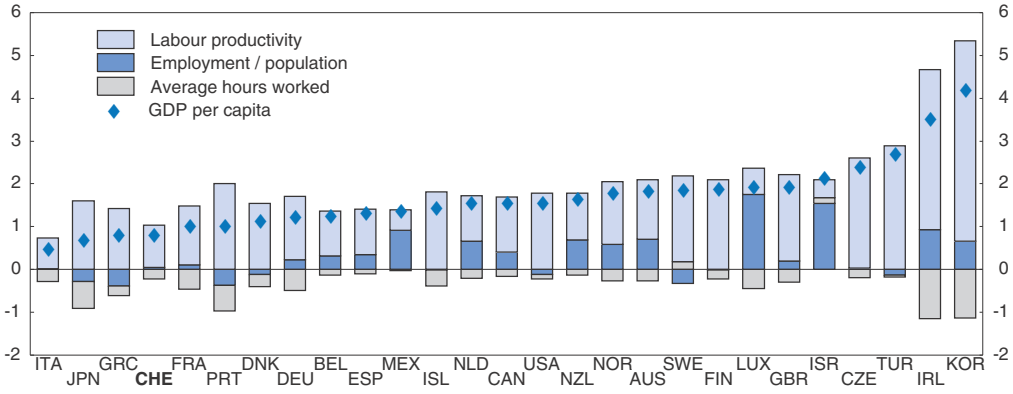
In examining the metric of GDP per capita growth over time and identifying challenges for the future, it is useful to decompose it as follows:

$$\frac{GDP}{POPULATION} = \frac{GDP}{TOTAL\ HOURS} \cdot \frac{TOTAL\ HOURS}{WORKERS} \cdot \frac{WORKERS}{POPULATION}$$

where the terms on the right hand side are, respectively, labour productivity, average hours worked and the employment-to-population ratio. Growth in GDP per capita can thus be decomposed in the growth of each one of the elements on the right-hand side. Figure 1.4 illustrates this decomposition for a selection of OECD countries over the period 1991 to 2011. In the Swiss case the changes in the employment-to-population ratio contributed very little to GDP per capita growth, and, as in most other OECD countries, average hours

Figure 1.4. **Contributions to growth in real GDP per capita**

1991 to 2012, percentage points



Source: OECD, *National Accounts and Productivity Database*; OECD calculations.

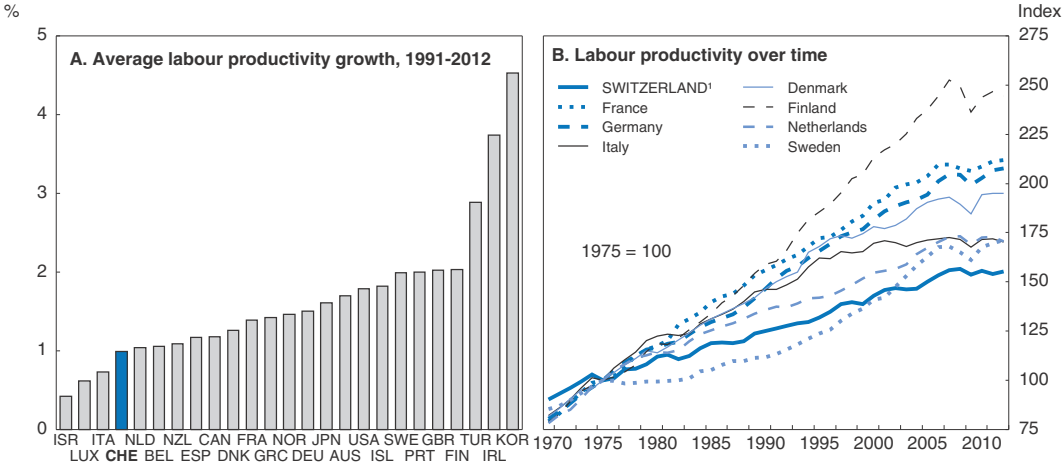
StatLink http://dx.doi.org/10.1787/888932939619

worked detracted slightly. The growth in labour productivity, while low by comparative standards, is what accounts for most of Switzerland's gains over the period. When looking at only the most recent decade this pattern of contributions to per capita GDP growth changes very little for Switzerland – average GDP per capita growth is slightly higher, mostly by virtue of a positive contribution from the employment-to-population ratio. In examining options for sustaining long-term growth for Switzerland it is instructive to examine each one of the components of this decomposition.

Labour productivity growth has fallen

Despite labour productivity levels that are considerably above the OECD average, Switzerland has recorded labour productivity growth rates over most of the past four decades that have been consistently comparatively low (Figure 1.5). According to the Penn

Figure 1.5. **Hourly labour productivity growth in selected OECD countries**



1. The 1991 structural break in Switzerland's hours worked series was adjusted by splicing using mean contiguous growth rates.

Source: OECD *Productivity Database*.

StatLink http://dx.doi.org/10.1787/888932939638

World Tables (Version 7.1), which give estimates of labour productivity going back to 1950 for a very broad set of countries, Switzerland's world ranking in level of GDP per hour worked (converted using the 2005 constant price PPP measure) remained around second highest in the world from 1950 until the mid-1970s, with only the United States ranking above it (Heston et al., 2012). But by the early 1980s Switzerland's rank had dropped to seventh and then by the early 1990s to sixteenth where it has remained ever since. While the Penn measure is generally not compatible with OECD measures, this deterioration in Switzerland's ranking is stark.

Though there is little controversy when measuring labour productivity on a per-head basis, measuring hourly productivity invites considerably more debate. This is especially so in Switzerland where high per capita income levels are juxtaposed against weak labour productivity growth, not just in recent years but going back many decades. Moreover, as in many other wealthy OECD countries, Swiss labour productivity growth exhibited a permanent step down after the 1970s. Siegenthaler (2012) identified several quality issues for the hours worked series that has been used in most Swiss productivity calculations. Specifically, labour input increases may have been systematically overestimated and, thus, most published estimates of productivity growth underestimated, for example by about one percentage point in the 1990s. Although by no means negligible, this would not alter the overall finding of comparatively weak Swiss productivity growth. The bottom line is that Switzerland has had falling productivity growth according to most measures (Table 1.2).

Table 1.2. **Various measures of Swiss hourly labour productivity growth**

	Siegenthaler (2012)	GGDC[1]	FSO[2]	Christoffel (1995)	OECD[3]
1950-60	3.40	3.64	-	-	-
1960-70	4.30	3.61	-	2.4	-
1970-80	2.02	2.23	-	1.5	2.17
1980-90	1.41	0.93	-	1.0	1.12
1990-2000	1.28	0.88	1.35	-	0.90
2000-10	0.54	0.86	0.80	-	0.85

1. *University of Groningen/Conference Board Total Economy Database*.
2. Work volume statistics by Swiss Federal Statistical Office (FSO).
3. OECD, *Productivity Database*.

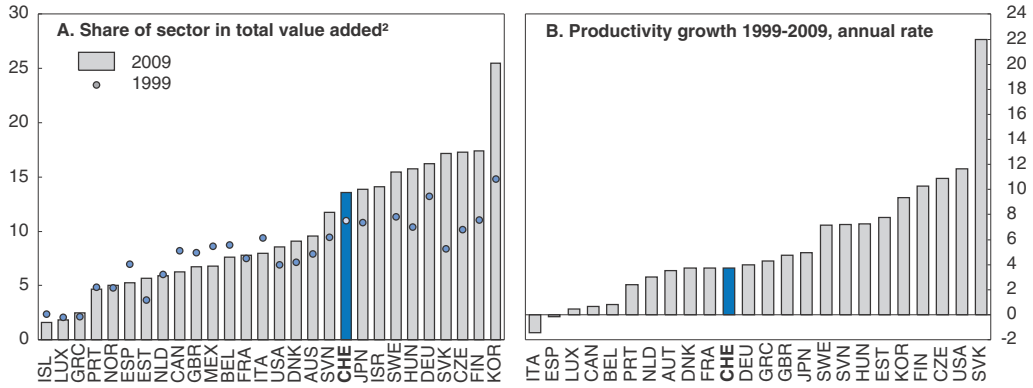
Source: Siegenthaler, M. (2012), "A view on the long-run evolution of hours worked and labour productivity in Switzerland (1950-2010)", *KOF Working Paper Series*, No. 300, Zurich; and OECD calculations.

Like in most other countries, there is also a large variation in the productivity performance across industry sectors. For instance, the FSO productivity database shows that over the period between 1997 and 2010 sectors such as energy, water supply, accommodation and education recorded sharp declines in labour productivity, while other sectors such as chemicals, pharmaceuticals, telecommunications and insurance enjoyed significant productivity gains. Like in the agricultural sector (Jarrett and Moeser, 2013), substantial improvements in aggregate productivity could be achieved by policies aimed at boosting the competition within the various subsectors of the economy. This is borne out in the OECD product market regulation (PMR) indicators for Switzerland (see below).

The importance of the high-technology sector has been rising in Switzerland (Figure 1.6, Panel A), with its share of total value added increasing from 11% in 1999 to 14% by 2009. Despite this the general story of weak productivity growth also applies to this sector. Moreover, the borderline between manufacturing and services is becoming increasingly blurred, and major enterprises previously classified in manufacturing are today part of the services sector. These industries drive overall productivity growth and have significant spillovers into the broader economy. However, in Switzerland, as at the aggregate level, between 1999 and 2009 annual productivity growth in the combined high- and medium-high technology sector was relatively poor (Panel B).

Figure 1.6. **Productivity in the high-technology sector**[1]

Per cent



1. The high-technology sector refers to the chemicals and chemical product, machinery and equipment, and transport equipment manufacturing industries.
2. Excluding real estate activities.

Source: OECD, *OECD STAN Database*; and OECD (2012), *OECD Reviews of Innovation Policy: Sweden*, OECD Publishing.

StatLink http://dx.doi.org/10.1787/888932939657

Since 2002, the Federal Council has adopted three reports focused on improving Switzerland's productivity performance and subsequently conceived three growth packages. However, these were to some extent watered down by Parliament, in particular the latter packages. A number of countries in the OECD have established commissions tasked with undertaking research and analysis of productivity issues, including benchmarking and providing advice on policies affecting competition (Box 1.2). The viability of a body dedicated to exploring these issues in depth and proposing measures to address them should be examined within the Swiss context.

Much of this chapter is devoted to examining the issue of labour productivity. Understanding its underlying causes requires a close look at human capital, physical capital and multifactor productivity. A useful framework for doing this is the OECD's recently published long-term growth scenario for Switzerland and the world (Johansson et al., 2013).

Multi-factor productivity and a long-term growth scenario for Switzerland

GDP growth can be decomposed into increases in inputs of labour, human capital and physical capital. The residual, called multi-factor productivity (MFP), captures everything else. Historically, cross-country gaps in MFP and, to a lesser extent, in human capital have

Box 1.2. **Productivity commissions in OECD countries**

A number of OECD countries have productivity commissions that act as review and advisory bodies on microeconomic policy reform and regulation with the aim of achieving better informed policy decisions through independent, published analysis and advice.

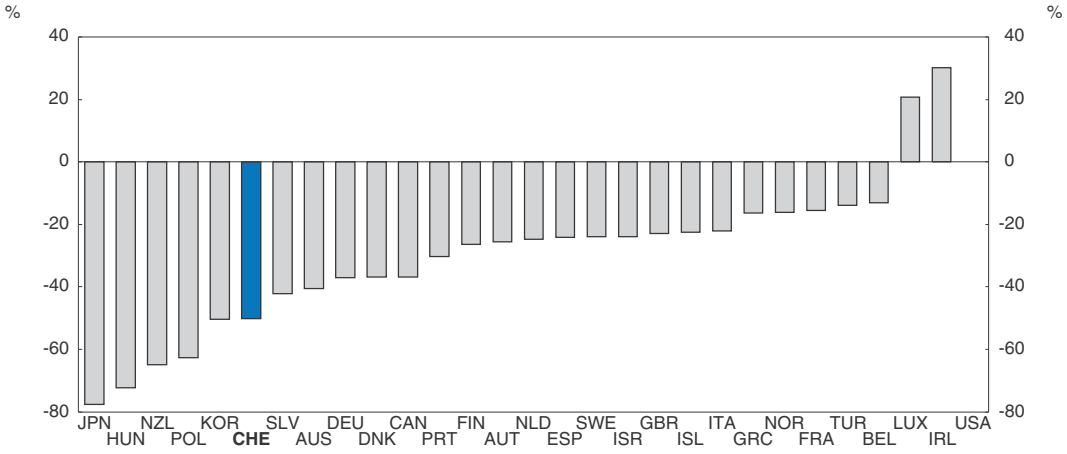
Australia: The Productivity Commission, created as an independent authority in 1998, is the Australian government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. The Commission is an advisory body. It does not administer government programmes or exercise executive power. Its contribution hinges on the value of the advice and information it provides to governments, and on the educative functions of its public processes. Twelve commissioners (one of which acts as Chair) are appointed for periods of up to five years and associate commissioners are appointed by the Treasurer. The Commission also has a public-service staff numbering about 200. Its four main output streams are: *i)* holding public inquiries and carrying out research studies requested by the government; *ii)* undertaking performance monitoring and benchmarking and other services to government bodies; *iii)* hearing and adjudicating on competitive neutrality complaints; and *iv)* supporting research and annual reporting on productivity, industry assistance and regulation.

New Zealand: The New Zealand Productivity Commission is an independent body created in 2011. Its principal purpose is to provide advice to the government on improving productivity in a way that is directed to supporting the overall well-being of New Zealanders, while having regard to a wide range of communities and population groups. The core business of the Commission is to undertake in-depth inquiries on topics referred to it by the government. It also carries out productivity-related research that supports productivity improvement over time and promotes understanding of productivity issues. Its work concentrates on the "framework level" issues; that is laws, policies, regulations and institutions that best support well-being. In 2012 it had a staff of 20 including secondments and contractors, in addition to the three member board.

Denmark: The Danish government was concerned about the deterioration in Denmark's productivity performance over recent decades and its slide down the GDP-per-capita ranking relative to comparable OECD countries. In 2012 it therefore set up an independent standing productivity commission with a life of two years through which independent experts and specialists analyse productivity trends and come up with specific recommendations aimed at enhancing productivity in both the private and public sectors. The Commission's purview extends to the municipalities, regions and state jurisdictions. The Commission's final proposals, when taken together, must not impair the sustainability of public finances. It is composed of a chairman and a number of members, served by an independent secretariat, and takes advice from a board of international experts, including from the OECD. The Commission works publicly to ensure an open debate on its work and topics. It is expected to complete its work by the end of 2013.

accounted for the bulk of cross-country differences in GDP per capita (e.g. Easterly and Levine, 2002; Duval and de la Maisonneuve, 2010). Large productivity gaps characterise even a few higher-income economies, such as Japan, Germany and Australia, as well as Switzerland (Figure 1.7). Michelis et al. (2013) show that high-income countries that have had access to abundant labour and flexible labour markets, like Switzerland, can manifest low levels of MFP as firms may be less inclined to make productivity-enhancing investments. Also, in these countries, less productive workers are in general more readily integrated in the labour market.

Figure 1.7. **Contribution of MFP to GDP per capita gap relative to the United States, 2011**



Source: Johansson et al. (2013), "Long-term Growth Scenarios", *OECD Economics Department Working Paper*, No. 1000.

StatLink http://dx.doi.org/10.1787/888932939676

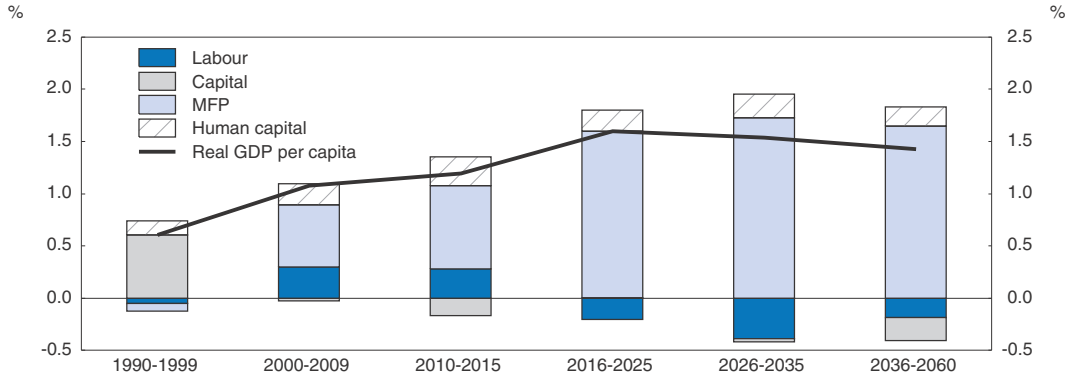
The OECD long-term growth scenarios use such a simple neoclassical growth accounting framework to project GDP per capita out to 2060 for a range of countries including Switzerland. One of the main assumptions underlying the projections is that countries inside the MFP frontier will benefit from catch up, but that this is conditional on their adopting the mix of structural policies that are required to facilitate this catch up. But the implementation of structural reforms in domestic sectors could be a political challenge for Switzerland. In the Swiss case, where the MFP gap with leading countries is large (Figure 1.7), the potential for robust future growth exists. The long-term baseline projections for Switzerland are presented in Table 1.3, while Figure 1.8 illustrates the underlying factor contributions. Given the large and increasing gap, MFP convergence and to a lesser extent human capital are expected to be the drivers of per capita GDP growth, while labour participation detracts from growth through a portion of the projection period.

Table 1.3. **Baseline OECD long-term projections for Switzerland**

	2011	2012	2013	2014	2020	2040	2060
Output growth (annual)	1.9	0.8	1.1	2.3	2.4	2.1	1.9
Potential output growth (annual)	2.0	2.0	2.0	2.1	2.3	2.1	1.9
Potential labour productivity growth (annual)	0.7	-0.3	0.0	1.3	1.9	1.8	1.7
Trend multi-factor productivity growth (annual)	0.3	0.4	0.5	0.7	1.1	1.1	1.0
Potential employment growth (annual)	1.2	1.1	1.1	1.0	0.5	0.2	0.2
Trend labour force participation rate	69.4	69.4	69.4	69.4	68.9	65.4	67.3
Structural unemployment rate	3.9	3.9	3.9	3.9	3.9	3.7	3.7
Fiscal balance (% GDP)	0.5	0.7	0.5	0.4	0.2	0.1	0.2
Gross general government debt (% GDP)	40.2	39.5	39.0	38.6	37.9	38.8	39.1
Real long-term interest rate	1.4	0.3	0.6	1.0	2.3	3.4	3.4
Total national saving (% GDP)	31.7	32.4	32.5	32.9	31.2	26.0	25.1
Investment (% GDP)	20.8	20.9	20.9	20.9	20.5	17.7	15.8
Current account (% GDP)	10.4	11.5	11.3	11.7	10.5	8.2	9.3
Real GDP per capita (USD 2005 PPP)	39 582	39 493	39 519	40 038	44 716	63 079	91 613
% Gap in real GDP per capita with USA	-6.9	-8.5	-10.0	-10.8	-10.1	-9.1	-0.6

Figure 1.8. **Contributions to growth in real GDP per capita**[1]

Average annual % change



1. Real GDP per capita growth is equal to the product of the growth in human capital, (physical capital/GDP)a/(1-a) (where a is the capital share of income), employment/population and MFP. To ensure that these components add up to real GDP per capita growth, the decomposition is done in log differences. Because period averages for the components are shown here, they do not sum up to the total.

StatLink http://dx.doi.org/10.1787/888932939695

The rest of this chapter examines the factors that can enhance long-term growth potential. The continuing low rate of labour productivity growth and a notably large MFP gap relative to frontier countries point to a number of areas in which better policies can make a contribution to boosting sustainable long-term growth.

- While **labour force participation** is high, aging will bear down on labour supply, and Switzerland is expected to grow even more dependent on immigrant labour. This poses challenges, not only in attracting and keeping workers with the right balance of skills but also of broader social cohesion, including the difficulties of integrating migrants and their children into the labour market and society. The solution will be to maintain high levels of labour force participation by taking full advantage of underutilised groups, including women.
- **Human capital** is currently a real strength of the Swiss economy, with high levels of educational attainment. However, there are question marks over whether the educational paradigm, which is currently working well, will continue to be appropriate as the structure of the economy evolves under the pressures of globalisation. The education system also faces access and equity issues that need to be resolved if the most is to be made of the human resources locally available.
- **Competition** can drive productivity growth whether by virtue of the operation of dynamic domestic markets or by exposing local firms to the international marketplace. Efficient domestic markets and local firms competing internationally should force the adoption of cost-minimising modes of operation as well as driving innovation in order to stay competitive. International trade also opens up a larger market to firms operating in relatively small countries like Switzerland, thereby allowing them to fully exploit economies of scale.
- **Innovation and R&D** activity is strong in Switzerland, with high levels of patenting, trademarking and R&D expenditure. However, much of this activity is undertaken by a small number of large firms, most notably in chemicals and pharmaceuticals. Policies

and programmes that promote innovation and R&D are important, given their significant positive spillovers to the broader community. Moreover, the government's plan to shift to renewable energy assumes an ambitious outward move in the technology frontier. This needs to be facilitated through more active involvement in this field.

- **Entrepreneurship** and the emergence of small dynamic start-ups are important drivers of innovation and productivity growth. Switzerland could do more to foster the emergence of more such firms that can drive innovation in a broader array of emerging sectors. Swiss entrepreneurs – women in particular (Chapter 2) – face barriers to doing business that are inhibiting the formation of start-ups and putting a damper on innovation.

Labour market challenges

As discussed above, the Swiss labour market functions admirably well, with high levels of participation and low unemployment. Not only is this true for prime-age workers but also for both younger and older workers. Yet, it has a number of weaknesses. First, women's participation in full-time employment is low. This issue and possible remedies are covered at length in Chapter 2. The second area of weakness is the integration of some segments of the migrant population into the labour force.

More needs to be done to integrate migrants into the workforce

Foreign-born residents currently make up over one quarter of the Swiss population, the third highest in the OECD after Luxembourg and Australia. The main countries of origin, in descending order of prominence are Italy, Germany, Portugal, Serbia, France and Turkey. Inflows continue to be among the highest in the OECD, totalling around 1.4% of the total population in 2010 (OECD, 2012e). Particularly notable in the Swiss case is that migrants accounts for well over half of all inflows into the working-age population and, over the decade to 2010, accounted for almost all of the growth in the labour force. Yet, citizenship rates are very low compared to most other European countries (Box 1.3).

Box 1.3. **Citizenship**

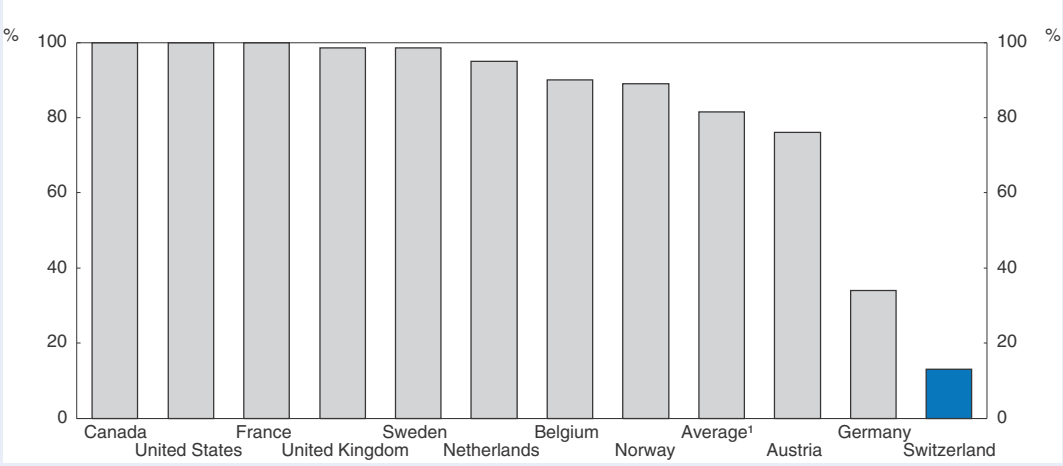
The acquisition of citizenship is one measure of the integration of migrants into society. In Switzerland, naturalisation is found to be associated with higher employment rates (Liebig, 2011). While Steinhardt et al. (2009) have estimated the wage gap between naturalised and non-naturalised employed men to be about 7%, the wage gap is insignificant for men and women according to Liebig (2011). Workers from lower-income countries tend to participate much more intensively in on-the-job training if they are naturalised. While 43% of native-born Swiss engage in such training, the rate is only 32% for naturalised migrants from lower-income countries and just 19% for their non-naturalised counterparts (Liebig, 2011).

The Swiss ethos is integration before naturalisation. This may mean that compared to other OECD countries foreigners face particularly high requirements for naturalisation. For instance, only around 10% of native-born children of immigrants from lower-income countries aged 20-29 have Swiss citizenship. This pales in comparison to the rate of most other similar European countries (Figure 1.9). In 2011, 36 800 foreigners obtained Swiss nationality. Most were nationals of EU/EFTA countries (36%; with Italy and Germany featuring most prominently) or other European countries (41%; led by Serbia). Almost one fifth of all citizenship acquisitions took place via so called simplified naturalisation procedures, which apply in the case of marriage and for children of Swiss citizens (Steinhardt et al., 2009).

Box 1.3. **Citizenship** *(cont.)*

Figure 1.9. **Percentage of native-born children of immigrants from lower-income countries who have host-country nationality**

Aged 20-29 and not in education, around 2007



1. Simple average of reported countries.

Source: Liebig, T. (2011), "Citizenship and the Socio-economic Integration of Immigrants and their Children: An Overview across European Union and OECD Countries", in OECD, *Naturalisation: A Passport for the Better Integration of Immigrants?*.

StatLink http://dx.doi.org/10.1787/888932939714

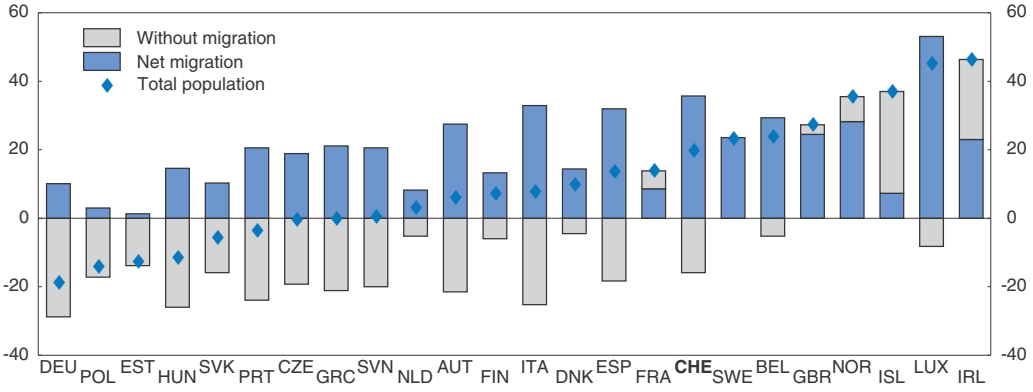
A unique feature of Swiss nationality is that it is three-tiered, with federal, cantonal and communal governments all having their own naturalisation proceedings harmonised by the Federal Court. This implies that the Federation cannot enforce a naturalisation if cantonal or local authorities refuse it, unless a candidate for naturalisation appeals to the federal court. The sub-federal requirements generally stipulate a certain minimum number of years of residence in that single canton and municipality. This can be up to 12 years, considerably higher than in other OECD countries where it is generally between five and eight years in the country (Guimezanes, 2011). This cantonal residence requirement is likely to hamper professional and geographic mobility as long as the proceedings are on-going. Until 2003, several municipalities had public votes on naturalisation of individuals, but this ended when the Federal Court ruled that naturalisation is an administrative act, and refusals need to be justified and reviewable.

A number of attempts to liberalise access to Swiss citizenship have been made, notably for the offspring of immigrants raised and educated in Switzerland, most recently in 2004. In spite of these failed fundamental reforms, there have been a number of important changes in access to citizenship. In 2006 cantons and communes were no longer allowed to charge naturalisation fees exceeding effective procedural costs. Previously, fees could, in some municipalities, be up to several thousand francs. A comprehensive revision of the citizenship law was adopted by the Federal Council and sent to Parliament in 2011. The draft aims to harmonise cantonal and local residence requirements and contains several procedural changes aimed at greater transparency and more efficient processing. Among the changes included are a reduction of the minimum residence requirement for the ordinary naturalisation procedure from 12 to 8 years and limits on cantonal and municipal residence requirements. If the reform passes, conditions to access Swiss nationality would start to converge towards those in most other OECD countries.

In the long term, immigration is likely to be the sole source of population growth in Switzerland. According to population growth scenarios by both the Federal Statistical Office (FSO) and Eurostat (used in Johansson et al., 2013; Figure 1.10), without migration Switzerland's population will start to shrink sometime between 2020 and 2030. The role that migration will play through this period and beyond is hard to ascertain. Based simply on

Figure 1.10. **Population projections to 2060, selected countries**

Change in total population, per cent of 2010 population



Source: Eurostat.

StatLink http://dx.doi.org/10.1787/888932939733

current trends, migration would more than offset the decline in native population growth. This would imply a significant increase in the stock of foreign-born, as well as first- and second-generation residents, over the next half century. It also means that the magnitude and importance of any existing educational, labour-market or other social challenges particular to this segment of Switzerland's population will be greatly amplified in future decades, unless policies are quickly put in place to tackle them. However, current immigration rates are unlikely to be sustainable, both for political reasons and for those relating to general labour-market conditions. The FSO population growth projections imply a much more modest increase in migration, with the total population starting to decline around 2030.

The labour market integration of immigrants in Switzerland has been a success in international comparison, partly attributable to good overall labour market conditions and other factors such as the strong role of apprenticeship. One of the most important contributing factors is the very high levels of labour force participation by most of the foreign born. The employment rate for foreign-born males, at 84% in 2011, was close to the 86% for their native-born counterparts. For females the gap is considerably larger at 67% versus 76%, although smaller than in most other comparable European countries. With regard to joblessness, while the absolute level of unemployment for foreign-born workers in Switzerland (6.8% in 2011) is relatively low by European standards, it is considerably higher than that of the native born (3.1%). Moreover, long-term unemployment among foreigners is high: in the second quarter of 2009, 36% had been looking for work for over a year, compared with 25% of unemployed Swiss citizens.

Labour market outcomes for children of immigrants in Switzerland are highly favourable by international comparison (Liebig et. al., 2012). This is partly attributable to good overall labour market conditions and other factors such as the strong role of apprenticeships, which seems to be a particularly beneficial school-to-work transition mechanism for children of immigrants, as are also some innovative programs (among which children of immigrants account for a large part) which prepare low-educated youths for entering apprenticeships and appear to have an beneficial effect. Liebig et. al. (2012) recommended that Switzerland develop minimal standards for integration measures that are valid across all cantons. Those measures should foster labour market integration and prevent possible disadvantages (such as discrimination) of children and young people with a migrant background, of refugees and of provisionally admitted persons. In

November 2011, the Federal Council called for legal changes to integration rules. The Federal Government now reinforces in conjunction with the cantons the promotion of integration. Accordingly, cantons have developed integration programs over the past two years that will be implemented from 2014 on. They all focus on the same goals throughout Switzerland. Although efforts and progress has been made, efforts have to continue to address the remaining gap relative to native-born students for first- and second generation immigrant children (see below).

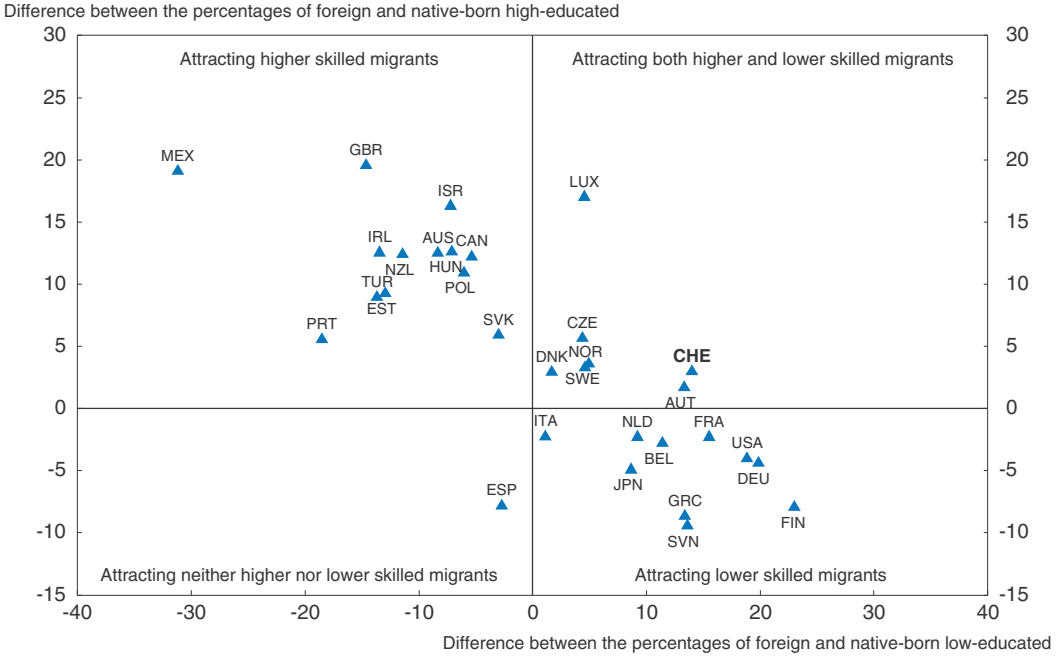
The history of post-war Swiss immigration policy in part explains the successful workforce integration of its immigrants. In the immediate post-war period, migrant workers entering under the guest-worker (*Gastarbeiter*) programme were unable to change employers and limited in their duration of stay, and family reunion was prohibited. These were typically low-skill workers, and some studies suggest that this hindered structural change and retarded productivity growth in Switzerland by channelling cheap labour into non-dynamic and seasonal sectors (Golder and Straubhaar, 2002). In the early 1970s a number of non-work restrictions were lifted, but many freedoms were still lacking, including the right to change workplace. The exercise of direct democracy often put a brake on the extension of labour and citizenship rights to foreign workers and their families. The "Three Circles Model" was introduced in 1991; it gave preference to migrants from the European Economic Area (EEA) and other advanced economies, resulting in a substantial shift in migrants' skills profiles. Becker et al. (2008) find that this had a positive impact on productivity performance.

In June 2002, the Agreement on the Free Movement of Persons (AFMP) between Switzerland and the EU and European Free Trade Association (EFTA) came into force. The right of free movement is complemented by the mutual recognition of professional qualifications and by the coordination of social security systems. Since the AFMP's enactment, labour flows from EU/EFTA countries have surged and now comprise the majority of inflows (67%), with corresponding dramatic effects on the composition of foreign nationals in Switzerland. The main countries of origin of AFMP migration have been Germany and Portugal, with respectively 23% and 10% of inflows in 2010 (OECD, 2012e). More than 61% of immigration from the EU/EFTA in 2010 was for employment, while the main reason for migration from other countries was family reunion. Migrants from EU/EFTA countries enjoy better labour-market outcomes than other immigrants. Nonetheless, the increase in inflows related to free mobility has raised public concerns, especially regarding their impact on employment of locals, transport and other infrastructure, the housing market, urban planning, education, and integration. There have been several popular initiatives, and a number remain in the pipeline, to control immigration. Their effects, if accepted, will be either to annul or at least force a renegotiation of the AFMP. However, given that it was part of a bundle of bilateral agreements with the EU (including on technical barriers to trade, public procurement and agriculture), its abrogation would nullify the six other agreements of the first bilateral step, causing enormous disruption to the Swiss economy. In the face of this rising public disquiet about migration levels, the government activated a "safeguard" clause in the AFMP treaty, which extended the quotas that already cap the number of work permits issued to migrants from the newer EU8 states (from May 2013), and applied new caps on citizens of the EU17 countries (from June 2013). The new quotas apply differential caps on migrants from these two groupings and will remain in place for 12 months. Severe restrictions on migrants from Bulgaria and Romania were already in place and will remain so until 2014. Restrictions can be prolonged until 2016 in case of (imminent) disturbances on the Swiss labour market.

A number of studies have shown that those EU nationals who have migrated to Switzerland (and likewise Luxembourg and Ireland) since 2002 have higher education levels than their predecessors. In 2000-01 around 23% of the foreign-born population was highly educated, and by 2010-11 this share had increased to 32% (OECD, 2012e). While to some extent this might reflect the global increase in education levels and be matched among the native-born population, the observed increase in the education levels of the foreign-born population in Switzerland is well above the OECD average. Moreover, Switzerland is among a small subset of OECD countries that draws a bimodal distribution of migrants in terms of education levels (Becker et al., 2008). Around 29% of working-age migrants have a low level of education, compared to 15% of the native-born population. Switzerland attracts low-skill workers to fill job vacancies in sectors like hospitality and agriculture. At the opposite end of the spectrum, 32% of working-age migrants have tertiary qualifications, compared to 29% of the native-born population. Furthermore, the share of high skilled immigrants has increased over time, with around 50% of foreign workers who immigrated after June 2002 having a tertiary degree. Evidently Switzerland is also drawing highly skilled workers to fill job vacancies in sectors like finance and health care. Among OECD countries, only Austria, the Czech Republic, Denmark, Luxembourg, Norway, and Sweden exhibit this same duality (Figure 1.11).

Figure 1.11. **Differences in education levels of native and foreign-born working-age populations, 2009-10**

Percentage point differences in the share working-age populations



Note: Foreign and national populations in Japan instead of the foreign- and native-born. Highly skilled are defined as having at least a tertiary qualification, and lower skilled having a lower secondary qualification or less.

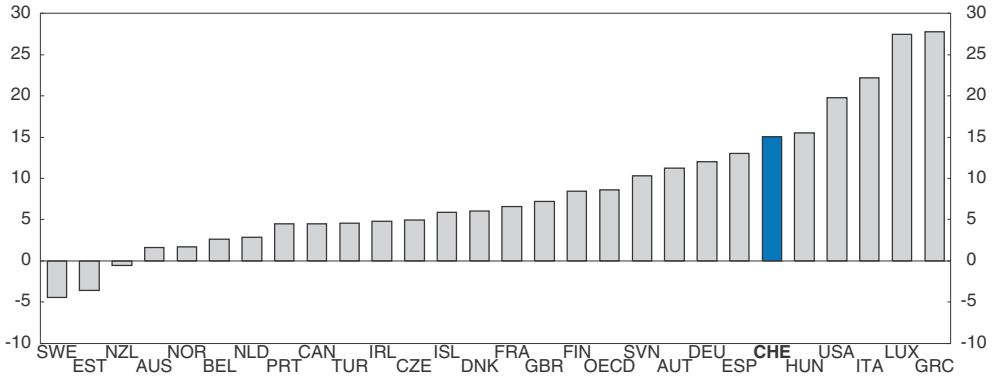
Source: Settling In: OECD Indicators of Immigrant Integration (2012); US Current Population Survey; other non-European countries, Finland and the United Kingdom: *Database on Immigrants in OECD Countries* (DIOC) 2005-06; other European countries: European Union Labour Force Survey (Eurostat).

StatLink http://dx.doi.org/10.1787/888932939752

This bimodal skills profile of the foreign-born population means that averages can disguise genuine problems, particularly amongst the less educated (OFS, 2008 and 2010). Swiss immigrants' labour-market performance is relatively good by European standards, but this masks real differences in outcomes within the foreign-born population. For instance, there is a 15 percentage point difference in the employment rate of highly and less educated working-age foreign-born workers in Switzerland, which is one of the largest gaps in the OECD (Figure 1.12).

Figure 1.12. **Difference in employment rates of low and high educated foreign-born populations aged 15 to 64 (excluding persons still in school), 2009-10**

Percentage points



Source: European Union, Australian, Canadian, New Zealand and Swiss Labour Force Surveys; US Current Population Survey.

StatLink http://dx.doi.org/10.1787/888932939771

There is also some evidence that large numbers of some segments of the foreign-born population, particularly those with little education, have dropped out of the labour force and taken up disability pensions (OECD, 2010b), although this may be in part due to the types of jobs undertaken by migrants. Indeed, Switzerland has recorded one of the largest increases in disability rates in the OECD over the past 20 years, although there has been a significant decrease since 2004. At around 4.6% in 2012 (OFAS, 2012), the invalidity rate can now be compared to the aggregate unemployment rate. On the other hand, Switzerland has one of the lowest disability-benefit gross outflow rates in the OECD: less than 1% in 2008 (OECD, 2010b), but efforts have been made to enhance the potential of vulnerable categories like migrants. Part of the reason may be that replacement rates for low-income earners can be over 100% and can indeed be higher than unemployment benefits for the same cohort (Duell et al., 2010). This results from the Constitution's objective set to the 1st pillar system which covers invalidity to ensure an adequate coverage of the basic living expenses. Moreover, the 30% share of foreigners in disability vocational rehabilitation measures is below their share of the total number of disability pensioners, although this may be explained by specific risk factors in terms of health, skills and education.

More needs to be done to integrate less educated migrants into the labour force, particularly those who arrived some time ago and those who have been displaced from work due to structural change. Since many migrants have no recognised formal vocational education, existing job-insertion allowances (*allocations d'initiation au travail*) should play an important role in compensating for their lack of professional qualifications and experience

and help them demonstrate their productivity. Job-insertion allowances are paid to employers who hire jobseekers encountering labour-market difficulties. The main target groups are people with low employability (older jobseekers, people with health-related problems or obsolescent skills), and the long-term unemployed, defined as people who have already received more than 30 weeks of benefit. The allowance acts as a compensation for potential productivity gaps when compared with other jobseekers. These gaps may occur due to lack of experience or skills, health-related problems or the jobseeker's distance from potential employers. The participant receives a regular wage from the employer who, in turn, is eligible for a subsidy, which, at the outset, can be as high as 60% of the standard wage in the trade in question but is reduced over time, usually by a third after each third of the programme duration. The subsidy can be paid for up to 12 months. It is therefore surprising to note that foreigners may be under-represented among recipients of job-insertion allowances, although up-to-date data are not available (SECO, 2006). The effectiveness of these allowances could therefore be reviewed. Increasing targeted retraining and activation programmes and/or relocation assistance are two possible policy options. Specifically, substantial up-skilling measures and improved foreign credentials recognition (so as to avoid focusing training measures for foreigners on basic courses) would be helpful.

Humanitarian migrants face particular labour-market challenges

The labour-market integration of humanitarian migrants is particularly challenging. While they comprise only 3.4% of the total foreign-born population (hence around 1% of the total population) in Switzerland, as in many other OECD countries, they face particular difficulties, such as disrupted careers, and often come from countries with very different education systems and incompatible professional qualifications. Like most other groups in Switzerland, their labour force participation is high, especially for the less educated, but unemployment spells are especially long (a mean of 11 months versus 4 months for the native born), and half are in jobs for which they are overqualified (OECD, 2012c). Furthermore, there is evidence, including work by the Federal Office for Migration, that, because of their tendency to change visa status, the labour-market situation for recently arrived humanitarian migrants is rather worse than as reported in the labour force survey, which is undertaken based on the initial visa category under which the humanitarian migrant entered the country.

As in many other policy domains in Switzerland, the cantons and municipalities play a central role in the implementation of integration and other labour-market policies as they relate to humanitarian immigrants. However, the mixed incentives facing cantons at times lead to poor results. For instance, while labour-market integration is their responsibility, social assistance for provisionally admitted humanitarian migrants is covered by the Confederation for the first seven years and typically at a lower rate than provided to other migrants. This means that cantons have little incentive to take measures to actively integrate humanitarian migrants over this period. Yet, there is strong evidence across OECD countries that early activation is critical (Liebig et al., 2012; OECD, 2008). Since 2008, the Confederation pays cantons a lump sum to foster the labour-market integration of provisionally admitted humanitarian migrants. Thus, incentives for rapid labour-market integration of humanitarian migrants need to be strengthened. Moreover, reflecting the principle of subsidiarity, most integration measures are undertaken at the cantonal or municipality levels, and so the levels of service, which are opaque, can vary

considerably (OECD, 2012c). Since 2011 the cantons together with the Federal Office of Migration have been developing cantonal integration programmes based on a Federal Council integration plan of 2011 with 3 pillars: information and counselling (first information/Protection against racism/counselling), education and labour-market integration and social integration. They are to be implemented at the beginning of 2014. The cantonal integration programmes are fostered to coordinate and reinforce the efficiency of labour market integration of the humanitarian migrants. At the Confederation level the efforts of coordinate services, particularly in light of the fact that humanitarian migrants are not free to choose their canton of residence, has to be pursued and reinforced. Common minimum standards should be implemented according to needs, regardless of geographical location of residence, visa/permit type and social security benefit type. Labour-market discrimination also needs to be addressed.

Labour-market discrimination

In Switzerland there is no framework for redressing labour-market discrimination on the basis of nationality or race. No specific legislation is in place to impose sanctions on firms, nor is any institution charged with handling such cases. For instance, in contrast to most other OECD countries, it is not illegal for firms to require job applicants to have Swiss nationality, a practice that is not uncommon (OECD, 2012c). There are bodies at the federal and cantonal levels (such as the *Commission fédérale contre le racisme*, CFR) that provide advice and conduct public education campaigns, but these have modest budgets, and caseloads are consequently very small. Of course, the healthy state of the labour market over many years has meant that discrimination against migrants is less of an issue than elsewhere, with vacancies aplenty to be pursued if a migrant job applicant is turned down for whatever reason. This may also explain why discrimination figures so little in the public debate. With regard to the cantonal integration programmes, implementation measures are developed and reinforced in cooperation with the Federal Service of Combating Racism. These efforts have to be continued and reinforced.

A number of studies have attempted to quantify labour-market discrimination by trying to normalise a sample of job applicants based on a number of labour-market characteristics and then presuming that common residual patterns that correlate to race or national origin amount to discrimination (Fibbi et al., 2006). However, these types of studies may suffer from omitted-variable bias, especially of non-observables like written and spoken language fluency. Another class of studies conducts experiments by submitting nearly identical job applications, except that the name of the applicant differs, and observing whether there are patterns in subsequent invitations to job interviews. Such an experiment was conducted in Switzerland in 2002, and it was found that a candidate with a clearly Turkish name living in the German-speaking part of Switzerland had to submit three times more applications to be asked for an interview compared with an applicant with a Swiss-sounding name. Applicants with Yugoslavian names appeared to be most discriminated against. Firm size did not appear to have any bearing, but job type did, with customer-service vacancies tending to yield greater ethnicity-based discrimination among applicants.

While the adoption of an anti-discrimination framework might be an appropriate first step, OECD countries' experience suggests that measures need to go much further in order to address labour-market discrimination. One approach that has emerged elsewhere in recent years is to adopt a diversity policy aimed at achieving equal opportunities for

disadvantaged groups in the labour market (including immigrants and their children) through incentives and measures with strong indirect targeting. Practices in Belgium include the exclusive opening of certain job vacancies to disadvantaged groups for a period of limited duration, and financial and administrative support for companies trying to diversify their staff both in the hiring and promotion processes. Preliminary evaluation of this policy indicates that it appears to have contributed to the recent improvements in labour-market integration, in particular for the children of immigrants (Van der Voorde and de Bruijn, 2010). In Switzerland, apart from a few small-scale projects at the cantonal level and some voluntary measures by employers (Schönenberger and Fibbi, 2010), no such diversity policy tools have been implemented thus far. In some countries, such as Belgium, the Netherlands and Norway, there have also been explicit efforts to have the public sector lead the way in hiring recent immigrants. However, in the Swiss public-sector, employment of foreign-born workers is half as likely as for the native-born, while in Sweden, Norway, the Netherlands and Denmark, the ratio is over 0.8. In sum, more needs to be done to tackle discrimination in the labour market, including in hiring. Measures against discrimination in the labour force should be reinforced, but policy needs to go even further, including through education campaigns and initiatives such as strong diversity policies.

Enhancing education outcomes to promote long-term inclusive growth

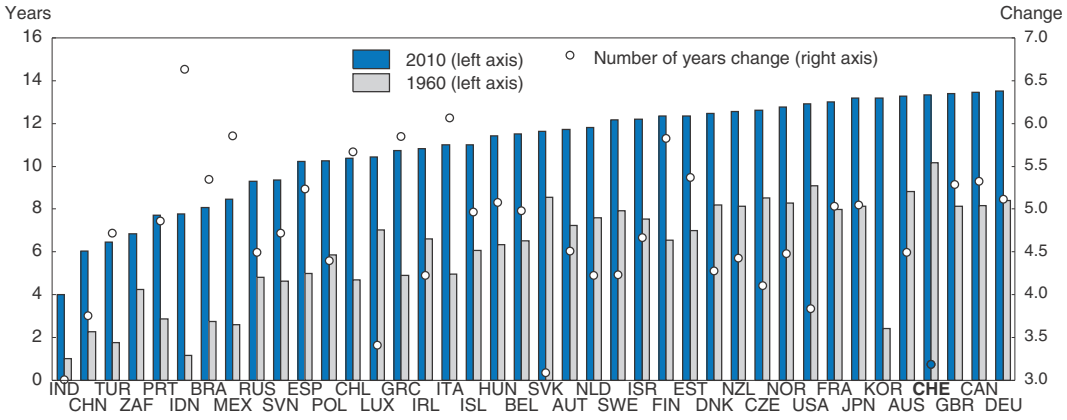
Education is found empirically to be one of the most significant determinants of the long-term growth performance of OECD countries (Sala-i-Martin et al., 2004; Hanushek and Wößmann, 2008 and 2011). Cognitive skills have powerful effects on individual earnings, the distribution of income and long-term economic growth. Not only does the accumulation of human capital boost labour productivity, but more broadly it also feeds into MFP in greasing the interface between labour and capital inputs.

Switzerland has a comparative advantage in human capital, and performs very well by OECD standards, both in terms of overall education participation and outcomes. Moreover, the education system prepares young people commendably for the transition from education to work, with low youth unemployment rates. Part of the success that Switzerland has enjoyed is due to the comprehensive and well integrated vocational education and apprenticeship system, which does an excellent job of transitioning academically weaker performing students into the workforce (Hoeckel et al., 2009; OECD, 2009).

Switzerland has long ranked highly in terms of the average number of years of schooling of the adult population at round 13.3 years in 2010, up from 10.2 in 1960 when Switzerland ranked top among OECD countries (Figure 1.13). At 86% Switzerland also ranks highly in the proportion of people who have attained at least an upper secondary school education (OECD, 2013c). With regards to outcomes, in 2009 Switzerland ranked third among OECD countries in the mathematics performance of 15 year-olds, tenth in science and eleventh in reading (OECD, 2012a). These rankings have been steady over the various PISA iterations since 2000. Student performance across the country's linguistic regions is also remarkably even. While average scores in the Italian-speaking region are slightly lower than in the remainder of the country, the proportion of students below level 2 competencies for this region is on a par with the national average in all three tested competencies (Nidegger, 2011).

Figure 1.13. **Average number of years of schooling of those aged 25-64**[1]

Years and per cent change



1. The average number of years of schooling corrects for differential mortality rates across educational groups (see Appendix 2 of Bouis et al., 2011 for details).

Source: Bouis, R., R. Duval and F. Murtin (2011), "The Policy and Institutional Drivers of Economic Growth Across OECD and Non-OECD Economies: New Evidence from Growth Regressions", *OECD Economics Department Working Papers*, No. 843.

StatLink http://dx.doi.org/10.1787/888932939790

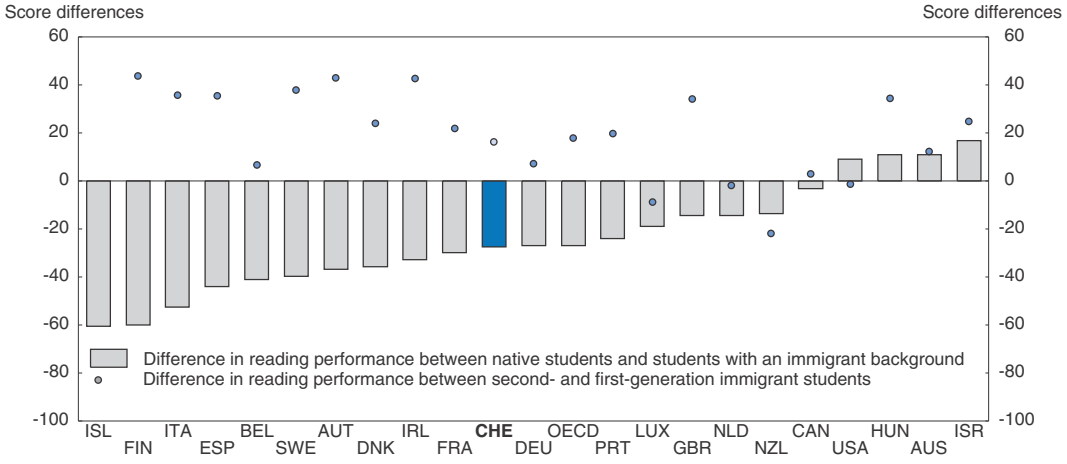
Variance in educational outcomes is high

While Switzerland's average PISA scores are fairly high, dispersion is large, particularly in mathematics where it ranked fourth highest in the OECD in 2009. In reading and science, dispersion is in the middle of the pack. There is also evidence of dispersion increasing over time (OECD, 2012a). For instance, for Switzerland between the 2003 and 2009 waves there was a notable increase in the sum of the proportion of students that scored lowest (below Level 2) plus highest (Level 5 and above) in mathematics scores (OECD, 2012a). One way of improving Switzerland's educational outcomes is to emulate the performance of countries like Finland and Korea, which are top-ranked countries in no small part by virtue of very limited dispersion in scores. Moreover, across OECD countries, high inequality in test scores has been found to correlate strongly with high income inequality (Nickell, 2004).

High variance in Swiss educational outcomes can be attributed to differentials in the performance of a number of sub-groups within the student population. While the gender divide in educational outcomes has disappeared (Chapter 2), the gap between students of different socio-economic status is substantial, as is that between native-born and immigrant students. Particularly troubling is the persistence of a significant portion of these gaps between first- and second-generation immigrant children (Figure 1.14). Moreover, issues associated with immigrant children are especially important in Switzerland due to their high numbers; for instance, the percentage of 15 year-old pupils with at least one parent born abroad, at 42%, is the third highest in the OECD (OECD, 2011b). While the reading gap for first-generation migrant children is similar to the OECD average, the improvement from first to second generations is modest by OECD standards, particularly relative to the initial size of the gap between native and first-generation students –that is, only around half of the gap is closed going from first- and second-generation immigrant children, which is slightly below the OECD average but significantly lower than comparator countries such as Austria and Finland.

Switzerland recorded a very substantial 43 point improvement in its average PISA scores for first-generation immigrant children between the 2000 and 2009 PISA iterations. Cattaneo and Wolter (2012) attribute this improvement largely to compositional effects,

Figure 1.14. **PISA reading performance of immigrant students, 2009**



Source: OECD, *PISA 2009 Results Database.*

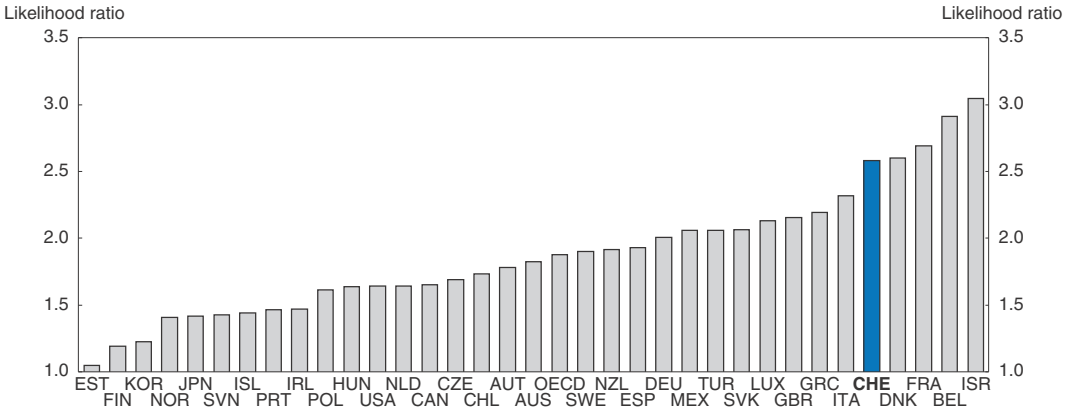
StatLink http://dx.doi.org/10.1787/888932939809

resulting from the radical change in immigration policy made in the mid-1990s. The authors find that almost 70% of the increase in the PISA scores of first-generation migrant students between 2000 and 2009 was due to changes in the individual background characteristics of the new immigrants and greater within-school diversity of student bodies – that is lower shares of students who did not speak the testing languages. In short, the larger flows of students from neighbouring European counties that share a common language with Switzerland (mainly Germany and France) account for the majority of the improvement in measured educational outcomes for first-generation immigrant children over the 2000s. Improvements in integration policies therefore seem to have only played a secondary role. This result confirms the international findings of Schneeweis (2011), who found that proficiency in the national language has significant effects on the integration of immigrant children. This finding is not new and strongly argues for public policies that encourage immigrants to learn a national language as quickly as possible.

Part of the solution to the persistent underperformance of students from immigrant backgrounds is to increase participation in pre-school education. Many of the inequalities that exist during compulsory schooling are already present when children start school, and these tend to endure throughout school life. Addressing these disparities before the beginning of formal education is important, particularly if students come from disadvantaged or non-native backgrounds (Heckman, 2008). Analysis of PISA 2009 results shows that children's failure to attend pre-school can have a major impact on their subsequent academic performance. In the Swiss case, for which this correlation is particularly pronounced, students who did not report any pre-school attendance had a 2.5 times higher likelihood of being in the bottom quartile in PISA reading scores (Figure 1.15). Given the low rates of pre-school attendance and its high cost in Switzerland, this may account for a significant part of the socio-economic disparities in PISA performance. In addition to facilitating the fuller participation of women in the workforce, higher pre-school attendance would help reduce the disparities that afflict children from disadvantaged backgrounds throughout their schooling. In this sense Federal support of model projects in the area of early education and care for migrant children in 2009-11 is going to be continued. A manual for successfully implementing early education

Figure 1.15. **Pre-school attendance and PISA reading scores in 2009**

Increased likelihood of students who did not attend pre-primary school scoring in the bottom quartile of the national reading performance distribution



Source: OECD, *PISA 2009 Results Database*.

StatLink http://dx.doi.org/10.1787/888932939828

programmes has been published. Enrolment rates at the age of 3 and 4 years in Switzerland are among the lowest in the OECD (OECD, 2012a). Public funding of pre-schools is also extremely low by OECD standards. Chapter 2 takes a closer look at the barriers in Switzerland to higher pre-school attendance.

As in many other OECD countries, the weaker performance of immigrants and students from disadvantaged socio-economic backgrounds is exacerbated by clustering into neighbourhoods and disadvantaged schools (OECD, 2012a and 2012f). In Switzerland, as in Italy and the Netherlands, the negative effect on PISA reading scores of students (whether native- or foreign-born) being at a disadvantaged school (one with high proportion of students whose mothers have low educational attainment) is considerably larger than just having a less educated mother. Solutions to this problem could include employing broad social indexing, as well as academic performance, as the basis for resource allocations to schools. Another strategy would be to concentrate resources on improving language skills. However, rather than putting in place programmes that target particular groups and treat them as an isolated problem, recent evidence suggests that it is better to address these issues within the integrated school system as part of a comprehensive integration policy (European Commission, 2012; OECD, 2012f). This is particularly important in the German-speaking cantons, which have tended to put newcomers into separate educational institutions, while the others put them into mainstream schools.

A more balanced approach to handling underperforming students, whether of immigrant background or not, would be to have less specialisation in teacher training. In Finland, an important part of teacher training is equipping them to diagnose learning difficulties and design timely interventions. Especially after Finland abolished tracking in the mid-1970s, emphasis was put on helping teachers learn to differentiate instruction sufficiently well so as to engage all students in heterogeneously grouped classes. Finnish teacher preparation programmes focus intensively on helping teachers develop these skills, especially in the extended clinical portion of their training under the supervision of master teachers in the university-run model schools. Switzerland should follow this approach to teacher training.

Tracking exacerbates educational inequality

In most Swiss cantons, students at the lower secondary level are tracked by aptitude and ability at the age of 13. Depending on the canton, a particular model may be followed throughout the canton or the canton may allow the communes to choose between different models. In the streamed model, students are usually grouped into basic, intermediate and advanced abilities school types. They are taught in separate classes with sometimes different curricula. In the cooperative model students are placed in a particular core class based on their abilities. For some subjects (i.e. mathematics) they attend lessons in a particular ability group. In the integrated model students with different abilities attend the same mixed-ability class. For some subjects they attend lessons in groups according to their abilities. While the streamed model offers little, the cooperative and integrated models have higher degrees of permeability. The majority of cantons have schools with the streamed model. In more than half of the cantons either the cooperative or the integrated model are established. After having completed compulsory education at age 15, most students enter 3 to 4 year vocational apprenticeships, which are based on the cooperation of private firms offering educational job-positions and public schools offering obligatory school lessons that complement the on-the-job training. Vocational education can give access to the *Fachhochschulen* or universities of applied science and tertiary type-B higher education. 20% of students at the upper secondary level pass the *matura* at the age of 18. The *matura* leads to university admission.

The decision as to which track a student is to be allocated in lower secondary school is made based on the performance at the end of primary school, on the recommendation of teachers (often including the opinion of parents), and sometimes based on testing. The transition procedures differ depending on the canton and model. Students can be included in the decision making process. In most cantons the school supervisory authorities or school administration make the final decision. In some cantons teachers alone are responsible for the decision. There are limited means to appeal a tracking decision, other than the student re-sitting exams.

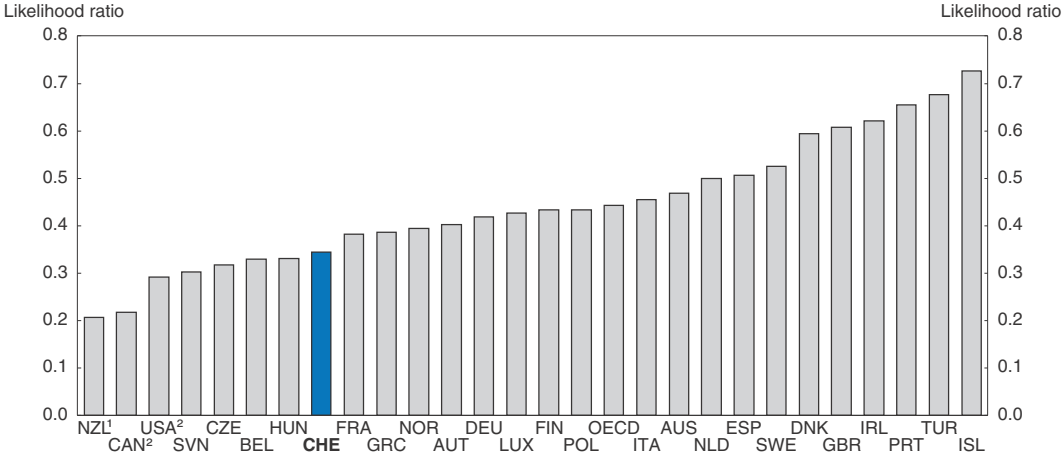
Tracking reinforces intergenerational educational inequality

A number of studies have shown that tracking at an early age reinforces the impact of students' socio-economic background. Bauer and Riphahn (2006) use Swiss cantonal variations in the age of tracking to show that later tracking reduces the relative advantage of children of better educated parents, which is consistent with the findings by Dustmann (2004) for Germany. Pekkarinen et al. (2006) exploit sequencing in the abolition of tracking across municipalities in Finland between 1972 and 1977 to show it resulted in significant declines in intergenerational transmission of income inequality. Schütz et al. (2008) argue that in addition to the systemic features of countries' education systems, late tracking and extensive early-childhood education can each play important roles in mitigating the effects of family background on student performance. Brunello and Checchi (2006) confirm that early tracking reinforces the impact of parental education on the literacy competencies of 15 year-old students, and that this effect survives even when including additional indicators of school-system design. The role of the tracking decision at age 13 in reinforcing intergenerational immobility was illustrated by an experiment in Freiburg canton, in which the teacher/parent assessment was juxtaposed against purely objective testing of the child's abilities (Baeriswyl et al., 2006). The result was that the teacher/parent decision was frequently at odds with that suggested by the testing and that the teacher recommendation tended to be

biased according to the parents' socio-economic background. It has been suggested that teachers may be anticipating parents' capacity to provide the academic support required if close-to-the-line students are placed in the academic stream.

In Switzerland the likelihood is low that a student whose parents have low educational attainment will enter higher education (Figure 1.16). Given the importance of tracking in determining children's academic path and ultimate attendance at university, this likelihood is fixed early in a child's life. Of all tertiary students, 30% attend *Fachhochschulen* and 20% higher vocational training even though 65% of students follow the vocational track at the upper secondary level. Moreover, while the system now has a number of *passerelles* (pathways) that allow students to switch streams, these are not extensively used, and the opportunity cost and financial cost of doing so can be high.

Figure 1.16. **Probability of students whose parents have low levels of education attending tertiary education, 2009**



Note: The number of students attending higher education are under-reported for Australia, Canada, New Zealand and the United States compared to the other countries as they include only students who attained ISCED 5A (while the other countries include students who attained ISCED 5A and/or 5B). This may understate intergenerational mobility in these countries.

1. Data from Adult Literacy and Lifeskills Survey (ALL) of 2006.
2. Data from Adult Literacy and Lifeskills Survey (ALL) of 2003.

Source: OECD, *Education at a Glance 2012*, Table A6.1.

StatLink http://dx.doi.org/10.1787/888932939847

Tracking amplifies variance in educational outcomes

Numerous studies have argued that inequality in education outcomes is exacerbated by tracking. For instance, Hanushek and Wößmann (2006) looked at the variance in educational outcomes of children at primary school (using the PIRLS study) and lower-secondary school (using PISA 2003 results) across a range of countries (although not Switzerland). They found that countries with tracking showed an increase in the variance in outcomes in the older cohort relative to the younger cohort. On the other hand, countries with comprehensive systems tended to exhibit lower variance in performance in the older cohort. This means that inequality increases systematically in countries that track their students into different school types, whereas in those without tracking it decreases. Of all countries, Germany, where tracking typically happens at age 10, is the one in which inequality increases the most between the end of primary school and the end of lower-secondary school.

Later tracking has been recommended in a number of previous OECD *Surveys* and reports (OECD, 2012f). In most cantons tracking used to happen at an even earlier age, but, as they agreed in 2009 under the *HarmoS* concordat, tracking has now been delayed to the age of 13 across most of the country. While delayed tracking has now been implemented in most cantons, it should be put in place everywhere. The effects of later tracking on educational outcomes should be monitored for the expected variance-reducing effects.

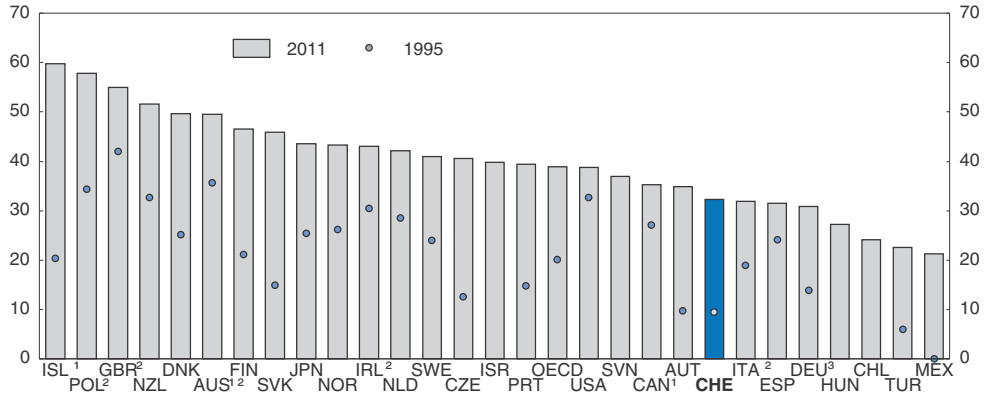
Educational streams, particularly at the tertiary level, might be best reconsidered

Skill shortages exist in Switzerland, as is borne out by the large inflows of skilled workers from European source countries. While the inflow of skilled workers is a net benefit to the country and should continue, Switzerland must also ensure that the domestic basis of human capital is enhanced so that native-born workers are given the right skills to benefit from the advantages of working in the high-skill high-paying sectors. In this regard, investments in the right mix of education need to be facilitated.

Given the growing global prominence of high-technology and knowledge-based industries, tertiary-level degrees are becoming more highly valued worldwide. At just below 6% of GDP in 2010, Swiss expenditure on all forms of education is slightly below the OECD average, while expenditure on tertiary education alone is 1.3% of GDP, well below the OECD average of 1.7% (OECD, 2013c). Moreover, the employment rate for male university graduates in Switzerland in 2009 was the second highest in the OECD at 92.5%, which may be an indication of excess demand (OECD, 2012a). The rapid acceleration in inflows of highly educated migrants may be compensating for this. Indeed, the part of the Swiss workforce with tertiary degrees includes 20 percentage points from people from other OECD countries – this is amongst the highest in the OECD (Davies et al., 2009). Moreover, tertiary type-A graduation rates in Switzerland are low by OECD standards (Figure 1.17). This is in part explained by the predominance of the highly successful vocational streams in Switzerland, with over 60% of students taking this track on upper-secondary level.

Figure 1.17. **First-degree graduation rates from tertiary type-A programmes, 1995 and 2011**

Per cent rate



1. Year of reference 2000 instead of 1995.
2. Year of reference 2010 instead of 2011.
3. Break in the series between 2008 and 2009 due to a partial reallocation of vocational programmes into ISCED 2 and ISCED 5B.

Source: OECD, *Education at a Glance 2013*.

StatLink http://dx.doi.org/10.1787/888932939866

Tertiary type-A graduation rates have increased dramatically across most OECD countries, rising by 20 percentage points on average over the last 15 years, while rates for tertiary type-B programmes have been stable. Switzerland has also seen a large increase in tertiary type-A graduation rates over this period, but, starting from a very low base, the increase has been insufficient to achieve much catch up, limiting the supply of high-level tertiary-A educated workers.

In order to ensure an employable and innovative domestic workforce, the mix between vocational and academic educational streams may need to be reconsidered. However, given the low levels of unemployment among vocationally trained workers, any rebalancing may simply result in shifting vacancies from one sector to another. Equally important for strengthening the human-resource base is to facilitate the immigration of highly skilled foreign workers.

Competition and trade are instrumental in promoting innovation

Competition is central to innovation, even if debate continues regarding the circumstances under which it has its greatest effects. Research shows that competitive product markets force companies to increase labour productivity and MFP, as they try to stay ahead of competitors. The most direct effect of competition policy is on organisational change in firms; it affects research and invention rather modestly but has a greater effect on the commercialisation of new science and technology and on efforts to diffuse innovations throughout the economy (Shapiro, 2002). Additionally, when intellectual property rights (IPR) are well enforced, entrepreneurs may be encouraged to assume the risks of innovation. OECD research shows that, for a given level of IPR protection, regulatory entry barriers in product and labour markets undermine long-run productivity and that the burden of regulation rises the further a country is from the technology frontier. Reducing anti-competitive regulation induces firms to increase R&D spending (Jaumotte and Pain, 2005b) and also affects the reallocation of resources to more innovative firms.

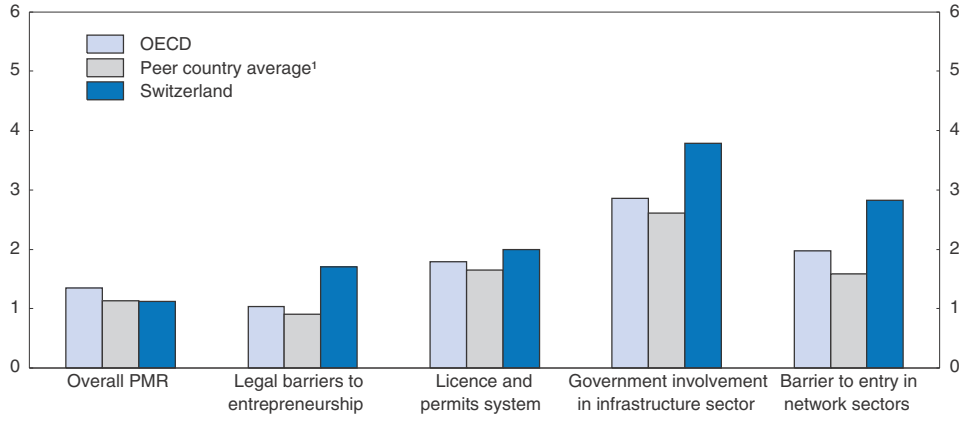
Openness to foreign trade and investment flows promotes productivity growth

Competition, be it through a more dynamic domestic sector or greater exposure to foreign competitors through an open trade and international investment regime, can lower costs, force firms to focus on customer needs, allocate resources more efficiently among firms and foster innovation. All these in turn will lead to improved productivity (Ahn, 2002). Moreover, in a small economy, foreign trade and cross-border direct investment flows are of critical importance for economic growth and development (Keller, 2004). First, they enable the country to overcome the constraints of a small home market, and, second, they act as a channel of knowledge flows. While Switzerland is heavily engaged in international investment, there is some evidence, as seen above (Box 1.1), to suggest that it has been underperforming as regards trade openness, given its position in the heart of Europe and the relatively small domestic market. Attention should be given to policies that promote foreign trade opportunities for Swiss firms. This includes moving forward with the negotiation of further FTAs, especially with economically important trading partners. This will promote competition domestically and allow local firms to better exploit economies of scale, thereby promoting stronger productivity growth and lower prices. Greater efforts should be made to deal with those sectors of the Swiss economy that are holding back such trade agreements, agriculture in particular (Jarrett and Moeser, 2013).

Competition and product market regulations

The OECD PMR indicators are a comprehensive, internationally comparable set of measures indicating the degree to which policies inhibit competition in areas where it is viable. Switzerland performs well in this dimension, with a PMR index below both the OECD average and below an average of similar small open European economies. The PMR indicators, however, point to a number of weaknesses, at least in 2008 (the latest available) (Figure 1.18). Most notable are legal barriers to entrepreneurship (this issue is covered below), but also high levels of government involvement in infrastructure and barriers to competition in network industries.

Figure 1.18. **Product market regulations, 2008**



1. Index scale is 0 to 6, from least to most restrictive. Peer countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom and the United States; and are given equal weights in the peer group average.

Source: OECD, *Product Market Regulation Database*.

StatLink http://dx.doi.org/10.1787/888932939885

Competition is a key aspect of improving framework conditions for innovation. Greater competition could be promoted by opening up sectors (such as agriculture, electricity, telecommunications, public health, public procurement, protected professions, etc.) that have been insulated from competition. Previous *Surveys* have discussed these issues in detail. The intensification of competition drives innovation, not to mention releasing resources inefficiently tied up in these sectors to more productive uses. Such resource reallocation would result in productivity-improving structural (sectoral) change and the release of fiscal resources, due to a reduction in subsidies, which could be better used in other activities critical to translating the benefits of innovation, notably in ICT, into generalised productivity gains, and so improving investments, such as training and research. OECD work shows that infrastructure sectors with rigidities may reduce efficiency in all sectors (Conway and Nicoletti, 2007). Where small market size means that introduction of market competition is not very practical (such as in urban public transport and water), efforts need to be made to promote best practice (for example in management) and to punish any abuse of market power. There has been some progress in this regard, including bolstering the powers and resources of the competition regulator (ComCo) and a number of public enterprise regulators such as the postal regulator (PostCom). Competition issues also exist in the watchmaking sector, where arrangements put in place during the 1980s to rescue the industry remain in place and may now be acting to stifle

competition in this rejuvenated and now vibrant export industry. The Federal Council is considering a revision of the Cartel Act to reinforce legal certainty, so as to speed up and improve procedures, and intensify competition in Switzerland. The reform of the institutions would guarantee the independence of the Competition Authorities with a clear separation between investigations and decisions. The partial prohibition of hard-core cartels, unless justified by efficiency reasons, creates legal certainty and the SIEC-test will allow for an evaluation of mergers according to international trusted criteria.

Innovation helps to promote long-term growth

The innovative capacity of a country's firms is an important determinant of its long-term growth. Innovative businesses introduce both new products and new processes that enhance productivity. Having in place a framework that encourages existing companies to innovate, as well as facilitating the emergence of dynamic new firms, is critical for long-term growth, particularly for countries that are close to the production frontier and cannot depend on catch-up to drive growth. Framework conditions such as well functioning product markets, low barriers to entrepreneurship and vigorous competition, including in key service sectors, play important roles in fostering innovation. Other important elements for an innovation-friendly environment are the provision of high-quality physical infrastructure, adequate access to financial resources for business, efficient competition law, effective IPR protection, business-friendly bankruptcy laws and simple administrative procedures.

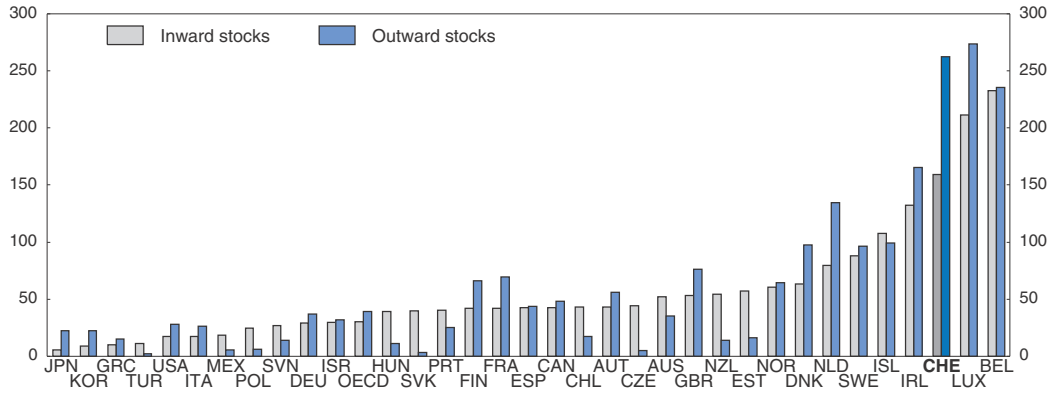
Returns on R&D investments are difficult for firms to fully appropriate, as some of the resulting knowledge will spill over to other firms to the benefit of society. This leads firms to under-invest in R&D. Policy instruments such as IPR, grants and tax incentives can help address this externality. R&D tax incentives are now widely used in both OECD and non-OECD countries. Governments can also assist with overcoming difficulties in finding external finance and the high costs thereof resulting from large differences in the information available to inventors and investors, in particular for small start-ups.

Foreign direct investment also promotes innovation

As noted above, a key aspect of innovation performance is openness to international trade. Similarly, foreign direct investment (FDI) can also affect a country's innovation performance, both directly and indirectly. It can boost the host country's productivity performance because foreign owned subsidiaries often achieve efficiency gains through the transfer of new technology, better organisational, human resource and management practices or more extensive integration in global value chains and international markets. In addition, "knowledge spillovers" may lead to efficiency improvements in the broader population of domestic firms. These gains may occur in the same sector, in upstream or downstream firms (suppliers or customers) or in regional innovation networks involving foreign controlled firms. FDI can also stimulate innovation indirectly, for example via increased competition. Switzerland is very open to FDI, with only Belgium and Luxembourg having larger inward stocks of FDI in relation to GDP in the OECD (Figure 1.19). But even more so Switzerland is the home of many large, research-intensive and innovative multinational enterprises (a "headquarters economy") and is host to important functions, such as R&D, also due to its favourable tax regime. These multinational enterprises also drive a great deal of the very high level of Swiss outward FDI, which can play a role in gaining access to cutting-edge information and technology, as well as human resources and research infrastructure.

Figure 1.19. **FDI stocks in selected OECD countries**

Per cent of GDP, 2011 or latest available year



Source: OECD Foreign Direct Investment Statistics.

StatLink http://dx.doi.org/10.1787/888932939904

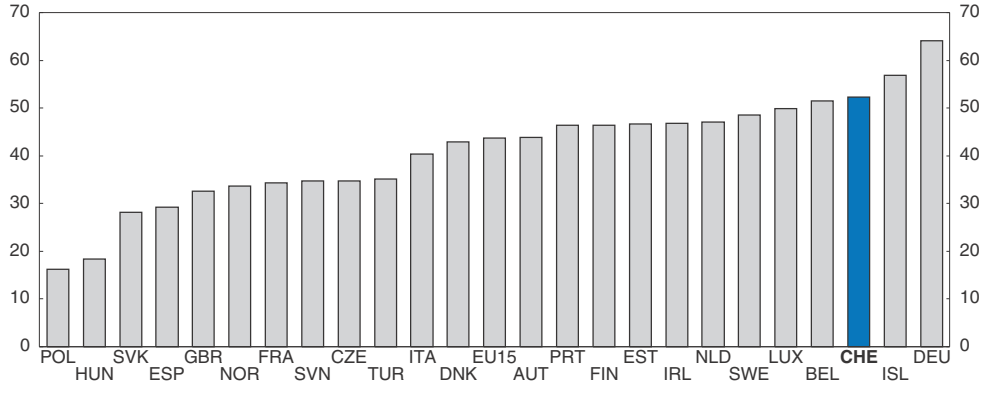
Switzerland has a strong record in innovation

Switzerland has a strong record in the realm of innovation. Swiss firms are among the most innovative in the world, with well over half of all firms introducing either product or process innovations (Figure 1.20). While R&D is not the only source of innovation, private R&D activity in Switzerland is concentrated in a small number of sectors, most notably in pharmaceuticals, which in 2008 accounted for almost 40% of all business expenditure on R&D is Switzerland – the highest share in the OECD.

Despite this enviable record in innovation, the tri-annual *Konjunkturforschungsstelle* (KOF) Innovation Surveys show that since the early 1990s the proportion of Swiss firms undertaking innovation activities has fallen from over 80% to around 55% in 2009-11 (KOF, 2013). Similarly, the share of those involved in patenting has fallen from around 75% to below 40% over these two decades. While it is true that innovation activities are pro-cyclical (Arvanitis and Woerter, 2011), these declines are part of a secular trend seen over this entire period and may signal structural weaknesses in Swiss firms' innovation.

Figure 1.20. **Firms having introduced either a product or process innovation, 2010**[1]

Per cent of all firms



1. Data refer to the 2009-11 period for Switzerland.

Source: Eurostat, CIS 2010 survey and national sources.

StatLink http://dx.doi.org/10.1787/888932939923

The European Commission's Community Innovation Surveys (CIS) also show that Switzerland's relative innovation performance has slipped. While it was once a clear leader, a group of rivals have caught up over the past decade, sometimes markedly. The catching-up process is more pronounced in the services sector. This is not only due to advances abroad, which are to some degree an expression of a normal convergence process, but also reflects the relative decline in innovation activities in Swiss industry in the 1990s and in the services sector in the early 2000s. Having regard to the share of firms undertaking innovation, Finland and Belgium have made up the most ground. Since the initial impact of the financial and economic crisis would already be included in these figures, it would appear that the innovation performance of Swiss firms has been harder hit than in these other European countries, although the reasons for that are unclear.

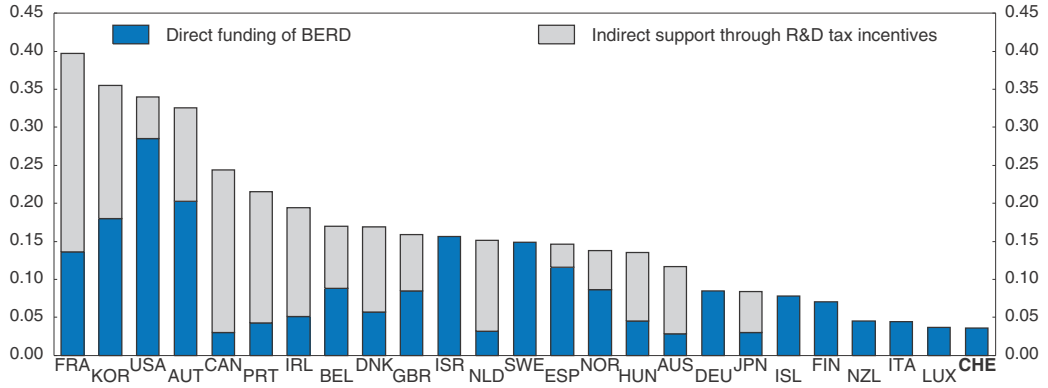
The KOF Innovation Surveys also report barriers to innovation. As reported by firms, the most prominent barriers are high costs and long payback times, but also frequently cited are lack of funding and shortages of researchers and skilled personnel. However, since the implementation of the free-movement of labour with the EU in 2002, the lack of skilled researchers is much less perceived as an important barrier. International comparisons through the CIS corroborate this, showing that researcher shortages are more important barriers to innovation in Switzerland than in most other European countries.

While government R&D appropriations are close to the OECD average when measured as a share of GDP (0.8% in 2010), direct funding to business is relatively low (Figure 1.21), and, like a small number of OECD countries including Finland, Germany, Luxembourg and Sweden, Switzerland does not provide R&D business tax incentives. Most public support is instead channelled to universities and public research institutions. In 2010 higher education expenditure on R&D amounted to 0.8% of GDP, which accounted for nearly all public funding for R&D and is the third highest rate in the OECD. That said, and despite the notable lack of direct government support, the majority of total Swiss R&D activity is conducted by the private business sector; at close to three quarters, this share is amongst the highest in the OECD.

As part of its fiscal response to the global financial crisis, the government increased spending on innovation-related programmes, making additional expenditures of about CHF 48 million on research and innovation. Allocations to the Swiss National Science Foundation (SNSF), which is responsible for basic research funding, were raised by 2%

Figure 1.21. **Direct government funding of business R&D and tax incentives for R&D**

2010 or latest year available, per cent of GDP



Source: OECD (2012), *OECD Science, Technology and Industry Outlook*.

StatLink http://dx.doi.org/10.1787/888932939942

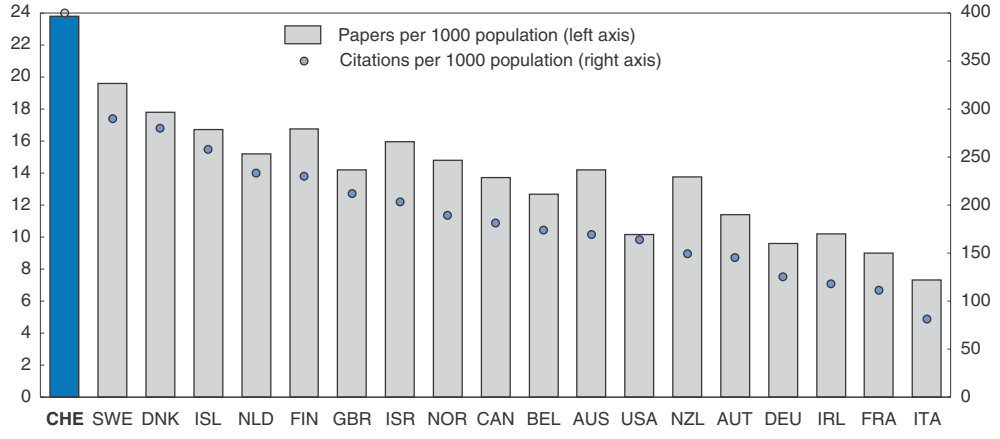
(CHF 10.5 million) to start around 28 additional projects. Federal universities' and research institutions' funding was raised by CHF 13.5 million. The innovation policy promotion budget was increased by CHF 21 million, of which CHF 19.5 million (20% of the total) was for the budget of the Commission for Technology and Innovation (CTI), the main funding agency for applied research, through which a pilot scheme with innovation grants aimed at encouraging SMEs to engage in technology transfer was also launched.

Switzerland's plan for phasing out nuclear power and transitioning to renewables (laid out in the government's Energy Strategy 2050) requires bold advances in energy technology, particularly efficiency gains in consumption. Yet, Switzerland accounted for only 1.4% of world patents related to energy generation from renewable and non-fossil sources in 2007-09. On a per capita basis this is not bad but still lags countries like Denmark, Sweden and Israel – all countries less ambitious with regard to plans for technological progress in the energy sector. Public-sector performance is even weaker. Given the bold assumptions regarding technological advances that underpin the government's Strategy, more needs to be done if the goals are to be realised. Policymakers have started to address this shortfall. For instance, the Federal Council recently announced measures to promote energy research. One involves the creation of research networks between higher education institutions and the Swiss Competence Centres for Energy Research (SCCERs), which will pursue research in seven action areas. Efforts should also be made to engage more strongly with foreign efforts in this field and to support the adoption and diffusion of technologies developed abroad.

The challenge is to leverage the strength in R&D

Switzerland has long been a leader in basic scientific research (Figure 1.22; OECD, 2011a). The challenge is to preserve this lead. Because commercialisation opportunities are uncertain and may take considerable time to become evident, it is to some degree dependent on public financial support. In the Swiss case, federal funds are awarded following competitive principles to ensure that they are directed towards the best researchers' ideas, projects and institutions. Additionally, the federal government participates in a limited way in market-oriented research projects in the field of applied

Figure 1.22. **Intensity of scientific output and impact, selected countries, 2000-10**



Source: BMWF, BMVIT, BMWFJ (2011), *Austrian Research and Technology Report 2011*, based on ISI, calculations by Johanneum Research.

StatLink http://dx.doi.org/10.1787/888932939961

research and development. The instrument for this is CTI, which has the role of "matchmaking" companies, universities and public research institutions with the aim of promoting innovative projects with high market potential.

Taxation and other incentives for business innovation

Firms' innovative activity is influenced by the various types and levels of taxation, including indirect taxes (such as value-added tax on innovative products), direct taxes (such as income tax paid by researchers and scientists), social security contributions and taxes on intellectual property (IP). Corporate income (CIT) and capital gains taxes are the most significant for business investments, especially the CIT rates for innovation-related profits, such as from royalties or patent sales (OECD, 2010c). For instance, to promote innovation, the Netherlands employs tax instruments through its Innovation Box programme, where innovation-linked profits benefit from a 5% tax rate in lieu of the general rate of up to 25.5%. The United Kingdom has a similar programme called Patent Box, under which a reduced rate of corporation tax applies to income from newly granted patents. Cutting the capital gains tax rate encourages commitments to new venture capital funds and raises the share of high-technology and early-stage investments in overall venture capital activity (Da Rin et al., 2006). A lower capital gains rate may also enhance investment opportunities by lifting workers' incentives to become entrepreneurs (Poterba, 1989). However, these approaches have been criticised as they may reward existing IP rather than new innovation, are likely to have very high deadweight losses and may be misused as corporate tax-avoidance vehicles.

One of the main rationales for R&D tax incentives is the presence of positive externalities (Palazzi, 2011). The general trend has been to increase the availability and simplicity of use of R&D tax incentives, which are now offered in 26 of the 34 OECD member countries and many important non-OECD countries. In Switzerland, as well as Finland and Germany, there has been some debate about their future introduction. On the other hand, New Zealand and Mexico have withdrawn their R&D tax-incentive schemes (OECD, 2013a).

The existing R&D tax-incentive schemes differ significantly across countries in terms of their generosity and design and how they explicitly target different firms or specific areas. Most OECD and emerging economies apply a system whereby a credit is provided on the value of all qualifying R&D expenditure undertaken, while others target R&D tax credits to incremental R&D expenditure (i.e. expenditure in excess of some baseline amount). Wages paid to R&D workers are exempt from payroll taxes and social security contributions in several EU countries. While OECD work (Jaumotte and Pain, 2005a and 2005b) has found evidence that tax incentives are effective in increasing R&D expenditures (even if some of the extra outlays may be merely reclassification), tax incentives are typically part of a broader strategy to foster innovation. Andrews and Criscuolo (2013) also find that the impacts on productivity were ambiguous. R&D tax credits tend to favour large over small firms depending on their design.

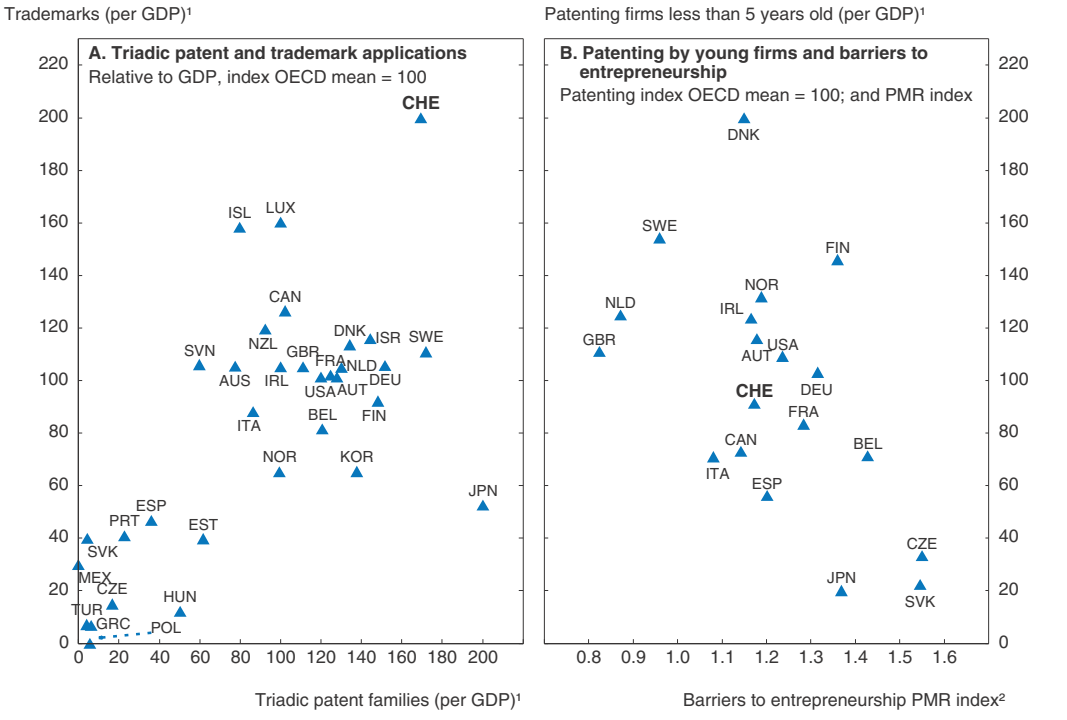
Care needs to be exercised as tax measures specifically targeting innovation will generally increase innovation activities, particularly R&D, but there is risk of merely shifting R&D from other jurisdictions and subsidising R&D activities that would have occurred even without the tax incentive. Governments should be cautious and also be aware of the administrative burdens for both firms and authorities that such measures create. Nor are tax incentives to spur innovation without costs to public finances: for example, they potentially open avenues for tax planning. The value of various R&D tax credits range from 0.1% of total

tax revenue in the United Kingdom and Norway to over 0.9% in Canada. This foregone revenue might need to be raised through other means, which could themselves have adverse impacts on innovation activities by firms, not to mention economic activity more widely. Nevertheless, Switzerland should continue to examine options for encouraging innovation. Direct support, in particular in coordination with private investors, can be a highly effective approach which may be linked to better design of such programmes therefore generating much lower deadweight losses than tax support (Andrews and Criscuolo, 2013). However, all tax incentives should be considered in unison with broader innovation policies that would promote the formation of dynamic small businesses.

Patenting and trademarking activity are dominated by large firms

Patents can also spur innovation by allowing companies to recoup R&D expenditures by enjoying exclusive rights over intellectual property for an extended period. Switzerland performs well in both patenting and trademarking relative to GDP (Figure 1.23, Panel A). This outstanding patenting performance is testament to its laudable culture of invention and innovation, while the strong trademarking outcome reveals a clear comparative advantage in branding and design. This could be in part related to consumer-goods-focused multinationals in Switzerland with a strong presence in markets. According to the KOF Innovation Survey 2009-11 (KOF, 2013), 72% of large firms (employing 1 000 or more workers) are engaged in innovation compared to 33% of small businesses (5 to 19 employees). When looking at R&D activity the respective ratios are 56% for large firms and 18% for small firms, and, most starkly, while almost 65% of large industrial firms are engaged in patenting activity, the share among small companies is only around 3%.

Figure 1.23. **Patenting and trademarking in the OECD, 2010 or latest year available**



1. Normalised index of performance relative to the median values in the OECD area (Index median] = 100).
2. Barriers to entrepreneurship PMR index scale is 0 to 6, from least to most restrictive.

Source: OECD, *OECD Science, Technology and Industry Outlook 2012* and *Product Market Regulation Database*.

StatLink http://dx.doi.org/10.1787/888932939980

However, Switzerland's high patenting activity may be in part a consequence of its tax system. For instance, in 2005-07, of the total number of patent applications filed and owned by Swiss companies (10 366), around 34% had foreign inventors only with no Swiss co-ownership. This can in part be explained by the considerable attractiveness of Switzerland for top researchers. While the share of foreign investors is an indicator of the internationalisation of R&D, recent analysis shows that this interpretation might be dubious and that tax optimisation objectives might also be taken into account when locating IP. As Switzerland does not have any patent deduction system, but offers excellent framework conditions for innovation, this is less likely to be the case. For example, Ireland, which is a popular location in the EU for IP, offers a 12.5% CIT rate. Considering the international experience, Switzerland should remain cautious in its tax treatment of IP, as this could be having unintended consequences that distort policies aimed at promoting innovation more generally. Moreover, these arrangements may invite complaints from partner countries for tax poaching.

Entrepreneurs and start-ups can drive dynamic innovation

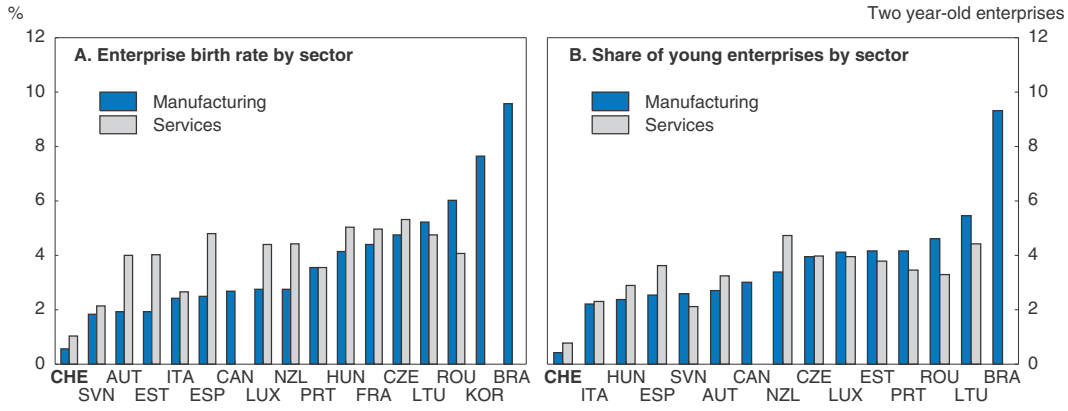
The presence of young firms among patent applicants underlines their inventive dynamics early in their development. Switzerland performs below the OECD average in this regard, with firms less than five years old contributing less to patenting activity over 2007-09 than in many other countries. It appears that for those OECD countries for which data exist, lighter restrictions on doing business, as measured by the PMR barriers-to-entrepreneurship sub-index, are correlated with higher patenting activity by young firms (Figure 1.23, Panel B). Legal barriers to entrepreneurship is one of the areas where Switzerland performs relatively poorly in the PMR (Figure 1.18). So while patenting activity is extremely strong, it is dominated by large established firms, as in Japan (OECD 2013d). By OECD standards, young firms are less active in patenting activity. The next section looks at barriers to entrepreneurship that inhibit the formation of dynamic firms.

The birth of new enterprises is a key indicator of business dynamism. Small firms, and especially recent start-ups, can be very dynamic and innovative and can make an important contribution to job creation and productivity growth (Wong et al., 2005). In Switzerland small firms play a significant role in the labour market, with around 18% of all workers being employed by firms with 1 to 9 employees, but this is significantly less than the OECD average of 29% (OECD, 2012d). Likewise, only 55% of all firms in Switzerland are 1-to-9 employee firms, the second lowest in the OECD. In Switzerland, the birth rate of small enterprises is substantially lower than in other OECD countries: for instance, for 5-9 employee enterprises within both the manufacturing and services sectors (Figure 1.24, Panel A), as it is for 1-to-4, 5-to-9 and 10+ employee service-sector enterprises (OECD, 2012d). Yet, observing firms' post-entry performance is as important as analysing their birth rate. Swiss firms' survival rate (the share of enterprises surviving one or more years after their formation) is around the average for OECD countries and therefore does not compensate for the low birth rate, resulting in a paucity of two-year old enterprises (Panel B).

The principal government vehicle used to promote entrepreneurship in Switzerland is the CTI, which offers a number of types of assistance including a number of programmes on entrepreneurship training. For instance, the CTI Entrepreneurship Programme is intended for university graduates and professionals with interesting business ideas and provides them with coaching and training on how to create a company. Training takes place in the form of workshops and courses (e.g. practical introductory courses, semester-long courses). The CTI Start-up Programme is intended for company founders

Figure 1.24. **Enterprise formation in selected OECD countries, 2010 or latest available year**

Enterprises with 5 to 9 employees, % of business population



Source: OECD, *Entrepreneurship at a Glance 2013*.

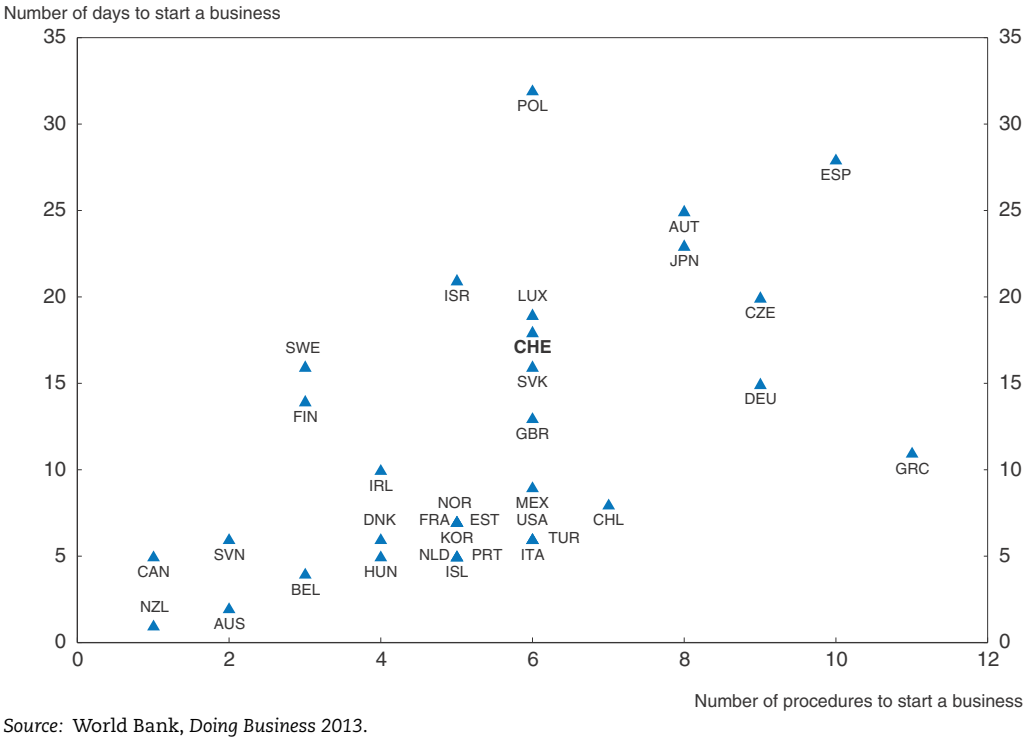
StatLink http://dx.doi.org/10.1787/888932939999

and young entrepreneurs and provides them with individual coaching and training on how to secure funding and convincingly enter the market. The CTI Invest Programme is intended for young entrepreneurs undergoing CTI coaching as well as for companies that have been awarded the CTI Start-up label. It helps them in their search for start-up capital. However, there are question marks over the value of entrepreneurship training. Shane (2009) argues that increasing the quantity of entrepreneurship is of little value, and the focus should instead be on increasing its quality. In particular, it appears that it is only a small number of dynamic high-growth "gazelles" that generate jobs (Henrekson and Johansson, 2010; Bravo-Biosca et al., 2013). On the other hand Nyström (2009) argues that quantity is important – because even if many are not successful, they are influential – and that there is convincing evidence of positive long-run effects of new firm formation (and exit) on aggregate productivity gains. Also, while employment effects of entrepreneurship may be ambiguous, its impacts on productivity and economic growth are less equivocal. For a nation like Switzerland, where labour markets are tight but productivity growth lags frontier countries', promoting entrepreneurship seems to be an ideal avenue to pursue. Switzerland should continue in its efforts to prompt entrepreneurship through training and mentoring programmes, and the performance of these should be monitored frequently in order to improve targeting and outcomes.

Procedures for starting a business should be streamlined

Swiss entrepreneurs face higher administrative and procedural hurdles in starting a business than those in many other peer countries (Figure 1.25). Switzerland is ranked 97th out of around 180 countries in the "starting a business" sub-category of the World Bank's Ease of Doing Business Index. Further easing restrictions on starting a business by reducing the number of procedures and the time required, or by providing a simplified regime for business formation, might promote a greater role by dynamic small firms in innovation and provide new future sources of Swiss growth and employment. The federal web-portal "StartBiz" should be strengthened and extended to practically all types of companies and the compulsory public notary authentication should be abolished.

Figure 1.25. **Barriers to starting a business**



Source: World Bank, *Doing Business 2013*.

StatLink http://dx.doi.org/10.1787/888932940018

Despite the generally favourable Swiss conditions for innovation, a lack of financial resources is a key obstacle to innovation activities for small firms (KOF, 2013). The financial market imperfections (asymmetric information) and inseparability of innovation projects from day-to-day operations are contributing factors. Moreover, the opportunities for equity financing – generally SMEs' main source of funding innovation – have declined sharply since the recent downturn in many countries, and this may persist for some time. In these circumstances an obstacle that has been cyclical could become structural, especially if capacity is reduced by an extended period of low R&D investment. In this regard, one option would be to improve the transparency of small firms balance sheets, so that credits could be obtained with a simple electronic template, while another could be to clarify the tax treatment of business angels. This should be done in a way that would not conflict with the current design of the Confederation's other programmes for promoting innovation.

As discussed in the previous *Survey*, tax policy can also harm incentives to start and expand a new business. For instance, some cantons still levy progressive corporate taxes with rates rising in line with either profits or the return on equity. Progressive corporate income taxes harm incentives for businesses to grow, and since fast growing businesses are likely to enjoy rapid gains in productivity, such disincentives are likely to hit high performing businesses particularly. All cantons also charge a tax on firm equity (capital taxes). This creates barriers for the creation of businesses, as newly created businesses are likely to have low returns on equity. The payment of this tax also impairs their liquidity when cash flow is low and access to loans limited. At the federal level, taxes on equity issuance also generate barriers to business creation. While these taxes generate little revenue, the distortions may nevertheless be significant, given that firm creation is likely to contribute to productivity growth, especially in industries developing new technologies (Arnold et al., 2008).

Box 1.4. **Recommendations for promoting sustainable long-term growth**

Understanding Switzerland's weak productivity performance and assessing policy options

- Examine the roots of, and propose remedies for the poor productivity performance, including by creating a productivity commission.

Boosting competition and trade so as to lift productivity growth

Competition can drive productivity growth by exposing local firms to the rigours of the marketplace. International trade also opens up a larger market to firms operating in relatively small countries like Switzerland, thus allowing them to fully exploit economies of scale. The government should therefore:

- Accelerate the pace of agricultural sector reform, including moving entirely to direct payments to farmers, and by further integrating the entire food value chain in international trade.
- Redouble efforts to negotiate FTAs, especially with economically important economies.
- Exploit the opportunities offered by the move from nuclear to renewable sources of energy and green-house gas targets to put in place a framework that promotes competition in the energy sector.
- Liberalise completely networks industries, benchmark the public sector, and implement a more efficient territorial management.

Addressing efficiency and equity issues in the education system

Despite high levels of educational attainment, there are question marks over whether the educational paradigm will continue to be appropriate as the structure of the economy evolves under the pressures of globalisation. The Swiss education system also faces access and equity issues. The government should therefore:

- Step up public funding of pre-schools.
- Address these issues within the integrated school system as part of a comprehensive integration policy.
- Learn from the experience of other countries, including Finland, with their teacher preparation programmes, which focus intensively on helping teachers develop practical remedial teaching skills that help to address weaker students within aptitude-level integrated classrooms.
- Monitor closely the effects of delayed tracking on education outcomes.
- Review the vocational and academic educational streams, especially in light of vacancies in some high-skill occupations and the reliance on immigrants to fill these positions.
- Improve access to tertiary education for all segments of society, including special measures for those from lower socio-economic and immigrant backgrounds.

Promoting innovation by unleashing entrepreneurship

The high levels of innovation and R&D activity are often confined to large firms in defined sectors. Entrepreneurship and the emergence of dynamic start-ups are important drivers of innovation and productivity growth, and more could be done to encourage their emergence. The government should therefore:

- Continue to examine options for the introduction of tax incentives that encourage innovation, for example for business angels.

Box 1.4. **Recommendations for promoting sustainable long-term growth** *(cont.)*

- Be prudent with the tax treatment of intellectual property to ensure that current measures are serving their intended purpose and are not unduly distortionary internationally.
- Ease restrictions on starting a business by reducing the number of procedures and time required, for example by strengthening and extending the web-portal "StartBiz" and abolishing the compulsory public notary authentication.
- Replace progressive cantonal corporate taxes with proportional taxes and abolish capital taxes. Remove taxes on the issuance of equity securities.

Improving labour-market outcomes, especially for immigrant workers

Aging and large inflows of migrant labour will continue to change the composition of the workforce. The challenge will be to maintain the high levels of labour force participation by fully utilising all segments of the population. The government should therefore:

- Put more emphasis on the early activation of migrants.
- Give a more important role to job-insertion allowances.
- Do more at the federal level to coordinate employment services.
- Reinforce anti-racial-discrimination measures and develop education campaigns and initiatives such as diversity policies.

Bibliography

Ahn, S. (2002), "Competition, Innovation and Productivity Growth: A Review of Theory and Evidence", *OECD Economics Department Working Papers*, No. 317, OECD Publishing.

Anderson, J. and E. van Wincoop (2003) , "Gravity with Gravitas: A Solution to the Border Puzzle", *American Economic Review*, American Economic Association, Vol. 93(1), pp. 170-192, March.

Andrews, D. and C. Criscuolo (2013), "Knowledge-Based Capital, Innovation and Resource Allocation: A Going for Growth Report", *OECD Economic Policy Papers*, No. 4, OECD Publishing.

Arnold, J., G. Nicoletti and S. Scarpetta (2008), "Regulation, Allocative Efficiency and Productivity in OECD Countries: Industry and Firm-Level Evidence", *OECD Economics Department Working Papers 616*, OECD Publishing.

Arvanitis, S. and M. Woerter (2011), "Firm Characteristics and the Cyclicality of R&D Investments", *KOF Working Papers*, No. 277, April, Zurich.

Baeriswyl, F., C. Wandeler, U. Trautwein, U. and K. Oswald (2006), "Leistungstest, Offenheit von Bildungsgängen und obligatorische Beratung der Eltern. Reduziert das Deutschfreiburger Übergangsmodell die Effekte des sozialen Hintergrunds bei Übergangsentscheidungen?", in *Zeitschrift für Erziehungswissenschaften*, 9. Jg., Heft 3, S. 373-392. Verlag für Sozialwissenschaften, Wiesbaden.

Bauer, P. and R. Riphahn (2006), "Timing of School Tracking as a Determinant of Intergenerational Transmission of Education", *Economics Letters*, Vol. 91, 1, pp. 90-97.

Becker, L., T. Liebig and A. Sousa-Poza (2008), "Migration Policy and Industrial Structure: The Case of Switzerland", *International Migration*, Vol. 46, Issue 2, pp. 81-107, June.

Berthelon, M. and C. Freund (2008), "On the Conservation of Distance in International Trade", *Journal of International Economics*, Elsevier, Vol. 75, No. 2, pp. 310-20, July.

Bouis, R., R. Duval and F. Murtin (2011), "The Policy and Institutional Drivers of Economic Growth Across OECD and Non-OECD Economies: New Evidence from Growth Regressions", *OECD Economics Department Working Papers*, No. 843, OECD Publishing.

Bravo-Biosca, A., C. Criscuolo and C. Menon (2013), "What Drives the Dynamics of Business Growth?", *OECD Science, Technology and Industry Policy Papers*, No. 1, OECD Publishing.

Brunello, G., and D. Checchi (2006), "Does School Tracking Affect Equality of Opportunity? New International Evidence", *IZA Discussion Papers* No. 2348, Institute for the Study of Labor.

Cattaneo, M. and S. Wolter (2012), "Migration Policy Can Boost PISA Results: Findings from a Natural Experiment", *IZA Discussion Papers*, No. 6300, Institute for the Study of Labor.

Coe, D., A. Subramanian and N. Tamarisa (2007), "The Missing Globalization Puzzle: Evidence of the Declining Importance of Distance", *IMF Staff Papers*, Vol. 54, No. 1.

Conway, P. and G. Nicoletti (2007), "Product Market Regulation and Productivity Convergence: OECD Evidence and Implications for Canada", *International Productivity Monitor*, No. 15, Fall.

Christoffel, J. (1995), "Unproduktive Schweizer Wirtschaft?", *Die Volkswirtschaft*, 1995, 68(8), pp. 26-41.

Da Rin, M., U. Hege, G. Llobet and U. Walz (2006), "The Law and Finance of Venture Capital Financing in Europe: Findings from the RICAFE Research Project", European Business Organization Law Review, 7(2), pp. 525-547.

Davies, J., T. Weko, L. Kim and E. Thulstrup (2009), *OECD Reviews of Tertiary Education: Finland*, OECD Publishing.

Deprost, P., P. Laffon and D. Imbaud (2013), "Évaluation du régime de l'auto-entrepreneur", Inspection générale des affaires sociales, Rapport No. RM2013-045P.

Duell, N., P. Tergeist, U. Bazant and S. Cimper (2010), "Activation Policies in Switzerland", *OECD Social Employment and Migration Working Papers*, No. 112, OECD Publishing.

Dustmann, C. 2004, "Parental Background, Secondary School Track Choice, and Wages", *Oxford Economic Papers*, Vol. 56, pp. 209-30.

Duval, R. and C. de la Maisonneuve (2010), "Long-Run Growth Scenarios for the World Economy", *Journal of Policy Modeling*, Elsevier, Vol. 32, No. 1, pp. 64-80, January.

Easterly, W. and R. Levine (2002), "It's Not Factor Accumulation: Stylized Facts and Growth Models", in: N. Loayza and R. Soto and N. Loayza (Series Editor) and K. Schmidt-Hebbel (Series Editor) (eds.), *Economic Growth: Sources, Trends, and Cycles*, Edition 1, Vol. 6, Chapter 3, pp. 061-114, Central Bank of Chile, Santiago.

European Commission (2012), "Study on educational support for newly arrived migrant children: The Final Report".

Fibbi, R., M. Lerch and P. Wanner (2006), "Unemployment and Discrimination against Youth of Immigrant Origin in Switzerland: When the Name Makes the Difference", *Journal of International Migration and Integration*, Vol. 7, No. 3, pp. 351-66.

Golder, S., and T. Straubhaar (2002), "Migration policy and the economy: The case of Switzerland", in R. Rotte and P. Stein (eds.), *Politische Ökonomie und Internationale Beziehungen*, Band 2, Ars et Unitas, Neuried, pp. 101-18.

Guimezanes, N. (2011), "The Current Status of Nationality Law", in *Naturalisation: A Passport for Better Integration of Immigrants?*, OECD Publishing.

Hanushek, E. and L. Wößmann (2006), "Does Educational Tracking Affect Performance and Inequality? Differences-in-Differences Evidence Across Countries", *Economic Journal*, Vol. 116, pp. C63-C76.

Hanushek, E. and L. Wößmann (2008), "The Role of Cognitive Skills in Economic Development", *Journal of Economic Literature*, Vol. 46, No. 3, pp. 607-68, September.

Hanushek, E. and L. Wößmann (2011), "How Much do Educational Outcomes Matter in OECD countries?", *Economic Policy*, CEPR, CES, MSH, Vol. 26, No. 67, pp. 427-91.

Heckman, J.J. (2008), "Schools, Skills, and Synapses", *NBER Working Papers*, No. 14064.

Henrekson, M. and D. Johansson (2010), "Gazelles as Job Creators: A Survey and Interpretation of the Evidence", *Small Business Economics*, Springer, Vol. 35, No. 2, pp. 227-44, September.

Heston, A., R. Summers and B. Aten (2012), "Penn World Table Version 7.1", Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, November.

Hoeckel, K., S. Field and W.N. Grubb (2009), *OECD Reviews of Vocational Education and Training: A Learning for Jobs Review of Switzerland 2009*, OECD Publishing.

Jarrett, P. and C. Moeser (2013), "The Agri-Food Situation and Policies in Switzerland", *OECD Economics Department Working Papers*, OECD Publishing, forthcoming.

Jaumotte, F. and N. Pain (2005a), "From Ideas to Development: The Determinants of R&D and Patenting", *OECD Economics Department Working Papers*, No. 457, OECD Publishing.

Jaumotte, F. and N. Pain (2005b), "Innovation in the Business Sector", *OECD Economics Department Working Papers*, No. 459, OECD Publishing.

Johansson, A., Y. Guillemette, F. Murtin, D. Turner, G. Nicoletti, C. de la Maisonneuve, G. Bousquet, and F. Spinelli (2013), "Long-term growth scenarios", *OECD Economics Department Working Papers*, No. 1000, OECD Publishing.

Keller, W. (2004) "International Technology Diffusion", *Journal of Economic Literature*, American Economic Association, Vol. 42(3), pp. 752-782, September.

KOF (2013), "Innovationsaktivitäten in der Schweizer Wirtschaft", *Strukturberichterstattung*, Nr. 49.

Leamer, E. and J. Levinsohn (1995) "International Trade Theory: The Evidence", in: G. Grossman and K. Rogoff (eds.), *Handbook of International Economics*, Elsevier, Vol. 3, Chapter 26, pp. 1339-94, New York.

Liebig, T. (2011), "Citizenship and the Socio-Economic Integration of Immigrants and their Children: An Overview across European Union and OECD Countries", in: OECD, *Naturalisation: A Passport for the Better Integration of Immigrants?*, OECD Publishing.

Liebig, T., S. Kohls and K. Krause (2012), "The labour market integration of immigrants and their children in Switzerland", *OECD Social, Employment and Migration Working Papers*, No. 128, OECD Publishing.

Michelis, A., M. Estevão and B. Wilson (2013), "Productivity or Employment: Is It a Choice?", *IMF Working Paper*, WP/13/97.

Nickell, S. (2004), "Poverty and Worklessness in Britain", *Economic Journal*, Vol. 114, No. 494, pp. C1-25.

Nidegger, C. (2011), "PISA 2009: Compétences des jeunes Romands ; Résultats de la quatrième enquête PISA auprès des élèves de 9e année", Institut de recherche et de documentation pédagogique, Neuchâtel. *http://pisa.educa.ch/sites/default/files/20111205/pisa_2009__rapport_romand.pdfhttp://pisa.educa.ch/sites/default/files/20111205/pisa_2009__rapport_romand.pdfhttp://pisa.educa.ch/sites/default/files/20111205/pisa_2009__rapport_romand.pdfhttp://pisa.educa.ch/sites/default/files/20111205/pisa_2009__rapport_romand.pdf*.

Nyström, K. (2009), "Entry, Market Turbulence and Industry Employment Growth", *Empirica*, Vol. 36, Issue 3, pp. 293-308.

OECD (2008), *Jobs for Immigrants* (Vol. 2), OECD Publishing.

OECD (2009), *OECD Economic Survey of Switzerland 2009*, OECD Publishing.

OECD (2010a), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I)*, PISA, OECD Publishing.

OECD (2010b), *Sickness, Disability and Work: Breaking the Barriers*, OECD Publishing.

OECD (2010c), *Tax Policy Reform and Economic Growth*, *OECD Tax Policy Studies*, No. 20, OECD Publishing.

OECD (2011a), *OECD Science, Technology and Industry Scoreboard 2011*, OECD Publishing.

OECD (2011b), *Society at a Glance 2011*, OECD Publishing.

OECD (2012a), *OECD Education at a Glance 2012*, OECD Publishing.

OECD (2012b), *OECD Employment Outlook 2012*, OECD Publishing.

OECD (2012c), *Jobs for Immigrants (Vol. 3): Labour Market Integration in Austria, Norway and Switzerland*, OECD Publishing.

OECD (2012d), *Entrepreneurship at a Glance 2012*, OECD Publishing.

OECD (2012e), *International Migration Outlook 2012*, OECD Publishing.

OECD (2012f), *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD Publishing.

OECD (2013a), *OECD Economic Survey of New Zealand 2013*, OECD Publishing.

OECD (2013b), *Interconnected Economies: Benefiting from Global Value Chains*, C/MIN(2013)15.

OECD (2013c), *OECD Education at a Glance 2013*, OECD Publishing.

OECD (2013d), *OECD Science, Technology and Industry Scoreboard 2013*, OECD Publishing.

OFS (2008), "La population étrangère en Suisse", Office fédéral de la statistique, Neuchâtel.

OFS (2010), "Les personnes de nationalité étrangère sur le marché du travail", Press Release, OFS, Département fédéral de l'intérieur (DFI), 21 January, Neuchâtel, *www.bfs.admin.ch/bfs/portal/fr/index/themen/03/22/press.Document.128383.pdf*.

OFAS (2012), *Statistique de l'AI 2012*, Office fédéral des assurances sociales.

Palazzi, P. (2011), "Taxation and Innovation", *OECD Taxation Working Papers*, No. 9, OECD Publishing. *http://dx.doi.org/10.1787/5kg3h0sf1336-en*.

Pekkarinen, T., R. Uusitalo and S. Pekkala (2006), "Education Policy and Intergenerational Income Mobility: Evidence from the Finnish Comprehensive School Reform", *IZA Discussion Paper*, No. 2204, Institute for the Study of Labor.

Poterba, J. (1989), "Venture Capital and Capital Gains Taxation", in: *Tax Policy and the Economy*, National Bureau of Economic Research, Inc., Vol. 3, pp. 47-68.

Rauch, J. (1999), "Networks versus markets in international trade", *Journal of International Economics*, Elsevier, Vol. 48, No. 1, pp. 7-35, June.

Sala-i-Martin, X., G. Doppelhofer and R. Miller (2004), "Determinants of Long-Term Growth: A Bayesian Averaging of Classical Estimates (BACE) Approach", *American Economic Review*, Vol. 94, No. 4, pp. 813-35, September.

Schneeweis, N. (2011), "Educational Institutions and the Integration of Migrants", *Journal of Population Economics*, Vol. 24, pp. 1281-1308.

Schönenberger, S. and R. Fibbi (2010), "Lutte contre les discriminations à l'embauche – Les mesures volontaires mises en œuvre en Suisse", Forum suisse pour l'étude des migrations, Neuchâtel (Working document commissioned by the Federal Department of the Interior).

Schütz, G., H. Ursprung and L. Wößmann (2008), "Education Policy and Equality of Opportunity", *KYKLOS*, Vol. 61, No. 2, pp. 279-308.

SECO (2006), "AMM für ausländische Stellensuchende", mimeo, Bern.

SECO et. al. (2013), "Auswirkungen der Personenfreizügigkeit auf den Schweizer Arbeitsmarkt – 9. Bericht des Observatoriums zum Freizügigkeitsabkommen Schweiz-EU", Bern, 11 Juni 2013.

Shane, S. (2009) "Why Encouraging More People to Become Entrepreneurs is a Bad Policy", *Small Business Economics*, Vol. 33, pp. 141-9.

Shapiro, C. (2002), "Competition Policy and Innovation", *OECD Science, Technology and Industry Working Papers*, 2002/11, OECD Publishing.

Siegenthaler, M. (2012), "A View on the Long-Run Evolution of Hours Worked and Labor Productivity in Switzerland (1950-2010)", *KOF Working Paper Series*, No. 300, Zurich.

Steinhardt, M., T. Straubhaar and J. Wedemeier (2009), "Studie zur Einbürgerung und Integration in der Schweiz: Eine arbeitsmarktbezogene Analyse der Schweizerischen Arbeitskräfteerhebung", Study for the Swiss Federal Office for Migration.

Van de Voorde, M. and H. de Bruijn (2010), "Mainstreaming the Flemish Employment Equity and Diversity Policy", in: *Equal Opportunities? The Labour Market Integration of the Children of Immigrants*, pp. 229-42, OECD Publishing.

Wong, P.K., Y.P. Ho and E. Autio (2005), "Entrepreneurship, Innovation and Economic Growth: Evidence from GEM data", *Small Business Economics*, Vol. 24, pp. 335-50.

Chapter 2

Women's role in the economy

Swiss women are now as well educated as their male counterparts. However, progress remains to be made in the job market where both the supply and price of female labour are below that of men. While the participation rate for women is high and rising, it is offset by a heavy incidence of part-time work, reflecting both personal preferences and factors that limit their labour supply. The lack and high cost of childcare options for parents, as well as burdensome marginal income tax rates for second earners, create disincentives to work more. A falling but persistent net (i.e. unexplained) wage gap of about 7% in favour of men, coupled with under-representation of women as managers and entrepreneurs, further reduce the incentive for women to take full advantage of their high levels of human capital. Priority should be given to removing those barriers by increasing public spending on childcare and out-of-school-hours care at the cantonal and municipal levels. Existing regulations regarding childcare provision should also be investigated to see whether a broader range of price and quality childcare options is feasible. The implicit tax penalty for married women should also be removed, as the Federal Council is currently considering. More flexibility in working arrangements could further alleviate women's cost of reconciling work and family life. For instance, facilitating flexi-time, annualised hours, job-sharing, part-time and telework options for both women and men, and creating paternity and/or consecutive, take-it-or-leave-it parental leave could facilitate transition in and out of the labour market. Increasing competition in product markets should help reduce the wage gap by replacing old habits with the hunt for talent regardless of gender. Finally, a corporate governance code in favour of a more equal representation of women in leadership positions, and setting ambitious quantitative targets for women on boards combined with the "Comply or Explain" practise, or quotas, should help remove the so-called glass ceiling.

Switzerland has a high-performing economy. It ranks fourth in terms of GDP per capita in the OECD, regularly places among the best countries in terms of quality of life and is one of the few Western European countries that has managed to grow over the past few years. However, Switzerland suffers from a number of weaknesses that prevent it from doing even better. As outlined in the previous chapter one is the country's relatively modest longer-term productivity growth performance. In this chapter it is argued that making fuller use of the economic potential of Swiss women can be part of the solution. With women providing a large reserve of highly educated labour, increasing their role in the economy can help Switzerland close the multifactor productivity (MFP) gap with frontier OECD countries.

Gender equality is also a key driver of self-reported well-being and happiness (Veenhoven, 2011 and 2012). But promoting gender equality is not only about equity and well-being; it is also about economic performance. Greater gender equality in economic and educational opportunities increases long-term growth potential and contributes to a better allocation of human capital across occupations. Raising women's education and training enhances their skill set. Increasing their participation in the labour market boosts their experience and leadership abilities. It also empowers women and favours entrepreneurial risk taking. At the macroeconomic level, a greater role for women increases the government's return on educational investment and its tax take.

Women's role in developed nations' economies has changed significantly since the end of World War II. From being mostly occupied at home, women have joined the workforce in great numbers. In parallel their average level of education has increased significantly to a point where more women than men are now attending universities in many OECD countries. In spite of such progress, there are still areas where women are missing out on opportunities to do as well as men, especially in the labour market.

Switzerland is no exception to this picture, both in terms of progress and challenges. Regarding the former, the principle of gender equality has been part of the Federal Constitution since 1981, and in 1988 the Federal Office for Gender Equality was established. In 1996, the Federal Act on Gender Equality came into force. It focuses on equality in employment relationships and prohibits any form of discrimination of men and women based on their sex, including wage discrimination. In the 2012 Global Gender Gap Report (from the World Economic Forum, 2012) Switzerland ranked 10th out of 130 countries. Nevertheless, women in Switzerland are held back by a number of hurdles in the labour market – some specific to Switzerland, and some not – and by difficulties associated with reconciling work and family life.

After an overview of women's role in the Swiss economy, this chapter reviews achievements and challenges in four key areas of economic life. The first section focuses on education and examines how girls compare to boys in terms of attainment, opportunities and study choices. The next looks at the labour market, the transition from school to the workplace and the difficulties that women face in trying to reconcile their professional skills with their family life. A subsequent section is devoted to the gender wage gap and how it can be reduced. The final part examines how Swiss women are faring regarding access to management, leadership positions and entrepreneurial activities. At the end of each section (education, work and family life, wage gap and leadership/entrepreneurship) policy recommendations are formulated.

An overview of women's role in the Swiss economy

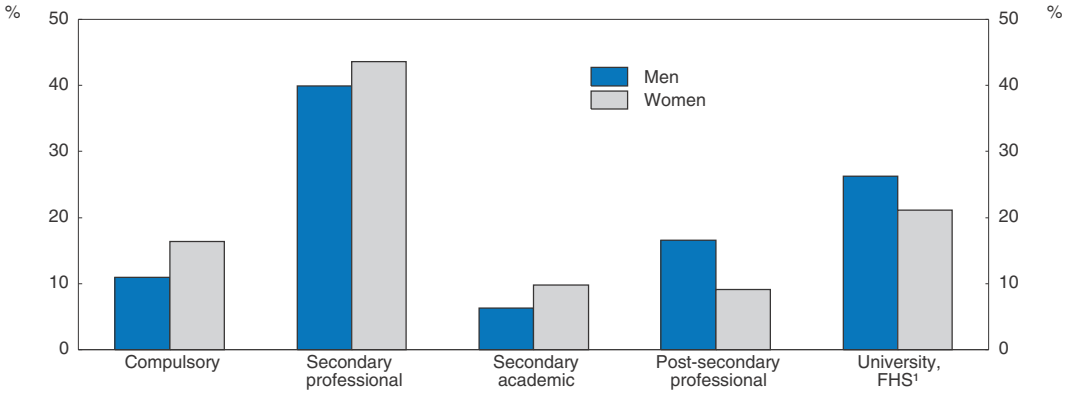
Both the supply of female labour and its price are lower than that of men. While any remaining gap has disappeared in education, Swiss women are overwhelmingly working part-time, in classical female occupations, and are significantly under-represented as managers, board members and entrepreneurs. Controlling for observable differences, the wage gap has fallen steadily albeit slowly as women's wages have increased faster than men's in all but one of the last five decades. The net wage gap now sits at about 7% in favour of men, which to some extent may be attributed to gender discrimination.

Education

Switzerland has a highly educated female workforce. The average expected years of schooling is now the same for men and women, and since 2009 more women than men have been enrolling in tertiary general education. This progress has led to a more symmetric distribution of educational levels across the resident population, although the past still plays a role. For instance, proportionally more women than men have received no more than secondary education in the 25-64 age bracket: 71% *versus* 59% (Figure 2.1).

Figure 2.1. **Educational level of the resident population aged 25 to 64**

2012



Note: FHS = Fachhochschulen.
Source: FSO.

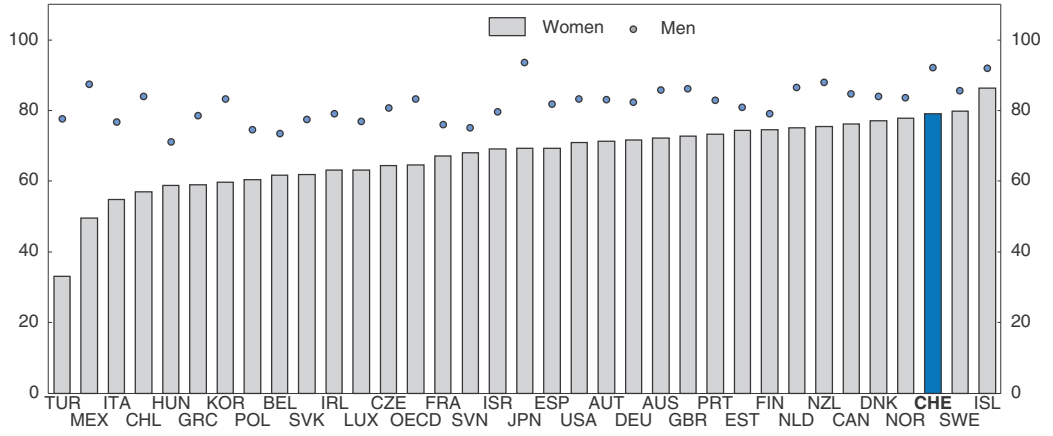
StatLink http://dx.doi.org/10.1787/888932940037

Labour market

The Swiss female labour market is characterised by two major traits. On the one hand the female participation rate is very high at 78.5% (the OECD average is 63.9%), the third highest in OECD (Figure 2.2). On the other hand their incidence of part-time work (part-time employment as a proportion of total employment) is 45%, second only to the Netherlands at 60% and well above the OECD average of 27% (Figure 2.3). It is worth noting that the part-time share for Swiss women has risen significantly from 49.2% to 58.5% over the last 20 years, while for men it has nearly doubled from 7.8% to 13.8% yet starting from a lower level. Several explanations can be put forward for the high incidence of part-time work among women. First, there is a pronounced lack of all-day childcare and out-of-school-hours care supply, and unsubsidised care is very expensive (the highest in the OECD). As an example, children typically go home at lunch-time since school cafeterias are rare, making it difficult for a parent or a caregiver not to be home at that time. Third, marginal income tax rates for second earners, typically women, are very high, creating disincentives for working long hours. Fourth, a non-negligible net wage gap (about 7%) triggers specialisation whereby the least paid person in the household spends relatively more time looking after the children. Finally, women often hit a "glass ceiling", making it difficult to mount the corporate ladder to senior positions of responsibility, which are rarely available on a part-time basis.

Figure 2.2. **Labour market participation rates by gender, 2012**

As a percentage of the population



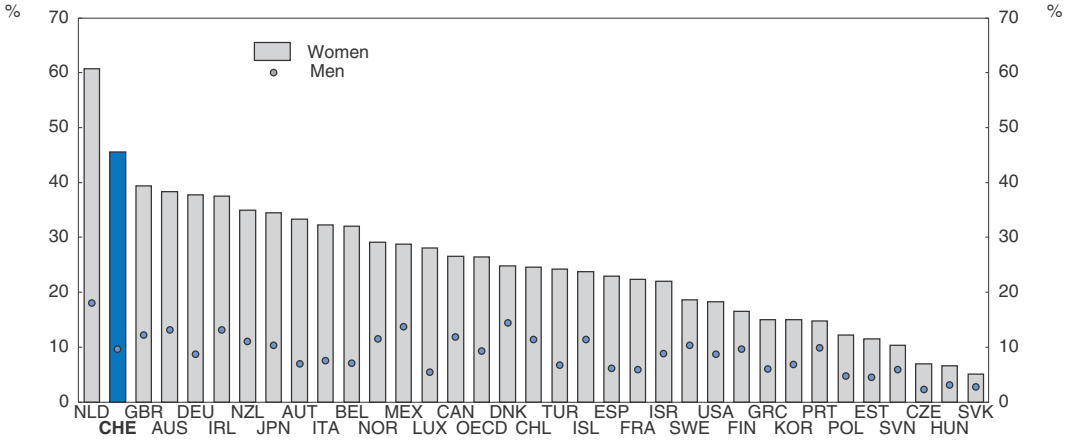
Source: OECD, *Labour Force Statistics Database 2013*.

StatLink http://dx.doi.org/10.1787/888932940056

Wage gap

In 2010, the gross gender pay gap (measured by the difference between men's and women's median wage divided by men's median wage, not controlled for observable differences) remains above the OECD average at 18.4% of median earnings for full-time equivalent employment (Figure 2.4). It is larger in the private than in the public sector. Trying to explain this gap, calculations conducted by the University of Fribourg using data from the Swiss Earnings Structure Survey, have shown that 62.4% of the gross pay gap (11.5 percentage points out of the 18.4) can be explained by observable differences in education, experience or position. Room for additional progress remains, however, as six OECD countries now have gross median gender pay gaps smaller than 10%. The net wage gap, which controls for observable differences, sits at 6.9% (18.4%-11.5%).

Figure 2.3. **Incidence of part-time work, 2012**



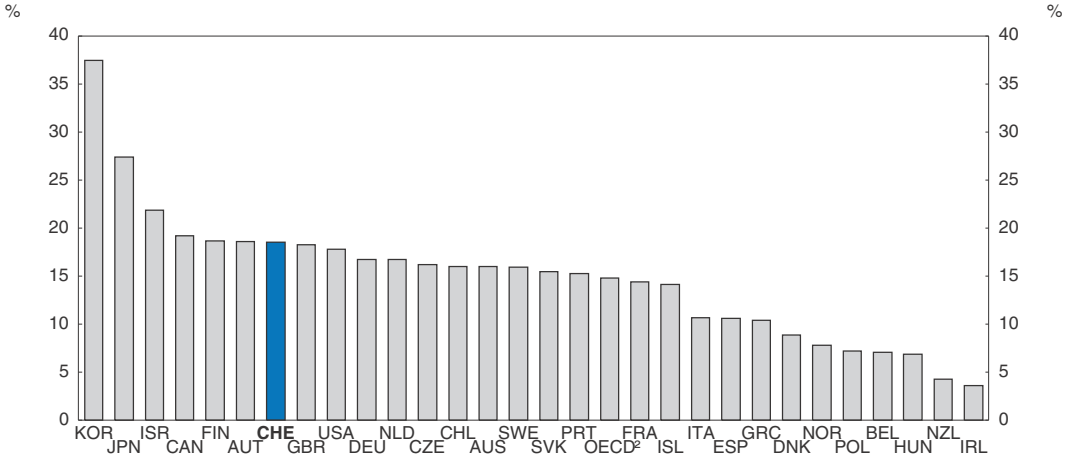
Source: OECD, *Labour Force Statistics Database 2013*.

StatLink http://dx.doi.org/10.1787/888932940075

Leadership positions

Despite documented progress in education and the labour market, women are still underrepresented as entrepreneurs and in leadership positions. More often than men, women tend to leave their jobs or fail to move up the pay scale, a phenomenon known as the "the leaky pipeline" or the "glass ceiling". As a result, the share of women in managerial or direction positions, at 33% in Switzerland, does not match their 45% share of the labour force. In addition, the higher up the pay scale, the greater the differences in career opportunities and compensation. While on average the gross wage gap in OECD countries stands at 15.7% (18.4% in Switzerland as noted), for top earners it rises to 20.9% in OECD countries and 25.4% in Switzerland (OECD, 2012a). Women also make up a small percentage of company board members, 11.6% in Switzerland for the largest firms *versus* a European average of 15.6% (Egon Zehnder 2012) and entrepreneurs, defined as persons taking on the risk of setting up a business.

Figure 2.4. **Gross gender gap in median earnings of full-time equivalent employees, 2011**[1]



1. The gender wage gap is calculated as the difference between median earnings of men and women relative to median earnings of men; 2010 for the Netherlands.
2. Unweighted average of 29 countries.

Source: OECD, *OECD Employment Outlook 2013*.

StatLink http://dx.doi.org/10.1787/888932940094

Education: Overall equality in attainment, but gender differences in subject studied

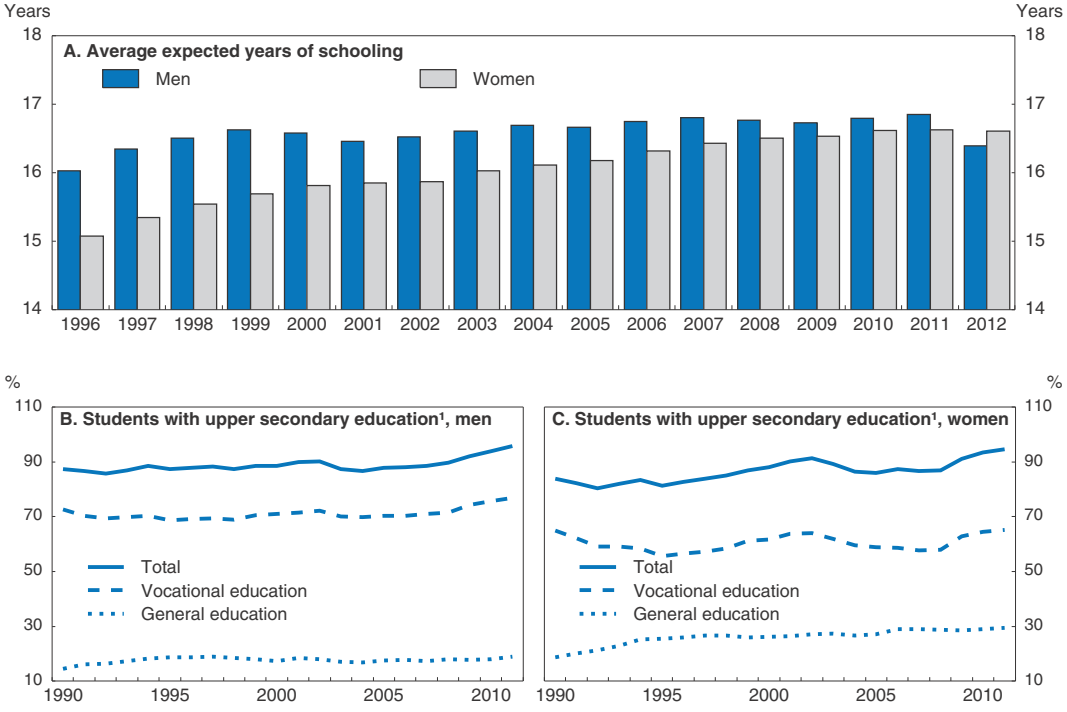
In OECD countries education is generally compulsory up to at least age 15, and the problem is no longer about girls not enrolling in upper secondary school (as it remains in some parts of the world) but more about boys who are more likely to drop out before completing it. As a result, younger women are increasingly better educated than their male counterparts in OECD countries (OECD, 2012c).

Switzerland is no exception. Significant progress has been made in raising women's educational attainment as can be seen in rising tertiary education enrolment numbers and expected years of schooling. Swiss women also have high aspirations and benefit from about the same amount of financial support as men do, from either parents, municipalities, cantons or the Confederation. This has translated in rising graduation rates for women and a spectacular catch-up, as women are now more numerous at tertiary level than men. On the downside there remains a strong gender-typical distribution of training and specialisations. This section reviews progress and challenges and highlights possible avenues of policy improvement.

Progress in educational attainment

While just 15 years ago girls' expected duration of schooling was still a full year shorter than boys' (15 years for girls, 16 for boys), today both can expect to attend school for nearly 17 years (Figure 2.5, Panel A). This achievement is important and may explain part of the reduction in the gender gross wage gap. Empirical evidence collected for the 2012 OECD Gender Initiative (Box 2.1) confirmed other studies that investment in

Figure 2.5. **Progress in educational attainment**



1. As a percentage of the population in the typical age of upper secondary graduation.
Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940113

Box 2.1. **The OECD Gender Initiative**

The OECD has been working on gender equality for more than 30 years. The first OECD Declaration on Gender was issued in 1980. In 2010 the OECD launched its Gender Initiative (OECD, 2012b) to examine existing barriers to gender equality in Education, Employment and Entrepreneurship (the "three Es"), with the aim of improving policies and promoting gender equality in the economy in both OECD and non-OECD countries alike.

The OECD Gender Initiative presented its initial findings in the Gender Report published in May 2011 for the 50th Anniversary Meeting of the OECD Council at Ministerial Level in Paris. In addition, a special report on gender equality in the three Es in OECD countries in the Pacific Rim and other APEC countries was prepared for the APEC Women and the Economy Summit (WES) held in September 2011 in San Francisco.

In 2012, the OECD published a flagship report "Closing the Gender Gap: Act Now" (OECD, 2012a) and launched the Gender Data Browser (*www.oecd.org/gender*) with 16 key indicators focusing on gender gaps in OECD countries and the key partner countries. In the course of 2012, the browser was developed into a one-stop gender data portal, which shows the relative standing of countries on the various dimensions of gender equality in the three Es with the aim of monitoring progress over time.

education has high returns: one extra year of average education (corresponding to a rise in human capital by about 11%) leads to an average increase in output per capita of around 9%.

Another sign of the disappearing gender gap in education is the increase in the percentage of women by level of education. Starting with upper secondary education, because of the dual tracking system, students are separated according to abilities or preferences. A first group goes for vocational training, potentially up to universities of applied sciences. A second group goes for general secondary education often leading to traditional academic universities. While girls and boys have the same graduation rate from secondary education (94%), a higher proportion of boys graduate from *vocational* secondary education (75.7% in 2010 *versus* 64.4% for girls) and a higher proportion of girls graduate from *general* secondary graduation (29.1% *versus* 18.1%) (Figure 2.5, Panels B and C).

Looking at the percentage of men among graduates at upper secondary and tertiary level (Table 2.1), it appears that girls are doing a little better than boys overall, yet it varies greatly by type of diploma. In particular, girls represent the majority of Baccalaureate graduates, while boys represent the majority of vocational education and training (VET) graduates.

In tertiary education, the percentage of women enrolled in tertiary education, especially HEU *Hautes écoles universitaires* and HES *Hautes écoles spécialisées*, has more than doubled since 1980 (Figure 2.6) and is now on par with men's. In 2005 the Federal Statistics Office (FSO) noted that among the 60-69 year age group, the percentage of people holding a university degree was four times higher among men than women. But in the 20-29 age group there were as many women with university degrees as men. This trend has not stopped since then, and by 2011 the difference in entry and graduation rates was 5 percentage points in favour of women (Figure 2.7).

The picture for Switzerland relative to other OECD countries is less impressive, however. Perhaps due to the importance of vocational training, as argued in the previous chapter, tertiary education enrolment rates for both men and women are noticeably lower

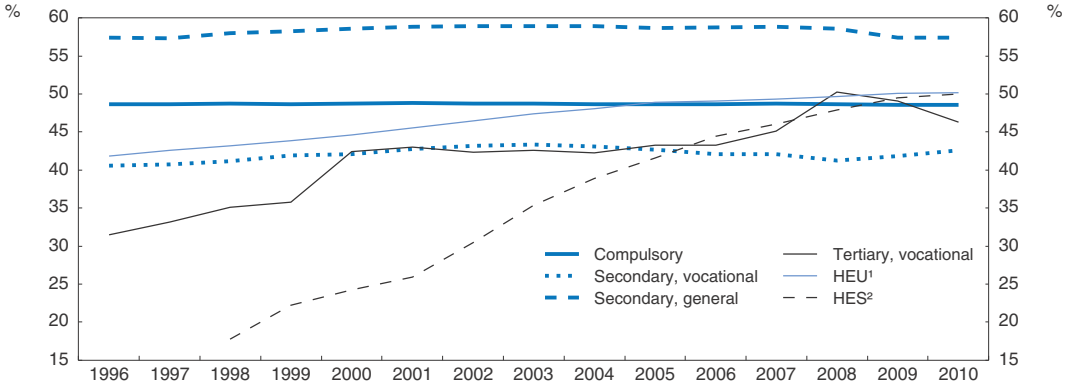
Table 2.1. **Graduates, percentage of men, 2011**

	Men in %
Upper secondary level	
Baccalaureate (3A)	43
Vocational baccalaureate (3A)	53
Specialised baccalaureate (3A)	14
Vocational education and training (3B)	55
Tertiary level	
PET[1] colleges (5B)	54
Federal PET diploma (5B)	63
Advanced Federal PET diploma (5B)	76
University Bachelor (5A)	48
University Master (5A)	50
University of applied sciences Bachelor (5A)	45
University of applied sciences Master (5A)	46
PhD (6)	57

1. Professional Education and Training.
Source: FSO.

Figure 2.6. **Percentage of female students, by level of education, 1996-2010**

As a percentage of total students by level of education



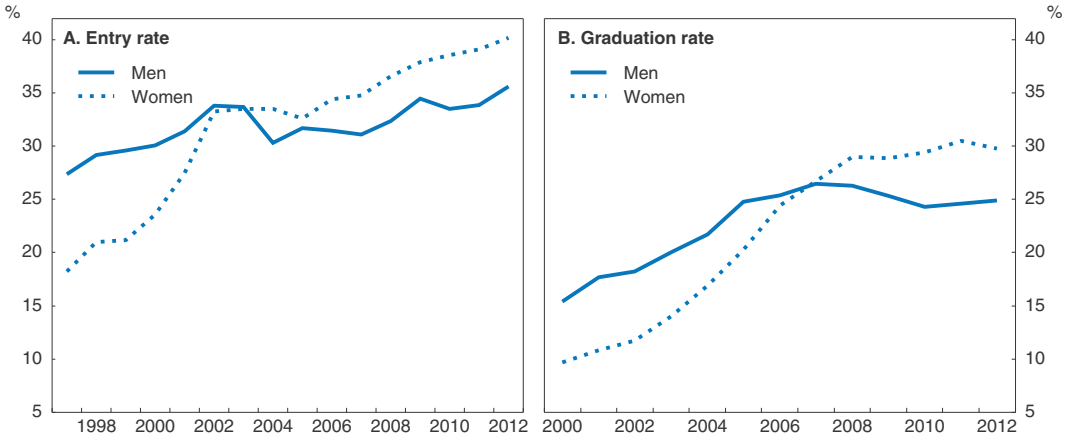
1. General universities (Hautes écoles universitaires).
2. Universities of applied sciences (Hautes écoles spécialisées).
Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940132

than elsewhere (Figure 2.8). However, similar to Switzerland, enrolment and graduation rates in the OECD are now higher on average for girls than for boys. In some countries enrolment/graduation rates among young women exceed those of young men by 25 percentage points or more.

While Switzerland is a relatively small country (with 8 million people), it is well known for its strong regional differences in culture and language, in part due to the defining role played by cantons both in terms of identity, and social and economic policy. This diversity is also reflected in the share of women in tertiary education graduates. In 2011, while the average was 45%, it ranged from a low of 35% in Central Switzerland to a high of 55% in the North West. Similar regional differences in the wage gap are highlighted below.

Figure 2.7. **Entry and graduation rates in non-vocational tertiary education by gender**

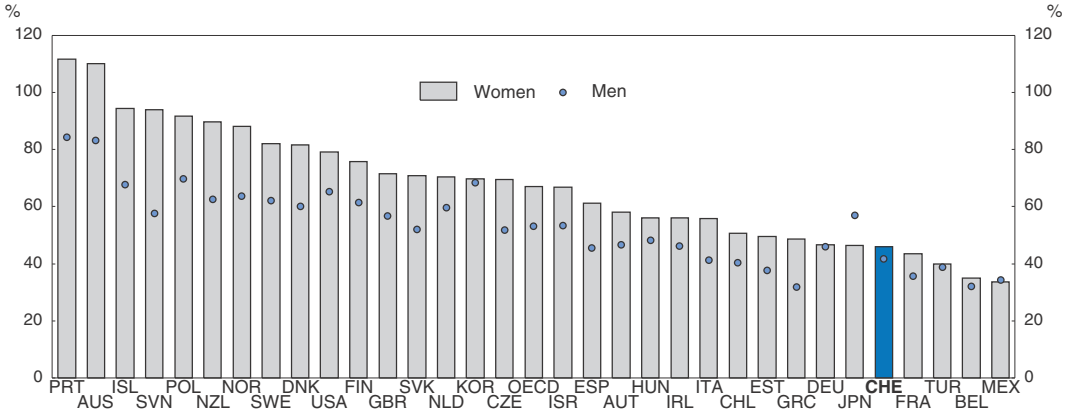


Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940151

Figure 2.8. **Tertiary education enrolment rates, 2011**[1]

Sum of enrolment rates at each age level,[2] in per cent



1. Tertiary type-A education.
2. Enrolment rates represent the estimated percentage of an age cohort that is expected to enter a tertiary programme over a lifetime. Entry rates can be above 100% when large numbers of foreign students enrol at university, for instance.

Source: OECD, *Education at a Glance 2013 Database*.

StatLink http://dx.doi.org/10.1787/888932940170

Progress supported by high expectations and a fair level of financial support

The progress realised in lifting girls' enrolment and graduation rates has been supported by high expectations among girls themselves and by financial support. Looking at the percentage of 15 year-old students who expect one of the ten most popular jobs, Swiss and OECD female students score higher than males. On the financial side, men and women receive roughly the same amount of public financial support for tertiary education. On the one hand, women received a greater number of grants at the federal and cantonal levels (with a few exceptions: Zug, Uri and Obwalden), which may reflect their overall higher enrolment rates and lower drop-out rate. On the other hand, also reflecting the

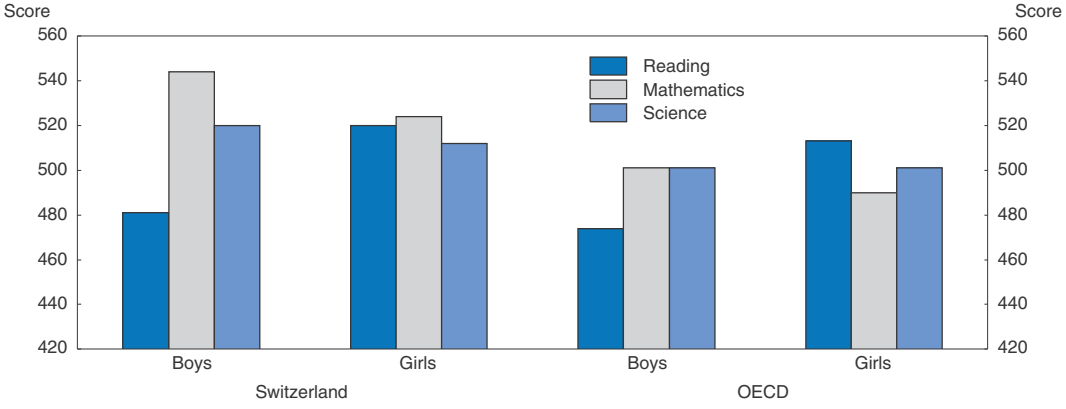
greater number of female recipients, annual grant amounts tend to be marginally higher for men on average: CHF 6 409 *versus* CHF 6 293 for women. A slightly larger difference applies to the total amount of resources available (coming from work, parents or grants): male students enjoy an average CHF 1 850 per month *versus* CHF 1 800 for females. Regarding the type of resources, there is no significant difference between men and women: labour income represents 33% and parental help 55% of total resources. The rest (12%) is split between grants and others (source: FSO, Social and Economic Conditions of Student Life).

Solid academic performances for girls at school

Girls outperformed boys in the 2009 PISA reading assessment by 39 points, a difference identical to the average OECD country, while boys performed better in mathematics by 20 points (compared to an OECD average of +11 points) and natural sciences by 8 points (zero difference for the OECD average). Interestingly, in the PISA 2009 assessment, those gaps between boys and girls are all larger than for the average OECD country (Figure 2.9).

Figure 2.9. **PISA scores**

2009



Source: OECD, *Results of PISA 2009 Database*.

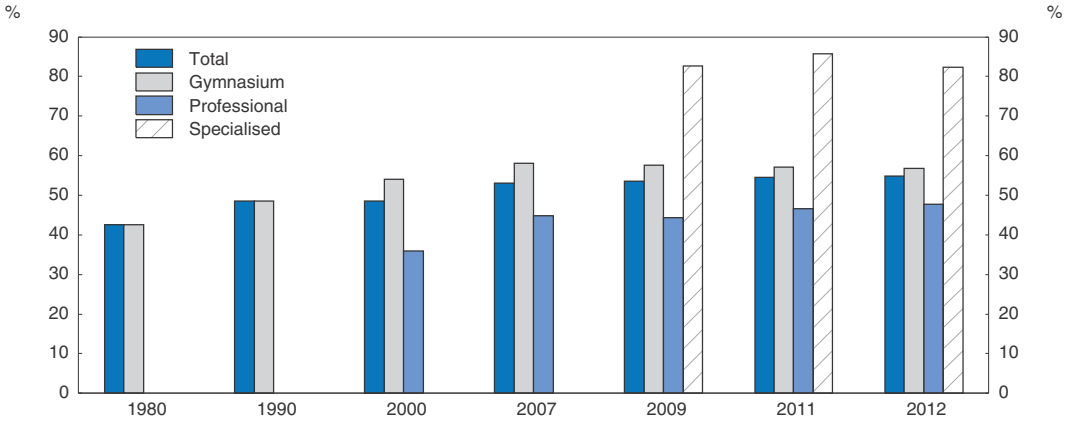
StatLink http://dx.doi.org/10.1787/888932940189

Another gauge of girls' achievements in the Swiss education system can be found in the number of diplomas (*matura*) – whether Gymnasium i.e. academic, Professional or Specialised; see Box 2.2 below – delivered to students finishing upper secondary education. A total of 33 656 *matura* were conferred in 2011, 56% more than in 2000. This represents 35% of the age cohort, compared to only 25% in 2000. 54% of them were delivered to women. Looking at the type of *matura*, 56% of them are gymnasium *matura*, 38% professional and 4% specialised. Women receive a majority of gymnasium and specialised *matura*, 57% and 86% respectively, but only 47% of professional *matura* (Figure 2.10). Based on current enrolment rates, the total number of gymnasium *matura* conferred has peaked and should fall by around 5% by 2020 (FSO, 2013a).

Box 2.2. **The *matura* in the Swiss education system**

Matura validate upper secondary education. They attest that their holders have the required knowledge and aptitudes to pursue university-level studies. In Switzerland there exist three types of *matura*: the gymnasium *matura* validates upper secondary general education and allows entry into the 12 traditional academic universities and also the 10 universities of applied sciences after having completed one year of practical experience; the professional *matura* validates upper secondary professional education received on top of apprenticeships and opens the door to universities of applied sciences or also (after having passed an additional examination) to the academic universities; and the specialised *matura* grants access to the universities of applied sciences in a few bachelor's programmes related to their orientation and/or under certain conditions.

Figure 2.10. **Evolution of the percentage of women in matura, by type**



Source: FSO.

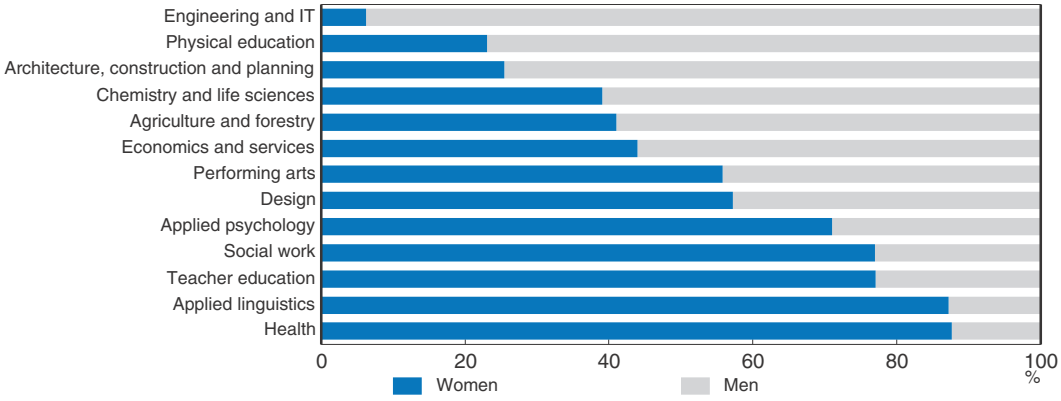
StatLink http://dx.doi.org/10.1787/888932940208

Yet education choices differ sharply by gender

While progress in enrolment and graduation rates in higher education for women has been strong in Switzerland over the last 25 years, choices of study remain heavily influenced by gender. Looking at the degrees awarded in universities of applied sciences by gender, men represent the vast majority in traditional male subjects, such as engineering and IT, architecture and construction, whereas women are massively over-represented in social work, teacher education, psychology, languages and health (Figure 2.11). Switzerland is also one of the countries with the lowest percentage of females expecting a career in engineering and computing professions. Making the study of hard sciences, social sciences and health equally inclusive and attractive for boys and girls has been identified as an education priority by the OECD, not only in Switzerland (OECD, 2013).

Figure 2.11. **Degrees awarded in universities of applied sciences by gender**

As a percentage of total degrees by field of study, 2012[1]



1. Degrees awarded in universities of applied sciences include so-called *Diplom*, bachelor's and master's degrees.
Source: FSO.

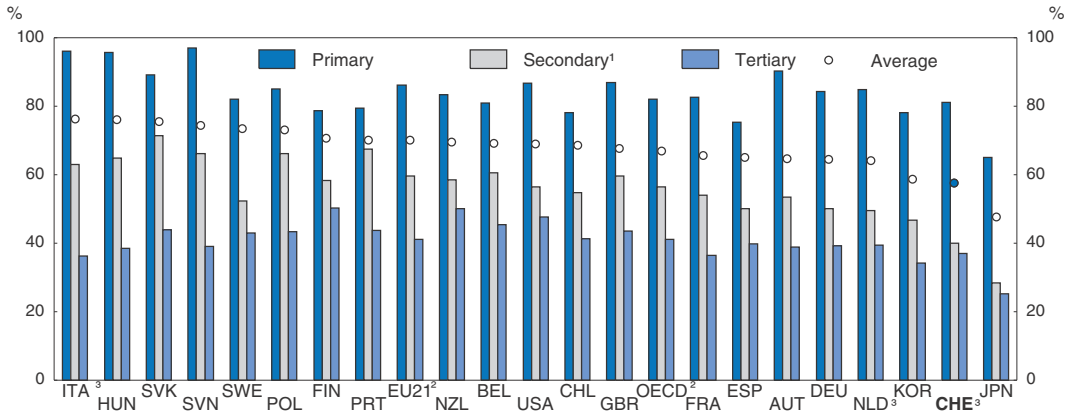
StatLink http://dx.doi.org/10.1787/888932940227

Some researchers have suggested that a possible explanation for this gender-segmented allocation of students across fields of study may be found in the dual-track system. The Swiss post-compulsory education system can be split between VET, capturing two thirds of students, and gymnasiums providing general academic education for the remaining third. The split generally happens at age 15-16, requiring students to make career choices early on. Statistical analysis (Imdorf et al., 2013) has shown that cantons with proportionally more gymnasiums have a lower degree of gender-typical allocation of men and women across fields of study. There can be several reasons for that. First, more academically oriented education systems offer more opportunities for students to change career paths according to preferences and abilities. By contrast the variety of differentiated education options in the VET system may favour gender-typical choices at an age when gender plays an important role in shaping individual identity. Second, the academic track allows students to be more mature before making career choices. Recent research has shown that differences in the way people think or behave are rooted in individual differences in brain anatomy and connectivity, which develop later in life (Mueller et al., 2013). This maturity allows them to be less influenced by their friends and family, who may suggest gender-typical careers, and more by their personal interests or comparative advantages. Allowing mentors and positive atypical role models in the family, the educational system and professional life to meet students at an early stage of their career can help boys and girls choose gender-atypical careers, inducing others to follow suit. Role models can also raise awareness of the consequences of educational choices for career and earnings prospects. Note also that students from lower socio-economic backgrounds have been shown to be more influenced by gender stereotypes.

Perhaps a good example of prevalence of gender-oriented choices of careers in Switzerland is the over-representation of women in primary teaching. Though lower than the OECD average of two-thirds, women in Switzerland still account for 59% of all teachers (Figure 2.12). Comparing 2011 to 2000, the share of female teachers has risen in all three sectors: compulsory, secondary and tertiary (Table 2.2).

Figure 2.12. **Percentage of females among teachers, by level of education**

2011



1. Data refer to upper secondary education only.
2. Unweighted averages.
3. Public institutions only, excluding tertiary education for Italy.

Source: OECD, *Education at a Glance 2013*.

StatLink http://dx.doi.org/10.1787/888932940246

Table 2.2. **Percentage of female teachers, by level**

Per cent

	Compulsory	Secondary	Tertiary
2000	62.0	31.9	34.9
2011	71.9	41.3	43.1

Source: FSO.

That girls are not rushing into scientific careers may simply reflect individual preferences. But the choice of a career may also be influenced by family and society values that may conflict with preferences, abilities or personal interests. Evidence collected for the 2012 OECD Gender Initiative, however, seems to suggest that study choices are primarily influenced by academic performance, especially mathematics scores, although that relationship is not strong for boys (see Box 2.3).

To its credit, the Swiss education system has made some notable progress towards increasing the diversity of career opportunities for boys and girls, such as the adoption of the professional matura, which opens the door to universities of applied sciences. More progress can be made by favouring a better, less gender-typical allocation of human capital. Fostering greater mobility between career paths by creating well-marked and more numerous pathways can also help reduce gender's role in study choices. Life-long opportunities for skills development allowing people to make career changes later in their lives should also be considered.

Box 2.3. **What determines gender differences in subject choice? A selected survey**

Understanding the factors that shape gender differences in subject choice is important to explaining the educational choices of young men and women. New research undertaken with PISA longitudinal studies in a number of countries allows a better understanding of the determinants of gender differences in fields of study in post-secondary education.

Girls are more likely to enter tertiary education than boys. Students' individual attributes play a role in determining whether they enter sciences or arts subjects. Typically, high grades in the last year of secondary school or high mathematics scores influence girls' choices of science-related subjects. This relationship, on the other hand is not strong for boys. Young women are more likely to aspire to professional careers (OECD, 2009) and thus at university entry are more likely to choose courses in which they have a comparative advantage. In Australia, for example, young men associate science courses less with university entry and more with VET career pathways in science such as apprenticeships. Since access to VET courses is not generally based on academic merit, performance in mathematics at age 15 has no significant effect on their choice of science courses. Evidence for the Czech Republic shows a similar pattern: girls with high grades at secondary level choose to enter university, while boys are more likely to pursue vocational education in a technical or science-related field (OECD, 2012c). In Switzerland, students also tend to choose post-secondary science courses based on their mathematics scores (Bergman et al., 2012).

Family background is an additional factor, one of the most powerful and consistent predictors of educational attainment: boys appear more affected than girls by socialisation within the family. Peer pressure has also been documented to play a role, but there is little evidence that student-teacher gender matching improves students' performance (Salvi Del Pero and Bytchkova, 2013).

Box 2.4. **Recommendations to make the education system more gender balanced**

- Use role models to make hard sciences more attractive for girls and social sciences and health more tempting to boys, and raise awareness of career and earnings prospects associated with study choices.
- Inform students about rewarding gender-atypical career choices.
- Facilitate greater mobility between career paths by creating well-marked and more numerous pathways.
- Support life-long opportunities for skills development allowing people to make career changes later in their lives.
- Reduce the influence of socio-economic background on the extent of gender-typical study and career choices by providing earlier and more intensive guidance for disadvantaged students, and greater financial support.

Reconciling work and family life

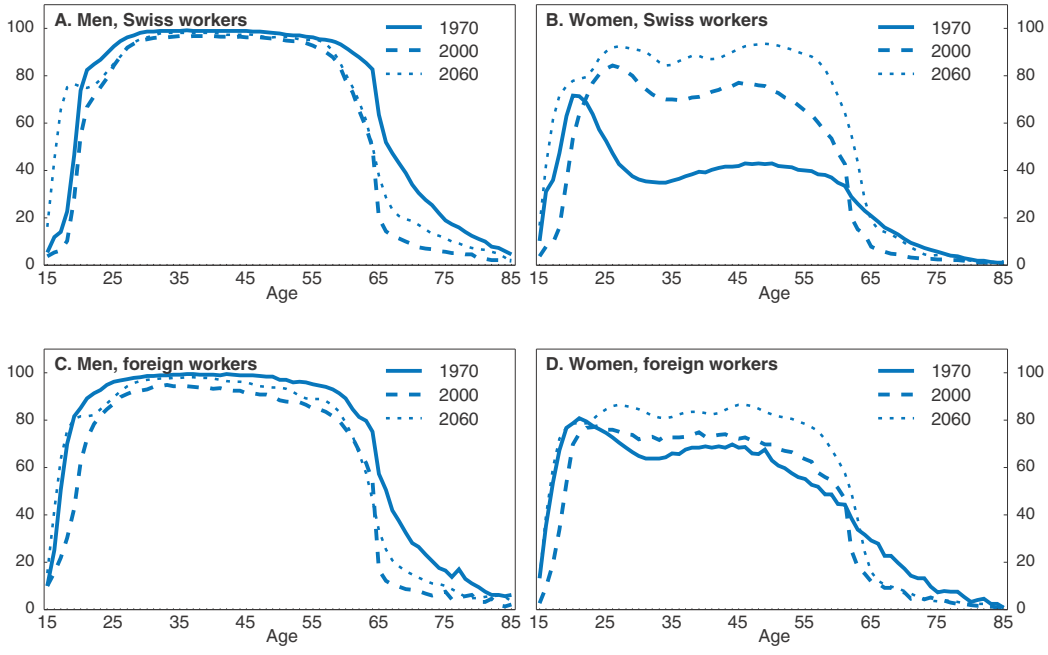
The Swiss labour market retains several traits that make it difficult for women to take full advantage of their education, in terms of opportunities, careers, work-life balance and wage equality. This section reviews the role and specificities of women in the Swiss labour market, the transition from education to work and how it can be improved. Special attention is devoted to helping working men and women reconcile their family life with their professional aspirations.

A strong presence on the labour market not in proportion with the volume of hours worked

Triggered by gains in female educational attainment, the high female participation rate is the consequence of a slow increase that started in the late 1960s. The participation rate of women in their early thirties was 35% in 1970. Over the following 30 years this percentage doubled to 70%. Projections based on the current trend in census data show that the female participation rate should be very similar to the male rate by 2060 with the exception of women's peak child-bearing and -rearing years (30 to 45). The equalisation is also projected to affect immigrant women (Figure 2.13). This high participation rate, combined with an above-average female employment rate, makes Switzerland very similar in that dimension to the Nordic countries, which have been leading the OECD in terms of women's labour market integration (Figure 2.14, Panel A). As a result, the Swiss labour force has been moving towards a more equal gender mix, from 34% female in 1960 to 45% in 2012 (Panel B).

Figure 2.13. **Labour market participation rates by age**[1]

As a percentage of the population

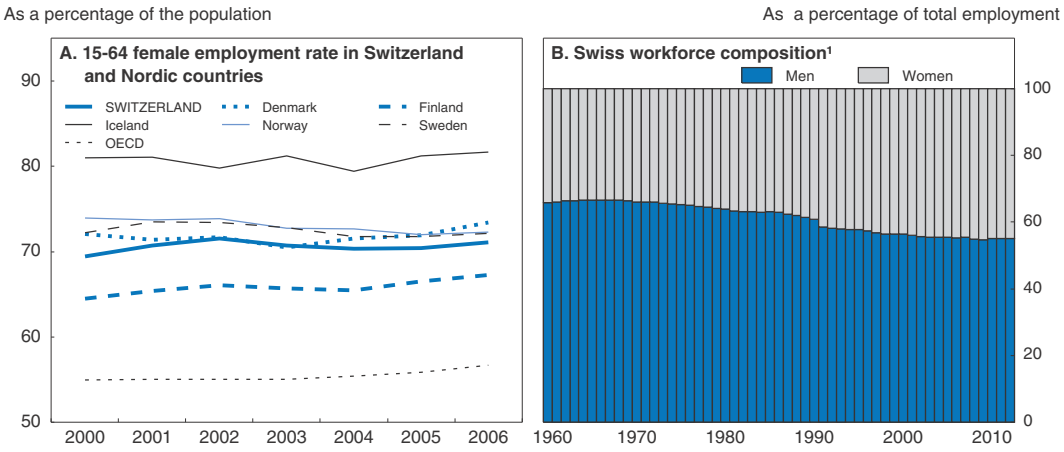


1. In contrast to participation rates based on the SLFS, employed pertain here to individuals working at least 6 hours per week while apprentices are counted as non-active as others in full-time education.

Source: Census data compiled by Professor George Sheldon from the University of Basel.

StatLink http://dx.doi.org/10.1787/888932940265

Figure 2.14. **Female employment rate for those aged 15 to 64 and workforce composition**



1. As of 1991 the workforce comprises every employed person working at least one hour per week instead of six.
Source: OECD, *Labour Force Statistics 2013 Database* (Panel A); FSO, Swiss Labour Force Statistics (Panel B).

StatLink http://dx.doi.org/10.1787/888932940284

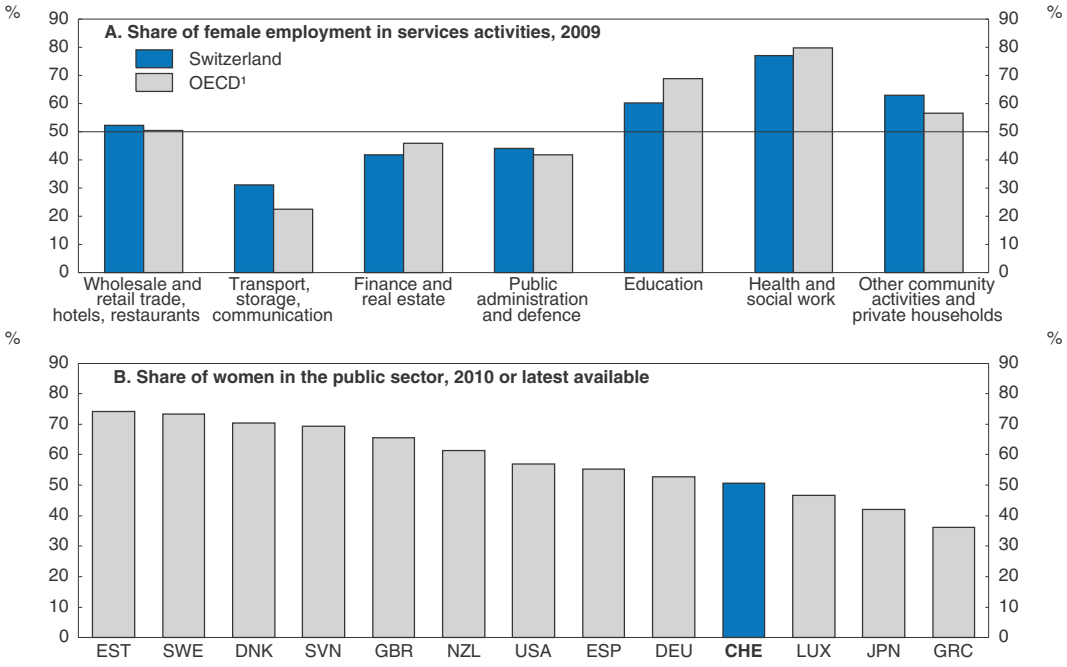
In terms of flows, a higher percentage of women enters and exits the market; in 2011 the female (male) entry and exit rates (as shares of the labour force) were 6.8% (5.0%) and 7.7% (4.6%). Such differences may be explained at least in part by women moving in and out of the labour force around child-bearing times. However, it is worth noting that the trend in turnover is flat for men, whereas it has been falling for women, with both entry and exit rates near or above 10% in the early 1990s. Hence, this gender gap has shrunk over time.

Labour market outcomes reflect education choices and constraints

The transition from education to paid work is a critical moment that can have lasting consequences on both work opportunities and earning capacities. It is primarily affected by the prior student choices. Echoing Figure 2.11 in the section on education, the distribution of female workers among professions seems to reflect their choices of study (Figure 2.15). It also appears that Swiss women are broadly similar to those elsewhere in the OECD in their job structure, at least in the services sector. The proportion of Swiss women in education, health, social and community work is high, but close to average OECD levels. Conversely, the percentage of women working in the public sector, a traditional preferred choice for women, is near 50%, below the OECD average, and noticeably below some Northern European comparator countries.

Despite earlier documented progress in tertiary attainment, women remain under-represented in science and technology occupations. According to the FSO, in 2008 only 31.6% of all researchers in Switzerland were women. This average comprises a low 20.6% in the private sector and a high 41.0% in tertiary education institutions (Figure 2.16). As an example, the proportion of women in Swiss academia decreases the further up the hierarchy one goes: only 42% of PhD graduates are women, one of the lowest rates in Europe (European average: 46%). This percentage decreases further in the higher rungs of the academic ladder. In 2010 women represented 26% of faculty with research activity in Swiss universities, still above the European average of 20%. In addition, the proportion of women varies greatly by economic sector and field of study. In Switzerland 63% of PhD students who graduated in 2010 in the field of educational sciences were women but only

Figure 2.15. **Sectoral shares of female employment**



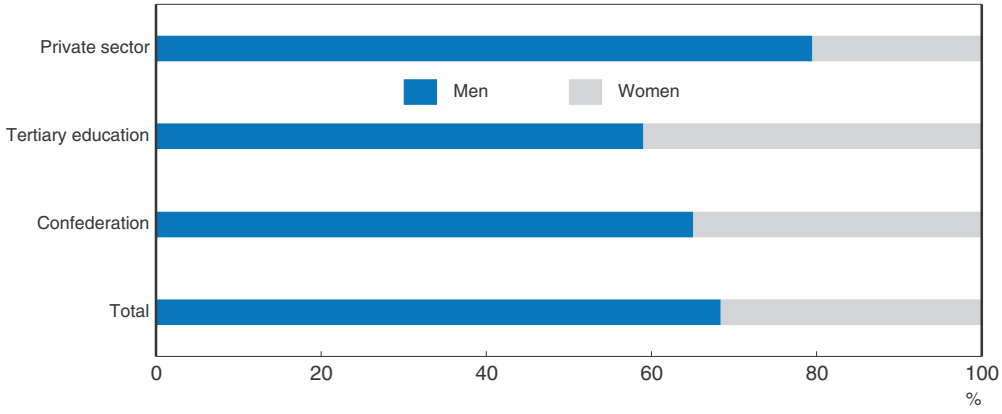
1. Computed across 17 OECD countries for which employment data according to ISIC Rev. 3 classification are available.
Source: OECD (2012b), *Gender Equality in Education, Employment and Entrepreneurship* and *OECD Employment Database*; ILO.

StatLink http://dx.doi.org/10.1787/888932940303

35% in mathematics and computer science and 23% in technical sciences. However, between 2004 and 2008, the average annual growth rate of female researchers (4.6%) was higher than that of male researchers (0.3%), pointing to a steady equalisation. Women are also underrepresented among inventors and patent applicants, although this too is changing. In 1980 women were only 2% of the applicants for Swiss patents, but by 2011 their share had reached almost 10% (OECD Gender Portal).

Figure 2.16. **Employment in R&D activities in Switzerland, by sector and gender**

2008



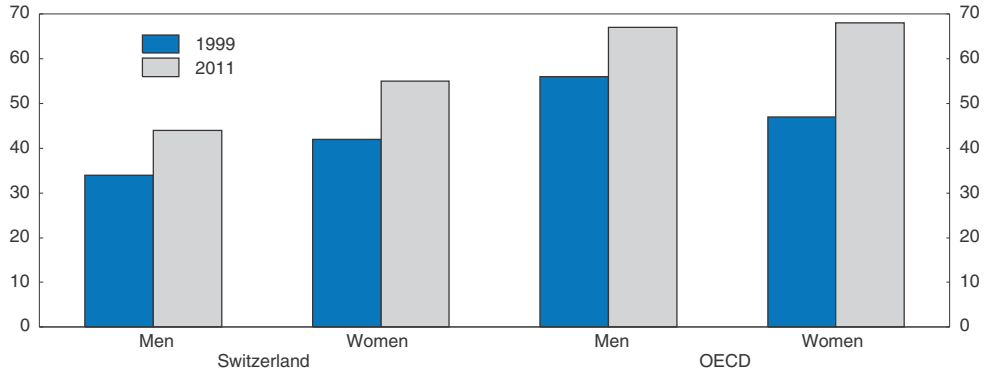
Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940322

The average expected wage premium enjoyed by those with tertiary education relative to secondary in Switzerland was 55% for women versus 44% for men in 2011. The 11 percentage point difference is much bigger than that of the average OECD country, where the premia were 68% versus 67% that year, respectively. The tertiary education premium rose less for men (by 10 percentage points) than for women (13) between 1999 and 2011 in Switzerland. A similar trend was observed in OECD countries with much faster gains made by well educated women (+21) relative to men (+11) during that time (Figure 2.17). Given the higher premium for women, it is perhaps no surprise that the impact of educational attainment on employment rates is higher for women than for men. Passing from secondary to tertiary raises the employment rate from an average 76% to 81% for women, but only from 90% to 93% for men (Figure 2.18).

Figure 2.17. **Relative earnings for those aged 25-64 with tertiary education**

Salary for age group 25-64 with secondary education = 0

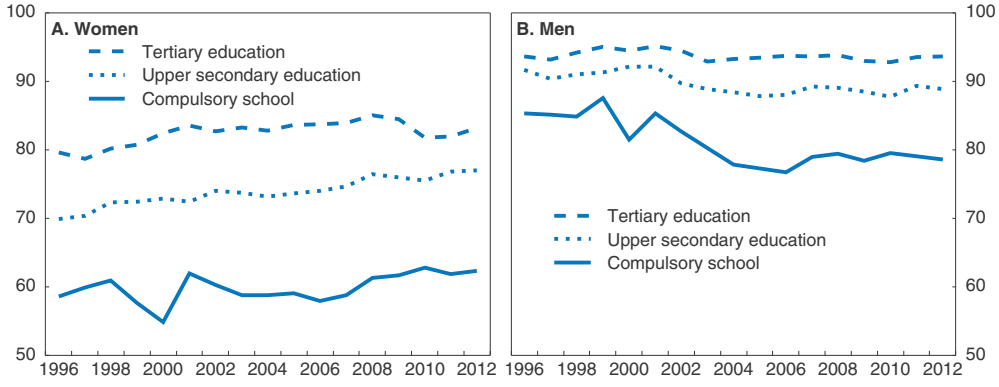


Source: OECD, *Education at a Glance 2013*.

StatLink http://dx.doi.org/10.1787/888932940341

Figure 2.18. **Percentage working, by education and gender**[1]

Percentage of resident population aged between 25 and 64



1. Series break in 2002 and 2010.

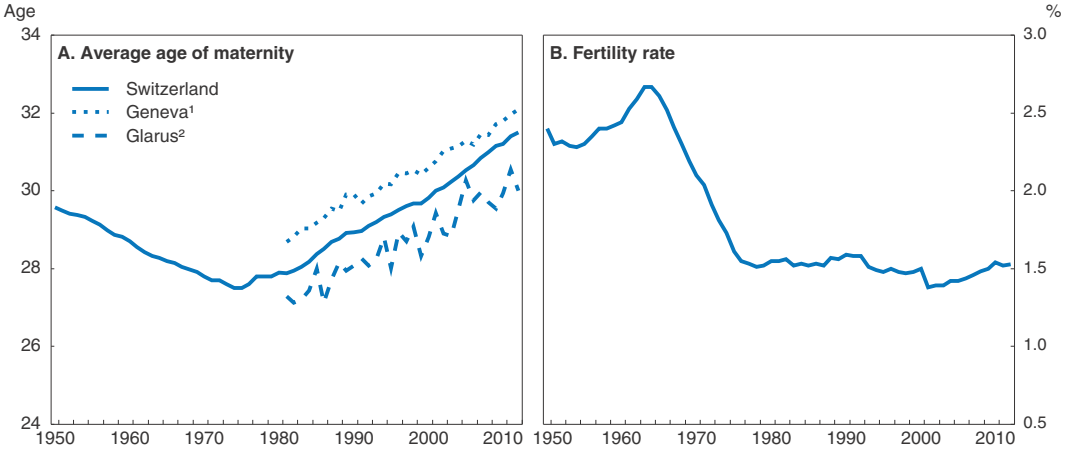
Source: FSO, Swiss Labour Force Survey.

StatLink http://dx.doi.org/10.1787/888932940360

The lack of a family-friendly working environment forces women to make difficult choices

Swiss women started to increase their labour market participation in the 1970s. This corresponded to the beginning of a sharp trend rise in the average age of maternity, now above 31 on average, up from 27.5 in the early 1970s, and a steep fall in the fertility rate from above 2.5 children per woman in the mid-1960s to 1.5 today (Figure 2.19). Switzerland's fertility rate is below the OECD average (1.74) and well below replacement levels. To make household work decisions easier and based on comparative advantages rather than constraints or social stereotypes, families with children need a family-friendly environment both at the workplace and at home. This means childcare facilities need to be sufficient in number and affordable in price. Switzerland lacks both. It also requires that family members consider both paid and unpaid working time when sharing household work. Box 2.5 summarises attitudes towards childcare and work in various countries.

Figure 2.19. **Tensions between work and family life are central to child-bearing decisions**



1. Highest.
2. Lowest.

Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940379

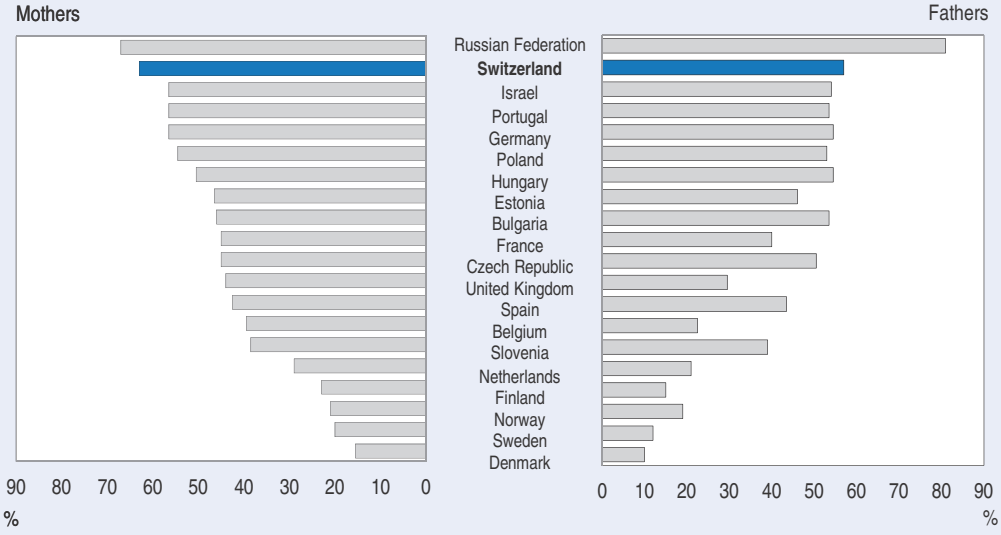
The lack of childcare facilities and its price is one of the main impediments to women taking full advantage of their education. While decentralisation has worked well for Switzerland, childcare may be one area where increased federal involvement could help. There is no statutory scheme or legislation governing childcare assistance for the whole country. Childcare policy is managed at the municipal and cantonal levels, resulting in substantial heterogeneity. Also, families living in small towns and communities in the rural parts of Switzerland face greater difficulties than those living in larger cities. The decentralisation of responsibilities can make it difficult for cantons and municipalities to coordinate their efforts. The Federal Parliament proposed an amendment to the Swiss Constitution on family policy which would have required the federal government to work with its cantonal counterparts to promote work-life balance through increased support to childcare provision. The amendment included a provision that would have given the Confederation the power to step in and fund some of the measures if the cantons were not doing enough. In a public referendum held in March 2013 the proposed amendment was supported by 54% of those voting but failed due to

Box 2.5. **Attitudes toward childcare and work**

Attitudes and behaviour towards work and childcare are important drivers of policymaking (Kamerman and Moss, 2009; Lewis, 2009), and existing policies can contribute to changing views and behaviour. Parental attitudes towards mothers' employment vary significantly among countries (Figure 2.20). In the Nordic countries, where female employment is the norm and where work-family policies have been operating for over 40 years, views towards work and childcare are more gender equal, even though there may have been a small trend reversal among Swedish mothers. By contrast, in Switzerland, Germany, Hungary, Israel, Poland, Portugal, and the Russian Federation, more than half of all parents report a more traditional view of women's labour force participation and childcare commitments. A lack of formal childcare capacity for very young children – which can reinforce parents' attitudes towards employment and childcare (Fagnani, 2002) – may partially explain these responses.

Figure 2.20. **Attitudes of parents towards childcare and work differ across countries, 2010**

Share of parents with children under 15 agreeing or strongly agreeing with the statement: "Women should be prepared to cut down on paid work for the sake of the family"



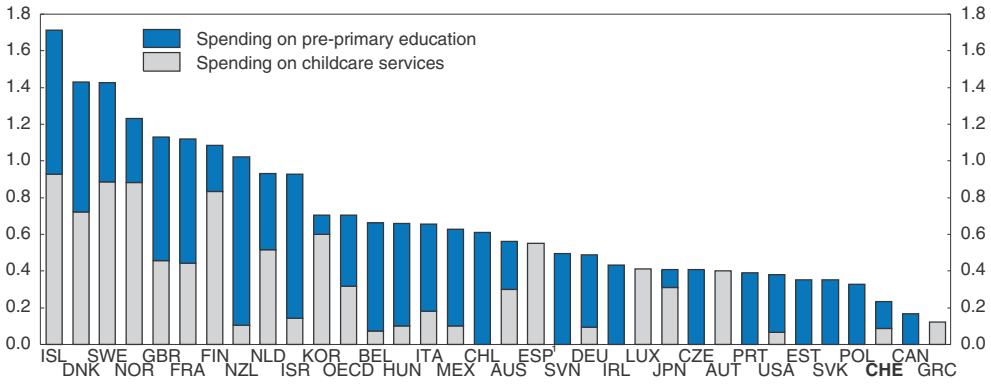
Source: OECD (2012b) Gender Initiative, calculations based on data from the European Social Survey 2010.

StatLink http://dx.doi.org/10.1787/888932940398

a majority of cantons voting against it. The rules of a Swiss mandatory referendum state that for an amendment to the Federal Constitution to be accepted a majority of those who vote and a majority of the cantons must approve it.

Within the OECD, Switzerland is among the countries with the lowest public childcare and pre-primary education spending as a share of GDP, at just 0.2% in 2009, about a third of the OECD average (Figure 2.21). However, data reported here do not include all local government spending and therefore underestimate public spending on childcare in federal countries like Switzerland. According to a government study (SECO, 2007), in 2005 almost 30% of mothers of children aged less than 15 (about 21 000 women) said that they had to reduce their working hours because of the lack of childcare facilities. Among these women, 41.2% did not work at all; most of them would have preferred to work part time (2-3 days a week). Only a minority would have liked to work full time.

Figure 2.21. **Public spending on childcare and pre-primary education, 2009**
As a percentage of GDP



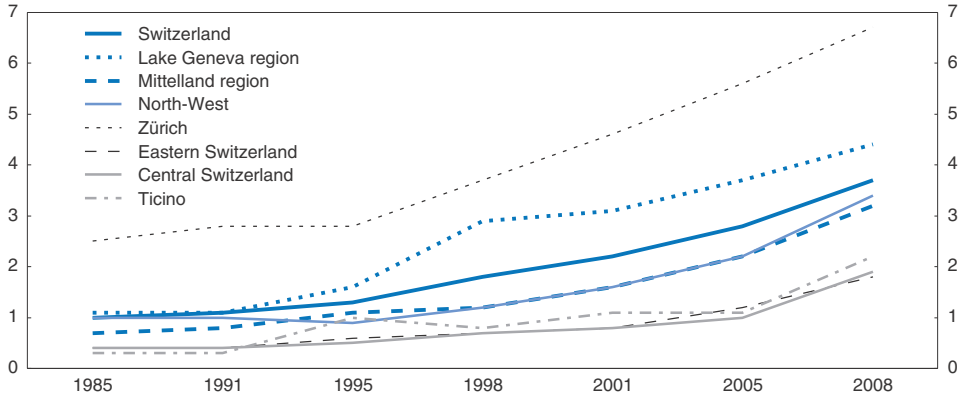
1. Disaggregated spending data are not available for Spain. Note that expenditure data on childcare across the OECD are unlikely to include all local government spending, as local authorities may not report such outlays centrally. Hence, the data in this chart are likely to underestimate public spending on childcare, particularly in federal countries such as Canada and Switzerland.

Source: OECD, *Family Database*.

StatLink http://dx.doi.org/10.1787/888932939524

Since the early 1990s substantial progress has been made. From 1991 to 2008 the number of childcare facilities rose from 545 to 1808 at the national level, a near quadrupling in the number of such facilities per 1 000 children (Figure 2.22). According to the Swiss federal government, the national financial assistance programme that took effect in 2004 contributed to the creation of 39 500 places, which corresponds to 79% of the increase in the supply during this period. However, because of the strong increase in demand that paralleled the increase in women's participation rate, there are still important supply shortages for Swiss families. Due to high demand, the assistance programme, which was initially meant to last eight years, has been extended for four additional years. At the regional level, some cantons have revised their legislation and introduced or

Figure 2.22. **Number of childcare facilities per 1 000 children less than 7 years old by canton**



Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940417

increased public subsidies. According to the FSO, the use of extra-family childcare services has grown in recent years: 40% of households with a youngest child under 15 used such services in 2009, up from 30% in 2001. This increase is particularly marked in the case of institutional services such as day nurseries, full-time schools, supervised lunch programmes or out-of-school centres. Some innovative initiatives have also been taken at the cantonal level, such as the contributions by employers to cantonal funds that subsidise childcare facilities in Vaud, Neuchâtel and Fribourg, and at local level, such as childcare vouchers in the Lucerne area (Box 2.6). Enhanced childcare options would also foster the integration of children from immigrant backgrounds while facilitating mothers' access to the labour market.

Box 2.6. **Childcare vouchers in the Lucerne area**

In the cantons of Vaud, Neuchâtel and Fribourg, as noted, employers contribute to a fund, that afterwards partially finances child care places. Since 2007, more than 6 000 places for children day care were created in the canton of Vaud. But other original initiatives have taken place. Three municipalities in the canton of Lucerne took part in what was originally a pilot study that started in 2009 in order to test a system of vouchers for childcare services. Instead of subsidies paid to the childcare institutions, the families received vouchers that they could spend on childcare services provided by a certain number of institutions in the area. The main advantages of this voucher system are: *i*) to allow equal opportunities to all families with respect to the public support of childcare, and *ii*) to increase the range of childcare services parents can choose. Also, using vouchers instead of producer subsidies should enhance competition among providers, given that parents can freely choose their preferred provider.

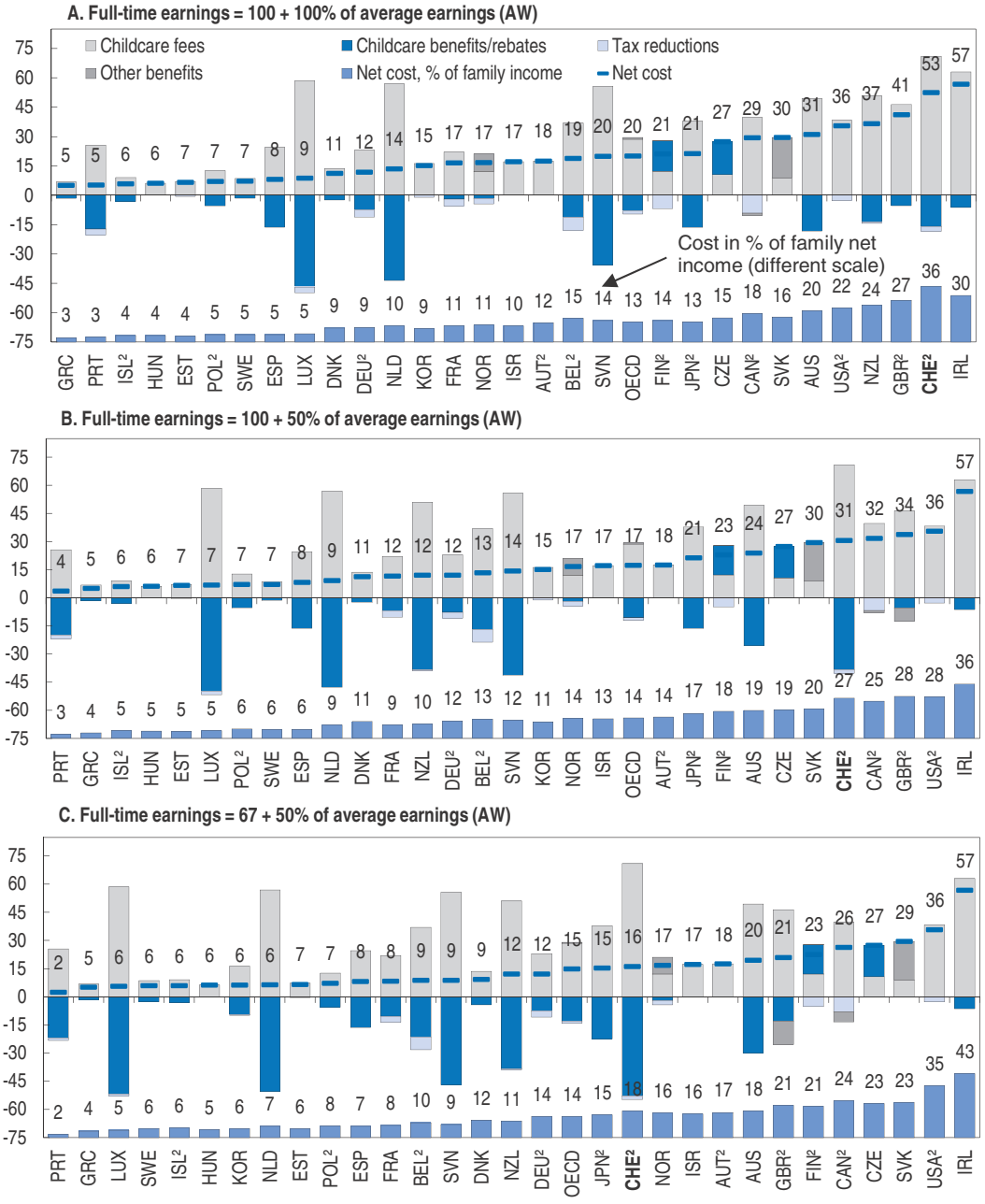
According to a report by Interface (Müller et al., 2010), a Lucerne consultancy which did an evaluation of the pilot programme in one municipality, the system was well received by the parents as well as by the childcare institutions, and there were no major implementation problems. Most importantly, cost-benefit calculations showed that the additional outlays by the municipality in form of the vouchers were a good investment, under the assumption that families were able to generate additional income as a consequence of the increased childcare supply. In addition, the fact that families were all treated in the same way and that they can freely choose from a certain number of institutions was much appreciated by the involved parties. The system has now been fully implemented in all three municipalities.

Source: Müller et al. (2010).

The high cost of childcare is a second major impediment to better access to the job market and a more fulfilling professional life for women. Region-based modelling of childcare costs shows that Zurich has one of the most expensive childcare systems in the OECD for the couples each earning 100% of average income, though it is lower ranked for those on lower incomes (Figure 2.23). According to a 2012 study mandated by the Federal Insurance Office (OFAS, 2012), 27% of the mothers who gave up paid work did so because of problems in reconciling work and family life. The problems cited were the high price of childcare places, difficulties in finding such places and employers not agreeing to reduce working hours. It is then of primary importance for the Swiss authorities to seek to increase the number of childcare places, which should also reduce their cost by bringing

Figure 2.23. **Out-of-pocket childcare costs for a couple family: full-time care at a typical childcare centre**[1]

Childcare-related costs and benefits, as a percentage of AW, 2008



1. The out-of pocket cost of centre based childcare (or net cost of childcare) is calculated as the difference in "family net income" of a family who uses centre based childcare and an otherwise identical family who does not. "Family net income" is the sum of gross earnings plus cash benefits minus taxes and social contributions. All fee reductions, including free pre-school or childcare for certain age-groups, are shown as rebates where possible. Costs as a per cent of net family income are relative to pre-childcare income.
2. Modelling of childcare costs is region specific rather than at the national level. The regions used for Switzerland is the city of Zurich.

Source: OECD Tax-Benefit Models.

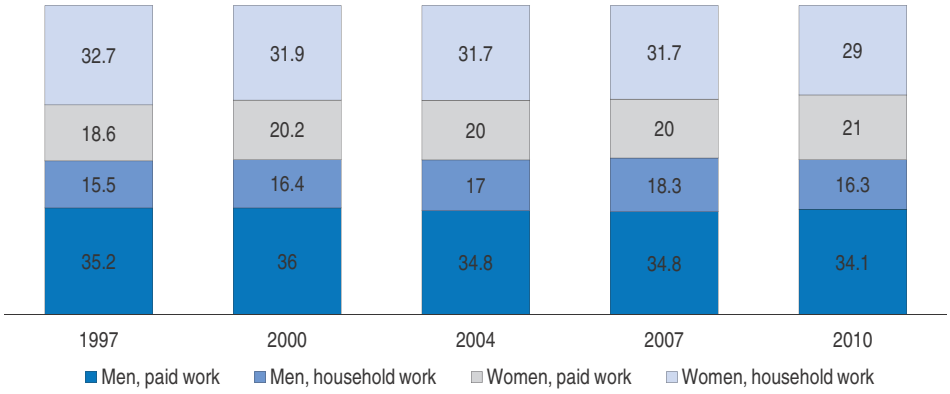
StatLink http://dx.doi.org/10.1787/888932940436

supply closer to demand. But given that a large share of the costs are staff related, if the government (cantons and communes) wishes to boost provision, it faces a trade-off of increasing direct public spending on additional facilities against allowing a broader range of price and quality options when setting the sector's regulatory requirements.

Another important aspect of work-life balance for women is the extent to which household work is shared equitably at home. In 2010 combined weekly hours of paid and unpaid work were roughly equal for men and women (all men and women aged 15 to legal retirement age: 63 for women and 64 for men), with 50.4 hours for men and 50 hours for women (Figure 2.24). These numbers are only marginally different from what they were back in 1997: 50.7 hours for men and 51.3 hours for women. The split between the two types differs significantly between sexes, however. While men spent about 68% of this time on paid work in 2010, that share was only 42% for women. They had been 69% and 36%, respectively, in 1997.

Figure 2.24. **Paid and household work**

Hours per week



Source: FSO.

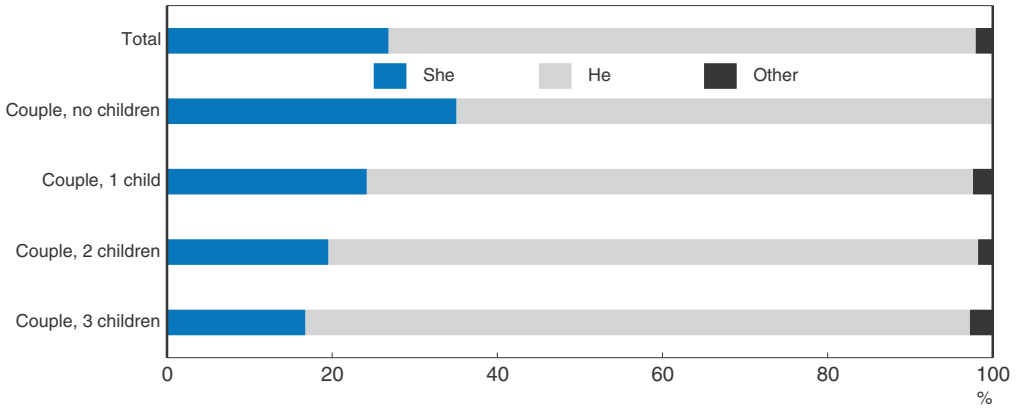
StatLink http://dx.doi.org/10.1787/888932940455

While such differences in time allocation between paid and unpaid work may reflect personal preferences, domestic work has a negative effect on female labour supply and therefore on female career opportunities and expected lifetime salaries. While increasing paid work offers opportunities of promotion and higher wages, more housework does not. Greater participation of men in unpaid work would facilitate more intensive female labour force participation (hours and numbers), a better use of the talent pool and, arguably, better child development. One of the direct policy levers here is leave, and Switzerland is one of the few countries without part-time work entitlements. Introducing time-limited entitlements to part-time work for parents with young children, especially fathers since the incidence of part-time work is already high among women, as in Australia and Austria would help bring a more balanced sharing of paid and household work in the family.

Partly because household work is not priced, the split between paid and household work translates into the contribution of each sex to total household income. In a childless couple the average contribution to total household income of the female partner is about 35%. This share typically falls as the number of children in the family rises, dropping to 18% on average in a household with three children (Figure 2.25). Because the difference in financial contribution is greater than the difference in time contribution, another explanation for these figures is the gender wage gap, discussed in the next section.

Figure 2.25. **Percentage contribution to total household income, by type of household**

2004



Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940474

The difficulty for Swiss women to organise a sustainable childcare solution is made worse by the low level of leave entitlements for parents following the birth of a child. Maternity leave is 14 weeks (under the Code of Obligations), with financial compensation also lasting 14 weeks (*Loi fédérale sur les allocations pour pertes de gain*). There is also protection against dismissal for 16 weeks after the birth, in the form of a compensatory payment (Article 5 of the Gender Equality Act). But there exists no employment guarantee by law after that leave. In addition, there is no federally granted statutory paternity or parental leave that could facilitate mothers' post-maternity reintegration into the labour force. Introducing paternity leave, or take-it-or-leave-it parental leave to be divided between parents consecutively could help dissuading mothers from staying out of the job market too long.

Taxation and work incentives

Tax incentives are another important factor behind the high level of part-time work among Swiss women, since the entire tax/benefit system is means tested. As explained in Box 2.7 below, labour supply by the second income earner in married couples in Switzerland, typically the wife, is discouraged by high implicit marginal income tax rates, also known as the "marriage penalty". Tax declarations based on the household rather than the individual play a major role in this penalty with increments to household income taxed at higher rates than under separate taxation. In the federal income tax, the Swiss government has recently introduced a tax deduction for childcare costs and has adopted measures in order to remove much of the marriage penalty. In 2012, the Swiss Federal Council launched a consultation process on a federal law aimed at eliminating, within the framework of direct federal tax, the penalty for married couples.

Women's experience with unemployment and poverty

Women and men in Switzerland are affected differently by poverty and unemployment. The share of poor people (those whose disposable household income is below the defined poverty line) is higher among women than among men, though the difference is not large for the entire population: 8.8% for women *versus* 7% for men in 2010. When looking at the

Box 2.7. **High marginal income tax rate for the second earner**

Due to the fact that there are additional tax allowances for couples that are not available to singles, the comparison between married couples and two singles living together on the basis of the same taxable income does not correspond to the situation where the married couple and the two singles have the same joint gross income. Therefore the table below contains estimates of the federal tax component of the tax wedge based on 1) equal gross income or 2) equal taxable income.

Table 2.3. **High marginal tax rate for the second earner**

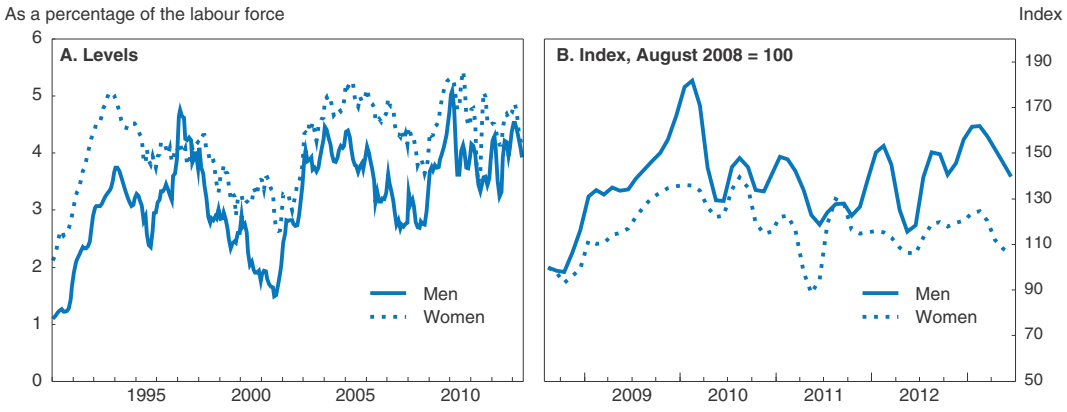
	Gross earnings	Tax allowances	Taxable income	Final income tax
	Estimates based on equal gross income			
Couple 50/50	100 000	37 400	62 600	502
Single	50 000	10 650	39 300	199
Single	50 000	10 650	39 300	199
Combined	100 000	21 300	78 600	399
Couple 70/30	100 000	37 400	62 600	502
Single	70 000	13 430	56 500	621
Single	30 000	7 870	22 100	59
Combined	100 000	21 300	78 600	679
	Estimates based on equal taxable income			
Couple 50/50	143 500	43 482	100 000	1 968
Single	62 400	12 374	50 000	445
Single	62 400	12 374	50 000	445
Combined	124 800	24 747	100 000	890
Couple 70/30	144 500	44 432	100 000	1 968
Single	86 200	16 106	70 000	1 022
Single	39 200	9 149	30 000	119
Combined	125 400	25 255	100 000	1 141

economically active population, however, 4.8% of women are poor, but just 2.5% of men are. Among those with the highest risk of poverty are single-parent families, especially those headed by women, and elderly women.

The unemployment rate has long been higher for women than for men. Men, however, tend to be hit harder by economic crises than women, and more generally male unemployment tends to be more responsive to the business cycle. This is evidenced by the last crisis. Taking August 2008 as a benchmark, men have been faring worse than women (Figure 2.26). In December 2012 men's unemployment rate was 57% above its pre-crisis level, compared to a rise of 20% for women. The fact that private industry was hit hardest and the government sector was rather protected in the last recession explains why men have suffered more. In its aftermath, public stimulus spending was targeted mostly to male-dominated sectors, while tax cuts for families and married couples were intended to boost consumption, thereby impacting mostly retail, tourism and restaurants where female employment is dominant (SECO, 2012). In addition, because men are still over-represented in goods production, they often need to go through retraining programmes to meet the new realities of the job market. By contrast, women, who traditionally choose to work in the tertiary sector, find it easier to adapt to services' increasing role in developed economies.

Figure 2.26. **Women's unemployment is higher, but men's is more responsive to business fluctuations**

Swiss unemployment rate by sex



Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940493

Box 2.8. **Recommendations for a better reconciliation between work and family life**

- Increase women's labour-market options by increasing public spending on childcare and out-of-school-hours care and by setting applicable regulations to enhance the range of available price-quality choices.
- Remove the so-called marriage tax penalty at the federal level by introducing individual, as opposed to family, taxation or some equivalent measure.
- Create paternity leave, and consecutive "take-it-or-leave-it" parental leave to be shared between fathers and mothers.
- Introduce a time-limited entitlement to part-time work for parents with very young children.

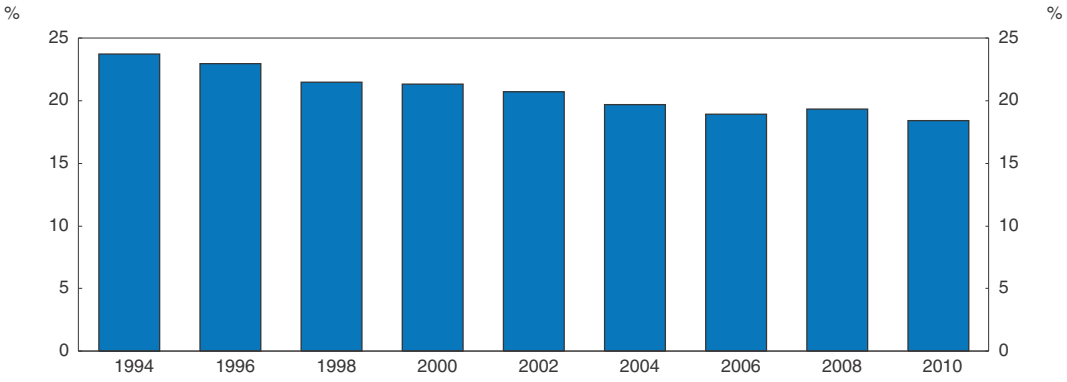
Reducing the wage gap

For the same occupation and number of hours worked, women are generally paid less than men. The gap has narrowed over the last decade, albeit at a slower pace in recent years. While some two thirds of the gap can be explained by observable factors such as differences in education, position, skills and experience, a third remains unexplained and possibly attributable to discrimination. This section reviews the Swiss gender pay gap, the progress that has been made in reining it in and what remains to be done.

In Switzerland the gross gap (not adjusted for observable differences) started closing in the 1960s and was most recently 18.4%, down from 23.7% in 1994 (according to the Swiss Earnings Structure Survey; Figure 2.27). The pace of the reduction in the gap has been relatively modest, however, with women gaining an extra one tenth of a percentage point pay rise over men on average since 1942 (Bureau of Federal Statistics, Salaires et revenus du travail – Données détaillées). The catch-up accelerated between the mid-1990s and the mid-2000s from which point on it slowed.

Figure 2.27. **Difference between male and female wages (gross gap)**

As a percentage of men's median wage

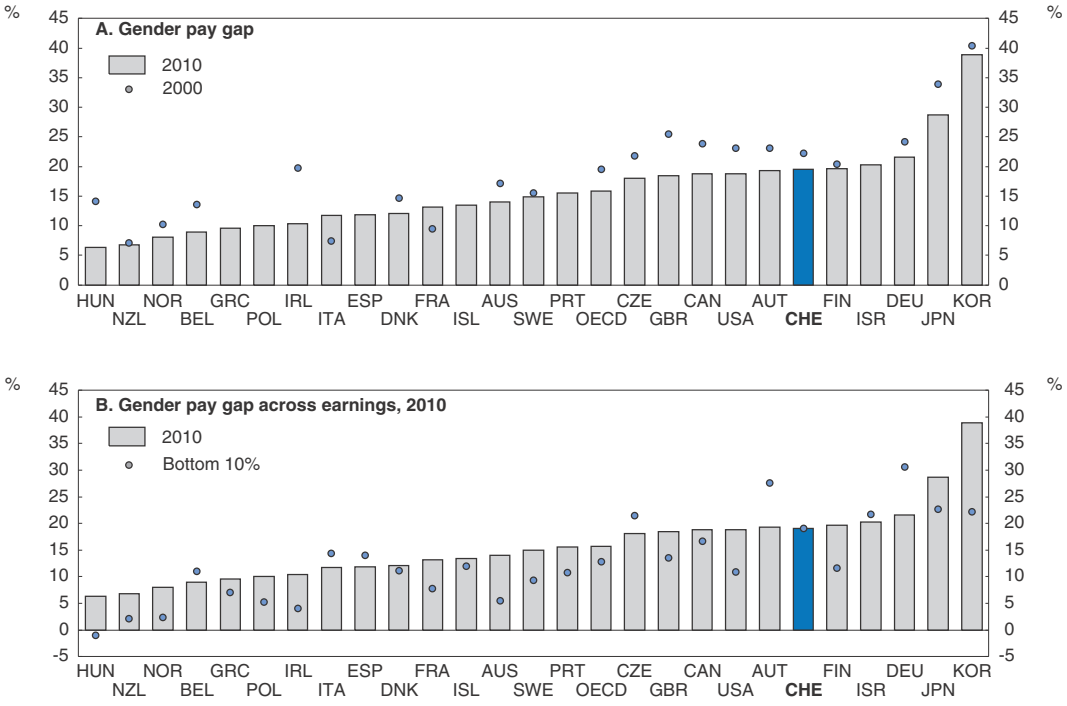


Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940512

Almost all OECD countries have legislated some form of equal pay for equal work, but gender wage gaps persist. While receding, the OECD average gross gender pay gap is still 15%. Cross-country variation in the size of the gap are significant, ranging from a low of 5-8% for countries like Hungary, New Zealand and Norway, up to 29% for Japan and 39% for Korea at the other end of the spectrum (Figure 2.28). Switzerland does relatively poorly both in terms of the level of the gap and the decline over the last decade.

Figure 2.28. **Trends in gross gender pay gaps**[1]



1. Defined as the difference between male and female median wages divided by male median wages. Data refer to 2009 (instead of 2010) for Ireland, Denmark, Sweden, the Czech Republic, Austria, Switzerland, Finland, Israel, Germany, Korea and to 2008 for Belgium, France, Greece, Iceland, Italy, Poland, Portugal, Spain; and to 1999 (instead of 2000) for the Czech Republic.

Source: European LFS, 2010; Current Population Survey, March 2009, for the United States; OECD, *Employment Database*.

StatLink http://dx.doi.org/10.1787/888932940531

In many countries, the wage gap is larger at the median than at the bottom of the pay scale. In Switzerland there is considerable differences in men's and women's pay across occupations even after taking into account the different full-time and part-time compositional effects across genders (Table 2.4). At the level of management, where the full-time and part-time compositional effect is minimal, the gender pay gap is particularly pronounced. Indeed the wage gap is higher the more senior the management position (FSO, 2013b). Among full time workers the percentage of men in the highest annual income bracket – more than CHF 104 000 – is twice as big as the percentage of women (27% and 13%, respectively), while their share among those earning less than half that much was much smaller (9%, compared to 24%) (Figure 2.29). It is only for administrative staff and apprentices that the wage gap is much smaller than average. Box 2.9 provides evidence that wage discrimination may set in right after apprenticeship.

Table 2.4. **Gross gender pay gaps by economic activity status and occupation, 2011**

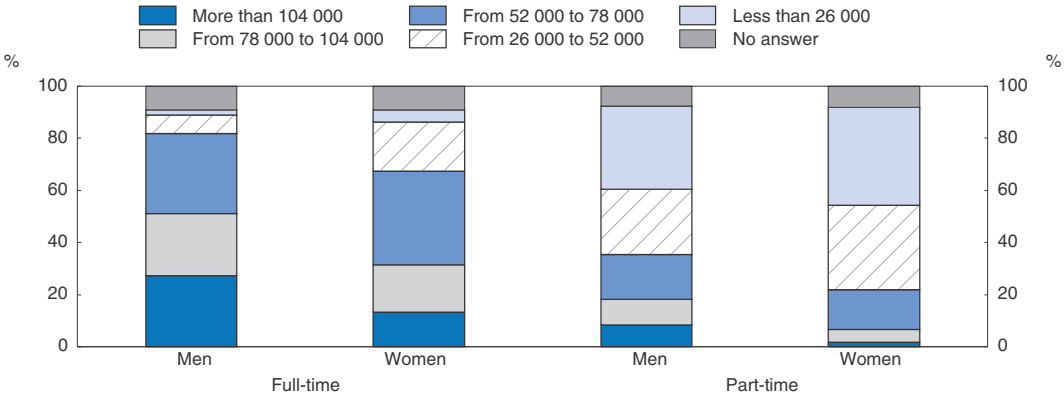
Gross annual employment income in francs

	Full-time (90% and more)		Gap %	Part-time (less than 90%)		Gap %
	Men	Women		Men	Women	
Self-employed	87 800	59 800	31.9	42 000	27 600	34.3
Family workers	63 800	48 600	23.8	17 700	22 800	-28.8
Employees	84 500	68 900	18.5	43 800	34 800	20.5
Executives, senior managers	129 400	101 800	21.3	60 000	52 000	13.3
Academic/scientific professions	110 000	88 400	19.6	64 700	50 900	21.3
Intermediate professions	93 800	75 000	20.0	46 200	43 400	6.1
Administrative staff	75 600	70 200	7.1	35 700	37 500	-5.0
Service and sales staff	72 000	53 800	25.3	24 500	25 300	-3.3
Craftsmen and skilled workers	71 600	54 400	24.0	46 500	26 000	44.1
Drivers and fitters	70 500	51 400	27.1	28 300	26 000	8.1
Unskilled workers	63 300	48 800	22.9	13 500	14 000	-6.7
Apprentices	12 400	11 700	5.6	-	-	-
Of which: First year	91 00	8 600	5.5	-	-	-
Second year	11 700	11 900	-1.7	-	-	-
Third and fourth years	14 400	15 000	-4.2	-	-	-

Source: FSO, wages and income from employment, indicators.

Figure 2.29. **Employed persons by brackets of annual gross employment income in francs, 2011**

Per cent



Source: FSO.

StatLink http://dx.doi.org/10.1787/888932940550

Box 2.9. **Does wage discrimination start right after school? Data from the TREE study**

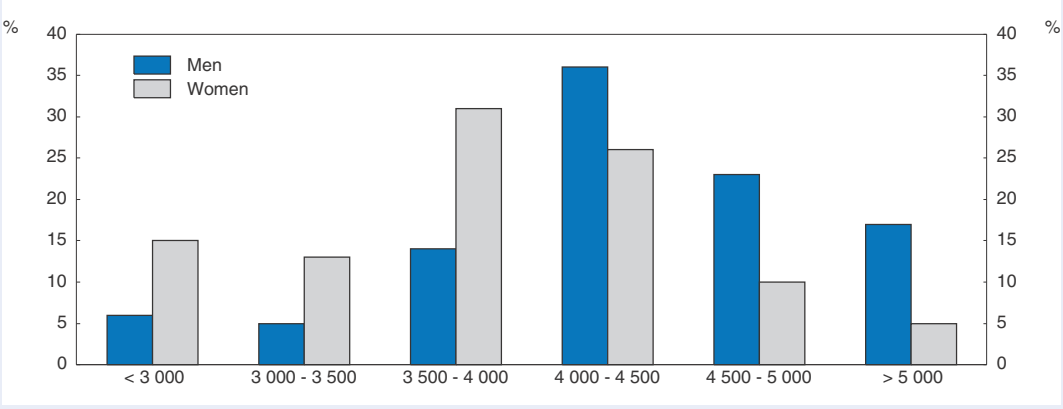
As Table 2.4 indicates, salary differences between men and women are insignificant for apprentices. A natural question is then when do women's salaries start to fall behind?

From 2000 to 2010 the Swiss National Science Foundation and the University of Basel conducted a panel study of approximately 6 000 young people who had participated in the 2000 PISA survey and had left compulsory school that year. This sample was followed up by TREE (Transitions from Education to Employment) through seven annual survey panels between 2001 and 2007 and an eighth in 2010. It is the first longitudinal survey in Switzerland to address issues concerning the transition from youth to young adulthood at national level, paying special attention to their paths of education and employment following compulsory education.

The TREE study reports several interesting findings. While it confirms higher tertiary education rates for women than for men (27% *vs.* 18%), it also points to early signs of discrimination. While differences in observables are presumably smaller at a younger age, on average women with an upper secondary diploma already earned CHF 500 per month less than their male counterparts. The average difference is only CHF 100 for those without upper secondary education, however, generating an overall average gap of CHF 400, which corresponds to a 9.5% difference, slightly higher than estimations of the net wage gap in Switzerland (around 7%). The wage gap is also more pronounced in the French/Italian-speaking cantons (14%) than in the German-speaking region (9%). Fully 15% of the young women first entering the labour market settle for a monthly wage in the lowest bracket (less than CHF 3 000); only 6 % of the young men reported working for such pay (Figure 2.30). Finally, men tended to stay at their parental home longer, since 49% of women had left home, but only 28% of men had done so.

Figure 2.30. **Distribution of starting wage by gender**

Per cent, 2010

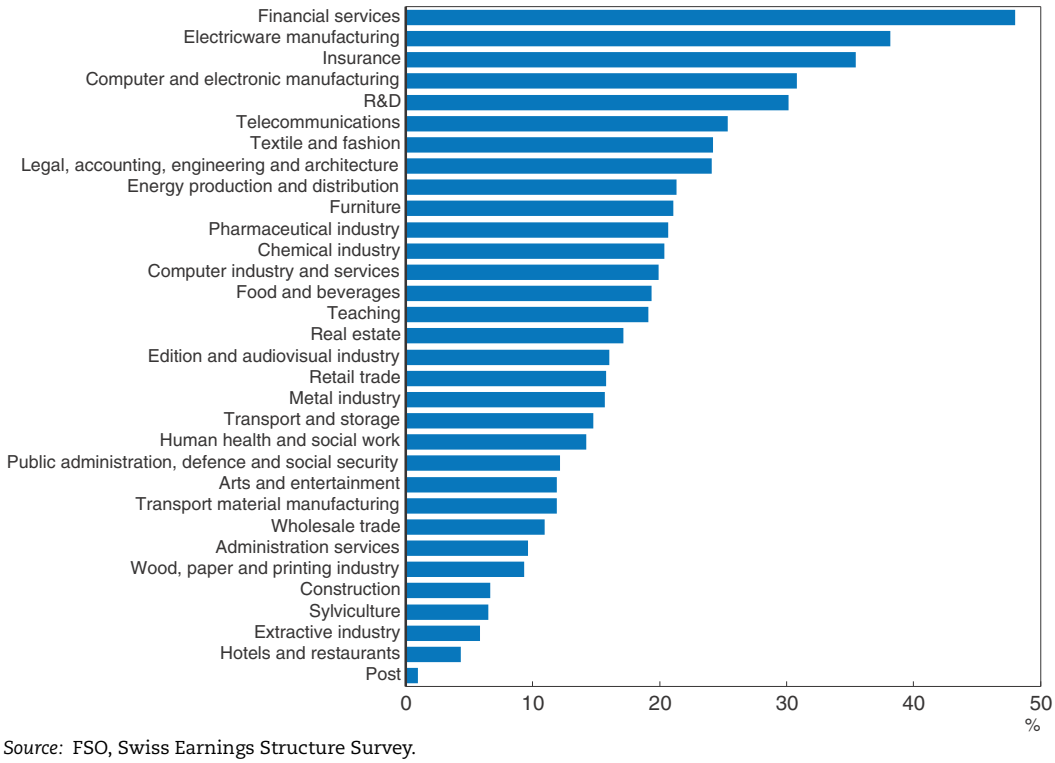


Source: SWN and University of Basel, Young people in transition from education to the labour market (TREE study).

StatLink http://dx.doi.org/10.1787/888932940569

As far as Switzerland is concerned, the gender pay gap problem seems to be even more variable across sectors than across occupations (see Table 2.4 and Figure 2.31). Financial services top the ranking with a gross gap of 48.0%, followed by electric products manufacturing (38.2%) and insurance (35.4%). At the lower end of the spectrum there is almost no difference for postal employees and only a 7% difference in the extractive industry and in construction. Around the national average are sectors such as retail trade, education and real estate. As first noted by Becker (1957), increased competition between firms pushes down the wage gap by putting discriminating firms at a disadvantage. Increasing competition, both from domestic and foreign firms, and reducing regulation in the economy, could reduce the Swiss wage gap in sectors where it is largest by encouraging

Figure 2.31. **Gross gender wage gaps by sector, 2010**



Source: FSO, Swiss Earnings Structure Survey.

StatLink http://dx.doi.org/10.1787/888932940588

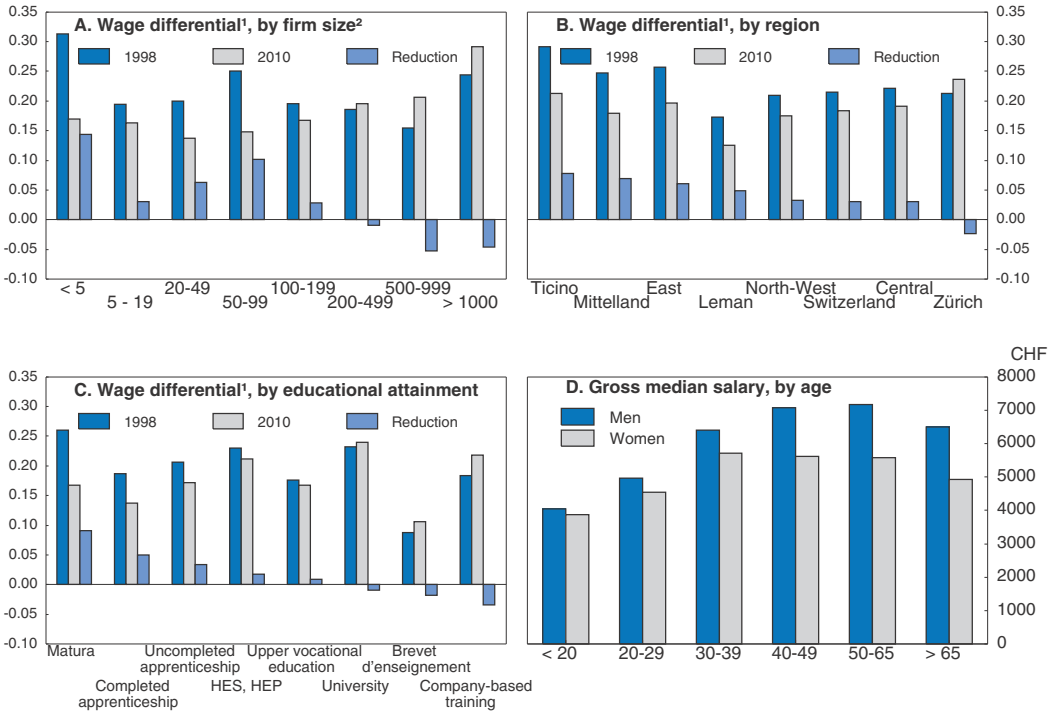
the replacement of old discriminatory habits with a hunt for talent. Several country studies have shown that increased competition does reduce the wage gap. Black and Strahan (2001) shows that the gender wage gap in the US banking industry declined after the deregulation of the industry that started in the mid-1970s. Similarly, Hellerstein et al. (2002) shows that, in plants with high levels of product market power, those employing relatively more women were more profitable. See also Lovász (2008) for recent study about Hungary.

Regarding firms' size, the gender pay gap follows a U-shaped relationship: it is greater in small and especially in large companies for whom it has even grown since 1998 (Figure 2.32, Panel A). Also, the difference is greater for older workers (Panel D) for whom educational attainment gaps by gender are largest, resulting in lower incomes for women already as from their 40s (women born in the 1960s), whereas men's salaries show no such pattern.

As documented in several other places in this chapter, there exist some differences across regions (Panel B), with the largest wage gaps in Zurich, where they even increased on average between 1998 and 2010 (but this is also the place where financial services are concentrated), and in Tessin, where they have decreased at the fastest pace. The Leman region is where the gross gender pay gap is smallest. Finally, the more educated the employee, the bigger the wage gap (Panel C).

A significant part of the gross gaps can be explained by the structure of jobs across occupations and sectors, as well as educational attainment, work experience and company seniority. In Switzerland the residual (or unexplained part, which corresponds to the net gap) was estimated at 6.9 percentage points in 2010, down from 8.8 in 1998 (NOGA, 2008). This represents 37.6% of the gross gap. According to the FSO's last update, in the public sector of the Confederation, where salary grids are the norm, that share was lower at 21.6%

Figure 2.32. **Structure of the gross gender pay gap**



1. As a ratio to the median salary of a male worker.
2. Measured in terms of number of employees.

Source: FSO, Swiss Earnings Structure Survey.

StatLink http://dx.doi.org/10.1787/888932940607

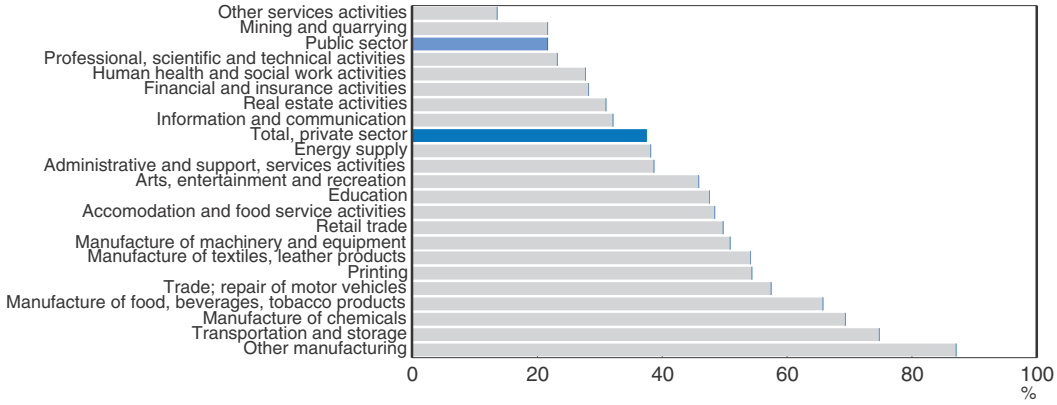
(CHF 3 108 per annum). Looking across economic branches in the private sector, the net wage gap is greatest in manufacturing and transportation and storage, and lowest in miscellaneous services, the extractive industry and professional, scientific and technical activities (Figure 2.33). The Swiss Earnings Structure Survey, however, is the only available source of information on the net wage gap. A better understanding of its magnitude can be achieved by encouraging a more diverse set of studies (econometric, experimental) to ascertain the robustness of the estimate and the true amount of gender wage discrimination. Narrowing and ultimately eliminating this gap can follow a number of paths, such as better enforcement of the existing legal framework against wage discrimination and promoting wage transparency. One avenue is to develop tools such the Logib software. It is an equal pay self-test tool developed for the Federal Office for Gender Equality. It allows to review pay policy by entering wage data of a company (of at least 50 employees) and to evaluate whether discrimination based on sex is statistically significant.

Box 2.10. **Recommendations for reducing the wage gap**

- Encourage a more diverse set of studies regarding net wage gap calculations.
- Better enforce the existing legal framework against wage discrimination.
- Promote pay transparency.
- Increase competition and reduce regulation in the economy so as to encourage the replacement of old discriminatory habits with a hunt for talent.

Figure 2.33. **Unexplained share in gender wage gap, or net gap**

2010, by economic branch, private sector



Source: FSO, Swiss Earnings Structure Survey, calculations following Strub and Stocker (2008) who use the Oaxaca-Blinder method.

StatLink http://dx.doi.org/10.1787/888932940626

Women as entrepreneurs and managers

Despite impressive progress in female educational attainment in most OECD countries, and a greater role for women in the labour market as documented earlier, women are, with a few exceptions, still significantly underrepresented as entrepreneurs and in leadership positions across OECD countries. While educational attainment is comparable across the sexes, women tend to leave their jobs or fail to move up the hierarchy. As a result, the share of women in managerial or directors' positions does not match their share of the labour force, a phenomenon known as the "leaky pipeline". The last 20 years have seen limited progress on that dimension.

Given that women account for a growing share (in some places a majority) of young graduates, such underrepresentation is a sign of poor human-capital allocation within the Swiss national economy. There are indeed many reasons why, on top of equality, favouring a greater representation of women in those high-stakes jobs should lead to better performance for companies and increased aggregate productivity. First, with increased and costly global competition for leadership talent, companies would gain by more often considering women for top positions. Second, hiring more women in such positions would probably lead to more diverse approaches and solutions to business challenges. Third, many high-growth markets, such as IT, fashion and cosmetics, have a large female customer base and for which insights from female opinion-leaders would benefit the companies involved. Fourth, women in executive roles can serve as models for young aspiring women, creating a virtuous circle of increasing motivation for young women and talented leaders for companies. Finally, firms not considered attractive for women risk being seen as having unfriendly work environments and losing out on human talent. See also Box 2.11 on the effect of gender-diverse boards on governance and performance.

Box 2.11. **The effect of gender-diverse boards on governance and performance: mixed evidence**

The effects of gender diversity on the functioning of boards can be seen in companies' governance and performance. The board of a company is entrusted by shareholders to decide on key issues such as guiding corporate strategy, monitoring management performance and achieving maximum risk-adjusted returns for shareholders, while preventing conflicts of interest and balancing competing demands on the enterprise.

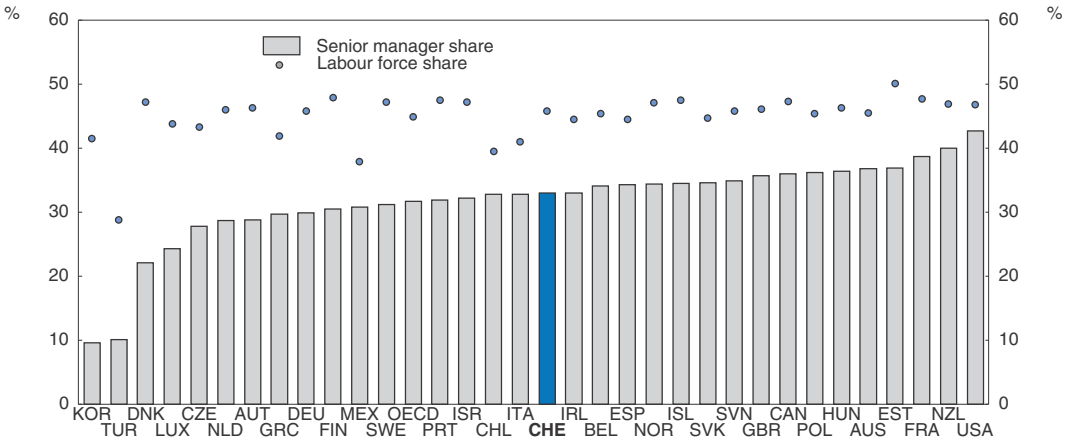
Governance. More gender-diverse boards can contribute to better corporate governance for a multitude of reasons. A heterogeneous board can be a stronger monitor of executive behaviour (Adams and Funk, 2012; Nielsen and Huse, 2010), and a greater number of women directors might bring more independent views into the boardroom and hence strengthen its monitoring function (Rhode and Packel, 2010). Moreover, gender-diverse boards tend to have a wider range of backgrounds, experience, perspectives and problem-solving skills. This richer set of experience and knowledge can be passed on to top managers and potentially improve corporate governance (Terjesen et al., 2009). Carter et al. (2003) and Adams and Ferreira (2009) suggest that more diverse boards are more likely to hold CEOs accountable for poor stock-price performance and encourage better attendance at board meetings, while McKinsey & Co (2010) found that women are more likely to demonstrate leadership skills, such as staff development, rewards, role models, inspiration and participative decision-making. Brown et al. (2002) suggest that having more women on boards is associated with stronger attention to handling conflicts of interest.

Performance. The economic argument for bringing more women onto boards is based on the proposition that firms that fail to select the most competent candidates for the board of directors damage their financial performance. Catalyst (2008) and McKinsey & Co (2007 and 2010) assert that better performing firms tend to have more women on their boards. However, this does not prove causality: it cannot be said that more gender-diverse boards generate better firm performance (Terjesen et al., 2009; Coles et al., 2008; and Linck et al., 2008). It may well be that firms with better performance are more likely to seek women. Moreover, the effects of more balanced boards may vary across firms: some firms no doubt benefit from more diversity, others may not (Adams and Ferreira, 2009). After controlling for various firm characteristics – including firm and board size, industry, share of internal board members and others – Carter et al. (2003) found a positive relationship between the presence of women on the board and Tobin's Q (the ratio of the market value of a firm to the replacement cost of its assets) for a sample of Fortune 1000 US firms. Other country-specific studies have found higher volatility in stock returns of firms with lower proportions of women directors (Adams and Ferreira, 2004). However, there are also studies that find no, or a negative, relationship between women on the board and firm financial performance (Böhren and Ström, 2005; Rose, 2007; Lee and James, 2007; Marinova et al., 2010; and, Randøy et al., 2006). In the only study on the effects of the first years of the implementation of Norway's quota system (2001 to 2009) aiming at gender-diverse boards, Ahern and Dittmar (2012) found that the constraint imposed by the quota caused a significant drop in stock prices at the announcement of the law and a large decline in Tobin's Q over the following years, consistent with the idea that firms had already chosen boards to maximise value. The law was voted in 2003 and became compulsory in 2006, however, leaving only a few years to evaluate its effect. The value loss was not caused by the sex of board member, rather the quota led to younger and less experienced boards, increases in leverage and acquisitions, and deterioration in operating performance.

The leaky pipeline

The share of women in the labour force has risen continuously over time to between 40 and 50% in most OECD countries (Figure 2.34). Their share in senior management positions, however, does not reflect this aggregate trend. In the OECD today women represent less than one third (32%) of managers, slightly below Switzerland's share of 33%, up from 29% in 1996. Few OECD countries have anything like the same proportion of women in the labour force as in senior management positions. Looking at the situation in Switzerland, most of the (modest) catch-up was made from 1996 to 2002 (+3.8 percentage points), with little change since then (+0.3 point).

Figure 2.34. **Women's shares of the labour force and of senior management,[1] 2010[2]**

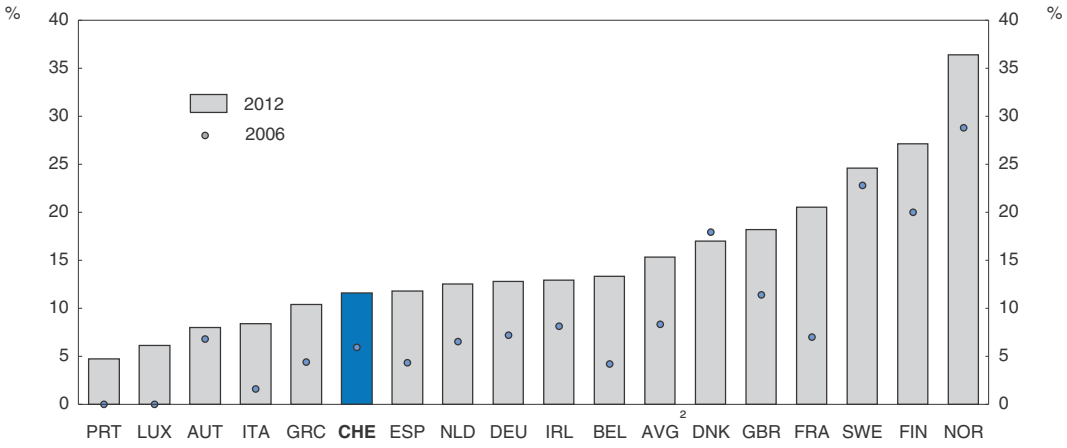


1. Senior managers cover category (1) of the International Standard Classification of Occupations (ISCO), including legislators, senior officials and managers.
2. Senior managers data refer to 2008 for Australia, Canada, Israel, Korea, Mexico, New Zealand and the United States; to 2002 for Chile.

Source: OECD, *Employment Database 2013*; ILO. StatLink http://dx.doi.org/10.1787/888932939543

In recent years the share of women on company boards has nearly doubled in Switzerland, but from a very low starting point. According to the 2012 European Board Diversity Analysis conducted by Egon Zehnder International (2012), 11.6% of board positions (95 out of 820) in Swiss largest companies (those with market capitalisation greater than EUR 4 billion) were held by women in 2012, up from 5.9% in 2006. Nevertheless, that proportion remains only about half those of some Nordic countries or France (Figure 2.35). According to a 2005-11 study conducted by Credit Suisse (2012) comprising 2 360 companies around the world, the most progress was made by European companies including Swiss ones. The study found that large companies and sectors that are closer to final consumer demand, such as healthcare or financial services, have a greater proportion of women on their boards. When it comes to performance of gender-diverse boards, the study found superior share-price performance for the companies with one or more women on the board. Evidence reviewed by OECD (2012a) is less conclusive, however (Box 2.11). Unfortunately, no data linking performance and the presence of women on boards are available for Swiss companies. Some countries, such as Norway, have adopted quotas to raise the share of women in leadership positions. As an alternative Sweden has opted for a milder approach based on voluntary commitment (Box 2.12), as have the United Kingdom and Denmark. The proportion of women on company boards should be increased by setting ambitious targets combined with the "Comply or Explain" practice or by setting quotas.

Figure 2.35. **Share of women on company boards of Europe's largest companies,[1] 2012**



1. With market capitalisation of at least EUR 4 billion.
2. Weighted average across displayed countries.

Source: European Board Diversity Analysis 2012.

StatLink http://dx.doi.org/10.1787/888932940645

Box 2.12. **How to succeed without quotas? The Swedish example**

Some countries (Norway, for example) have introduced quotas to force up the share of women in leadership positions. As the 2008 Swedish example shows, other options are available.

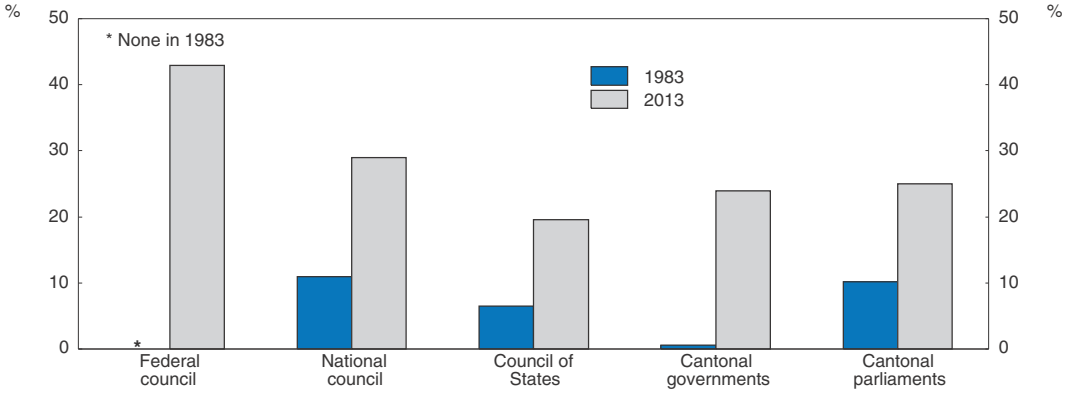
In order to increase the share of women on boards, the Swedish Corporate Governance Code states that *"The board is to have a composition appropriate to the company's operations, phase of development and other relevant circumstances. It is to exhibit diversity and breadth of qualifications, experience and background. The company is to strive for equal gender distribution on the board."* Swedish companies are then invited to commit, on a voluntary basis, to apply the above principle. While they do not face any sanction should they fail to follow it, shareholders and the media have the right to ask why they did not, a principle known as "Comply or Explain". In 2012 women made up 25% of Swedish largest companies board members, well above the European average of 15.3%, yet below Norway's 36% (Figure 2.35), making Sweden the country with the third highest percentage of females board members (Finland being second). A number of other European countries are in the process of implementing quotas, ranging from 30 to 40%, or implementing a system similar to Sweden's.

Data compiled in the 2013 Schilling Report on the 100 largest Swiss companies show that there were 52 women on their executive boards in 2012, 6% of the 860 total board members. Similarly, 8% of the new board members were women. Only 52% of those women were Swiss citizens, and 56% of the newly appointed females in 2012 were foreigners. Not surprisingly 90% of all female executive boards members had a university degree, 93% for SMEs, highlighting the role of higher education in helping women reach the top. The proportion of female CEOs was much lower, 3%, a number that falls to 1.7% when looking at listed companies only. While progress remains to be made in the business sector, via promoting female leadership role models for instance, Swiss women have gained an

important role in Swiss political life both in terms of absolute achievements and progress. While in 1983 no woman sat on the Federal Council and there were few elsewhere, today three of the seven current Federal Councillors are women. Progress has been significant in other representative and executive bodies too, though there has been some stagnation in the past 5-10 years (Figure 2.36). A corporate governance code should be implemented to establish gender goals to increase the number of women in senior management and company boards.

Figure 2.36. **Swiss women have increased their presence in political institutions**

Share of women in representatives and executive bodies



Source: FSO, Cantonal election statistics.

StatLink http://dx.doi.org/10.1787/888932940664

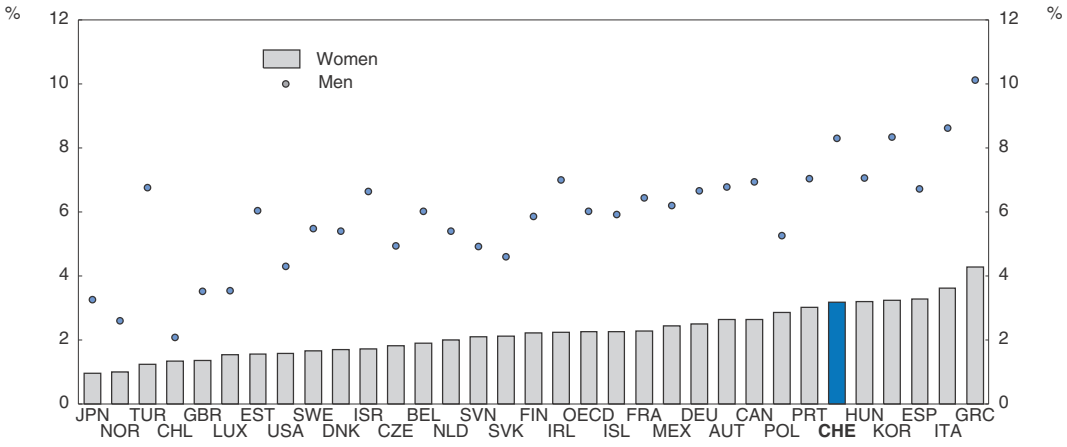
The potential for women entrepreneurs

Swiss women are well positioned to develop and succeed in entrepreneurial ventures. First, as noted earlier, they perform very well at school and now constitute of majority of young graduates with highly valued professional skills. Second, the Swiss economy enjoys a dense network of successful medium-size companies that can support start-ups, both as mentors and potential customers, especially once women entrepreneurs gain a toehold.

Despite these assets, and in line with what is observed in other OECD countries, women are underrepresented as entrepreneurs in Switzerland, with no improvement in sight. Perhaps one explanation is preferences. When asked about their preferred choice, only 33% of Swiss (OECD: 31.5%) women would prefer self-employment over dependent employee status, *versus* 44.8% for Swiss men (OECD: 43.5%). One additional reason could be the low level of government support in Switzerland for female entrepreneurs. According to a 2003 study conducted by the Global Entrepreneurship Monitor, Switzerland ranked second to last on a composite support index that combines measures of social infrastructures for women with family, society's view on female entrepreneurs and chances of success.

Despite those hurdles Swiss female entrepreneurs perform better than their EU counterparts on a number of criteria. For instance 3.4% of Swiss women are employers, above the EU27 average of 2.4% (8.6% and 6.2% for males, respectively; Figure 2.37). Looking at the three-year survival rate of male and female-owned companies, Switzerland is the only country in the sample that shows a higher survival rate for the latter (Figure 2.38). This good performance, however, may be due to the fact that women generally set up smaller companies in less risky sectors like tutoring or personal care services (OECD, 2012d). Additional progress could be made by fostering a positive image of entrepreneurship amongst women, promoting

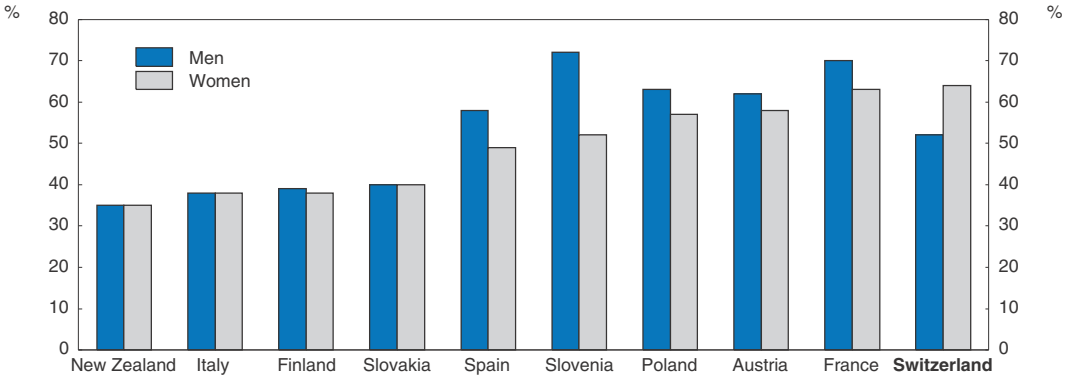
Figure 2.37. **Share of women and men employers, 2011**



Source: OECD, *Entrepreneurship at a Glance 2013*.

StatLink http://dx.doi.org/10.1787/888932940683

Figure 2.38. **Three-year survival rate of men and women-owned enterprises**
2010



Source: OECD (2012d), *Entrepreneurship at a Glance 2012*.

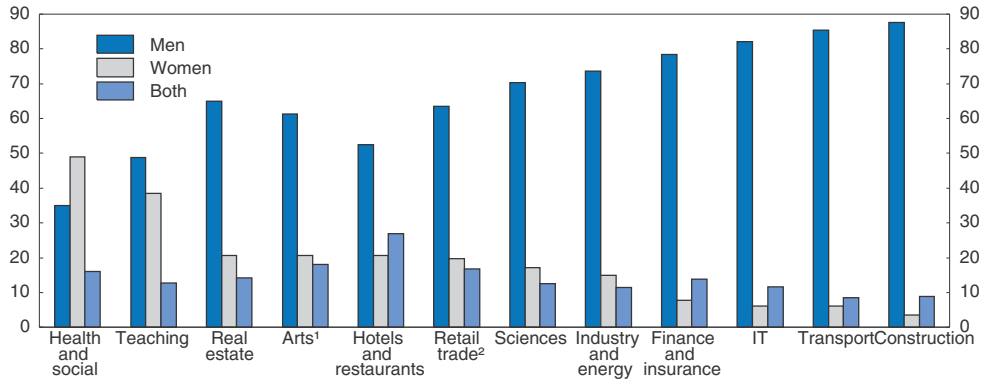
StatLink http://dx.doi.org/10.1787/888932940702

entrepreneurship networks (though not gender-specific, cf. Ferrant, 2012), mentoring and coaching programmes, as well as integrating a gender dimension in business surveys of SMEs in order to better understand barriers to entrepreneurship among women. Finally, introducing courses on how to start a business in upper secondary school could further alleviate some of the fears associated with setting up a business.

Regarding the type of activity, a majority of the new businesses set up by women belong to classic female fields (Figure 2.39). More than 30% of new companies in the areas of social work, teaching, arts, entertainment and health (a majority in this case) are started by women only, and a majority of them including those set up jointly with one or several male business partners. In almost all other fields a majority of new companies are started by men only. In addition to gender-typical choices of education, these statistics reflect the greater proportion of young women opting for general/academic studies, in contrast to male youths who tend to choose VET training and applied professions such as construction and engineering. It follows that business choices too remain gender-specific in Switzerland.

Figure 2.39. **New companies by owner's gender and sector, 2011**

Per cent



1. Including entertainment
2. Including reparation

Source: FSO, Business demography statistics.

StatLink http://dx.doi.org/10.1787/888932940721

Box 2.13. **Recommendations for removing the glass ceiling and encouraging entrepreneurship among women**

- Implement a corporate governance code establishing gender goals to increase women in senior management.
- Increase the proportion of women on company boards by setting ambitious targets combined with the "Comply or Explain" practice or by setting quotas.
- Foster a positive image of entrepreneurship amongst women by allowing successful women entrepreneurs to tour secondary and tertiary educational institutions to explain the rewards and advantages of setting up one's own business, especially given women's preference for flexible work solutions.
- At the cantonal level promote development of women entrepreneurship networks, and support mentoring and coaching programmes for aspiring young women entrepreneurs.
- Introduce courses in upper secondary school on how to start a business.
- Always integrate a gender dimension in business surveys of SMEs to better understand barriers to entrepreneurship among women.

Bibliography

Adams, R. and D. Ferreira (2009), "Women in the Boardroom and Their Impact on Governance and Performance", *Journal of Financial Economics*, Vol. 94, No. 2, pp. 291-309.

Adams, R. and P. Funk (2012), "Beyond the Glass Ceiling: Does Gender Matter?", *Management Science*, Vol. 58, No. 2, pp. 219-35, February.

Ahern, K. and A. Dittmar (2012), "The Changing of the Boards: The Impact of Firm Valuation of Mandated Female Board Representation", *The Quarterly Journal of Economics*, Vol. 127, No. 1, pp. 137-97.

Becker, G. (1957), *The Economics of Discrimination*, The University of Chicago Press, Chicago.

Bergman, M., S. Hupka-Brunner and S. Kanji (2012), "Gender Differences in the Transition from Secondary to Post-secondary Education: The Case of Switzerland", Background paper for the OECD *Gender Initiative*.

Black, E. and P. Strahan (2001), "The Division of Spoils: Rent-Sharing and Discrimination in a Regulatory Industry", *The American Economic Review*, Vol. 91, No. 4, pp. 814-831.

Böhren, O. and R. Ström (2005), "The Value-Creating Board: Theory and Evidence", *Research Report,* No. 8/2005, Department of Financial Economics, Norwegian School of Management, Oslo.

Brown, A.H., D.L. Brown and V. Anatasopoulos (2002), "Women on Boards. Not Just the Right Thing… But the Bright Thing", *Conference Board of Canada Report*, May.

Carter, D., B. Simkins and G. Simpson (2003), "Corporate Governance, Board Diversity and Firm Value", *Financial Review*, Vol. 38, No. 1, pp. 33-53.

Catalyst (2008), *Advancing Women Leaders: The Connection Between Women Board Directors and Women Corporate Officers*, New York.

Coles, J., N. Daniel, and L. Naveen (2008), "Boards: Does One Size Fit All?", *Journal of Financial Economics*, Vol. 87, pp. 329-56.

Credit Suisse (2012), "Gender Diversity and Corporate Governance", Research Institute, Thought leadership from Credit Suisse Research and the world's foremost experts.

Egon Zehnder International (2012), Global Board Index, European Board Diversity Analysis 2012.

Fagnani, J. (2002), "Why do French Women Have More Children Than German Women? Family policies and attitudes towards child care outside the home", *Community, Work and Family*, Vol. 5, No. 1, pp. 103-19.

Federal Statistical Office (FSO) (2013a), "Maturités et passage vers les hautes écoles", *Éducation et Science 15*, Neuchâtel.

Federal Statistical Office (FSO) (2013b), "Vers l'égalité entre femmes et hommes", *Situation Économique et Sociale de la Population*, Neuchâtel.

Ferrant, G. (2012), "Les réseaux sur le marché du travail sud-africain. Une efficacité inégale selon le sexe et l'ethnie", *Revue économique* , Vol. 63, No. 3, pp. 465-74.

Hellerstein, J., D. Neumark and K. Troske (2002), "Market Forces and Sex Discrimination", *Journal of Human Resources*, University of Wisconsin Press, Vol. 37(2), pp. 353-380.

Imdorf, C., S. Sacchi, K. Wohlgemuth, S. Cortesi and A. Schoch (2013), "How Education Systems Promote Gender-Typical School-to-Work Transitions. The Case of Cantonal Educations Systems in Switzerland", University of Basel, manuscript.

Kamerman, S. and P. Moss (2009), *The Politics of Parental Leave Policy*, Policy Press, Bristol.

Lee, P. and E. James (2007), "She'-E-Os: Gender Effects and Investor Reactions to the Announcements of Top Executive Appointments", *Strategic Management Journal*, Vol. 28, No. 3, pp. 227-41.

Lewis, J. (2009), *Work-Family Balances, Gender and Policy*, Edward Elgar, Cheltenham, United Kingdom.

Linck, J., J. Netter and T. Yang (2008), "The Determinants of Board Structure", *Journal of Financial Economics*, Vol. 87, pp. 308-28.

Lovász, A. (2008), "Competition and the Gender Wage Gap: New Evidence from Transitional Linked Employer-Employee Data", Central European University, manuscript.

Marinova, J., J. Plantenga and C. Remery (2010), "Gender Diversity and Firm Performance: Evidence and Dutch and Danish Boardrooms", *Discussion Paper Series*, No. 10-03, Tjalling C. Koopmans Research Institute, Utrecht.

McKinsey&Company (2007), *Women Matter: Gender Diversity, a Corporate Performance Driver*, Paris.

McKinsey&Company (2010), *Women at the top of corporations: Making it happen*, Paris.

Mueller, S., W. Danhong, M. Fox, B. Yeo, J. Sepulcre, M. Sabuncu, R. Shafee, J. Lu and H. Liu (2013), "Individual Variability in Functional Connectivity Architecture of the Human Brain", *Neuron*, Vol. 77, No. 3.

Müller, F., B. Gysin and A. Balthasar (2010), "Evaluation Pilotprojekt Betreuungsgutscheine in der Gemeinde Horw", Interface.

Nielsen, S. and M. Huse (2010), "The Contribution of Women on Boards of Directors: Going Beyond the Surface", *Corporate Governance: An International Review*, Vol. 18, No. 2, pp. 136-48.

NOGA (2008). Nomenclature Générale des Activités Économiques, Neuchâtel.

OECD (2009), *Equally prepared for life? How 15 year-old boys and girls perform in school*, OECD Publishing.

OECD (2012a), *Closing the Gender Gap: Act Now*, OECD Publishing.

OECD (2012b), *Gender Initiative: Gender Equality in Education, Employment and Entrepreneurship*, OECD Publishing.

OECD (2012c), *Education at a Glance*, OECD Publishing.

OECD (2012d), *Entrepreneurship at a Glance*, OECD Publishing.

OECD (2013), *Draft Recommendation of the Council on Gender Equality in Education, Employment and Entrepreneurship*, Meeting of the OECD council at ministerial level.

OFAS (2012), "Wirkungsanalyse Mutterschaftsentschädigung", research report.

Randøy, T., S. Thomsen and L. Oxelheim (2006), "A Nordic Perspective on Corporate Board Diversity", Nordic Innovation Centre Project No. 05030, Oslo.

Rhode, L.D. and K.A. Packel (2010). "Diversity on Corporate Boards: How Much Difference does Difference Make?", Stanford Law School, Palo Alto, California.

Rose, C. (2007), "Does Female Board Representation Influence Firm Performance? The Danish Evidence", *Corporate Governance: An International Review*, Vol. 15, No. 2, pp. 404-13.

Salvi Del Pero, A. and A. Bytchkova (2013), "A Bird's Eye View of Gender Differences in Education in OECD Countries", *OECD Social, Employment and Migration Working Papers* 148, OECD Publishing.

Schilling Report (2013), *Transparency at the Top. The Executive and Supervisory Boards of the one 100 largest Swiss companies*, Zurich.

SECO (2007), "Familienergänzende Kinderbetreuung und Erwerbsverhalten von Haushalten mit Kindern", Vereinbarkeit von Beruf und Familie Nr. 3, Istituto di Microeconomia e Economia Pubblica (MecoP), Università della Svizzera italiana INFRAS, Forschung und Beratung, Zürich.

SECO (2012), "Effets du programme conjoncturel sous l'angle de l'égalité des sexes", Rapport du 16 mai 2012 faisant suite au postulat 09.3297, Groupe des Verts.

Strub, S. and D. Stocker (2008), "Analyze der Lohne von Frauen und Manner anhand der Lohnstrukturerhebung 2008", Technical Report, Buro fur Arbeits- und Sozialpolitishe Studien BASS AG, Bern.

Terjesen, S., R. Sealy and V. Singh (2009), "Women Directors on Corporate Boards: A Review and Research Agenda", *Corporate Governance: An International Review*, Vol. 17, No. 3, pp. 320-37.

Veenhoven, R. (2011), "Social Development and Happiness in Nations 1990-2010", Presentation at Conference "Taking Stock: Measuring Social Development", International Institute of Social Studies, 14-15 December.

Veenhoven, R. (2012), *World Database of Happiness*, Erasmus Universiteit, Rotterdam.

World Economic Forum (2012), *The Global Gender Gap Report 2012*, Geneva.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(10 2013 17 1 P) ISBN 978-92-64-18316-2 – No. 60959 2013

OECD Economic Surveys

SWITZERLAND

SPECIAL FEATURES: LONG-TERM GROWTH; WOMEN'S ROLE IN THE ECONOMY

Most recent editions

Australia, December 2012
Austria, July 2013
Belgium, May 2013
Brazil, October 2013
Canada, June 2012
Chile, October 2013
China, March 2013
Colombia, January 2013
Czech Republic, November 2011
Denmark, January 2012
Estonia, October 2012
Euro area, March 2012
European Union, March 2012
Finland, February 2012
France, March 2013
Germany, February 2012
Greece, August 2011
Hungary, March 2012
Iceland, June 2013
India, June 2011
Indonesia, September 2012
Ireland, September 2013
Israel, December 2011
Italy, May 2013
Japan, April 2013
Korea, April 2012
Luxembourg, December 2012
Mexico, May 2013
Netherlands, June 2012
New Zealand, June 2013
Norway, February 2012
Poland, March 2012
Portugal, July 2012
Russian Federation, December 2011
Slovak Republic, December 2012
Slovenia, April 2013
South Africa, March 2013
Spain, November 2012
Sweden, December 2012
Switzerland, November 2013
Turkey, July 2012
United Kingdom, February 2013
United States, June 2012

Volume 2013/17
November 2013

OECD publishing
www.oecd.org/publishing

ISSN 0376-6438
2013 SUBSCRIPTION (18 ISSUES)
ISSN 1995-3402
SUBSCRIPTION BY COUNTRY

ISBN 978-92-64-18316-2
10 2013 17 1 P