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ECONOMY AND RESEARCH

KOF INDICATORS

KOF Swiss Economic Institute

EDITORIAL

Dear readers,

We are delighted to present the 100th edition of the KOF Bulletin – the KOF Newsletter that has been published since 2007. Month by month, our goal is to present to you a variety of the most up-to-date information concerning the economy, economic policy, international economic developments and our own research.

In this special anniversary issue, you can read how KOF expects the Swiss and international economies to develop over the coming years (until the end of 2018). In addition to forecasts, we also advise and support other institutions around the globe in introducing surveys and developing forecasting models. You can see examples of this in the article on our projects in Afghanistan, Kosovo or Montenegro. We also cast a glance at the discussion as to which unemployment statistics better reflect the actual situation of the Swiss labour market and take stock of the situation on the youth labour market: What form should the optimal linkage between education and the labour market take in order to increase the opportunities for young persons on the labour market? We also look to the future with the issue of energy transition and green economy – these watchwords affect us all. Together with researchers from Germany and Austria, KOF has investigated the scale of investment in energy-efficient technologies along with their effects both on the environment and the financial balance sheets of businesses. You can read about the results of this study in this issue.

We would like to thank you for your loyalty and hope that you continue to enjoy reading the KOF Bulletin!

David Iselin, Solenn Le Goff, Anne Stücker

ECONOMY AND RESEARCH

KOF Autumn Forecast 2016: Back to Moderate Growth

After a dry spell, the Swiss economy is slowly picking up speed (see G 1). Growth is increasingly driven by merchanting, while the other sectors – excluding retail – are moving sideways. Investments remain on the low side. The labour market is recovering gradually and inflation is still low.

International environment

In the coming months, KOF expects a moderate expansion of the global economy. Emerging markets will make the biggest contribution towards growth. However, in the course of China's structural change, the country's growth figures will become successively smaller. In contrast, the economic upturn in India should remain solid. Assuming stable political trends and robust commodity prices, Russia and Brazil are expected to make positive contributions as of next year. The global economy remains prone to further crises. In many countries, debt levels are significantly higher than before the big recession, leaving little leeway for further support measures. Combined with limited possibilities of further quantitative easing, this makes it difficult for governments to play a supportive role in the event of disturbances.

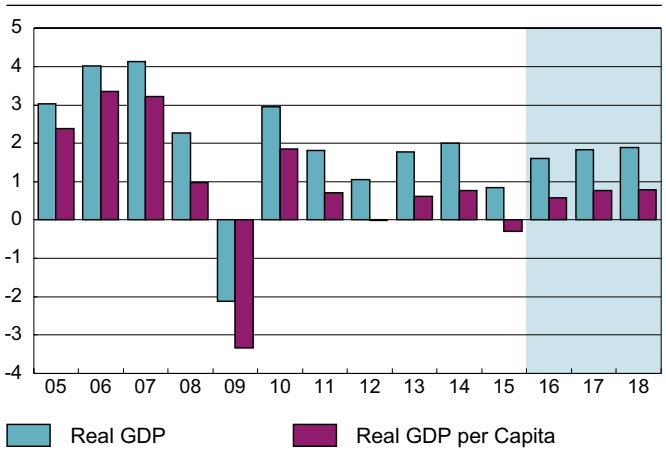
Trend in Switzerland

Two years after the Swiss franc shock, pressure on companies to optimise or streamline operational processes remains high in Switzerland. The Swiss franc/euro exchange rate has been relatively stable for a year now. The current level is somewhat more acceptable than in the first weeks after the Swiss National Bank's (SNB) suspension of the minimum exchange rate. Fresh turbulence on the foreign exchange markets, for instance after the Brexit vote, have not resulted in a further revaluation. However, this was probably largely due to intervention by the SNB.

Switzerland has recorded trade surpluses for many years, due initially to trade in services, in particular in the financial sector. For over 10 years now, the traditional commodity trade has also generated surpluses, and merchanting,

which has become an additional source of income, has made a substantial contribution to the trade surplus in the same period. Merchanting is part of the wholesale trade and the driving factor behind the latter's growing contribution to added value. In the period from 1997 to 2014, the wholesale share rose from seven per cent to approximately 10 per cent.

G 1: Real GDP and GDP per Capita with Forecast
(year-on-year change, in %)



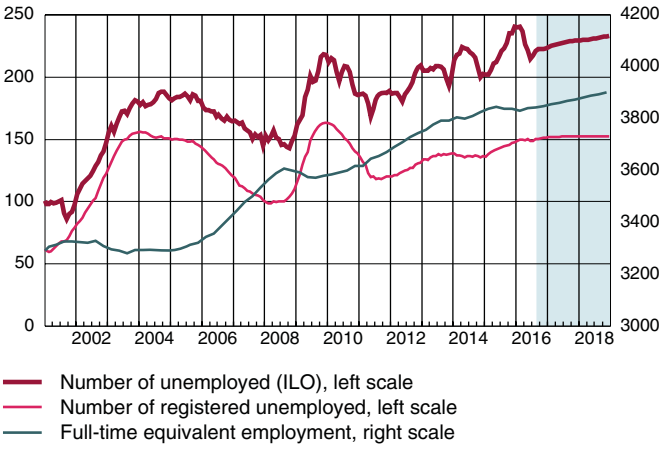
Rewriting the past

Compared to the State Secretariat for Economic Affairs (SECO) initial estimates of last year's economic development, which assumed a weaker trade performance, the 2015 industry trends have been turned upside down. Although KOF had anticipated an upward revision of trade figures in summer 2016, it had also expected an increase in the GDP growth rate. As it turns out, industry was hit much harder by the revaluation than anticipated. At 3.1 per cent, the nominal increase in added value in the industrial sector was in the range of the initial SECO estimate. However, at 2.2 per cent, the decline in prices in the industrial sector was substantially smaller than the initial estimates of 5.5 per cent. Previous assumptions that industry was raising production volumes by 3 per cent while accepting major declines in margins had to be revised. According to the Federal Statistical Office (FSO), production actually declined by 0.9 per cent, thus contributing –0.2 percentage points to GDP growth. Banks, however, recorded the most significant setback (–9%), delivering a negative contribution to growth of 0.5 percentage points.

Sluggish labour market recovery

This year, Switzerland's labour market situation was dominated by the repercussions of last year's economic slowdown. The last few quarters did not come close to the healthy employment growth recorded in recent years. Consequently, unemployment went up. Immigration has also been lower in the last few quarters. The signals sent by leading indicators and hard labour market figures are ambiguous. It is true that numerous leading indicators have bottomed out in the last few weeks and months and are showing a slight upward trend. For the second half of the year and the coming year, this would indicate a slow recovery of the labour market from the dent left behind by the Swiss franc shock. However, the majority of the indicators remain at a rather low level. On top of this, the sluggish global economic trend, subdued consumer sentiment and structural problems in certain sectors – for instance low profitability in some industrial sectors and the banking sector – are likely to place a strain on the employment trend. Due to the slow pace of employment growth, unemployment figures are not decreasing much. Seasonally adjusted, registered unemployment – i.e. the unemployment rate according to SECO – will probably average 3.3 per cent this and 3.4 per cent next year. The unemployment rate according to the International Labor Organization (ILO) is also likely to remain stable, hovering at 4.6 per cent in the current and in the following year (see G 2).

G 2: Employment and Unemployment With Forecast
(in 1,000 persons, seasonally adjusted)



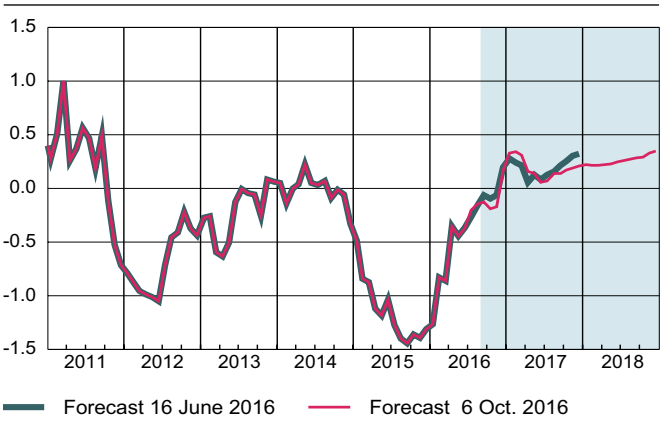
Subdued consumer mood

Growth in consumer spending is likely to remain moderate in the coming quarters. According to SECO's Consumer Climate Index, consumers remain sceptical; the index has been stagnating below its long-term average for one year now. All in all, real disposable income should grow by 1.3 per cent this year while employment (in full time equivalents) is likely to stagnate. On an annual basis, private consumption will rise by 1 per cent in 2016 and 1.2 per cent in 2017.

Price history since the beginning of 2015 has been dominated by adjustment to the new exchange rate reality. Based on the national consumer price index, year-on-year inflation had edged up closer to zero in August. This was also due to the last few months' stabilisation of the oil price at just under 50 US dollars. Hence, the inflation forecast for 2016 remains at –0.4 per cent. However, due to the expected weak trend in nominal wages and the below-average development of rents, inflationary pressure will stay low. In the coming year, KOF anticipates a slightly positive annual inflation rate of 0.2 per cent and in 2018 slightly higher inflation of 0.3 per cent (see G 3).

G 3: Consumer Prices and Forecast

(year-on-year change, in %)



Construction investments recover, non-recurrent factors dominate investments in plant and machinery

At present, investment propensity in the private economy is restrained, with the biggest impulses in the construction industry coming from the public sector. Due to the subdued trend in the first two quarters, KOF expects a stagnation in the construction industry this year. Nevertheless, financing terms remain attractive and the economic environment is steadily improving. Thanks to the positive fundamental data and substantial investment in hospital and infrastructure developments, the construction investments will recover in the coming year and record a plus of 1.2 per cent. In the near future, investments in plant and machinery will be dominated by the delivery of railway vehicles and aircraft that were ordered longe time ago. Once the non-recurrent factors have expired, investments in plant and machinery will decline by 0.4 per cent next year and pick up in 2018.

External trade: pharma industry drives export growth

Given the solid growth in exports in the first half of 2016, it would appear at first glance that the Swiss export sector has digested last year's Swiss franc shock. However, export growth in the past quarters was not supported equally by all sectors: The gains recorded in the commodity trade are almost exclusively due to the solid growth of pharmaceutical exports. Following last year's major setbacks, trade with the EU countries, which remain Switzerland's main export markets, is perking up. Hence, KOF is anticipating a diffident trend in exports in the second half of the year. A wider-ranging export recovery is not expected before next year, involving growth rates of 2.3 per cent in 2017 and 3.6 per cent in the subsequent year. In terms of imports, KOF projects a weak trend. Imports of goods and services are not likely to increase before next year. This trend is buoyed up by the positive export development as well as additional imports of capital goods.

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You can find detailled figures of the latest KOF Economic Forecast on page 21 of this Bulletin as well as on our website:
www.kof.ethz.ch/en/forecasts-and-indicators/forecasts/kof-economic-forecast →

Please Count All of the Unemployed

The jobless statistics and SECO's registered unemployment statistics show a very similar trend if the count only includes the unemployed population that is registered with an employment office. With the number of long-term unemployed rising, the jobless statistics are going up – a phenomenon that the SECO statistics do not reflect since many unemployed are not registered with a job centre.

Is long-term unemployment rising in Switzerland? There is no straightforward answer to this simple question. This is due to the fact that Switzerland publishes not one but two unemployment statistics (see Siegenthalter, 2013). They paint different pictures of the trend in long-term unemployment over the last few years. One of them, the registered monthly unemployment statistics, is calculated by the State Secretariat for Economic Affairs (SECO) on the basis of registration data collected by the regional employment offices (RAV). The annual average last year was 3.2 per cent. For many years, these statistics have shown little change in the long-term unemployment rate.

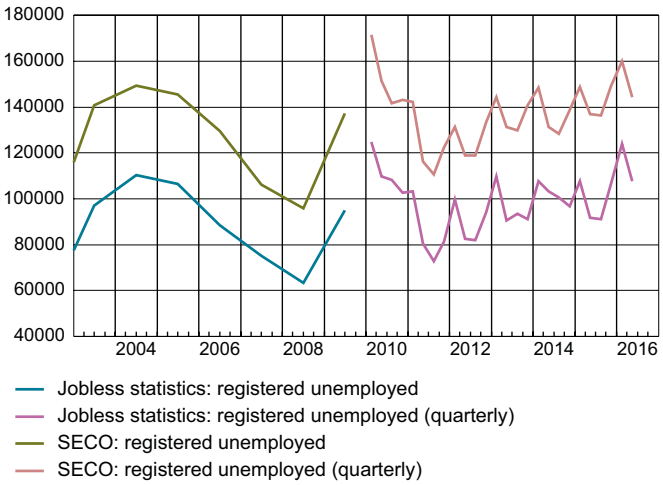
The 'jobless statistics' calculated by the Federal Statistical Office (FSO) present a different picture. Here, unemployment is calculated according to the definition of the International Labour Organisation (ILO). To determine this unemployment rate, around 130,000 telephone interviews are conducted every year among the permanent resident population, both Swiss and foreign, in the context of the Swiss Labour Force Survey (Schweizerische Arbeitskräfteerhebung, SAKE). Pursuant to these statistics, unemployment amounted to 4.5 per cent in the past year and had followed an upward trend in the preceding years due, in particular, to a rise in long-term unemployment.

Surprisingly accurate jobless statistics

The public often regards jobless statistics with scepticism. Is this scepticism justified? The answer is no, for two reasons: Firstly, the two statistics provide a similar assessment of the number of registered unemployed. This is not a matter of course since the jobless statistics are based on random sampling among households and may therefore be subject to statistical fluctuation – which does not typically occur in the registered unemployment statistics that are calculated on the basis of registration data. Furthermore, due to their collection method, the statistics might deliver systematically distorted results, for instance since the unemployed may be easier to reach by telephone than people in employment.

Graph G 4 presents the number of people who, according to the jobless statistics, are unemployed and registered with a RAV at the same time (blue line). It also shows the number of unemployed according to SECO's registered unemployment statistics. We observe that both lines have followed a very similar trend since approximately 2002. This is true for both the long-term and the quarter on quarter development – a measurement that has been possible since 2010 when quarterly SAKEs were introduced. The biggest difference in the two series consists of the level of registered unemployment. Detailed but unpublished analysis by the FSO, which is based on a comparison of various data sources, indicates that this difference in levels is not due to any undervaluation of registered unemployment in the SAKE sample. Instead, among other factors, the SECO statistics appear to include a considerable number of persons who are at least partially employed.

G 4: Comparison Registered Unemployed: Jobless Statistics vs. SECO



Around 40,000 unregistered unemployed youths

Scepticism regarding the jobless statistics are furthermore unjustified because they are in fact conceptually superior. In contrast to the registered unemployment statistics, the jobless statistics also include unemployed persons who are not registered with an employment office. This is a central difference since over half of all unemployed in Switzerland are not registered with a RAV. In 2015, around 120,000 jobless persons were not registered with a job centre. This number has been rising steadily over the last ten years. A KOF Study on unemployment in Switzerland shows that the tendency to register with a RAV in the case of unemployment is below average among women, young people and people with low education levels (Bolli et al., 2015). The SECO statistics therefore underestimate their percentage.

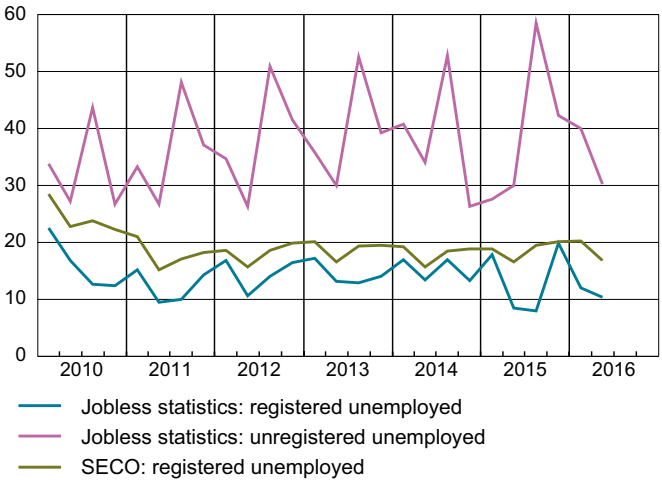
Graph G 5 uses the example of youth unemployment to illustrate the relevance of this undervaluation. The graph shows the number of registered and unregistered unemployed aged 15 to 24 according to the jobless statistics and, for comparative purposes, the number of registered unemployed youths of the same age according to the SECO statistics. The comparison shows that around 10,000 to 20,000 unemployed youths have been registered with RAVs every quarter since 2010. However, in each quarter, there were also between 25,000 and 60,000 unemployed youths that were not registered with any job centre. It is also striking that the jobless statistics always show a significant surge in the number of unregistered unemployed youths in the third quarter of each year, which subsequently declines on a gradual basis. This is not surprising since many students and apprentices complete their education in the third quarter and start looking for jobs. Apparently, only a small percentage of these young people register with a RAV.

Long-term unemployment at record level

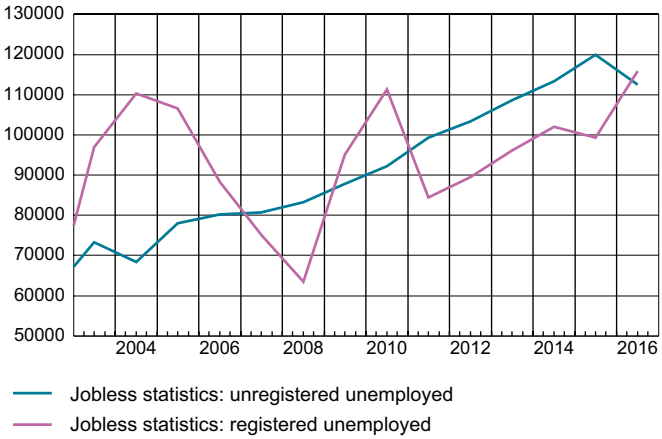
The above considerations raise the question why some unemployed persons do not register with a job centre. There are numerous reasons which have not yet been conclusively researched at the international level. One key explanation consists of a lack of awareness among some jobless that they are actually entitled to benefits. For others, visiting an employment office carries a social stigma. Furthermore, the probability that unemployed persons register with a RAV is higher the easier it is to draw unemployment benefit and the higher this benefit is.

However, in Switzerland, one of the main reasons for the failure to register is a lack of entitlement to benefits. This applies, on the one hand, to persons who do not meet the conditions for drawing unemployment benefit although they are jobless. They consist, in particular, of unemployed who did not work for long periods or on a regular basis before their unemployment commenced. On top of that, some persons have been unemployed for so long that they cease to qualify for unemployment benefits ('Ausgesteuerte'). Only around one third of the 'Ausgesteuerte' who continue to actively look for a job are still counted as registered unemployed one year after they lose their entitlement. This specifically results in an undervaluation of long-term unemployment in the registered unemployment statistics. Graph G 6 illustrates this effect. It presents the number of long-term unemployed according to the jobless statistics (orange) and the registered unemployment statistics (blue). According to the jobless statistics, the number of long-term unemployment is higher in 2016 than ever before – a development that the SECO statistics do not reflect. The reasons for this rise in long-term employment have not yet been systematically researched.

G 5: Comparison Youth Unemployment



G 6: Registered vs. Unregistered Unemployed acc. to ILO



2011 revision of unemployment insurance 'reduced' measured employment

As a direct result of the factors above, the specific form of the current unemployment insurance system has an impact on the question whether unemployed persons are registered with a RAV or not. The year 2011, when the conditions for unemployment benefit claims were tightened in the course of the fourth unemployment insurance revision, shows that this is a relevant aspect. The reform led to a substantial decline in the proportion of unemployed who are registered with a RAV. The percentage of registered unemployed according to the ILO was 54.3 per cent in the quarters before the revision of the law (first quarter 2010 to first quarter 2011). After the reform, this figure declined to 46.4 per cent (second quarter 2011 to first quarter 2016). In other words: The level of registered unemployment would be higher today if the pre-reform unemployment insurance regulations still applied. The effect is particularly striking in terms of the measured long-term unemployment rate since, in the course of the reform, over 16,000 long-term unemployed had their entitlement terminated in March 2011 and were consequently no longer included in the SECO statistics. The 2011 reform is one of the reasons why the SECO unemployment statistics fail to reflect the increase in long-term unemployment in Switzerland.

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Literature:
Bolli, T., C. Breier, U. Renold and M. Siegenthaler (2015): Für wen erhöhte sich das Risiko in der Schweiz, arbeitslos zu werden?, KOF Studies, 65, Zurich, July 2015.
www.kof-studies/65/ →
Siegenthaler, M. (2013): Die 'Erwerbslosenquote' ist die eigentliche Arbeitslosenquote, Ökonomenstimme.
www.oekonomenstimme.org →

Interaction Between Education and Employment: The KOF Education-Employment Linkage Index

Interaction between key actors in the labour and the education system is a crucial factor in determining the success of an economy. Up until now, this has been more of an assumption than an empirically substantiated thesis. KOF has now investigated the strength of the link between actors in the two systems in the form of an international comparative study.

Again and again we hear that interaction between actors in the education system on the one hand and the employment system on the other is an important prerequisite to ensure that vocational training for adolescents actually improves their labour market situation. This is surprising given the dearth of evidence that supports this hypothesis. A key reason for this is the vagueness of the concept of interaction between actors in the labour market and the vocational training system and how such linkage can be measured.

This article presents an approach that develops a theoretical concept of interaction between actors in the employment and the education system and measures linkage intensity on the basis of a survey conducted among experts in 20 different countries. The selection of the countries was based on the world's most successful education systems, which were subsequently divided into two groups. The first consists of the ten countries that achieved the best PISA results. This follows the hypothesis that good basic knowledge at

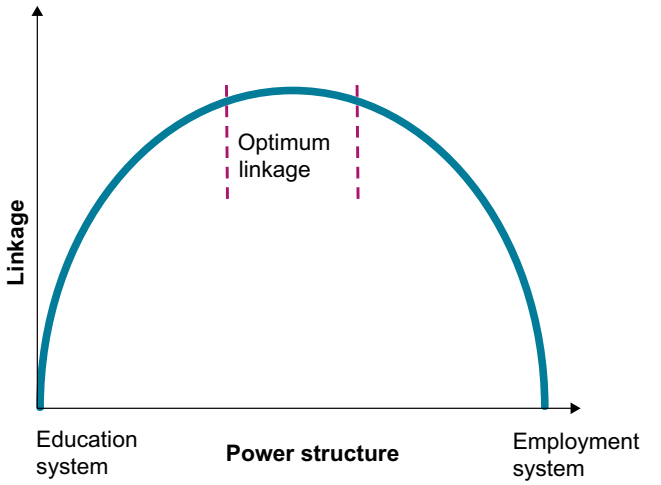
the end of compulsory schooling is a necessary requirement for advanced education leading to the labour market. The second group consists of the ten countries that are achieving the best results in terms of the youth labour market. In this case, it has been assumed that good results on the youth labour market are based on solid vocational training.

Measuring linkage intensity along the education process

Linkage intensity, i.e. the intensity of communication between actors in the education and the employment system, can be interpreted as a function of the 'power' actors in the education and the employment system exercise on the education process (see G 7). Where actors in the education system are exclusively responsible for vocational training, the skills acquired during training generally fail to coincide with the skills required on the labour market. If, in contrast, actors in the employment system hold all the power, the imparted skills will be too company-specific and will not be recognised by the education system. Consequently, they will not lead to advanced education. Linkage intensity is highest when actors in both systems share power, leading to optimised communication and the teaching of employable skills as well as to advanced education.

To measure linkage intensity in vocational education and training, several processes must be identified during which actors in the education and the employment system communicate with each other: As a first step, the Curriculum Value Chain concept is applied, which breaks the education process down into three phases in which linkage is relevant. The first phase, the curriculum design phase, consists of defining the curriculum including, for instance, exam design and the skills to be imparted. The actual training takes place in the second phase, the curriculum application phase. At this stage, relevant factors include, for instance, the teaching locations involved in implementing the curriculum, i.e. exclusively school-based training or inclusion of labour market locations. This phase delivers observable results in the labour market, taking the form of outcomes, which are evaluated during the curriculum feedback phase and integrated as findings into the curriculum design and application phases. Based on this concept, specific sub-processes are identified in each phase during which actors in the education and the employment system communicate with each other. As a last step, the relevant characteristics of each process are identified in order to describe the linkage intensity in each of the processes.

G 7: Correlation between Power Structure and Linkage Intensity

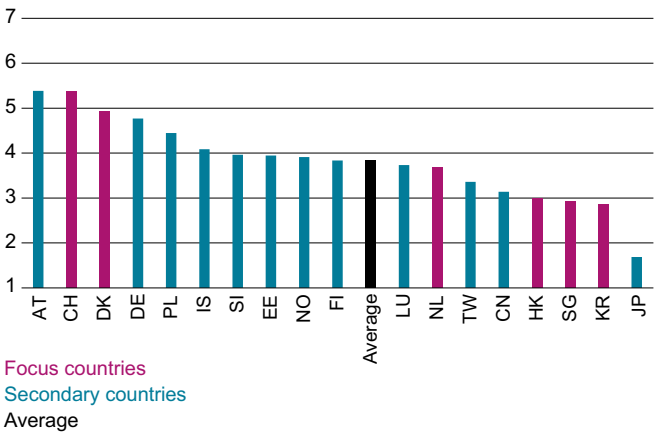


On the basis of this detailed description of characteristics, a questionnaire was developed and sent out to vocational experts in the selected 20 countries. Aside from experts in the education system, the survey also included vocational education experts in the employment system and in research. Among the 20 countries, six focus countries were selected, in which an average of 20 experts were surveyed and detailed case studies were conducted. In the remaining 14 countries, one or two experts were surveyed. The results may therefore not be entirely significant. Experts willing to participate in the survey could not be found either in Canada or Lithuania. In Switzerland, replies were received from 59 experts, which represents a return rate of 57 per cent. 39 per cent of the experts are active in the education system, 53 per cent in the employment system and eight per cent in research.

Graph G 8 presents the results of the KOF Education-Employment Linkage Index (KOF EELI). Focus countries are shown in red, secondary countries in blue and the average in black. The results in terms of aggregated linkage intensity show that Austria comes out top, although only one observation was made. Linkage intensity is not much lower in Switzerland, followed by Denmark and Germany - all three countries have a well-established dual vocational training system. In contrast, countries in South-East Asia which have particularly high PISA results, such as Hong Kong, Singapore, South Korea or Japan, are at the bottom of the linkage intensity scale.

In summary, the KOF EELI has brought to light interesting results not only in regard to linkage intensity in the various sub-processes but also in respect of their characteristics. These results should kick off an evidence-based debate on strategic vocational training reforms.

G 8: Linkage Intensity in International Comparison



In specific, the results allow for the identification of strengths and weaknesses of vocational training programmes and help derive potential strategies for improvement.

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Note on KOF EELI:
The KOF Education-Employment Linkage Index (KOF EELI) was developed in the context of a feasibility study on behalf of the Center on International Education Benchmarking (Washington, USA). In the coming years, the scientific base will be enlarged and the number of surveyed countries extended to allow for the development of an effective benchmark.

Investment in Energy Efficiency Pays Off

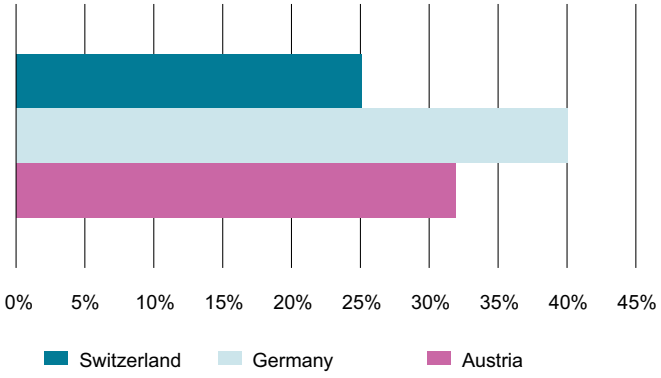
There is a lot of talk about the green transformation, but just how widespread are energy-efficient technologies in Germany, Austria and Switzerland? Between 2012 and 2014, more energy-efficient technologies were introduced in Germany and Austria than in Switzerland. This is detrimental on two counts since environmentally friendly innovations often also make sound economic sense.

In the context of National Research Programme 71 (NFP 71 [Managing Energy Consumption]), KOF has joined forces with the Centre for European Economic Research (ZEW) in Germany and the Austrian Institute of Economic Research (WIFO) in Vienna to investigate, among other subjects, the volume of investment in energy-efficient technologies and the associated impact on the environmental record of companies in Switzerland, Austria and Germany. According to the initial results, energy-efficient, more environmentally friendly technologies are not necessarily incompatible with economically efficient production processes.

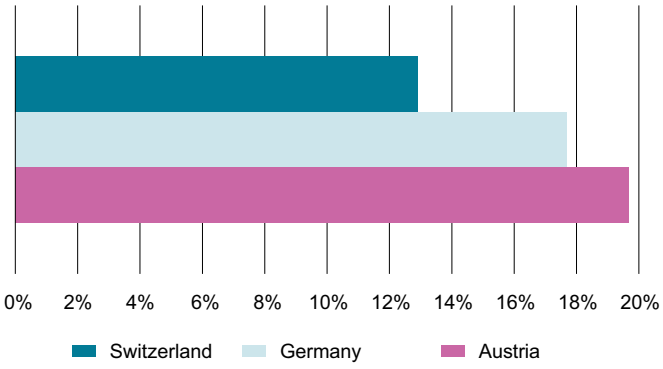
Different levels of investment propensity

In the period from 2012 to 2014, 25 per cent of the Swiss companies, 32 per cent of the Austrian companies and 40 per cent of the German companies introduced new energy technologies (see G 9). These comprised energy saving technologies and technologies based on new energy sources (e.g. solar, wind). Significant differences also showed up in terms of investment expenditure. In Switzerland, average investments in energy technologies made by all companies amounted to 12.9 per cent of total gross investment expenditure in 2014. The respective figures for Germany and Austria were 17.7 per cent and 19.7 per cent respectively. In the period under review (2012–2014), Switzerland was thus lagging behind its neighbouring countries in terms of its introduction rate and hence its investments in the introduction of energy technologies (see G 10).

G 9: Share of Companies Using Energy Technologies
(in %)



G 10: Share of Investment in the Use of Technologies
(in % of total investments)

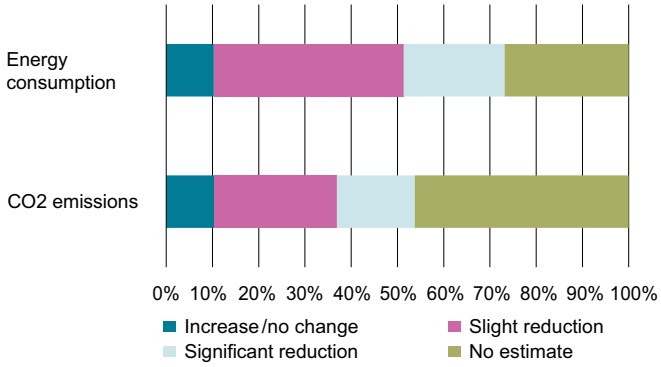


Positive environmental impact expected

Although the companies' average energy intensity is relatively low, many among them achieved cost savings after the introduction of energy technologies. On average, 41 per cent of the companies in the three countries stated that their energy consumption per unit/process declined moderately due to the introduction of energy technologies, and 22 per cent even achieved a significant reduction in energy consumption. On top of this, the CO_2 balance (per unit/process) improved in most companies. 26 per cent of the companies that introduced energy technologies in the years 2012 to 2014 reported a moderate reduction in CO_2 emissions, 17 per cent even a significant reduction (see G 11).[1]

[1] Many companies found it difficult to estimate the environmental impact of the introduction of energy technologies. 27 per cent of the companies were unable to estimate the reduction in energy consumption per unit/process and 46 per cent were unable to quantify their CO_2 savings.

G 11: Impact of the Use of Technologies



Economically significant

Porter and van der Linde (1995)[2] researched, among other factors, the link between environmentally friendly innovations and corporate success, and established the (Porter) hypothesis positing a positive correlation between the two factors. This conclusion was in contradiction to traditional concepts according to which the factoring in of environmental pollution caused by the production process exclusively raises a company's costs and has a negative impact on its competitiveness. Initial research results in the context of the NFP 71 study on the correlation between investment in energy-efficient technologies and the productivity of companies based on the data collected in the three countries confirm Porter's hypothesis for technologies that improve the production process: Investment in energy-efficient technologies and productivity are positively correlated. Consequently, many companies have benefitted from investing in these technologies.

At first appearance, this result is not surprising since cost cutting technologies are generally expected to have a positive impact. Hence, the question arises why energy technologies are not more widespread. A glance at the main barriers to their introduction and at the companies' energy intensity (share of energy costs in turnover) suggests some of the reasons. According to the survey, the main obstacles consist of the cost of adopting the technologies and their long amortisation period. This, however, is predominantly true for companies with high energy intensity. For the majority of companies with low energy intensity, these barriers play a lesser role. It is therefore not surprising that 48 per cent of the companies have never even considered introducing energy technologies.

Consequently, the companies that have already introduced new technologies are generally those with high energy intensity and high awareness of the subject. Increased use of energy technologies, also by companies with lower energy intensity, would be beneficial on two counts. One the one hand, this would improve the environmental record of the economy as a whole and, on the other, cut the cost of these technologies, reduce their amortisation periods and hence increase the technologies' cost effectiveness; this process could be supported by suitable political measures.

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The results of the project are based on a written survey conducted among a representative sample of 5,789 Swiss, 6,374 German and 7,091 Austrian companies. The samples in each country were layered according to company size and industry. The return rate was 31.4 per cent in Switzerland, 36.4 per cent in Germany and 7.6 per cent in Austria. The surveys were conducted simultaneously in all three countries and the same questionnaire was used.
You can find the KOF Working Paper, on which the article is based, on our website:
www.kof.ethz.ch/en/publications/kof-working-papers.html →

[2] Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. The journal of economic perspectives, 9(4), 97–118.

The KOF as a Committed Partner in the World

Development aid: thinking of this word, one sees people telling others how to till their fields, or helping them build schools and hospitals. But development aid is so much more. KOF employees are also dedicated development workers, or rather advisors – in particular in the areas of surveys and forecasts.

Kabul, Afghanistan

Many countries are scarred by war, an extremely precarious security situation, political uncertainty, poverty and hunger. Solving these problems is of the utmost priority. However, the further development of a country is often a kaleidoscope made up of a large number of small parts. Thus, for example, a knowledge of the condition of the local economy is also important in order to be able to improve the situation within a country. And economic surveys offer a suitable means for ascertaining this condition. Information concerning the mood of businesses furthermore helps local institutions enter into substantive dialogue with political authorities in order to improve the economic framework conditions. However, many countries lack experience with surveys. And it is here that the KOF comes into play, with its considerable wealth of experience in the area of surveys.

Afghanistan: a country scarred by war

Over the past few years, KOF employees have been deployed on various occasions as advisors in the most disparate parts of the world, in order to guide and support local institutions, such as chambers of commerce and industry, in the development and introduction of country-specific surveys. For example, on the instructions of the German Society for International Cooperation (GIZ), the KOF supported and advised the Afghan Chamber of Commerce and Industry from 2012 until 2015 in relation to the introduction of regular business tendency surveys. Alongside this regular monitoring of economic development, an annual survey was introduced in order to identify the structural problems that hinder the business activities of undertakings.

As Afghanistan is a country with an extremely precarious security situation and poor infrastructure, it is not possible simply to send a few questionnaires out by post or email, as is a matter of course in Switzerland. Since accessibility is not guaranteed and personal interviews would be associated with significant security risks for interviewers, surveys are conducted by telephone. Interviewers were recruited for this purpose and comprehensively trained by the project partner. The results of the 2015 annual survey show that, alongside the precarious security situation in Afghanistan,

Workshop, Afghanistan

businesses are confronted with a variety of further problems. These include electricity supply, non-transparent customs regulations or the exerting of political influence on public sector tenders. These results make it possible for the Afghan Chamber of Commerce and Industry to hold discussions with political authorities with the aim of improving framework conditions, without exposing themselves to the charge of representing specific interests.

A further project involving the introduction of a survey of experts was intended to analyse problems within the agricultural value added chains for almonds, wheat, poultry and dairy products in the northern regions of Balkh, Balghlan, Takhar, Badkhshan and Samangan. Acting alongside local partners, the KOF implemented the nominal group technique as part of a pilot workshop in Mazar-i-Sharif. At these workshops, the participating key informants identified and quantified the problems within the relevant value added chains. The workshops are provided with a strong structure involving several confidential evaluation cycles.

After the pilot workshop, the Chamber of Commerce and Industry held various workshops of this type on its own initiative in various regions. For security reasons, the KOF was unable to attend these other workshops in situ. The results of the workshops were published in a report written in English, Pashto and Dari, of which 1,000 copies have been printed.

Kosovo: a young state with political tensions

The KOF's support to institutions in relation to the introduction of business tendency surveys has not been limited to Afghanistan. For instance, between 2012 and 2016 the Kosovo Chamber of Commerce introduced two surveys with the support of the KOF and with financial backing from GIZ. Up-to-date figures concerning the business situation are of major interest in the young country, with its politically uncertain situation. This demand is now satisfied by regular business tendency surveys and the introduction of a business climate index. Since the country also suffers from structural problems and high unemployment, a so-called bottleneck survey analysing the structural environment was introduced with the support of KOF. In this type of survey, the participating businesses are presented with lists featuring impedimentary factors from the areas of the economy, administrative and regulatory conditions, infrastructure and general conditions. In addition, businesses indicate problems within their sector and answer questions concerning their investment plans and reasons. Product quality is one of the problems Kosovo businesses face. They therefore want to invest in order to become more competitive. But that's not all. Electricity supply has also caused discomfort for businesses over the last few years. Electricity is essentially generated at a lignite-fired power plant near Pristina. The outdated technology involves high electricity costs as well as frequent power cuts. There are now plans to modernise this factory with the backing of international investors. Another problem are high labour costs, which at first sight appears to contradict high unemployment. High public sector salaries and remittances from the diaspora are fuelling general salary levels. Kosovo is thus a rather expensive location compared to other countries in the region, measured in terms of productivity and product quality. There is also a mismatch between the educational qualifications obtained by the young persons who are coming into the labour market in large numbers and the qualifications actually needed by firms.

Better global economic monitoring

In the wake of the Great Recession of 2009, the United Nations have branded the development and implementation of indicators for the timely monitoring of cyclical development as an important goal. This type of statistic should be implemented in as many countries as possible, including developing countries. The aim is to ensure an improved monitoring of cyclical development. On behalf of

the UN, the KOF has held workshops in various countries in western Asia and North Africa, such as in Jordan and Egypt this year. The aim of these workshops is to develop a country-specific concept along with plans for implementing business tendency surveys. The KOF monitors the introduction of surveys and provides advice.

Montenegro: a long-term partnership

The KOF also acts in an advisory capacity in relation to another core issue for the KOF, the preparation of economic forecasts. The KOF supports the Institute for Strategic Studies and Prognoses (ISSP) in Montenegro as an institutional partner. This occurs as part of the scientific cooperation programme between Eastern Europe and Switzerland (SCOPES) of the Swiss National Fund (SNF) and the Agency for Development and Cooperation (SDC).

The ISSP was the first economic forecasting institute in the small Adriatic state. Since its establishment in 1997, it has steadily expanded its competences into the fields of economics, finance, social policy and demography. Engagement with a foreign partner is important in order to expand the expertise of its staff, since opportunities in Montenegro are very limited. Lively discussion thus takes place between the KOF and the ISSP, along with the provision of advice. ISSP staff regularly travel to Switzerland to follow the forecasting process, whilst KOF staff travel to Montenegro in order to advise the ISSP.

The goal of the long-term partnership is to enable the ISSP to expand and professionalise its forecasting models. In addition, the Institute aims to provide the Montenegrin economy and political circles with more data and indicators. This will support businesses and politicians in their investment planning and economic decisions.

Podgorica, Montenegro

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The KOF's Work for the German Government as one of its Economic Experts

The most important German forecasting institutes draw up the so-called Joint Diagnosis for the German Federal Government – a prestigious task, in which KOF is also involved.

Assessing economic activity is worth the effort for the German Federal Government. Around 50 economists from leading economic research institutes draw up an eighty-page report each spring and autumn over a period of three weeks.

This so-called community diagnosis contains a comprehensive analysis and forecast of the global, European and German economies, upon which the German government must draw when forecasting tax revenues. The Joint Diagnosis also provides assessments concerning monetary and fiscal policy along with current economic analyses.

The Joint Diagnosis has been carried out since 1950. It has become a respected institution in Germany and is associated with major prestige for the institutes involved. The results of the study are presented to the public at the federal press conference and discussed within a group of experts with representatives of the Federal Ministry of Finance and the Federal Ministry for Economic Affairs and Energy.

Until 2006, the same six German institutes were commissioned with drawing up the Joint Diagnosis. In 2007, the German Federal Government started awarding the contract to only four candidates for periods of three years. In addition, institutes from outside Germany were permitted to apply for the first time. The KOF has been participating as a junior partner of the Ifo Institute for Economic Research in Munich and represents the consortium primarily in the area of international and European economics.

In the 2016 bidding round, the consortium comprised of the Ifo and the KOF was once again designated as one of the experts. This time the Ministry for Economic Affairs appointed a total of five consortia. Alongside the Ifo and the KOF, the other representatives are the German Institute for Economic Research (DIW Berlin) in conjunction with the Austrian Institute of Economic Research (WIFO), Vienna, the Halle Institute for Economic Research (IWH), the Rhineland-Westphalia Institute for Economic Research (RWI), Essen, in conjunction with the Institute for Advanced Studies (IHS), Vienna, and the Institute for the World Economy (IfW), Kiel.

ETH Zurich is regarded as a centre of expertise within German economic and political circles. The participation by the KOF in the Joint Diagnosis reinforces this perception. In addition, the intensive dialogue with economic research institutes from Germany and Austria has had positive knock-on effects for the quality of the KOF's international economic forecasting. Since the Swiss economy is largely influenced by the international economic cycle, economic analysis for Switzerland also ultimately benefits from this.

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You can find more information about the Joint Diagnosis on our website (in German):
www.kof.ethz.ch/en/forecasts-and-indicators/forecasts/joint-economic-forecast-for-germany.html →

How Economists in Switzerland Judge the Fourth Industrial Revolution

What are the implications of the so-called 'fourth industrial revolution'? The KOF has for the first time surveyed economics researchers based in Switzerland to obtain their views. It was found that their opinions differ concerning the short-term effects on the labour market. Over the longer term, the economists do not expect any negative implications on the labour market. In addition, according to their assessments the Swiss economy appears to be relatively well positioned for the challenges of 'Industry 4.0'.

The buzzword of the Fourth Industrial Revolution is currently doing the rounds. The forerunners of the fourth revolution were the first revolution 1.0 with the invention of the steam engine, revolution 2.0 which saw electrification and revolution 3.0 following the invention of the computer. Now with the advent of the internet we are right in the middle of revolution 4.0.

Leaving aside the issue as to whether this description is accurate, it appears to be relatively uncontroversial that productive and logistical processes have been undergoing radical change since internet usage has become ubiquitous. This often includes in particular the evident automation, digitalisation and robotisation of processes that were previously performed by people. This has gone hand in hand with a widespread fear of technology-induced unemployment, in particular in professions in which routine work is the rule. However, there have recently also been warnings of the possible automation of medium and high-skilled jobs.

The KOF survey

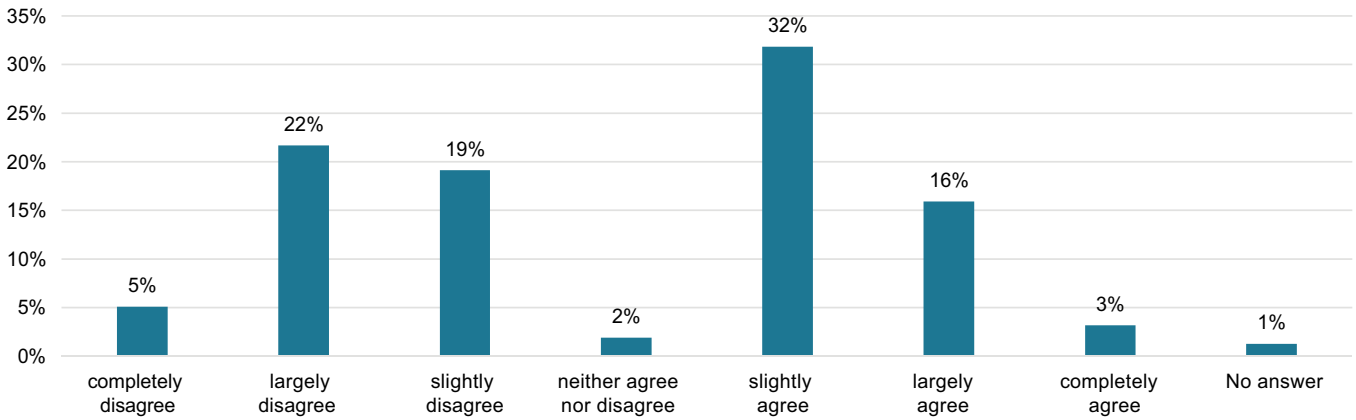
The KOF has now for the first time carried out a survey of economists based in Switzerland working at universities and research institutes in order to establish how they assess the current upheavals associated with the fourth industrial revolution. The survey focuses on implications for the labour market and possible (governmental) reactions. The first of the total of 9 survey questions addresses the short-term 'disruptive' effects of digitalisation and automation on the labour market (see G 12).

There is a stark divide here between the economists, which manifests itself in the cluster of answers for respectively 'largely disagree' and 'slightly agree'. This is not a manifestation of the old adage 'two economists, three opinions', but rather an indication of the fact that there is no consensus amongst specialists concerning the short-term implications of the fourth industrial revolution.

G 12: Short Term Effects in Industrialised Countries

(Respondents, in %)

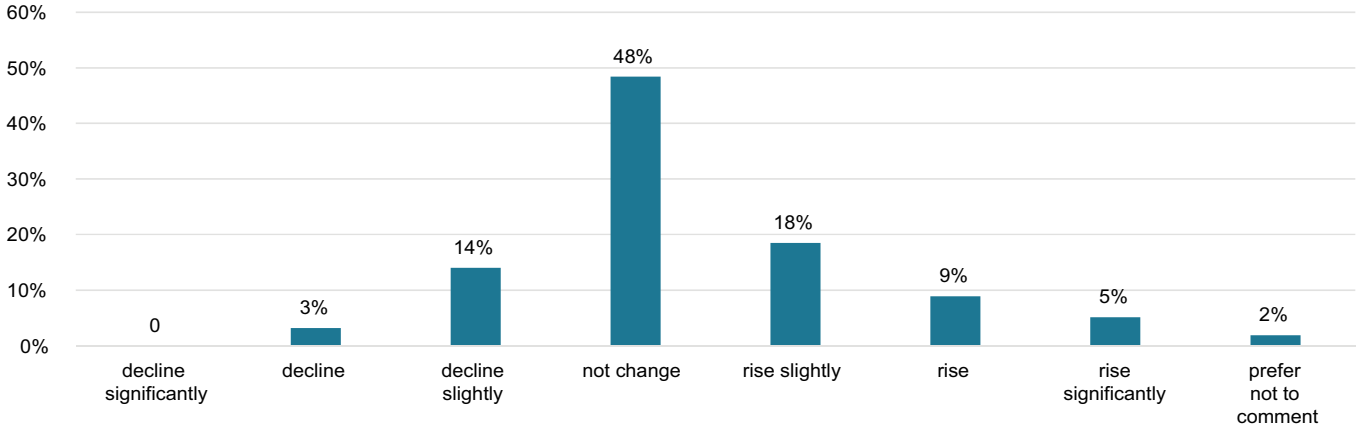
To which extent do you agree/disagree with the following statement: 'All in all, developments in robotics and digitalisation and the launch of these technologies will have a disruptive effect on labour markets in industrialised countries (substantial mismatch, significant increase in unemployment, etc.) in the short to medium run'?



G 13: Long Term Effects in Industrialised Countries

(Respondents, in %)

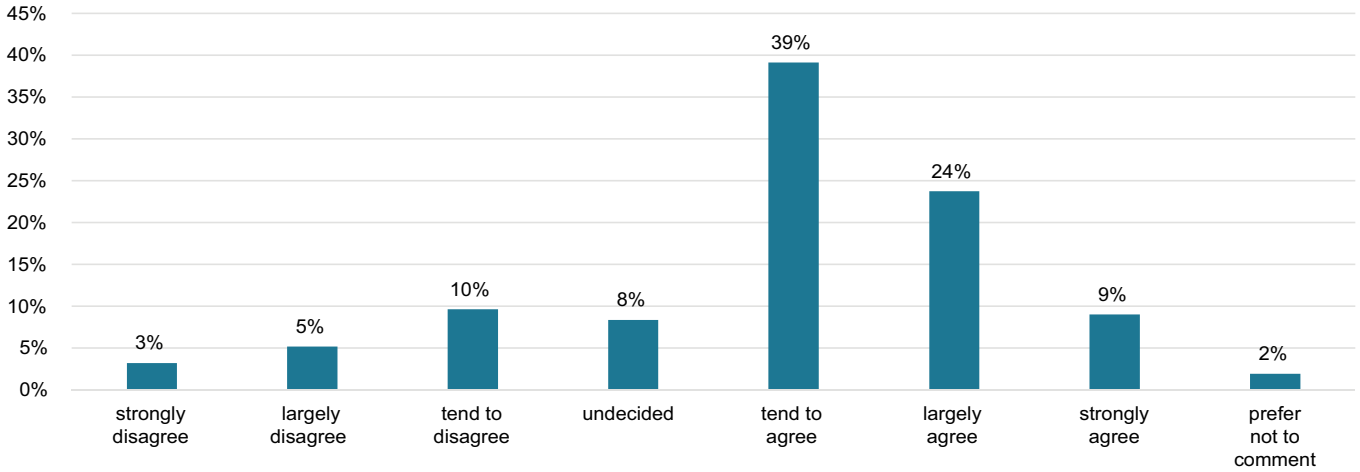
How do you judge the long-term effects of robotics and digitalisation on unemployment? Due to these technological developments unemployment in industrialised countries will in the long run...



G 14: Inequality Increasing

(Respondents, in %)

To which extent do you agree/disagree with the following statement: 'Developments in robotics and digitalisation and the launch of these technologies will in the long run result in a more uneven distribution of income in industrialised countries'?



The economists surveyed were somewhat more in agreement concerning the longer-term implications: just under 50 % do not expect there to be any effects on unemployment (see G 13). If one adds together the answers of those who expect positive effects, as many as 65 % do not expect any effects or for unemployment to decline. On the other hand, just over 30 % expect slight to highly negative longer-term effects on the labour market.

Economists consider that the effects on income distribution will be less positive and more unequivocal. A majority of economists tends towards the view that income distribution in industrialised countries could become more unequal as a result of these new technologies (see G 14).

Switzerland can benefit

According to the economists, robotics and digitalisation in Switzerland is expected to lead to a downward trend in demand for low-skilled labour as against an upward trend for highly-skilled workers. When assessing the demand for medium-skilled workers, a majority of economists also considers that it will be lower, although a considerable portion do not expect demand to change at all. Overall, economists think that Switzerland is more likely to be a winner from the introduction of these technologies. The framework conditions here are structured in such a manner that Switzerland will become more competitive compared to other industrialised countries (see G 15).

As regards the options for action by the political class, a considerable proportion of economists consider that politicians should change the framework conditions in such a manner as to enable Switzerland to take on a pioneering role. However, a large number of economists take the view that no specific action is required on the part of the government (see G 16).

Information concerning the survey

The KOF surveyed a total of 476 economics researchers. 157 of them answered. This corresponds to a response rate of 33%.

The 'economics researchers' surveyed were economists working at publicly funded institutions who actively publish in scientific journals. The further results of the survey can be found on our website.

The KOF is acting here as a mediator between academic researchers and the public at large and its aim by this survey is to give a stronger voice to economics researchers.

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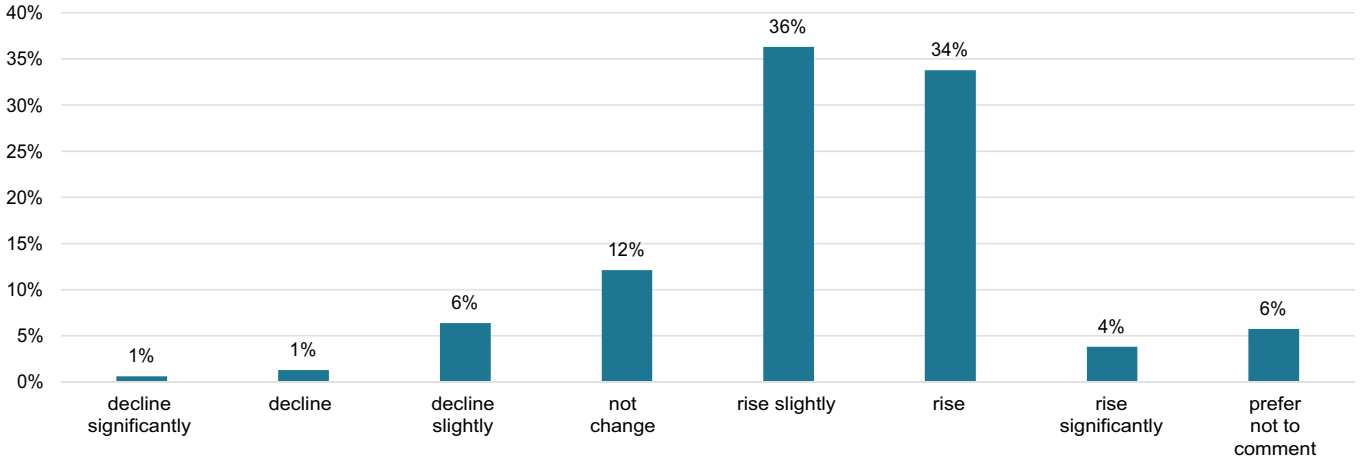
G 15: Trends in Switzerland

(Respondents, in %)

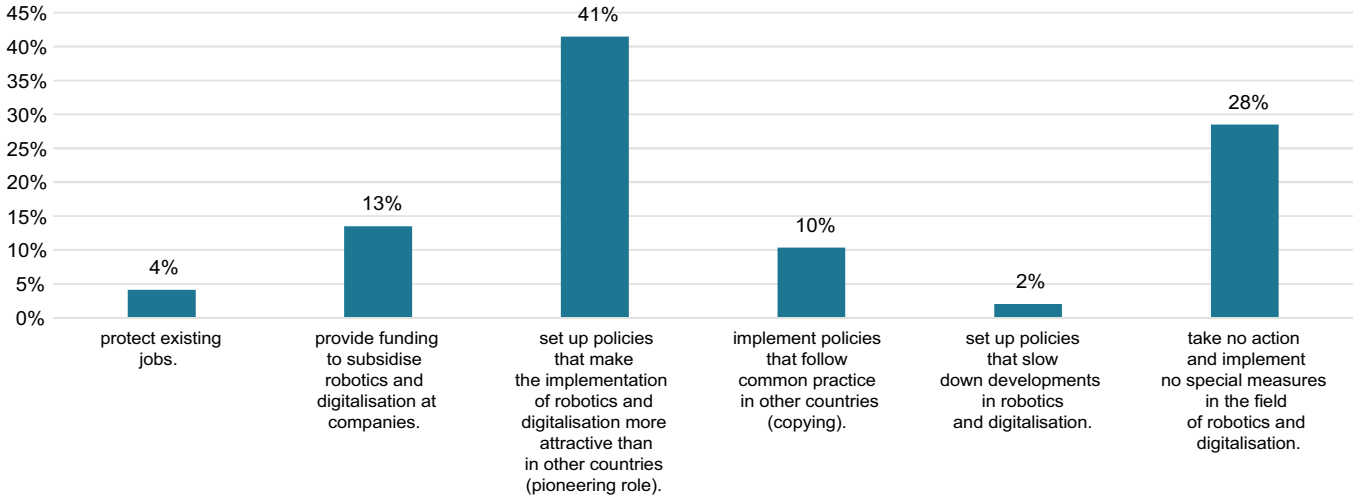
Given the current political and economic environment in Switzerland, do you expect the Swiss economy due to robotics and digitalisation to gain or lose relative competitiveness compared to the average of other industrialised countries? Due to these technological developments, the relative competitiveness of the Swiss economy will...



G 16: Policy Responsed

(Respondents, in %)

Should the government take action concerning robotics and digitalisation or should it not? The government should…



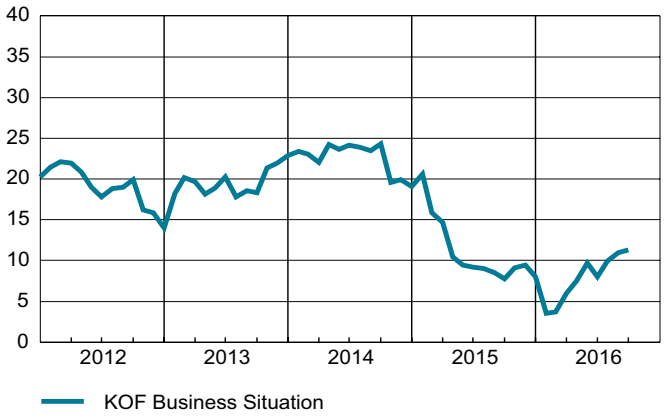
KOF INDICATORS

KOF Business Situation: Still Brightening Up

In September, the KOF Business Situation Indicator for the Swiss private economy rose for the third consecutive time, albeit recently to a smaller extent (see G 17). Nevertheless, the current survey results confirm a continuation of the upward trend. The Swiss economy is facing significantly less headwind in late summer.

September's rise in the Business Situation Indicator is almost exclusively due to the improved situation in the retail trade (see T 1). Although the overall retail trend is still rather unsatisfactory, fewer retailers are complaining about an unfavourable situation than in the past months. Very little has changed in the financial sector, manufacturing industry and project engineering sector. The situation in the construction industry, in contrast, is no longer quite as favourable as in the preceding month. Wholesalers, hotel and catering enterprises and the other service providers were last surveyed in July. At the time, the sectors were following very different trends. While the business situation had improved greatly in the wholesale sector and significantly in the service sector, the hotel and catering industry reported a substantial setback.

G 17: KOF Business Situation Indicator
(balance, seasonally adjusted)



T 1: KOF Business Situation for Switzerland (seasonally adjusted balances)

	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16	Mar 16	Apr 16	May 16	Jun 16	Jul 16	Aug 16	Sep 16
Private sector (overall)	7.7	9.1	9.4	8.0	3.5	3.7	6.0	7.5	9.7	8.0	10.0	10.9	11.3
Manufacturing	-15.8	-15.6	-13.7	-12.5	-13.3	-13.6	-10.0	-7.4	-5.8	-3.5	-8.5	-8.1	-8.5
Construction	29.6	24.7	31.6	26.2	24.4	27.7	26.0	24.8	22.1	22.7	23.8	27.7	23.2
Project engineering	46.0	48.6	47.3	45.5	46.9	46.3	45.6	45.3	46.6	43.9	45.5	46.3	46.0
Retail trade	-11.9	-8.3	-9.1	-12.3	-11.4	-11.4	-6.0	-9.0	-11.4	-9.8	-12.9	-11.8	-8.1
Wholesale trade	-	-12.4	-	-	-16.9	-	-	-7.3	-	-	4.4	-	-
Financial services	20.8	28.5	28.8	18.8	10.0	16.9	21.5	18.2	25.7	14.3	18.1	22.8	23.2
Hotel and catering	-	-14.7	-	-	-20.9	-	-	-16.4	-	-	-23.3	-	-
Other services	-	26.9	-	-	20.7	-	-	20.2	-	-	24.3	-	-

Answers to the question: We assess our business situation as good/satisfactory/bad. The balance is the percentage of "good" answers minus the percentage of "bad" answers.

Source: KOF Business Tendency Surveys

From a regional perspective, the business situation has stabilised specifically in North-West Switzerland (see G 18). Otherwise, the improvement in the retail sector did not have any visible effect in the regional break-down. All other main regions according to the Federal Statistical Office (FSO), i.e. the Zurich region, Central Switzerland, Ticino, the Lake Geneva region and Espace Mittelland, reported a slight downturn.

Explanation of Graphs

Graph G 17 presents the KOF business situation across all sectors covered by the survey. The business situation in sectors which are surveyed on a quarterly basis is kept constant during the intervening months.

Graph G 18 presents the business situation in the main regions according to the Federal Statistics Office. The regions are coloured according to business situation. The arrows in the regions indicate the change in the business situation compared to the previous month. An upward-pointing arrow, for instance, indicates that the situation has improved over the previous month.

The KOF business situation is based on more than 4,500 reports from businesses in Switzerland. Each month businesses are surveyed in the economic sectors of industry, retail trade, construction, project engineering and financial and insurance services. Businesses in the hotel and catering sector, wholesalers and other service providers are surveyed quarterly in the first month of each quarter. Businesses are requested, amongst other things, to assess their current business situation. They may class their situation as 'good', 'satisfactory' or 'bad'. The balance of the current business situation is the percentage difference between the answers 'good' and 'bad'.

G 18: KOF Business Situation in the Private Sector

The angle of the arrows reflects the change in the business situation compared to the previous month

Net balances

55 to 100	30 to under 55	16.5 to under 30
9 to under 16.5	5 to under 9	-5 to under 5
-9 to under -5	-16.5 to under -9	-30 to under -16.5
-55 to under -30	-100 to under -55	

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You can find more information about the KOF Business Tendency Surveys on our website: www.kof.ethz.ch/en →

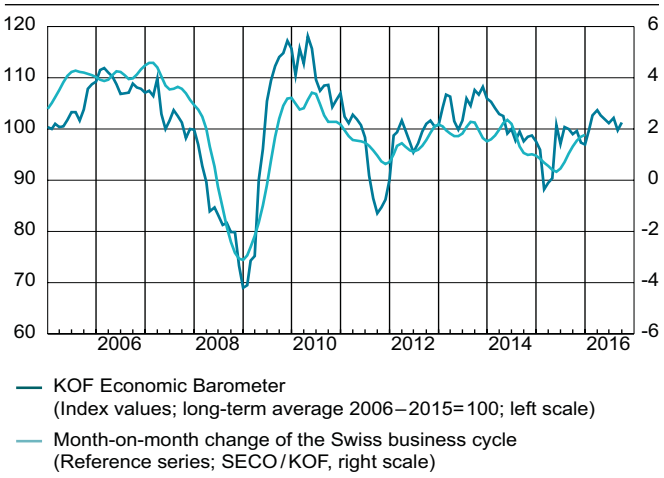
KOF Economic Barometer: Slight Recovery

The KOF Economic Barometer, with a current reading of 101.3, increased 1.6 points in September 2016 (from revised 99.7 in August), (see G 19). Therefore, the Economic Barometer recovered from its fall below the 100 points level that was witnessed last month and climbs just above its long-term average. The outlook for the Swiss economy remains stable, consistent with its long-term average growth pace.

In September 2016, the KOF Economic Barometer, with a new reading of 101.3 points, rises to slightly above its long-term mean value. Hence, the Barometer recovers from a dip below the 100 points level last month. The strongest impulses contributing positively to the dynamics of the Barometer are coming from manufacturing and consumption sectors, followed by those from the construction sector. The outlook for the banking and tourism sectors as well as the future assessment of the international business situation remain stable.

Within the manufacturing sector, the improved outlook appears primarily in wood-processing as well as special industries. These positive tendencies are, at the same time, counterbalanced by the deteriorated outlook for the textile industry. In industries such as chemical, electrical, metal processing, machine building, food processing and paper, the overall development is without noticeable contributions to the dynamics of the Barometer in either direction. The improvement of the sentiment in manufacturing as a whole is primarily reflected in the favourable assessment of incoming orders and intermediary product purchases as well as improving confidence regarding the overall business climate. However, the assessment of the employment situation, like a fly in the ointment, contributes negatively to the overall positive development of the Barometer.

G 19: Economic Barometer and Reference Series



KOF Economic Barometer and reference time series: annual update

In September 2016, the scheduled annual update of the KOF Economic Barometer took place. The annual update of the Barometer concerns the following stages: redefinition of the pool of indicators that enter the selection procedure, update of the reference time series, a new execution of the variable selection procedure and a procedure to estimate missing monthly values of quarterly variables. The updated reference series is the smoothed continuous growth rate of Swiss GDP according to the new System of National Accounts ESVG 2010, released at the end of August 2015, which takes into account the release of the previous year's annual Gross Domestic Product (GDP) data by the Swiss Federal Statistical Office. As a result of the indicator variable selection procedure, the updated KOF Economic Barometer is now based on 272 indicators (instead of 238 as in the previous vintage) from a pool of more than 400 potential indicator series. They are combined using statistically determined weights.

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For detailed information on the KOF Economic Barometer, visit our website:
www.kof.ethz.ch/en →

AGENDA

KOF Events

KOF Wirtschaftsforum
mit Vorträgen von Christian Rammer
vom ZEW in Mannheim, und Martin Wörter, KOF
Thema: Grüne Energie
ETH Zürich, Donnerstag, 24. November 2016
16.15 bis 18.00 Uhr
www.kof.ethz.ch/en/news-and-events/event-calendar-page/kof-wirtschaftsforum →

KOF Research Seminar:

tba
Sandra Eickmeier – Bundesbank
ETH Zurich, 10 October 2016

Dolores Añón Higón – Universidad de Valencia
ETH Zurich, 19 October 2016

The Structure of Energy Prices of the French Manufacturing Sector. Policy Drivers and Effects
Giovanni Marin – IRCrES-CNR
ETH Zurich, 9 November 2016

Economic Effects of Cannabis Legalization in Italy
Marcello Esposito – Università Carlo Cattaneo
ETH Zurich, 16 November 2016

Self-Help-Groups and Social Capital: Evidence from Cambodia
Matthias Rieger – Erasmus University
ETH Zurich, 23 November 2016

tba
Reshad Ahsan – University of Melbourne
ETH Zurich, 7 December 2016

Eric Verhoogen – Columbia University
ETH Zurich, 19 December 2016

www.kof.ethz.ch/en/news-and-events/event-calendar-page/kof-research-seminar →

KOF-ETH-UZH International Economic Policy Seminar:

tba
André Anundsen – Norges Bank
ETH Zurich, 20 October 2016

Shadow Banking in China
Torsten Ehlers – BIS
ETH Zurich, 27 October 2016

tba
Vadim Volosovich – Erasmus University
ETH Zurich, 17 November 2016

Regional Banking Instability and FOMC Voting
Stefan Eichler – University of Hannover
ETH Zurich, 24 November 2016

tba
Alex Whalley – University of California
ETH Zurich, 15 December 2016

www.kof.ethz.ch/en/news-and-events/event-calendar-page/kof-eth-uzh-seminar →

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www.kof.ethz.ch/en/publications →

TABLE KOF AUTUMN FORECAST 2016

SWITZERLAND

Real Gross Domestic Product by Type of Expenditure

		Percentage change against														
		previous quarter (annualized, trend cycle component)												previous year		
	2007-	2016				2017				2018						
	2015	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2016	2017	2018
Private consumption	1.6	0.8	0.8	1.0	1.4	1.4	1.3	1.2	1.1	1.1	1.0	1.0	1.1	1.0	1.2	1.1
Public consumption	1.3	2.5	1.6	-0.2	0.3	1.7	1.7	0.8	0.4	0.0	0.4	0.8	0.6	1.5	1.0	0.5
Gross fixed capital formation	1.6	2.9	2.7	-0.9	-2.3	-0.1	1.8	1.1	3.6	3.8	1.5	2.5	2.5	2.0	0.2	2.7
– Construction	2.0	-0.6	-0.6	0.6	1.1	1.2	1.7	2.0	2.2	2.5	2.3	1.8	1.6	0.0	1.2	2.2
– Machinery and equipment	1.4	5.3	4.9	-1.6	-4.5	-1.0	1.9	0.6	4.6	4.7	1.1	3.0	3.1	3.4	-0.4	3.0
Exports of goods (1) and services	2.9	5.9	2.5	0.5	1.8	2.1	3.0	4.6	3.7	2.8	3.5	4.3	3.6	4.6	2.3	3.6
– Goods	2.2	10.1	2.2	-1.1	0.7	2.7	3.1	3.8	4.2	4.1	4.2	4.4	4.3	6.0	2.1	4.1
– Services	2.7	0.6	-1.1	1.3	2.7	3.8	3.6	2.3	2.8	3.4	3.3	2.5	2.5	1.9	2.8	3.0
Imports of goods (1) and services	3.1	4.3	1.7	1.0	1.0	3.4	4.3	2.9	3.0	3.3	2.6	2.9	3.1	3.3	2.6	3.2
– Goods (1)	1.8	6.9	2.1	1.0	-0.2	3.4	5.2	3.1	3.7	4.3	3.6	3.8	3.9	4.2	2.8	4.0
– Services	6.0	0.1	-4.3	0.2	2.9	3.8	4.1	1.2	1.0	1.9	1.8	0.5	1.0	1.5	2.3	1.5
Change in stocks (2)	0.1	-0.6	0.0	0.9	1.1	1.8	1.5	-0.1	-0.5	0.1	0.0	-0.4	-0.1	-1.3	1.3	0.0
Gross Domestic Product (GDP)	1.6	2.1	2.0	1.6	1.6	1.9	2.0	1.9	1.9	1.9	1.9	1.8	1.9	1.6	1.8	1.9

(1) Without valuables (i.e. precious metals including non-monetary gold, precious stones and gems as well as objects of art and antiquities)
(2) Percentage contribution to GDP-growth

Other Macroeconomic Indicators

		Percentage change against														
		previous quarter												previous year		
	2007-	2016				2017				2018						
	2015	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2016	2017	2018
Real effective exchange rate of CHF (1)	2.5	-2.2	-1.6	2.1	-2.8	-0.2	-3.7	-0.6	-0.4	-1.0	-4.1	-1.1	-0.4	-3.0	-1.2	-1.6
Short term interest rate (3-month Libor CHF) (2)	0.6	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Yield of 10 years federal bonds (2)	1.5	-0.4	-0.4	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	0.0	0.1	-0.4	-0.4	0.0
Consumer prices (3)	0.2	-1.0	-0.4	-0.2	-0.1	0.3	0.1	0.1	0.2	0.2	0.2	0.3	0.3	-0.4	0.2	0.3
Full-time equivalent employment (4)	1.3	-0.1	0.3	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.0	0.6	0.7
Unemployment rate (2,5)	2.9	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.4	3.4

(1) Annualized
(2) Level
(3) Same quarter of previous year
(4) Smooth components annualized
(5) Unemployed as percentage of labour force according to census of 2010

GLOBAL ECONOMY

		Percentage change against														
		previous quarter (annualized, seasonal adjusted)												previous year		
	2007-	2016				2017				2018						
	2015	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2016	2017	2018
Real Gross Domestic Product (GDP)																
– OECD total	1.2	1.5	1.2	1.9	1.7	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.5	1.7	1.8
– European Union (EU-28)	0.7	2.0	1.6	1.7	1.7	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.6	1.6
– USA	1.3	0.8	1.1	2.5	2.1	2.3	2.3	2.3	2.3	2.1	2.1	2.0	2.0	1.4	2.2	2.1
– Japan	0.4	2.1	0.7	0.4	0.8	0.9	1.1	0.9	0.9	0.7	0.7	0.7	0.8	0.6	0.8	0.8
Oil price ($ per barrel) (1)	88.3	34.5	47.0	46.6	46.8	47.1	47.3	47.5	47.8	48.0	48.2	48.5	48.7	43.7	47.4	48.4

(1) Level

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