

Within the framework of the ad hoc business climate research program started by IEER, we examined the estimation possibilities of the unemployment situation in Hungary by Google Insights for Search (GIS) application. In Hungary the Hungarian Central Statistical Office discloses data on unemployment on a quarterly basis and are published in the middle of the quarter that follows the relevant quarter. It would be useful to achieve results earlier on the unemployment level experienced during each quarter. GIS would be the solution for this since it is capable to demonstrate the keywords and the number of Google searches in time and field breakdown. The esteemability of unemployment is backed by the assumption that job search is done partly through the internet. In the research program all our keywords were in connection with job search. Besides, we examined two indices related to the labour force market: one on the unemployment data, the other on the number of registered job seekers. The outcome of these models – compared with our basic model – show that we can achieve a lot better one if we do utilize the information acquired on the search activity. Accordingly, in the unemployment estimation process the models estimated by GIS data reached a better goodness-of-fit than the other type of models.

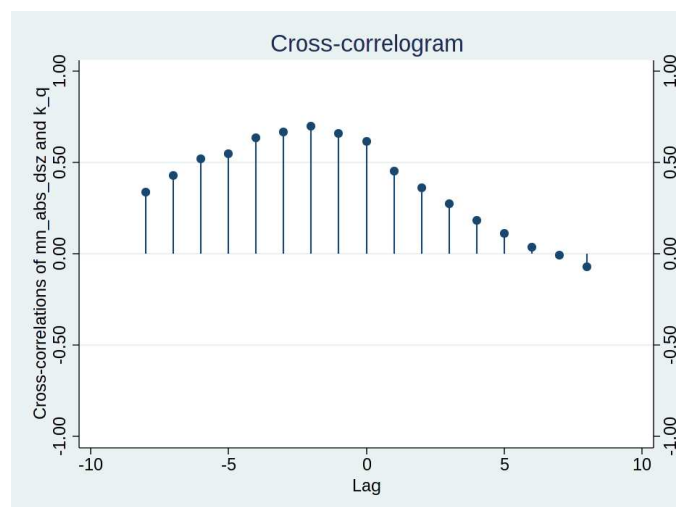
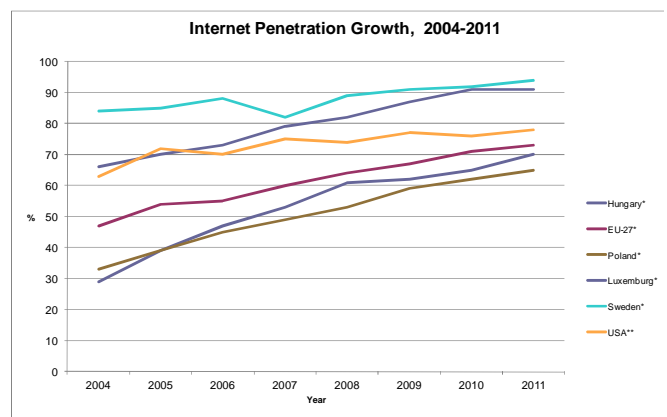
In our study we examine the applicability of Google Insights for Search (GIS) internet application for the estimation of the unemployment situation. Our aim is to set up a GIS data based model showing the expected development of unemployment in Hungary during a given period.

Possibilities for the estimation of unemployment

As in most of the countries, the Hungarian Central Statistical Office also publishes unemployment data once a quarter, based on a representative survey carried out within the population. They are generally issued in the middle of the quarter that follows the relevant quarter. It would be useful to be aware with the quarterly unemployment situation already before the publication of the official data. For this we need variables which could forecast the formation of unemployment. The unemployment rates of the previous periods can indeed be utilized well, we should, however, overlook the factors we can complete this database with.

Forecasts with macrovariables

An empirical factor of macroeconomy that has been observed is that the phenomenon of unemployment is a slightly lagged variable of macroeconomy. This means that the change in employment will soon follow the changes in the macroeconomic output. The first group of nowcasts and forecasts related to unemployment is based on this factor. This group holds estimations which use leading or coincident macroeconomic indicators of the economic output fluctuation around its trend (respectively fluctuations around their own trend). Such variables can be for instance: productivity, raw material prices, stock exchange index, money supply, government expenditure etc. Unfortunately often these models are not too successful in practice when carrying out forecasts. One of the reasons of this is that there are several possible sources and processes of the economic fluctuation and the behaviour of the players of economy cannot be regarded as permanent on the long run. Eg.: on one hand, the attitude of the monetary and fiscal authority



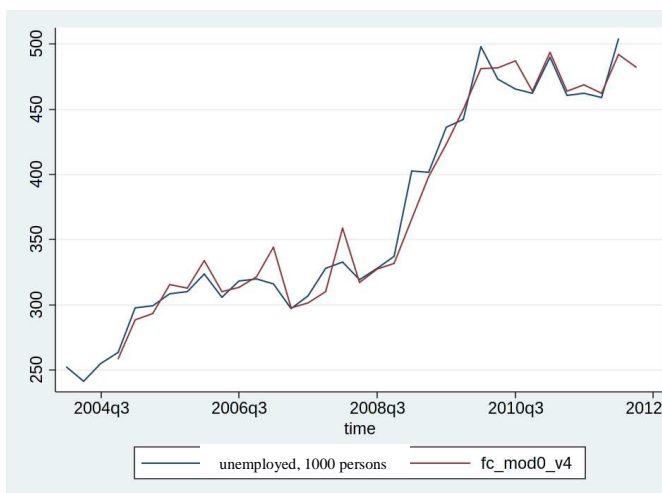
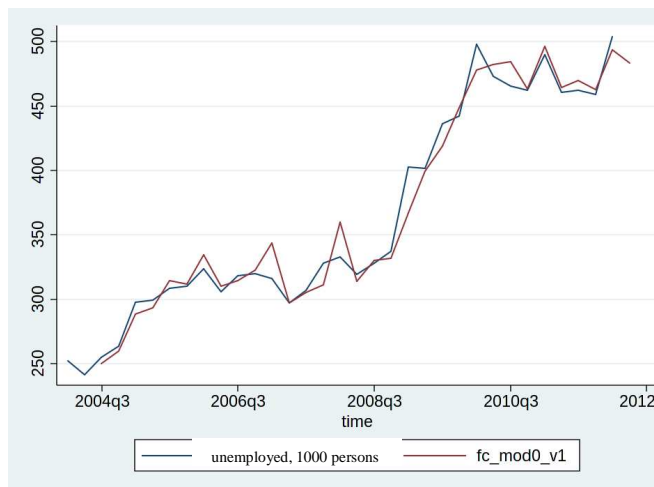
may change from one governing round to the other. On the other hand, the observability of macrovariables is not always satisfying.

Corporate surveys

The other way of forecasting unemployment is the survey with questionnaires performed among enterprises and consumers. With the help of this we may get to know the plans of the enterprises and the expectations of the consumers as well. This method can be said as to be quite wide-spread, since the surveys are very well applicable in forecasting the unemployment and the short term business climate periods. Since preparing a survey involves high expenses, the corporate and consumer confidence indicators are used more frequently, i.e. the index indicating consumer expectations. As far as the forecasting practice is concerned, the joint application of the indices and the macroeconomic indicators is the most wide-spread.

Use of GIS data

An alternative information source is the observation of job seekers' activity on the internet. Google Insights for Search (GIS) is an appropriate device for this since it gives possibility to find out how many times and which keywords were looked up by the Google internet search engine in time and field breakdown. Job vacancies by all sort of enterprises and state owned work places are advertised mainly on the most relevant internet portals or they try to reach the most competent groups of people through frequently used internet communication channels. The data gained by Google search activity have already been applied with success for nowcasting and forecasting several phenomena. Within economic predictions most of the studies using GIS data is in connection with the estimation of consumption. GIS data can be applied successfully in forecasting other macroeconomic variables as well. Studies which compare forecasting capability of the consumer indicators with the forecasting capability of time series gained from GIS also encourage application of GIS data. According to an analysis completed on the consumption data of the USA the internal and external goodness-of-fit of forecasts carried out with the help of GIS time series is also better than that of the estimations based on the leading sentiment index. Since in Hungary the internet-penetration index is lower than in either the USA or Germany, where the highest number of studies using GIS data were made, it is worthwhile mentioning that the method is useful even if applied in territories with low internet-penetration index. A further argument pro this method is that all GIS data can be reached within a shorter time and at a lower cost compared with the indices of consumer satisfaction, expectations and confidence. This makes it possible to increase the forecast period and to supervise our estimations more often. To sum up: we can thus make estimations faster, at a lower cost and in a more precise way which leads to better economic and policy decisions.



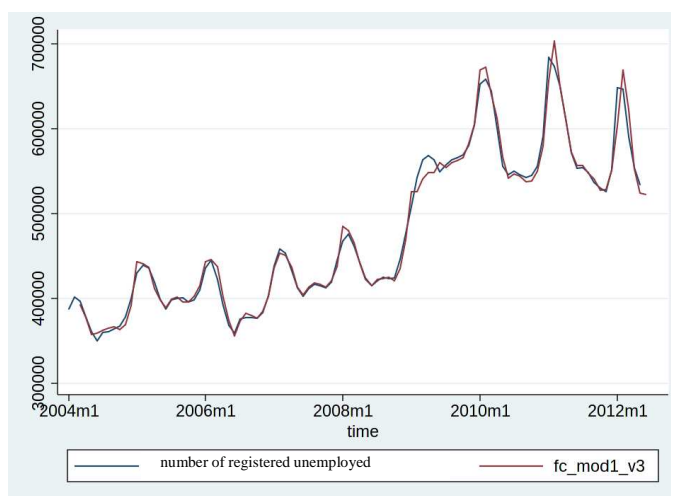
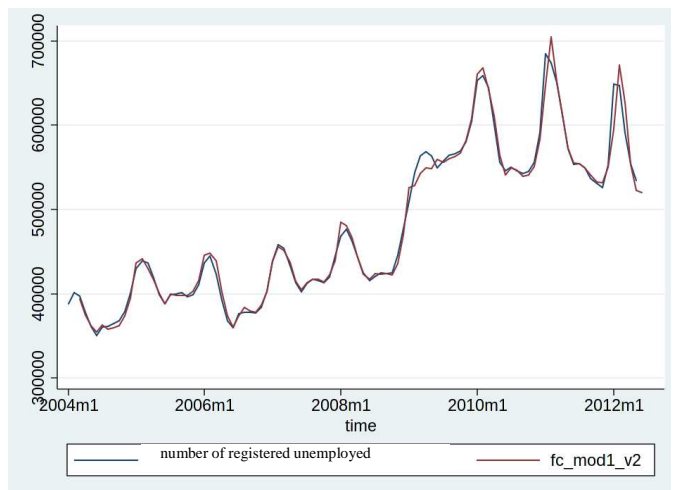
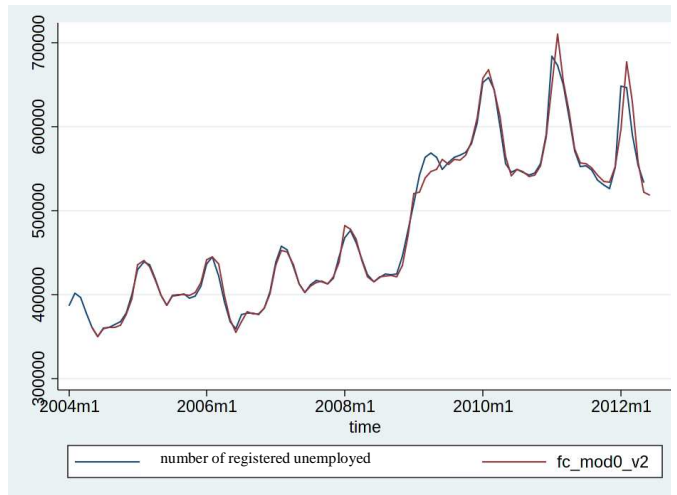
Data

With the help of Google Insights for Search we get information on how often and what kind of expressions are searched for in Google. We may get information on five expressions at one time. We receive the data standardized, the frequency of the search activity is represented as the highest proportional value within a given data query. The earliest accessible data are from January 2004 and can be downloaded (exclusively) in a weekly breakdown. We carried out a query where we used keywords that were related to finding a job, such as: job offer, job offers, job seeking, job vacancy, job advertisement. Besides, we have examined two labour market based indices: the unemployment data and the number of registered job hunters.

Results and conclusion

The results of our unemployment based models show that we can get a much better model than the basic model if we use the information on the search activity as well. Comparing the different model versions we saw that it is worthy to use two keywords but not more. Further, the estimation will not be better if we indicate both the current and the previous values of the search activity. In the models estimating the number of registered job hunters it was worthy to use the data on the Google search activity.

When carrying out the forecasts on the development of unemployment, the application of the data on Google search activity seemed to be useful. We have set up two different models when empirically examining the relationship between unemployment and search activity. Besides these, we have set up a reference-model as well which does not use GIS information. After the estimation of several versions of the models we can say that the models estimated with GIS data reached a better goodness-of-fit. Based on our models, we try to make an experimental estimation for the development of unemployment in the second quarter of 2012. The different versions of reference models not using GIS data give an estimation of between 483,500 and 492,000 persons. We, by contrast, count with a lower number of unemployed persons: between 467,000 and 470,000. (These data include the seasonal fluctuation.)



Macro-economic trends: comparison of the French and German economic situation

For the last two decades the French economy has been lagging behind Germany which could adapt to the new circumstances of the market more successfully. Between 2000 and 2005 it was the French GDP that increased faster, however, before the crisis (between 2006 and 2008) the development in Germany was more significant. The crisis had a worse impact on Germany than on France, however, later the indices rapidly reached the level before the crisis. This is mainly due to the German industry which could recover much better during the period following the crisis. The French industry could not – however – come out from the recession ever since.

Apart from this the rate of the state redistribution in Germany is a lot lower than in France, further the expenses have less dropped behind the government income. The French redistribution functions in a less sustainable way. The government deficit also causes a more remarkable difficulty for France than for Germany.

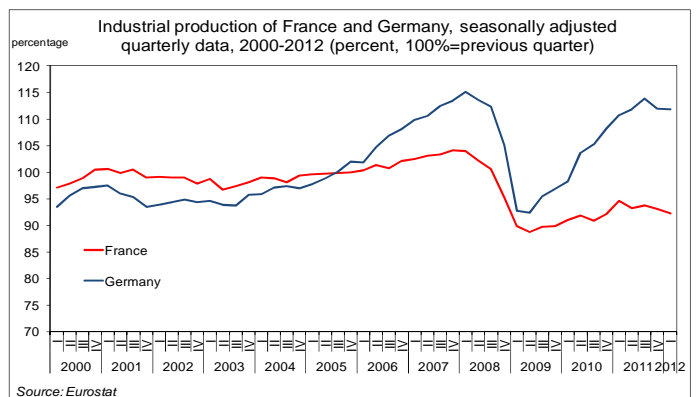
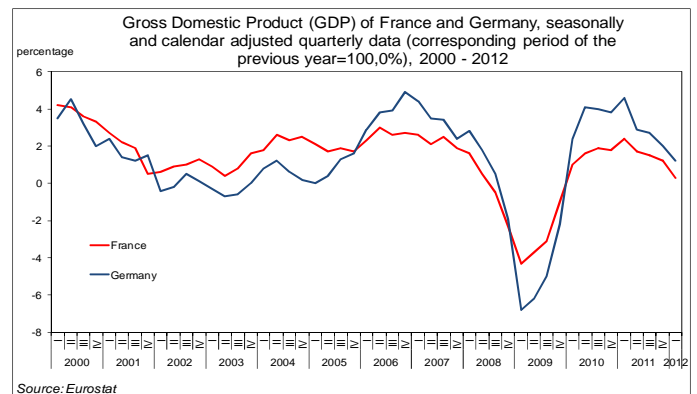
It is France where since 2000 the domestic consumption has much more increased almost in each quarter. In 2011, however, this slowed down significantly and the German domestic consumption has increased by 1-1.5% which demonstrates the stability of the German economy. This is due to the fact that Germany uses domestic resources to the same extent as its exports markets.

According to experts the most problematic structural difficulty in the French economy is the high wage-subsidiary system and the regulation system of the labour market. In France the wage expenses have steadily increased in course of the last 15 years. On the contrary, in Germany the index has shown a continuous decrease between 2000 and 2004. By the end of 2004 it reached the stagnating level, then from 2005 the periods of a slight decrease and the stagnation varied.

Gross domestic product

According to the data France has been behind Germany in the last two decades as the latter country could adapt to the free market economy and to the decentralisation more successfully.

Regarding the main streams, GDP of both France and Germany have been moving relatively parallelly in the past decades. However, there could be discovered some significant difference as well in the two data lines. Between 2000 and 2005 – regarding almost all the quarters – we can see that the French economy grew by 1-2 percent point faster than the German. Directly before the breakout of the crisis (between 2006 and 2008) it was the German economy that was stronger: at the end of 2006 the growth rate was 4.9%, and that of France was 2.7 %. The crisis, however, had a worse impact on the German economy reaching a nadir of –6.8% in the beginning of 2009 while in France it was –4.3%. It was Germany who could make a better advantage of the crisis: in 2010 a growth of more than 4% was registered, while the growth rate in France has not even reached a 3% value at the culmination in the beginning of 2011. From 2011 the economic output of both countries have fallen back and both indices gradually approach to each other.



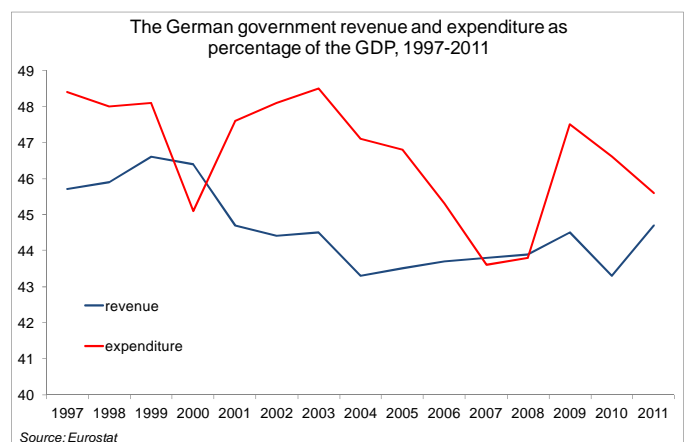
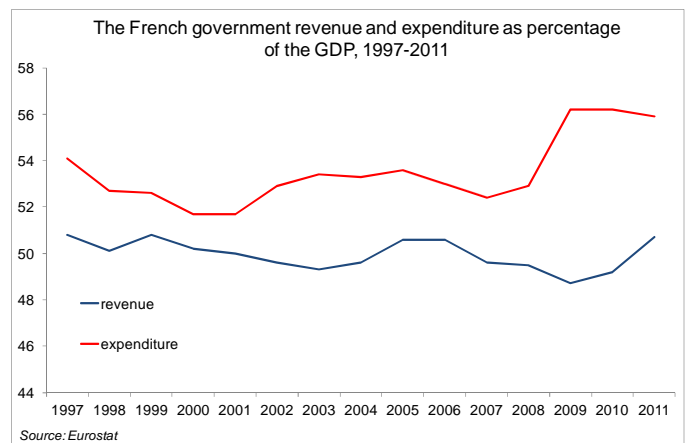
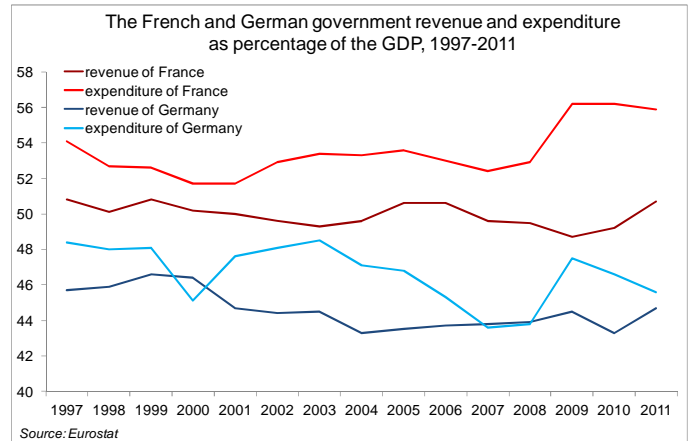
In the second quarter of 2012 both economies produced better output than expected. German economy grew by 0.3% compared to the previous quarter, while the French economy has stagnated for the third quarter already. The reason of the German growth is the increasing exports activity and domestic consumption, however, the unfavourable economic conditions, ie. the euro zone debt crisis and the resulting recession will not leave the German economy on solid basis unchanged. The latest Ifo index shows a higher rate of decrease than was expected, which means that the most important business climate index of the biggest economy in Europe fell back to the low point in the last 2.5 years. Accordingly, pessimism of the German business managers – participating in the survey – has further increased since the German economy will expectedly further shrink this year. The reason of the French economic stagnation and of the shrinking forecasted for the next period is on one hand the negative effect of the restriction policy on the growth, on the other hand we have to count with the decline of the French exports activity as well. This means that the crisis of the euro zone's memberstates in the South – by the local decrease of demand – has a negative effect on France, too.

Industry

Between 2000 and 2005 the growth of the French industrial production exceeded that of Germany by 4-5 percentage points. However, the scissors have gradually closed and the development of the German industry took a great speed from 2006. At the end of 2007 we could witness a 15% quarterly growth, while the French industry grew by only 4%. The significant decrease at the end of 2008 had a negative impact on both countries' industrial output. In Germany a 7%, in France a 10% decrease rate could be detected at the low point of the crisis. It was the German industry which could profit the most from the post-crisis recovery period. In the third quarter of 2011 the data indicated as much as a 14% quarterly rise. The French industry, however, could not recover from the recession: since the outbreak of the crisis the industrial output has continuously been falling. In 2011 on a quarterly basis (compared to the previous quarter) by 6-8%.

State Redistribution

In general one can say that in Germany the state redistribution degree is much more lower and the expenses are closer to the government income than in France. Over the past 15 years the German government income amounted to about the 44-47% of the GDP, the expenses came out between 44-49%. Since 2009 we could witness a continuous decrease of expenses, thus approaching the income. The French redistribution operates according to a model much less sustainable. In course of the past 15 years the income amounted to approximately 50% of the GDP and the expenditure were much higher: comes up to 52-56% of the annual GDP rate. During the past 15 years the income of



the French economy has never exceeded the expenditure but in the more economizing Germany this occurred three times (in 2000, in 2007 and in 2008). Furthermore, since the 2008-2009 economic crisis, the French expenditure has reached an extraordinary high level (in 2010 it amounted to 57% of the GDP, contrary to the British 5% and the German 48%) and for the time being we cannot see the realization of the necessary austerity policies. According to analysts one of the most basic problems of the French economy is that the country's social welfare system is too generous, which hinders the growth that would be so needful for the maintenance of the euro's viability.

Budget Deficit

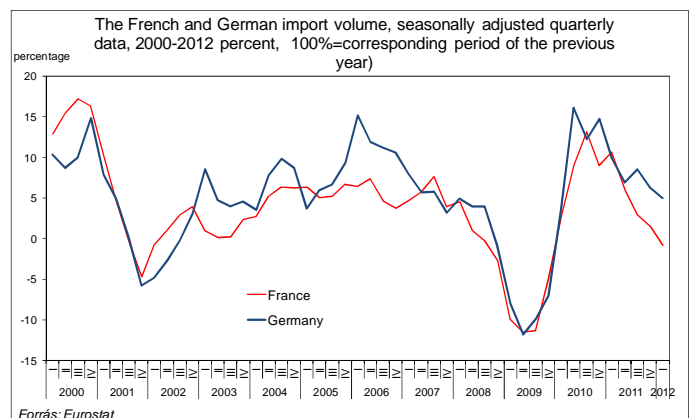
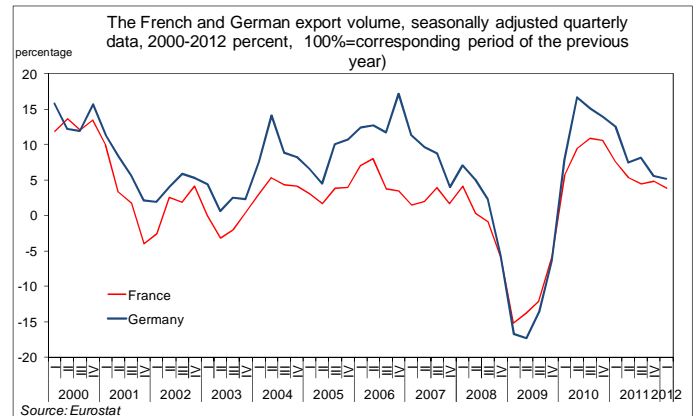
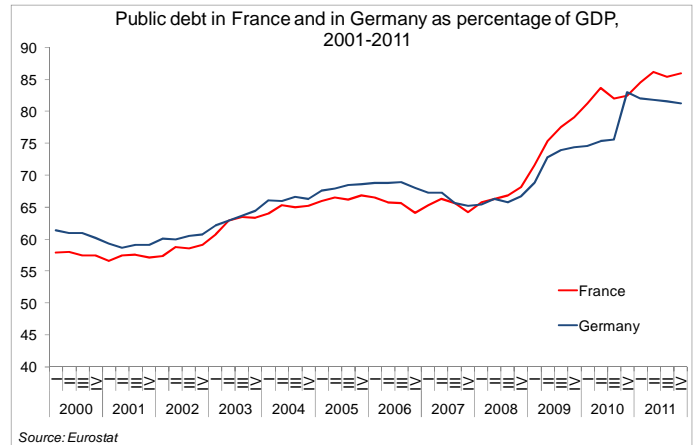
According to the above said we can also see that the public deficit causes a greater problem for France than for Germany. Between 2000 and 2006 the relevant data of the two countries were developing paralelly. From then, however, they started to diverge and by 2009 the deficit in France rose to 7.5% from 2% of the GDP and it exceeded the 5% level even in 2011. The new French government insists on its deficit cut program. President Francois Hollande would like to hold down the deficit to 4.5% in 2012. By the end of 2013 this index should be under 3% according to his plans. In order to increase the government income, already in this year tax on big enterprises and on well-to-do households would be risen. A seven billion euro additional income could be raised this way. The German budget deficit showed a steady decline from 2003 to 2007 right to a 0.2% maximum, then – similarly to the French data – rose due to the crisis, however, even on the 2010 lowpoint it was only 4.3% and by 2011 it decreased to 1%.

Public debt

From 2001 both countries' public debt has been steadily increasing. Upto 2007 this index was higher in Germany, but due to the crisis, the debt in France increased more significantly than that in Germany. By the end of 2007 public debt in both countries reached 65% of the GDP. By the end of 2011 debt in France is at 86%, in Germany at 81%.

Exports

In the last 15 years the French and German exports volume took similar tendencies. However, the German exports have exceeded the French exports almost through the whole period. It was the economic crisis causing a deep recession that created an exception: in 2009 the German data indicated a 17%, the French data indicated a 15% decline. In 2012 the French exports volume shows a significant decline, especially to Italy, Spain and Great-Britain, mostly in the field of car industry.



Import

The import volume indicates a more significant co-movement. As a result of the crisis the import volume has decreased to the same extent in both countries (12%). Both countries lag behind in 2011, however, as far as France is concerned, the decrease measured on that database is more significant.

Domestic consumption

Since 2000 domestic consumption has been increasing in France to a greater extent, almost in every quarter, except for the years of the crisis, 2008-2009. At this time the French consumption has stagnated, the German, however, grew by 1% which remarkably facilitated the recovery from the crisis. In 2011 the French domestic consumption slowed down, moreover, we could witness a slight decline. The German consumption grew by 1-1.5% which indicates the stability of the German economy since it relies on both its domestic resources and its export markets.

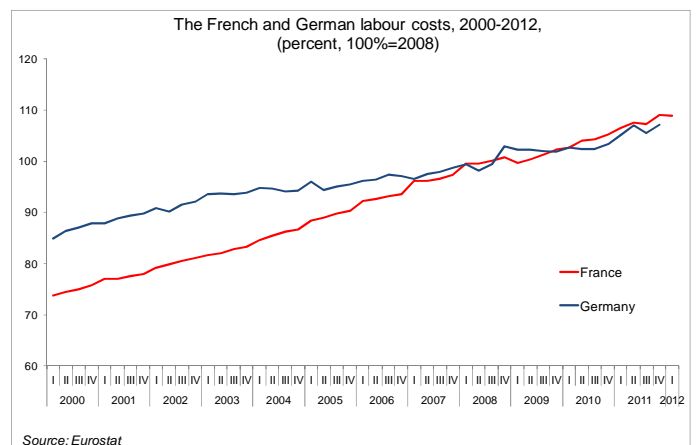
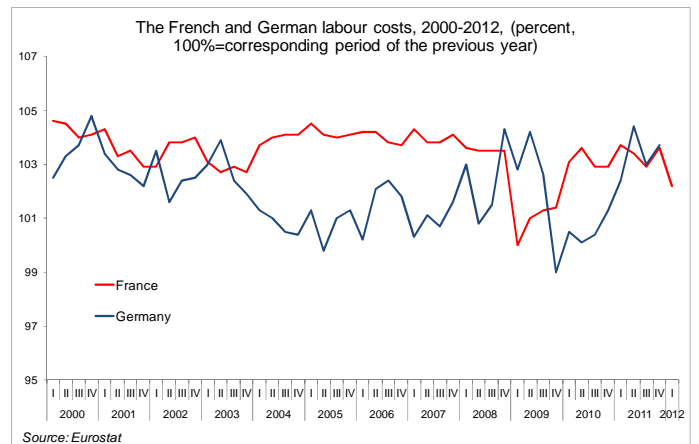
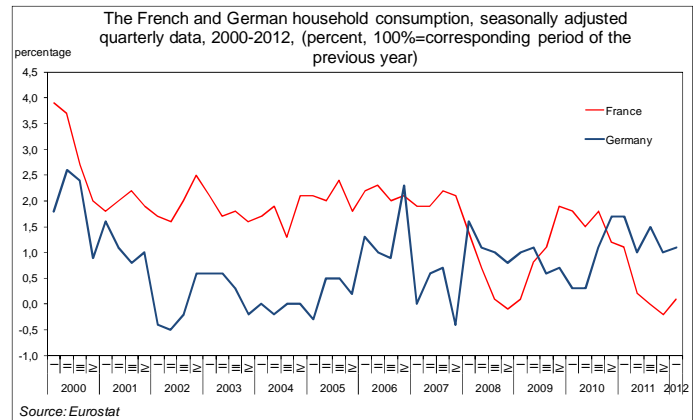
Labour costs

In respect of labour costs we can see that during the last 15 years in France there has been a continuous 4-5% rise, except for the decline caused by the economic crisis when the index stagnated, however, by 2010 it returned to the earlier level. In contrary to this, the German index indicated a steady decrease between 2000 and 2004, by the end of 2004 it reached the stagnation level, then from 2005 the periods of slight decrease and stagnation varied. Unlike in France, in Germany the crisis caused the rise of the wage expenses (4% in the middle of 2009), then in the beginning of 2010 we could witness a 1% lag behind. In the middle of 2011 the costs of the German labour force again increased over a rate of 4%.

If we compare the data to the 2008 labour costs level, we can see that upto 2008 in France this level was lower than the German one. Since the crisis, however, the level has been overpassing the German data.

According to experts the most serious structural problem in the French economy is the high wage-subsidiary and regulation system of the labour market. This renders difficult and rather expensive the necessary and inevitable dismissals during a labour crisis. The French tax wedge (tax and other charges upon the net income in the proportion of labour costs) is minimum 13 percentage points higher than the OECD average. As a result, the labour costs on one product unit in France are higher than in Germany and unemployment also stagnates on a high level.

Source: Eurostat, *vg.hu*, *nol.hu*, *origo.hu*



International trends

The Ifo Index, Germany's industry and trade confidence index of the Institute for Economic Research in Munich showed a further decline in July 2012. The current business situation slightly deteriorated compared to June and companies reported lower expectations with regard to their outlook for the near future. According to the IEER index of asynchrony the Ifo business confidence index showed lower of uncertainty than in the past month. Researchers see the euro zone crisis as having an increased negative impact on the German economy.

The July survey results from the French statistical office (INSEE) show that the industrial business climate situation in France continued to deteriorate. The business confidence index based on the accumulated opinion of business leaders fell one point and returned to the value measured in the beginning of 2010. The economic turning point indicator continues to point towards an unfavourable business situation. The overall outlook index deteriorated further, and is far below its long-term average.

Germany (Ifo)

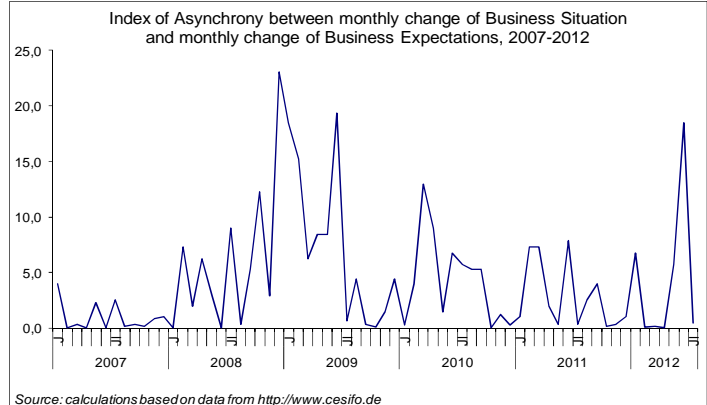
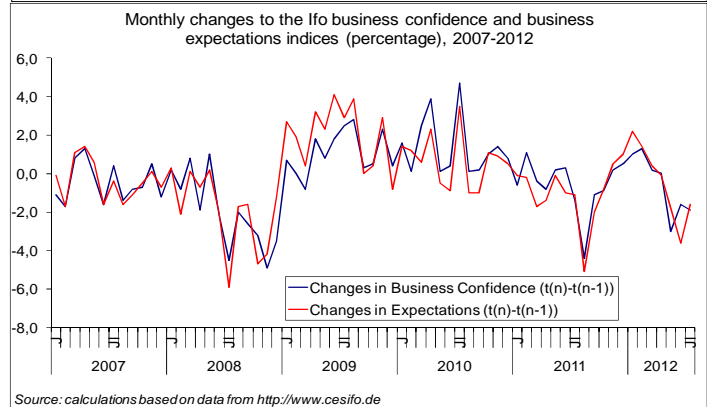
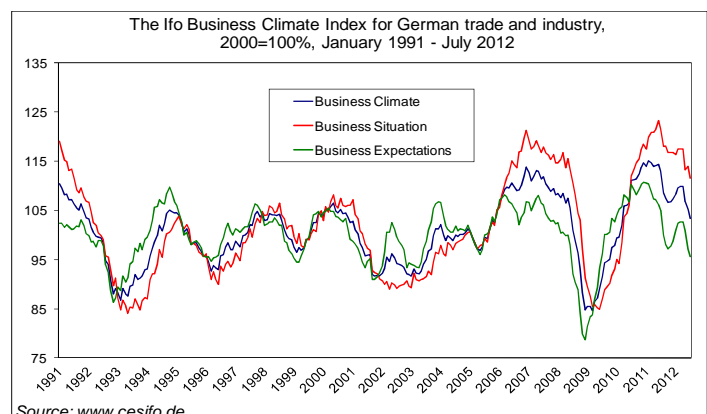
The Ifo Business Climate Index for industry and trade in Germany fell in July. After improving last month, assessments of the current business situation were more cautious again this month. Expectations in terms of the business outlook were also more pessimistic. The euro crisis is having an increasingly negative impact on the German economy.

The business climate in manufacturing deteriorated significantly. More specifically, manufacturers assessed their current business situation much less favourably than last month. Capacity utilisation was clearly lower. In terms of the business outlook manufacturers' expectations also fell considerably. Export expectations, on the other hand, declined only slightly.

Developments in retailing offer a ray of hope, as the business climate indicator continued to rise at this level of trade. Retailers assessed both their current business situation and their six-month business outlook more favourably. In wholesaling, on the other hand, the business climate continued to deteriorate. Wholesalers reported an improved business situation, but expressed greater pessimism regarding future business developments.

After rising last month, the business climate indicator in construction dropped in July. While assessments of the current business situation improved slightly, the construction firms surveyed are considerably more sceptical about future business developments.

Source: Ifo (<http://www.cesifo-group.de>)



France (INSEE)

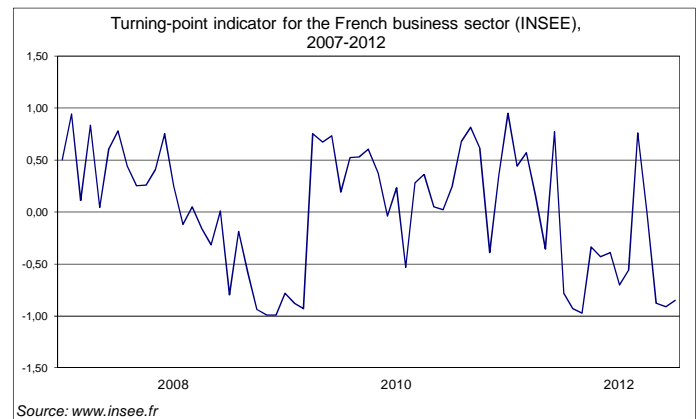
Business leaders surveyed by the French statistical office (INSEE) in July believe that the French business situation further deteriorated compared to last month: the INSEE business confidence index fell one point and returned to the level measured in the beginning of 2010.

The economic turning point indicator remained in the unfavourable business climate zone.

Reflecting on output from the previous period, business leaders continued to express their dissatisfaction. They consider the volume of finished products to have stabilized below its long-term average. The index of total orders remained stable at a very low level. The foreign orders indicator declined significantly and is well below its long-term average.

French economic growth in the coming months is expected to lose momentum: the business operations forecast of individual managers (which summarizes business prospects in the coming months) fell three points in July compared to the previous month and the balance indicator is below its long term average. The general business outlook index – which reflects the sum of opinions related to the business activity of respondents – fell much compared to the value in June and remains well below its long-term average.

Source: INSEE (<http://www.insee.fr>)



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In case of publication please acknowledge the source
as follows:
IEER: Monthly Bulletin of Economic Trends,
August / 2012, Budapest,
2012-08-31