

Climate change and its effects are one of the most significant challenges for the future generations. A brief research of IEER – based on domestic and international literature – focuses on presenting the effects of climate change to the Hungarian economy. Human activity – through the emission of greenhouse gases – plays a significant role in climate change. To offset the adverse effects caused by climate change we can follow one of two strategies: basically focusing on adapting to the effects (adaptation strategy) or taking primary steps to mitigate climate change (mitigation strategies). In the following lines can be read the main findings of this analysis based on domestic and international literature.

In recent decades a growing number of researchers are engaged in the global phenomenon of climate change and in its wide range of effects. Researches are becoming more spread out among disciplines, with a more complete and accurate knowledge of this phenomenon being acquired. While within the natural sciences there are well-developed and detailed assessments of issues from the climate change, analyzing and modeling social and economic impact issues is not long-standing: the inventory and analysis of these effects came to the fore only in the last decade. The investigation of the effects of climate change on the Hungarian economy is a relatively new field.

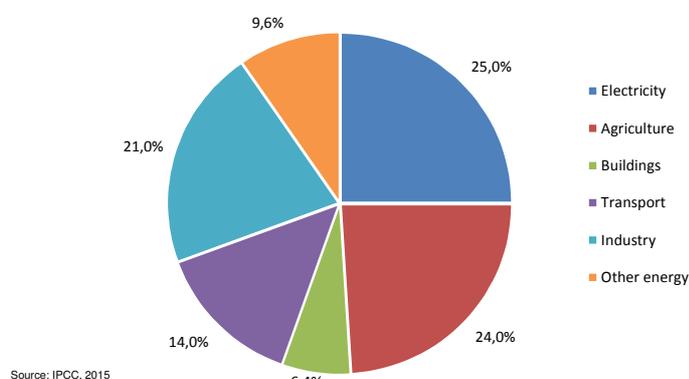
Aside from scientific interest in the issue, however, over the last decade there is a growing number of citizens who also want a credible, workable, yet thorough overview of the knowledge thus far acquired on global warming but in a digestible form for the average person. One reason for this is we feel the increasing effects of climate change (extreme weather events, floods, heat waves, etc.). Secondly, due to the international conventions around the world, this issue has assumed an increasingly significant role in domestic policies (regional, state and local). Third, businesses and the business sector increasingly view global warming as an issue that needs to be planned for when making business decisions.

The primary impact of climate change is on the natural increase in average temperature. For Hungary, in 2050 the average temperature is expected to rise 0.5-3 degrees Celsius. The number of frost days will be 12 to 15 days less while the number of days when there will be a heat wave will be up to 14 more days compared to the second half of the 20th century.

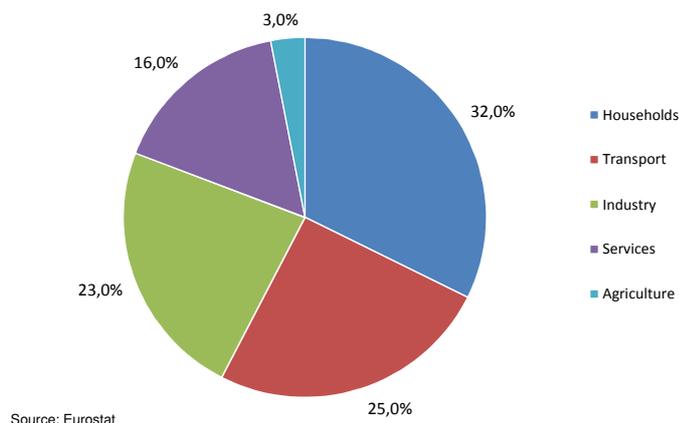
Climate change also causes changes to Hungary in many areas of the economy. Among the prevailing macro-level effects often pointed out are the following: damage to buildings and infrastructure (i); loss of productivity (ii); migration and an increase in security risks (iii); the costs of countermeasures (iv).

The impact of climate change on agriculture is one of the most vulnerable and the most sensitive sector of the economy. In Hungary, the selection of appropriate crop varieties and animal species as well as other steps of adaptation may be taken (eg., the construction of irrigation systems) so that climate change can also have a positive affect on agricultural production.

Greenhouse gas emissions by economic sectors (2010)



Energy distribution of Hungary (2013)

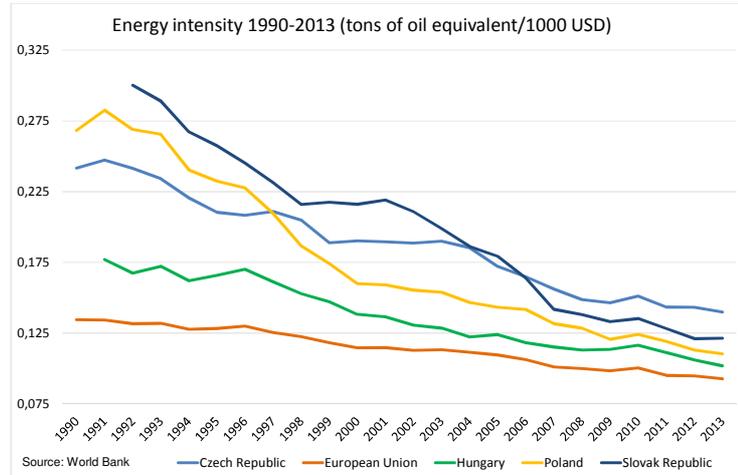


Hungary's industrial energy intensity is lower than other countries within the region, but above the average of European Union Member States. Industrial energy intensity shows a downward trend in the medium and long term. Due to climate change an increase in the levels of air-conditioning equipment, insulation and solar cell manufacturing, and other industries exploiting alternative energy sources is expected.

In the following decades, renewable energy sources will determine energy industry trends. Heat production and transport affects consumers most, while on the production side we can expect large-scale development for wind and solar energy utilization. In Hungary, with the growth of existing wind power capacity and the increasing the number of hours of sunshine coupled with a reduction in the costs of solar energy production, a quick utilization of solar energy is expected.

The implementation of the EU's energy objectives and proposals for Hungary means serious energy efficiency improvements and will result in annual energy savings of 1.5%, and by 2030 a reduction in greenhouse gas emissions of 40% compared to 1990 levels. Globally energy production will also move towards renewable energy sources. Significant progress is expected in wind and solar energy. In this respect, smaller-scale growth is expected for bio, hydro and geothermal energy.

Due to the climate change the desertification of populated areas and drinking water shortages, with increasingly frequent exposure to natural disasters and rising sea levels could lead to migration. Climate change and water scarcity-related migration will also affect Hungary in the future.



Macroeconomic trends: The far-reaching effects of falling oil prices

By June 2014 the global overproduction of oil in the developed markets caused oil prices to fall. OPEC did not hold back production in order to reduce the drop in prices, but sought to eliminate rival American shale producers. Compared to the summer of 2014 the world market price of crude oil fell approx. 60%. As a result, US oil production capacity also decreased by 60% between December 2014 and June 2015. The low oil prices have a negative impact on Saudi Arabia, Canada, Russia, Venezuela and the economies of other major oil-producing countries. The impact is also felt in Hungary: in July the upward trend in the inflation rate broke, and the rate was around 0 again in August despite forecasts.

In June 2014 a strong downward trend in oil prices began. From around \$ 110 / barrel, the price of black gold plummeted to less than half, to \$ 50 / barrel by the end of the year. The beginning of 2015 started with rapid growth, but this was not sustained: first a decline, and after a further increase (which peaked at around 65 dollars / barrel) in late August, world market prices were again at a low point of around 40 dollars / barrel of oil.

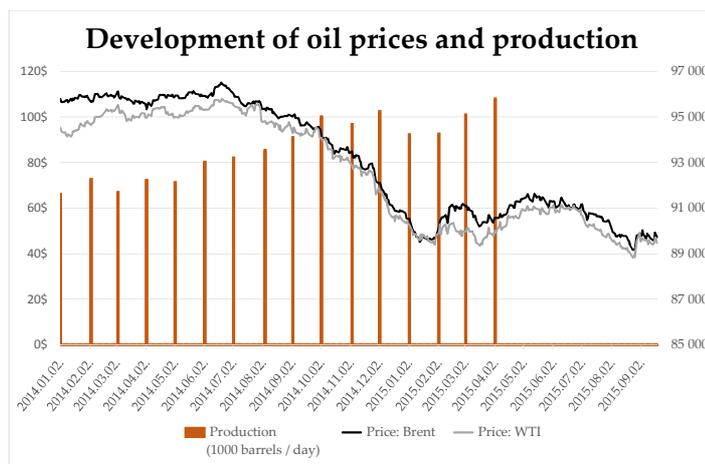
The decrease in prices was triggered by an increase in supply. When oil prices were high it was worth to exploit North American shale oil, from where much of the surplus came. For this reason, however, in the autumn of 2014, OPEC decided that it will not hold back production in order to halt the fall in prices, and even stepped up production to displace new rivals in the market.

For a long time it seemed that shale producers would be able to compete, but at the end of 2014 US oil production capacity began to decline. In May 2015, when the price of oil was on an upward curve again, the mood improved and oil companies announced an increase in their production. However, due to the effects of a price is below \$50 per barrel non-conventional producers once again began to cut back on their capacity. The situation is aggravated by a weakening of the Chinese economy, causing China's oil imports to decline.

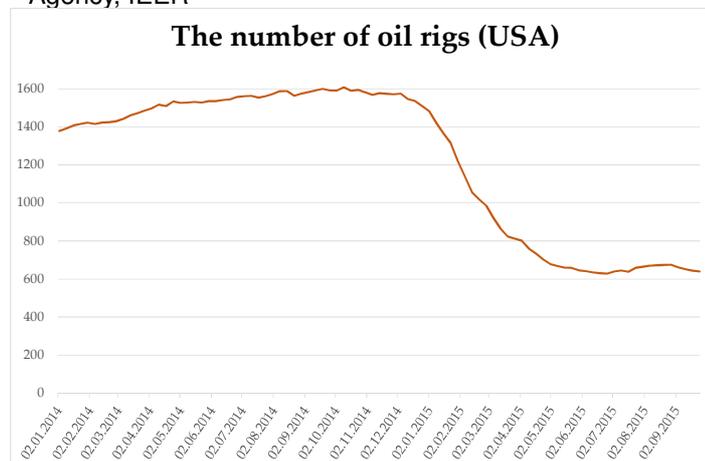
The low prices has a negative impact not only for shale oil producers, but also the entire economy of major oil-producing countries. The annual budget deficit in Saudi Arabia could amount to \$140 billion and Canada's GDP declined during the first half of 2015. Falling oil prices are also exacerbating the situation in the heavily-dependent oil producing countries of Venezuela, Libya, Russia, Qatar and Iraq as well.

The impact in Hungary of low crude oil prices is in terms of low fuel prices and increasingly cheap imports. The Central Statistical Office reports that in August 2015, consumer prices remained unchanged compared to the same period last year. The increase in inflation since the start of the year was broken in the summer – the time when oil prices began to decline again. While core inflation is above 1%, lower fuel prices from last year have offset this.

Analysts in London say the weakening of oil prices hamper long-term growth of Hungarian inflation. This is because fuel



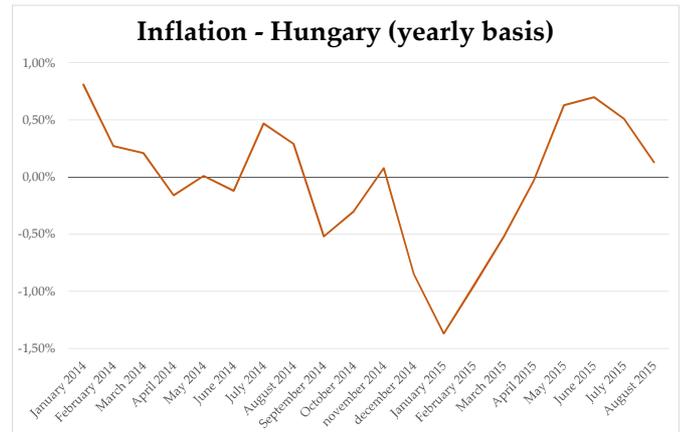
Source: Federal Reserve, US Energy Information Agency, IEER



Source: Baker Hughes, IEER

represents a significant weight in the Hungarian inflation basket, presently 8.3%. For this reason, new estimates consider it unlikely that the National Bank of Hungary will toughen monetary policy in 2016. However, a further reduction in the base rate is not expected.

The dive in oil prices and the uncertain mood in the stock market has also left its mark on Mol Nyrt. After the company's exploration in Kurdistan failed to deliver expected results, it was announced in September that no further investments would be made that can't be recouped in the immediate and medium term. Since then, another more optimistic announcement was made that Mol discovered new oil and gas deposits in Pakistan.



Source: inflation.eu, IEER

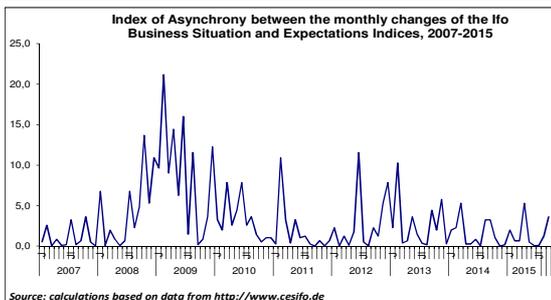
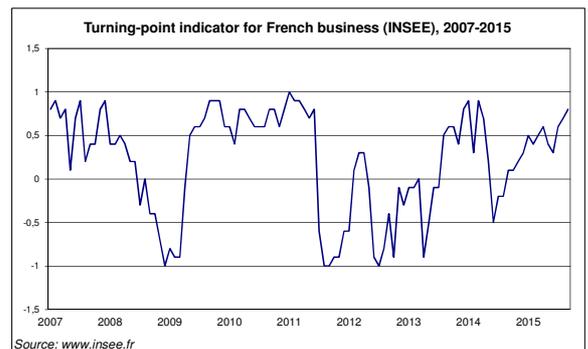
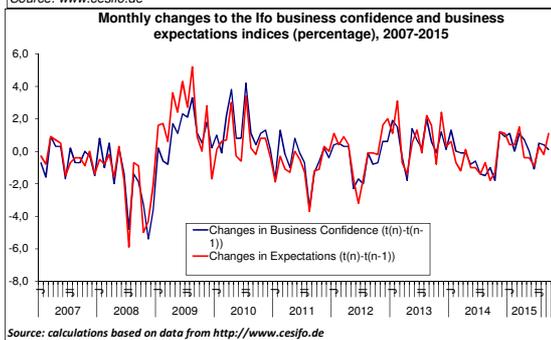
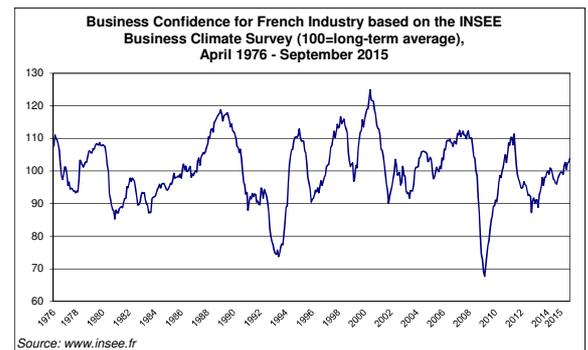
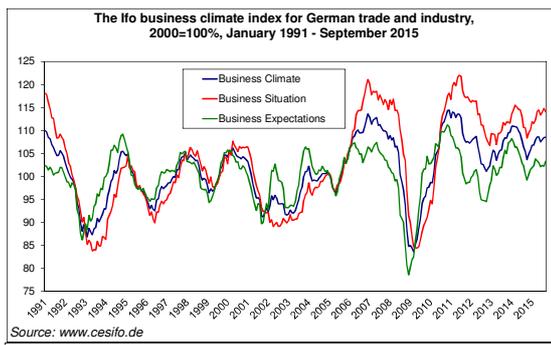
International trends

The Ifo business confidence index from the Munich Institute for Economic Research of German Industry and Trade in September 2015 rose to 108.5 points from 108.4 points in August 2015. The assessment of the current business environment is slightly less favourable than in the previous month. The outlook for the expected business situation was somewhat more optimistic about future business developments. The gap between the business situation and expected developments, as calculated by the IEER asynchronous index, increased significantly in September, thus the business confidence index is still characterized by a higher uncertainty than the previous month.

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

According to the French statistical office (INSEE) survey of September 2015, executives surveyed were of the opinion that the situation of French industrial activity improved compared to the previous month. The INSEE business confidence index rose 1 point, this value being above its long-term average (100) and it has reached its highest level since August 2011. The turning point indicator increased and continues to reside in the favourable short-term economic situation zone. The past production index in September produced a 3 point increase after having declined in August to its long-term level. Industrialists are increasingly optimistic on their personal production expectations: the corresponding balance has reached its highest level since July 2011. The general outlook index – which reflects the sum of opinions on the industrial activity of respondents – showed an increase again and it has reached its highest level since July 2011.

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



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