Kiel Policy Brief

Higher Inflation in China: Risks for Inflation and Output in Advanced Economies

Klaus-Jürgen Gern, Björn van Roye and Joachim Scheide

No. 36 | October 2011

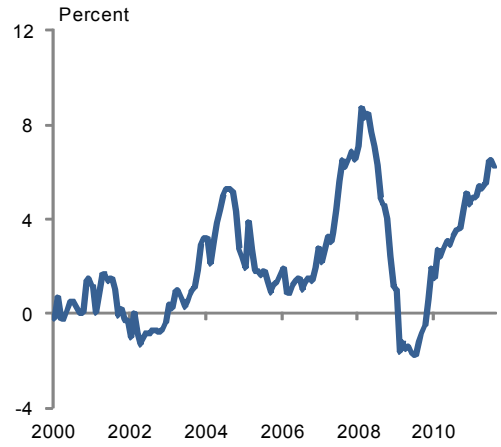
Institut für Weltwirtschaft Kiel
Kiel Institute for the World Economy

Higher Inflation in China: Risks for Inflation and Output in Advanced Economies

After the burst of the dotcom bubble at the beginning of the past decade there were serious concerns that increasing globalization would contribute to deflationary pressures in advanced economies. In particular, the increasing integration of China into the world economy was thought to exert downward pressure on merchandise goods prices due to an almost fully elastic labor supply (e.g. Roach 2002, World Bank 2002). At the same time, import price deflation increased the room for advanced economies' central banks to pursue expansionary monetary policies, as it was possible to accept higher domestic price inflation without acceleration of the general consumer price inflation. At the current juncture, by contrast, there are growing concerns that the period of imported price stability in the advanced economies has come to an end as inflation in China has started to accelerate.

The inflationary environment in China has changed substantially in recent years. The rate of change in consumer prices began accelerating in 2007 and—following a temporary decline in the wake of the global financial crisis—surged again to 6.5 percent in July 2011, the highest rate in three years (Figure 1). As a matter of fact, part of this acceleration was due to strong increases in food prices, especially the price of pork, which at least to some extent will be temporary in nature. However, there are also some indications of an increase in core inflation that is rooted in supply constraints in the Chinese economy. Particularly, wage inflation has accelerated markedly in the second half of the last decade with the exception of the year of the great global recession 2009 (Figure 2).

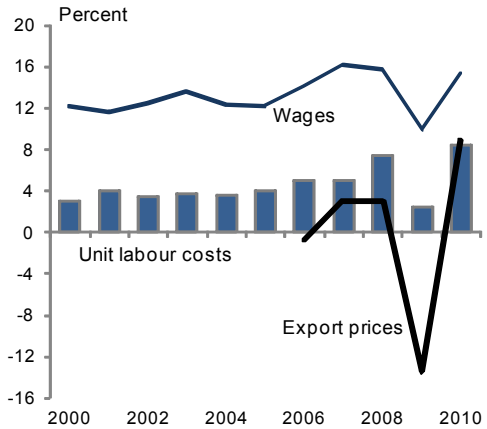
Figure 1:
Inflation in China 2000–2011



Monthly data; change over previous year.

Source: **National Bureau of Statistics of China.**

Figure 2:
Wage inflation and export prices in China 2000–2011



Yearly data; change over previos year; wages: Average wages in manufacturing; Unit labour costs: own calculation derived from wages and productivity.

Source: **National Bureau of Statistics of China, CEIC.**

One reason for the higher wage growth in China is improved qualification of labor. This is the result of rising literacy, numeracy and educational attainment even of unskilled and semi-skilled employees and substantial increase in human capital embodied in skilled workers. The investment in human capital has helped labor productivity growth to remain strong. More recently a new employment contract law may have contributed to surging labor cost in manufacturing. The law protects rights of workers, improves working conditions, and requires payments to compulsory social insurance schemes. In combination with minimum wage legislation the new law appears to strengthen the bargaining power of employees, thus contributing to wage increases (Banister and Cook 2011: 45). A third factor behind rising compensation costs is the growing shortage of labor. Until recently Chinese manufacturers have been able to draw from a seemingly unlimited supply of labor. However, in the year 2003, reports of emerging shortages of manufacturing workers started to appear in the Pearl River Delta and subsequently spread to other parts of the country. The tightness in the labor market for manufacturing workers was temporarily eased by the global economic crisis which led to large numbers of lay-offs of migrant workers. This labor tightness easing, however, proved to be premature as the economy recovered quickly, and it proved to be difficult to get the necessary quantities of rural migrant workers to return to the manufacturing centers.

Against this background, unit labor cost growth in the manufacturing industry accelerated to 8 percent in 2010 (ECB 2011), and export prices surged after the financial crisis. In addition, since June 2010 the People's Bank of China resumed its policy of letting the Renminbi gradually appreciate against the US-Dollar. As a consequence, in the advanced countries import prices for Chinese goods denominated in US-Dollars increased.

Empirical work on the effects of globalization on consumer price inflation in the advanced economies so far has found little evidence of a significant impact (see Kamin et al. 2004 and Feyzioglu and Willard 2008). While Pain et al. (2006) find significant effects, they discriminate between two different effects which point into different directions: On the one hand, globalization dampens inflation due to lower import prices resulting from the exploitation of labor cost differentials, on the other hand strong growth in Emerging Markets and Developing Economies leads to higher commodity prices which result into higher import prices in the advanced economies. The deflationary effect was mostly found to be dominant. However, the effects of a change in Chinese export prices may be more substantial today as the share of imports from China in

Table 1:
Imports from China (% of GDP)

Country	2000	2005	2010
OECD total	0.75	1.57	2.02
United States	0.84	1.61	2.07
Japan	0.98	2.33	2.34
EU 27	0.63	1.27	2.35
Germany	0.75	1.59	3.30
France	0.61	1.17	1.85
Italy	0.49	0.89	2.00
UK	0.42	1.01	1.63

OECD total 2010: partly estimated.

Source: **OECD, Foreign Trade Statistics, Main Economic Indicators; United Nations Commodity Trade Statistics.**

GDP of advanced economies has risen considerably over the past years (Table 1). The share has more than doubled since 2000 for the total OECD. The rise has been most pronounced for the European Union with the share of Chinese imports in GDP having almost quadrupled over the past decade.

A model simulation

In a simulation with the global econometric model NiGEM[1] we analyze the impact of a more limited potential output growth in China on consumer prices and output in the advanced economies. We impose lower Chinese trend output on the model by reducing the labor productivity growth rate by 1 percentage point permanently relative to the baseline. In China, lower production capacities lead to a significant increase in inflation and to a reduction in output relative to the baseline (Figure 3). The effects on output and inflation in the advanced economies depend on assumptions regarding exchange rates and monetary policy. In order to isolate the direct effects emerging from higher import prices, we assume the Euro/US-Dollar and the Yen/US-Dollar exchange rates to be exogenous in the sense that they do not move with the model dynamics.[2] With respect to monetary policy it is assumed that the ECB, the Federal Reserve and the Bank of Japan follow Taylor rules, i.e. they decide on the interest rate depending on current inflation and the output gap.[3] The Chinese central bank is assumed to follow US monetary policy (crawling peg) in order to prevent the exchange rate from strong appreciation.[4] Wages, long-run interest rates, equities and inflation are assumed to have forward looking components.

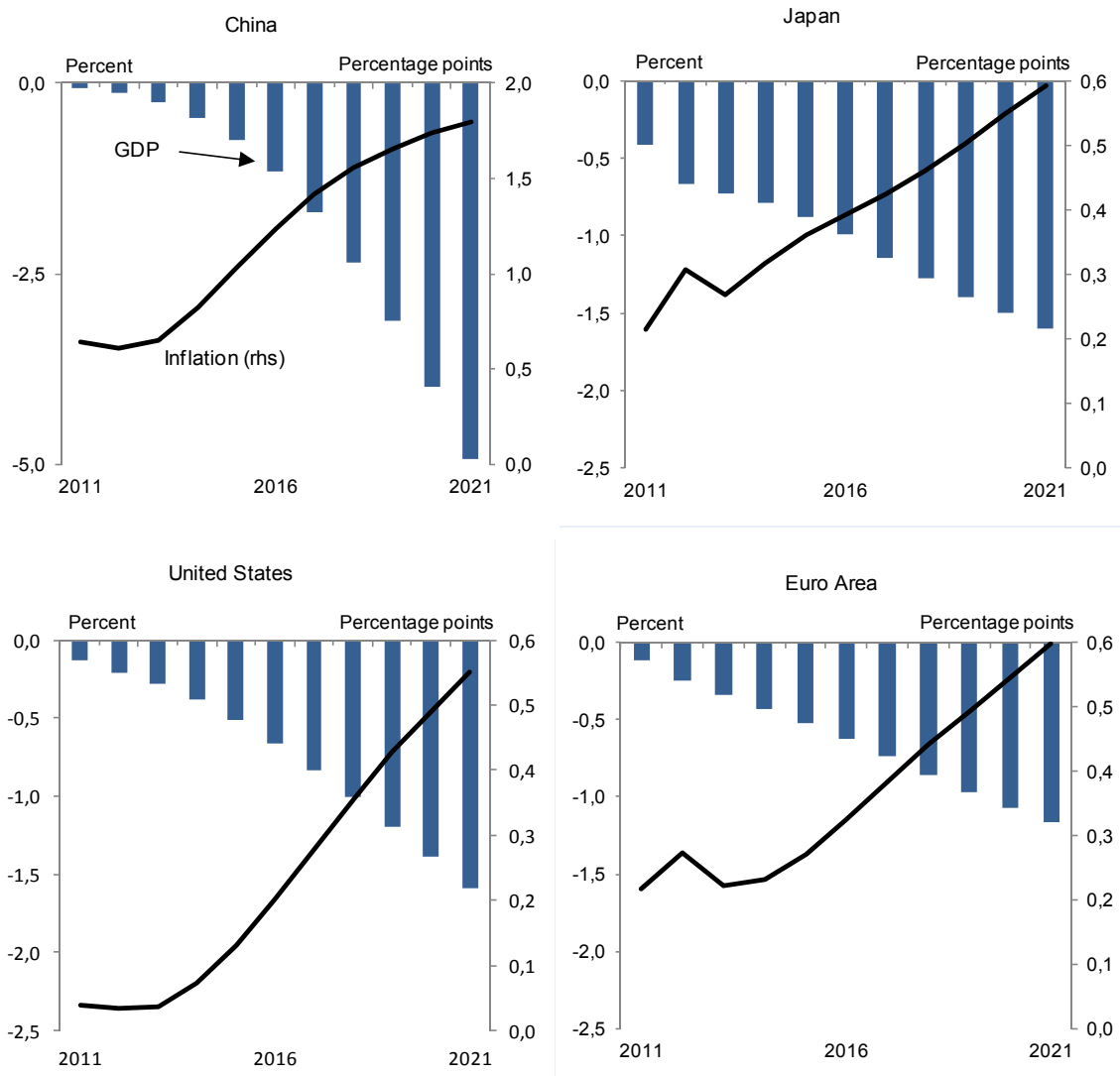
[1] NiGEM is a large scale macroeconometric model that can be used for policy simulations and economic forecasts developed by the National Institute of Economic and Social Research (NIESR). All simulations are relative to a baseline scenario provided by NIESR. NiGEM is an estimated model, which uses a 'New-Keynesian' framework in that agents are presumed to be forward-looking but nominal rigidities slow the process of adjustment to external events. Most countries in the OECD are modeled separately. The rest of the world is modeled through regional blocks: Latin America, Africa, East Asia, Developing Europe, OPEC and a Miscellaneous group mainly in West Asia. All models contain the determinants of domestic demand, export and import volumes, prices, current accounts and net assets, and the OECD countries are more complex than those of the non-OECD countries. See NIESR http://nimodel.niesr.ac.uk/logon/introduction.php?sw=0&ftyp=1&t=2&b=1.

[2] A simulation with endogenous exchange rates yields qualitatively similar results. However, the magnitude of the effects changes, crucially depending on the assumptions regarding the agents' expectations. The results for a scenario with endogenous exchange rates are available on request.

[3] The Taylor rules also contain interest rate smoothing. The parameters differ between the countries and are set to estimated values by NiGEM.

[4] This assumption is made for convenience and is not crucial for the argument. Chinese authorities could allow the exchange rate to appreciate stronger in order to contain domestic inflationary pressures. This would, however, have no (significant) effect on Chinese export prices in US-Dollar or output in China, and hence on advanced economies, as there would be no difference of Chinese appreciation in real terms.

Figure 3:
Impact of a reduction in trend labor productivity in China 2011–2021



Yearly data; Simulation of one percentage point permanent shock to trend labour productivity in China per year. GDP: Percentage deviation from baseline scenario; Inflation: Absolute deviation of the yearly inflation rate from baseline scenario.

***Source*: NiGEM Database; own simulations using NiGEM.**

The shock to trend productivity in China leads to a progressive increase in Chinese inflation and Chinese export prices. At the end of the simulation period—after ten years—the inflation rate is about 1.5 percentage points higher than in the baseline scenario. Due to the reduction of production capacities, Chinese output is about 5 percent lower at the end of the simulation period.

Since the Euro/US-Dollar exchange rate is exogenous, higher Chinese export prices immediately lead to higher import prices in the Euro Area, in the United States and in Japan. Accelerating import price inflation also results in stronger pressures on consumer prices in these countries. The effect is stronger in the Euro Area than in the United States, since the weight of Chinese products in the import price index is higher

here. At the end of the simulation period, the Euro Area inflation rate is 0.6 percentage points higher; in the United States and Japan inflation rises by 0.55 and 0.5 percentage points, respectively.

In response to higher consumer price inflation, the central banks raise their interest rates, depressing consumption and investment. However, central banks do not react as strongly as would be necessary to bring inflation back to its target, since they also consider the output loss. While the reduction of Chinese productivity is a permanent shock to the growth rate and the productivity level is therefore reduced each period, advanced economies' central banks in the model do not anticipate the permanent nature of the change in Chinese productivity growth. As a result, they allow long run inflation to be slightly higher than the target.

The negative effect on output is slightly higher in the United States and in Japan than in the Euro Area, because consumption and investment in the former countries are more sensitive to increases in the interest rate. In particular, real income and domestic demand is dampened stronger than in the Euro Area. As a consequence, the output loss in the United States and in Japan amounts to 1.6 percent in ten years relative to the baseline scenario, whereas output in the Euro Area is 1.2 percent lower. Short-term interest rates rise stronger in the Euro Area since the European Central Bank puts higher weight on inflation. In addition, the monetary stance of the Federal Reserve is less restrictive because of the stronger drop in output. Due to the large output effects on the Japanese economy the reaction of the Bank of Japan is also quite pronounced. At the end of the simulation period the Fed Funds Rate and the short-term interest rate in Japan are about 55 basis points higher, while the repo rate in the Euro Area is almost 65 basis points higher than in the baseline scenario.

Altogether, the simulation exercise supports the presumption that structurally higher inflation in China will lead to higher interest rates in the advanced economies. With higher imported inflation, interest rates will have to rise stronger than otherwise as central banks will have to fight domestic inflation in order to reduce the overall consumer price inflation back to target. Consequently, with higher interest rates, also output will be substantially lower than in the baseline scenario.

Conclusions

The period of imported price stability in the advanced economies, resulting from low production costs in China—due to an almost elastic labor supply—may come to an end as inflation in China has started to accelerate. Higher inflation in China leads to upward pressures on consumer prices in the advanced countries. This result is supported by a simulation using the global econometric model NiGEM. Central banks face a trade-off between stabilizing inflation and supporting demand in order to reduce the output loss resulting from the fall in real incomes associated with higher inflation and lower exports

to China due to reduced output growth there. With higher imported inflation, interest rates in advanced economies will be higher than otherwise as central banks will have to depress domestic inflation in order to reduce overall CPI inflation back to target. However, for the advanced economies, this should not be seen as the end of benefits from globalization since other Emerging Markets may reduce the inflationary pressures. In addition, a composition effect may leave the deflationary impact of trade with China intact as long as the absolute level of costs in China is low enough to give an incentive to substitute higher cost domestically produced goods with Chinese production.

References

Banister, J., and G. Cook (2011). China's Employment and Compensation Costs in Manufacturing through 2008. *Monthly Labor Review* (March): 39–52.

Feyzioglu, N.T., and L.B. Willard (2008). Does China Have Inflationary Effects on the USA and Japan? *China & World Economy* 16 (1): 1–16.

Kamin, S.B., M. Marazzi and J.W. Schindler (2004). Is China "Exporting Deflation"? International Finance Discussion Papers 791. Board of Governors of the Federal Reserve System.

Pain, N., I. Coske and M. Sollie (2006). Globalisation and Inflation in the OECD Economies. OECD Economics Department Working Papers 524. Paris.

Roach, S. (2002). The China Factor. *Morgan Stanley Global Economic Forum*. October 14.

World Bank (2002). China is Becoming the World's Manufacturing Powerhouse. *Transition Newsletter.* October/November. Washington, D.C.

Imprint

Publisher: Kiel Institute for the World Economy
Hindenburgufer 66
D – 24105 Kiel
Phone +49 (431) 8814–1
Fax +49 (431) 8814–500

Editorial team: Margitta Führmann
Helga Huss
Prof. Dr. Henning Klodt
(responsible for content, pursuant to § 6 MDStV)
Dieter Stribny

The Kiel Institute for the World Economy is a foundation under public law of the State of Schleswig-Holstein, having legal capacity.

Sales tax identification number DE 811268087.

President: Prof. Dennis Snower, Ph.D.
Vice President: Prof. Dr. Rolf J. Langhammer

Supervisory authority: Schleswig-Holstein Ministry of Science,
Economic Affairs and Transport