



# **NFPA's Global Fluid Power Report and Forecast**

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# NFPA's Global Fluid Power Report and Forecast

April 2017

This customized quarterly report measures the potential for the global fluid power industry using a **Demand Forecast** that focuses on the drivers of demand to determine an outlook for fluid power, and includes key industrial sectors which are critical sources of intermediate demand for our industry. This report includes a global macro summary, by-country market forecasts and analysis, and by-country fluid power forecasts.

A key concept in this report is *Weighted Industrial Production (WIP)* to capture growth in market demand for fluid power products. The WIP averages growth in end-use markets weighted together by the importance of the sector to sales of fluid power products. The WIP summarizes the impact of key external developments on the fluid power sector.

**Important Note about Demand Forecasting vs. Sales Forecasting:** This report uses value-added data in constant 2010 prices to construct the weighted growth forecasts, while measures of shipments or sales of fluid power products are generally measured in nominal terms. More importantly, the different end-use sectors within the report may have different cyclical turning points, implying that their weighted average will tend to be less volatile than actual shipments and sales of fluid power equipment and will not necessarily show the same growth profile. For both of these reasons, growth trends in weighted end-use market demand and sales/shipments of fluid power equipment can be different.

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**Oxford Economics**

**Abbey House**

**121 St Aldates**

**Oxford, OX1 1HB**

**Tel: +44 186 526 8900**

**[www.oxfordeconomics.com](http://www.oxfordeconomics.com)**

If you have any questions about the information contained in this report please contact Eric Armstrong at (414) 778-3372 or e-mail [earmstrong@nfpa.com](mailto:earmstrong@nfpa.com).

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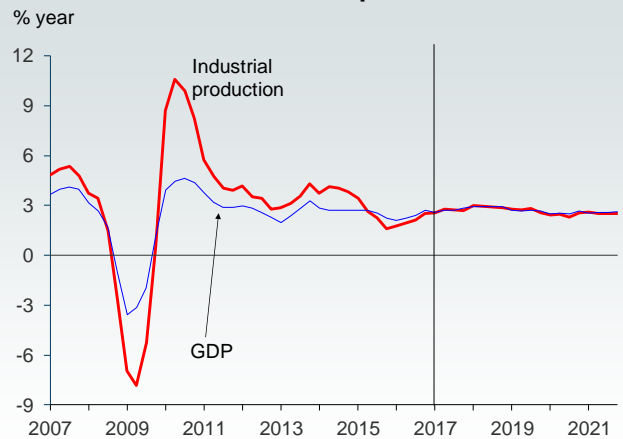
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## Global macroeconomic outlook

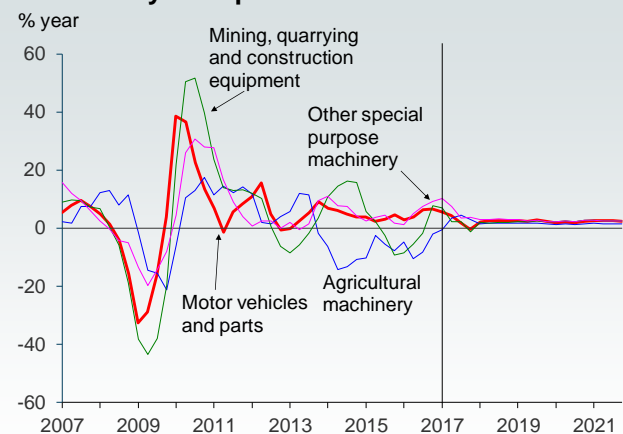
- GDP growth forecasts are similar to those reported in the report from last quarter, with gains of 2.6% and 2.9% in 2017 and 2018, respectively. Global indicators continue to point to a pick-up in activity, driven by stronger manufacturing. Global manufacturing PMI remained at its highest level in almost three years in January, while the composite index including services is at 22-month highs.
- After a disappointing 1.6% gain in 2016, we expect US growth to rise 2.3% in 2017, bolstered by President Trump's expansive fiscal policies. However, uncertainties around our central forecast are unusually high. The first weeks of his presidency have shown that he does not intend to tone down his rhetoric, and we believe there is risk of a general underestimation of the economic risks from protectionist and anti-immigration stances.
- We expect two increases in the Federal funds rate this year and US bond yields are likely to continue to rise. Despite some recent dollar weakness, the widening of interest rate differentials between the US and Eurozone, where rates are likely to remain unchanged, will drive the euro down to parity with the US dollar by end-2017.
- Emerging market growth overall will improve this year, but performance will differ across countries. Countries with weak balance of payments positions, high dollar debt and exposure to possible US protectionist actions will be at risk. Our research shows that Turkey, South Africa and Malaysia are most at risk from potential financial turmoil.

### World: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### World: Key fluid power demand sectors



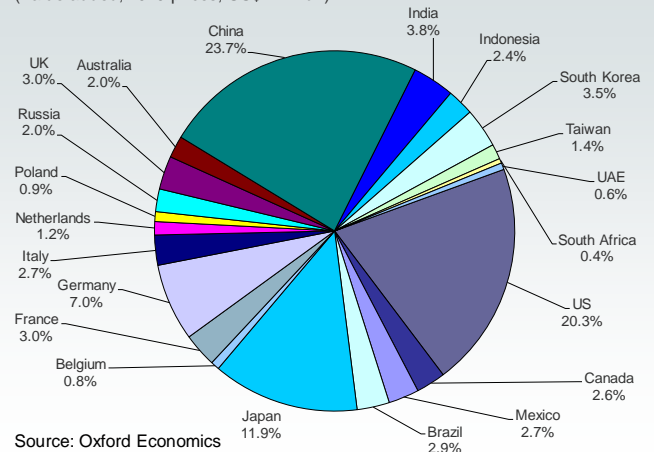
Source : Oxford Economics/Haver Analytics

## Industrial production outlook

- Global manufacturing has begun 2017 on a strong note, with survey indicators pointing to expansion across most major producers.
- Although there are signs in the US that robust survey data has started to be realized in the real economy, largely due to stabilization in oil markets, there are still reasons to remain cautious. A growing divergence in the Federal Funds rate and policy rates in the US's key trade partners should see dollar strength continue through the rest of this year and into 2018. Previous periods of dollar strength have often generated a weakening in industrial production.
- The renewed yen weakness has boosted prospects for Japanese production, and the growing divergence between US and Japanese monetary policy could cause the yen to depreciate further. This, together with a rebound in global trade, should help industrial production to expand 2.9% in 2017 on the back of improvements in heavily traded sectors.

### Output in end-use markets by country in 2016

(Value added, 2010 prices, US\$ 7241bn)



Source: Oxford Economics

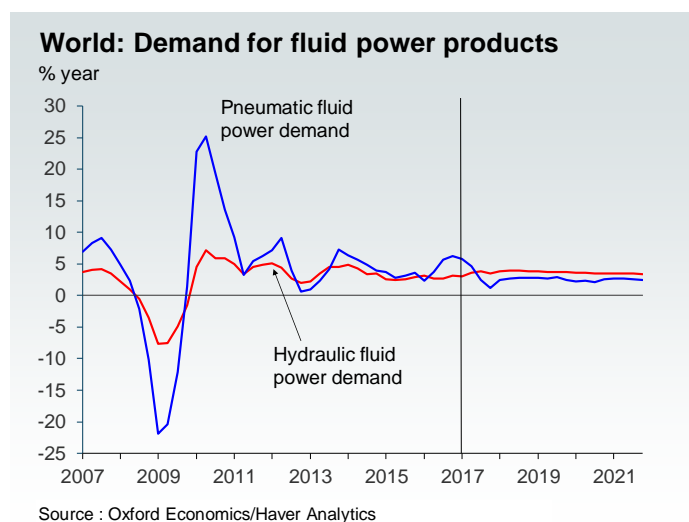
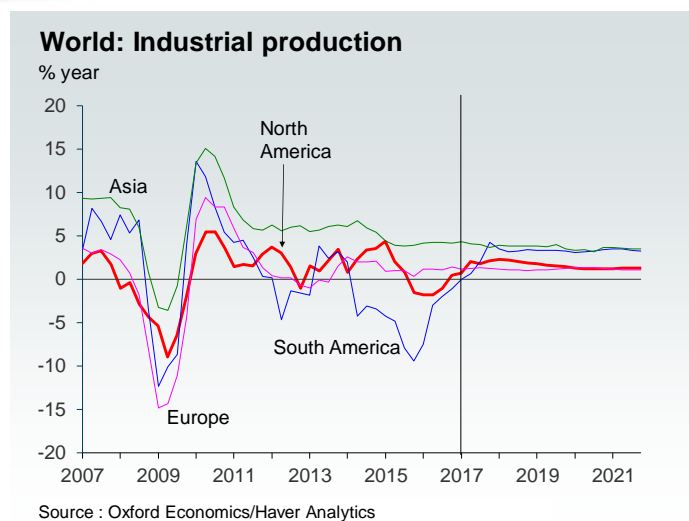
- Europe ended 2016 with healthy growth in industry. However political uncertainty could continue to weigh on investment prospects, therefore we are cautious about the extent of the industrial recover. And despite the weak pound cushioning UK producers, uncertainty surround the nature of Brexit is likely to weigh on business investment.
- China has shown some signs of rebalancing, with consumer spending outpacing fixed investment and industry this year. At the same time, the credit growth that has fuelled strong investment is not sustainable, and will likely need to be slowed. Also, reducing excess capacity in heavy industry remains a key challenge.

## Key FP end-use markets – global trends

- The major driving forces behind global fluid power demand will be the machine tools and special purpose machinery sectors. The global construction outlook for 2017 is weaker than in our last report, growing by 3.2%, down from 3.4%, but will continue to provide a steady stream of demand in the coming years.

## High-level regional dynamics

- Global demand for fluid has strengthened this year, although faster for pneumatic than hydraulic. Uncertainty has contributed to weaker demand across North America and has added to the recessions in key South American economies. Whilst stronger growth has led to a sharp upgrade across the Asian markets.
- However, low oil prices continue to contribute towards negative demand growth in the Middle East and Africa.



## Weighted growth forecasts for key fluid power end use markets

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Hydraulic end-use markets</b>						
North America	-1.3	2.0	2.7	2.2	1.9	1.7
South America	-14.3	-8.9	2.7	3.9	3.4	3.2
Europe	-0.3	1.6	2.1	2.0	2.1	1.7
Asia	0.0	4.1	2.4	2.8	2.7	3.0
Middle East and Africa	-3.5	-0.2	2.7	3.6	3.5	3.3
World	0.0	3.3	2.5	2.5	2.3	2.4
<b>Pneumatic end-use markets</b>						
North America	-0.8	0.2	1.9	1.8	1.8	1.7
South America	-3.2	1.2	4.1	5.2	4.5	4.5
Europe	1.7	2.4	1.8	1.8	2.3	1.6
Asia	5.9	5.5	3.2	3.1	2.5	3.1
Middle East and Africa	-4.6	-0.1	4.1	3.5	2.6	2.5
World	3.7	4.1	2.7	2.6	2.3	2.5
World industrial production	2.1	2.8	2.8	2.6	2.4	2.5
World GDP	2.4	2.8	3.0	2.7	2.6	2.6

Notes: World and regional aggregates consist of the 21 countries included within the analysis

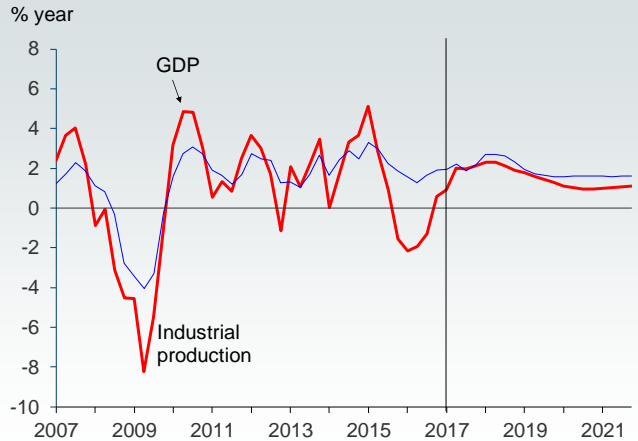
## Macro overview

- Real GDP expanded 1.9% in Q4 2016, with final sales up 0.9%, with consumer spending being the main driver of growth. Also, business investment, residential investment and inventories also contributed to the gains.
- Following this advance, we see GDP growth slowing to just north of 1% in Q1 as weak consumer outlays in January and February weigh on the quarterly average. But, on the industrial side, leading business indicators continue to indicate firming activity in each of mining, manufacturing and construction. However, rising inflation will become a constraint on real incomes and consumer spending. Despite that, and uncertainty over planned fiscal policies, the economy should still expand at a faster pace of 2.1% in 2017.

## Sector trends

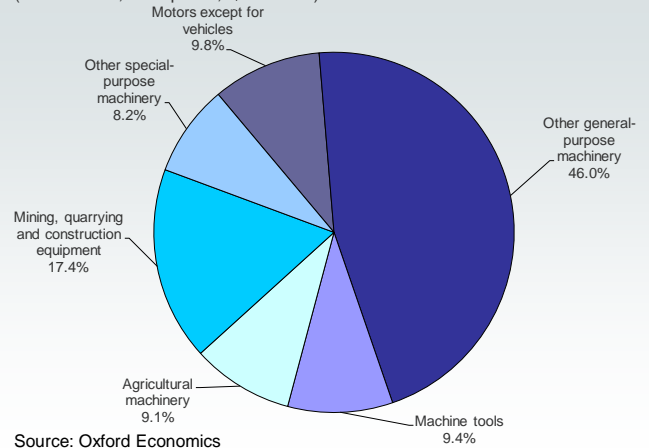
- Hydraulic demand is set to recover this year due of growth in construction, motors and generators. The expansionary fiscal package should help boost infrastructure investment, however uncertainty over NAFTA will likely affect production decisions. But overall, growth should outpace industrial production across the forecast horizon.
- However, the recovery of pneumatic fluid power is likely to take an additional year, with zero growth expected in 2017. This is a result of a weaker first half of the year in special-purpose machinery and motor vehicle production, being offset by faster growth in chemicals and medical & surgical equipment.

### US: GDP and industrial production



### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$138.39bn)



## United States: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-12.9	2.5	1.8	1.3	0.8	1.1
<b>Other general-purpose machinery</b>	2.1	0.9	2.0	1.7	1.2	1.6
<b>Machine tools</b>	-6.5	0.9	1.9	1.7	1.2	1.3
<b>Agricultural machinery</b>	-3.3	7.0	1.7	1.0	0.5	0.7
<b>Mining, quarrying and construction equipment</b>	-0.5	-3.0	2.2	1.9	1.9	1.9
<b>Other special-purpose machinery</b>	-6.5	-2.5	2.2	1.9	1.9	1.9
<b>Motor vehicles and parts</b>	4.4	-0.2	2.0	1.6	2.0	0.7
<b>Medical and surgical equipment</b>	1.5	3.8	2.2	2.5	1.8	2.3
<b>Electronic components and boards</b>	1.4	3.6	4.0	3.1	2.2	3.3
<b>Construction</b>	3.8	5.3	7.1	5.6	4.0	3.2
<b>Food</b>	1.4	1.6	1.4	0.8	0.4	0.9
<b>Chemicals excluding pharmaceuticals</b>	0.5	4.3	4.3	2.9	1.8	1.8
<b>Hydraulic demand growth</b>	-0.6	2.2	3.0	2.4	1.9	1.7
<b>Pneumatic demand growth</b>	-0.6	0.0	2.2	1.8	1.7	1.5
<b>Industrial production</b>	-1.2	1.8	2.2	1.5	1.0	1.0
<b>GDP</b>	1.6	2.1	2.6	1.7	1.6	1.6

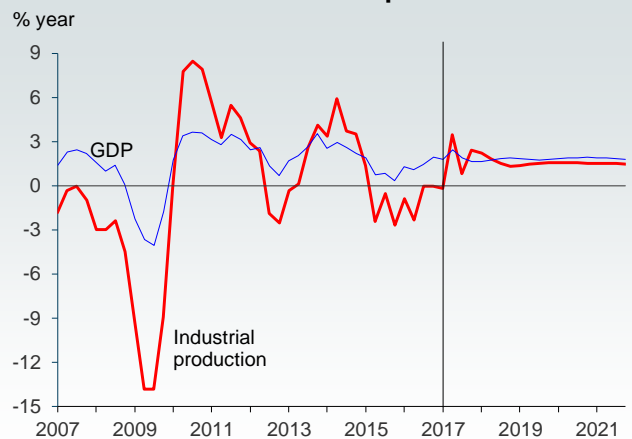
## Macro overview

- Real GDP finished 2016 on a strong note, growing at a 2.6% annualized pace in Q4. The gain was underpinned by boosts from household consumption and a one-off decline in imports. 2016 full-year GDP growth averaged a sluggish 1.4%, restrained in large part by the continued adjustment of the economy to much lower oil prices.
- Despite a slowdown in consumer spending, the drag from falling investment should fade into this year, whilst the weaker Canadian dollar and stronger US demand should help to support export growth. In addition, rising non-energy activity, accommodative monetary and fiscal policy and gently rising oil prices should help support a pick-up in GDP growth to 1.9% this year.

## Sector trends

- Hydraulic demand growth is expected to remain subdued over this year and next, largely due to weak growth in the automotive sector, as well as uncertainty across industries over the future of the NAFTA. Although the slight rebound in construction and mining & quarrying equipment is expected keep demand growth positive.
- Similarly, the outcome of NAFTA poses risks to the demand for pneumatic fluid power, especially from the automotive sector. Despite that, demand growth has improved since last quarter, increasing at the same pace as industrial production. Albeit growth remains in negative territory at -0.5% and -1.5% over this year and in 2018 before recovering in 2019.

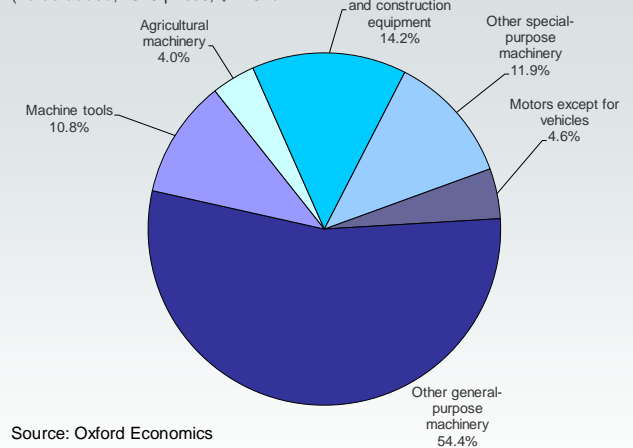
### Canada: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$12.91bn)



Source: Oxford Economics

## Canada: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
Motors except for vehicles	-14.0	-0.7	2.3	2.7	3.1	2.8
Other general-purpose machinery	-2.3	2.7	1.3	1.8	2.2	1.9
Machine tools	-5.6	1.4	1.4	1.8	2.2	1.9
Agricultural machinery	-19.0	-0.1	0.4	0.8	1.2	0.9
Mining, quarrying and construction equipment	-18.9	0.9	1.6	2.0	2.4	2.1
Other special-purpose machinery	-10.1	1.0	1.6	2.0	2.4	2.1
Motor vehicles and parts	3.4	-5.7	-9.4	-2.5	-2.7	1.1
Medical and surgical equipment	-5.8	1.4	2.3	2.6	3.2	2.9
Electronic components and boards	3.8	-1.4	-0.4	-0.1	0.6	0.3
Construction	-3.2	0.8	1.6	2.0	2.6	2.6
Food	4.9	3.5	2.1	1.9	2.0	1.5
Chemicals excluding pharmaceuticals	4.4	4.9	1.6	1.5	1.5	1.1
Hydraulic demand growth	-10.4	0.1	0.1	1.2	1.6	1.8
Pneumatic demand growth	-3.3	-0.5	-1.5	0.7	0.9	1.7
Industrial production	-0.8	1.6	1.7	1.5	1.5	1.5
GDP	1.4	1.9	1.8	1.8	1.9	1.9

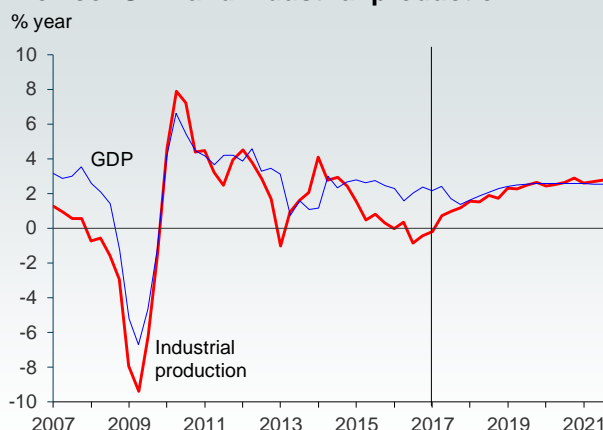
## Macro overview

- 2016 ended on a positive note, with INEGI's flash estimate for Q4 showing GDP expanding by 0.6% on the quarter, slightly faster than expected, resulting in a 2.0% expansion for the year.
- Consumer spending has been strong due to rapid credit growth and a solid labour market. Interest rate hikes and rising inflation, boosted by the abrupt adjustment in domestic fuel prices and the peso's depreciation, will limit growth. Business investment spending will remain in contractionary territory amidst heightened uncertainty and tighter credit conditions. But although we do not expect cross-border tariffs on Mexican exports to the US, instead expect that Trump will pressure firms to invest in the US rather than Mexico.

## Sector trends

- Hydraulic demand is expected to contract at a slightly faster pace of 1.1% this year, up from -0.8% compared to last quarter. This is largely due to the expected pick-up in mining, quarrying and construction which did not materialise. But overall, agricultural machinery remains the largest drag on growth, despite a 0.5ppt upgrade this year.
- Once again pneumatic demand outpaces hydraulic demand and industrial production this year, as growth remains strong at 2.4%. Demand is equally driven by machine tools, special-purpose machinery and medical & surgical equipment. But mining, quarrying and construction equipment continues to weigh on demand growth, but more so following a weaker end to 2016.

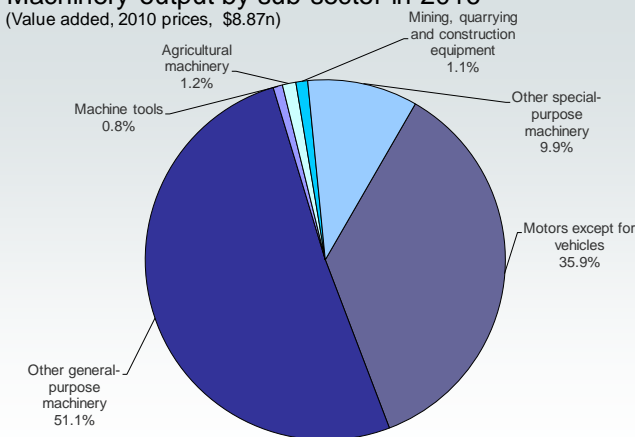
**Mexico: GDP and industrial production**



Source: Oxford Economics/Haver Analytics

**Machinery output by sub-sector in 2016**

(Value added, 2010 prices, \$8.87n)



Source: Oxford Economics

## Mexico: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-3.3	1.4	1.8	2.2	2.1	2.1
<b>Other general-purpose machinery</b>	12.4	5.2	2.8	2.6	2.6	2.6
<b>Machine tools</b>	7.1	6.0	2.7	2.5	2.4	2.3
<b>Agricultural machinery</b>	-12.5	-7.2	-1.4	0.8	0.8	0.7
<b>Mining, quarrying and construction equipment</b>	-9.9	-4.3	2.1	2.3	2.2	2.2
<b>Other special-purpose machinery</b>	-8.2	1.8	2.1	2.3	2.2	2.2
<b>Motor vehicles and parts</b>	0.4	1.5	1.4	3.2	3.5	3.7
<b>Medical and surgical equipment</b>	14.1	5.5	3.2	2.4	2.4	2.3
<b>Electronic components and boards</b>	7.1	3.8	2.3	2.2	2.2	2.1
<b>Construction</b>	1.8	2.0	2.2	2.3	2.7	3.0
<b>Food</b>	2.6	2.1	1.9	2.2	2.3	2.2
<b>Chemicals excluding pharmaceuticals</b>	-2.4	-1.6	1.2	1.8	1.7	1.7
<b>Hydraulic demand growth</b>	-3.9	-1.1	1.3	2.1	2.1	2.2
<b>Pneumatic demand growth</b>	0.8	2.4	2.1	2.6	2.6	2.6
<b>Industrial production</b>	-0.3	0.7	1.7	2.4	2.6	2.7
<b>GDP</b>	2.1	1.9	1.9	2.5	2.6	2.5



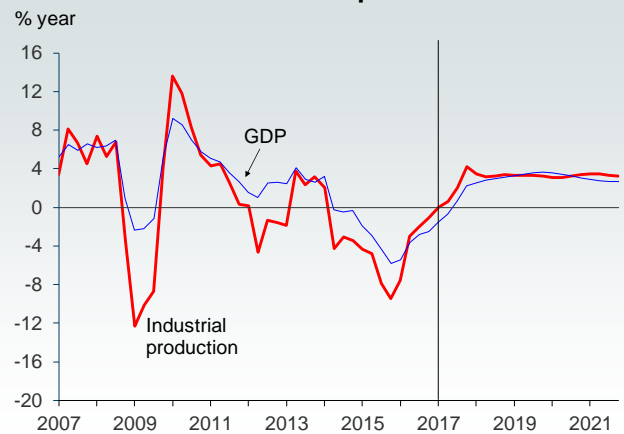
## Macro overview

- Q4 2016 national accounts report confirmed that the recession, which started in early 2015, deepened at the end of last year, as GDP contracted 0.9% on the quarter. Reflecting a decline in both domestic demand and net trade.
- The outlook of an initially fragile but gradually strengthening recovery is based on the expectation that Brazil's business-friendly government will manage to pass a pension reform this year and move forward on other measures, such as reforming labour laws. Importantly, we think that the benefits of lower inflation and interest rates, as well as a stable BRL, will start to boost the real economy in H2. We now expect GDP to expand by only 0.1% this year, down from 0.4%.

## Sector trends

- Weaker investment conditions have likely contributed to the 8.9% decline in hydraulic demand this year. As double-digit downgrades to agricultural machinery and mining, quarrying and construction weigh on growth. General-purpose machinery is now a key source of demand this year, as the sector accelerates by 12.2%.
- The recovery in pneumatic demand is expected to be slower this year, largely due to significantly weaker performance in special-purpose machinery and mining, quarrying and construction. However, growth in the automotive and other machinery producing sectors should support growth as low interest rates encourage business investment.

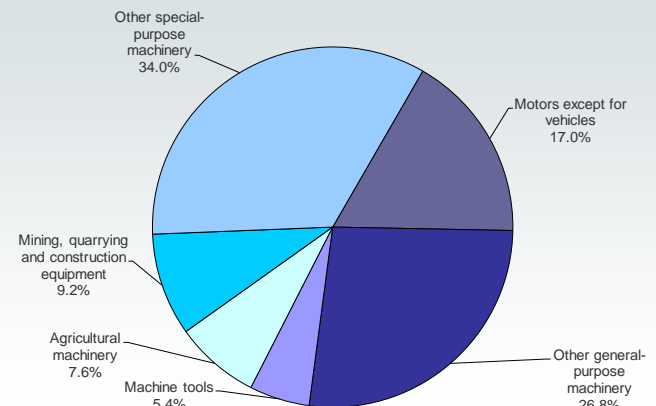
**Brazil: GDP and industrial production**



Source : Oxford Economics/Haver Analytics

**Machinery output by sub-sector in 2016**

(Value added, 2010 prices, \$7.13bn)



Source: Oxford Economics

## Brazil: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-1.1	12.4	2.3	4.0	3.4	2.8
<b>Other general-purpose machinery</b>	-1.1	12.2	2.0	3.7	3.0	2.5
<b>Machine tools</b>	-1.1	12.2	2.0	3.7	3.1	2.5
<b>Agricultural machinery</b>	-27.5	-23.1	1.4	3.1	2.4	1.9
<b>Mining, quarrying and construction equipment</b>	-29.8	-27.4	2.2	3.9	3.3	2.7
<b>Other special-purpose machinery</b>	7.2	-4.3	2.2	3.9	3.3	2.7
<b>Motor vehicles and parts</b>	-7.1	5.5	9.1	8.1	6.8	8.2
<b>Medical and surgical equipment</b>	-9.9	-0.4	0.9	4.8	5.2	3.8
<b>Electronic components and boards</b>	-11.2	3.3	2.3	6.2	6.6	5.2
<b>Construction</b>	-4.7	0.3	2.2	2.9	3.4	3.4
<b>Food</b>	0.9	1.4	3.4	3.7	3.4	3.5
<b>Chemicals excluding pharmaceuticals</b>	-1.3	2.8	3.8	4.3	3.5	3.0
<b>Hydraulic demand growth</b>	-14.3	-8.9	2.7	3.9	3.4	3.2
<b>Pneumatic demand growth</b>	-3.2	1.2	4.1	5.2	4.5	4.5
<b>Industrial production</b>	-3.5	1.7	3.3	3.3	3.2	3.4
<b>GDP</b>	-3.6	0.1	2.9	3.5	3.3	2.8

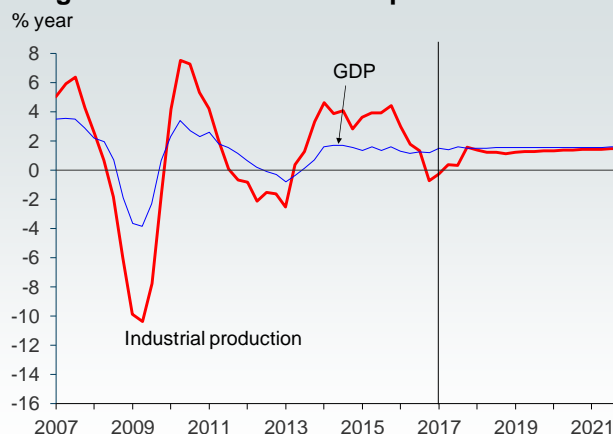
## Macro overview

- The first estimate of Q4 GDP puts growth at 0.4% on the quarter, up from 0.2% in Q3. Although the breakdown is not yet available, we expect GDP growth in Q4 to have remained largely driven by consumer spending thanks to upbeat conditions in the labour market. Meanwhile, business investment is also likely to have rebounded. In contrast, net trade is likely to have weighed on growth.
- Looking forward, the outlook for earnings growth is positive thanks to the impetus from a solid labour market recovery. And rising consumer real disposable incomes should in turn lead to a rebound in private consumption growth. Whilst renewed expansionary ECB policy measures until end-2017 will also continue to encourage credit growth and support investment.

## Sector trends

- Hydraulic demand growth and industrial production are once again expected to grow at the same, but slower pace of 0.5% this year. This is mainly due to a weaker outlook in agricultural machinery and automotive production.
- Weaker investment prospects have contributed to weaker pneumatic demand this year, with growth set to contract by 0.5% this year, down from 5.2%. This has looked to dampen growth across all downstream sectors except for food and chemicals. But despite the downgrade, demand from the automotive sector is now the sole source of demand this year.

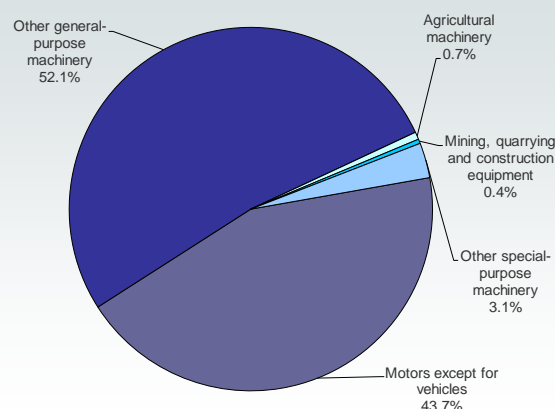
## Belgium: GDP and industrial production



Source : Oxford Economics/Haver Analytics

## Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$4.74bn)



Source: Oxford Economics

## Belgium: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-6.0	4.1	3.0	2.2	2.1	2.8
<b>Other general-purpose machinery</b>	3.4	0.6	2.8	2.1	1.9	2.6
<b>Machine tools</b>	-	-	-	-	-	-
<b>Agricultural machinery</b>	-4.2	0.2	2.9	2.1	2.0	2.7
<b>Mining, quarrying and construction equipment</b>	2.6	2.9	2.9	2.1	2.0	2.7
<b>Other special-purpose machinery</b>	3.3	3.8	2.9	2.1	2.0	2.7
<b>Motor vehicles and parts</b>	2.4	-7.5	-13.9	11.3	17.2	-2.0
<b>Medical and surgical equipment</b>	1.5	1.5	1.7	2.1	2.0	2.8
<b>Electronic components and boards</b>	10.8	2.9	1.3	1.8	1.7	2.4
<b>Construction</b>	3.6	1.3	1.3	1.3	1.3	1.3
<b>Food</b>	3.2	0.9	1.2	0.2	0.2	0.8
<b>Chemicals excluding pharmaceuticals</b>	-0.6	2.9	1.8	-0.6	-0.2	1.3
<b>Hydraulic demand growth</b>	0.9	0.5	0.6	2.9	3.4	1.7
<b>Pneumatic demand growth</b>	2.8	-0.5	-2.3	4.3	5.8	0.9
<b>Industrial production</b>	1.3	0.5	1.3	1.3	1.4	1.5
<b>GDP</b>	1.2	1.5	1.5	1.6	1.6	1.6

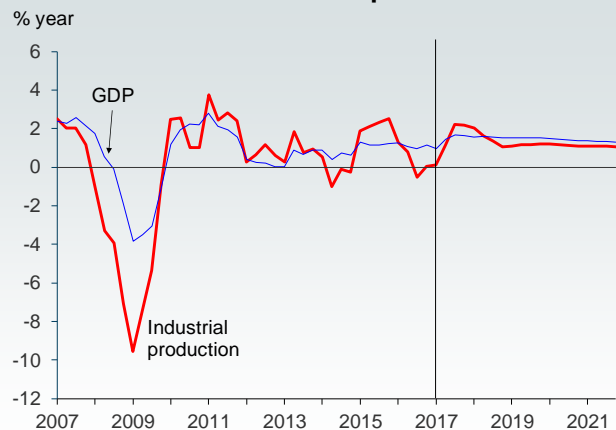
## Macro overview

- Economic activity accelerated in Q4 2016, with the outturn relatively well-balanced with all components including net trade adding to growth. The outlook is also improving, with survey data strengthening, notably pointing to a revival of manufacturing.
- Investment spending growth will slow in 2017, after rising in 2016 at its fastest pace in nine years, as firms brought forward spending to benefit from tax credits for investment. Also, monetary policy will continue to support the credit recovery until the end of 2017, when we expect the ECB to start tapering. Whilst the rebound of inflation is expected to be less of a drag on consumer spending this year compared to the rest of the region.

## Sector trends

- Demand for hydraulic fluid power is set to accelerate by 4.2% in 2017, following a considerable upgrade to the outlook of agricultural, mining, quarrying & construction machinery sectors. However, a pullback in demand from the machine tool sector following double-digit growth last year makes it the only subsector to weigh on growth this year.
- Pneumatic demand is expected to strengthen by 3% in 2017, around double the pace of headline industrial production. This is largely due to an acceleration of 8.5% in special-purpose machinery, adding to the robust demand the automotive sector continues to provide.

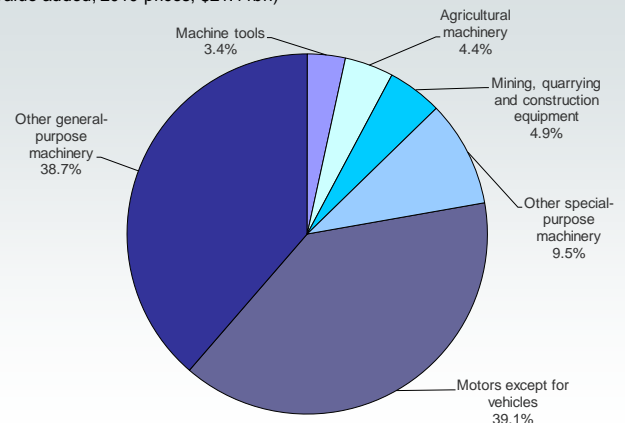
France: GDP and industrial production



Source: Oxford Economics/Haver Analytics

Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$21.11bn)



Source: Oxford Economics

## France: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-4.2	0.4	2.7	2.1	2.6	2.6
<b>Other general-purpose machinery</b>	3.4	2.8	2.3	1.8	2.2	2.2
<b>Machine tools</b>	16.4	-10.7	2.7	2.1	2.6	2.6
<b>Agricultural machinery</b>	-5.7	5.1	1.7	1.2	1.6	1.6
<b>Mining, quarrying and construction equipment</b>	1.1	8.5	3.0	2.4	2.9	2.9
<b>Other special-purpose machinery</b>	1.1	8.5	3.0	2.4	2.9	2.9
<b>Motor vehicles and parts</b>	4.8	5.6	2.1	4.5	-0.1	-1.5
<b>Medical and surgical equipment</b>	-7.7	-8.0	2.1	2.8	3.6	3.9
<b>Electronic components and boards</b>	2.2	2.2	1.1	1.8	2.7	3.1
<b>Construction</b>	0.1	1.4	1.6	1.7	2.0	2.3
<b>Food</b>	-1.8	0.2	1.7	0.8	1.1	1.2
<b>Chemicals excluding pharmaceuticals</b>	2.0	2.9	1.5	1.0	1.3	1.3
<b>Hydraulic demand growth</b>	0.4	4.2	2.2	2.1	2.0	1.9
<b>Pneumatic demand growth</b>	2.7	3.0	2.4	2.8	1.9	1.5
<b>Industrial production</b>	0.4	1.4	1.5	1.2	1.2	1.1
<b>GDP</b>	1.1	1.4	1.6	1.5	1.4	1.3

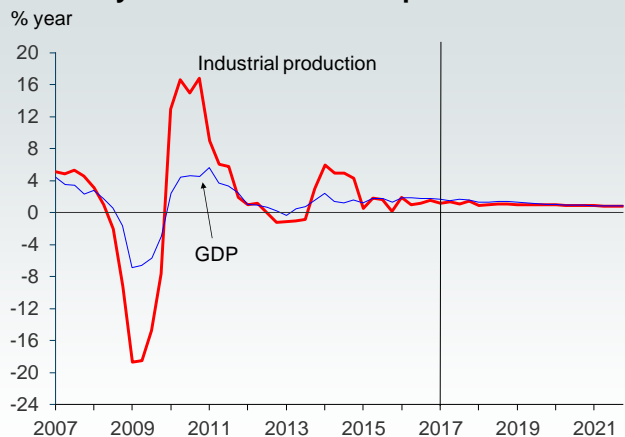
## Macro overview

- GDP expanded a solid 0.4% on the quarter in Q4, led by another strong contribution from domestic demand. Exports grew at their fastest pace in two years, but an even stronger rise in imports meant that net trade was a negative for GDP.
- Nonetheless, there are signs that higher inflation is leading to weaker household spending. Although we expect wage growth to rise in response to higher inflation, this process will take time and in the interim it is likely that household spending growth will weaken. The upshot is that we expect growth of around 1.6% in 2017.

## Sector trends

- Growth in hydraulic demand is expected to strengthen to 2.1% in 2017, up from 1.4% last quarter. Despite a slightly more pessimistic view on agricultural machinery, the rest of the machinery producing sectors are expected to experience a cyclical upswing this year, whilst construction demand remains at a steady 2.4%.
- Similarly, the rebound in pneumatic fluid power demand has improved, but by a stronger 2.4ppts to 3.3% in 2017, also outpacing industrial production. Demand in all sectors except for motor vehicles strengthened this year, although the upgrade is largely due to special-purpose machinery accelerating by 8% this year.

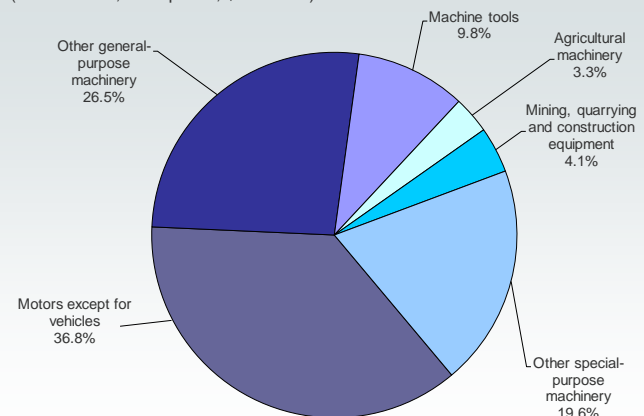
### Germany: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$125.11bn)



Source: Oxford Economics

## Germany: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	1.2	2.3	3.3	2.6	2.1	1.5
<b>Other general-purpose machinery</b>	0.7	2.4	2.9	2.3	1.8	1.2
<b>Machine tools</b>	-1.5	5.1	3.4	2.8	2.3	1.7
<b>Agricultural machinery</b>	-4.9	-1.0	3.2	2.5	2.0	1.4
<b>Mining, quarrying and construction equipment</b>	-3.9	4.6	3.0	2.4	1.9	1.3
<b>Other special-purpose machinery</b>	0.9	7.9	3.0	2.4	1.9	1.3
<b>Motor vehicles and parts</b>	2.6	-1.7	-0.5	-1.6	-0.8	1.3
<b>Medical and surgical equipment</b>	-6.2	3.5	1.6	2.4	2.2	1.2
<b>Electronic components and boards</b>	7.1	6.8	2.1	2.8	2.8	2.2
<b>Construction</b>	2.4	2.4	2.0	1.5	1.2	1.2
<b>Food</b>	1.4	2.0	1.1	1.6	1.4	0.7
<b>Chemicals excluding pharmaceuticals</b>	-0.3	0.6	0.4	0.8	0.6	0.1
<b>Hydraulic demand growth</b>	-1.1	2.1	2.5	1.8	1.5	1.3
<b>Pneumatic demand growth</b>	0.6	3.3	1.7	1.2	1.2	1.3
<b>Industrial production</b>	1.3	1.2	1.0	1.0	0.9	0.8
<b>GDP</b>	1.8	1.5	1.3	1.1	0.9	0.8

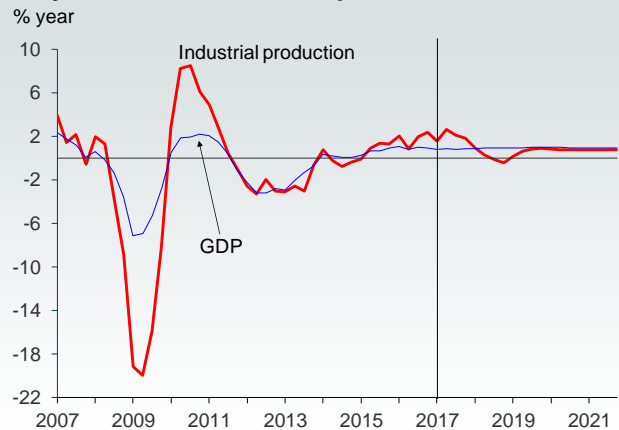
## Macro overview

- The economy grew 0.2% in Q4. While this outturn was slow compared to most other Eurozone countries, it was broadly in line with the pace of quarterly growth seen during the recovery in 2015. Growth in the second half of 2016 saw a robust increase in fixed investment, led by spending on new machinery.
- The steady improvement should continue into the quarters ahead, with the composite PMI at its highest level in February since 2011. However, higher inflation and a less-dynamic labour market will have a modest dampening effect on real disposable incomes. We see the economy growing 0.9% in 2017, but political uncertainty remains high and there is still a chance of elections this year.

## Sector trends

- A stronger second half of 2016 has pushed up growth forecasts across the machinery producing sectors in 2017. This has led to a 0.7ppt upgrade to hydraulic fluid power demand this year, which is now set to accelerate by 2.9%, as growth continues to outpace headline industrial production.
- The outlook for pneumatic demand roughly remains the same, at 3.4% in 2017, in line with a rise in industrial activity. Improvements in special-purpose machinery are expected to be offset by downgrade to the forecast for motor vehicle production.

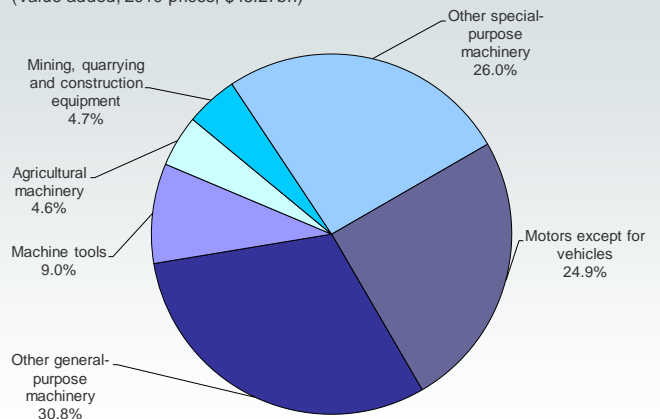
### Italy: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$45.27bn)



Source: Oxford Economics

## Italy: Sector output forecasts

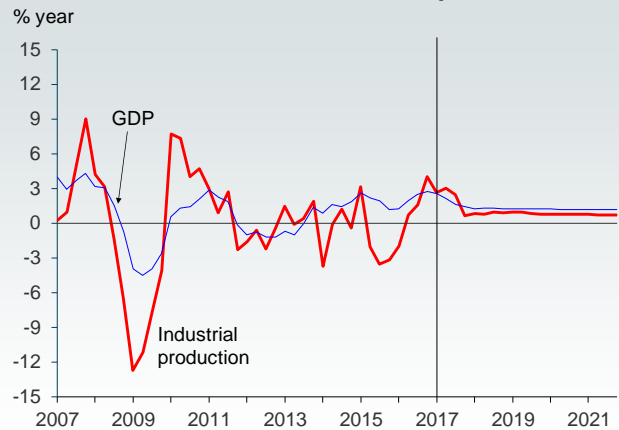
(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	2.8	2.0	2.6	2.2	1.8	1.8
<b>Other general-purpose machinery</b>	2.2	1.9	2.3	1.9	1.5	1.5
<b>Machine tools</b>	0.8	2.0	2.6	2.2	1.8	1.8
<b>Agricultural machinery</b>	-1.0	1.5	1.7	1.2	0.9	0.8
<b>Mining, quarrying and construction equipment</b>	5.8	4.9	2.7	2.2	1.9	1.8
<b>Other special-purpose machinery</b>	6.6	2.1	2.7	2.2	1.9	1.8
<b>Motor vehicles and parts</b>	6.6	6.3	-2.0	-0.2	0.6	3.9
<b>Medical and surgical equipment</b>	-7.8	-2.1	0.8	1.6	1.7	1.1
<b>Electronic components and boards</b>	10.1	10.4	1.3	1.5	1.2	0.9
<b>Construction</b>	0.4	1.8	2.1	2.2	1.9	1.7
<b>Food</b>	1.1	2.9	2.1	2.0	1.8	1.2
<b>Chemicals excluding pharmaceuticals</b>	1.4	2.3	0.3	0.3	0.5	0.5
<b>Hydraulic demand growth</b>	2.5	2.9	1.8	1.7	1.4	1.8
<b>Pneumatic demand growth</b>	4.0	3.4	1.0	1.4	1.4	2.2
<b>Industrial production</b>	1.8	2.1	0.2	0.6	0.8	0.8
<b>GDP</b>	1.0	0.9	1.0	1.0	1.0	1.0

## Macro overview

- GDP grew by 0.5% on the quarter in 2016Q4 and averaged 2.1% growth for all of 2016l, which was the country's highest growth rate since 2007. The economy was primarily boosted by strong domestic demand, namely household spending and fixed investment, despite a large slump in business investment in Q4.
- While momentum in the economy is still very positive, we expect weaker private consumption growth this year, due to rising inflation. Furthermore, we also expect a slight deceleration in fixed investment over this year, due to the carry effects following a sharp fall in Q4, political uncertainty and a slowdown in the housing market. We now expect GDP growth of 1.8% this year, compared to 1.5% last quarter.

### Netherlands: GDP and industrial production

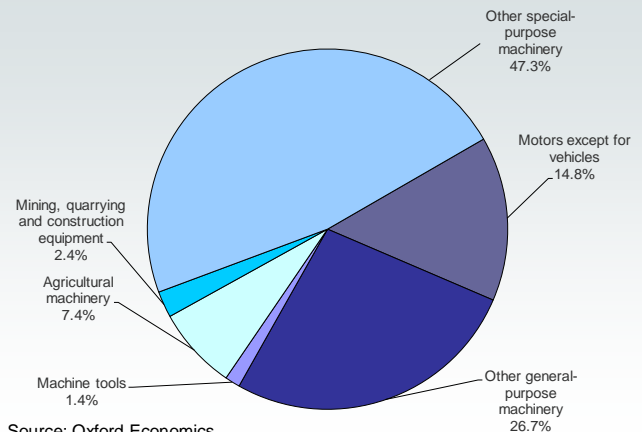


## Sector trends

- The outlook for hydraulic fluid power has weakened across all downstream sectors this year, with growth now expected to fall to -0.3%, compared to 4.3% last quarter. Likely reflecting weaker investment prospects amongst firms caused by regional uncertainty.
- Similarly, the widespread downgrade to most downstream sectors has resulted in a 3.5ppt downgrade to pneumatic demand, as growth falls to 1.7% this year. Despite slower growth in the automotive sector, production is still strong and the sector remains a crucial source of demand.

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$11.36bn)



## Netherlands: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
Motors except for vehicles	-0.8	-0.8	3.8	2.8	1.9	2.0
Other general-purpose machinery	0.2	-1.8	3.3	2.4	1.5	1.5
Machine tools	-1.6	-2.6	3.2	2.2	1.3	1.4
Agricultural machinery	-5.7	-3.9	2.9	1.9	1.1	1.1
Mining, quarrying and construction equipment	-6.2	-3.4	3.6	2.6	1.7	1.8
Other special-purpose machinery	0.2	-1.2	3.6	2.6	1.7	1.8
Motor vehicles and parts	18.6	12.1	7.2	3.3	2.6	2.7
Medical and surgical equipment	-1.8	-9.4	-1.1	-0.6	0.1	0.5
Electronic components and boards	10.1	-3.7	-1.1	-0.6	0.1	0.5
Construction	6.9	2.2	2.1	1.9	1.3	1.3
Food	4.3	0.8	0.7	1.2	1.3	1.5
Chemicals excluding pharmaceuticals	5.9	7.3	-0.2	0.4	0.4	0.5
Hydraulic demand growth	0.7	-0.3	3.5	2.3	1.5	1.6
Pneumatic demand growth	5.5	1.7	3.6	2.2	1.6	1.8
Industrial production	1.0	2.2	0.8	0.9	0.7	0.7
GDP	2.1	1.9	1.3	1.2	1.2	1.1

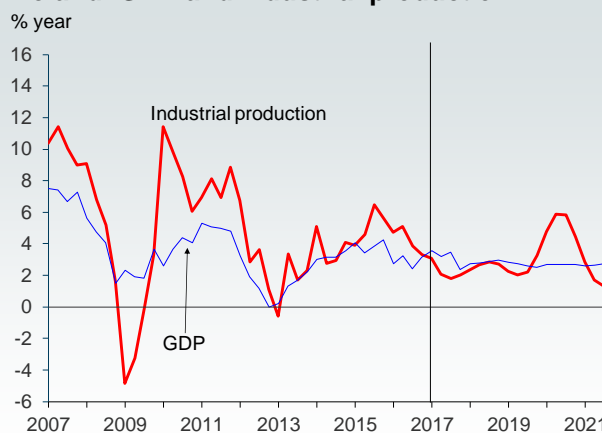
## Macro overview

- The flash Q4 GDP release surprised on the upside, with a 1.7% quarterly rise. The breakdown is not yet available, but the unexpected acceleration could have come from a delayed effect of the child benefit scheme on consumption, which in previous quarters had not translated into significantly higher consumer spending.
- GDP is expected to accelerate into 2017 as tight labour markets continue to support consumer spending, despite rebounding inflation. External demand is also likely to be supportive, due to stronger demand in the Eurozone. Whilst construction and investment should also become less of a drag on growth as the decline in EU transfers bottoms out.

## Sector trends

- Despite stronger industrial production growth this year, hydraulic demand remains in negative territory at -3.4% this year. This is down to weaker growth amongst the machinery producing sectors, especially agricultural and mining, quarrying and construction machinery.
- Pneumatic demand growth has turned negative this year, as machinery production weighs on demand. But the impact of this is expected to be somewhat offset by a 4.4ppt upgrade to automotive production, as well as stronger growth in food, chemicals and electronics output. Thus, we only see demand growth weakening to -0.2% this year, before rebounding in 2018.

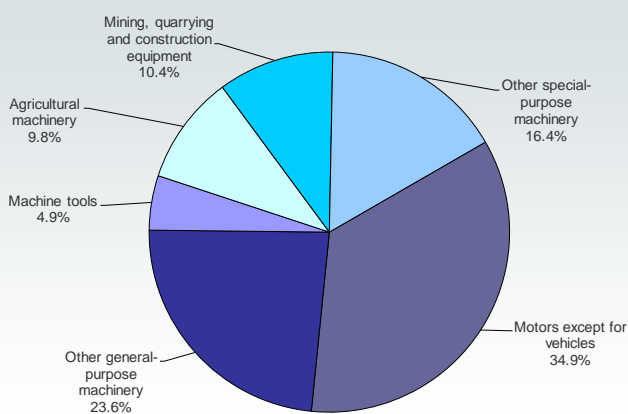
Poland: GDP and industrial production



Source : Oxford Economics/Haver Analytics

Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$5.69bn)



Source: Oxford Economics

## Poland: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	5.1	-3.3	1.8	3.7	2.9	4.0
<b>Other general-purpose machinery</b>	6.1	-4.1	1.5	3.4	2.6	3.7
<b>Machine tools</b>	4.3	-4.7	1.6	3.5	2.7	3.8
<b>Agricultural machinery</b>	-0.1	-6.0	1.3	3.2	2.4	3.5
<b>Mining, quarrying and construction equipment</b>	-0.6	-5.6	1.9	3.8	3.0	4.1
<b>Other special-purpose machinery</b>	6.2	-3.4	1.9	3.8	3.0	4.1
<b>Motor vehicles and parts</b>	9.6	2.5	6.9	6.5	34.8	-2.0
<b>Medical and surgical equipment</b>	-0.2	2.0	9.0	8.3	7.5	8.6
<b>Electronic components and boards</b>	12.0	7.3	7.9	7.2	6.1	7.0
<b>Construction</b>	-11.3	-0.4	2.8	2.4	2.4	2.9
<b>Food</b>	7.6	4.9	2.2	2.1	2.4	3.1
<b>Chemicals excluding pharmaceuticals</b>	4.4	5.4	3.0	3.1	3.7	2.3
<b>Hydraulic demand growth</b>	-0.1	-3.4	2.4	3.6	6.1	3.0
<b>Pneumatic demand growth</b>	6.4	-0.2	4.1	4.8	12.2	2.7
<b>Industrial production</b>	4.2	2.2	2.6	2.4	5.2	1.9
<b>GDP</b>	2.9	3.1	2.8	2.7	2.7	2.7

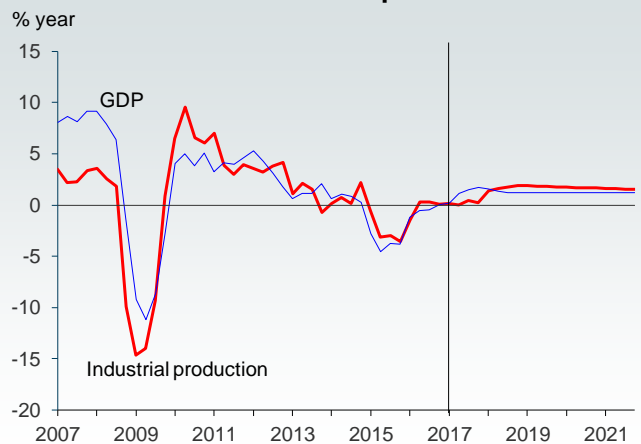
## Macro overview

- Preliminary estimates show that the economy may have contracted less than expected in 2016, possibly by only 0.2%. Final figures, along with an expenditure-side breakdown, will be released in early April, but, if confirmed, this would indicate that the economy weathered the effects of sanctions and lower oil prices better than anticipated.
- But while the economy likely exited recession in Q4 2016, we think that a substantial recovery will remain elusive. Consumers are still very cautious about spending and despite higher oil prices, fiscal policy is set to remain restrictive, which will hold growth down, while a cautious monetary policy stance will keep nominal interest rates high.

## Sector trends

- Hydraulic demand growth remains in negative territory in 2017 at -0.5%. Despite a double-digit rebound in the automotive sector, the fall in agricultural machinery adds to another year of weak growth in the machinery-producing sectors given a modest improvement in investment conditions.
- In contrast, demand for pneumatic fluid power should be more robust this year, following stronger demand from the automotive sector, electronics and medical & surgical equipment. Growth is set to continue improve across the forecast horizon, peaking at 4.7% in 2019 as economic activity recovers.

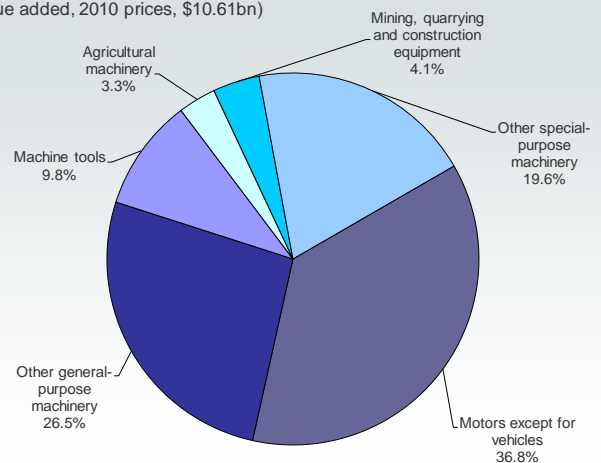
### Russia: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$10.61bn)



Source: Oxford Economics

## Russia: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	0.0	-0.9	-0.1	0.9	1.5	1.4
<b>Other general-purpose machinery</b>	-0.5	-2.3	-0.3	0.6	1.3	1.1
<b>Machine tools</b>	-2.6	-2.7	-0.2	0.7	1.4	1.2
<b>Agricultural machinery</b>	-6.1	-4.3	-1.4	-0.5	0.1	-0.1
<b>Mining, quarrying and construction equipment</b>	-5.0	-1.6	0.0	1.0	1.6	1.4
<b>Other special-purpose machinery</b>	-0.3	1.4	0.0	1.0	1.6	1.4
<b>Motor vehicles and parts</b>	-21.0	10.0	14.3	14.2	4.5	5.6
<b>Medical and surgical equipment</b>	-14.8	-5.4	-1.3	0.3	2.5	3.1
<b>Electronic components and boards</b>	-2.9	-3.3	-2.4	-1.1	0.9	1.5
<b>Construction</b>	-5.0	0.2	0.8	1.0	1.5	1.8
<b>Food</b>	5.1	3.2	3.1	3.4	3.8	3.4
<b>Chemicals excluding pharmaceuticals</b>	7.2	4.0	1.4	1.8	2.0	1.6
<b>Hydraulic demand growth</b>	-6.0	-0.5	1.3	2.0	1.5	1.6
<b>Pneumatic demand growth</b>	-7.3	2.4	4.0	4.7	2.6	2.9
<b>Industrial production</b>	-0.2	0.2	1.7	1.8	1.7	1.6
<b>GDP</b>	-0.5	1.2	1.3	1.2	1.2	1.2



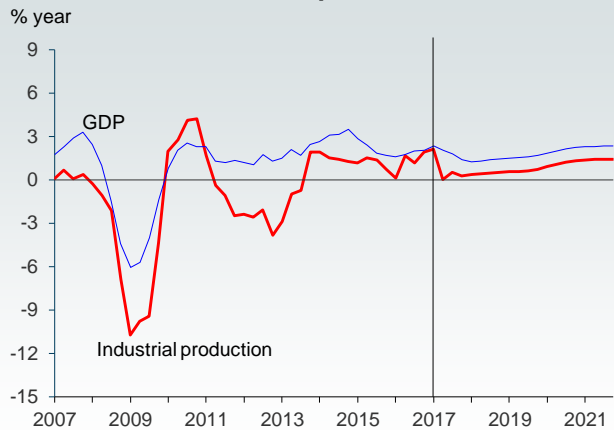
## Macro overview

- The second estimate for Q4 2016 saw quarterly GDP growth rise 0.7% on the back of firmer data from the manufacturing and construction sectors. But the first cut of the expenditure data revealed that virtually all the growth came from consumer spending.
- In contrast retail sales data suggests that the consumer is finally running out of steam as higher inflation begins to bite this year. In addition, the recovery in investment will be very gradual, as Brexit-related uncertainty is likely to persist, delaying some firm's capital spending until the UK's future trading relationship with the EU becomes clearer. Despite this, the manufacturing sector and exports have become more promising sources of growth for the economy.

## Sector trends

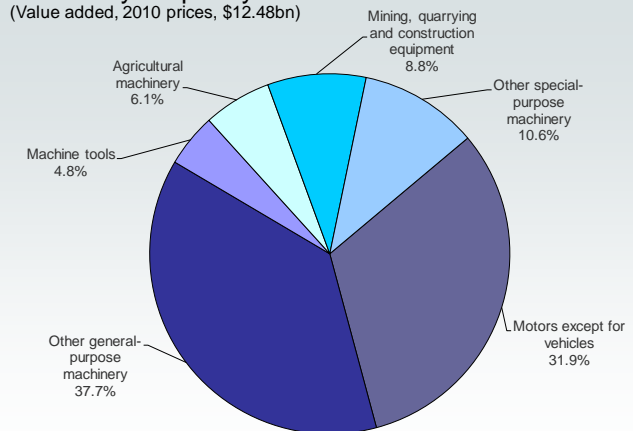
- Hydraulic demand is expected to contract 1% this year, up from -3.1% last quarter. This is due to an improvement in the machinery producing sectors, combined with healthy growth in the automotive sector, which remains the sole source of demand. However, this is expected to reverse going into 2018.
- Growth in pneumatic fluid power should now expand 0.8% in 2017, marginally outpacing headline industrial production. Demand will largely come from the automotive and medical & surgical equipment sectors this year. But the fall in motor vehicle production in 2018, likely a reaction of Brexit will see growth fall to just 0.1%.

### UK: GDP and industrial production



### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$12.48bn)



## United Kingdom: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
Motors except for vehicles	-9.8	-2.2	1.0	2.3	3.4	3.8
Other general-purpose machinery	6.1	-2.2	0.8	2.1	3.2	3.6
Machine tools	0.3	-2.1	1.1	2.4	3.5	3.9
Agricultural machinery	10.0	-2.0	0.9	2.3	3.3	3.7
Mining, quarrying and construction equipment	-2.7	-1.8	0.9	2.3	3.3	3.7
Other special-purpose machinery	-2.0	-1.8	0.9	2.3	3.3	3.7
Motor vehicles and parts	4.6	3.2	-3.1	1.5	4.2	1.5
Medical and surgical equipment	13.3	5.2	2.6	1.1	2.0	2.3
Electronic components and boards	3.2	5.7	2.9	2.3	3.5	3.8
Construction	1.4	0.0	1.0	1.5	2.7	2.7
Food	1.5	1.7	1.2	1.1	1.1	1.9
Chemicals excluding pharmaceuticals	-2.6	-0.1	0.6	0.8	1.1	1.6
Hydraulic demand growth	2.8	-1.0	0.5	2.0	3.3	3.3
Pneumatic demand growth	2.5	0.8	0.1	1.8	3.2	2.8
Industrial production	1.2	0.7	0.4	0.6	1.1	1.4
GDP	1.8	1.9	1.3	1.6	2.0	2.3

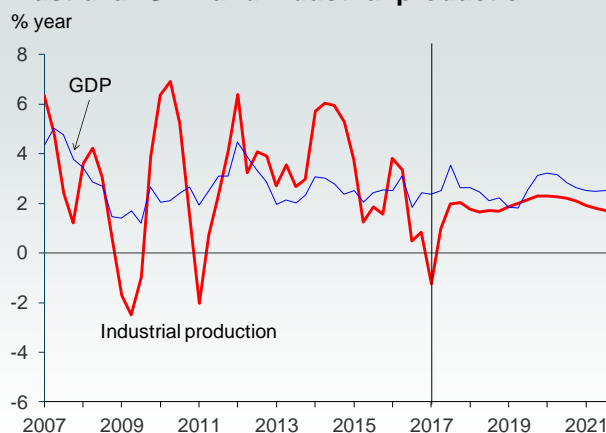
## Macro overview

- After a surprise fall in Q3, the economy bounced back in Q4 2016, growing 1.1% on the quarter. Consumer spending and government demand were the main drivers of growth, while net exports also contributed.
- However, we do not expect this pace to continue as growth will be weighed down by subdued investment activity, which is still adjusting from the end of the mining boom. But also, a slowdown in consumer spending as slack conditions in the labour market are set to limit household income growth. On the positive side, government investment and increasing net exports (as mining sector output ramps back up) will support growth. Overall we see the economy growing by 2.8% this year, compared to 2.4% last quarter.

## Sector trends

- Hydraulic demand is now set to decelerate to -5.1% this year, down from -1.8% last quarter, as demand has weakened across all end-use sectors except for motor vehicles. Despite that, the automotive sector continues to be the main drag on growth. Whilst investment in machinery remains weak because of the mining sector.
- The outlook for pneumatic demand has also weakened, and is now expected to contract by 9.3% this year, before falling to double-digits in 2018-19. Although demand growth has strengthened in chemicals and food, the automotive sector is once again the key drag on growth as firms start to wind down production at an increasing rate.

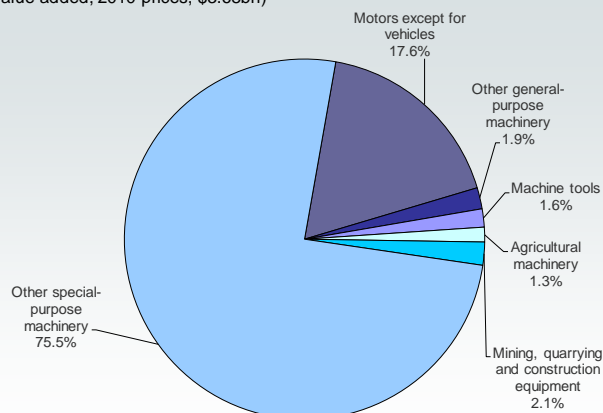
### Australia: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$3.68bn)



Source: Oxford Economics

## Australia: Sector output forecasts

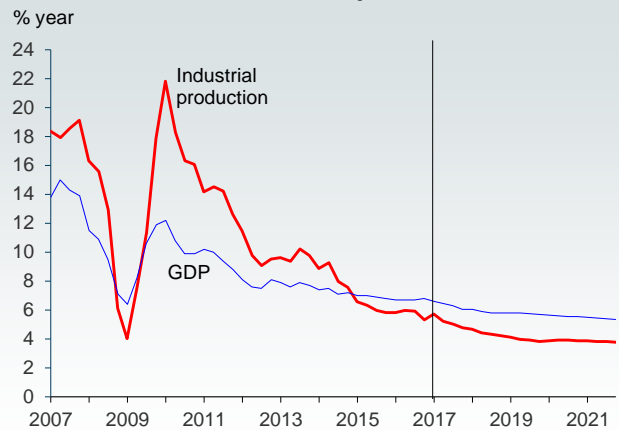
(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-4.8	-2.6	2.6	3.5	3.3	3.0
<b>Other general-purpose machinery</b>	-5.0	-3.0	2.1	3.1	2.9	2.5
<b>Machine tools</b>	-4.9	-3.0	2.1	3.0	2.8	2.5
<b>Agricultural machinery</b>	-5.6	-2.9	2.4	3.3	3.1	2.7
<b>Mining, quarrying and construction equipment</b>	-3.7	-2.6	2.3	3.2	3.1	2.7
<b>Other special-purpose machinery</b>	-3.7	-2.6	2.3	3.2	3.1	2.7
<b>Motor vehicles and parts</b>	-8.5	-27.7	-59.7	-71.4	0.7	0.7
<b>Medical and surgical equipment</b>	-4.7	-3.6	2.0	3.1	2.9	2.9
<b>Electronic components and boards</b>	-12.0	-5.1	2.1	3.1	3.0	2.9
<b>Construction</b>	-0.7	-1.1	0.8	1.4	2.0	2.1
<b>Food</b>	0.1	1.6	1.2	1.6	1.8	1.8
<b>Chemicals excluding pharmaceuticals</b>	-4.4	2.4	1.9	2.0	2.1	2.0
<b>Hydraulic demand growth</b>	-4.3	-5.1	-4.7	-5.2	2.6	2.4
<b>Pneumatic demand growth</b>	-5.4	-9.3	-15.1	-17.7	2.2	2.0
<b>Industrial production</b>	2.1	0.9	1.7	2.1	2.2	1.8
<b>GDP</b>	2.5	2.8	2.4	2.3	3.0	2.5

## Macro overview

- Real GDP growth edged up to 6.8% year-on-year in Q4 2016 as momentum in services output picked up. This brought GDP growth for 2016 to 6.7%.
- Looking forward, growth has remained solid at the start of 2017 with export and import volumes growing quickly again. Also, stronger investment and PMI surveys suggest continued expansion, along with the signalling of a slightly more accommodative macro policy stance during the NPC. We see infrastructure investment remaining solid, whilst corporate investment should benefit from some renewal in profit growth. Consumption growth should ease reflecting moderate real wage growth.

**China: GDP and industrial production**



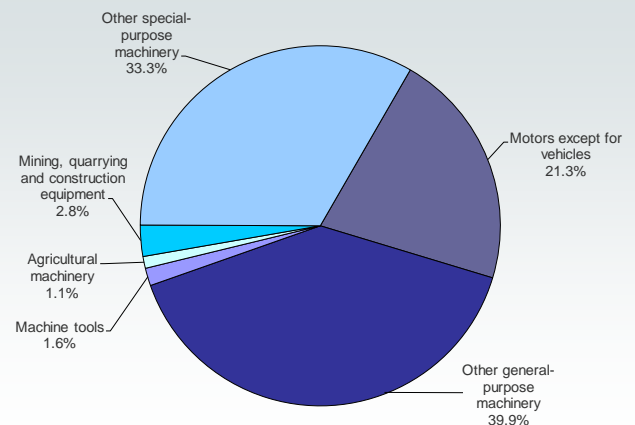
Source : Oxford Economics/Haver Analytics

## Sector trends

- Hydraulic demand is now expected to accelerate by 9.2% this year, up from 4.2% last quarter. The large upgrade to mining, quarrying and construction machinery is the main reason for this, as growth in Q4 2016 picked up sharply. Although demand could have been stronger if it were not a large decline in machine tool production in the same period.
- Similarly, demand for pneumatic fluid power has increased this year, to 7.3%, up from 4.3% last quarter. Although poor growth in the machine tools sector weighs on growth, overall demand is expected to be better diversified across the downstream sectors. For instance, demand now additionally comes from the automotive and electronics sector.

**Machinery output by sub-sector in 2016**

(Value added, 2010 prices, \$357.09bn)



Source: Oxford Economics

## China: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	8.9	7.1	3.6	3.1	2.9	3.1
<b>Other general-purpose machinery</b>	4.8	4.7	4.3	3.7	3.6	3.7
<b>Machine tools</b>	2.8	-15.8	4.7	2.9	2.7	2.8
<b>Agricultural machinery</b>	-6.8	2.7	3.6	3.1	2.9	3.1
<b>Mining, quarrying and construction equipment</b>	14.2	29.9	4.1	3.2	2.8	2.9
<b>Other special-purpose machinery</b>	7.8	11.1	4.1	3.2	2.8	2.9
<b>Motor vehicles and parts</b>	15.8	6.3	3.7	4.7	6.1	4.2
<b>Medical and surgical equipment</b>	19.4	2.6	5.5	4.7	4.9	5.2
<b>Electronic components and boards</b>	23.6	23.7	6.5	5.6	5.8	6.1
<b>Construction</b>	6.7	4.8	4.4	4.8	5.0	4.9
<b>Food</b>	9.1	7.7	5.6	4.8	4.4	4.6
<b>Chemicals excluding pharmaceuticals</b>	8.0	5.2	5.8	4.8	4.7	4.7
<b>Hydraulic demand growth</b>	5.8	9.2	4.1	3.7	3.7	3.6
<b>Pneumatic demand growth</b>	11.5	7.3	4.5	4.0	4.3	3.8
<b>Industrial production</b>	5.8	5.2	4.4	3.9	3.9	3.8
<b>GDP</b>	6.7	6.3	5.9	5.7	5.6	5.4

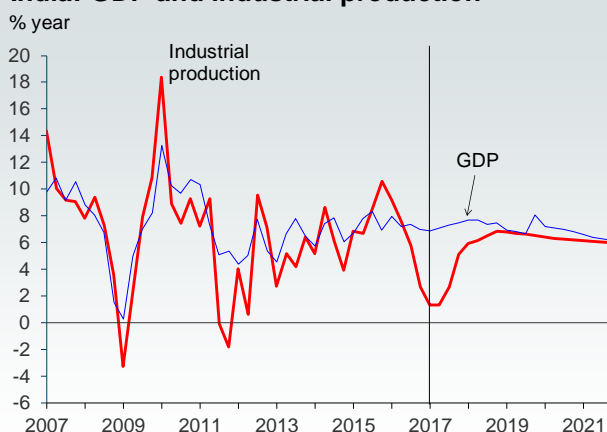
## Macro overview

- GDP expanded 7.1% on the year in Q4 2016 and the breakdown revealed that private and public consumption accelerated by 10.2% and 19.5% respectively, whilst investment rebounded to 3.7%. However, net trade weakened due to a pick-up in imports.
- Money supply indicators suggest that the cash squeeze from re-monetization is beginning to dissipate, which supports our view that sufficient number of new notes will have been introduced by the end of Q1 2017 to facilitate a return to effective normalcy by mid-2017. This should lead to much faster GDP growth toward the end of the year. Growth is set to moderate thereafter as supply side bottlenecks will dampen the investment outlook.

## Sector trends

- The rebound in the machinery producing sectors has contributed to a double-digit upgrade in hydraulic demand to 6.8% this year. The construction sector continues to be a key source of demand, benefitting from stronger infrastructure spending. Overall demand growth is now expected to outpace industrial production.
- Likewise, pneumatic demand growth should emerge from negative territory in 2017, compared to 2018 last quarter. Supported by strong production across the board, except for medical & surgical equipment. The rebound in special-purpose machinery is expected to benefit from the turnaround in investment, whilst the automotive sector should see improvements as the restrictions on cash withdrawals end.

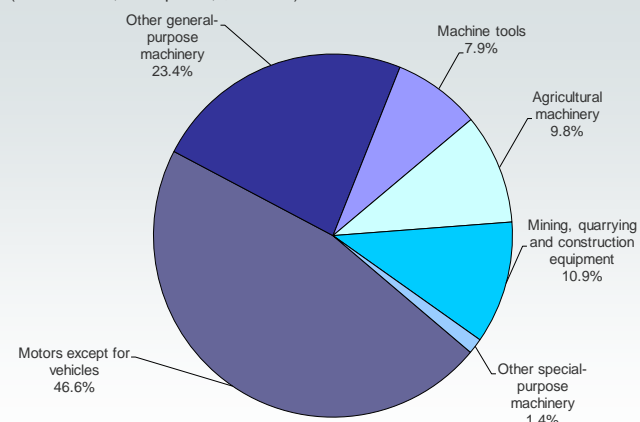
### India: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$16.01bn)



Source: Oxford Economics

## India: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	45.3	4.6	2.9	5.2	5.2	5.1
<b>Other general-purpose machinery</b>	-19.1	6.9	2.6	4.9	4.9	4.8
<b>Machine tools</b>	-16.2	9.9	2.8	5.0	5.1	5.0
<b>Agricultural machinery</b>	-21.8	4.1	2.2	4.5	4.5	4.4
<b>Mining, quarrying and construction equipment</b>	-13.2	10.5	3.3	5.6	5.7	5.5
<b>Other special-purpose machinery</b>	-16.9	9.5	3.3	5.6	5.7	5.5
<b>Motor vehicles and parts</b>	10.6	4.0	7.5	9.0	8.5	7.3
<b>Medical and surgical equipment</b>	5.8	-2.7	6.5	7.6	7.8	7.9
<b>Electronic components and boards</b>	14.3	5.0	6.1	7.0	7.2	7.4
<b>Construction</b>	3.0	6.5	7.3	7.0	6.9	7.0
<b>Food</b>	-0.3	7.5	6.5	7.8	7.5	7.8
<b>Chemicals excluding pharmaceuticals</b>	6.9	2.9	7.1	7.4	6.7	6.5
<b>Hydraulic demand growth</b>	-8.6	6.8	4.2	5.9	5.9	5.6
<b>Pneumatic demand growth</b>	-4.0	6.3	5.1	6.9	6.8	6.4
<b>Industrial production</b>	6.3	2.6	6.4	6.7	6.3	6.1
<b>GDP</b>	7.4	7.2	7.5	7.1	7.0	6.4

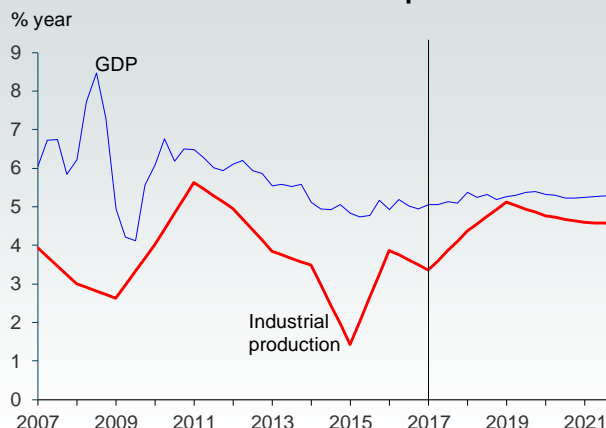
## Macro overview

- GDP growth cooled to 4.9% on the year in Q4 2016, dragged lower by government spending being kept in check in response to lower-than-expected funds from the tax amnesty programme, while private household spending growth remained modest. Despite that, exports, investment and inventories improved.
- Looking ahead, we expect consumer spending to receive some boost from last year's easing in monetary policy gradually filtering through to lower loan rates for consumers. However, any pick-up is likely to be moderate amid the overall subdued economic outlook and the increase in inflation. Whilst, exports will be supported by the moderate pick-up in commodity prices as well as a pick-up in global demand.

## Sector trends

- Hydraulic demand growth has weakened following widespread downgrades to the downstream sectors, but remains strong at 5.8%. Construction is now expected to be the key source of demand this year, as government infrastructure projects are set to resume. Whilst supportive economic conditions continue to healthy growth in machinery producing sectors.
- Pneumatic demand growth has also been affected by weaker production in the machinery producing sectors, despite a rise in capital spending. The key drivers continue to be special-purpose machinery and motor vehicles both this year and next, benefiting from low costs of borrowing and stronger economic activity.

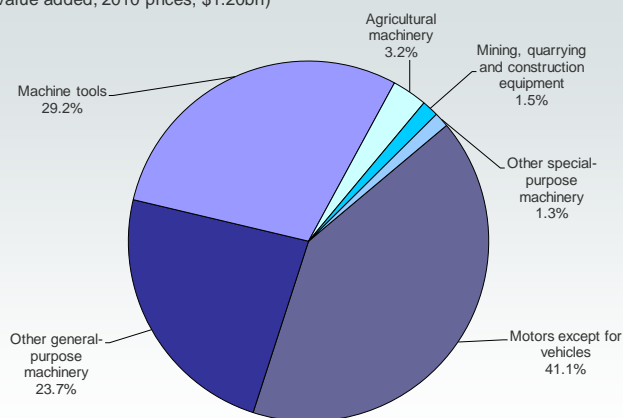
### Indonesia: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$1.20bn)



Source: Oxford Economics

## Indonesia: Sector output forecasts

(Annual percentage changes unless specified)

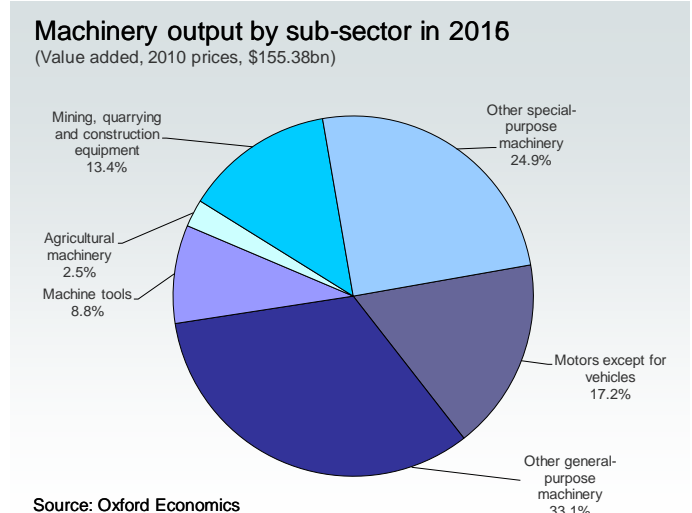
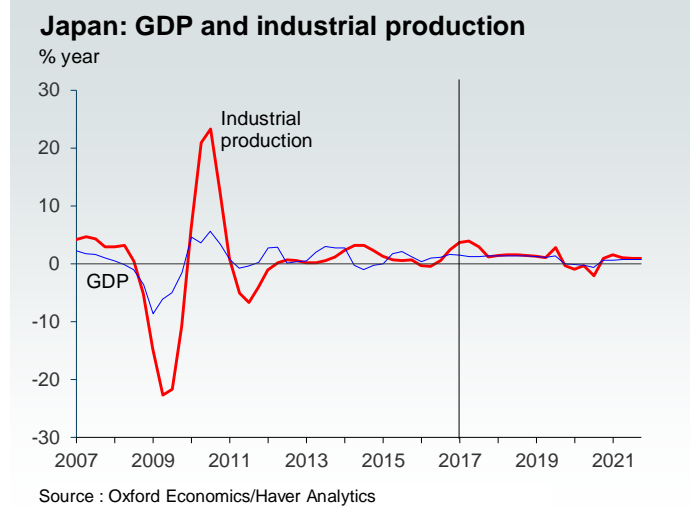
	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	7.5	5.5	5.9	5.4	5.0	5.2
<b>Other general-purpose machinery</b>	7.5	5.5	5.4	5.3	4.8	4.9
<b>Machine tools</b>	7.5	5.5	6.0	5.9	5.6	5.3
<b>Agricultural machinery</b>	7.5	5.5	5.7	5.6	5.3	5.2
<b>Mining, quarrying and construction equipment</b>	7.5	5.5	5.7	5.2	4.9	3.8
<b>Other special-purpose machinery</b>	7.5	5.5	5.7	5.2	4.9	3.8
<b>Motor vehicles and parts</b>	4.3	6.1	5.2	6.2	4.3	4.8
<b>Medical and surgical equipment</b>	7.9	5.6	4.5	5.4	6.6	5.8
<b>Electronic components and boards</b>	7.9	6.1	5.1	5.9	7.1	6.4
<b>Construction</b>	5.3	6.9	6.7	6.6	6.6	6.6
<b>Food</b>	10.9	5.4	4.8	6.2	4.8	4.4
<b>Chemicals excluding pharmaceuticals</b>	4.8	4.7	5.7	6.3	5.5	5.4
<b>Hydraulic demand growth</b>	6.7	5.8	5.9	5.7	5.3	5.1
<b>Pneumatic demand growth</b>	6.9	5.6	5.4	5.7	5.0	4.7
<b>Industrial production</b>	3.9	3.4	4.4	5.1	4.8	4.6
<b>GDP</b>	5.0	5.1	5.3	5.3	5.3	5.3

## Macro overview

- Quarterly GDP growth expanded 0.3% in Q4, higher than originally estimated. The stronger Q4 outcome was mainly driven by stronger business investment. Exports made another solid contribution which, coupled with the bounce in business investment, offset a sharp fall in public investment and sluggish household spending.
- Looking ahead, the weaker currency and a gradually improving outlook for global trade to continue to help exports. And, with corporate profits set to recover, business investment should improve. Meanwhile, fiscal and monetary policy will remain supportive, and cash handouts and stronger employment are expected to underpin a modest recovery in consumer spending. We now see growth at a strong 1.3% this year.

## Sector trends

- Hydraulic demand is now expected to pick-up at a stronger pace of 0.6% this year, following a better outlook in the automotive and medical & surgical equipment sectors. These are expected to help offset weaker growth in the machinery producing sectors this year. But less so across the rest of the forecast period as growth averages just 0.5%.
- Pneumatic demand growth has strengthened this year, as growth matches industrial production at 2.9%, up from 1.2% last quarter. A strong H2 2016 pushed up the outlook in mining, quarrying and construction to -1.7% this year, reducing the drag on growth, although it remains offset by demand from the automotive and construction sectors.



<b>Japan: Sector output forecasts</b>						
(Annual percentage changes unless specified)						
	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-5.4	-0.1	-1.0	0.1	0.4	1.2
<b>Other general-purpose machinery</b>	4.2	0.1	-0.8	0.2	0.5	1.4
<b>Machine tools</b>	-1.4	0.2	-0.1	0.8	1.1	2.0
<b>Agricultural machinery</b>	-14.6	0.0	-1.8	-0.4	-0.1	0.8
<b>Mining, quarrying and construction equipment</b>	-10.6	-1.7	0.1	0.7	1.0	1.9
<b>Other special-purpose machinery</b>	5.8	0.4	0.1	0.7	1.0	1.9
<b>Motor vehicles and parts</b>	2.1	3.2	2.3	0.7	-4.4	1.5
<b>Medical and surgical equipment</b>	9.6	16.6	0.7	4.5	-0.6	1.5
<b>Electronic components and boards</b>	-5.5	8.6	2.3	5.7	0.5	2.5
<b>Construction</b>	1.9	2.5	2.5	1.7	0.6	0.5
<b>Food</b>	2.6	1.6	0.7	0.6	-1.0	0.4
<b>Chemicals excluding pharmaceuticals</b>	2.6	3.2	0.1	-0.3	-1.4	0.2
<b>Hydraulic demand growth</b>	-4.6	0.6	0.3	0.6	0.0	1.2
<b>Pneumatic demand growth</b>	2.6	2.9	0.8	1.2	-0.9	1.6
<b>Industrial production</b>	0.5	2.9	1.5	1.1	-0.7	1.1
<b>GDP</b>	1.0	1.3	1.3	0.9	-0.2	0.7

## Macro overview

- The Korean economy grew 2.7% in 2016, however, momentum faded over the course of the year, with Q4 growth registering a quarter-on-quarter annualised rate of just 1.6%. However, over half of this growth was due to a construction boom – fuelled by low interest rates and the relaxation of home-loan restrictions, but this faded towards the end of the year.
- The construction boom that supported growth throughout last year is showing signs of fading amid a less buoyant housing market and a diminishing appetite for credit. And in the absence of construction investment, there is little impetus from elsewhere, although a pick-up in government spending should cushion on the downside. We expect that GDP growth will cool to 2.4% in 2017.

## Sector trends

- The weaker outlook in the machinery producing sectors contributed to a fall in hydraulic demand growth this year, pushing it down to just 0.2%. Construction and automotive production remain the key drivers of growth this year, however this trend reverses going into 2018 as business investment improves.
- Pneumatic demand remains relatively unchanged for another quarter, as a rebound in motor vehicle production in Q4 2016 largely offset a contraction of special-purpose machinery. We now expect growth to accelerate to 1% this year, before picking up to 2.3% next year on the back of generally stronger growth across downstream sectors.

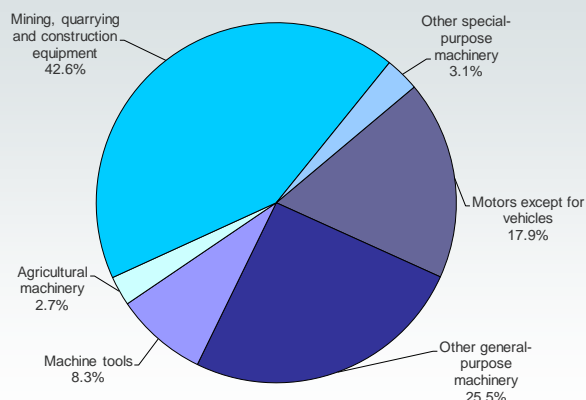
**South Korea: GDP and industrial production**



Source : Oxford Economics/Haver Analytics

**Machinery output by sub-sector in 2016**

(Value added, 2010 prices, \$28.26bn)



Source: Oxford Economics

## South Korea: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-1.9	-2.6	-0.1	2.2	2.7	2.3
<b>Other general-purpose machinery</b>	-8.5	-1.9	0.4	2.7	3.3	2.9
<b>Machine tools</b>	-1.9	-2.1	1.0	3.4	3.9	3.5
<b>Agricultural machinery</b>	-1.9	-2.4	-0.2	2.1	2.7	2.3
<b>Mining, quarrying and construction equipment</b>	7.5	-0.4	1.0	3.3	3.9	3.5
<b>Other special-purpose machinery</b>	2.3	-2.2	1.0	3.3	3.9	3.5
<b>Motor vehicles and parts</b>	-3.4	5.1	3.4	2.1	0.3	2.4
<b>Medical and surgical equipment</b>	3.0	1.2	4.5	3.0	3.0	2.1
<b>Electronic components and boards</b>	9.3	4.9	6.3	6.4	5.1	4.0
<b>Construction</b>	11.1	3.8	2.6	2.7	3.0	3.0
<b>Food</b>	2.9	1.6	2.7	2.9	3.4	3.1
<b>Chemicals excluding pharmaceuticals</b>	3.7	1.2	3.1	3.1	3.4	2.9
<b>Hydraulic demand growth</b>	2.3	0.2	1.2	2.7	2.9	2.9
<b>Pneumatic demand growth</b>	0.2	1.0	2.3	3.0	2.8	3.0
<b>Industrial production</b>	1.8	2.2	3.4	3.7	3.5	3.2
<b>GDP</b>	2.7	2.4	2.9	2.9	2.8	2.6

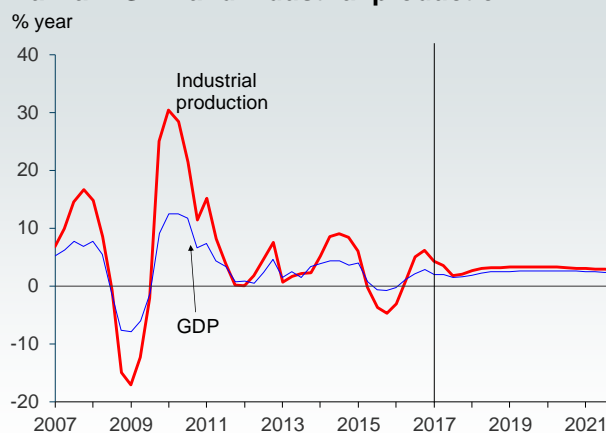
## Macro overview

- Data for Q4 2016 confirmed our expectations of a strong end to the year, as growth averaged 1.5% in 2016. While momentum in trade continued to accelerate, the sharp increase in investment was particularly striking. The rise in capital spending was driven by private industrial companies, which benefitted from the H2 surge in foreign demand for electronic products.
- Although growth this year will be supported by a modest pick-up in consumer spending and an improvement in business confidence boosting fixed capital investment. The external sector will likely continue to underpin industrial activity and investment - as long as the global trade environment does not deteriorate because of US protectionist moves.

## Sector trends

- The rebound in hydraulic demand is expected to be stronger this year following an improvement in construction, mining, quarrying and sectors. Despite slightly weaker growth across a few machinery-producing sectors, all end-use sectors are set to positively contribute towards growth of 2.6% in 2017.
- Demand for pneumatic fluid power has also improved since last quarter and is now expected to outpace headline industrial production, with growth of 3.6% IN 2017. This is largely due to stronger growth of special-purpose machinery and motor vehicles, the latter of which is set to benefit from a rebound in car production.

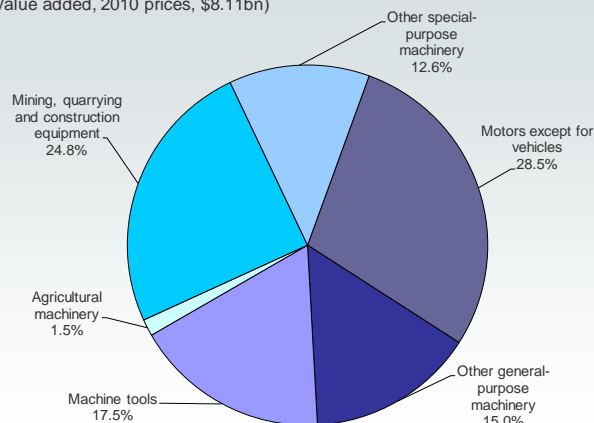
**Taiwan: GDP and industrial production**



Source : Oxford Economics/Haver Analytics

**Machinery output by sub-sector in 2016**

(Value added, 2010 prices, \$8.11bn)



Source: Oxford Economics

## Taiwan: Sector output forecasts

(Annual percentage changes unless specified)

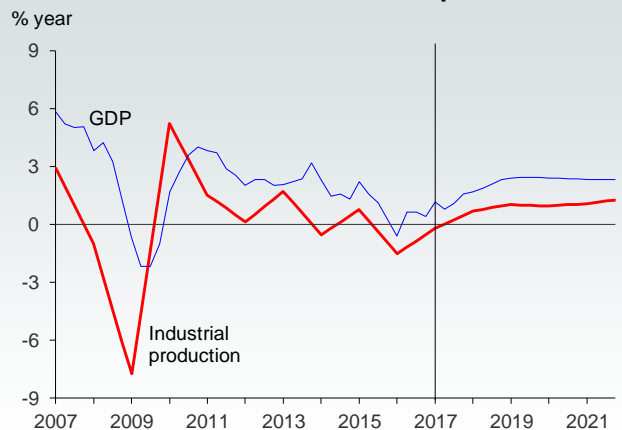
	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-6.8	2.3	1.4	3.6	4.4	4.1
<b>Other general-purpose machinery</b>	-6.8	2.1	1.0	3.2	3.9	3.7
<b>Machine tools</b>	-6.8	2.2	1.3	3.5	4.2	4.0
<b>Agricultural machinery</b>	-6.8	0.5	-1.4	0.6	1.2	0.9
<b>Mining, quarrying and construction equipment</b>	-6.8	2.3	1.4	3.6	4.3	4.1
<b>Other special-purpose machinery</b>	-6.8	2.3	1.4	3.6	4.3	4.1
<b>Motor vehicles and parts</b>	-3.5	7.3	1.5	3.0	1.9	2.3
<b>Medical and surgical equipment</b>	-3.1	-1.2	4.9	4.0	3.6	3.4
<b>Electronic components and boards</b>	7.8	5.8	4.7	4.4	4.0	3.5
<b>Construction</b>	-2.8	3.1	2.8	1.8	1.8	2.2
<b>Food</b>	4.4	3.1	3.3	3.7	3.6	3.3
<b>Chemicals excluding pharmaceuticals</b>	3.8	3.5	3.0	3.4	3.2	3.0
<b>Hydraulic demand growth</b>	-5.6	2.6	1.0	2.4	2.8	2.7
<b>Pneumatic demand growth</b>	-3.7	3.6	2.0	3.5	3.5	3.4
<b>Industrial production</b>	2.2	2.9	3.0	3.3	3.2	2.9
<b>GDP</b>	1.5	1.7	2.3	2.5	2.6	2.4



## Macro overview

- South Africa's GDP growth of just 0.3% in 2016 was the slowest since 2009. The economy contracted in Q4, showing an annualised decline of 0.3% as both the mining and manufacturing sectors fell. But we believe that 2016 was the low point and that a moderate recovery lies ahead.
- We expect growth to strengthen going into 2017 as inflation growth moderates, recovery in the agricultural sector following a multi-year drought eases and the external environment modestly improves. Encouragingly, there have already been some signs of stronger activity going into 2017 as PMI remained above 50 in February. Yet, growth will remain below the pace needed to boost employment and address wider income inequalities.

### South Africa: GDP and industrial production



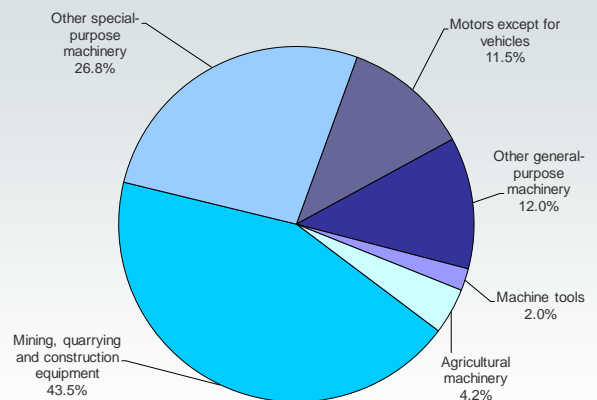
Source : Oxford Economics/Haver Analytics

## Sector trends

- Hydraulic demand is expected to improve but remain weak going into 2017, before recovering at a stronger pace in 2018, as a weaker end to 2016 contributed to a downgrade in automotive production in 2017. Demand currently relies on the construction sector until other investment accelerates and feeds through to the machinery producing sectors in 2018.
- The recovery in pneumatic fluid power is now expected in 2018, instead of this year, largely due the same reason as hydraulic demand, weaker growth in the automotive sector. But an improvement in business conditions and investment should fuel a return to positive territory as demand growth accelerates to 4.5%.

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$1.98bn)



Source: Oxford Economics

## South Africa: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-6.3	-1.7	0.7	2.8	3.3	3.9
<b>Other general-purpose machinery</b>	-6.1	-1.7	0.7	2.8	3.4	3.1
<b>Machine tools</b>	-6.1	-1.7	0.7	2.8	3.6	4.2
<b>Agricultural machinery</b>	-6.1	-1.7	0.7	2.8	3.0	2.9
<b>Mining, quarrying and construction equipment</b>	-6.4	-2.3	0.7	2.8	3.8	3.7
<b>Other special-purpose machinery</b>	-6.4	-2.3	0.7	2.8	3.8	3.7
<b>Motor vehicles and parts</b>	-1.6	2.9	14.3	7.4	1.4	0.6
<b>Medical and surgical equipment</b>	-14.3	0.4	1.2	1.9	2.8	2.1
<b>Electronic components and boards</b>	-13.8	0.2	0.7	0.2	0.4	0.8
<b>Construction</b>	0.8	1.8	2.0	2.7	3.1	3.6
<b>Food</b>	-0.7	-1.2	0.7	1.0	1.3	1.7
<b>Chemicals excluding pharmaceuticals</b>	3.1	1.1	-0.1	0.4	0.6	1.0
<b>Hydraulic demand growth</b>	-4.3	-0.6	2.5	3.3	3.1	3.1
<b>Pneumatic demand growth</b>	-5.4	-0.3	4.5	3.7	2.6	2.4
<b>Industrial production</b>	-1.6	-0.2	0.7	1.0	1.0	1.1
<b>GDP</b>	0.3	1.2	2.0	2.5	2.4	2.4

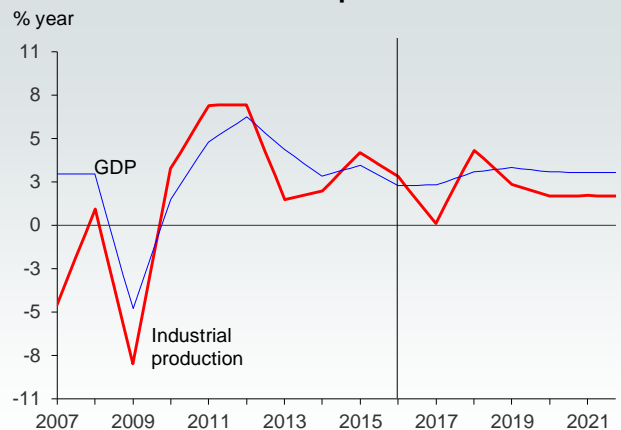
## Macro overview

- In January, the UAE had only complied with just 36% of the cut to production agreed under the OPEC deal last year. However, officials have stated that maintenance work from March will take compliance to over 100%. Resulting in slower growth of the oil sector this year at just 1%, masking the improvements being made in the non-oil sector.
- But overall, recovery is being supported by more stable oil prices and an easing pace of fiscal austerity and should be further helped this year by large construction projects related to the Dubai World Expo 2020 as well as robust tourism growth. However, growth will be limited due to high inflation and job cuts weighing on household spending.

## Sector trends

- Although we expect a muted recovery in the machinery-producing industries this year, strong growth in the automotive and construction sectors should help push hydraulic demand growth to 1.7%. But average growth across the forecast period has now dropped to 2.7%, down from 4% last quarter.
- Pneumatic demand is now set to expand at the same pace as hydraulic demand this year and next. Demand will continue to be largely sourced from the automotive sector, following the weaker outlook across the machinery producing sectors. But on the upside, growth should outpace headline industrial production in 2017.

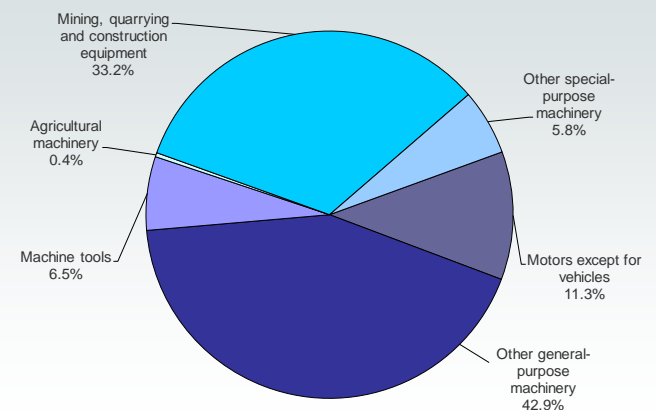
### UAE: GDP and industrial production



Source : Oxford Economics/Haver Analytics

### Machinery output by sub-sector in 2016

(Value added, 2010 prices, \$0.13bn)



Source: Oxford Economics

## United Arab Emirates: Sector output forecasts

(Annual percentage changes unless specified)

	2016	2017f	2018f	2019f	2020f	2021f
<b>Motors except for vehicles</b>	-3.0	0.6	-0.5	1.5	3.6	4.5
<b>Other general-purpose machinery</b>	-3.0	0.6	-0.5	1.5	3.6	4.5
<b>Machine tools</b>	-3.0	0.6	-0.5	1.5	3.6	4.5
<b>Agricultural machinery</b>	-2.9	0.6	-0.5	1.5	3.6	4.5
<b>Mining, quarrying and construction equipment</b>	-3.8	0.6	-0.5	1.5	3.6	4.5
<b>Other special-purpose machinery</b>	-3.8	0.6	-0.5	1.5	3.6	4.5
<b>Motor vehicles and parts</b>	3.7	4.5	4.3	3.7	3.3	2.9
<b>Medical and surgical equipment</b>	-2.7	-0.6	-0.6	-0.5	1.7	1.7
<b>Electronic components and boards</b>	-1.4	-1.5	-1.6	-1.6	0.5	0.7
<b>Construction</b>	4.4	4.0	5.0	5.0	5.0	4.0
<b>Food</b>	1.3	2.5	2.9	2.5	2.1	2.3
<b>Chemicals excluding pharmaceuticals</b>	2.1	4.1	4.2	4.5	4.3	4.2
<b>Hydraulic demand growth</b>	-0.9	1.7	1.2	2.5	3.9	4.2
<b>Pneumatic demand growth</b>	-0.9	1.7	1.2	2.0	3.1	3.5
<b>Industrial production</b>	3.0	0.1	4.7	2.6	1.8	1.8
<b>GDP</b>	2.5	2.5	3.3	3.6	3.3	3.3





National Fluid Power Association  
6737 W. Washington Street, Suite 2350  
Milwaukee, WI 53214  
Telephone: (414) 778-3372  
Fax: (414) 778-3361  
e-mail: [stats@nfpa.com](mailto:stats@nfpa.com)  
[www.nfpa.com](http://www.nfpa.com)