

Regional Sectorial Outlook

Mexico

First Half 2014
Economic Analysis

- Foreign demand will contribute to higher economic growth in 2014
- The competitiveness of manufacturing exports has increased over the last decade
- Imports of used vehicles do not affect the sales of new units: evidence from an econometric study
- The challenge of achieving greater integration of national output into global value chains
- The main challenges to the energy reform associated to hydrocarbons are technological, regulatory and environmental

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Closing date: January 17, 2014

1. Summary

Foreign demand will contribute to higher economic growth in 2014

In 2013 Mexico's economy experienced a brief slowdown, which started in the third quarter of 2012 and seems to have ended a year later. This slowdown was mainly due to a combination of external and internal factors. Within the first group, it stands out the slowdown in US manufacturing production over the same period and lower non-oil mining exports. As for the second group, the main contributors were the poor performance of construction, lower oil production and under-execution of public spending.

The forecasted sectorial growth for this year is more optimistic, as the most recent economic activity indicators are showing improvements. The export sector has reinvigorated itself over recent months, and this will eventually impact the domestic market. This will be reflected in a more homogenous growth across manufacturing sectors in 2014. In spite of it, the fastest growth will be occurring in sectors such as transportation equipment (automotive and aeronautic), consumer electronics and communications equipment.

However, there are some risks to Mexico's 2014 economic forecasts. The main causes for concern include: 1) a less vigorous US economy than expected, impacting Mexico's non-oil exports and, as a result, manufacturing, trade and transportation services; and 2) a limited implementation of the approved structural reforms.

The performance of the Industrial and Medium development regions: the key to explaining the lower national economic growth in 2013

The national economic growth forecasted for 2013 is 1.2%, well below the 3.8% growth in 2012. We expect economic activity to have been weaker than in 2012 in all of the five regions into which we have divided the country on the basis of economic vocation.¹ In particular: i) the High Development and Medium development regions probably will have suffered the sharpest slowdown in economic growth; ii) the Tourist region will have shown the greatest resilience to the economic slowdown; and iii) the weaker economic performance of the Medium development and Industrial regions will largely have explained the slowdown in national economic growth.

As in 2012, a regional comparison of forecasted growth rates for 2013 shows that the strongest economic performance will have taken place in the Tourist region. This regional economy will probably have grown by 4.8%, while the Industrial, High development, High marginalization and Medium development regions will have grown by 2.1%, 0.5%, 0.4% and 0.3%, respectively.

All the regions will have posted weaker contributions to national economic growth in 2013 when compared to the two previous years. In particular, it stands out the negative trend of the economic incidence by the Industrial region that has been occurring since 2010. We forecast its contribution in 2013 to have been 0.9 percentage points vs. 1.7 percentage points in the previous year. As for the Medium development region, it will probably have contributed just 0.1 percentage points in 2013. This is 1.1 percentage points lower than its contribution to the national economic growth in 2012.

¹ A detailed description of this regional classification is set out in *Mexico Regional Sectorial Outlook*, "Regional Grouping, How and Why", November 2007. BBVA Bancomer. The regions divided by their vocation and level of development are: High development: DF; Touristic: BCS and QR; Industrial: Ags, BC, Coah, Chih, Jal, Méx, NL, Qro, Son, Tamps; Medium development: Camp, Col, Dgo, Gto, Mich, Mor, Nay, Pue, SLP, Sin, Tab, Tlax, Ver, Yuc, Zac; High marginalization: Chis, Gro and Oax.

Special reports: competitiveness gains for manufacturing exports over the last decade; the importance of achieving increased integration of domestic production into global value chains; and some challenges to the implementation of energy reform in relation to hydrocarbon production

In this issue of *Mexico Regional Sectorial Outlook* we analyze the following topics: 1) the competitiveness of manufacturing exports over the last decade; 2) the integration of Mexico into global value chains; and 3) the main technological, regulatory and environmental challenges associated with implementation of energy reform in hydrocarbon production.

The main results identify two possible factors underlying the increase in the competitiveness of manufacturing exports: the accumulated depreciation of the real effective exchange rate and the increased room for maneuvering by the manufacturing industry vs. the tertiary sector from having benefited from a larger positive wealth effect from increases in the terms of trade.

Sustaining and enhancing Mexico's integration into global value chains requires diversification of exports through increased development of local productive and technological capabilities. This will also require a focus on infrastructure, qualified human resources, labor market flexibility and appropriate improvements to the tax and financing regimes.

The challenges to implementing energy reform in hydrocarbon production include: i) in the best-case scenario, deep-water extraction will not commence until 2018; ii) it is essential that local content requirements, to be established in the secondary legislation, should not cause any delays in developing deep water and shale reserves; iii) the establishment of territorial limits on the extraction of shale hydrocarbons and supervision of production by the National Hydrocarbons Commission; and iv) effective regulation of the use, recycling and reuse of water to cope with greater demand from the development of shale hydrocarbons.

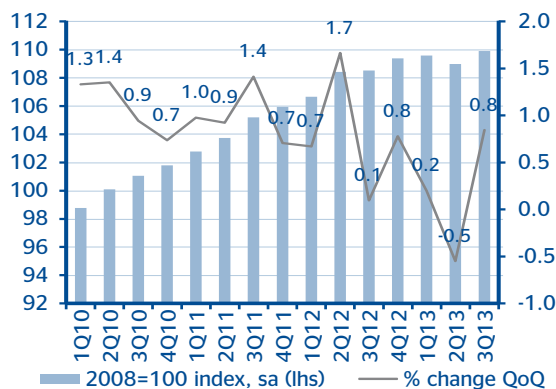
2. Regional and sectorial analysis

2.a Foreign demand will contribute to higher economic growth in 2014

The slowdown observed since 3Q12 seems to have come to an end a year later (at some point in 3Q13). It might have been caused by a combination of external and internal factors. On the external side, the slowdown in US manufacturing production weakened Mexico's non-automotive exports (Table 1). Meanwhile, the weak performance of construction, lower oil production and under-execution of public spending were the main internal factors adversely affecting the economy.

Chart 1

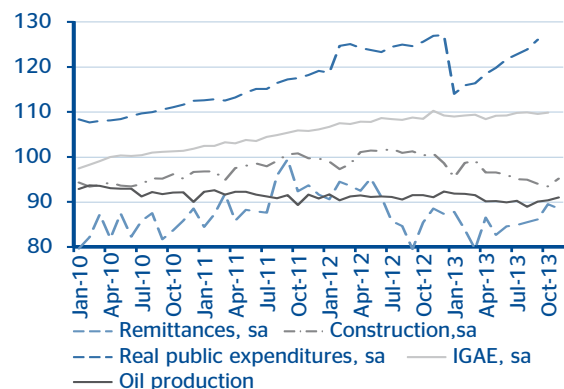
Mexico GDP
(Index 2008=100 SA, and % q/q change)



Source: BBVA Research with data from SCNM b2008, INEGI

Chart 2

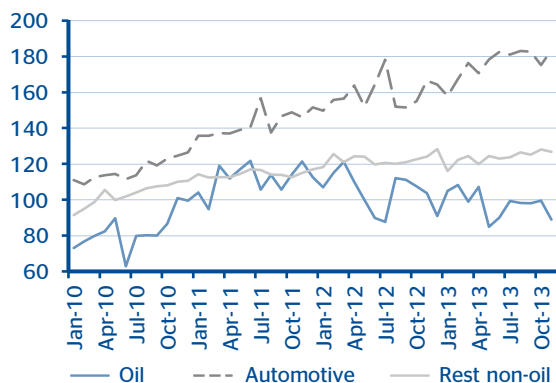
Internal factors behind the 2012-2013 slowdown
(Index 2008=100, SA)



Source: BBVA Research with data from INEGI and Banxico

Chart 3

Mexico's total exports
(Index 2008=100, SA)



Source: BBVA Research with data from INEGI

Table 1

Mexico's exports

	Million dollars		% annual change		Contrib. to growth pp	
	2012	2013*	2012	2013*	2012	2013*
Total	370,706	348,102	6.1	2.2	6.1	2.2
Oil	52,892	45,194	-6.2	-7.8	-1.0	-1.1
Non oil	317,814	302,908	8.5	3.9	7.1	3.3
Automotive	88,377	90,194	11.6	10.9	2.6	2.6
Others	229,437	198,330	7.1	1.4	4.1	0.8
Non oil	317,814	302,908	8.5	3.9	8.5	3.9
USA	289,521	276,846	6.2	4.4	5.7	4.0
Automot.	81,518	85,076	10.9	14.5	2.7	3.7
Other	208,003	191,770	4.4	0.4	3.0	0.3
Others	81,185	71,257	5.9	-5.4	1.5	-1.4
Automot.	21,538	18,206	3.3	-9.5	0.2	-0.7
Other	59,647	53,051	6.9	-3.8	1.3	-0.7

* January-November

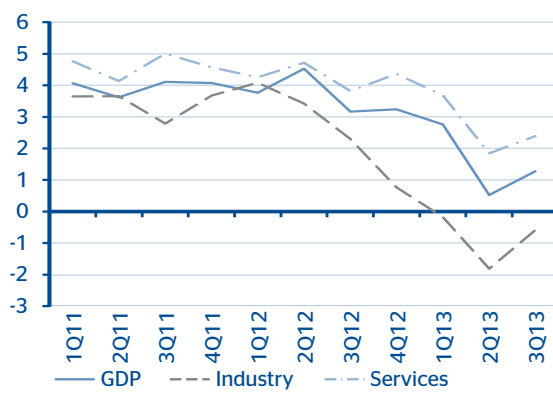
Source: BBVA Research with data from INEGI

The return to growth in 3Q13 reflected an incipient external and internal dynamism that positively impacted manufacturing production and employment: we expect this slightly positive trend to have been sustained through the end of 2013.

Uneven growth among the main sectors in 2013

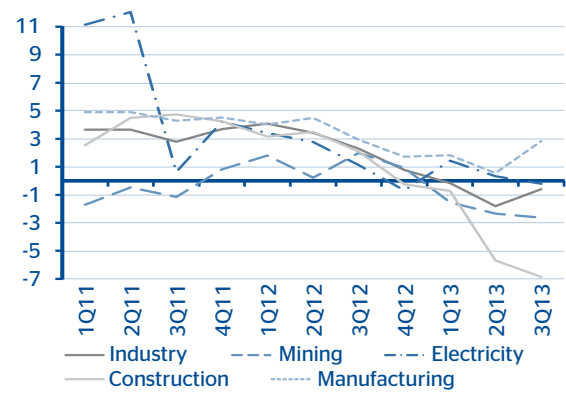
Although Mexico's economic growth was positive with an uptick in formal employment, buoyed by modest but sustained internal and external demand, the main components performed very differently. The industrial sector accumulated an annual decline of 0.9% up to 3Q13. Nevertheless, the manufacturing sector accelerated in such quarter. Contrastingly, the deterioration in construction (see Real Estate Outlook January 2014) and mining continued as a consequence of both lower volumes of extracted oil and reduced precious metal prices.

Chart 4
Total, industrial and service's GDP
(% y/y change, SA)



Source: BBVA Research with data from INEGI

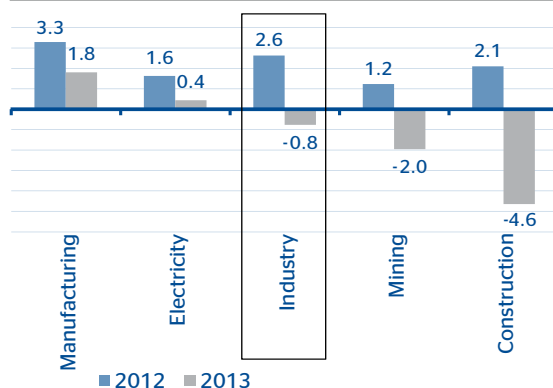
Chart 5
Industrial production components
(% y/y change, SA)



Source: BBVA Research with data from INEGI

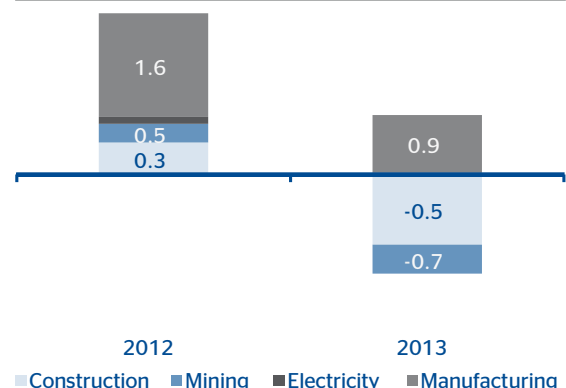
By year-end 2013, we expect manufacturing and electricity to have been the only areas with positive contributions to the industrial sector. Meanwhile, mining and, particularly, construction went down in 2013.

Chart 6
Industrial production and its components
(% y/y change, SA)



Forecasted 2013 year-end
Source: BBVA Research with data from INEGI

Chart 7
Contribution of components to industrial growth (percentage points)

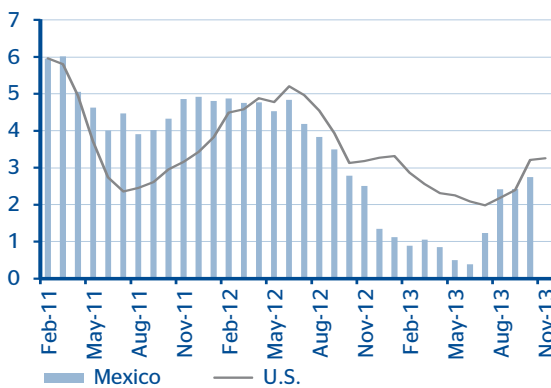


Forecasted 2013 year-end
Source: BBVA Research with data from INEGI

Mexico's manufacturing sector outperformed other sectors, supported by the same sector in the US

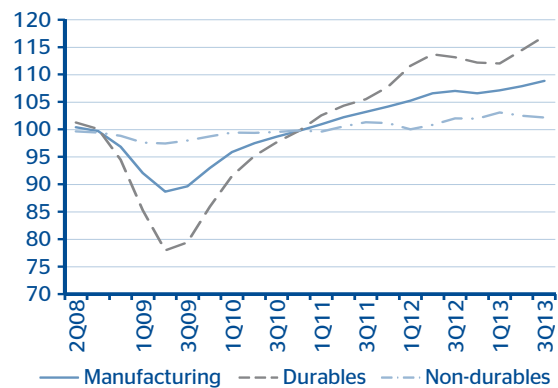
The US economy continues picking up speed, which is being reflected on Mexico's manufacturing sector. Although this came with a time lag, given that both manufacturing sectors usually grow in tandem with Mexico's manufacturing production even growing more rapidly. Fortunately, the correlation between the two sectors seems to be reverting to normalcy as the US economy is displaying new dynamism resulting from the reindustrialization and energy revolution. Over 200 companies have returned to that country, driving the creation of various manufacturing innovation centers.

Chart 8
Manufacturing production Mexico - U.S.
(% y/y change, SA)



Source: BBVA Research with data from INEGI and U.S. Federal Reserve

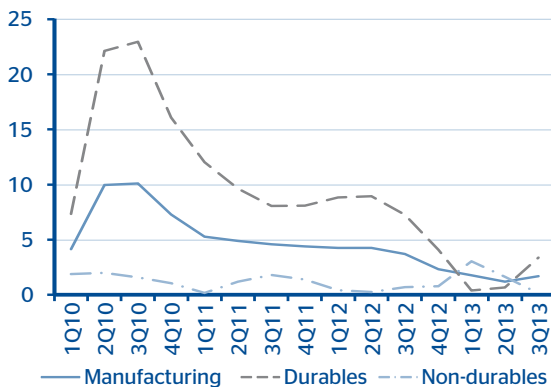
Chart 9
Manufacturing production of durables and non durables (Index 1Q08=100, SA 6MMA)



Source: BBVA Research with data from INEGI

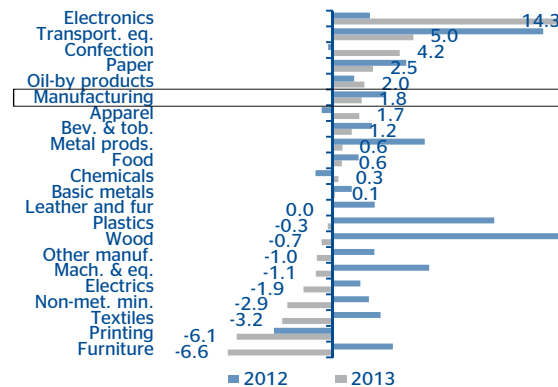
The manufacturing areas with the strongest performance throughout 2013 are mainly related to the production of durable goods. In particular, transportation equipment (automotive and aeronautic) and electronics production performed strongly. The trend for durables production was positive overall. However, growth in non-durables was weaker, as a consequence of their greater reliance on domestic demand. We expect manufacturing to have grown at an annual rate of 1.8% to the end of 2013, with very uneven growth across sectors.

Chart 10
Manufacturing production of durables and non durables (% y/y change, SA, 6mma)



Source: BBVA Research with data from INEGI

Chart 11
Manufacturing production by sector, 2013
(% annual change, SA)

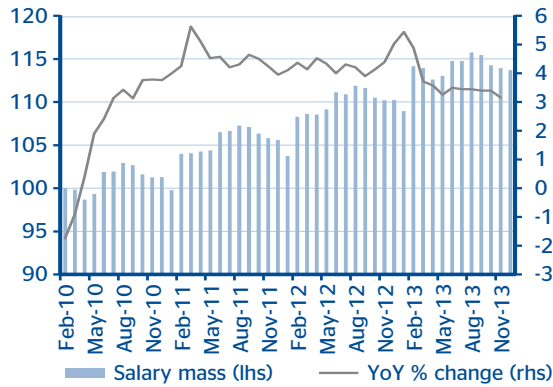


Forecasted 2013 year-end
Source: BBVA Research with data from INEGI

The service sector up to 3Q13 without a clearly positive trend; mixed signals among its activities persist

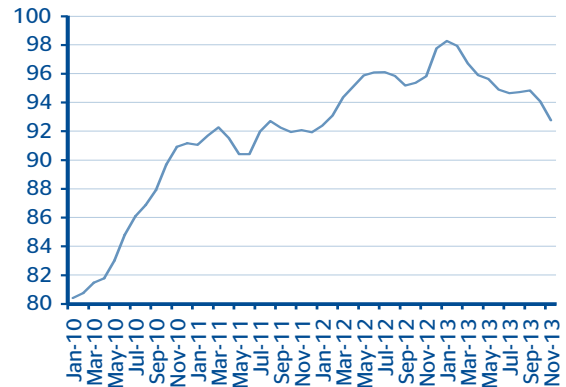
The incipient recovery in foreign demand and the weakness of domestic demand -mainly caused by stagnation in remittances, slowdown in both employment and real salary growth and lower consumer confidence- continue to influence the mixed performance within the service sector.

Chart 12
Real salary mass of private formal employment (Index Jan10=100 and % annual change)



Source: BBVA Research with data from INEGI

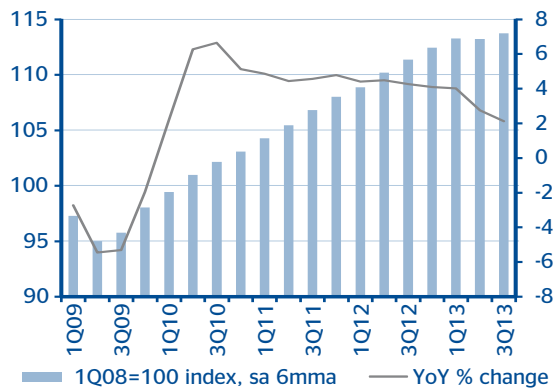
Chart 13
Consumer confidence (Index 2003=100, 3mma)



Source: BBVA Research with data from INEGI

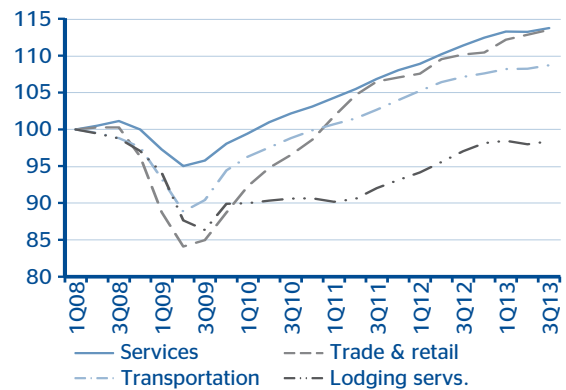
Service sector activities exposed to the foreign and domestic cycles -like commercial activities- are showing some signals of acceleration. However, transportation, and temporary lodging services and food and drink preparation are still lagging behind. The latter one is explained by the negative performance of food and drink preparation services, which fell by 0.6% in the year to 3Q13, whereas lodging services grew by 4.9% in the same period.

Chart 14
Service sector (Index 1Q08=100, SA 6mma and % y/y change)



Source: BBVA Research with data from INEGI

Chart 15
Service sector, activities exposed to the domestic and foreign cycles (Index 1Q08=100, SA 6mma)



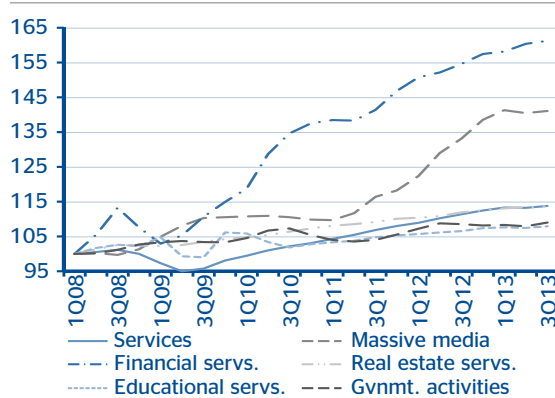
Source: BBVA Research with data from INEGI

Other activities that are mainly exposed to the domestic cycle -such as government activities and professional (e.g. legal, advertising and consultancy), leisure and educational services- remain weak.

In 2013, the service sector is forecasted to have grown at an annual rate of 2.4%, a rate lower than in 2012 (4.3%). Therefore, the trend observed up to 3Q13 will remain without significant changes. The largest contributors to the service sector's performance include mass media, financial and business support services, which are increasingly being outsourced (waste management, cleaning and buildings maintenance, etc).

Chart 16

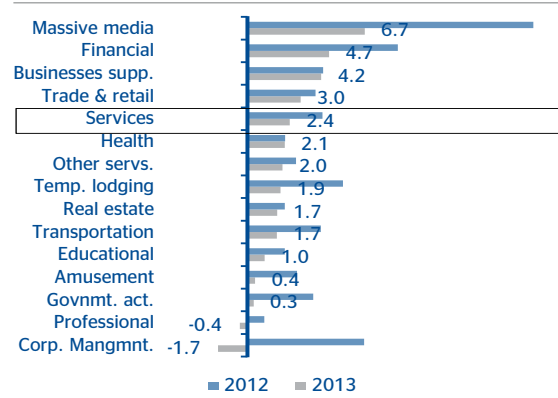
Service sector, activities coupled to the domestic cycle (Index 1Q08=100, SA 6mma)



Source: BBVA Research with data from INEGI

Chart 17

Activities of the service sector in 2013 (% annual change, SA)



Forecasted 2013 year-end
Source: BBVA Research with data from INEGI

What factors will influence economic growth in 2014?

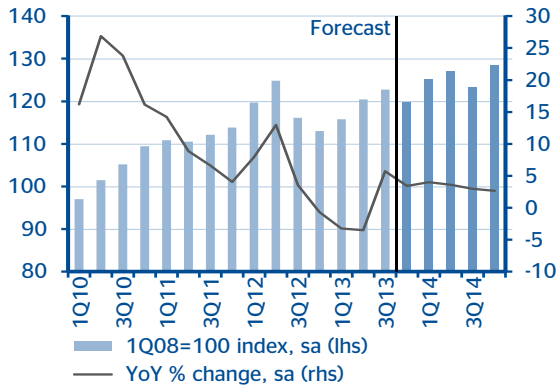
Two main factors will influence economic growth in 2014:

1) Higher growth abroad will boost Mexico's non-oil exports

The global economic outlook improved in the second half of 2013. However, the recovery in developed economies will not be sufficient to offset the slowdown in emerging markets. Global growth of around 3.0% is now expected for 2013, which is lower than previously expected due to downward adjustments for the US, Mexico and other emerging economies. The euro zone came out of recession in 2Q13 led by Germany and France, with GDP for 2013 as a whole expected to be slightly down, -0.4%, although skewed towards zero. Likewise, financial tensions eased as a result of the temporary fiscal agreement in the US, which boosted confidence and accelerated growth in the second half of the year. US GDP growth is expected to be 1.8% for 2013.

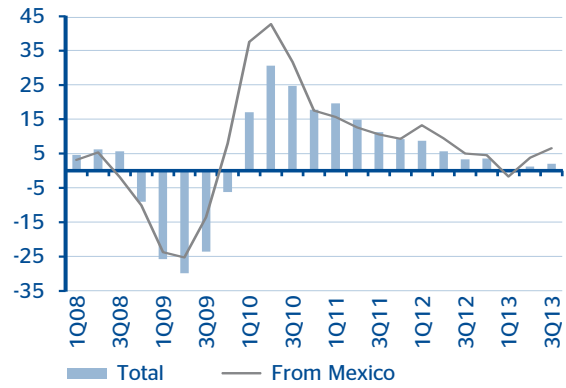
Global growth of 3.6% is expected for 2014, supported by acceleration in all areas, except Asia, which is expected to remain at 2013 levels. The US will grow by 2.5% while its manufacturing by around 3.0%; the EU will grow by 1.1%. Mexico's exports of goods and services (the main drivers of growth) are expected to grow by around 4.0% in real terms in 2014. This is stronger than the 0.6% growth in 2013, but not enough to pull the service sector (which requires double digit increases in exports of goods and services) more strongly.

Chart 18
Exports of goods and services
(Index 1Q08=100 and % y/y change)



Source: BBVA Research with data from INEGI

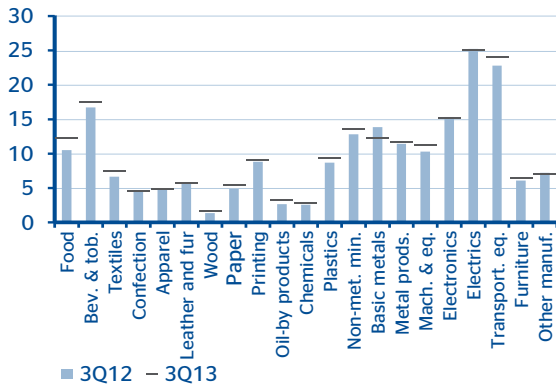
Chart 19
US manufacturing imports
(% annual change)



Source: BBVA Research with data from USITC

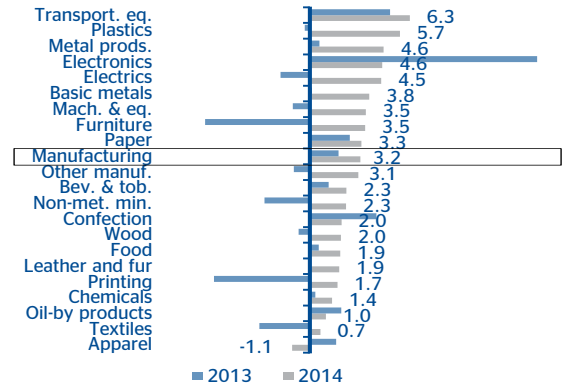
Against this background, manufacturing might grow by 3.2% in 2014 vs. 1.8% in 2013. Growth will continue to be led by the sectors most related to the external cycle. We will have to wait and see how other sectors absorb, in the short term, the contractive effects of the tax reform on both private consumption and company investment.

Chart 20
Mexican manufacturing exports
(% of US manufacturing imports)



Source: BBVA Bancomer with data from USITC

Chart 21
Manufacturing production by sector 2014
(% annual change, SA)

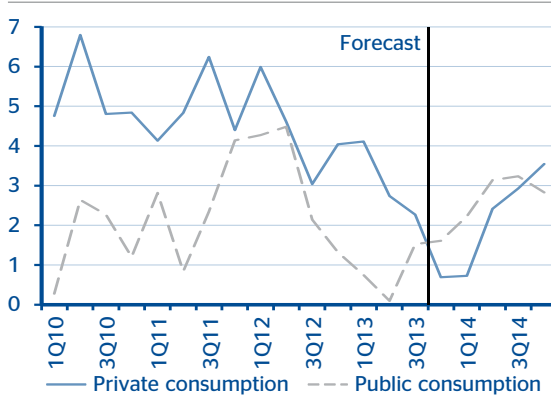


Forecasted 2013 year-end
Source: BBVA Research with data from INEGI

In the meantime, relatively stronger public spending will prompt higher consumption and income for the economy. But this, unfortunately, does not represent sustained growth. We expect private and public consumption to increase by 2.4% and 2.9%, respectively, which will drive an almost across-the-board increase in the service sector of 3.8% in 2014.

Chart 22

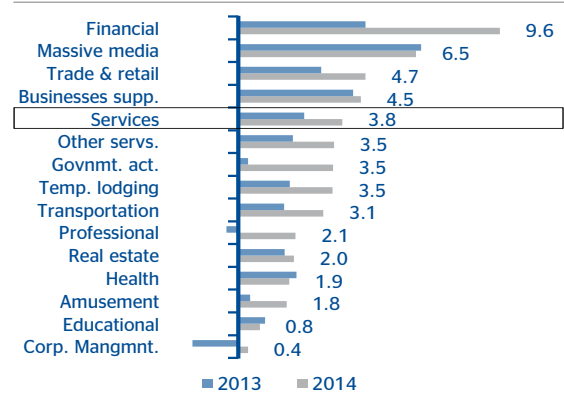
Private and public consumption
(% y/y change, SA)



Source: BBVA Research with data from INEGI

Chart 23

Activities of the service sector in 2014
(% annual change, SA)



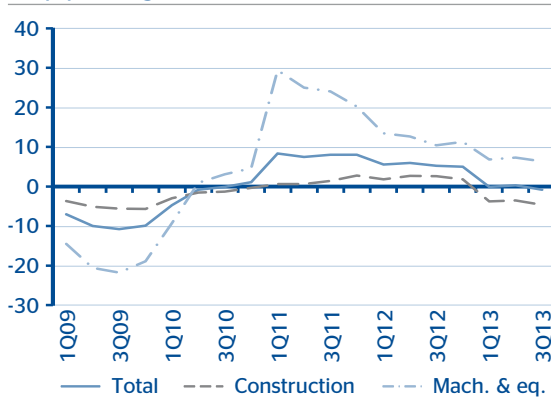
Forecasted 2013 year-end and 2014
Source: BBVA Research with data from INEGI

2) The rebound of investment

In 2013, we expect total investment (public and private) to have fallen by 1.0% in 2013, following a 4.6% growth in the previous year. This is explained by a fall in construction investment that was not offset by the modest growth in machinery and equipment investment. By taking into account the recent investment behavior, total investment amounts to 22% of GDP.

Chart 24

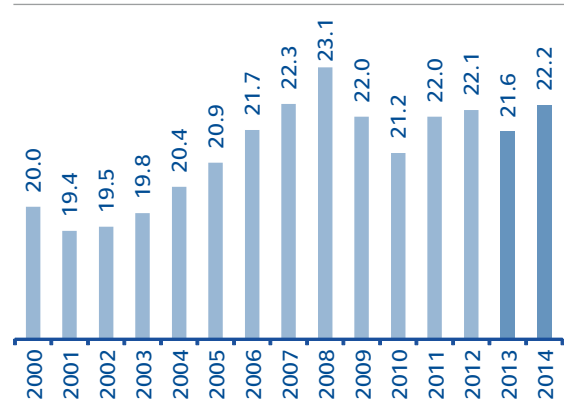
Gross fixed capital formation
(% y/y change)



Source: BBVA Research with data from INEGI

Chart 25

Total investment
(% of GDP)



Source: BBVA Research with data from INEGI

Increased public investment and suitable conditions for housing developers are needed for residential investment to pick up. This is particularly true for low-income housing to start the recovery of the construction sector, which is forecasted to have fallen by 4.6% in 2013. The signs show that construction seems to have bottomed out in 3Q13, but its uphill journey appears to be slow and full of many challenges looming in the near future.

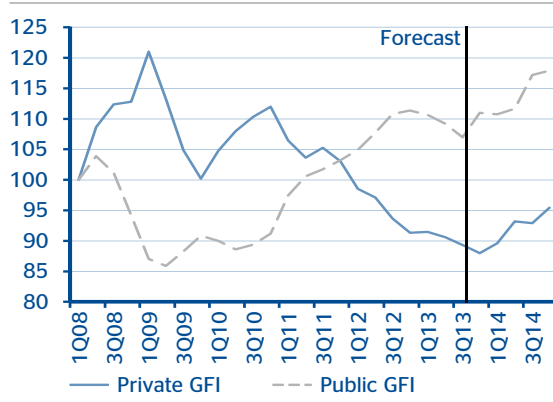
The federal government has an infrastructure budget of 500,000 million pesos to boost the recovery of the construction sector, of which 6% will be invested in roads. Infrastructure will be a partial catalyst for growth, providing that the budget is executed in a timely manner. The federal government's capacity to invest is limited, and therefore the effective implementation of the energy and telecommunications reforms is essential for reducing costs over the long term.

Another area that must improve is investment in machinery and equipment, which is an important component of foreign direct investment (FDI). In 2014 more FDI is expected for the automotive sector, both in new assembly plants and the expansion and installation of new Tier 1 parts manufacturers. Among the announcements that could be given in 2014 is the new BMW assembly plant as the German company has been assessing options in various Mexican provinces. In the past, BMW has stated its interest in assembling its 1 and 3 series in Mexico.

Public investment in 2014 is expected to remain below the 2008 level, but on the path to recovery with 3.8% annual growth vs. -5.6% in 2013. Private investment will return to growth in 2014 and is expected to be around 4.4% vs. the 1.0% forecasted for 2013.

Chart 26

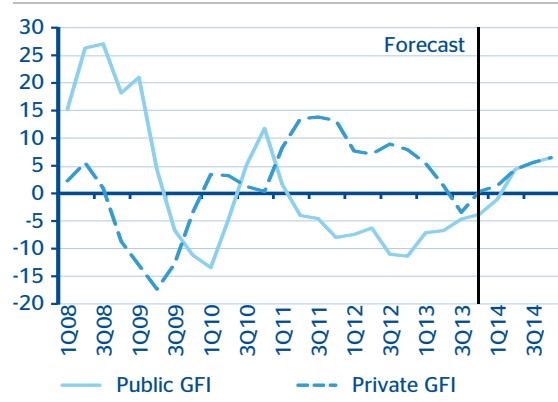
**Gross fixed investment
(Index 1Q08=100)**



Source: BBVA Research with data from INEGI

Chart 27

**Gross fixed investment
(% y/y change, SA)**



Source: BBVA Research with data from INEGI

Conclusions

The Mexican economy experienced a short slowdown in 2013, starting in 3Q12 and seeming to have ended one year later, at some point in 3Q13. This was due to a combination of external and internal factors. The forecasted sectorial growth for 2014 is more optimistic, as the most recent economic activity indicators are showing improvements. The export sector has gained strength over recent months, and this will eventually impact the domestic market. This will be reflected on more homogeneous growth across manufacturing sectors in 2014. Nevertheless, the strongest growth will occur in sectors such as transportation equipment (automotive and aeronautic), consumer electronics and communications equipment. Faster economic growth in the US, the rebound of remittances and the recovery in formal employment will drive private consumption and demand for services.

However, this scenario is not risk-free. Among the main causes for concern we have: 1) a less vigorous than expected US economy that would affect Mexico's non-oil exports and, as a result, manufacturing, trade and transportation services; and 2) the limited implementation of the approved structural reforms.

Box 1: Imports of used vehicles do not affect the sales of new units: evidence from an econometric study

According to figures from the Mexican Automotive Industry Association (AMIA, for its acronym in Spanish), some 6.9 million used automotive vehicles were imported into the country between January 2005 and August 2013, mainly from the US. Such figure represents 80.7% of the new vehicle sales in the country over the same period.

Two basic factors determine the demand for imported used automobiles: the price differential between new vehicles and the imported used automobiles sold in the domestic market; and the average lifetime of a vehicle, which is around 5 years in the US and 10 years in Mexico.¹

In order to organize the market for used vehicles and improve the purchasing power of people with low purchasing power, on August 22nd, 2005 the federal government issued a decree establishing the conditions for the definitive import of used vehicles.² The most significant aspects of this decree include: a) a reduction of tariffs and, to an extent, non-tariff barriers to permit vehicle imports from the USA and Canada for vehicles between 10 and 15 years old; b) VAT on 30% of the value of the vehicle to uniform the fiscal burden with new vehicle purchases in Mexico; c) annual quotas established by the Economics Ministry to regulate imports and a 10% tariff on imports of used vehicles; d) exemption from tax payments on new vehicles where the price to the consumer does not exceed \$150,000.00; and e) from January 1st, 2009 no prohibition or restriction on importing used vehicles from the US or Canada where the year-model was over ten years old.

Since the market organization under the 2005 decree did not end up totally satisfactory, there have been a number of subsequent modifications over the following years. The

first of those was issued on February 1st, 2008 whose one of the most important changes was making imported used vehicles subject to environmental regulations.³ The second modification was on December 24th, 2008, establishing a 10% tariff on 10 year old vehicles from the US and Canada.⁴ The third major change was on July 1st, 2011, banning the importation of automobiles that did not meet certain physical, mechanical and environmental requirements.⁵ Finally, on January 31st, 2013 the previous change was extended to remain effective until January 31st, 2014.⁶

Despite the aforementioned legal measures, importing companies continued bringing vehicles into the country that did not comply with the rules on certificates of origin, physical and mechanical conditions and environmental protection under the legal protection of “amparo”. It was not until the middle of this year that the country’s Supreme Court instructed its judges and magistrates to abstain from indiscriminately issuing “amparos” against the two jurisprudences banning the import of used vehicles: the lack of a certificate of origin or of an environmental certificate that complies with the NOM41 standard.⁷

In this paper we aim to determine whether imports of used vehicles displace sales of the new vehicles purchased in Mexico, or vice versa. A negative answer would suggest that the markets for new and imported used vehicles are segmented. We used four variables in this study: the new vehicle units purchased in Mexico; the imported used vehicles; formal employment (workers affiliated with the IMSS social security system) and the total banking automotive lending portfolio (Charts 28 and 29).

¹ For more information on these determinants, see Flores Sánchez and Martín Rivero (2008).

² Refer to the decree published in the Federation’s Official Gazette at http://dof.gob.mx/nota_detalle.php?codigo=2089827&fecha=22/08/2005

³ Refer to the reform published in the Federation’s Official Gazette at http://dof.gob.mx/nota_detalle.php?codigo=5029320&fecha=01/02/2008

⁴ Refer to the decree published in the Federation’s Official Gazette at http://www.dof.gob.mx/nota_detalle.php?codigo=5075762&fecha=24/12/2008

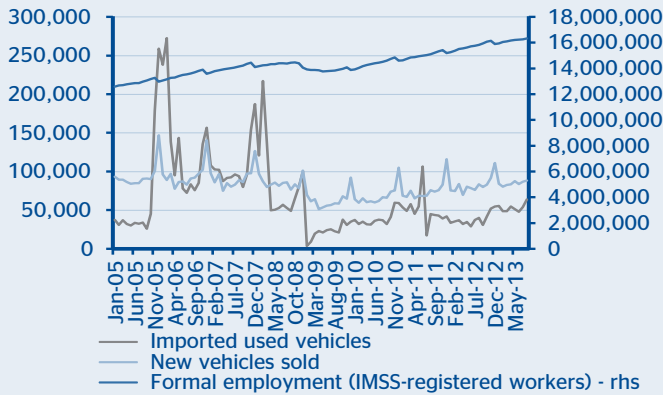
⁵ Refer to the decree published in the Federation’s Official Gazette at http://www.dof.gob.mx/nota_detalle.php?codigo=5198960&fecha=01/07/2011

⁶ Refer to the modification to the decree published in the Federation’s Official Gazette at http://www.dof.gob.mx/nota_detalle.php?codigo=5286296&fecha=31/01/2013

⁷ For more details on the Supreme Court’s ruling, refer to the article “Adiós a los amparos para los autos chocolate” available at <http://noticias.autocosmos.com.mx/2013/06/21/adios-a-los-amparos-para-los-autos-chocolate>

Chart 28

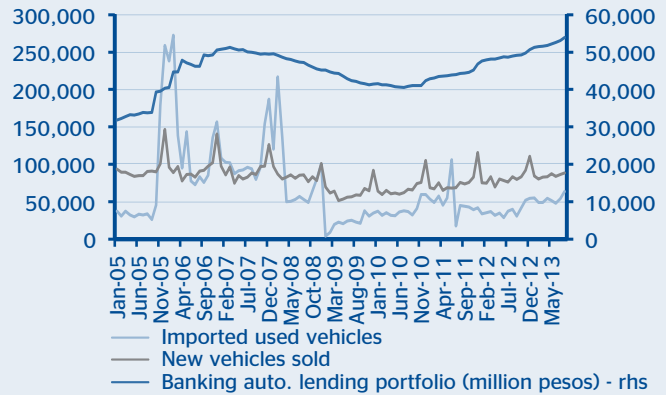
New vehicles sold, imported used vehicles and formal employment



Source: BBVA Research with data from AMIA and STPS

Chart 29

New vehicles sold, imported used vehicles and banking automotive lending portfolio



Source: BBVA Research with data from ABM and AMIA

Analysis of the explanatory relationship between imported used vehicles and new vehicle sales

In order to determine whether imported used vehicles might adversely affect the sales of new units (controlling for formal employment and the total banking automotive lending portfolio), we first carried out some statistical tests to determine the appropriate econometric model.⁸ In particular, we applied the Johansen cointegration test (1991) to the four series (Table 2).⁹ Additionally, we also applied the

procedure suggested by Lütkepohl et al. (2004) to perform the cointegration test by taking into account the possibility of a structural change (Table 3).¹⁰

The results of these tests suggest that we can reject the null hypothesis of no cointegration ($r = 0$) even at a level of significance of 0.01.¹¹ We then applied the methodology proposed by Engle and Granger (1987), as summarized in the following Vector Error Correction Model (VECM):

Table 2

Johansen cointegration test*

Number of cointegrating equations	t statistic	Critical values		
		10%	5%	1%
$r \leq 3$	5.6	10.5	12.3	16.3
$r \leq 2$	21.7	22.8	25.3	30.5
$r \leq 1$	61.9	39.1	42.4	48.5
$r = 0$	124.0	59.1	63.0	70.1

* Trace and linear trend statistics in the cointegration test
Source: BBVA Research with data from AMIA, ABM and STPS

Table 3

Adjusted Johansen cointegration test*

Number of cointegrating equations	t statistic	Critical values		
		10%	5%	1%
$r \leq 3$	2.0	5.4	6.8	10.0
$r \leq 2$	17.0	13.8	15.8	19.9
$r \leq 1$	37.5	25.9	28.5	33.8
$r = 0$	63.3	42.1	45.2	51.6

* Trace and linear trend statistics in the cointegration test
Source: BBVA Research with data from AMIA, ABM and STPS

⁸ Using the full sample from January 2005 to August 2013, statistical tests show that the null hypothesis of no cointegration can be rejected at a level of significance of 0.01. However, the Chow test for the specification of the monthly change in the units of new vehicles sold (corrected with the cointegration vector) identified a structural change for the period January 2007 to February 2009. For this reason, it was decided to use the sample from March 2009 to August 2013 for the analysis and the results presented in this box.

⁹ Although the unit root hypothesis for the series of imported used vehicles and new vehicles sold for the sample from March 2009 to August 2013 can be rejected, it is possible to include these in the cointegration vector since adding them to the linear combination of the other two series (integrated of order one) gives a stationary series. The cointegration test included dummies to control for monthly seasonality and was done with the Urca package in the R programming language.

¹⁰ This test would rule out the possibility of erroneously accepting a cointegration relation in the presence of a structural change of level. This test was also done controlling for monthly seasonality and with the Urca package in the R programming language.

¹¹ As it was expected, both tests indicated that at most there could be two cointegrating vectors since there were only two integrated series of order one in the vector.

$$\begin{aligned} \Delta NVS_t &= \gamma_0 + \mu_1 Z_{t-1} + \sum_{j=1}^p \alpha_j \Delta NVS_{t-j} + \sum_{j=1}^p \beta_j \Delta IUUV_{t-j} + \sum_{j=1}^p \gamma_j \Delta Employment_{t-j} + \sum_{j=1}^p \eta_j \Delta BALP_{t-j} + \varepsilon_t^{\Delta NVS} \\ \Delta IUUV_t &= \phi_0 + \delta_1 Z_{t-1} + \sum_{j=1}^p \kappa_j \Delta NVS_{t-j} + \sum_{j=1}^p \lambda_j \Delta IUUV_{t-j} + \sum_{j=1}^p \phi_j \Delta Employment_{t-j} + \sum_{j=1}^p \sigma_j \Delta BALP_{t-j} + \varepsilon_t^{\Delta IUUV} \\ \Delta Employment_t &= \tau_0 + \rho_1 Z_{t-1} + \sum_{j=1}^p \nu_j \Delta NVS_{t-j} + \sum_{j=1}^p \pi_j \Delta IUUV_{t-j} + \sum_{j=1}^p \tau_j \Delta Employment_{t-j} + \sum_{j=1}^p \zeta_j \Delta BALP_{t-j} + \varepsilon_t^{\Delta Employment} \\ \Delta BALP_t &= \omega_0 + \theta_1 Z_{t-1} + \sum_{j=1}^p \omicron_j \Delta NVS_{t-j} + \sum_{j=1}^p \varpi_j \Delta IUUV_{t-j} + \sum_{j=1}^p \omega_j \Delta Employment_{t-j} + \sum_{j=1}^p \chi_j \Delta BALP_{t-j} + \varepsilon_t^{\Delta BALP} \\ Z_{t-1} &= NVS_{t-1} - \psi_0 - \psi_1 IUUV_{t-1} - \psi_2 Employment_{t-1} - \psi_3 BALP_{t-1} \end{aligned}$$

where ΔNVS_t is the monthly change in new vehicles sold in the period t ; $\Delta IUUV_t$ is the monthly change in imported used vehicles in period t ; $\Delta Employment_t$ is the change in formal employment in the period t ; $\Delta BALP_t$ is the monthly change in the banking automotive lending portfolio in period t ; \mathbf{Y}_0 , ϕ_0 , τ_0 , ω_0 and Ψ_0 are constant parameters; μ_r , α_r , β_r , γ_r , η_r , δ_r , κ_r , λ_r , ϕ_r , σ_r , ρ_r , ν_r , π_r , τ_r , ζ_r , θ_r , \omicron_r , ϖ_r , ω_r , χ_r and ψ_r are multiplicative parameters; p represents the number of lags; Z_{t-1} is the long-term error correction term; and $\varepsilon_t^{\Delta x}$ is a white noise perturbation in period t to the specification of the variable Δx . The equations ΔNVS_t , $\Delta IUUV_t$, $\Delta Employment_t$ and $\Delta BALP_t$ include eleven *dummy* variables to control for monthly seasonality in the series.

Results of the econometric estimation

The model was estimated with the number of lags determined by the Schwarz Bayesian Information Criterion (BIC), which was calculated for different lengths of lags without considering the error correction term. This criterion indicated an optimum number of lags of three. With this length of lags, no autocorrelation problems were found in the estimated residuals.

The results of the estimation are shown in Table 4. From this, we can see that formal employment is the only variable with a positive and statistically significant long-term relationship (at a significance level of 0.05) with the number of new vehicles sold, meanwhile the other two variables do not seem to have a significant long-term relationship with such sales. Moreover, the error correction term or deviations from the long-term relationship has the correct sign and is statistically significant (at a level of significance of 0.05) only for the equation of monthly changes in new auto sales.

Table 4
Estimation of the Vector Error Correction Model*
Sample: 2009M03 2013M08. t statistic in []

	Z_{t1}		$D(NVS)_t^1$	$D(IUV)_t$	$D(employment)_t$	$D(BALP)_t$
NVS_{t1}	1.000000	Z_{t1}	-0.93168	-1.64016	-4.07905	0.017262
IUV_{t1}	0.023882		[-2.30972]	[-0.80361]	[-1.36178]	[0.55554]
	[0.68176]	$D(NVS_{t1})$	0.127963	0.195184	4.829525	-0.02399
$employment_{t1}$	-0.00663		[0.42701]	[0.12873]	[2.17028]	[-1.03911]
	[-3.04513]	$D(NVS_{t2})$	0.052209	0.6388	3.627703	0.000756
$BALP_{t1}$	-0.57153		[0.22247]	[0.53796]	[2.08165]	[0.04183]
	[-1.62738]	$D(NVS_{t3})$	0.322534	0.367214	2.806605	0.007581
C	50126.17		[2.02946]	[0.45666]	[2.37817]	[0.61927]
		$D(IUV_{t1})$	-0.00922	-0.73734	0.049367	-0.00073
			[-0.27004]	[-4.26990]	[0.19479]	[-0.27793]
		$D(IUV_{t2})$	-0.02182	-0.48408	-0.18403	-0.00205
			[-0.59804]	[-2.62193]	[-0.67917]	[-0.73011]
		$D(IUV_{t3})$	0.026411	-0.16673	-0.10933	-0.00204
			[0.83943]	[-1.04732]	[-0.46793]	[-0.83984]
		$D(employment_{t1})$	-0.00828	0.058096	0.191632	4.02E-05
			[-0.40701]	[0.56445]	[1.26865]	[0.02568]
		$D(employment_{t2})$	0.003606	-0.11858	-0.00921	-0.002
			[0.17109]	[-1.11194]	[-0.05884]	[-1.23334]
		$D(employment_{t3})$	0.022532	0.090515	0.374563	0.002961
			[1.25105]	[0.99325]	[2.80058]	[2.13423]
		$D(BALP_{t1})$	0.042551	3.002802	-19.1015	0.619282
			[0.01392]	[0.19418]	[-0.84163]	[2.63035]
		$D(BALP_{t2})$	2.00095	-12.1876	22.27031	-0.28894
			[0.62155]	[-0.74822]	[0.93159]	[-1.16511]
		$D(BALP_{t3})$	2.22502	17.09489	4.739817	0.354551
			[0.92314]	[1.40174]	[0.26482]	[1.90958]
		C	-438.911	-98.2259	19773.44	44.82172
			[-0.56247]	[-0.02488]	[3.41239]	[0.74565]
		R ² adjusted	0.956907	0.278808	0.949894	0.767002
		BIC			80.69241	

* The model estimation includes 11 centered seasonal dummies

¹ The mathematical operator D () subtracts the value from the previous period from the variable inside the parenthesis

Source: BBVA Research with data from AMIA, ABM and STPS

In the short term, none of the other variables impact on the number of new auto sales in a statistically significant way. Furthermore, the results set out in Table 4 suggest that the monthly changes in imported used vehicles are not influenced by the monthly changes in the other three

variables. However, we should treat this interpretation with caution, as the residuals estimated for the equation on ΔIUV_t do not appear to conform to the assumption of normality.¹²

¹² For further discussion of the issue, refer to chapter 3, section 3.5, of Cryer and Chan (2008).

The results of the Granger causality tests are set out in Table 5. These results confirm the role of formal employment in explaining the behavior of the number of new vehicles sold, and the absence of a statistically significant two-way relationship between these units and sales of imported used automobiles.

Table 5
Results of the Granger causality tests*
Sample: 2009M03 2013M08. Lags: 3

Null hypothesis:	F statistic	P value
NVS does not cause IUV	0.47221	0.7031
IUV does not cause NVS	0.45544	0.7147
BALP does not cause IUV	0.20503	0.8924
IUV does not cause BALP	1.07506	0.3688
Employment does not cause IUV	1.1154	0.3524
IUV does not cause employment	0.50704	0.6793
BALP does not cause NVS	0.73088	0.5388
NVS does not cause BALP	1.42709	0.2467
Employment does not cause NVS	11.8143	7.00E-06
NVS does not cause employment	0.36391	0.7793
Employment does not cause BALP	7.57344	0.0003
BALP does not cause employment	1.00598	0.3985

* Granger causality refers to a variable preceding another variable, which helps explain the latter but not in the sense of causation. p values less than 0.05 and 0.01 indicate that a null hypothesis can be rejected at significance levels of 0.05 and 0.01, respectively.

Source: BBVA Research with data from AMIA, ABM and STPS

Conclusions

First, formal employment, unlike imported used vehicles and the banking automotive lending portfolio, is the only variable with a long-term relationship with the units of new vehicles sold. Second, imported used vehicles do not have a short-term statistically significant impact on the units of new vehicles sold. Likewise, the results do not show any statistically significant effect of the monthly changes in new vehicles purchased in Mexico on the monthly changes in imported used vehicles. Third, it should be noted that the existence or absence of statistically significant relationships between the variables analyzed in this study is based on the specific way in which the model is formulated. It is possible that other justified econometric specifications might find different statistical significance between the variables. Finally, the evidence of the estimated econometric specification suggests that it is difficult to reject the hypothesis that the markets for new vehicles and imported used vehicles are segmented. Nevertheless, this hypothesis of segmented markets might ultimately be rejected before the transitional phase for the North American Free Trade Agreement, which will be gradually permitting imports of newer vehicles.

References

Cryer, J.D. and Chan, K.S. (2008). *Time Series Analysis With Applications* in R. Springer.

Engle, R. F. and Granger, C.W.J. (1987). "Co-Integration and Error Correction: Representation, Estimation, and Testing", *Econometrica*, 55, 251-276.

Flores Sánchez, L. and Martín Rivero, L. (2008). Sector Automotriz, *Economía Sectorial*, IXE, September 2008.

Johansen, S. (1991). "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models." *Econometrica* 59, 1551-1580.

Lütkepohl, H., Saikkonen, P. and Trenkler, C. (2004). "Testing for the cointegrating rank of a VAR process with level shift at unknown time." *Econometrica* 72, 647-662.

Pfaff, B. (2006). *Analysis of Integrated and Cointegrated Time Series* with R. Springer.

2.b Sectorial Outlook

Table 6
Mexico, Indicators and sectorial projections, production, sa

	Annual % change													
	2009	2010	2011	2012	2013	2014	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14
Total GDP	-4.5	5.1	4.0	3.7	1.2	3.1	2.8	0.5	1.3	0.9	1.9	3.6	3.3	3.4
Primary	-2.2	0.8	-1.9	6.7	0.9	3.3	-2.3	3.1	0.9	1.9	3.4	3.9	2.9	3.0
Secondary	-6.2	4.6	3.4	2.6	-0.8	1.6	-0.2	-1.8	-0.6	-0.5	0.4	2.6	1.9	1.6
Mining	-3.8	1.0	-0.6	1.2	-2.0	0.0	-1.5	-2.3	-2.6	-1.3	-0.2	1.6	-0.6	-0.7
Electricity, water, and supply of gas	1.7	4.1	6.7	1.6	0.4	1.8	1.4	0.3	-0.2	0.2	1.6	2.1	1.4	1.9
Construction	-6.1	0.7	4.0	2.1	na	na	-0.7	-5.7	-6.9	na	na	na	na	na
Manufacturing	-7.9	8.6	4.6	3.3	1.8	3.2	1.8	0.5	2.8	2.0	2.8	3.5	3.3	3.2
Tertiary	-3.7	5.7	4.6	4.3	2.4	3.8	3.7	1.8	2.4	1.8	2.6	4.1	4.1	4.4
Retail trade	-12.1	11.9	9.5	3.9	3.0	4.7	4.4	1.7	4.4	1.7	2.0	5.9	5.2	5.5
Transportation, mail and storage	-7.0	7.7	4.1	4.2	1.7	3.1	2.5	1.0	2.0	1.3	3.1	3.8	2.3	3.3
Information in mass media	8.5	1.0	4.2	16.3	6.7	6.5	10.8	7.0	5.0	4.3	4.5	5.6	7.9	8.0
Insurance and financial services	3.3	20.9	7.1	8.6	4.7	9.6	4.1	6.7	1.9	6.0	7.2	9.3	10.8	11.0
Real estate and leasing services	1.5	2.8	2.8	2.1	1.7	2.0	3.0	1.7	1.4	0.7	1.1	2.5	1.9	2.7
Prof, scientific, and technical serv.	-4.5	0.4	4.9	1.0	-0.4	2.1	2.4	-1.4	-4.3	1.6	2.1	1.9	2.3	2.1
Corporate and company leadership	-8.4	5.6	3.3	6.7	-1.7	0.4	1.2	-3.9	-2.3	-1.6	-0.6	0.0	1.1	0.8
Business support serv.	-7.0	0.6	5.8	4.3	4.2	4.5	6.3	3.8	3.1	3.6	3.6	4.1	5.2	5.0
Educational services	0.7	0.3	1.4	2.1	1.0	0.8	1.2	1.3	1.2	0.2	0.8	0.3	1.1	0.9
Health and social welfare services	2.1	-0.2	2.1	2.1	2.1	1.9	3.4	2.7	0.9	1.6	1.5	1.4	2.3	2.2
Leisure and relaxation, cult., & sports serv.	-4.2	4.1	-0.7	2.8	0.4	1.8	3.1	-1.4	-0.6	0.7	0.5	2.4	2.1	2.0
Hotel, motel, lodging & prep. of food & bev.	-9.6	1.9	1.5	5.5	1.9	3.5	3.7	1.3	1.5	1.1	3.1	3.5	3.6	3.6
Other serv. except gov't activities	-0.6	1.0	1.8	2.8	2.0	3.5	2.6	2.0	1.6	1.9	3.9	4.0	3.3	2.8
Government activities	2.1	2.5	-1.4	3.8	0.3	3.5	-0.2	-1.4	2.3	0.7	4.3	3.0	4.0	2.6

	share, %							Contribution to growth, pp						
	2008	2009	2010	2011	2012	2013	2014	2009	2010	2011	2012	2013	2014	
Total GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-4.5	5.1	4.0	3.7	1.4	3.1	
Primary	3.2	3.3	3.1	3.0	3.1	3.0	3.0	-0.1	0.0	-0.1	0.2	0.0	0.1	
Secondary	35.7	35.0	34.8	34.7	34.3	33.6	33.1	-2.2	1.6	1.2	0.9	-0.3	0.6	
Mining	8.6	8.7	8.3	8.0	7.8	7.5	7.3	-0.3	0.1	-0.1	0.1	-0.2	0.0	
Electricity, water and supply gas	2.1	2.2	2.2	2.2	2.2	2.2	2.1	0.0	0.1	0.1	0.0	0.0	0.0	
Construction	8.4	8.3	7.9	7.9	7.8	7.4	7.2	-0.5	0.1	0.3	0.2	-0.4	0.1	
Manufacturing	16.5	15.9	16.4	16.5	16.5	16.6	16.6	-1.3	1.4	0.8	0.5	0.3	0.5	
Tertiary	58.6	59.1	59.4	59.8	60.1	60.8	61.2	-2.2	3.4	2.7	2.6	1.5	2.3	
Retail trade	14.6	13.4	14.3	15.0	15.0	15.3	15.5	-1.8	1.6	1.3	0.6	0.5	0.7	
Transportation, mail and storage	5.7	5.6	5.7	5.7	5.7	5.8	5.8	-0.4	0.4	0.2	0.2	0.1	0.2	
Information in mass media	2.7	3.0	2.9	2.9	3.3	3.4	3.5	0.2	0.0	0.1	0.5	0.2	0.2	
Insurance and financial services	3.2	3.5	4.0	4.1	4.3	4.4	4.7	0.1	0.7	0.3	0.4	0.2	0.4	
Real estate and leasing services	11.8	12.5	12.3	12.1	12.0	12.0	11.9	0.2	0.4	0.3	0.3	0.2	0.2	
Prof, scientific, and technical serv.	2.3	2.3	2.2	2.3	2.2	2.2	2.1	-0.1	0.0	0.1	0.0	0.0	0.0	
Corporate and company leadership	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.1	0.0	0.0	0.0	0.0	0.0	
Business support serv.	3.3	3.2	3.0	3.1	3.1	3.2	3.2	-0.2	0.0	0.2	0.1	0.1	0.1	
Educational services	3.8	4.0	3.9	3.8	3.7	3.7	3.6	0.0	0.0	0.1	0.1	0.0	0.0	
Health and social welfare services	2.0	2.2	2.1	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	
Leisure and relaxation, cult., & sports serv.	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	
Hotel, motel, lodging & prep. of food & bev.	2.3	2.1	2.1	2.0	2.1	2.1	2.1	-0.2	0.0	0.0	0.1	0.0	0.1	
Other serv. except gov't activities	2.1	2.2	2.1	2.0	2.0	2.0	2.1	0.0	0.0	0.0	0.1	0.0	0.1	
Government activities	3.7	4.0	3.9	3.7	3.7	3.7	3.7	0.1	0.1	-0.1	0.1	0.0	0.1	

Note: projections appear in boldface. All figures are subject to review by the Institute, this is mainly when fourth quarter data is calculated because it is based on the latest statistical information available.

sa: Seasonally-adjusted; na: not available; pp: Percentage points

Source: BBVA Research with INEGI data

Table 7

Mexico: Indicators and sectorial forecasts, manufacturing production, sa

	Annual % change													
	2009	2010	2011	2012	2013	2014	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14
Total	-7.9	8.6	4.6	3.3	1.8	3.2	1.8	0.5	2.8	2.0	2.8	3.5	3.3	3.2
Food	-0.3	1.7	2.1	1.6	0.6	1.9	-0.6	1.6	0.7	0.6	1.5	2.6	2.0	1.7
Beverages and tobacco	0.3	0.5	4.6	2.4	1.2	2.3	-1.4	2.0	2.8	1.4	2.1	2.4	2.4	2.3
Textile inputs	-7.5	11.0	-4.3	3.0	-3.2	0.7	-1.3	0.9	-6.0	-6.4	1.2	0.8	0.3	0.4
Production of textile products	-8.0	3.0	-2.8	-0.3	4.2	2.0	4.7	6.8	5.9	-0.8	1.9	2.1	1.9	2.0
Apparel	-7.6	4.6	0.2	-0.7	1.7	-1.1	-2.4	8.9	4.2	-3.6	-1.7	-1.1	-1.0	-0.8
Leather and fur products	-4.8	7.8	-0.8	2.6	0.0	1.9	-4.4	3.5	1.3	-0.2	3.2	1.8	0.7	1.7
Lumber industry	-4.5	5.4	5.0	14.3	-0.7	2.0	6.8	-3.3	-4.6	-1.1	3.5	2.6	1.2	0.7
Paper industry	-0.6	3.7	-0.9	4.6	2.5	3.3	3.8	1.8	2.5	2.0	3.4	3.3	3.3	3.0
Printing and related industry	-6.3	9.8	3.9	-3.7	-6.1	1.7	-10.4	-8.0	-10.4	6.5	1.7	1.8	1.7	1.6
Oil deriv. products	0.5	-7.3	-3.7	1.3	2.0	1.0	-1.0	4.0	3.9	1.0	0.9	1.1	1.1	1.0
Chemicals	-3.1	-0.4	-0.2	-1.1	0.3	1.4	-2.4	-1.1	3.8	1.2	1.5	1.2	1.2	1.6
Plastic and rubber products	-9.6	13.5	7.2	10.1	-0.3	5.7	-2.6	-0.4	-0.1	1.8	6.1	5.8	5.4	5.4
Non-metal mineral products	-9.4	4.7	4.8	2.3	-2.9	2.3	-2.6	-0.1	-4.6	-4.1	-1.7	3.8	4.2	3.0
Basic metal products	-16.3	12.3	4.8	1.2	0.1	3.8	-2.9	-4.7	4.9	3.5	3.4	3.3	4.4	3.9
Metallic products	-14.0	8.8	6.9	5.8	0.6	4.6	0.7	1.1	-1.0	1.6	5.9	5.9	4.0	2.8
Machinery and equipment	-19.7	47.0	13.5	6.0	-1.1	3.5	-9.1	-0.8	3.9	2.4	3.0	5.0	3.1	2.9
Computers and electronics	-10.2	3.8	6.4	2.3	14.3	4.6	11.5	14.4	21.0	10.4	4.2	4.9	4.4	4.8
Electrical equipment	-10.7	10.1	2.1	1.7	-1.9	4.5	-4.0	-0.3	-2.5	-0.5	2.7	5.7	5.3	4.2
Transport. equipment	-26.6	42.5	16.5	13.2	5.0	6.3	-0.6	6.7	7.5	6.5	6.3	5.9	6.4	6.6
Furniture and related products	-7.0	7.3	1.2	3.8	-6.6	3.5	-10.6	-6.0	-10.6	1.3	3.2	4.3	3.2	3.2
Other manufacturing industry	-4.4	1.8	0.7	2.6	-1.0	3.1	-2.2	-0.8	-2.0	1.1	1.3	3.4	3.2	4.3

	share, %								Contribution to growth, pp					
	2008	2009	2010	2011	2012	2013	2014	2009	2010	2011	2012	2013	2014	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-7.9	8.6	4.6	3.3	1.8	3.2	
Food	22.4	24.2	22.7	22.1	21.8	21.5	21.2	-0.1	0.4	0.5	0.4	0.1	0.4	
Beverages and tobacco	5.1	5.6	5.2	5.2	5.1	5.1	5.1	0.0	0.0	0.2	0.1	0.1	0.1	
Textile inputs	0.8	0.8	0.8	0.8	0.8	0.7	0.7	-0.1	0.1	0.0	0.0	0.0	0.0	
Production of textile products	0.6	0.6	0.6	0.6	0.5	0.6	0.5	-0.1	0.0	0.0	0.0	0.0	0.0	
Apparel	2.8	2.8	2.7	2.6	2.5	2.5	2.4	-0.2	0.1	0.0	0.0	0.0	0.0	
Leather and fur products	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.0	0.1	0.0	0.0	0.0	0.0	
Lumber industry	0.9	1.0	1.0	1.0	1.1	1.0	1.0	0.0	0.1	0.0	0.1	0.0	0.0	
Paper industry	2.0	2.2	2.1	2.0	2.0	2.0	2.0	0.0	0.1	0.0	0.1	0.1	0.1	
Printing and related industry	0.8	0.8	0.8	0.8	0.8	0.7	0.7	-0.1	0.1	0.0	0.0	0.0	0.0	
Oil deriv. products	4.3	4.7	4.0	3.7	3.6	3.6	3.5	0.0	-0.3	-0.1	0.0	0.1	0.0	
Chemicals	13.3	14.0	12.8	12.2	11.7	11.6	11.4	-0.4	-0.1	0.0	-0.1	0.0	0.2	
Plastic and rubber products	2.7	2.7	2.8	2.9	3.1	3.0	3.1	-0.3	0.4	0.2	0.3	0.0	0.2	
Non-metal mineral products	5.6	5.5	5.3	5.3	5.3	5.0	5.0	-0.5	0.3	0.3	0.1	-0.2	0.1	
Basic metal products	7.3	6.6	6.8	6.8	6.7	6.6	6.6	-1.2	0.8	0.3	0.1	0.0	0.2	
Metallic products	3.5	3.3	3.3	3.3	3.4	3.4	3.4	-0.5	0.3	0.2	0.2	0.0	0.2	
Machinery and equipment	3.3	2.8	3.9	4.2	4.3	4.2	4.2	-0.6	1.3	0.5	0.3	0.0	0.1	
Computers and electronics	4.4	4.3	4.1	4.2	4.2	4.7	4.7	-0.5	0.2	0.3	0.1	0.6	0.2	
Electrical equipment	3.3	3.2	3.2	3.1	3.1	3.0	3.0	-0.3	0.3	0.1	0.1	-0.1	0.1	
Transportation equipment	12.7	10.2	13.3	14.8	16.3	16.8	17.3	-3.4	4.3	2.2	2.0	0.8	1.1	
Furniture and related products	1.4	1.4	1.3	1.3	1.3	1.2	1.2	-0.1	0.1	0.0	0.0	-0.1	0.0	
Other manufacturing industries	2.3	2.4	2.2	2.1	2.1	2.1	2.1	-0.1	0.0	0.0	0.1	0.0	0.1	

Note: projections appear in boldface. All figures are subject to review by the Institute, this is mainly when fourth quarter data is calculated because it is based on the latest statistical information available.

sa: Seasonally-adjusted; pp: Percentage points

Source: BBVA Research with INEGI data

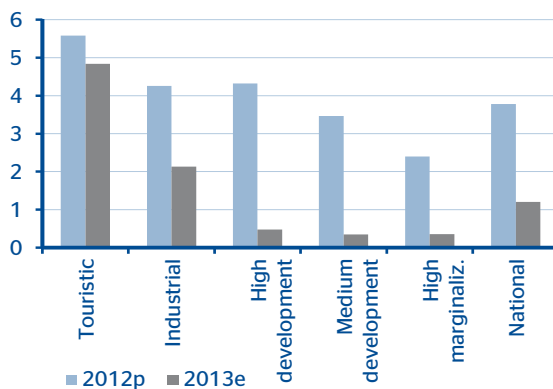
2.c The performance of the Industrial and Medium development regions: the key to explaining the lower national economic growth in 2013

The forecasted national economic growth for 2013 is 1.2%, well below the previous year's corresponding figure. We expect the performance of economic activity to have been weaker than in 2012 for all of the five regions into which we have divided the country based on their economic vocation.¹ In particular, the following regional situations stand out with regard to 2013: i) the High development and Medium development regions will probably have suffered the sharpest slowdown in economic growth; ii) the Touristic region is expected to have shown the greatest resilience to the economic slowdown; and iii) the weaker economic performance of the Medium development and Industrial regions will largely have explained the slowdown in national economic growth to 1.2% from 3.8% in 2012.

Just like in 2012, a regional comparison of the forecasted growth rates in 2013 shows that the strongest economic performance will have occurred in the Touristic region. This region will probably have grown by 4.8%, while the Industrial, High development, High Marginalization and Medium development regions will have grown by around 2.1%, 0.5%, 0.4% and 0.3%, respectively (Chart 30).

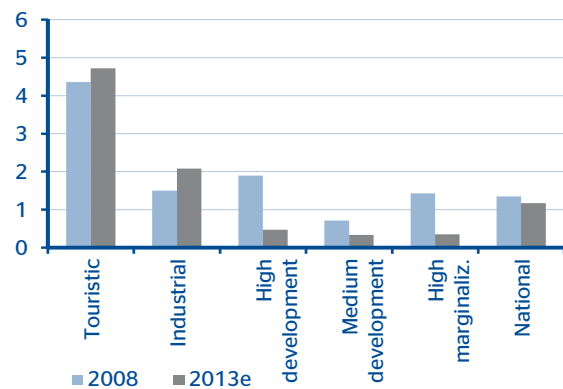
The national economic growth rate of 1.2% expected for 2013 is very similar to the corresponding clip of 2008. A comparison of economic performance between these years shows that only the Touristic and Industrial regions will have grown more strongly in 2013 than in 2008 (Chart 31).

Chart 30
Expected annual economic growth in 2013 vs. 2012 (%)



p/preliminary data; e/own forecasts
Source: BBVA Research with data from INEGI

Chart 31
Expected annual economic growth in 2013 vs. 2008 (%)



p/preliminary data; e/own forecasts
Source: BBVA Research with data from INEGI

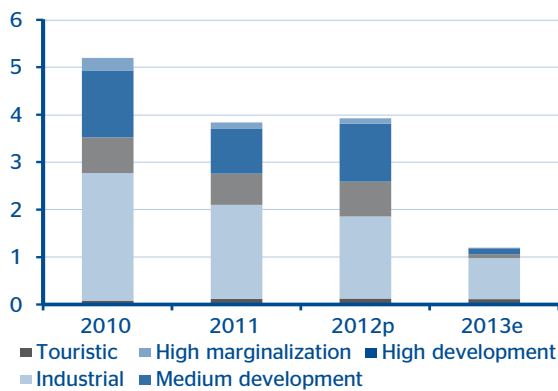
¹ A more detailed description of this regional classification is set out in *Mexico Regional Sectorial Outlook*, "Regional Grouping, How and Why", November 2007. BBVA Bancomer. The regions divided by vocation and level of development are: High development: DF; Touristic: BCS and QR; Industrial: Agu, BC, Coah, Chih, Jal, Méx, NL, Qro, Son, Tamps; Medium development: Camp, Col, Dgo, Gto, Hgo, Mich, Mor, Nay, Pue, SLP, Sin, Tab, Tlax, Ver, Yuc, Zac; High Marginalization: Chis, Gro and Oax.

The economic slowdown from the Medium development region alone will have shaved 1.1 percentage points from national economic growth in 2013

As mentioned previously, the regional breakdown of the expected national economic growth for 2013 has enabled us to identify the Medium development and Industrial regions as the main sources of the national economic slowdown. Although all the regions will probably have made smaller contributions to expected national economic growth in 2013 compared to 2012 and 2011, the Industrial region stands out for its declining contribution in recent years (Chart 32). We expect the contribution of this region to have been 0.9 percentage points in 2013 vs. 1.7 in 2012. This region, on average, has contributed with 1.9 percentage points during the years of economic expansion between 2004 and 2012 (Chart 33).

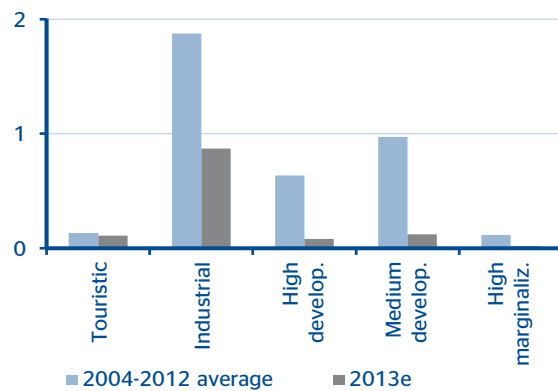
The Medium development region is forecasted to have contributed with only 0.1 percentage points in 2013. This lower activity represents a contribution to national economic growth which is 1.1 percentage points lower than in 2012. For a better appraisal of this slower dynamism, it should be noted that this region, on average, has contributed with 1.0 percentage points to national economic growth during the years of economic expansion from 2004 to 2012 (Chart 33).

Chart 32
Contribution to national economic growth (percentage points)



p/preliminary data, e/own forecasts
Source: BBVA Research with data from INEGI

Chart 33
Contribution to national economic growth 2103 vs. average (percentage points)



e/own forecasts
Source: BBVA Research with data from INEGI

Table 8

GDP by Region*

Real annual growth (percentage)							Share in the total (percentage)						
	2008	2009	2010p	2011p	2012p	2013e		2008	2009	2010p	2011p	2012p	2013e
Total	1.4	-4.7	5.1	4.0	3.8	1.2	Total	100.0	100.0	100.0	100.0	100.0	100.0
Touristic	4.5	-5.6	3.7	5.5	5.6	4.8	Touristic	2.3	2.2	2.2	2.2	2.3	2.4
Industrial	1.5	-6.2	6.8	4.9	4.3	2.1	Industrial	40.3	39.7	40.3	40.7	40.8	41.2
High Development	1.9	-3.9	4.4	3.9	4.3	0.5	High Development	17.0	17.1	17.0	17.0	17.1	17.0
Medium Develop.	0.7	-3.9	3.9	2.7	3.5	0.3	Medium Develop.	35.7	36.0	35.6	35.2	35.0	34.7
Low Development	1.5	-1.0	5.4	2.6	2.4	0.4	Low Development	4.7	4.9	4.9	4.9	4.8	4.8
Contribution to growth (percentage points)							Economic activity (index 2008=100)						
	2008	2009	2010p	2011p	2012p	2013e		2008	2009	2010p	2011p	2012p	2013e
Total	1.4	-4.7	5.1	4.0	3.8	1.2	Total	100.0	95.3	100.2	104.1	108.1	109.4
Touristic	0.1	-0.1	0.1	0.1	0.1	0.1	Touristic	100.0	94.4	97.9	103.2	109.0	114.3
Industrial	0.6	-2.5	2.7	2.0	1.7	0.9	Industrial	100.0	93.8	100.1	105.0	109.5	111.8
High Development	0.3	-0.7	0.8	0.7	0.7	0.1	High Development	100.0	96.1	100.3	104.1	108.6	109.2
Medium Develop.	0.3	-1.4	1.4	1.0	1.2	0.1	Medium Develop.	100.0	96.1	99.9	102.6	106.1	106.5
Low Development	0.1	0.0	0.3	0.1	0.1	0.0	Low Development	100.0	99.0	104.3	107.0	109.5	109.9

* Regions by economic vocation and level of development: High Development: DF; Touristic: BCS and QR; Industrial: Agu, BC, Coah, Chih, Jal, Méx, NL, Qro, Son, Tamps; Medium Development: Camp, Col, Dgo, Gto, Hgo, Mich, Mor, Nay, Pue, SLP, Sin, Tab, Tlax, Ver, Yuc, Zac; Low Development: Chis, Gro and Oax.
 Source: BBVA Research with INEGI data

Table 9

GDP by state

	2008	2009	2010	2011	2012p	2008	2009	2010	2011	2012p	2008	2009	2010	2011	2012p
	(Billion 2008 pesos)					(Real growth rate, % annual)					(Contribution to growth, pp)				
National total	11,941	11,375	11,966	12,425	12,913	1.4	-4.7	5.2	3.8	3.9	1.4	-4.7	5.2	3.8	3.9
Aguascalientes	1274	1216	1305	1361	1414	0.8	-4.6	7.3	4.3	3.9	0.0	0.0	0.1	0.0	0.0
Baja California	3715	3411	3485	3639	3793	0.0	-8.2	2.2	4.4	4.2	0.0	-0.3	0.1	0.1	0.1
Baja California Sur	91.0	86.5	89.6	94.2	97.1	3.5	-5.0	3.6	5.1	3.1	0.0	0.0	0.0	0.0	0.0
Campeche	753.1	683.5	654.2	632.5	626.2	-5.8	-9.3	-4.3	-3.3	-1.0	-0.4	-0.6	-0.3	-0.2	-0.1
Coahuila	381.5	332.8	380.9	414.0	436.1	1.4	-12.8	14.4	8.7	5.3	0.0	-0.4	0.4	0.3	0.2
Colima	69.3	65.1	67.7	72.8	75.7	2.8	-6.0	4.0	7.6	3.9	0.0	0.0	0.0	0.0	0.0
Chiapas	207.2	204.5	220.6	227.4	233.2	3.7	-1.3	7.9	3.0	2.6	0.1	0.0	0.1	0.1	0.0
Chihuahua	346.7	319.6	326.7	335.0	354.9	2.1	-7.8	2.2	2.5	5.9	0.1	-0.2	0.1	0.1	0.2
Mexico City	2,029.1	1,949.1	2,034.4	2,113.2	2,204.5	1.9	-3.9	4.4	3.9	4.3	0.3	-0.7	0.8	0.7	0.7
Durango	142.9	138.5	143.6	149.4	153.5	-0.2	-3.1	3.7	4.0	2.8	0.0	0.0	0.0	0.0	0.0
Guanajuato	447.3	426.5	454.5	479.6	505.5	3.4	-4.7	6.6	5.5	5.4	0.1	-0.2	0.2	0.2	0.2
Guerrero	174.2	172.8	183.1	183.3	185.5	-0.8	-0.8	6.0	0.1	1.2	0.0	0.0	0.1	0.0	0.0
Hidalgo	188.3	178.9	189.9	198.5	204.2	1.4	-5.0	6.2	4.5	2.9	0.0	-0.1	0.1	0.1	0.0
Jalisco	747.5	697.1	737.5	773.5	800.9	1.1	-6.7	5.8	4.9	3.5	0.1	-0.4	0.4	0.3	0.2
México	1,058.3	1,018.0	1,095.2	1,136.0	1,174.9	1.7	-3.8	7.6	3.7	3.4	0.1	-0.3	0.7	0.3	0.3
Michoacán	282.0	264.7	277.0	287.1	293.2	1.7	-6.1	4.6	3.6	2.1	0.0	-0.1	0.1	0.1	0.0
Morelos	133.5	129.9	138.8	146.6	153.4	-1.4	-2.7	6.9	5.7	4.6	0.0	0.0	0.1	0.1	0.1
Nayarit	78.0	75.1	78.4	80.0	81.1	6.6	-3.7	4.4	2.1	1.4	0.0	0.0	0.0	0.0	0.0
Nuevo León	846.5	784.3	855.0	908.8	949.2	1.9	-7.3	9.0	6.3	4.5	0.1	-0.5	0.6	0.4	0.3
Oaxaca	183.9	182.1	185.7	193.9	200.4	1.2	-1.0	1.9	4.4	3.3	0.0	0.0	0.0	0.1	0.1
Puebla	373.4	351.4	378.7	397.8	424.8	2.3	-5.9	7.8	5.1	6.8	0.1	-0.2	0.2	0.2	0.2
Querétaro	223.1	217.2	232.2	245.9	259.1	3.2	-2.6	6.9	5.9	5.4	0.1	0.0	0.1	0.1	0.1
Quintana Roo	179.5	168.9	175.2	185.2	197.8	5.0	-5.9	3.7	5.7	6.8	0.1	-0.1	0.1	0.1	0.1
San Luis Potosí	220.5	211.3	224.6	237.1	251.8	3.5	-4.2	6.3	5.6	6.2	0.1	-0.1	0.1	0.1	0.1
Sinaloa	257.4	245.4	255.6	251.4	262.7	3.5	-4.7	4.2	-1.7	4.5	0.1	-0.1	0.1	0.0	0.1
Sonora	320.9	309.0	331.0	353.6	373.5	-0.2	-3.7	7.1	6.8	5.6	0.0	-0.1	0.2	0.2	0.2
Tabasco	367.6	381.7	403.4	423.4	433.8	3.8	3.8	5.7	4.9	2.5	0.1	0.1	0.2	0.2	0.1
Tamaulipas	390.3	372.2	381.2	388.5	400.9	3.3	-4.6	2.4	1.9	3.2	0.1	-0.2	0.1	0.1	0.1
Tlaxcala	65.2	62.7	66.2	68.8	71.6	2.7	-3.9	5.5	4.0	4.1	0.0	0.0	0.0	0.0	0.0
Veracruz	613.9	610.2	635.3	649.7	675.2	0.5	-0.6	4.1	2.3	3.9	0.0	0.0	0.2	0.1	0.2
Yucatán	172.1	168.5	175.8	180.3	187.8	2.2	-2.1	4.3	2.5	4.2	0.0	0.0	0.1	0.0	0.1
Zacatecas	98.1	104.6	115.1	117.5	123.4	5.0	6.6	10.1	2.1	5.0	0.0	0.1	0.1	0.0	0.0

p/preliminary data; e/own estimates
 Source: BBVA Research with INEGI data

3 Special reports

3a. Mexico's major challenge is maintaining and winning participation in global value chains

A country's conventional exports statistics can give a distorted picture of their contribution to economic growth and income, as trade flows are measured in gross terms, i.e. they include intermediate supplies from abroad. This makes it difficult to identify the contribution that exports make to a country's income and employment. The opening up of world trade has changed the geography of production by fragmenting it into international value chains. Goods are increasingly being manufactured across the world, not just by a particular country. The complexity of international trade networks means that there is a pressing need for statistics on the value each country adds up to products in value chains. To meet this need, the Organization for Economic Cooperation and Development (OECD) and the World Trade Organization (WTO) have developed a database of trade in value added (TiVA) based on inputs from 58 countries, including Mexico.

In our first look at this issue, we emphasize the growing roles of imports in the exports of Mexico and other countries, such as the EAGLES¹, resulting from the increasing integration of global value chains (GVCs). We will then compare China and Mexico in 2009 (the most recent year for which figures are available) broken down by industry, and by domestic and foreign content. Domestic content is divided into direct and indirect components. In the final section, we conclude by suggesting that Mexico's industrial strategy has yielded successful results for its integration into GVCs, as is the case, for example, in transportation equipment (automotive and aeronautical) and electronics.

The main assumption is that international competition is becoming ever more vertical, and companies are increasingly becoming both competitors and key suppliers for each other. As a result, GVCs have become the main channel for transfers of capital, know-how, technology, standards and value-added services. These might not be available in the country, but they are available in global markets. Therefore, countries cannot be or continue being competitive without efficient links with global markets. The era when a country's exports were totally produced by domestic companies is now firmly in the past. Nevertheless, participation in GVCs is also a risk, as countries might import crises from other economies through trade. The 2011 triple disaster in Japan -earthquake, tsunami and damaged nuclear power plant- is a clear example of this, as it disrupted production of computers, consumer electronic products and vehicles globally given the quasi-monopolistic dependence on Japanese suppliers of specialized technological parts and components.

Foreign direct investment is the key to international trade flows

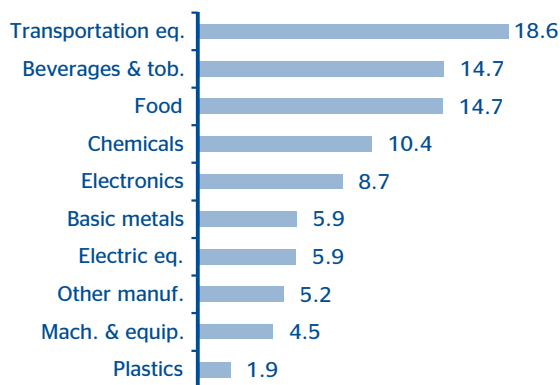
Estimations from the United Nations Conference on Trade and Development (UNCTAD) suggest that around 80% of world trade (gross exports) is related to the production networks of transnational companies, whether through intra-company trade, investment, non-equity investment in international production or free-trade transactions in the market involving at least one transnational company. The international production networks of transnational companies -which are responsible for a large share of international trade- are geared to providing the supplies (value added) needed to generate this trade.

¹ An acronym coined by BBVA in 2010 to describe the emerging economies of South Korea, Indonesia, Mexico, Turkey, Egypt and Taiwan together with the BRICs (Brazil, Russia, India and China).

Foreign direct investment (FDI) can be an important way for emerging economies to access GVCs and increase their share of trade and value chains. The economies with a relatively large share of FDI -compared to their economic size- tend to have a larger participation of foreign value added (FVA) in their exports, higher involvement in GVCs and a larger chunk of their GDP generated from value added through trade. In general, the effects of FDI on the host economy are felt through job creation, tax collection, gross capital formation, imports and exports and other variables.²

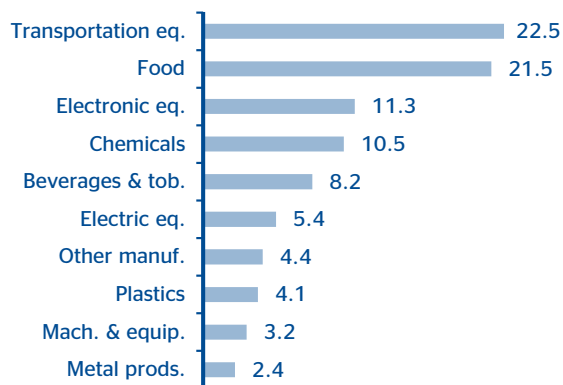
Mexico has experienced a significant FDI over recent years in transportation equipment (automotive and, more recently, aeronautic), food and drink, chemicals, electrical equipment (small and major household electrical appliances), machinery and equipment and other manufactured goods (medical and surgical equipment). This has enabled increased exports and domestic value added (DVA).

Chart 34
FDI in Mexico 1999-2013, the 10 most important 90%
(Contribution to total USD \$160 bn)



Source: BBVA Research with data from SE

Chart 35
FDI in Mexico 2009-2013, the 10 most important 93%
(Contribution to total USD \$45 bn)



Source: BBVA Research with data from SE

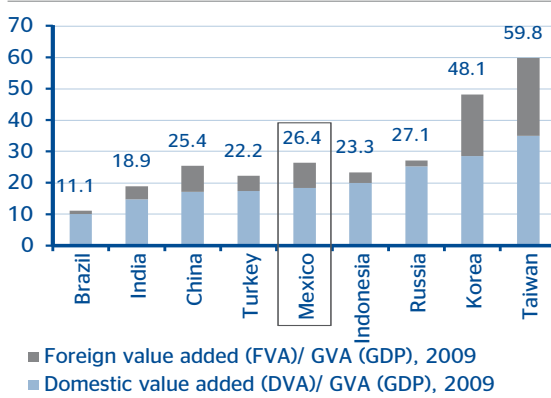
Participation of Mexico and the EAGLES in GVCs

The EAGLES are involved in GVCs to different extents. In 2009 total gross exports of Mexico and China accounted for similar proportions of the FVA in goods and services, at 30% and 32%, respectively. A high share -like in Taiwan (41.5%) and South Korea (40.6%)- reflects high integration into GVCs, but also the relative size of their economy. At the opposite extreme, Brazil has the lowest share at 9%, showing a relative specialization in commodity exports and involvement in early stages of GVCs. Russia's heavy focus on the oil and gas sectors and other raw materials positions itself as the least integrated economy into GVCs of this group. The average share of intermediate imports subsequently exported for the group is 40%: Mexico, China, South Korea and Taiwan are all above this average. High rates of involvement in GVCs through trade increases the interdependence of economies. This also reveals that imports are essential for the competitiveness of exports. The higher the foreign value incorporated into gross exports and the proportion of intermediate imports subsequently exported to other countries and used in their exports, the higher a country's involvement in the global value chain is.

² Authors such as Blomström and Kokko (2003) conclude that these networks can contribute to efficiency by overcoming supply bottlenecks. They can achieve this by increasing supply through higher quality and/or cheaper products; introducing know-how through implementation of new technology and training of workers who might subsequently be employed by local companies; and putting indirect pressure on local companies to improve their performance and/or adopt the management techniques used by companies integrated into global networks in their local or international market.

Chart 36

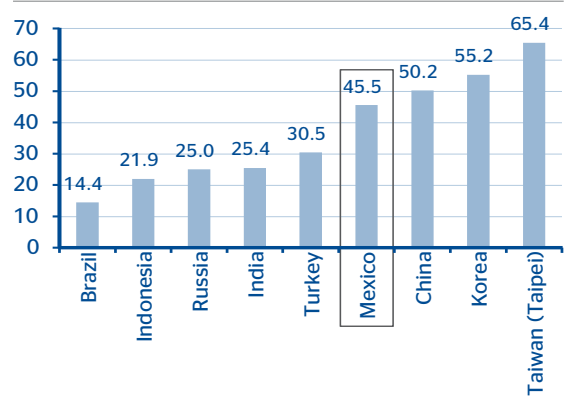
Contribution of gross exports to GDP, EAGLES 2009
(% of Total Gross Added Value)



Source: BBVA Research with data from TIVA, OECD/WTO database, May 2013

Chart 37

Percentage of intermediate imports that are exported by importing country, EAGLES 2009



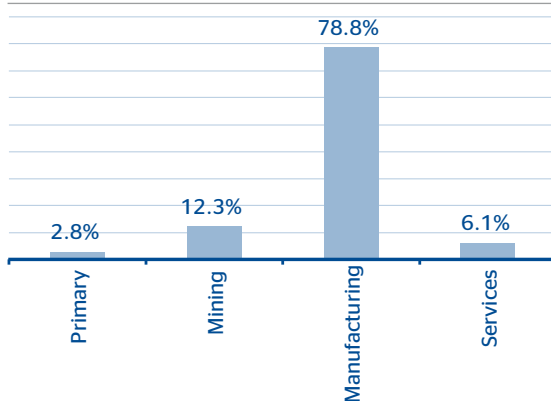
Source: BBVA Research with data from TIVA, OECD/WTO

Gross exports by major sectors, Mexico vs. China

In 2009, the main source of trade for Mexico and China, in gross terms, was the manufacturing sector. In Mexico, the mining sector -particularly oil- came in second place. Mexico's manufacturing and service exports accounted for 79% and 6.1% of total exports, respectively. The modest share of the latter reflects a lower stage of development compared to other OECD countries. As for China, its manufacturing exports represented around 90% of total exports and services came in second place with a 9.5% share.

Chart 38

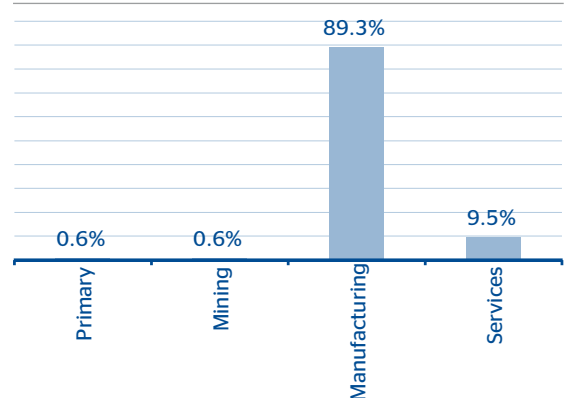
Mexico's export structure in 2009 (% of total exports)



Source: BBVA Research with data from OECD and WTO

Chart 39

China export structure in 2009 (% of total exports)



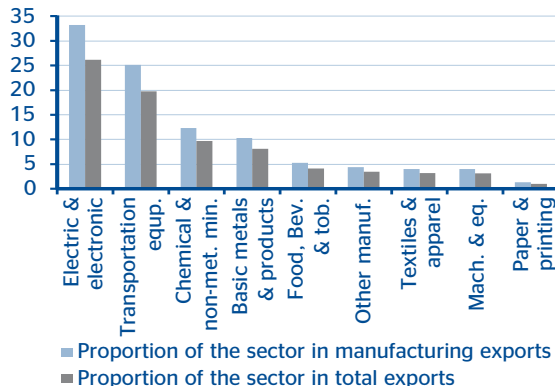
Source: BBVA Research with data from OECD and WTO

Mexico and China's breakdown of manufacturing exports and integration into GVCs

Two sector groups accounted for most of Mexico's manufacturing exports in 2009: electrical and electronic equipment (33%) and transportation equipment (25%), together explaining 58% of total exports. The electrical and electronic, and textiles and apparel sectors represented 37.7% and 17.7% of China's manufacturing exports, respectively -or 55.5% when their exports are joined. Heavy goods with

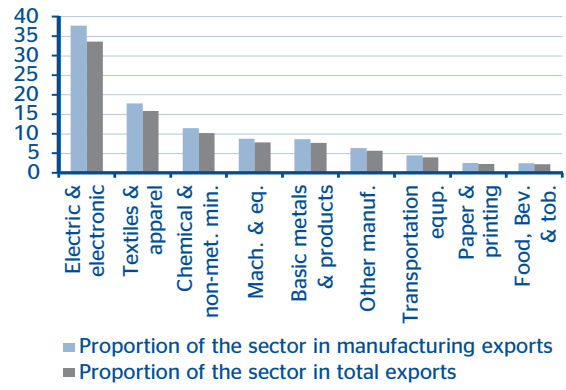
a high volume/value ratio tend to be more regional in nature: for example, Mexico's involvement in the transportation equipment or in the machinery and equipment sectors.

Chart 40
Exports by manufacturing group, Mexico 2009



Source: BBVA Research with data from TIVA, OECD/WTO

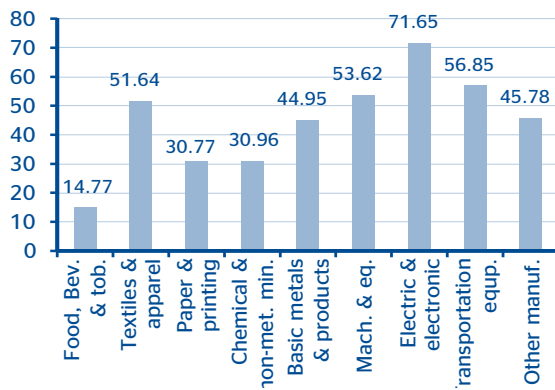
Chart 41
Exports by manufacturing group, China 2009



Source: BBVA Research with data from TIVA, OECD/WTO

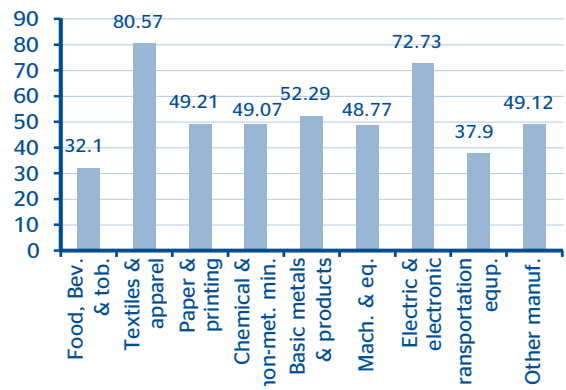
The percentage of imported intermediate goods for use in the export market provides an approximation to the degree of integration into GVCs or the ground gain within them: the OECD and WTO state that, in general, this is roughly one third. These proportions may be much higher in some sectors. For example, in Mexico and China the proportion of imported intermediate goods for export in the electrical and electronics sector is approximately 72% in both countries, revealing a relatively high integration into GVCs. In general, China shows a higher degree of integration into GVCs than Mexico in most of the sectors shown in Charts 42 and 43, except in the cases of transportation equipment, and machinery and equipment.

Chart 42
Percentage of intermediate imports that are exported by import sector, Mexico 2009



Source: BBVA Research with data from TIVA, OECD and WTO

Chart 43
Percentage of intermediate imports that are exported by import sector, China 2009



Source: BBVA Research with data from TIVA, OECD and WTO

Foreign Value Added (FVA) in manufacturing in Mexico and China

FVA refers to the part of a country's gross exports that uses inputs produced in other countries, or the extent to which a country's exports depend on imported content. In manufacturing, electrical and electronic products, transportation equipment, and textiles and apparel have opened the doors to GVCs. Within these sectors, products can be divided into specific components that can be produced separately, and which are easy to transport and assemble in low-cost locations. The aforementioned characteristics have allowed to be in the forefront of supply-chain segmentation and associated trends (outsourcing and delocalization).³ In Mexico, electrical and electronic products have the highest proportion of imported inputs (produced and acquired from other countries) compared to other manufacturing sectors and also in relation to their share in exports, which stands at 56.7%. In China, for the same products, the corresponding proportions are lower, standing at 45.7% and 42.6%, respectively, revealing a significant and relatively more complex domestic supply chain.

Table 10

FVA in manufacturing exports, Mexico 2009

	Total	Structure	% Export
Food, Drink, Tobac	1,502	2.2	15.6
Textiles and apparel	1,682	2.5	22.9
Paper and printing	455	0.7	19.1
Chem. & non-meta min.	4,108	6.1	18.2
Basic met. and products	4,668	7.0	24.9
Mach. and eq.	2,278	3.4	31.1
Electrical & electronics	34,361	51.3	56.7
Transport eq.	15,347	22.9	33.5
Other manuf.	2,524	3.8	31.3
Manufacturing FVA	66,925	95.2	36.7
Total FVA	70,326	100.0	

Source: BBVA Research with data from TIVA, OECD and WTO

Table 11

FVA in manufacturing exports, China 2009

	Total	Structure	% Export
Food, Drink, Tobac	6,968	1.7	25.1
Textiles and apparel	42,035	10.5	20.7
Paper and printing	9,983	2.5	34.8
Chem. & non-meta min.	53,480	13.3	40.9
Basic met. and products	34,405	8.6	34.9
Mach. and eq.	36,828	9.2	36.8
Electrical & electronics	183,694	45.7	42.6
Transport eq.	17,110	4.3	33.5
Other manuf.	17,550	4.4	24.1
Manufacturing FVA	402,052	96.0	35.1
Total FVA	418,981	100.0	

Source: BBVA Research with data from TIVA, OECD and WTO

Domestic value added (DVA)

The concept of domestic value added (DVA) is useful for pinning down the parts of the value chain where economic activity and employment are generated, not only internationally throughout GVCs but also domestically, since every exporting sector uses intermediate goods and services bought from other domestic suppliers. In other words, the measurement of trade in value added is very important for understanding the supply side of international trade and for identifying the sources of competitiveness. In Mexico, 71% of DVA content in exports is contributed by the manufacturing sector; in China, this share is 84.9%. This lower share in Mexico is mainly derived from a mining sector (particularly oil) that contributes significantly to exports.

³ For several years, there has been evidence of fragmentation of production and vertical specialization in industrial processes. Companies have become ever more involved in international outsourcing strategies, with independent foreign suppliers providing them with the intermediate goods they need. However, this is not the only way of obtaining these inputs. Companies can choose different supply strategies, both domestic and international. These options include: 1) Domestically: companies can manufacture their own supplies in the country or they can outsource production: i.e. they can buy their supplies from an independent domestic supplier. 2) Internationally: the company can pursue a vertical integration strategy based on FDI, with its supplies being manufactured by its foreign subsidiaries. The company can also opt to acquire its supplies from an independent foreign company: i.e. through international outsourcing. Both of these options involve offshoring.

In Mexico, four manufacturing groups accounted for the major part of the DVA in manufacturing exports (77.2%): transportation equipment (26.4%), electrical and electronic goods (22.6%), chemicals and non-metallic minerals (16%), and basic metals and their products (12.2%). These groups altogether represented 81% of manufacturing exports, reflecting a highly specialized manufacturing sector. In China, the same groups contributed with a 56.5% share in total DVA and 62% of manufacturing exports.

Table 12

DVA content in exports, Mexico 2009

	bn d	Structure
Food, Drink, Tobac	8,086	7.0
Textiles and apparel	5,655	4.9
Paper and printing	1,923	1.7
Chem. & non-meta min.	18,397	16.0
Basic met. and products	14,078	12.2
Mach. and eq.	5,025	4.4
Electrical & electronics	26,092	22.6
Transport eq.	30,422	26.4
Other manuf.	5,525	4.8
Manufacturing DVA	115,201	71.5
Total DVA	161,144	100.0

Source: BBVA Research with data from TIVA, OECD and WTO

Table 13

DVA content in exports, China 2009

	bn d	Structure
Food, Drink, Tobac	20,697	2.8
Textiles and apparel	160,102	22.0
Paper and printing	18,540	2.5
Chem. & non-meta min.	76,484	10.5
Basic met. and products	63,774	8.8
Mach. and eq.	62,387	8.6
Electrical & electronics	237,822	32.7
Transport eq.	33,653	4.6
Other manuf.	54,751	7.5
Manufacturing DVA	728,209	84.2
Total DVA	864,984	100.0

Source: BBVA Research with data from TIVA, OECD and WTO

Direct and indirect domestic value added to exports by economic sector

To measure the degree of dependence of exports on the domestic economy, we calculate the share of the DVA content in exports. In Mexico, the DVA of manufacturing sector exports in 2009 was 63.1 cents per dollar exported. This is similar to China, where the average was 63.7 cents per dollar. It is worth mentioning that not everything that a country exports contains domestic value. There are a myriad of factors influencing the incorporation of DVA into exports. The most important of these are the size of the economy and the composition of exports (primary, manufacturing and services).

In Mexico's manufacturing sector, the largest part of DVA in exports comes from indirect DVA; this figure stood at 32.6% in 2009 and represented the contribution of domestic suppliers through internal transactions. In China, the indirect value added share was 43.1%, revealing a stronger connection between exports and local activity. In both economies, the lowest indirect DVA corresponds to electrical and electronic goods. However, China obtained 60% more per unit exported: Mexico (22.6 cents per unit exported) vs. China (37 cents). In other words, local supplier companies for electrical and electronic goods in China are more capable of attracting or retaining a larger part of the value generated in the global production system. The indirect DVA component is an indicator of the density of relationships between exporting sectors and the rest of the economy.

Table 14

DVA content in exports: Mexico 2009
 (% of exports for each group)

	Total	Direct	Indirect
Food, Drink, Tobac	84.2	39.2	45.1
Textiles and apparel	77.0	39.2	37.7
Paper and printing	80.8	45.4	35.4
Chem. & non-meta min.	81.6	30.6	51.0
Basic met. and products	74.9	36.9	38.1
Mach. and eq.	68.7	38.6	30.1
Electrical & electronics	43.0	20.4	22.6
Transport eq.	66.3	34.9	31.4
Other manuf.	68.5	37.8	30.7
Manufacturing DVA	63.1	30.6	32.6
Total DVA	69.5	40.2	29.2

Source: BBVA Research with data from TIVA, OECD and WTO

Table 15

DVA content in exports: China 2009
 (% of exports for each group)

	Total	Direct	Indirect
Food, Drink, Tobac	74.6	23.5	51.1
Textiles and apparel	78.9	20.1	58.8
Paper and printing	64.7	22.1	42.6
Chem. & non-meta min.	58.6	20.5	38.0
Basic met. and products	64.7	21.5	43.1
Mach. and eq.	62.3	22.4	40.0
Electrical & electronics	55.1	18.1	37.1
Transport eq.	65.8	21.4	44.4
Other manuf.	75.2	30.3	45.0
Manufacturing DVA	63.7	20.5	43.1
Total DVA	67.4	23.8	42.5

Source: BBVA Research with data from TIVA, OECD and WTO

Conclusions

Mexico's major foreign trade challenge is maintaining and winning ground in GVCs. This involves not just negotiating treaties and preferences, but also addressing telecommunications and road infrastructure, human resource qualifications, labor market flexibility, the tax system and financing. Improving international integration requires progress towards more dynamic stages in the global value chains and/or diversification of exports through increased development of local productive and technological capabilities.

The more that direct and indirect added value can be increased in export activities, the greater the traction for boosting economic growth will be. A higher DVA will increase the multiplier effect of exports, while simultaneously stimulating domestic demand.

A better understanding of the value added in trade flows would provide policymakers with the tools to help them anticipate the impact of macroeconomic shocks and implement policy responses accordingly. It is likely that the analysis of the impact of trade on short-term demand is biased by only considering gross trade flows. This was recently proven by the natural catastrophe that struck Japan in March 2011.

References

- Cattaneo, O. and Gareffi, G. "Joining, upgrading and being competitive in global value chains." The World Bank, WPS6406.
- Fujii, G. and Cervantes R. (2013). "Indirect Domestic Value Added in México's Manufacturing Exports, by Origin and Destination Sector." Levy Economics Institute of Bard College, Working Paper No. 760.
- Koopman, R., Wang Zhi and Wei, Shang-Jin (2012). "Estimating domestic content in exports when processing trade is pervasive." Journal of Development Economics, doi:10.1016/j.jdeveco.2011.12.004.
- OECD-WTO (2013). "Trade in value-added: concepts, methodologies and challenges."
- UNCTAD (2013). "Global value Chains: investment and trade for development." World Investment Report 2013.

3b. Manufacturing exports gained competitiveness over the last decade

The November 2012 issue of *Mexico Regional Sectorial Outlook* featured an article that suggests boosting competitiveness in Mexico's exporting manufacturing sector by incorporating greater domestic value added into the value of its exports. Moreover, it was found that the three manufacturing subsectors of durable goods with the highest shares in total manufacturing exports -transport equipment, electronic and computer products and electrical equipment- also have the lowest domestic value added to their exports. Finally, it was mentioned that increased integration of production chains could increase such value. To this end, it was suggested, among other measures, a set of incentives for vertically integrated transnational companies to seek their supplies and personnel services from local companies.

This section discusses the economic factors that might have influenced the competitiveness of Mexico's manufacturing exports over the last decade as well as the opportunities to further increase such competitiveness over the coming years.

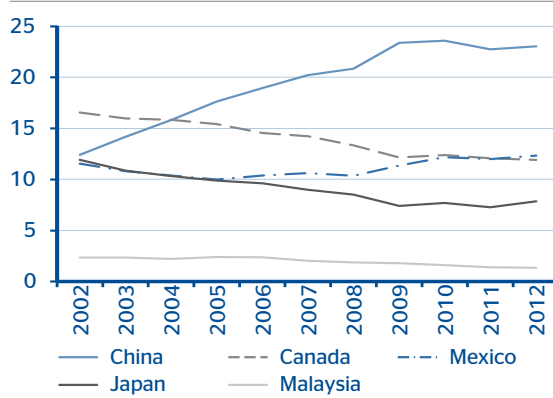
Larger market share in US manufacturing imports

Mexico's manufacturing exports accounted for 12.3% of such imports into the US in 2012. This figure is an improvement over the posted shares of 2002 and 2007, which stood at 11.6% and 10.6%, respectively. This indicator of market share suggests that the competitiveness of Mexico's manufacturing exports improved between 2002 and 2012 and also from 2007 to 2012. Moreover, in both of these periods, all of Mexico's main manufacturing competitors -with the exception of China- experienced a decline in their share in US manufacturing imports (Chart 44).

Depreciation of the real effective exchange rate until 2010

Although there has been a depreciation of the real effective exchange rate over the last decade, its behavior has been more erratic since 2010, without a clear continuation of the downward trend (Chart 45). This has probably influenced the recent performance of manufacturing output, which has not benefited from such trend over the previous years. Without a path of further depreciation of the real effective exchange rate, the competitiveness of manufacturing production will be more determined by factors such as labor productivity and real wages.

Chart 44
Share in US manufacturing imports (% of total value)



Source: BBVA Research with data from USITC

Chart 45
Real effective exchange rate (Index 2010=100, based on consumer price indexes)



Source: BBVA Research with data from BIS

A positive wealth effect of the terms of trade with a relatively more favorable impact on manufacturing over the period 2002-2012

The terms of trade showed an accumulated increase of 12.7% from 2002 to 2012 (Chart 46).¹ Given the relatively high contribution of oil to Mexico’s fiscal revenues, this increase would necessarily have resulted in a positive wealth effect for the economy as a whole.² However, this effect might have been unevenly distributed across the manufacturing and tertiary sectors. This would have been reflected in an uneven performance by these sectors in terms of job creation and real wage increases. In order to determine whether this was the case, the perceptions of manufacturing producers about the behavior of real wages over that period were compared to those of service providers. This was done by adjusting the annual average wages of workers affiliated with IMSS (Mexico’s Social Security Institute) according to the price indexes corresponding to tertiary and manufacturing production. In addition, consumer perceptions of wages’ behavior were also assessed by using the national CPI as price deflator.

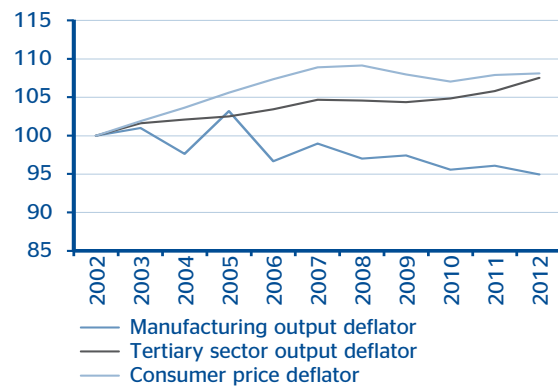
As can be seen from Chart 47, between 2002 and 2012, both consumers and service providers perceived a real salary increase, while manufacturing producers perceived the opposite. The perception of a decrease in real wages by manufacturers might indicate that they benefited more than service suppliers from the wealth effect over this period. In other words, the relatively higher level of manufacturing prices enabled this sector to become more competitive by providing it with a larger room for maneuvering to offset cost pressures coming from the inputs market.

Chart 46
Terms of trade (Index 2002=100)



Source: BBVA Research with data from Banxico

Chart 47
Real average annual wage (Index 2002=100)



Source: BBVA Research with data from STPS and INEGI

Manufacturing labor productivity increased from 2007 to 2012, but slowed down towards the end of the period

Manufacturing labor productivity indicators showed accumulated increases from 2007 to 2012. The indicator based on hours worked showed a 3.2% increase over this period, while the indicator based on occupied people was up 4.7%.³ However, these increases were slowing down towards the end of the period (Charts 48 and 49). In recent years, labor productivity in the service sector has been closing out the gap in relation to manufacturing labor productivity.

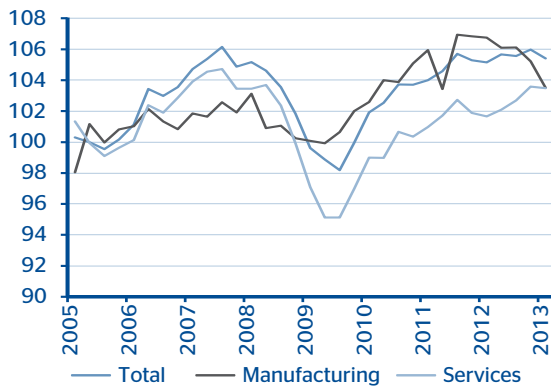
¹ It is worth mentioning that the terms of trade collapsed in the 2008-2009 global recession to levels not seen since 1999. This was due to sharp falls in the international trade of both durable goods and oil prices. Nevertheless, the recovery in global activity in subsequent years enabled the terms of trade to increase at a rate even higher than that between 2002 and 2012.

² From 2002 to 2012, Mexico’s public-sector oil revenues accounted on average for 34.3% of total tax revenues.

³ The determining factors in labor productivity could be similar to those of total factor productivity (TFP). Salgado-Banda and Bernal-Verdugo (2007) explore the factors determining TFP and labor productivity in a study of Mexico’s manufacturing sector. They found that the adoption of technology and human capital have a positive and significant effect on both types of productivity.

Chart 48

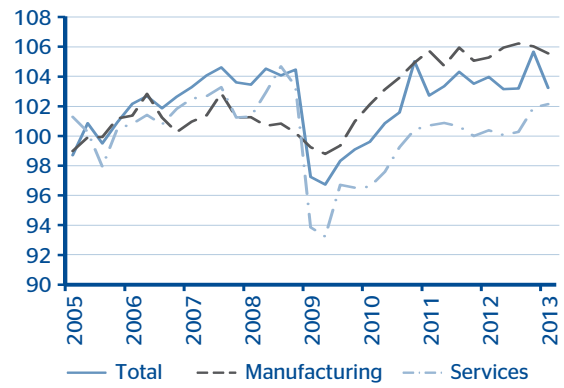
Employment productivity
(Index 2005=100, SA, based on hours worked)



Source: BBVA Research with data from INEGI

Chart 49

Employment productivity
(Index 2005=100, SA, based on occupied people)



Source: BBVA Research with data from INEGI

Two factors favored manufacturing competitiveness between 2007 and 2012: falling unit labor costs and stagnation of real wages

There was an accumulated fall in unit labor costs from 2007 to 2012. The most important contribution to this fall came during the period following the 2008-2009 global recession (Chart 50). By relying on information up to the second quarter of 2012, these costs fell by an accumulated 4.4% from the fourth quarter of 2009. This positive effect on manufacturing output reinforced the positive impact of the wealth effect described in the previous section.

Despite higher labor productivity over the last three years, real average wages in the manufacturing industry have stagnated. This seemingly contradictory situation is explained by the accounting identity relating real compensation for labor with labor productivity. This identity is given by:

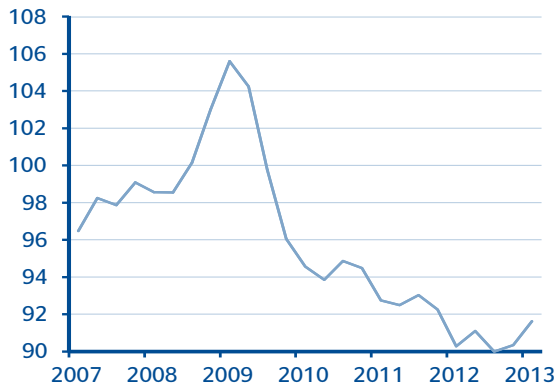
$$\frac{Y_L}{P_C L} \equiv \frac{Y}{P_Y L} \frac{Y_L}{Y} \frac{P_Y}{P_C}$$

where Y_L is total nominal compensation to labor; P_C are consumer prices measured through the consumption deflator; L is hours worked; Y is nominal output; and P_Y is the production deflator. The three terms to the right of the identity sign correspond to labor productivity, the share of labor in output and the ratio of producer prices to consumer prices, respectively.⁴

The results suggest that the participation of labor decreased by an accumulated 3.8% between 2008 and 2012 (Chart 51). Given that relative prices of production to consumption remained relatively stable over this period, the lower participation of labor probably offset the positive effect of increased labor productivity on real wages. Although this conclusion should be treated with some caution, as wages are only a part of total labor compensation, higher labor productivity together with stable real annual wages would imply a more competitive manufacturing industry over the last three years.

⁴ Sharpe, Arsenault and Harrison (2008) discuss the importance of both the participation of labor in production and the ratio of production prices to consumer prices to understand the relationship between labor productivity and compensation to this factor of production. However, it is worth mentioning that wage data were used rather than total labor compensation when applying the accounting identity (1) to the manufacturing industry.

Chart 50
Unit labor costs in manufacturing
(Index 2008=100, SA)



Source: BBVA Research with data from INEGI

Chart 51
Real average annual wage in manufacturing
(Index 2005=100)



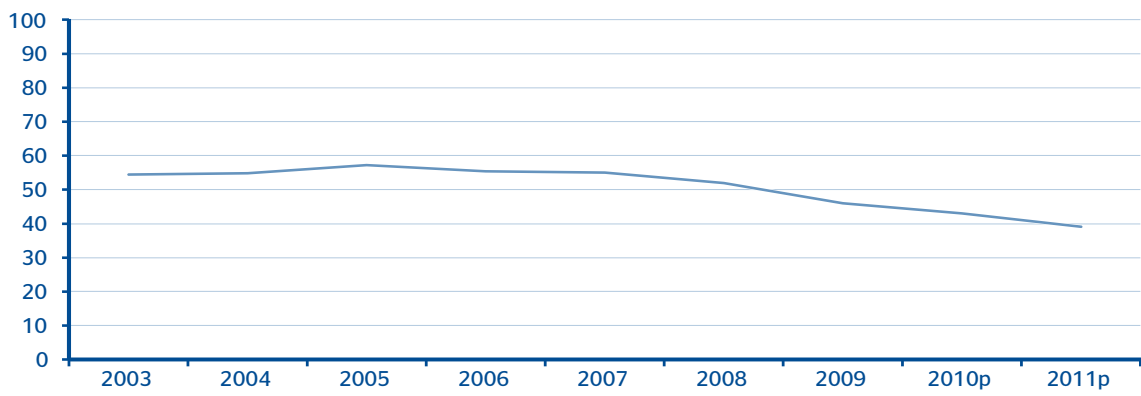
Source: BBVA Research with data from STPS and INEGI

Gains in the automotive industry: key to the country's economic growth

The automotive industry has been the key to Mexico's economic growth over recent years. In particular, automobile output stands out, increasing from approximately 2 million units in 2007 to 2.9 million units in 2012. The importance of this industry to Mexico's economy is indisputable: it contributed with 2.6% and 15.4% to GDP and manufacturing output in 2012, respectively. The figures for 2008 were 2.0% and 11.9%, respectively. Automobile exports represented 29.3% of the country's manufacturing exports vs. 24.1% in 2008.

Although automobile exports have grown as a share of manufacturing exports, it would be interesting to analyze their imports to provide an alternative measurement of domestic competitiveness. In particular, the proportion of imported vehicles in total domestic automobile consumption has been on a downward trend since 2005, which became more evident with the restructuring of world automobile production following the 2008-2009 global recession (Chart 52). This would suggest that this alternative measurement of competitiveness recorded gains in the periods 2003-2011 and 2007-2011.

Chart 52
Share of imported automobiles in total domestic automobile consumption (%)



p/preliminary data
Source: BBVA Research with data from INEGI

Marginal improvements in logistics and global competitiveness, although still lagging major manufacturing competitors

The World Bank's 2012 Logistics Performance Index placed Mexico in 47th place out of 155 countries, up three places from 2010. However, its main manufacturing competitors -such as Japan, Canada, China and Malaysia- were in 8th, 14th, 26th and 29th places, respectively. A detailed analysis of the index shows that Mexico scores lower on all six of its components than the aforementioned competitors. In particular, it stands out the lower absolute and relative ratings of customs efficiency.

In its 2013-2014 Global Competitiveness Report, the World Economic Forum (WEF) mentions that trade facilitation and other measures to reduce transaction costs are the key factors to the location of production capacity in a vertically integrated global system. This puts Mexico at a disadvantage against most of its main competitors. For example, the cost of containers for delivering Mexican exports was \$1,450 USD in 2012, much higher than the costs for Japan, China and Malaysia (Chart 53).

This Global Competitiveness Report also placed Mexico in 55th place out of 150 economies, compared to the 60th place it occupied in the 2008-2009 Report. One of the areas that helped improve Mexico's ranking in this index was innovation (Table 16). However, competitors such as Japan, Canada, Malaysia and China were in 9th, 14th, 24th and 29th place, respectively.

By analyzing the performance of the index components for Mexico, labor market efficiency stands out because of its unfavorable position (Table 16). Mexico was in 113th position on this component, a long way behind Canada, Japan, Malaysia and China, which occupied the 7th, 23rd, 25th and 34th positions, respectively. In our opinion, labor productivity increases will only be marginal until the efficiency in the allocation of workers among the different sectors of Mexico's economy improves and salary rigidities decrease.

The efficiency of product markets is another component of the Global Competitiveness Index that must improve for Mexico. Mexico was in 83rd position on this measurement. The challenge is enormous given that this will only be improved by promoting increased domestic competition. This would imply more competitive prices for transactional services that support international trade, such as transportation and telecommunications.

Table 16

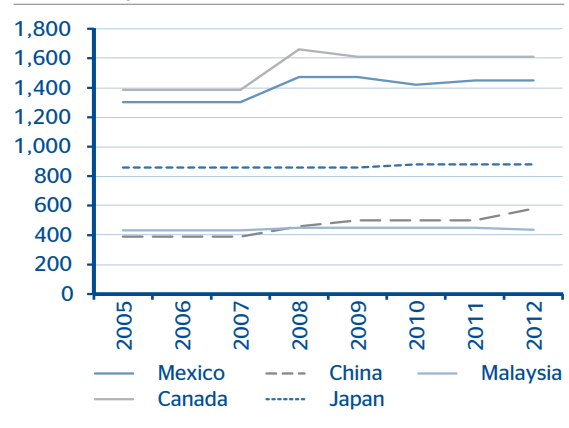
Global ranking of Mexico in the Global Competitiveness Index by component

Global Competitiveness Index component	Ranking 2008-2009	Ranking 2013-2014
Institutions	97	96
Infrastructure	68	64
Macroeconomic environment	48	49
Health and primary education	65	73
Higher education and training	74	85
Goods market efficiency	73	83
Labor market efficiency	110	113
Financial market development	66	59
Technological readiness	71	74
Market size	11	11
Business sophistication	58	55
Innovation	90	61

Source: BBVA Research with data from WEF

Chart 53

Cost of a container's handling (cost of exports in dollars per container)



Source: BBVA Research with data from WB

Conclusions

The economic information available for the period 2002-2012 helps explain increases in the competitiveness of manufacturing exports through two possible channels: the accumulated depreciation of the real effective exchange rate and more maneuvering room for the manufacturing industry vs. the tertiary sector regarding inputs acquisition from having benefited from a larger positive wealth effect from increases in the terms of trade. From 2007 to 2012, this gain can be conceived given the observed behavior of several economic variables, such as market share in US manufacturing imports, labor productivity, real wages and unit labor costs in the manufacturing industry. However, the weaker performance of manufacturing labor productivity and other supply-side factors (labor and product markets) seem to have made this type of gains more difficult towards the end of the period.

References

Canuto, O., Cavallari, M. and Reis, J.G. (2013). "Brazilian Exports: Climbing Down a Competitiveness Cliff." Policy Research Working Paper 6302, The World Bank.

Logistics Performance Index, available at <http://lpi.survey.worldbank.org/international/global>, The World Bank.

Salgado-Banda, H. and Bernal-Verdugo, L. (2007). "Productividad Multifactorial y sus Determinantes: Un Análisis Empírico para el Sector Manufacturero Mexicano." Working paper No. 2007-09, Banco de México.

Sharpe, A., Arsenault, J.F. and Harrison, P. (2008). "The Relationship between Labour Productivity and Real Wage Growth in Canada and OECD Countries." CSLS Research Report 2008-8, Center for the Study of Living Standards.

The Global Competitiveness Report 2013-2014, World Economic Forum.

3c. Energy reform and the implementation challenges for hydrocarbon production

The previous issue of *Mexico Regional Sectorial Outlook* featured an article highlighting the need to reform some aspects of the energy sector in order to enable the participation of private capital and thus increase the potential economic benefits of any energy reform. Oil, refining, petro-chemicals and electricity were all identified as the key sectors to be included in an energy reform proposal that would make it possible to boost investment and, at the same time, positively contribute to the country's potential economic growth.

In this issue some of the constitutional changes -approved by Congress in December- related to energy will be discussed. Moreover, the potential technological, regulatory and environmental challenges for hydrocarbon production -associated to the implementation of these changes- will be addressed.

Deepwater hydrocarbon production, which will be encouraged by the energy reform, could not begin until 2018 in the best-case scenario

Article 27 of the political constitution was reformed to allow, among other things, contracting private companies for exploration and extraction of oil and other hydrocarbons. The fourth transitional article of the reforming decree states that service, profit-sharing, production-sharing and licenses will be, among other types of contracts, authorized. These legal modifications implicitly recognize that the era of easy-oil is coming to an end and also that both deepwater projects in the Gulf of Mexico and hydrocarbon production from unconventional resources require not only substantial technological investment, but also sufficient human capital for the development of such projects.¹

There are several stages in the deepwater hydrocarbon exploration and extraction process, some of which can take several months or years to be completed before the next stage can be started. Caulfield et al. (2007) define three stages of an offshore well completion: 1) planning, engineering design and contracting service and manufacturing companies (3 to 9 months); 2) equipment manufacturing (6 to 24 months); and 3) System Integration Testing (SIT), equipment shipping, installation and startup (3 to 6 months). The authors consider that following the contract signups among operators, oil service companies and manufacturers, the project team needs at least two years to analyze the technological parameters (pressure, temperature, fluid properties, anticipated production rates and life expectancy of the well), determine the completion strategy depending on the nature of the hydrocarbon formation, design and manufacture the completion equipment, perform SIT and finally install the completion in the well.

Given the aforementioned considerations and assuming that the first deepwater hydrocarbon contracts are signed up in 2015 under a secondary legislation that incentivizes investment, in the best-case scenario oil production from major deposits in the Gulf of Mexico will not begin until late 2017 or early 2018.² Nevertheless, the international experience at developing the Perdido field -the deepest deepwater well worldwide and the furthest from the Gulf of Mexico coast- provides evidence that hydrocarbon production started flowing almost four years after the project's approval.³

¹ Approximately 40% of proven hydrocarbon reserves are in the Aceite Terciario del Golfo Project (ATG, for its acronym in Spanish), which was previously known as the Paleocanal de Chicontepec. However, wells in this field are costly to exploit. Ocampo-Télez (2013) states that the ATG project came up as a PEMEX's response to the irreversible decline of the Cantarell field, and that its exploitation has become even more significant with the approaching decline of Ku-Maloob-Zaap, the last giant field. PEMEX figures show that its prospective deep water and unconventional hydrocarbon reserves represent 23.2% and 52.5% of the total, respectively. In a July 2013 interview with Milenio, Carlos Morales Gil, Director of PEMEX Exploration and Production, stated that with the current annual investment in deepwater reserves of 15 billion dollars, it would take PEMEX 60 years to develop the deposits in the Gulf of Mexico, and that alliances with the private sector would be needed to shorten this period.

² The US-Mexico Transboundary Hydrocarbons Agreement on Reserves in the Gulf of Mexico could bring forward deepwater hydrocarbon extraction, providing reserves were found in such basins.

³ In the May 2009 article "Shell Perdido platform offers lessons in innovation" published in The Houston Chronicle, Dale Snyder, manager of the Perdido project, mentioned that commercial discoveries had been made in 2002 and that the development of the project had been approved in 2006. According to the document "Shell starts production at Perdido (rich media) - people, technology and deep-sea stories, images and videos" of March 2010, production started in 2010.

Development of deepwater deposits must not be delayed by local-content requirements

Another major issue covered in the energy reform is the minimum percentage of local content requirements in the supply chain, which will be established in the related secondary legislation. This is highly relevant for deepwater hydrocarbon exploration and extraction projects, as relatively high local-content requirements could discourage or put off the involvement of major oil companies, which have the experience and human resources needed for such projects.⁴

In relation to tenders for hydrocarbon exploration and extraction projects -which will be the responsibility of the National Hydrocarbons Commission according to the energy reform decree- these processes not only must be swift, but also must award projects based on the best proposal without sacrificing industrial safety and environmental protection standards. The latter must follow best international practices and adopt, as far as possible, performance-based regulation to encourage economic efficiency and technological innovation, continually improve standards and contemplate many possible sources of uncertainty.⁵

Consolidation of industrial safety and environmental protection: a suitable measure

According to the transitional article nineteen of the decree that reformed the constitution in relation to energy issues, the legal framework will be adapted to create the National Industrial Safety and Environmental Protection Agency of the Hydrocarbons Sector. This agency will act as an administrative body of the Environmental and Natural Resources Ministry (Semarnat), with technical and administrative autonomy. By bringing the regulation tasks of industrial safety and environmental protection together under a single entity, authorities are showing their intention to improve the safety of processes and, at the same time, decrease the negative externalities that would affect other sectors of the economy by the emission of pollutants, residual waste and the inadequate dismantling and abandonment of facilities.

Two issues requiring effective secondary legislation to effectively offset potential risks to the environment and health are the integrated control of waste and the subsequent procedures to the abandonment of facilities where unconventional hydrocarbons -shale oil and gas- have been produced.⁶ In this regard, disposal of solid waste -from surface and subterranean excavations for the production of such hydrocarbons- will be the most important waste management issue. Speight (2012) argues that the main environmental damage from the dumping of such waste not only does include dust and noise from vehicle movements, but also pollution of underground water, leaching of acid and toxic pollutants and loss of usable land. Speight also argues that although land restoration is possible, soil fertility and ecological habitats are slow to recover.

The National Hydrocarbons Commission will have the dual challenge of establishing territorial limits on the extraction of shale hydrocarbons and supervising their productivity

In accordance with the transitional article eight of the decree that reformed the constitution in relation to energy matters, hydrocarbon exploration and extraction activities will take priority over other activities involving exploitation of the surface and/or subsoil. It further establishes that secondary legislation will set out the payment terms for land occupation or the corresponding indemnification. The design of this legislation will not be easy for two main reasons: 1) unlike traditional hydrocarbons, the rates of decline for shale oil and gas deposits are very rapid, implying a continuous drilling of additional wells

⁴ In its November 2011 article "Its remarkable offshore oil bonanza could do Brazil a lot of good. But getting the most out of it will not be easy", The Economist mentioned that Brazil's government has imposed local-content requirements on deepwater hydrocarbon projects that would become progressively more demanding until reaching 95% of local content in some parts of the supply chain in 2017. However, the article also stated that this policy to promote local industry would increase costs and cause delays, by forcing Petrobras and foreign companies to buy Brazilian supplies.

⁵ Coglianesi, Nash and Olmstead (2002) state that regulation based on prescriptions often disguises the sources of uncertainty since the real performance resulting from this type of regulation cannot be determined.

⁶ The US Energy Information Administration (EIA) states that Mexico ranks seventh and sixth worldwide for recoverable shale oil and gas reserves, respectively.

alongside production; and 2) the conditions which will determine up to where the last additional well can be drilled given the larger decreasing marginal returns as more wells are drilled. Therefore, the National Hydrocarbons Commission -which has been assigned the responsibility for both signing up hydrocarbon exploration and extraction contracts and supervising the extraction plans to maximize the productivity of fields- will have an enormous social responsibility in the face of these peculiar conditions resulting from the surface use to extract unconventional hydrocarbons.

An effective regulation of the use, recycling and reuse of water is needed to handle the increased demand for this resource from the development of shale hydrocarbons

The use of large volumes of water in the extraction of shale oil and gas is another issue whose resolution requires particular attention in the secondary legislation. This is because the largest prospective deposits of those hydrocarbons are in the Burgos basin -an extension of the Eagle Ford basin in the US-, which is located over a region characterized by water shortages. According to the US Office of Technology Assessment (OTA), the methods for separating hydrocarbons through heating (retorting) require between one and three barrels of water for each barrel of petroleum extracted.⁷ However, Speight (2012) states that shale oil typically contains between two and five gallons of water per ton, and at most between thirty and forty gallons. Although much of this water contains organic and inorganic impurities, these can be removed using conventional water treatment technologies. For these reasons, effective regulation of the use, recycling and reuse of water must be included in the secondary legislation in conformity with the environmental protection ordered by the transitional article seventeen of the energy reform's decree.

References

- Caulfield, I., Dyer, S., Hilsman, Y.G., Dufrene, K.J., Garcia, J.F., Healy, J.C., Maharaj, M., Powers, J., Staderoli, D., Stracke, M. and Webb, T. (2007). Project Management of Offshore Well Completions. Oilfield Review, Spring 2007.
- Coglianesi, C., Nash, J. and Olmstead, T. (2002). Performance-Based Regulation: Prospects and Limitations in Health, Safety and Environmental Protection. Regulatory Policy Program. Center for Business and Government. Harvard University, 2002.
- Cohen, M.A. (2005). El agua en la Frontera México-Estados Unidos: Reto Político-Ambiental. Espacio Abierto, vol. 14, number 2, April-June 2005, Zulia University, Venezuela.
- Decreto por el que se reforma y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en Materia de Energía. Congreso de la Unión. 2013.
- Ocampo-Téllez, E. (2013). Chicontepec: ¿cambiar de estrategia? Issue 57 - July/August 2013, energía a debate.
- Speight, J.G. (2012). Shale Oil Production Processes. Gulf Professional Publishing, 2012.
- US OTA. An Assessment of Oil Shale Technologies, Volume I Report PB80-210115, Office of Technology Assessment. In: Congress of the United States. 1980.

⁷ By assuming that 300 thousand barrels of crude oil are extracted per day from shale formations, between 126 and 378 million gallons of water would be required per day. This equates to between 8.5% and 25.4% of daily public water use in the states of Tamaulipas, Nuevo León and Coahuila. These percentages are taken from information in Cohen (2005).

4. Appendix

4a. Indicators of economic performance by state

Table 17

Selected indicators

	GDP* 2012		GDP* 2012		GDP* per		CAGR ² , % 2003 - 2012		Ranking in the nation				
	(millions of pesos)	Population ¹ (persons)	(millions of USD)	capita 2012 (USD)	Real GDP	Population	Real GDP per capita	Real GDP 2012	Real GDP per capita 2012	Foreign Direct Inv. 1Q13-3Q13	Employment ³ 2013	Fed. Res. ⁴ 1Q13-3Q13	IIFE ⁵ 2013
	National	15,078,276	117,053,750	1,144,987	9,782	2.7	14	1.3					
Aguascalientes	162,722	1,233,921	12,356	10,014	4.1	2.0	2.1	28	10	9	19	29	7
Baja California	424,562	3,328,623	32,240	9,686	2.4	2.6	-0.2	13	12	11	8	16	31
Baja California Sur	111,449	695,409	8,463	12,170	5.3	4.2	1.1	29	6	16	29	32	29
Campeche	760,104	866,375	57,719	66,622	-3.8	1.8	-5.4	6	1	24	26	27	4
Coahuila	510,947	2,854,334	38,799	13,593	3.3	1.7	1.5	9	5	32	9	19	30
Colima	85,626	685,394	6,502	9,487	3.0	2.4	0.6	31	13	2	31	31	1
Chiapas	273,421	5,050,568	20,763	4,111	1.7	2.1	-0.3	19	32	3	20	5	25
Chihuahua	414,023	3,598,792	31,439	8,736	2.9	1.4	1.5	14	16	30	7	13	10
Mexico City	2,472,925	8,911,665	187,785	21,072	2.9	0.2	2.7	1	2	1	1	2	15
Durango	185,592	1,709,741	14,093	8,243	2.0	1.4	0.6	25	19	29	21	22	11
Guanajuato	588,842	5,668,181	44,714	7,889	3.1	1.7	1.4	7	21	4	5	7	26
Guerrero	215,901	3,499,507	16,395	4,685	2.2	1.2	1.1	24	31	12	27	14	8
Hidalgo	251,124	2,768,973	19,069	6,887	2.6	1.9	0.7	20	24	19	24	17	22
Jalisco	941,951	7,644,152	71,528	9,357	3.0	1.6	1.4	4	14	31	2	4	3
Mexico	1,385,533	16,106,485	105,212	6,532	3.3	1.9	1.4	2	25	6	3	1	9
Michoacan	351,919	4,494,730	26,723	5,946	2.1	1.2	0.9	15	28	22	16	10	28
Morelos	176,419	1,850,812	13,397	7,238	2.6	1.7	0.9	27	23	26	22	25	20
Nayarit	96,808	1,155,448	7,351	6,362	3.3	2.2	1.1	30	26	20	30	28	14
Nuevo Leon	1,079,021	4,868,844	81,937	16,829	4.4	1.9	2.5	3	4	15	4	9	12
Oaxaca	247,373	3,930,833	18,785	4,779	2.0	1.1	0.8	21	30	23	25	8	5
Puebla	489,520	6,002,161	37,172	6,193	3.4	1.4	2.0	10	27	5	12	6	2
Queretaro	302,609	1,912,803	22,979	12,013	5.1	2.5	2.6	17	7	10	13	23	18
Quintana Roo	225,924	1,440,115	17,156	11,913	4.8	3.7	1.1	22	9	13	18	26	21
San Luis Potosi	294,953	2,675,311	22,398	8,372	3.8	1.2	2.6	18	17	14	15	20	24
Sinaloa	312,532	2,905,750	23,733	8,167	2.5	1.2	1.3	16	20	21	14	18	6
Sonora	441,954	2,809,806	33,560	11,944	4.1	2.0	2.1	12	8	25	11	15	19
Tabasco	525,311	2,309,071	39,890	17,275	4.7	1.7	3.0	8	3	18	23	12	32
Tamaulipas	448,698	3,419,338	34,072	9,965	2.5	1.6	0.8	11	11	8	10	11	27
Tlaxcala	84,177	1,224,637	6,392	5,220	2.0	1.8	0.2	32	29	28	32	30	16
Veracruz	812,620	7,858,604	61,707	7,852	3.3	1.1	2.2	5	22	17	6	3	13
Yucatan	221,712	2,036,694	16,836	8,266	3.4	1.5	1.9	23	18	27	17	21	23
Zacatecas	182,003	1,536,674	13,821	8,994	4.7	1.2	3.5	26	15	7	28	24	17

* 2012 GDP at current prices

¹ Mexico population projections 2010-2050, CONAPO² Compounded Annual Growth Rate³ Total registered urban workers affiliated to the Social Security Institute (IMSS)⁴ Federalized resources, only federal participations and contributions included⁵ 2013 state budget information index, IMCO

* GDP, current prices

Source: BBVA Research with INEGI, CONAPO, Banxico, STPS, SE, SHCP and IMCO data

4b. Indicators by state

Table 18

Region: High Development*

	Distrito Federal					
	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	4.0	3.6	3.2	-0.2	1.1	nd
Primary Sector	11.7	-1.4	9.5	-30.8	-6.6	nd
Secondary Sector	1.3	2.3	0.4	-9.7	-2.8	nd
Tertiary Sector	4.4	3.8	3.6	1.1	1.6	nd
Manufacturing production	-2.6	-5.8	-7.7	-11.8	-2.7	-2.4
Construction	36.3	12.1	8.8	31.5	14.1	-11.7
Public works	45.8	16.3	18.3	53.5	-1.6	-31.2
Private works	27.1	4.7	-7.1	-9.3	27.9	22.3
Retail sales	6.1	3.6	0.9	-3.1	-2.5	-2.5
Wholesales	1.7	-0.8	-5.6	-12.1	-5.9	-5.9
Total Employment	4.5	4.4	4.7	5.1	5.2	4.4
Permanent	3.3	4.0	4.7	5.2	5.5	4.6
Temporary (urban)	13.3	6.6	4.6	4.0	3.4	3.6
Total air traffic (passengers transport)	9.1	11.6	6.9	3.8	6.7	8.8
Federalized resources***	4.2	-0.1	1.5	-8.2	28.7	-8.9
Participations (Branch 28)	3.5	-5.7	-5.5	-5.3	7.4	4.9
Contributions (Branch 33)	5.3	7.9	9.2	-12.5	10.1	-0.3
Foreign Direct Investment (millions of USD)	13618.7	34801	-2731.3	1554.3	15070.0	707.8

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 19

Region: Touristic*

	Baja California Sur						Quintana Roo					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	5.1	3.0	3.2	2.5	5.5	nd	5.7	6.6	8.4	4.5	4.6	nd
Primary Sector	0.0	6.0	-6.9	-11.4	5.8	nd	9.7	-4.3	-5.6	-4.9	17.7	nd
Secondary Sector	8.6	-1.9	2.5	7.4	14.9	nd	5.3	9.1	20.2	7.3	12.6	nd
Tertiary Sector	4.3	4.5	4.0	1.7	2.6	nd	5.7	6.3	6.8	4.2	3.3	nd
Manufacturing production	-2.0	-3.8	-5.0	-3.5	4.7	14.8	0.4	9.0	13.0	12.2	11.5	6.0
Construction	-9.9	22.8	33.2	-1.6	-0.3	-9.7	52.1	-21.1	-25.9	-31.6	-13.0	10.2
Public works	-27.3	41.2	60.1	41.5	34.2	64.0	57.3	16.7	7.1	-31.3	-31.8	6.5
Private works	8.5	9.7	14.4	-32.7	-43.5	-65.4	50.1	-36.4	-39.9	-31.9	3.2	12.4
Retail sales	-1.4	-2.9	-1.7	2.0	-0.4	0.8	2.9	7.5	5.8	-5.4	-6.8	-6.7
Wholesales	5.0	2.3	0.2	-5.8	-6.7	-7.7	5.1	7.2	6.9	2.9	1.0	0.1
Total Employment	2.4	5.5	4.5	2.7	4.4	6.9	3.1	2.5	3.9	5.4	5.6	5.4
Permanent	1.7	5.1	4.4	1.5	2.4	4.4	1.2	1.7	2.6	3.9	3.6	3.4
Temporary (urban)	5.8	7.4	4.7	8.3	13.4	18.2	11.1	6.0	9.0	11.2	13.6	13.2
Total air traffic (passengers transport)	1.7	6.2	8.7	10.4	12.8	18.4	4.8	11.4	14.4	9.8	10.6	11.5
Federalized resources***	4.5	0.3	7.1	-4.6	12.5	32.2	5.3	0.8	-6.7	-6.0	0.1	55.7
Participations (Branch 28)	7.0	-2.4	1.1	-7.1	12.0	7.1	6.0	-2.3	-2.5	-6.8	16.8	10.9
Contributions (Branch 33)	2.5	2.6	12.3	-2.3	-3.5	16.7	4.6	3.8	-10.9	-5.1	-19.6	17.5
Foreign Direct Investment (millions of USD)	218.6	340.1	116.5	35.5	60.3	189.0	246.2	374.8	137.1	41.6	37.2	318.8

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 20
Region: Industrial*

	Aguascalientes						Baja California					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	4.1	4.7	3.3	1.0	5.1	nd	4.8	4.2	2.3	3.4	0.5	nd
Primary Sector	7.1	3.8	20.0	1.0	0.0	nd	-1.2	0.2	-2.9	39.2	-16.0	nd
Secondary Sector	2.0	4.3	-0.7	-2.5	6.1	nd	4.6	4.7	1.2	4.6	-0.8	nd
Tertiary Sector	5.7	5.1	5.3	4.0	4.7	nd	5.2	4.2	3.3	1.7	2.4	nd
Manufacturing production	4.8	2.0	-6.3	-2.8	4.3	12.8	3.3	6.1	-3.7	-0.8	2.1	4.9
Construction	-1.7	14.3	3.0	18.3	11.6	-15.1	3.2	13.5	31.3	45.3	20.8	4.0
Public works	-27.4	2.6	-41.7	-39.2	-3.9	-30.8	15.2	13.6	27.7	75.7	21.6	38.1
Private works	19.6	20.3	28.5	42.6	20.0	-6.6	-7.5	13.4	35.3	14.1	19.7	-32.5
Retail sales	4.9	6.2	1.9	4.0	3.5	-0.1	3.0	3.9	-1.8	-0.5	-1.6	-1.1
Wholesales	7.4	-1.5	-5.0	-1.7	2.4	1.7	2.0	-4.7	-11.8	-7.4	-3.2	2.2
Total Employment	2.8	5.3	6.5	7.2	6.9	6.7	3.6	3.4	4.3	3.5	3.7	3.0
Permanent	1.8	5.1	6.5	7.2	7.0	6.9	3.3	3.4	4.6	3.8	3.9	3.6
Temporary (urban)	13.1	7.1	6.7	8.1	6.3	4.1	7.3	3.9	1.0	0.7	1.6	-3.6
Total air traffic (passengers transport)	10.9	22.5	16.7	11.4	8.0	17.7	-2.1	8.6	6.0	7.9	7.9	13.9
Federalized resources***	4.2	1.8	-3.1	-3.4	3.5	42.2	2.1	2.6	1.4	-3.0	5.1	25.6
Participations (Branch 28)	5.5	1.4	-4.7	-6.8	7.8	5.4	0.5	2.4	-3.3	-5.5	10.3	6.8
Contributions (Branch 33)	3.0	2.1	-1.7	-0.1	-7.5	20.1	3.7	2.8	7.2	-0.4	-8.0	9.8
Foreign Direct Investment (millions of USD)	155.0	307.0	33.3	342.0	147.1	101.5	673.5	590.7	119.9	214.2	184.1	180.1

	Chihuahua						Coahuila					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	2.0	5.5	5.1	1.5	5.9	nd	8.1	5.0	1.9	-2.1	-1.3	nd
Primary Sector	-2.4	1.2	4.4	19.9	-2.9	nd	2.7	2.5	-2.1	-2.5	-1.2	nd
Secondary Sector	-1.3	10.2	7.6	-0.2	11.4	nd	10.7	5.3	-0.7	-6.1	-5.0	nd
Tertiary Sector	4.3	3.6	3.9	1.7	3.8	nd	5.7	4.8	4.9	2.3	3.0	nd
Manufacturing production	2.9	9.8	8.3	1.9	9.9	10.9	13.4	8.5	3.7	-6.0	-0.3	5.7
Construction	-3.9	-1.5	-11.0	14.0	48.4	22.1	7.3	0.7	-8.1	-7.1	-43.0	-30.8
Public works	-8.3	5.8	-5.5	38.8	87.2	45.1	6.7	-7.5	-20.5	-53.5	-55.1	-33.6
Private works	-0.4	-6.9	-15.2	-5.2	16.7	0.5	7.5	4.5	-3.7	15.1	-37.7	-29.7
Retail sales	6.5	6.0	3.3	5.5	2.2	3.6	3.8	2.4	3.5	6.4	3.0	-0.2
Wholesales	1.2	2.5	-4.6	-7.6	-3.8	-8.0	2.8	1.8	-5.2	-3.5	-3.6	-3.3
Total Employment	2.8	4.7	5.6	5.6	4.5	3.9	8.4	6.2	5.6	5.1	3.4	1.9
Permanent	2.5	3.7	5.0	5.2	4.2	3.4	7.1	5.8	5.8	5.3	4.0	2.5
Temporary (urban)	7.7	16.9	12.8	9.5	8.3	9.7	19.3	8.9	3.7	3.2	-1.2	-2.0
Total air traffic (passengers transport)	-1.0	9.4	6.4	-1.7	4.7	2.9	11.3	11.6	6.5	2.2	5.7	-22.6
Federalized resources***	2.5	1.8	1.6	-3.9	14.4	30.3	4.8	0.5	-4.9	-7.7	8.9	29.1
Participations (Branch 28)	0.6	2.1	-3.1	-6.7	15.0	11.5	5.6	-0.5	-9.8	-13.6	5.0	5.7
Contributions (Branch 33)	4.4	1.6	6.1	-1.0	-5.1	13.7	4.1	1.5	0.2	-1.9	-5.7	11.1
Foreign Direct Investment (millions of USD)	930.1	967.6	17.3	0.4	1.6	2.5	89.7	106.3	0.0	1.4	5.3	-17.4

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 21

Region: Industrial*

	Jalisco						Estado de México					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	5.2	3.3	2.8	0.3	4.2	nd	3.7	3.8	4.4	2.2	3.0	nd
Primary Sector	-2.1	4.3	10.9	-6.8	8.1	nd	-16.2	24.0	43.0	9.0	14.1	nd
Secondary Sector	6.4	0.8	-1.3	-1.8	2.8	nd	1.2	0.8	1.7	0.4	2.9	nd
Tertiary Sector	5.3	4.4	4.0	1.9	4.5	nd	5.4	5.1	5.0	3.0	2.9	nd
Manufacturing production	4.5	3.0	1.4	-0.7	2.7	7.4	5.1	4.6	2.4	-0.2	1.4	3.8
Construction	12.6	0.5	-1.3	6.6	-1.0	-24.1	-20.5	-15.0	-10.9	-0.6	30.4	12.3
Public works	21.7	-21.8	-19.0	4.2	-26.8	-12.7	-29.3	-19.5	-13.0	-16.2	42.6	1.4
Private works	5.4	20.8	11.8	8.4	16.1	-29.9	-10.1	-10.9	-9.2	15.6	21.5	21.6
Retail sales	5.6	2.5	-0.7	-1.4	0.9	-0.6	9.4	6.4	1.3	-1.4	0.8	-2.5
Wholesales	0.9	-0.3	-3.5	-4.1	3.5	-1.9	4.8	-1.0	-5.4	-2.6	-0.8	-5.1
Total Employment	4.0	2.9	2.6	3.2	3.6	3.6	4.6	5.6	5.1	2.9	2.1	1.0
Permanent	3.4	2.7	2.1	2.8	3.3	3.6	4.4	5.3	5.3	2.9	2.4	1.2
Temporary (urban)	9.6	4.7	6.6	7.0	6.1	4.0	5.7	6.8	4.0	2.5	0.8	0.0
Total air traffic (passengers transport)	0.7	2.8	1.2	4.6	5.0	9.9	-3.8	-39.2	-24.4	-12.0	37.9	37.5
Federalized resources***	6.1	-0.6	0.8	-3.2	13.4	22.8	7.4	0.4	0.4	-3.2	20.6	19.8
Participations (Branch 28)	6.4	-2.6	-4.3	-7.6	8.9	8.2	8.0	-1.2	-5.8	-8.4	12.8	11.1
Contributions (Branch 33)	5.7	1.9	6.6	2.7	-1.0	12.7	6.7	2.3	7.6	3.8	1.3	11.8
Foreign Direct Investment (millions of USD)	-0.3	11.7	-17.9	18.7	36.1	-63.9	632.4	771.8	209.3	-15.1	352.5	307.7

	Nuevo León						Querétaro					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	6.5	4.8	3.3	2.2	2.2	nd	6.3	4.9	1.7	0.1	2.4	nd
Primary Sector	-10.1	1.1	6.9	7.5	9.3	nd	-7.4	13.6	17.1	-1.2	3.6	nd
Secondary Sector	6.9	3.5	-1.1	0.3	0.5	nd	7.2	7.3	1.4	-0.6	0.9	nd
Tertiary Sector	6.5	5.7	6.1	3.4	3.2	nd	6.3	2.8	1.4	0.6	3.5	nd
Manufacturing production	8.0	5.2	-0.3	-2.0	1.2	1.4	7.4	6.5	1.4	-3.0	1.6	1.5
Construction	-2.7	-3.0	-9.0	-6.0	-12.4	-17.2	23.1	3.1	-14.8	-8.6	22.8	13.0
Public works	-0.4	-8.1	-24.6	-34.9	-35.9	-40.3	21.0	-35.5	-55.7	-43.3	-19.3	-2.3
Private works	-4.1	0.1	0.9	13.7	3.0	-4.0	24.3	26.1	7.1	6.5	35.3	17.4
Retail sales	4.7	7.8	3.6	2.0	1.9	1.0	6.1	5.0	-0.3	3.3	2.8	-1.0
Wholesales	7.1	3.6	-3.0	-8.8	-9.0	-9.1	16.7	3.1	-10.6	-8.4	-9.0	-5.5
Total Employment	5.2	4.0	3.5	3.3	2.2	1.9	9.3	7.8	7.7	7.3	7.2	6.4
Permanent	4.6	3.8	3.6	3.5	2.9	2.7	8.8	7.2	7.1	7.0	7.4	7.1
Temporary (urban)	9.7	5.7	3.0	1.0	-3.1	-4.5	11.2	10.3	10.6	8.2	6.1	3.3
Total air traffic (passengers transport)	3.7	9.6	10.4	8.3	7.3	2.4	34.6	54.1	107.4	68.3	58.0	58.7
Federalized resources***	5.6	-0.7	3.4	-1.6	9.0	21.9	6.1	2.0	2.9	-3.1	8.4	26.0
Participations (Branch 28)	6.5	-4.3	-0.5	-4.5	6.4	7.2	7.0	4.0	-1.4	-5.9	8.4	6.9
Contributions (Branch 33)	4.4	4.7	8.6	2.8	-0.8	12.1	5.1	-0.1	7.3	0.3	-4.3	12.9
Foreign Direct Investment (millions of USD)	1378.3	1157.8	-52.8	587.5	523.1	-809.5	446.7	529.9	149.7	216.8	200.7	166.3

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 22

Region: Industrial*

	Sonora						Tamaulipas					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	7.2	6.0	3.3	0.9	0.9	nd	0.6	4.5	3.6	2.7	3.0	nd
Primary Sector	-0.8	13.0	0.8	-2.4	-1.6	nd	-1.1	5.6	0.7	-5.4	-2.9	nd
Secondary Sector	11.7	7.6	3.7	1.4	0.7	nd	-3.4	0.4	-3.1	-2.4	0.1	nd
Tertiary Sector	4.9	3.6	3.2	0.9	1.6	nd	4.3	7.2	8.2	6.8	5.3	nd
Manufacturing production	6.6	2.2	0.5	4.4	7.6	18.5	1.9	5.1	3.9	1.6	2.9	7.1
Construction	17.7	8.7	-1.3	12.8	-5.9	-8.1	2.8	-8.6	-31.9	-40.9	-17.3	-40.9
Public works	27.3	-12.3	-24.8	10.8	-24.9	-36.0	-0.9	-4.9	-29.7	-41.0	-14.9	-47.1
Private works	10.5	27.1	18.9	14.1	6.4	8.1	9.2	-14.4	-35.7	-40.8	-20.7	-27.8
Retail sales	6.5	8.2	-0.5	-0.1	-7.0	-7.9	0.8	3.7	1.5	0.8	-3.0	-4.0
Wholesales	4.0	-0.6	-9.3	-2.0	-0.8	-19.4	0.4	-3.8	3.1	5.9	1.9	-3.1
Total Employment	5.3	5.5	5.6	4.7	4.8	3.2	0.8	2.8	4.0	3.4	2.0	1.3
Permanent	5.0	4.7	4.9	4.4	4.7	3.7	1.2	1.9	3.2	3.4	2.9	2.5
Temporary (urban)	7.9	12.6	11.3	7.0	5.3	-0.6	-1.6	9.7	10.2	3.2	-4.4	-7.5
Total air traffic (passengers transport)	2.9	3.8	-1.4	-3.7	2.9	6.1	14.5	15.8	13.4	11.5	6.6	8.5
Federalized resources***	5.3	0.1	3.1	-0.2	5.4	57.2	2.1	0.7	-4.3	-3.8	7.9	25.3
Participations (Branch 28)	6.9	-0.8	-2.1	-3.3	10.2	0.5	1.3	2.0	-5.5	-7.0	7.9	6.1
Contributions (Branch 33)	3.3	1.2	9.8	3.8	-5.4	39.0	3.0	-0.6	-3.1	-0.6	-5.2	11.4
Foreign Direct Investment (millions of USD)	158.7	27.4	-16.6	63.1	-7.9	-16.9	426.2	288.2	72.2	351.4	154.4	107.7

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 23

Region: Medium Development*

	Campeche						Colima					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	-3.3	-0.2	2.3	-0.8	0.0	nd	7.9	4.2	5.7	0.0	-1.3	nd
Primary Sector	-8.4	6.6	-2.9	-12.4	10.0	nd	12.7	-12.6	-4.4	-1.9	13.4	nd
Secondary Sector	-4.2	-0.8	1.9	-1.0	-0.3	nd	14.9	4.4	8.0	-4.9	-11.9	nd
Tertiary Sector	5.2	4.6	6.0	1.0	2.6	nd	4.7	5.6	5.5	2.3	2.8	nd
Manufacturing production	2.7	-2.2	-2.2	8.5	20.6	13.1	4.8	2.6	-6.0	3.7	1.3	-9.2
Construction	-3.9	10.9	14.4	10.7	15.5	16.9	26.0	-20.1	-16.8	-30.4	-30.5	8.3
Public works	-2.5	14.9	12.5	13.7	15.5	19.4	35.1	-26.4	-20.0	-34.5	-46.2	4.2
Private works	-14.5	-23.9	62.6	-21.1	16.8	-11.4	7.2	-3.7	-9.4	-22.7	12.7	13.8
Retail sales	1.8	1.5	4.0	-0.1	2.3	-0.5	3.2	2.0	-4.3	-4.4	-1.2	-2.6
Wholesales	7.4	5.5	-2.9	-8.9	-14.4	-12.7	19.1	-3.2	-29.4	-22.4	-18.3	-14.4
Total Employment	5.5	10.6	12.7	9.1	6.8	4.8	6.0	2.4	3.7	3.9	3.8	2.6
Permanent	5.5	10.9	11.5	6.7	5.3	3.3	4.3	1.5	2.7	3.4	4.1	3.4
Temporary (urban)	5.4	9.3	17.6	19.9	13.0	10.9	14.9	6.7	8.6	6.1	2.0	-1.0
Total air traffic (passengers transport)	5.2	18.9	20.7	3.5	18.9	5.9	8.3	24.4	15.1	10.6	11.3	61.1
Federalized resources***	3.3	5.1	-2.3	-6.8	-2.0	28.0	4.8	1.8	-2.2	-5.4	-1.8	32.5
Participations (Branch 28)	2.8	8.5	-2.3	-9.1	-2.1	5.9	6.6	2.1	-2.7	-6.2	-2.3	2.6
Contributions (Branch 33)	3.8	1.5	-2.2	-3.9	-7.2	5.3	3.3	1.5	-1.8	-4.7	-5.0	10.8
Foreign Direct Investment (millions of USD)	67.2	136.1	-4.6	7.6	30.0	4.7	25.4	45.3	261.4	834.7	440.1	405.2

	Durango						Guanajuato					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	4.2	3.7	4.9	0.3	-2.3	nd	5.6	4.0	5.4	1.6	2.9	nd
Primary Sector	-9.4	14.5	16.6	5.7	-1.0	nd	4.0	-1.1	0.8	1.8	-11.0	nd
Secondary Sector	9.9	-0.4	-0.2	0.7	-7.2	nd	6.2	4.7	8.5	0.6	4.3	nd
Tertiary Sector	3.0	4.9	6.3	-0.6	0.7	nd	5.4	3.9	3.9	2.2	3.2	nd
Manufacturing production	1.6	2.7	0.4	-0.7	-4.7	1.2	2.5	6.0	12.2	3.0	5.2	5.3
Construction	25.4	-19.6	-19.6	31.0	-5.1	6.8	26.1	27.5	21.3	10.3	21.3	17.2
Public works	24.8	-29.1	-25.0	57.7	-21.3	-3.5	22.1	15.4	17.4	10.3	21.2	10.9
Private works	27.1	4.7	-7.1	-9.3	27.9	22.3	29.1	36.1	24.4	10.4	21.4	21.2
Retail sales	2.6	5.2	2.9	7.2	3.3	1.6	5.1	5.5	2.1	-3.9	-5.1	-7.1
Wholesales	-4.7	-2.5	-5.8	-5.6	-8.7	-9.2	8.1	-0.8	-2.3	-8.9	-6.8	6.1
Total Employment	4.8	8.0	9.1	6.8	3.2	0.4	5.3	5.6	5.2	5.2	5.3	5.6
Permanent	3.8	6.2	7.0	6.4	4.8	2.5	4.6	4.7	4.6	4.5	5.3	5.7
Temporary (urban)	13.2	22.2	25.0	9.1	-8.4	-13.4	11.4	12.2	9.7	10.1	5.6	4.5
Total air traffic (passengers transport)	9.6	7.9	3.6	-5.2	-3.5	4.3	0.5	11.0	9.2	2.5	-0.9	5.0
Federalized resources***	3.6	1.2	-0.5	-2.8	6.1	30.7	8.2	0.0	2.6	-2.4	13.8	29.2
Participations (Branch 28)	4.2	1.7	-3.5	-4.9	11.5	7.9	9.9	-0.8	-4.3	-8.1	10.3	10.9
Contributions (Branch 33)	3.3	0.9	1.4	-1.5	-5.2	11.3	6.6	0.8	8.9	3.8	0.0	14.2
Foreign Direct Investment (millions of USD)	159.3	335.8	209.6	21.7	5.4	-21.5	692.0	1556.1	111.6	374.8	435.2	205.7

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 24

Region: Medium Development*

	Hidalgo						Michoacán					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	5.4	3.0	2.9	2.0	2.0	nd	3.9	1.9	2.0	2.6	0.8	nd
Primary Sector	-13.5	16.5	25.1	5.0	8.9	nd	10.6	4.9	3.5	19.4	0.8	nd
Secondary Sector	7.2	2.1	0.3	1.5	-0.3	nd	-0.2	-2.0	-0.1	2.9	-2.1	nd
Tertiary Sector	5.3	2.9	3.3	2.3	3.6	nd	4.6	3.0	2.5	0.2	1.8	nd
Manufacturing production	3.3	1.4	1.7	-1.7	-1.2	-1.9	-6.2	-2.8	5.7	7.8	5.8	12.6
Construction	-0.4	13.6	8.1	-8.1	4.4	12.2	15.3	-9.3	-22.0	-19.1	-29.2	-33.1
Public works	14.3	20.8	20.1	10.6	0.4	-11.9	-4.5	6.9	-12.1	-46.3	-33.1	-37.3
Private works	-11.2	6.8	-3.3	-23.2	8.4	45.2	33.6	-20.0	-29.8	13.6	-26.9	-29.8
Retail sales	nd	nd	nd	nd	nd	nd	7.8	3.3	-0.3	-2.4	-3.3	-5.0
Wholesales	nd	nd	nd	nd	nd	nd	-1.7	-7.1	-11.0	-7.8	9.0	13.5
Total Employment	7.6	5.0	3.6	3.5	3.3	3.1	3.4	2.0	1.5	1.6	-0.7	-0.7
Permanent	3.6	3.1	2.9	2.6	3.0	2.3	2.6	2.3	2.7	2.6	-1.2	-1.8
Temporary (urban)	25.8	12.1	6.0	6.5	4.3	5.7	9.1	-0.2	-6.8	-5.0	2.6	7.0
Total air traffic (passengers transport)	na	na	na	na	na	na	-10.7	9.5	3.1	-0.2	-3.7	9.4
Federalized resources***	5.2	1.9	-1.6	-2.9	9.1	17.8	5.8	-1.2	9.5	-1.6	12.0	21.7
Participations (Branch 28)	8.2	3.8	-5.8	-5.4	10.5	8.3	7.9	-0.7	-4.1	-4.7	14.5	9.9
Contributions (Branch 33)	3.4	0.7	1.2	-1.0	-2.6	6.7	4.4	-1.6	20.6	1.0	-2.6	10.2
Foreign Direct Investment (millions of USD)	54.7	9.0	0.5	0.2	60.9	31.0	37.9	20.0	10.0	14.1	48.9	18.7

	Morelos						Nayarit					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	6.0	4.5	2.7	0.3	1.0	nd	2.8	-0.1	1.5	8.9	1.6	nd
Primary Sector	-3.5	0.2	8.2	19.0	5.2	nd	17.6	-2.1	-2.7	-4.5	-4.4	nd
Secondary Sector	9.1	2.7	-5.4	-1.6	-1.0	nd	-3.3	1.7	14.6	30.6	-4.4	nd
Tertiary Sector	5.1	5.6	6.5	0.6	1.8	nd	3.1	-0.4	-1.2	5.4	4.2	nd
Manufacturing production	17.3	9.5	2.4	-1.8	8.4	0.2	3.4	-0.3	-0.5	2.0	2.8	-3.3
Construction	-6.1	-7.4	3.7	-25.6	-16.8	-40.9	7.0	13.3	24.4	41.9	-14.1	-20.6
Public works	-32.1	49.5	166.1	-46.5	41.3	-55.3	-5.5	30.3	52.9	52.7	-26.0	-34.0
Private works	2.3	-19.6	-11.3	-15.3	-36.4	-33.4	30.9	-10.1	-7.4	22.1	9.5	10.4
Retail sales	2.0	3.5	-1.9	-8.1	-1.6	-1.4	nd	nd	nd	nd	nd	nd
Wholesales	-1.0	28.9	28.1	6.6	-6.1	-3.0	nd	nd	nd	nd	nd	nd
Total Employment	4.7	5.1	4.6	3.0	2.3	1.8	3.2	3.7	5.1	2.5	0.5	-1.9
Permanent	4.3	4.7	4.2	3.1	3.4	3.1	3.9	2.7	2.8	0.7	-0.3	-1.9
Temporary (urban)	7.4	8.1	7.6	2.6	-4.9	-6.3	-0.5	8.1	16.6	11.6	4.4	-1.9
Total air traffic (passengers transport)	266.7	45.3	104.6	87.0	8.7	-58.7	16.5	15.7	77.1	68.9	161.4	655.8
Federalized resources***	5.5	-2.1	-0.1	-3.0	5.8	23.8	3.6	1.3	2.3	-10.1	17.0	31.0
Participations (Branch 28)	7.8	-4.0	-5.3	-7.1	10.0	5.3	3.7	-0.4	-1.3	-7.2	12.4	7.3
Contributions (Branch 33)	3.6	-0.4	4.3	0.8	-6.5	10.5	3.5	2.5	5.1	-12.2	-4.9	13.6
Foreign Direct Investment (millions of USD)	106.4	5.3	2.0	8.2	23.5	1.3	107.3	91.3	10.8	27.4	39.7	24.2

* All indicators, except Foreign Direct Investment, are real annual percentage changes

** Quarterly Indicator of Economic Activity Statewide (Indicador Trimestral de la Actividad Económica Estatal) *** Includes only federal participations and contributions

na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 25

Region: Medium Development*

	Puebla						San Luis Potosí					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	5.4	6.5	6.3	1.3	2.5	nd	5.6	6.8	5.9	1.0	2.1	nd
Primary Sector	-3.6	10.8	15.5	1.1	-2.1	nd	-9.3	6.2	13.2	1.4	34.2	nd
Secondary Sector	6.8	10.6	9.4	-1.5	0.1	nd	7.7	10.4	10.0	1.0	-0.2	nd
Tertiary Sector	5.3	4.0	3.9	2.8	4.3	nd	5.0	3.9	2.3	1.0	1.9	nd
Manufacturing production	7.9	9.4	8.5	-1.8	1.5	-15.7	11.1	11.7	8.9	-0.2	-1.3	-6.8
Construction	-15.8	23.3	11.2	-30.8	-32.9	-5.6	2.6	6.6	27.7	24.1	48.2	61.9
Public works	-18.9	57.4	20.4	-43.5	-54.4	-34.2	-31.6	55.3	117.8	70.5	99.5	76.1
Private works	-13.0	-6.1	1.4	-11.6	8.1	24.9	26.8	-12.1	-3.9	5.5	17.0	48.1
Retail sales	4.4	3.8	0.3	-1.6	1.3	-3.5	4.6	8.1	2.4	1.4	1.0	-0.3
Wholesales	-2.1	-3.5	-5.5	-3.6	-2.0	-2.3	4.9	1.6	-11.8	-12.7	-13.9	-12.6
Total Employment	4.4	5.6	5.4	4.0	3.9	2.7	6.5	5.5	4.3	4.1	4.9	4.8
Permanent	3.4	5.1	4.8	3.2	3.5	3.2	5.1	4.8	3.7	3.2	4.0	4.4
Temporary (urban)	10.4	9.0	9.5	8.9	6.6	-0.8	15.6	9.8	7.4	9.7	10.4	7.3
Total air traffic (passengers transport)	-33.2	25.6	25.9	6.2	5.7	16.9	8.1	11.6	2.8	-6.3	-2.1	4.8
Federalized resources***	4.7	3.5	0.1	-5.4	30.3	11.8	4.2	0.3	0.8	-3.8	7.2	37.3
Participations (Branch 28)	3.4	2.8	-1.6	-5.4	14.7	11.6	6.3	1.0	-6.2	-8.4	9.2	13.9
Contributions (Branch 33)	5.7	4.1	1.5	-5.4	6.6	9.9	2.8	-0.1	5.6	0.0	-4.4	11.5
Foreign Direct Investment (millions of USD)	4236	4035	733	4799	-439	2966	162.7	85.5	51.2	109.7	45.1	152.3

	Sinaloa						Tabasco					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	0.8	3.9	2.9	-2.2	0.2	nd	5.0	2.6	0.3	-3.4	-5.6	nd
Primary Sector	-11.5	14.8	-7.3	-15.7	-13.5	nd	-1.5	13.8	21.0	3.2	1.1	nd
Secondary Sector	-2.1	-1.7	4.9	-2.2	-0.8	nd	5.1	1.8	-1.1	-4.9	-9.0	nd
Tertiary Sector	4.2	4.2	4.4	1.3	2.9	nd	5.2	4.1	3.1	0.3	3.1	nd
Manufacturing production	1.2	2.9	1.7	-1.5	-3.3	0.8	10.6	0.7	8.9	17.1	0.7	21.5
Construction	-10.5	-25.5	-11.4	-20.8	-9.0	-27.7	19.8	26.0	12.4	-3.2	-19.8	-10.8
Public works	0.7	-29.4	-25.0	-23.5	-7.5	-26.7	13.7	27.1	19.6	-16.9	-48.9	-37.5
Private works	-22.0	-20.4	12.3	-17.6	-11.1	-28.8	47.8	22.5	-9.6	34.5	97.6	91.9
Retail sales	5.2	7.2	2.5	2.9	2.1	2.8	4.7	3.2	4.4	-0.3	1.8	0.2
Wholesales	-14.4	2.4	2.9	-8.3	-16.3	-22.3	4.2	-2.1	-10.7	-7.0	2.4	3.4
Total Employment	2.5	4.4	4.2	4.0	2.6	1.6	5.6	8.3	7.3	4.3	5.2	5.4
Permanent	2.3	3.6	3.5	3.3	2.4	1.6	3.7	6.5	5.8	4.6	6.7	6.3
Temporary (urban)	4.7	11.3	10.1	10.0	4.0	2.3	15.5	17.1	14.1	2.6	-1.5	1.3
Total air traffic (passengers transport)	-2.9	1.5	4.1	5.7	7.6	8.0	17.1	12.8	10.0	3.2	6.9	7.1
Federalized resources***	3.6	1.6	2.3	-4.5	10.0	15.2	2.4	1.9	-0.6	-4.1	-0.8	29.5
Participations (Branch 28)	2.7	1.6	-3.7	-8.9	8.3	-0.6	0.5	4.3	-1.8	-5.6	-0.5	5.4
Contributions (Branch 33)	4.4	1.6	8.0	0.4	-3.6	13.3	5.6	-1.7	1.4	-1.5	-5.7	10.9
Foreign Direct Investment (millions of USD)	78.7	114.6	4.4	65.0	20.6	4.4	6.7	79.1	71.3	86.9	9.8	7.1

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na = does not apply; nd = not available

Source: INEGI, STPS, Sector, SHCP and SE

Table 26

Region: Medium Development*

	Tlaxcala						Veracruz					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	4.6	3.5	3.8	0.4	-0.4	nd	2.5	3.0	1.3	-0.2	0.3	nd
Primary Sector	-35.9	61.6	92.3	22.2	-15.9	nd	1.6	3.4	4.4	-7.4	14.5	nd
Secondary Sector	11.9	0.0	-3.8	-3.0	-0.3	nd	1.2	2.1	-3.1	-1.7	-2.4	nd
Tertiary Sector	3.2	3.1	3.0	2.0	1.0	nd	3.7	3.6	4.6	1.9	1.3	nd
Manufacturing production	13.9	0.0	0.1	-0.1	5.7	0.3	0.7	0.2	-5.3	1.7	2.8	-1.3
Construction	-31.0	10.5	-20.6	-61.5	-46.6	4.2	-9.2	11.1	12.1	-3.2	0.5	13.0
Public works	-50.7	-1.3	-30.8	-63.2	-53.7	21.0	-14.8	21.8	23.0	-5.9	6.3	20.1
Private works	46.1	26.1	-12.8	-58.2	-31.7	-5.0	4.0	-9.7	-10.7	4.0	-13.7	-4.7
Retail sales	nd	nd	nd	nd	nd	nd	3.5	4.5	1.7	-2.1	-3.1	-2.8
Wholesales	nd	nd	nd	nd	nd	nd	-3.3	-4.5	-11.3	-13.6	-10.6	-8.5
Total Employment	4.3	4.8	7.1	6.7	6.1	4.1	1.8	4.8	4.8	3.4	2.6	1.7
Permanent	2.1	4.4	6.0	6.0	5.9	3.9	2.5	4.2	4.7	3.8	2.6	1.7
Temporary (urban)	14.8	6.4	12.0	9.8	7.1	4.8	-1.8	8.3	5.7	1.0	2.9	2.0
Total air traffic (passengers transport)	na	na	na	na	na	na	2.9	6.3	10.3	13.2	14.8	11.3
Federalized resources***	4.7	1.9	1.5	-3.0	3.3	32.2	5.7	-0.4	-4.6	-7.4	20.5	16.2
Participations (Branch 28)	4.6	0.0	-5.0	-7.0	4.5	7.1	7.8	-1.5	-6.7	-8.9	10.7	8.0
Contributions (Branch 33)	4.8	3.5	6.8	0.6	-3.8	12.4	4.0	0.5	-2.8	-6.0	0.5	9.1
Foreign Direct Investment (millions of USD)	84.3	34.4	14.8	18.0	3.4	-3.4	95.3	43.9	-4.6	83.6	58.9	11.9

	Yucatán						Zacatecas					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	2.7	3.3	2.7	-1.7	0.5	nd	1.9	5.4	1.6	-6.0	-3.8	nd
Primary Sector	2.1	0.9	-3.2	1.5	0.9	nd	-15.8	27.5	43.8	17.1	-8.9	nd
Secondary Sector	-0.7	1.5	0.3	-9.1	-5.5	nd	4.4	4.3	-8.3	-14.3	-9.6	nd
Tertiary Sector	4.6	4.4	4.3	2.1	3.6	nd	3.1	3.0	2.0	0.3	2.3	nd
Manufacturing production	0.7	-4.3	-4.2	-4.0	-3.3	3.0	-4.0	-2.6	-9.1	-7.7	-1.4	1.7
Construction	-2.8	47.0	43.0	-12.5	-40.3	-23.4	10.5	-14.4	-26.7	-36.8	-7.5	-5.5
Public works	-19.9	18.8	6.0	-60.3	-69.8	-13.3	9.0	-20.7	-38.6	-11.2	-9.8	-10.5
Private works	18.7	70.9	76.2	21.9	-19.2	-27.2	12.1	-7.9	-17.3	-54.0	-4.5	1.4
Retail sales	4.6	3.5	2.0	3.0	1.8	-1.0	3.0	6.6	1.9	1.5	-1.1	-1.6
Wholesales	1.4	3.1	-1.0	-4.7	-3.5	-2.9	1.5	0.5	-5.0	-7.6	-3.7	-6.5
Total Employment	2.9	4.4	4.2	3.3	3.5	4.0	4.6	4.0	3.6	2.7	2.8	2.0
Permanent	2.1	4.2	4.3	3.4	3.3	3.6	2.1	4.2	4.3	3.4	3.3	3.6
Temporary (urban)	12.4	6.7	3.3	2.6	5.2	8.5	15.2	6.1	1.1	-3.7	-0.9	-2.5
Total air traffic (passengers transport)	7.7	1.3	-4.6	-0.2	4.8	7.9	-7.9	2.8	-13.2	-11.5	-5.9	-21.7
Federalized resources***	4.4	2.6	-0.4	-4.9	20.5	23.3	4.7	-1.6	-6.6	-2.9	6.3	20.7
Participations (Branch 28)	4.6	1.2	-2.7	-5.3	12.0	18.8	6.1	-2.6	-3.7	-5.1	11.5	6.2
Contributions (Branch 33)	4.3	3.7	1.6	-4.6	2.3	6.0	3.7	-0.8	-8.6	-1.5	-6.0	7.6
Foreign Direct Investment (millions of USD)	69.9	26.8	2.4	5.2	6.3	20.2	36.6	144.2	5.2	-7.4	61.6	574.1

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Source: INEGI, STPS, Sector, SHCP and SE

Table 27

Region: Low Development*

	Chiapas						Guerrero					
	2011	2012	4Q12	1Q13	2Q13	3Q13	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	3.1	1.4	1.6	-5.2	-1.3	nd	0.5	1.2	2.3	-0.7	-1.0	nd
Primary Sector	4.7	-0.6	1.2	-4.0	6.8	nd	3.2	-2.7	-0.4	2.1	0.8	nd
Secondary Sector	-0.7	0.0	-0.1	-15.7	-9.6	nd	-5.4	-1.3	1.9	1.0	-4.4	nd
Tertiary Sector	4.9	2.4	2.5	0.0	1.9	nd	2.2	2.2	2.7	-1.3	-0.1	nd
Manufacturing production	-1.9	6.1	19.3	-1.1	2.2	0.9	8.8	3.4	2.0	1.0	1.3	3.2
Construction	-8.4	13.3	26.1	-41.8	-44.4	-64.4	-6.3	-23.0	-30.4	-8.2	2.4	35.7
Public works	-14.2	13.7	24.5	-54.9	-66.4	-61.1	-6.1	-17.2	-10.0	0.4	23.7	88.3
Private works	6.9	12.5	30.3	-7.1	9.1	-69.4	-6.6	-29.6	-48.3	-18.4	-23.4	-38.8
Retail sales	5.2	4.2	0.9	-6.2	-5.2	-7.8	-3.4	2.9	5.1	0.0	-5.0	-2.5
Wholesales	-2.9	1.6	6.7	1.1	-0.5	-6.2	-7.5	-12.1	-9.9	-10.7	-7.9	-14.8
Total Employment	4.5	4.8	4.4	1.4	0.2	-1.9	-0.3	-0.6	2.1	3.0	3.0	3.7
Permanent	4.6	4.7	4.9	3.1	2.0	-0.3	-0.2	-0.6	1.6	2.4	4.1	4.5
Temporary (urban)	3.5	5.9	-0.9	-13.6	-15.7	-16.4	-1.1	-0.6	4.2	5.5	-1.4	0.5
Total air traffic (passengers transport)	15.2	-1.9	1.6	0.5	7.1	10.4	-13.1	-7.3	-2.7	2.2	3.8	9.3
Federalized resources***	5.4	10.0	4.4	-1.8	4.9	19.7	5.9	2.4	5.1	0.0	41.8	-73.4
Participations (Branch 28)	5.3	2.5	-3.3	-5.9	7.4	4.7	11.1	1.1	-4.8	-7.5	10.7	5.9
Contributions (Branch 33)	5.4	15.4	10.3	1.1	-2.3	8.8	3.6	3.0	10.2	4.0	22.4	-18.1
Foreign Direct Investment (millions of USD)	0.0	9.8	23.3	45.0	779.7	359.4	279.0	496.8	211.1	347.1	110.9	90.0

	Oaxaca					
	2011	2012	4Q12	1Q13	2Q13	3Q13
Economic Activity (QIEAS**) Total	4.6	3.3	5.4	4.3	4.9	nd
Primary Sector	1.4	3.9	9.7	13.3	23.4	nd
Secondary Sector	11.6	5.6	8.4	8.9	5.9	nd
Tertiary Sector	1.8	2.2	3.5	1.3	3.0	nd
Manufacturing production	3.3	-5.5	-14.6	4.9	6.5	11.7
Construction	16.1	23.3	7.4	-16.2	-19.5	2.3
Public works	8.5	11.0	-16.5	-38.6	-28.6	-19.9
Private works	70.5	79.2	193.3	36.2	13.0	80.5
Retail sales	-1.1	7.7	6.3	0.2	3.5	-0.5
Wholesales	-3.1	6.3	6.6	-2.6	4.8	0.4
Total Employment	2.5	5.7	6.6	5.0	5.4	3.4
Permanent	2.1	3.6	4.3	4.0	3.8	3.5
Temporary (urban)	5.6	21.2	22.2	11.9	16.0	2.4
Total air traffic (passengers transport)	2.7	13.3	6.3	16.2	7.4	8.1
Federalized resources***	4.8	2.1	6.7	2.3	4.7	26.1
Participations (Branch 28)	6.8	2.0	-3.7	-6.3	13.1	11.2
Contributions (Branch 33)	3.8	2.2	15.7	6.5	-1.0	9.5
Foreign Direct Investment (millions of USD)	42.8	68.8	0.1	3.9	6.5	33.2

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