



Sectorial Observatory

July 8, 2009

Which states will be most affected by the recession?

How has the recession in the USA impacted on federal states? During the first stage, the sharp contraction in manufacturing activity, particularly in the motor vehicle industry (which led to requests for state aid from the US government by the main manufacturers), had significant repercussions on the states where the assembly plants are located, and on states in the north of the country where there are many bonded assembly plants. However, these have not been the only impacts. Since the end of 2008 the effects have spread to other sectors. In some cases this could result in lower activity for the country and specific regions in the short term, but this could also represent an investment opportunity due to the major restructuring faced by the US motor vehicle industry.

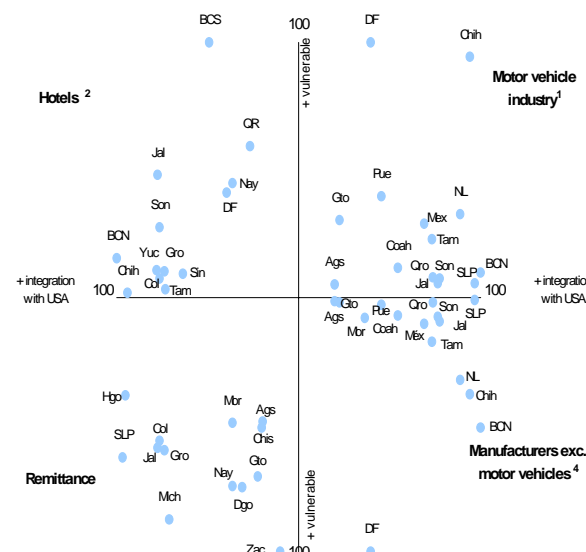
In this article we analyze the ways in which states are linked to the US economy and we develop an analytical tool to identify and quantify the main risks in the current environment, and to estimate the potential size of the resulting impact on state GDP. The approach adopted complements and reinforces the analysis and conclusions which were presented on this issue in the Regional Sector Watch magazine for May 2008¹.

The sources of links to the USA

What is the transmission mechanism through which the US business cycle impacts on the economies of Mexican states? The answer to this question depends on the type of activity prevalent in the state, its production areas and/or geographic location. We can identify at least four activities which are linked to the USA: bonded assembly plants, the vehicle industry, tourism (and property development for foreigners near the beach) and the sending of remittances.

In the case of industrial activity (bonded assembly and the motor vehicle industries), the major connections come from flows of foreign investment. There are fifteen states which have received foreign investment flows in manufacturing activities (including motor vehicles) over the current decade; in order of importance, these are: Federal District, Chihuahua, Puebla, Guanajuato, Nuevo León, State of Mexico, Tamaulipas, Coahuila, Baja California, Sonora, Jalisco, San Luis Potosí, Querétaro, Morelos and Aguascalientes. It should come as no surprise that these states are also the ones which, over the current decade, have either reinforced their links with the US economy, or have taken advantage of NAFTA, the North

Identifying risks with the USA at state level
(Scale 0 to 100)



¹US FDI in motor vehicle industry (accumulated 1999-2008)

²FDI in Hotels and housing trusts in restricted areas (accumulated 1999-2008)

³Proportion of households with income from remittances greater than national

⁴US FDI in manufacturing excluding motor vehicle industry (accumulated 1999-2008)

Note: The scale of integration with the USA is taken from a study published in the Regional Sector Watch, May 2008.

¹ Available online at the website of the BBVA Economic Research Department
(serviciodeestudios.bbva.com)

American Free Trade Area, since the outset (see the article on ties to the United States in Regional Sector Watch, May 2008).

Thirteen states have significant investment flows relating to tourism and residential investment for foreigners²: Baja California Sur, Quintana Roo, Nayarit, Jalisco, Sonora, Federal District, Baja California, Yucatán, Guerrero, Sinaloa, Tamaulipas, Colima and Chihuahua.

Every state in the country receives income flows in the form of remittances, although some are more dependent on these than others. If we take as a criterion those where the percentage of households which regularly receive remittances is in excess of the national average (5%), we can identify thirteen states: Zacatecas, Michoacán, Durango, Nayarit, Guanajuato, San Luis Potosí, Guerrero, Jalisco, Colima, Aguascalientes, Chiapas, Morelos and Hidalgo.

One productive activity undertaken in every state which is directly linked to the business cycle in the USA is housing development. In those states where there is a significant presence of bonded assembly and/or motor vehicle plants, together with those geared to foreign tourism, housing acquisition in the medium and low income segments (which represent over 70% of total sales) is directly linked to the US cycle.

Building a scale of risks

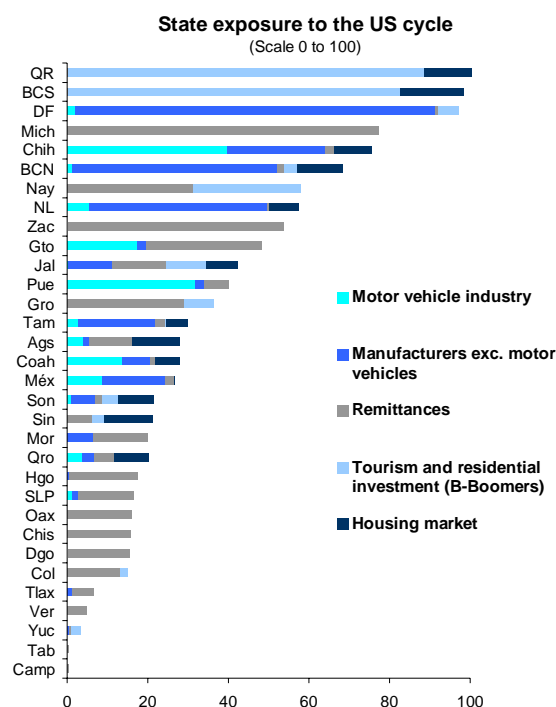
Having identified the forms of exposure, the next step is to quantify the relative importance of these for each state. Business censuses enable us to approximate the importance of housing, manufacturing, the motor vehicle industry and tourism for state economies. In the case of remittances, the relative importance of these can be obtained by comparing such flows with state GDP.

The sum of the risks, weighted by their relative weight, provides a homogeneous measurement –which to date has not been thoroughly explored- of the exposure of each state to the US business cycle. The results are nevertheless interesting. Using a scale of 0 to 100, the states with the most significant exposure to the USA –practically at the same level- are those which are strongly exposed to the tourism industry. In both cases, the main source of exposure is tourism (including residential developments for foreigners) and, to a much lesser extent, housing.

The Federal District is in third place in terms of relative exposure, although the most important component here is manufacturing activity, once the motor vehicle industry is excluded³. Michoacán has the fourth highest level of exposure, all of which comes from remittances, which is also the case for Zacatecas, which is in ninth place. The border states of Chihuahua, Baja California and Nuevo León are the next on the list; here the common factor is the diversification in the sources of risk. Chihuahua in particular is strongly exposed to the motor vehicle industry (almost 30 % of its GDP) and this contributes more than half of its exposure to the USA; in Baja California meanwhile, the majority of the risk is related to the large number of bonded assembly plants in the state.

² See Mexico Real Estate Watch for September 2007, which analyzed the potential demand for property for US retirees ("Baby boomers") through the legal format of housing trusts for foreigners in restricted areas. Available online at the website of the BBVA Economic Research Department (serviciodeestudios.bbva.com)

³ There will always be the debate about the over-representation of the Federal District, as this is the state where the investments are registered, even in the production takes place in another state. In other words, this is because of the concentration of parent companies in the Federal District. Whilst it is true that the largest foreign investments are concentrated in the Federal District -both for motor vehicles and for other manufacturing- this state also has a heavy concentration of manufacturing (excluding motor vehicles) – almost 16% of GDP).



In general, the states with the most diversification in their sources of links to the United States are to be found in the middle of the table. This is true for Guanajuato, Jalisco, Puebla (with a high concentration of motor vehicle manufacturing), Tamaulipas, Aguascalientes, Coahuila, the State of Mexico, Sonora, Sinaloa and Querétaro. Despite being in this block, Nayarit and Guerrero are both exceptions, as the risks here are only related to tourism and remittances.

San Luis Potosí is perhaps the only case where the classification shows a relatively low level of exposure compared to what it may well be in reality. This may be due in part to the strong growth in industrial activity in recent years not being fully reflected in the 2004 economic census (for example, the General Motors plant was only installed in 2008) and to the high levels of marginalization which still exist (reflecting the low level of welfare of a large part of the population).

With the exception of Zacatecas and Michoacán, the states at the bottom of exposure index list are those where the links to the United States come exclusively from remittances. This group -which includes Oaxaca, Chiapas, Durango (although the latter may have some impact from the industrial zone associated with the lagoon area), Colima (which also has some tourism from Manzanillo), Tlaxcala and Veracruz- has relatively low exposure to risks from the United States. The level of exposure in Yucatán is even lower, with tourism being the only component. Finally we have Tabasco and Campeche; these states are associated with primary industries and the oil industry, and have no apparent links to the United States; in other words, both of these states are not affected by what happens in the US economy. However, unfortunately for them, this does not necessarily put them in a better position than the other states, particularly when the main basis of their economies is the oil industry, where production levels have been falling off rapidly in recent years.

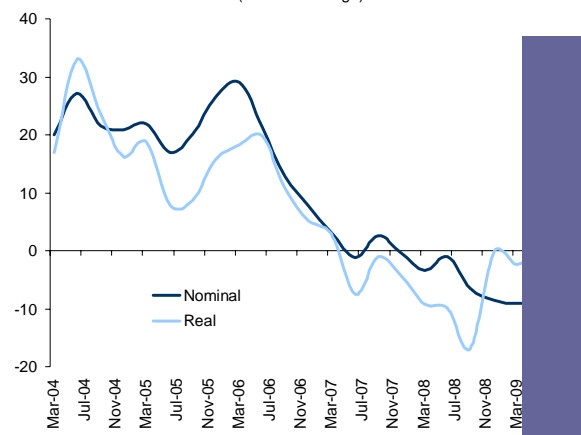
What could offset the impact of the crisis? It might be thought that the depreciation of the peso would have a favorable impact on exports and on tourism; however, in reality the former is overwhelmed by the fall in demand, whilst given the outbreak of flu the depreciation has only had a significant influence on tourism in the border region. The Bank of Mexico's international travelers account shows that in the first few months of the year, border crossings increased at rates of over 30% year-on-year, whilst revenue from tourists traveling by plane fell by between 5% and 10%. However, a positive effect from the depreciation can be seen in remittances; despite having fallen in dollar terms (by around 5% year-on-year in January-May), the value of these in pesos in real terms has increased.

Internal factors, such as private consumption and public spending, could potentially offset some of these effects, but not on this occasion where there have been significant job losses (310 thousand jobs lost in January-May) and substantial falls in tax collections (down 15% year-on-year in the period January-April). Federal resources (joint and direct expenditure) may represent up to 30% of GDP in some states, with the amounts involved being adjusted on a monthly basis based on the performance of tax collection and oil revenue, both of which are on downward trends. As a result the capacity for internal demand to contain the external shock has fallen significantly.

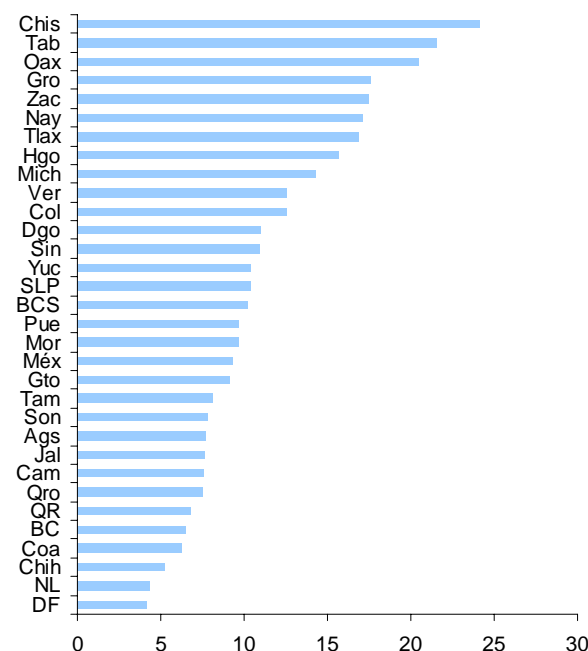
The result: significant differences in growth

Once we have taken into account the main factors associated with the United States which affect economic activity at the state level, and having included internal variables, such as private consumption and federal

The depreciation of the peso will offset the fall in remittances
(annual % change)



How important are federal resources*?
(% share of GDP, 2006)



* Items 28 and 33

Source: BBVA Bancomer with INEGI and SHCP data

transfers, we are in a position to estimate the relative performance of each state.

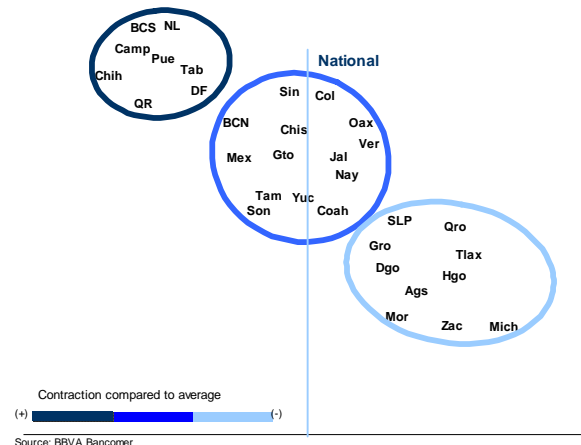
The figures show significant differences in the performance of state GDP in 2009. It is inevitable that all the states will contract; however, we can identify three groups based on the degree to which they are affected: greater than, similar to or less than the national average.

The first group includes Quintana Roo and Baja California Sur as a result of their high dependence on tourism and the significant falls in this sector in 2009; Chihuahua and Puebla, where the motor vehicle industry is very important (around 30% of GDP in both cases) and production levels could fall by as much as 60% this year; Campeche and Tabasco, states which are heavily dependent on the oil industry and state transfers, both of which are on downward trends (in the first quarter, oil production fell at a year-on-year rate over 15%, whilst federal resources fell by 7.5%); and the Federal District and Nuevo León, the states with the highest levels of development, where both industry and services are suffering from sharp contractions in demand.

At the opposite extreme, where the fall has been substantially lower than the national average, we find states where remittances play a significant role in GDP and are the main connection to the US; this group includes states such as Zacatecas, Michoacán, Durango, Hidalgo, Guerrero and Tlaxcala. This group also includes Querétaro, San Luis Potosí, Morelos and Aguascalientes where, despite there being some industry, remittances predominate⁴.

There are fourteen states where the fall in GDP is similar to the national average: Sinaloa, Colima, Chiapas, Oaxaca, Tamaulipas, the State of Mexico, Jalisco, Nayarit, Sonora, Yucatán, Baja California, Coahuila, Veracruz and Guanajuato.

Which institutions will suffer the recession most severely in 2009?
(Comparison of state GDP and national average)



⁴ In the particular cases of Querétaro and Aguascalientes, which are diversified in terms of exposure but which have significant manufacturing activity, the housing sector -which is performing better than national GDP (i.e. the fall is smaller)- is helping to offset the effects of the falls in industrial activity.

Conclusions: differences between states are likely to increase

Whilst the Mexican economy as a whole will be in recession in 2009, the impact of this will vary from state to state. By identifying and quantifying the exposure of each state to the United States we can assess their risk level, leading to a more informed debate about the issue. Estimates of state GDP for 2009 show that, while there will be a general fall throughout the country, Baja California Sur, Campeche, Chihuahua, the Federal District, Nuevo León and Quintana Roo could be the affected most sharply by the current crisis, due to large falls in tourism, the motor vehicle sector and oil production, which in turn have implications for other industries and services and public expenditure. However, on the other hand, despite falling in dollar terms, the depreciation of the peso means that remittances will increase in real peso purchasing power terms, and this could help to offset the external shock. According to our analysis, the states where GDP is likely to fall by less than the national average include mostly (though not exclusively) those where remittances are the sole connection to the United States.

References

Roache, Shaun K., Gradzka Ewa (2007). "Do Remittances to Latin America Depend on the U.S. Business Cycle?" IMF. September 2007.