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# Why isn't Mexico on China's Growth Path?

*¿Por qué Méjico no se halla en la senda de crecimiento de China?*
*Porque é que o México não está no Caminho do Crescimento da China?*

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*A growth accounting framework is used with data from the Penn World Table to disaggregate and compare economic growth in Mexico and China, 1953-2007. China surpasses Mexico in both the accumulation of physical capital and the growth of total factor productivity, implying that high savings rates are partially responsible for the growth differences, but additional forces are also important. The catalog of potential variables is lengthy; this paper concentrates on geography (location) and institutions. In particular, the ability of Chinese state and local officials to support economic growth is striking.*

*Se utiliza un marco de contabilidad del crecimiento con datos procedentes de la Tabla Mundial de Penn para desagrupar y comparar el crecimiento económico en Méjico y China, 1953-2007. China supera a Méjico tanto en acumulación de capital físico como en crecimiento del factor de productividad total, lo que implica que las elevadas tasas de ahorro son parcialmente responsables de las diferencias de crecimiento; no obstante, las fuerzas adicionales también son importantes. El catálogo de variables potenciales es amplio; este trabajo se concentra en la geografía (ubicación) y las instituciones. En concreto, la capacidad del estado chino y sus autoridades locales para respaldar el crecimiento económico es sorprendente.*

*É utilizada uma estrutura de contabilização do crescimento, com dados da Tabela Mundial Penn, para desagregar e comparar o crescimento económico no México e na China entre 1953-2007. A China ultrapassa o México, tanto na acumulação de capital físico como no crescimento do factor de produtividade total, o que implica que as elevadas taxas de poupança são parcialmente responsáveis pelas diferenças de crescimento, mas as forças adicionais também são importantes. O catálogo de variáveis potenciais é longo; este estudo concentra-se na geografia (localização) e nas instituições. Em particular, a capacidade do Estado chinês e dos responsáveis locais para apoiar o crescimento económico é surpreendente.*

# 1. Introduction: Mexico and China, similarities and differences

China's transformation from a socialist to capitalist economy and Mexico's role as a leading Latin American reformer have generated strong interest among policy makers and social scientists since at least the 1980s. While it is uncommon to compare China and Mexico, they have individually been the focus of a wide array of research related to their recent economic performance[1].Beginning in 1978, with Deng Xiao Ping's cautious opening and limited reforms, and intensifying after his Trip to the South in 1992, China's growth took off, making it one of the fastest and most sustained examples of economic growth in human history. Mexico's challenges were of a different sort, and the implementation of policy changes through the 1980s restored growth but did not turn Mexico into a "Latin American Tiger", on par with China or the other outstanding examples of high growth.

A comparison between China and Mexico is potentially valuable precisely for its ability to shed light on this aspect of Mexico's recent economic history. Why didn't Mexico become a "Latin American Tiger" after it implemented extensive reforms? Is China's experience relevant? While definitive answers are beyond the scope of this paper, my intention is to join the debate, first through an analysis of growth patterns and second by pointing to geographical and structural differences that are not easily captured with a growth model. Ultimately, China's lessons for Mexico and other countries must be filtered through the institutional and historical contexts of different places in different settings. Many of these differences are beyond the control of policy makers and will undoubtedly give rise to a wide range of explanations for different growth experiences, as has already begun with the debate between the proponents of the Washington Consensus and the Beijing Consensus—the latter of which is itself subject to some debate over its definition[2]. Nevertheless, we can deepen our understanding of Mexico's growth experiences if we hold them up to the light of China's remarkable growth record, looking for elements that might be duplicated and those that are beyond anyone's control.

The similarities between China and Mexico are perhaps more striking than might seem obvious at first glance. Both are large economies, whether measured by population or absolute GDP[3]. In the late 1970s and early 1980s, both abandoned the economic policies they had pursed for decades, and both turned towards greater reliance on market mechanisms as they began to strengthen and deepen their international economic integration. Both created regional growth that did not spread to the entire country and both experienced significant intra-country divergence of income levels among their states and provinces, particularly after 1990 in China (Kawakami, 2004) and 1985 in Mexico (Chiquiar, 2005).

Another similarity is the demographic transition experienced in both countries. China and Mexico each had significant declines in their population growth rates beginning in the 1970s, although Mexico's rate started its decline from a higher base and did not fall as

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1. China and Mexico have been the subject of a number of comparisons, for example Solinger (2009) compares the relationship between labor unions and the state and Lindau and Cheek (1998) compare political processes. Both center their research on the reform period.

2. See Ramo (2004) and Huang (2011).

3. According to Maddison (2010), Mexico is the 13th largest economy in the world and China is the 2nd largest when 2008 GDP is measured in terms of purchasing power parity. In population, Mexico ranks #11 and China #1 in the world.

far as China's (US Census Bureau, 2010). Declining birth rates are the norm in many parts of the world, and Mexico and China are not unique in this respect, but the economic significance cannot be overstated. The direct economic effect was the fall in dependency ratios (population under 15 plus population over 65 divided by total population). In the medium- to long-term it created an opportunity to raise per capita incomes, as the share of the population too young or too old to work has fallen rapidly. The decline in dependency ratios will continue until approximately 2015 in China and 2020 in Mexico, when growth in the over-65 population will begin to push the dependency ratios back up[4].

In other important ways, Mexico and China are very different. Most notably, 65 percent of Mexico's population lived in urban areas in 1978, while China's urban population was only 19 percent of its total. Consequently, agriculture's contribution to total GDP was around 28 percent in China and only 11 percent in Mexico (World Bank, 2010b). This key structural difference between the two economies enabled China to draw on a large, low skilled and low productivity, agricultural labor force as it built its industrial base. Beginning in the early 1990s with reforms in the *ejido* system and changes in its farm subsidy programs, Mexican agricultural policy sought to increase agricultural economies of scale and provide a means for reducing the size of the agricultural labor force. However, given that it began from a relatively smaller base of agricultural workers, the movement from low productivity agriculture into the cities and urban jobs did not have the same impact on GDP as occurred in China.

Another key difference, and one that will be examined in more detail later in the paper, is the geography of each country's global integration. China is surrounded by High Performance Asian Economies (HPAE)[5] while Mexico's windows and doors to the world economy are primarily a land border with the United States. Consequently, China's international trade is geographically diversified while Mexico's is concentrated, and China's is largely waterborne while Mexico's is land-based[6]. Both factors – location and land-versus-water – are relative disadvantages for Mexico.

This paper is an exercise in comparative economics. It is not intended as a set of policy prescriptions or as a recipe for higher growth. Rather, the intent is to examine and compare recent economic growth in China and Mexico with the purpose of finding a set of hypotheses about the causes of their different experiences. In the next section, I use data from Maddison (2010) and the Penn World Table (Heston, Summers, and Aten, 2009) to examine the growth records of both countries over the very long run. China's record looks even more remarkable when viewed historically, and the effect of market opening is clearly visible in the data from both countries. In Mexico's case, there is a striking difference between growth rates measured per capita and those measured per worker. This raises a number of questions about Mexico's economic reforms and their relationship to economic performance in the latter part of the 20th Century. In section 3, I use a basic Solow growth model to measure factor accumulation and, more importantly, total factor productivity (TFP) in both countries. Not

4. Data from the US Census Bureau's International Data Base implies that China's dependency ratio is 0.2656 in 2010, increases to 0.2708 by 2015 and trends upward thereafter; Mexico's ratio is predicted to be 0.3329 in 2020, 0.3345 in 2025, and trends up thereafter (US Census Bureau, 2010).

5. This is the World Bank's terminology (World Bank, 1993).

6. China's top export destination is the EU, which took 20.5 percent of its exports in 2008. Its largest single source of imports is Japan, at 13.3 percent. Mexico exported 80.3 percent of its goods and services to the US, and received 49.2 percent of its imports from the US, most of which were overland (World Trade Organization, 2010).

surprisingly, TFP appears to be the key to understanding each country's experience. Section 4 looks at both geographic and institutional factors, and offers several novel hypotheses about the differences in growth rates.

## 2. The growth record

China is not the only country that has recently grown at historically high rates. Michael Spence cites 12 current or recent examples of 25 or more years of 7 percent or higher growth: Botswana, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Malta, Oman, Singapore, Taiwan and Thailand (Spence, 2008). Each of these countries has had spectacular growth by historical world standards, yet China's size and the persistence of its growth in recent decades give it a different weight in world affairs and popular imagination. The only country with a recent growth record that comes close to generating a similar reaction on the world stage is Japan, but its relative stagnation since the 1990s, its higher income and wages, and its limited geo-political ambitions make its emergence as a leading economy less dramatic and less of a challenge to existing economic and political relationships than China's rapid growth.

According to data collected by Maddison (2010), China's GDP per capita in the mid-1970s was around 20 percent of the world's average; by 2008 it was over 88 percent. In contrast, Maddison's data shows Mexico losing ground after 1980, when it began a decline from 140 percent of world GDP per capita to just below 105 percent in 2008. Figure 1 shows the long run trajectory over time for both countries[7].

Figure 1: GDP per Capita Relative to the World Average
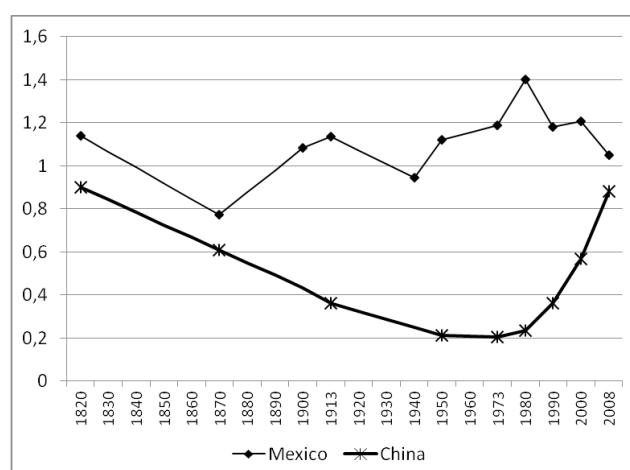


Source: Data from Maddison (2010).

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7. Maddison's estimates of GDP per capita are used here to give a broad historical picture. The rest of the paper uses data drawn from the Penn World Table.

The data in Figure 1 do not convey the range of year-to-year variation, which has been sig-nificant for Mexico in particular. Figures 2 and 3 show per capita GDP growth rates and per worker growth rates from 1957 to 2007, expressed as the average annual growth of the most recent five-year period. In effect, they are five-year moving averages of annual growth[8]. Using average growth over five-year periods smoothes out the data.

Figure 2:  Average annual growth rate of GDP per capita,
5 year moving averages, 1957-2007
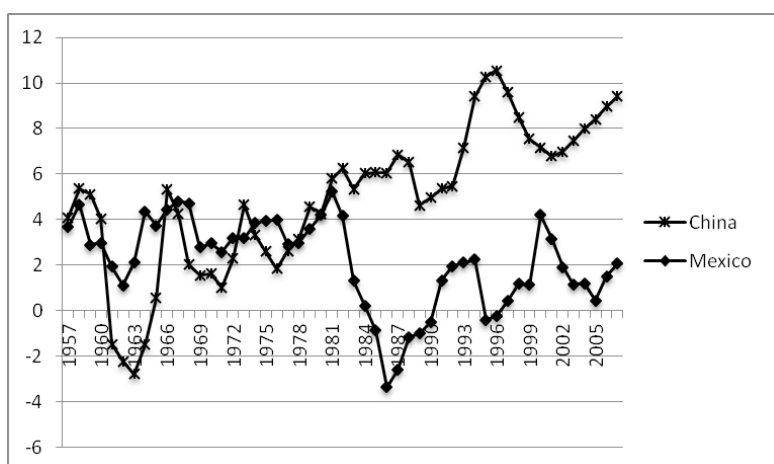


Source data:  Heston, Summers, Aten (2009).

Figure 3:  Average annual growth rate of GDP per worker,
5 year moving averages, 1957-2007
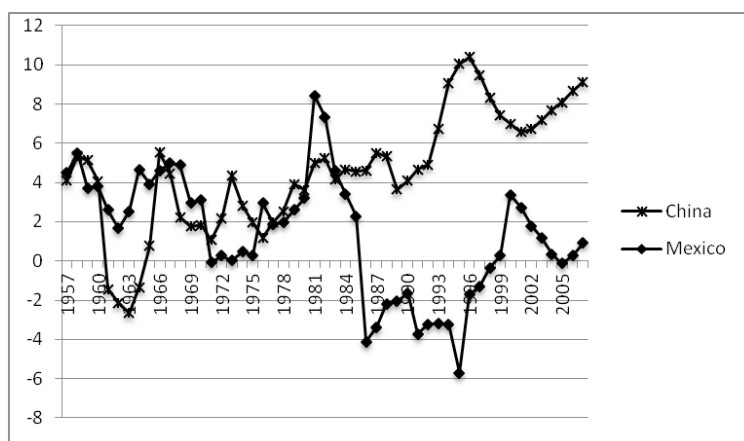


Source data:  Heston, Summers, Aten (2009).

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8. Averages are calculated as compound annual growth rates, g, where $Y_{t+5} = Y_t(1+g)^5$.

Both countries have better performance in their GDP per capita growth rates than in their per worker rates. In part, this reflects the declining dependency ratios in both countries and the growth of labor forces, which are faster than the growth of the overall population. A second feature of Figures 2 and 3 is the upward trend in China's average annual growth rate after approximately 1978 and the beginning of economic reforms. This shows up in both the per worker series and the per capita series. Third, Mexico's performance in both indicators deteriorates with the onset of the debt crisis and the Lost Decade in 1982. It is well known that growth rates after the 1980s recovered somewhat but remained far below their levels in the 1960s and 1970s, and this is apparent in the data, as well. Fourth, Mexico's gap between growth per capita and growth per worker is sizable throughout the period of recovery in the 1990s, with per worker rates falling significantly below per capita ones. Mexico in the 1990s had negative annual growth per worker with a large standard deviation (Appendix 1; García-Verdú, R., 2007, and Moreno Brid and Ros, 2009, note this as well).

Some of the productivity differences between Mexico and China are related to the sectoral composition of GDP. In 2009, China's manufacturing sector accounted for 34 percent of GDP on a value added basis, while Mexico's was half that at only 17 percent. Similarly, services in China contributed 43 percent of GDP, while in Mexico they were 61 percent (World Bank, 2011). China's relatively larger manufacturing sector and smaller services sector means that more workers are employed in areas of the economy where it is relatively easier to raise productivity and fewer workers where it is more difficult. This is particularly the case when considering Mexico's many small, low value added retailers that have absorbed a significant amount of both urban and rural labor.  And finally, while it is the case that China's agricultural sector is much larger (10 percent of GDP in 2009, compared to 4 percent in Mexico), the last three decades of declines in the relative importance of agriculture also favor China, since it began from a much larger base (30 percent of GDP in 1980 versus 9 percent in Mexico) and has been able to free up a sizable amount of low-productivity labor for employment in the much higher value added sectors of construction and manufacturing (World Bank, 2011).

## 3. Growth accounting

In this section, a standard Solow growth model is used to analyze the patterns in Figures 2 and 3. As a first approximation, output growth can be attributed to either factor accumulation (more capital and more labor) or to total factor productivity (more efficient use of inputs) or to some combination of the two. Increases in capital and labor, or more precisely, capital per worker and labor skills, is relatively easy to understand conceptually; increases in the efficiency of inputs is more difficult to specify concretely, and has a relatively wide range of interpretations. Easterly and Levine (2001) summarize the literature, noting that total factor productivity may reflect changes in technology, the role of externalities, changes in the sectoral composition of output, or the adoption of lower cost production methods. Empirical work that explores the relative importance of each of these factors across a sample of countries or through time is lacking.

A constant returns to scale Cobb-Douglas production function can be defined as $Y = AK^\alpha L^{(1-\alpha)}$, where Y is GDP, K is capital, L is labor, A is productivity, and α is capital's share of output, so that (1-α) is labor's share. The model expressed in this manner assumes that all labor is identical. The simplest way around this assumption is to incorporate a human capital component, $h$, which scales up the labor input based on the number of years of schooling a worker supplies. The production function then becomes $Y = AK^\alpha L^{(1-\alpha)}$. Dividing by L so that all variables are measured per worker, and letting lower case letters symbolize output and capital per worker,

(1) $y = Ak^\alpha h^{(1-\alpha)}$.

Taking logarithms and derivatives, we have:

(2) $\hat{y} = \hat{A} + \alpha\hat{k} + (1-\alpha)\hat{h},$

where ^ or "hat" implies rate of growth. Rearranging, we obtain:

(3) $\hat{A} = \hat{y} - \alpha\hat{k} - (1-\alpha)\hat{h}.$

Note that the rate of change of productivity is calculated as the residual. This allows a calculation of productivity's contribution to the growth in output.

In order to estimate (3), we need estimates of the rates of change of y (output per worker), k (capital per worker), and h (human capital per worker). In addition we need to know α, capital's share of total output. Estimates of output per worker for China and Mexico are available in the Penn World Table (Heston, Summers, and Aten, 2009). Human capital is measured by the average years of schooling of the population 15 and older. The Barro and Lee (2010) dataset contains estimates of the education attainment of the population 15 and above for China and Mexico (and for 144 other countries, in 5 year intervals, from 1950 to 2010). Estimates of k, capital per worker, are obtained by estimating the capital stock per worker in 1950 under the assumption that both countries are in their long-run steady states. Begin by defining the capital accumulation equation:

(4) $K_{t+1} = K_t(1-\delta) + I_t,$

where δ is the rate of depreciation (assumed to be 7 percent per year), and I is investment. The initial capital stock is given by the Solow steady state relationship, where Δk = 0. this implies

(5) $0 = \gamma y - \delta k,$

where ɣ is the investment rate. Equation 5 gives a reasonable estimate of the starting point and Equation 4 is used to estimate the annual change in the capital per worker ratio. The

difference between the actual and the estimated levels of capital per worker in the first year obtained with Equation 5 quickly becomes less important over time.

Table 1 contains estimates of $\hat{y}, (\alpha\hat{k}), (1-\alpha)\hat{h}, and\ \hat{A}$, where the growth rate of productivity is estimated as a residual based on equation 3. All variables are measured as annual average growth rates over five-year periods[9]. Looking first at China, the data show a strong bifurcation between the pre-reform period and the post-reform years, as expected. The rate of growth of output per worker jumps significantly (see also Figure 3), as does the rate of growth of TFP. Prior to the reforms, growth of GDP per worker was respectable, but afterwards it becomes remarkable. Growth in the pre-reform period, however, was due primarily to the accumulation of capital and labor skills rather than an efficiency increase in the use of inputs. Post-reform, TFP growth becomes a major contributor to overall labor productivity (output per worker), even as the growth rate of capital per worker increases.

Table 1: Rates of change of y, k, h, and A

| China | y hat | k hat | h hat | A hat |
|---|---|---|---|---|
| 1955-1960 | 4.05 | 5.36 | 4.56 | -0.78 |
| 1960-1965 | 0.76 | -0.65 | 4.02 | -1.63 |
| 1965-1970 | 1.82 | 2.09 | 4.31 | -1.71 |
| 1970-1975 | 1.95 | 3.84 | 2.93 | -1.29 |
| 1975-1980 | 3.62 | 4.50 | 3.67 | -0.33 |
| 1980-1985 | 4.56 | 4.68 | 2.02 | 1.60 |
| 1985-1990 | 4.09 | 5.62 | 1.40 | 1.22 |
| 1990-1995 | 10.04 | 7.53 | 2.64 | 5.69 |
| 1995-2000 | 7.00 | 8.24 | 2.09 | 2.75 |
| 2000-2005 | 8.09 | 8.44 | 1.41 | 4.22 |
| | | | | |
| Mexico | y hat | k hat | h hat | A hat |
| 1955-1960 | 3.79 | 3.53 | 1.30 | 1.71 |
| 1960-1965 | 3.91 | 3.61 | 2.74 | 0.86 |
| 1965-1970 | 3.12 | 4.44 | 2.34 | 0.04 |
| 1970-1975 | 0.29 | 2.32 | 3.13 | -2.55 |
| 1975-1980 | 3.20 | 2.88 | 3.36 | -0.49 |
| 1980-1985 | 2.28 | 2.49 | 3.22 | -0.68 |
| 1985-1990 | -1.63 | -0.35 | 2.23 | -2.96 |
| 1990-1995 | -5.70 | -0.65 | 2.13 | -6.86 |
| 1995-2000 | 3.37 | 0.20 | 1.38 | 2.41 |
| 2000-2005 | -0.13 | 0.42 | 1.96 | -1.55 |

Source: Author's calculations based Heston, Summers, Aten (2009) and Barro and Lee (2010).

9. Capital's share of the output, α, is assumed to be 0.35, which is a standard assumption in growth accounting exercises based on a large number of empirical estimates for different countries. Different values were assigned to α in order to check for robustness in the estimates; there was little quantitative impact within any range of reasonable estimates.

A major challenge for the Chinese economy is the fact that its capital per worker growth rate has increased significantly since approximately 1990, but the contribution of capital to output growth has slowed[10]. This implies diminishing marginal returns for capital accumulation but an increasing importance of TFP, which may have several sources. For example, Huang (2003) and Walley and Xia Xin (2006) argue that new techniques and spillover effects from FDI are critically important to Chinese growth. Naughton (2007) emphasizes the importance of structural change within the economy, as agriculture declines and manufacturing increases. Gereffi (2009) makes an argument based on location and geography in which the development of "supply chain cities" plays a critical role, by which he means both "super-firms" that bring together all the stages of manufacturing and the traditional idea of clusters. Super firms would be an example of internal economies of scale, while clusters, typically, refer to the notion of external economies in which information, labor skills, and parts suppliers are concentrated in one region and generate incentives for additional firms to locate in the same region (Marshall, 1920; Krugman and Venables, 1995).

Table 1 shows that capital accumulation declined significantly in Mexico from the 1980s onward. This is not surprising during the debt crisis of the 1980s, but it is unexpected for the 1990s and afterwards. In large part it must be the result of the strong demographic change and the decline in the dependency ratio. Since the growth rate of capital is measured per worker, by definition a negative number means that capital accumulation did not grow as fast as the labor force. However, China also experienced a similar demographic change and managed high and increasing rates of capital accumulation. Gross savings explains the difference in a macroeconomic sense, although it does not tell us how China managed to save an average of 42.5 percent of its GDP from 1985 to 2007 while Mexico saved 22 percent (World Bank, 2010b). Nor do the numbers explain how China turned its savings into productive physical capital.

The absence of TFP growth in Mexico is not a new discovery. Moreno Brid and Ros (2009) and Faal (2005) find similar results, and Moreno Brid and Ros (p. 231) state that "... it is customary to attribute Mexico's growth slowdown since the early 1980s to a weak growth performance of TFP". There are many potential causes of the weak TFP performance, including the collapse of the domestic market in the 1980s and again in 1995, the absorption of agricultural labor into the low productivity service sector, and the decline of public investment that is complementary to private investment (Moreno Brid and Ros, 2009). In addition, Dussel (2003) argues that the reduced import taxes on capital goods and intermediate manufactured goods weakened the development of domestic supply networks and limited the growth of the manufacturing sector. Finally, many writers have commented on the high level of concentration in the Mexican market, and the presence of market power in key industries such as telecommunications.

Whatever the cause, the numbers in Table 1 indicate a dramatic difference in the growth rates of TFP in China and Mexico after approximately 1980. The end result of these differences was the higher rates of growth of output, both in per worker and per person terms, which are visible in Figures 1, 2, and 3. Chinese income per person is still less than Mexico's (even when measured as purchasing power parity as in Figure 1), but the dramatic fall in the productivity gap ensures that the difference will not last for long.

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10. Capital's contribution to growth is calculated as (α*khat)/yhat, where α = 0.35.

We can make a direct comparison of productivity in Mexico and China in the following manner. Given the production functions for each country, $Y_m = A_m K_m^\alpha L_m^{1-\alpha}$ and $Y_c = A_c K_c^\alpha L_c^{1-\alpha}$, or in per worker terms and incorporating a human capital element, $y_m = A_m k_m^\alpha h_m^{1-\alpha}$ and $y_c = A_c k_c^\alpha h_c^{1-\alpha}$., divide the equation for Mexico by the equation for China, rearrange to isolate the productivity ratios on the left-hand side and obtain:

$$(6)\quad \frac{A_m}{A_c} = \left(y_m / y_c\right)\left(k_c^\alpha h_c^{1-\alpha} / k_m^\alpha h_m^{1-\alpha}\right)$$

The calculations used to estimate productivity in equation (3) can be used to obtain both $A_m$ and $A_c$. The ratio of productivity in Mexico to China changed dramatically between 1980 and 2007. Near the beginning of Chinese reforms and before the onset of the debt crisis in Mexico, TFP was approximately 5 times higher in Mexico. A decade later, in 1990, it was still more than 3.5 times higher in Mexico, but by 2007 it was less than 30 percent higher—still a significant difference, but a small fraction of the original difference.

## 4. Location and institutions

As is painfully clear from the previous section, Mexico and China have been on different development paths since the 1980s. There are many potential explanations and certainly multiple causes are at work, both for China's success and Mexico's relative failure to raise its TFP. In this section, I look more closely at the interplay of geography and institutions.

The biggest surprise in Table 1 is the lack of total factor productivity growth in Mexico throughout much of the reform period. This is particularly surprising given that Mexico became a reform leader in Latin America in the mid-1980s. Mexico signed the GATT agreement in 1986, privatized hundreds of enterprises, reformed its agricultural sector, became the first recipient of debt reduction under the Brady Plan in 1989, and implemented many of the reforms proposed under the Washington Consensus, as detailed in Lustig (1992), Edwards (1995), Stallings and Peres (2000), Moreno Brid and Ros (2009), and elsewhere. Given that Mexico followed the prescriptions of the World Bank, the IMF, US Treasury, and leading economics departments and think tanks, it seems obvious to ask: What went wrong?

There is no dearth of explanations for slower growth in Mexico; in fact, there are too many explanations. Beginning with the Washington Consensus and its implementation, should we believe that there was not enough reform, or that the reforms were incorrectly implemented, or that they were the wrong reforms, or that other forces interfered, or perhaps some combination of these? China's reforms were far more successful at generating high rates of economic growth, and while Mexico's reforms pulled the country out of the debt crisis, they did not raise the level of capital per worker, nor generate enough savings and investment to significantly reduce poverty or increase the growth rate of GDP per capita, nor consistently generate positive growth rates of GDP per worker.

A great deal of attention has been placed on a variety of specific concerns, such as the business climate (World Bank, 2010a) and competitiveness (Porter, Schwab, and Sala-i-Martin, 2007), policies for the poor and middle class (Birdsall, De la Torre, and Menezes, 2007), integration of the informal economy (De Soto, 1989, 2000), inequality (De Ferranti, et. al, 2004), and on new generation reforms (Kuczynski and Williamson, 2003). This literature is informative but does not provide many insights into the differences between Mexico and China. For example, the World Bank's Doing Business Project (World Bank, 2010a) shows that the business climate in Mexico is better than China[11], and the World Income Inequality Database shows that inequality in China is not much less than in Mexico[12]. Mexico has a large informal economy, but China's *hukou* system also creates a class of workers outside of normal labor and social protections.

An explanation for the differences in Mexican and Chinese growth requires a comparative perspective and consideration of a number of omitted factors. Specifically, China has two advantages that Mexico does not. One, for purposes of stimulating economic growth, it is located in a better "neighborhood". The complement of countries surrounding China give it a more diversified set of possibilities, plus they are connected by water rather than land borders. Consequently, it is less vulnerable to fluctuations in one country, it has a more flexible set of supply chains, it has lower transportation costs, and it avoids the chaos created by drug usage, drug culture, drug trade, and drug suppression. Two, China's system of decentralized economic planning and decision making provides incentives for economic growth at the local level and is able to respond flexibly to new opportunities such as changes in world demand, the introduction of new technologies, and a growing world economy.

## 4.1. China is located in a better neighborhood

China is surrounded by the High Performance Asian Economies of Korea, Taiwan, Japan, Hong Kong, Malaysia, Singapore, Thailand, and Indonesia. It is connected to these countries by water transport and it can build ports along its coasts without needing to negotiate with another sovereign power. Mexico is surrounded by Central America, the Caribbean, and the United States. Effectively it has one trading partner, the US, and the bulk of its trade is land based through ports of entry that are negotiated bilaterally with 30 or more participants (San Diego Association of Governments, 2005)[13]. Furthermore, the location of Mexican production

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11. The World Bank's Doing Business Project (World Bank, 2010a) measures the ease of doing business in 183 nations. They rank countries in ten different dimensions (starting a business, dealing with construction permits, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, closing a business), each with 3 to 5 indicators. In effect, it is a business scorecard on the institutional environment of national and sub-national economies. The *Doing Business* 2010 report ranks Mexico 51st out of 183 economies and China 89th. This probably understates the differences since each country's ranking is based on conditions in a single place (commercial center) and Mexico's rankings are for Mexico, DF, while China's are for Shanghai. Sub-national reports for Mexico and China show that Mexico, DF, ranks dead last out of 32 states and the federal district, while Shanghai ranks 5th out of 30 of China's largest cities. Consequently, Mexico's worst major commercial center ranks higher than China's 5th best (51st versus 89th among all nations) on the World Bank's ease of doing business scale.

12. The *World Income Inequality Database* has measures of the gini coefficient for both China and Mexico in 2004. Mexico's is given as 49.9, based on measures of income; China's is 46.9 based on measures of consumption (which tend to be more equal in distribution than income). China's measure for 2003 based on income is 44.9, using a different survey methodology. There are differences but not too great (UNU-WIDER, 2010).

13. The San Diego Association of Governments (SANDAG, 2005) recently completed a study for a new border crossing between San Diego and Tijuana. They identified seven local agencies in the US and four in Mexico, four state agencies in the US and two in Mexico, and seven federal agencies in the US and six in Mexico, for a total of 18 US and 12 Mexican agencies that must participate in the negotiations for a new land-based border crossing.

inside the country is less advantageous than China's recent development of manufacturing and export capacity at the water's edge. This important difference is reflected in China's much lower costs for inland transportation and handling of its exported merchandise. The cost for these processes for a 20-foot, full container, weighing 10 tons and valued at $20,000, is $95 in China and $900 in Mexico (World Bank, 2010a).

China is located in a part of the world that has experienced some of the fastest growth rates in the world, while Mexico's location is dominated by the United States, which has grown relatively slower. Table 2 shows the growth rates of an admittedly arbitrary set of neighboring countries for China and Mexico. The East Asian sample is heavily weighted by Japan's large population and its lost decade of the 1990s, which has continued into the 2000s. Other than Japan (which makes up 26 percent of the population-weighted average growth rate), no other country in the East Asian sample grew at a rate less than 4.4 percent per year. In the Americas, only Peru and Chile grew faster than 4.4 percent.

Table 2: Average Annual Growth of GDP (PPP), 1990-2008

| *East Asia* | *1990-2008* | *The Americas* | *1990-2008* |
|---|---|---|---|
| Hong Kong | 4.46 | Argentina | 4.11 |
| Indonesia | 4.47 | Brazil | 2.94 |
| Japan | 1.24 | Canada | 2.61 |
| Malaysia | 5.91 | Chile | 5.27 |
| Singapore | 6.08 | Colombia | 3.24 |
| South Korea | 5.19 | Peru | 4.91 |
| Taiwan | 4.85 | United States | 2.73 |
| Thailand | 4.48 | Venezuela | 3.08 |
| Population weighted average | 3.80 | Population weighted average | 3.06 |

Source: Maddison (2010).

Another characteristic of location is that China exports to a more diversified set of trading partners. Its top trading partner (the European Union) took 20.5 percent of its exports in 2007, while Mexico's top partner (the US) took 80.3 percent of its exports. The top 5 for China receive 64.8 percent of its exports, while Mexico's top 5 receive 90.8 percent (World Trade Organization, 2010). China's top recipients of exports are the EU and the US, but it also trades extensively with other East Asian economies, such as South Korea, Japan, and Taiwan, among others, while Mexico primarily exports to the US, Canada, the EU, and countries in the Americas. Hence, the differences in growth rates matter.

Proximity to the US has advantages since it is the largest importer of goods in the world. However, it causes the Mexican economy to be vulnerable to macroeconomic conditions in one country. Furthermore, Mexico's trade with the US is largely over land rather than on water, and it is exceedingly complicated to negotiate new infrastructure investment in a bi-national environment in which the US is concerned about terrorism, drug flows, and undocumented migrants. Fears that easier trade flows bring "bads" as well as goods causes trade between the US and Mexico to be politicized to an extraordinary degree, as evidenced by the failure

of the US to honor its commitments under the North American Free Trade Agreement to open its trucking sector. The lack of border crossing infrastructure has been discussed in many venues (e.g., Gerber, 2009) and has been shown to have serious consequences for both countries in the form of lost revenues and jobs (San Diego Association of Governments, 2006; El Colegio de la Frontera Norte, 2007).

Perhaps the most harmful component of Mexico's neighborhood is its proximity to the largest drug-consuming nation in the world. According to the Trans-Border Institute at the University of San Diego (Trans-Border Institute, 2011; Duran-Martinez, et. al., 2010), drug-related homicides in Mexico reached 11,583 in 2010, and drug violence is intensifying and spreading to more states. The *Mexico Competitiveness Report* of the World Economic Forum reports that Mexico's worst showing in the Global Competitiveness Index is in the area of security and is related to organized crime, violence, and a lack of trust in the police (Hausman, et. al., 2009). The authors note that the insecurity associated with the drug violence imposes serious costs on business. Clearly, if the United States were not Mexico's northern neighbor, these costs would not exist.

## 4.2. China's economy is less centralized

China's public administration is far less centralized than Mexico's. Local, provincial, and regional authorities have their own sources of revenue, and officials at each level of government are judged by the level above based on their ability to generate economic growth in their jurisdiction. While this is not without its own set of problems, the ability of local officials to set priorities and generate revenue streams to support them, along with the strong incentives they have to create growth, is an institutional advantage that is not present in Mexico, where local and state officials have many fewer revenue sources and their career success is unrelated to the economic performance of their jurisdiction.

The hypothesis that fiscal decentralization is key to China's success has many proponents (Montinola, et. al., 1995; and Qian and Weingast, 1997) but the extent of decentralization is disputed (Tsui and Wang, 2004). Qian and Weingast argue that it prevents predatory practices by central governments and avoids some misallocation of resources, but Tsui and Wang respond that the extent of local autonomy is constrained by central government mandates and that the cadre-management control system enforces strong vertical mandates from higher authority down to lower local levels.

The debate focuses on the ability of local governments to set priorities and to raise local revenue for implementing their priorities. While local governments have some constraints, they also have sources of revenue, particularly land sales and leases, which are unavailable to their Mexican counterparts in *municipios* and states. Land in China is state-owned, but the definition of "state" is sometimes hazy—that is, it might be the city, the province, or the national government, depending on the context (Hsing, 2010). Local authorities are able to offer land for real estate development, factory location, or other economic activities at prices that are extremely attractive to foreign and domestic investors. The consequences are quite striking if one considers the impact on foreign direct investment, in particular, and its impact on economic growth.  Huang (2003), Whalley and Xin (2006), and Gereffi (2009), among many

others, have argued that FDI, foreign invested enterprises (FIE), and international supply chains have been major sources of Chinese growth. China has outpaced Mexico in its receipt of FDI (Figure 4), and has geographically diversified its FDI much more than Mexico.

Figure 4:  Inward FDI in China and Mexico
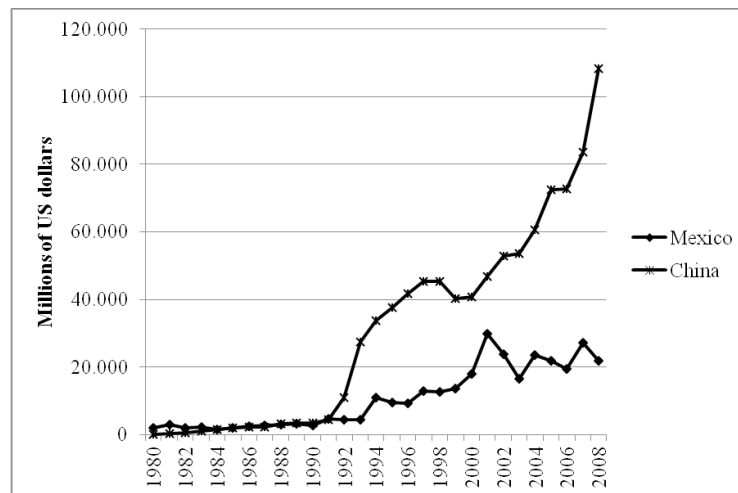


Source:  UNCTAD, 2010.

Table 3 divides Mexico and China into 6 regions each. Both the Chinese and Mexican regions are a rough division of provinces and states based on their physical geography. In each region, the share of national FDI is for a five-year period (2003-2007) in order to minimize the effect of one-time investments such as the purchase of a major bank or other large enterprise. Mexico's FDI is much more concentrated, even after taking into consideration the income per capita and population of the regions. The Central district (DF, Estado de México, Morelos, Puebla and Tlaxcala), for example, has 33.7 percent of the population, 36.0 percent of Mexico's GDP, and 63.5 percent of the FDI, 2003-2007. Every other region, including the border, receives a smaller share of FDI than its GDP share.

Table 3: Dispersion of Population, GDP, and FDI, by Region, 2007

| Region | Percent of total population | Percent of total GDP | Percent of total FDI (2003-07)* | Y/P as a share of national level |
|---|---|---|---|---|
| **Mexico** | | | | |
| **Border and Sea of Cortez** Baja California, Baja California Sur, Coahuila, Chihuahua, Nuevo León, Sinaloa, Sonora, Tamaulipas | 0.208 | 0.261 | 0.206 | 1.256 |
| **Central** Distrito Federal, Hidalgo, México, Morelos, Puebla, Queretaro, Tlaxcala | 0.337 | 0.360 | 0.635 | 1.068 |
| **West** Aguascalientes, Colima, Guanajuato, Jalisco | 0.128 | 0.123 | 0.096 | 0.957 |
| **North** Durango, Nayarit, San Luis Potosí, Zacatecas | 0.060 | 0.044 | 0.019 | 0.728 |
| **Gulf Coast and Yucatan Peninsula** Campeche, Quintana Roo, Tabasco, Veracruz, Yucatán | 0.124 | 0.140 | 0.016 | 1.127 |
| **Mexican South Pacific** Chiapas, Guerrero, Michoacán, Oaxaca | 0.143 | 0.073 | 0.025 | 0.509 |
| **China** | | | | |
| **North Central** Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia | 0.117 | 0.145 | 0.103 | 1.236 |
| **North East** Liaoning, Jilin, Heilongjiang | 0.082 | 0.085 | 0.074 | 1.032 |
| **East Central** Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong | 0.287 | 0.380 | 0.501 | 1.323 |
| **South East** Henan, Hubei, Hunan, Guangdong, Guangxi, Hainan | 0.276 | 0.260 | 0.262 | 0.942 |
| **South West** Chongqing, Sichuan, Guizhou, Yunnan, Tibet | 0.148 | 0.081 | 0.024 | 0.552 |

In contrast, China's capital region receives less FDI than its share of GDP, although the differences are not great. The East Central region, which includes Shanghai, Jiangsu, and Fujian, among other provinces, receives more inward FDI while the South East (Guangdong, and others) and North East receive FDI shares that are nearly equivalent to their GDP share. In general, the difference between a region's share of national GDP and its share of inward FDI is much greater in Mexico, indicating more concentration of FDI[14].

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14. This holds for both the mean absolute deviation and the standard deviation of the regional differences between GDP and FDI shares.

Table 3 is not conclusive, but it does illustrate a fundamental difference in the dispersion of FDI in Mexico and China. Mexico's is disproportionately concentrated in the center of the country, in and around the capital. China's FDI, by contrast, is much larger and is dispersed more evenly across the eastern coastal regions, where access to transportation infrastructure and foreign markets are greater. Hypothetically, but worth further investigation, a more widely dispersed FDI leads to a wider diffusion of technology, less congestion of transportation and logistics in export centers, and a broader geographical distribution of the benefits of economic growth. Regardless of the benefits that dispersed inward FDI may generate, it is indirect evidence of greater decentralization of the Chinese economy. Local officials are rewarded if they generate economic growth, and inward FDI is one way to accomplish that.

## 5. Conclusion: Policy and geography overlap

Obviously, Mexico cannot change its location, but in theory at least, it can adopt a less centralized form of federalism. The perceived need for a strong center was created partly as a reaction to US imperialism and the dismembering of large parts of the country in the 19th Century, along with the state's nation-building policies in the post-revolutionary 20th Century as the national government tried to overcome the many languages and ethnicities of the country by forging a Mexican identity. Nevertheless, the cultural and economic presence of the US on the nation's northern border was a constant pressure and lent urgency to the formation of a central state capable of resisting its wealth and power. In that sense, "the bad neighborhood" hypothesis is responsible, at least in part, for the highly centralized structure of Mexico's public finances and the relative lack of local autonomy from the center.

Other factors are important as well: China saves 40 percent of its GDP, Mexico a little more than 20 percent; high savings allow high investment but also generate large reserves that guard against external macroeconomic shocks; China actively uses industrial policies; it imposes performance requirements on its inward FDI in order to promote technology transfer; its sheer size forces the world's leading firms to develop a presence inside the country; and the communist era eliminated most traditional economic interest groups and wiped out opposition to subsequent reforms. Some of these factors may be irrelevant; for example, the role of industrial policy is debated. The point here is not to argue that there is one factor or a simple formula for turning a desperately poor country into a rich one. As many others have pointed out, if economic growth were easy and obvious, all countries would be rich. Rather, the goal is to propose two factors that stand out when Mexico is contrasted with China.