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# The Role of Telecommunications Infrastructure and Human Capital: Mexico's Economic Growth and Convergence

Alejandro Díaz-Bautista<sup>1</sup>

#### Abstract

In the absence of other information, initial levels of human capital and infrastructure capital in Telecommunications, together with the initial level of per capita income, are strong predictors of a country's economic growth. Incomes across states tend to converge to a common level in the long run by the inclusion of the digital economy. In other words, lower-income states in Mexico will tend to grow more rapidly than states at a higher level of income with consideration of Internet usage and human capital. These effects are robust; when cross state growth regressions are augmented with other variables in Mexico, such as the effects of human and infrastructure capital, we find that both human capital and infrastructure capital, in the form of internet users, have a significant impact on growth rates. Mexico is slowly getting digital infrastructure but some barriers remain in order for the emerging digital economy to play a part in the economic growth of the country.

Mexico has 1.5 million active Internet users, but poverty, education and inequality remain barriers for growth. The results suggest a complementary educational policy and a policy of developing telecommunications infrastructure in developing countries, in order to exploit the benefits of the digital economy. Mexico's poorly developed telecommunications infrastructure is a major impediment to economic growth of its national and states market.

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#### 1. Introduction

Infrastructure capital and human capital play an important role in the economic growth process of a country. However, both infrastructure capital and education provision have particular problems if left entirely to the market. Historically, infrastructure has had the attributes of a natural monopoly with economies of scale in production. Railway lines, road networks, telecommunications networks, and electricity distribution systems require links that represent large fixed costs, with relatively low marginal costs of use. Monopoly problems, together with the problems the private sector can face in raising the large initial capital outlays involved, have led to infrastructure being publicly provided in many countries.

The natural monopoly arguments for public provision have become weaker during the past decade. There has been increased recognition that public provision of infrastructure services can be very inefficient. Without the profit motive, and in the absence of competition, public provisions can be a very high cost method of producing and maintaining infrastructure. In addition, in the absence of market prices, supply may very well fail to respond to demand.

New developments in technology have also been undermining the traditional arguments for public sector provision of infrastructure. Mobile telephones can operate independently of the older landline system. Cable television connections can be used as telephone lines. High bandwidth links are required for Internet data transmission, links that can also be used as telephone lines. The supply of telephone services in developed countries is becoming very competitive as seen in Harris and Kraft (1997) and Waverman and Sirel (1997). In developing countries there have been a number of successful initiatives to deregulate the industry (Spiller and Cardilli (1997)). A competitive private sector telecommunications industry, with regulation of any monopoly elements that remain, seems to be preferred model to follow.

A real problem with the movement to private sector provision of infrastructure in Mexico is the need for continuing government regulation of prices and access to competitors for the monopoly elements that remain. Such regulation has proved to be very complex, since the monopolist usually has many non-price methods through which he can exert market power, and, in addition, may have an information advantage over the regulator. In the presence of real competition these problems are not very worrisome since market discipline can be expected to prevent excesses. However, when there is a lack of real competition there may be a need for a highly sophisticated regulatory institution to oversee the operation of the market and perhaps construct internal markets.

Education in Mexico has also its own sets of problems. In the case of investments in education, there are severe problems of capital constraints for children from poor families. Even if the rate of return to education is high, poor families may lack the collateral required to borrow in order to finance this form of investment. In addition to

this market failure argument there is also an argument that the state should intervene in the interests of children.

In addition to the supply-side arguments for public provision there is also the possibility that infrastructure and education create large externalities in the form of positive spillovers, so that their contribution to total output exceeds the private returns to their purchasers. Rates of return estimates for infrastructure, using cost-benefit methods on individual projects as estimated by the World Bank (1994), and education, using the wage premium that accrues to educated workers estimated by Psacharopoulos (1994), give estimates in the range of 5% to 20% annual rates of return. However, these private rates of return may underestimate the social rates of return if there are important externalities to infrastructure and education.

Communications infrastructure may increase the extent of the market, allowing the exploitation of economies of specialization and scale, and generating increased competition. Education may have externalities in raising the capacity of the economy to absorb new ideas. This implies that even without supply problems there may be a case for subsidies, or public provision in excess of the competitive market level, in order to gain from these externalities. A central problem however with the externality argument is the difficulty in measuring these externalities. By their very nature they accrue to society as a whole rather than to the individual using the infrastructure or education directly. Different researchers have come up with wildly different estimates of the macroeconomic effects of infrastructure and education on economic growth. Gramlich (1994) has reviewed the empirical evidence on the aggregate output effects of infrastructure investment. While many cross-country studies find that education has a significant impact on economic growth like Barro (1991), Barro and Sala-i-Martin (1995), and Birdsall and O'Connel (1999), the result is not very robust and in some specifications education appears to have little or no effect on growth once we account for other variables. In particular, the inclusion of geographical variables seems to reduce the role of education, as seen on Gallup and Sachs (1998) that find education to be insignificant, while Sachs and Warner (1997) drop education measures completely from their growth regression.

While there is mixed evidence for the growth effects of education and infrastructure, the problem may lie more in the estimation techniques employed rather than in the nature of the underlying relationship. Infrastructure investment and education rates are the result of decisions that are subject to economic and political forces. For example, the demand for education rates may depend on life expectancy, since the payoff to education increases with the length of time it can be used, and access to international technology if the main purpose of education is to allow the adoption of new techniques.

## 2. The Effects of Infrastructure and Human Capital on Economic Growth

Although most economists would date the birth of the modern theory of economic growth to the 1950's, the classical economists like Adam Smith, David Ricardo, were the first to discuss many of the basic ingredients of modern growth theory. In particular, their emphasis on competitive behavior, equilibrium dynamics, and the impact of diminishing

returns on the accumulation of labor and capital are integral elements of what is called the neoclassical approach to growth theory. During the 1950s, this approach to understanding growth was formalized by Solow (1956) and Swan (1956), and was later extended by Cass (1965) and Koopmans (1965). The basic assumptions underlying the neoclassical growth model are that the productive capacity of the economy can be adequately characterized by a constant-returns-to-scale production function with diminishing returns to capital and labor, the firms are price takers in a competitive market place and technological change and productivity growth is entirely exogenous and independent of the actions of the consumers and producers.

The implications of the neoclassical model of growth are straightforward. The first major implication is that sustained increases in per-capita income can be supported only by sustained increases in total factor productivity. In this model, output per worker can rise only if the ratio of capital per worker increases or total factor productivity increases. Since this model assumes diminishing returns to capital, there is a limit to how much capital accumulation can add to output per capita. The only way to increase output per worker in the long run is to have sustained productivity growth. This is a major weakness of the neoclassical growth model, since long run growth is exogenous, and determined by an element that is entirely outside of the model. The implication of this model is the conditional convergence thesis, which says that economies with lower initial levels of real output per worker relative to the long-run level should experience faster economic growth. This property follows from the assumption of diminishing returns to capital: the lower the ratio of capital per worker, the higher the return to investing in capital. Hence, the lower the ratio of capital per worker, the faster the rate of capital accumulation and the faster the growth rate of output per worker. This implies long run convergence in output per capita. Convergence is said to be conditional here since the long-run level of capital per worker and output per worker depend on the saving rate, the growth rate of the population, and the existing technology factors that are unlikely to be identical across countries. The convergence thesis is strengthened with the assumption that all countries can acquire technological progress at no cost.

In the 1980's, a number of newer, more sophisticated growth models have been developed where technological change is not assumed to be exogenous. The endogenous growth models try to explain where technologically driven productivity growth comes from. In particular, the accumulation of knowledge plays the important role in driving productivity growth in these models.

There are essentially two strands in the endogenous growth literature. Romer (1986) and Lucas (1988) assume that knowledge to be an input of production with increasing returns to scale. In this class of models, it is possible for per-capita output to grow without bound. In addition, convergence of per-capita incomes need not occur in the long run. A survey of some of the developments in this area can be found in Romer (1994). The second strand of endogenous growth models also takes its departure from Romer (1990) but has been extended by Grossman and Helpman (1991), Aghion and Howitt (1992), and others. In these models, the microeconomic environment is modeled in which firms accumulate knowledge. In particular, the assumption of perfect competition is dropped.

This is because the acquisition of knowledge through research and development activity is costly and can only be rewarded if firms have some ex post market power. Firms are assumed to compete in a monopolistically competitive environment, and per capita output growth can occur without bound since there need be no tendency for the economy to run out of ideas. Convergence across regions may not occur in the long run. Much of the new research also includes models of the diffusion of technology as seen in Grossman and Helpman (1994) where technological progress is transferred across countries and location of research and development (R&D) activity may matter. Another feature of the endogenous growth models is that the long-run growth rate can depend on government actions. In the basic neoclassical growth model, government does not have an impact on the long-run growth rate. In the new endogenous growth framework, however, government policy can affect the long run rate of growth, since government policy actions like provision of infrastructure, regulations, maintenance of law and order, and taxation can affect the underlying rate of inventive activity.

In recent years, significant empirical work has been conducted to test a number of the predictions of both the neoclassical and endogenous models of growth. Tests of the neoclassical model have focused on the conditional convergence thesis and the results have generally been mixed. While most studies reject the hypothesis of convergence across all countries, many find support for convergence across more homogenous subsets of countries or regions. Baumol (1986) finds support for the convergence thesis among OECD countries, while Barro and Sala-i-Martin (1991, 1992a, 1992b) find support for the convergence thesis across American states, regions of several European countries, and prefectures of Japan. Empirical work has also been done to test a weaker version of the convergence thesis in which convergence occurs among countries, holding constant such factors as initial levels of human capital, measures of government policy, political stability, and so on. The seminal work is Barro (1991) and Mankiw, Romer and Weil (1992). These studies find that the rate of convergence is about two percent per year. This implies that it takes about 35 years for an economy to eliminate half of the gap between its initial level and its long-run level of per-capita income. From the economic growth literature we can obtain a few broad conclusions. While endogenous and neoclassical growth models offer different explanations for the growth process, in both models, growth in total factor productivity (technological change) is an essential component of economic growth. In the neoclassical model, technological progress is essential for longrun growth in per capita output. In endogenous growth models, productivity growth results from spillovers from human capital accumulation or inventive activity and this is what generates long run growth in per-capita income. A robust result is that productivity growth or working smarter as opposed to working harder is an essential component of overall economic growth. The development of new technologies and their diffusion across firms and nations are critical components of the growth process as in Lipsev (1996). Clearly, a region that is able to adopt new technologies faster is able to grow faster. Institutional factors such as government regulations, taxes, provision of basic infrastructure and political stability clearly matter for long run economic performance as mentioned by North (1990). This is because the accumulation of factors of production and the development of new technologies do not occur in a vacuum. Rather, economic exchange and production occurs in the real world where the incentives matter. How

public policy is set over the long run will therefore influence productivity growth and economic growth since public policy is a critical determinant of the institutional environment.

While economic theory addresses the issue of the aggregate effect of public capital on economic growth, in particular emphasizing the possibility of spillovers to human capital as in (Lucas (1988)), and the tradeoff between the benefits of public capital and the distortions caused by the taxes needed to finance it. How important are human and infrastructure capital to growth and which types of education and infrastructure are most important? Evidence on the rates of return from education and infrastructure capital produces figures that are comparable with rates of return on private capital. Bils and Klenow (1996) review the evidence on rates of return to education using studies that cover 48 countries and conclude that each additional year of schooling raises wages by about 10%. The World Bank's World Development Report (1994) gives rates on return on infrastructure investments between 5% and 25% per year. This suggests that infrastructure capital has roughly the same rate of return as private capital. We begin with a set of simple cross-section state growth regressions in which initial income, education and telecommunications infrastructure are the only determinants of future economic growth and find both types of capital have large and statistically significant impacts. The importance of capital inputs such as education and infrastructure in growth regressions is that capital inputs are endogenous and tend to grow with economic growth. A serious problem in estimating such a relationship is the possibility of reverse causality from output to the capital inputs. Under some assumptions about the nature of the disturbances in the model, the production function can be estimated consistently with a mutual interaction of the variables. This has a natural interpretation as a cross-regions growth regression in which the growth rate of output responds to the initial level of income per capita and capital stocks per capita. That is, the growth regression is estimated simultaneously by all variables, where the explanatory variables are restricted to those that our theory puts in the structural equation being estimated. By implementing the methodology, both human capital and infrastructure capital appear to be important factors in the production function. In addition the model supports the idea that there are constant returns to capital taken as a whole, such as the endogenous growth model.

The review of select issues linking physical infrastructure and economic growth suggests that infrastructure investments influence regional growth. However, the effects of these investments on output, incomes, and capital formation depend on level of development, initial endowments, and inter-jurisdictional spillovers, among other factors. It is important to be sensitive to temporal and spatial effects of these investments during policy making as well as estimating the relationship between all factors.

Table 2.1 Infrastructure and Regional Growth Regressions

The magnitude sign +/- = sign of coefficient in the corresponding growth regression. \* = Claimed to be significant = claimed to be insignificant

R.H.S. Variables		Studies				
Infrastructure Proxies		• Easterly and Levine (1997) (+,*)				
		• Blomstrom, Lipsey and Zejan (1996) (-,_)				
Investment Infrastructure Type	Technology Equipment or Fixed Capital	<ul> <li>The conclusion of the study is in line with the last 25 years of research in development economics, which shows that the path to growth and development is much more than simply raising saving and investment rates from 5 to 15 percent.</li> <li>De Long and Summers (1993) (+,*)</li> <li>Sala-i-Martin (1997) (+,*)</li> </ul>				
	Non- Equipment	• Sala-i-Martin (1997) (+,*)				

The following part of the paper presents the foundation to build a model showing the effects of economic telecommunications infrastructure investments on regional output in the Mexican states. The empirical findings from the study are shown to be linked to some of the key ideas that emerge from the review of the literature.

## 3. Emerging Digital Economy and Regional Economic Growth

While the recent introduction of the Internet does not allow a time series evaluation of its economic impact. Several studies on the effect of other forms of telecommunications infrastructure, such as telephone systems, suggest that a large impact on economic growth is possible. Gramlich (1994), World Bank (1994), Sanchez-Robles (1998), and Canning (1999) give supporting evidence. Given the desirability of a high level of Internet use, it is interesting to observe how influential is the internet in determining the extent of growth in a country. Mexico's had 1,350,000 cybernauts in 1998 with a 1.3% penetration. The percentage of Men using the web was around 74% in 1998, while only 37% of all users were shopping online. The total spending online in Mexico during 1999 reached 25 million dollars, and it s expected to reach 1,542,000,000 USD in 2005. Mexico ranks second among Latin American countries in Internet users with 1.5 million in the year 2000. However, future Internet growth will be slowed by poverty and infrastructure development constraints. At least 6.4 million Mexicans will be actively using the Internet

by 2004, while Internet penetration rate will remain in single digits for the next few years, rising from 2.2% of the population in 2000 to 8.6% in 2004. Similarly, Mexico's share of the region's Internet market will remain unchanged through 2004, at a 15% share. Mexico's GDP (Gross Domestic Product) per capita is around \$5,452 in 2001 and a population of more than 100 million. With a total GDP of \$866 billion, Mexico has the largest economy in Latin America. Uneven income distribution, combined with a poorly developed, overburdened telecommunications infrastructure, has resulted in a low Internet penetration rate of 2.2%.

The use of personal computers in Mexico is currently quite small when judged by U.S. or European standards. In the United States, 51 out of every 100 people own or have access to a PC in 2000. During the same year, PC penetration in Mexico is just under 5 out of every 100 people for the same time period. The greatest likelihood is that computer growth will continue to be fast for the next several years while tapering off afterward as PCs become more common throughout Mexico. PC penetration in Mexico will never get as high as it is in the United States, but it will eventually be much higher than today. A figure above a 66.24% penetration rate is overly optimistic in Mexico for the next decade. The variables used in the study are estimates of the total number of people with access to the Internet in the country by state. The data on Internet users comes from Nielsen//NetRatings, Global Internet Trends report on Internet access and penetration. Data on real income per capita by state in 1970 and 2000 comes from INEGI and Bank of Mexico. The data on education comes from the Ministry of Education. The human capital index was constructed by taken the literacy rate of people over the age of 15 multiplied by 2 and the average of the years of schooling by the general population divided by 12 years. The sum of both measures is divided by 3. Data on TV and radio stations comes from Dirección General de Sistemas de Radio y Televisión at the Ministry of Transport.

#### **3.1 Empirical Model**

We start by trying to explain cross-state variations in the regional convergence model using human capital variables, other telecommunications infrastructure and Internet usage. This section aims at presenting the growth model with exogenous savings, telecommunications infrastructure variables and fixed effects to be used in the study. Consider the production function, with labor augmenting technical progress:

$$Y(t) = K^{\alpha}(t)(A(t)L(t))^{1-\alpha}G$$

Where Y = product, K = capital, L = labor and G = telecommunications infrastructure capital. Public input is thus complementary to private inputs, and we have:

$$L(t) = L(0)e^{nt}$$
$$A(t) = A(0)e^{gt}$$

where n and g are the (exogenously determined) population and technology rates of growth.

Capital accumulation per effective worker in the steady state will be given by:

$$\frac{dk}{dt} = s\hat{y} - (n+g+\delta)\hat{k}$$

where s = savings rate, and delta is the depreciation rate.

$$\hat{y} = \frac{Y(t)}{A(t)L(t)}, \hat{k} = \frac{K(t)}{A(t)L(t)}$$

This equation implies steady state levels of capital and product (per effective worker) are described by:

$$\hat{k}^* = \left(\frac{sG}{n+g+\delta}\right)^{\frac{\alpha}{1-\alpha}}$$
$$\hat{y}^* = \left(\frac{sG}{n+g+\delta}\right)^{\frac{\alpha}{1-\alpha}} G^{\frac{1}{1-\alpha}}$$

With the product per effective worker given by  $\hat{y}(t) = \hat{k}^{\alpha}(t)G$ , we can approximate its time variation around the steady state to get (in logs):

$$\frac{d\ln(\hat{y}(t))}{dt} = \lambda[\ln(\hat{y}^*) - \ln(\hat{y}(t))]$$

where  $\lambda = (n+g+\delta)(1-\alpha)$ .

The growth of per-capita product around the steady-state will be represented in the following manner:

$$\ln y(t2) - \ln y(t1) = (1 - e^{-\lambda \tau}) \frac{\alpha}{1 - \alpha} \ln(s) - (1 - e^{-\lambda \tau}) \frac{\alpha}{1 - \alpha} \ln(n + g + \delta) + \frac{\alpha}{1 - \alpha} (1 - e^{-\lambda \tau}) \ln G + (1 - e^{-\lambda \tau}) \ln y(t1) + g(t2 - e^{-\lambda \tau}t1) + (1 - e^{-\lambda \tau}) \ln A(0)$$

where we know that:  $\ln(\hat{y}(t)) = \ln(y(t)) - \ln(A(0)) - gt$ 

By including human capital in the production function we obtain the following:

 $Y(t) = K^{\alpha}(t) [A(t)L(t)]^{1-\alpha-\phi} H^{\phi}(t)G$ and around the steady state we will then have:

$$\ln y(t2) - \ln y(t1) = -(1 - e^{-\lambda \tau}) \ln y(t1) + (1 - e^{-\lambda \tau}) \frac{\alpha}{1 - \alpha - \beta} \ln s - (1 - e^{-\lambda \tau}) \frac{\alpha + \beta}{1 - \alpha - \beta} \ln(n + g + \delta) + (1 - e^{-\lambda \tau}) \frac{\beta}{1 - \alpha - \beta} \ln(h^*) + (1 - e^{-\lambda \tau}) \frac{\alpha}{1 - \alpha - \beta} G + (1 - e^{-\lambda \tau}) \ln A(0) + g(t2 - e^{-\lambda \tau})$$

where G\* and h\* are infrastructure capital and human capital investment as a fraction of income in the steady state.

#### 4. Econometric Methodology and Empirical Results

The main aim of the paper is to investigate the roles of telecommunications infrastructure and human capital variables on growth. The method of estimation is generalized least squares. For that purpose we propose the following econometric model:

$$\Delta y_{it} = y_{it-1} + S_i + \beta_1 H_{it} + \beta_2 G_{it} + \eta_t + \varepsilon_{it}$$

Where:

$$y_{it-1} = \ln y(t1),$$
  

$$\Delta y_{it} = \ln y(t2) - \ln y(t1)$$
  

$$\gamma = (1 - e^{-\lambda \tau})$$
  

$$S_i = (1 - e^{-\lambda \tau}) \frac{1}{1 - \alpha - \beta} [\alpha \ln s - (\alpha + \beta) \ln(n + g + \delta) + \ln A(0) / \frac{1}{1 - \alpha - \beta}]$$
  

$$\eta_t = g(t2 - e^{-\lambda \tau} t1)$$

where *G* and *H* are telecommunications infrastructure capital and human capital variables.

The results are very interesting and significant. In regional growth regressions such as these, a negative coefficient on initial income and growth in income between 1970 and 2000 is often taken as evidence of convergence. If no other variables (apart from a

constant term) were included, a negative coefficient on initial income would indicate unconditional convergence; rich regions grow more slowly than poor regions, such that states in Mexico tend to become more similar in terms of their income levels as time passes. The results indicate that there is tendency for income levels to converge over time using telecommunications infrastructure. However, we observe a positive significant coefficient with no other variables included signifying divergence over time, or rich states grow faster than poor regions in the period 1970 –2000 in Mexico.

Table 4.1. GLS Convergence Growth Regressions on 30 Year Period										
Dependent Variable: Change in Income per Capita Growth 1970-2000										
Constant	-0.051	-0.018	0.456*	0.642*						
	(0.52)	(-0.202)	(2.91)	(3.86)						
log income per capita	0.212*	-0.225*	-0.046**	-0.013**						
	(2.41)	(2.82)	(4.79)	(5.29)						
Internet Usage		0.0006*	0.0058*	0.005*						
		(2.73)	(2.66)	(2.36)						
Education Index			0.940**	0.726*						
			(3.46)	(3.04)						
Radio Stations				.001*						
Kuuto Stutions				(2.34)						
TV Stations				0.001						
17 Stations				(0.95)						
R squared	0.16	0.33	0.53	0.61						
R squared adjusted	0.13	0.28	0.484	0.54						
F Stat (Prob F statistic)	5.85 (0.021)	7.29 (0.002)	10.71 (0.00)	8.31 (0.000)						
Note: T statistics in parenthesis. Significance at 90%* Significance at 95%**.										

A close analysis of the results indicates that once we add education, the number of radio and TV stations and Internet usage, we find strong evidence of conditional convergence, with the initial capital stocks having a negative and statistically significant impact on subsequent economic growth. Rich states in Mexico grow more slowly than poor states but, for a given level of initial income, we would expect a country with a higher level of education, or a greater number of Internet usage, to grow more quickly. In this case, states in Mexico will converge over time, but not to the same level of income. They each converge to their own steady state level of income where the negative effect of their income level exactly offsets the positive effects of internet access, telecommunications infrastructure and education stocks. The human capital variable reflects the acquisition of skills and know-how through education, experience and research. A significant human capital index coefficient shows that together with trade and other international interactions, is apparently a necessary condition to absorb knowledge from other countries through the internet and contribute to the growth process. States have to be careful in over-investing in higher education relative to basic education, before the economy has reached the stage of development at which graduates with higher education can be usefully employed, and know how to use the available technology.

Capital accumulation in telecommunications infrastructure is easily identified determinant of future living standards in the states of Mexico. What is less clear, however, is whether capital accumulation in the form of the digital economy or the accumulation of any factor of production, can drive growth in per capita terms for an indefinite period of time.

The regressions show the role of digital capital, particularly telecommunications infrastructure capital, and Internet usage in economic growth. This includes the Internet and other forms of telecommunications networks. While it is intuitive that telecommunications infrastructure accumulation should raise output, it has been difficult to determine whether spending in this area has a greater pay-off than other forms of investment. Some authors have pointed out that, as with any capital investment, changes in the stock of telecommunications capital should be less important than changes in the flow of productive services that obtain from that stock, and the eventual effects on growth. Hence, Internet infrastructure can have a large impact on output. One strand of the new growth literature identifies another channel through which internet infrastructure investment can affect the growth rate of output: if telecommunications infrastructure networks increases in the regional markets of a country, it can foster a faster rate of technical innovation (and hence of productivity growth), and eventually economic growth

Using just these telecommunications variables gives a fairly average  $R^2$  with each of the variables being statistically significant (at the 10% significance level). Adding our telecommunications capital stock variables to this base regression gives much larger coefficients, and more statistical significance. One interpretation of these results is that, once we control for other telecommunications variables, the effects of education and Internet usage on long-run economic growth are significant.

#### 5. Conclusion

Cross-state growth regressions in Mexico need to be interpreted with care. In general, their estimated coefficients are combinations of parameters from the reduced form and structural models of the underlying growth process. The importance of initial levels of human capital and telecommunications infrastructure variables in long-run cross-regional growth regressions is entirely compatible with there being important inputs into the production function.

A central hypothesis in the paper is that incomes across states tend to converge to a common level in the long run by the inclusion of the digital economy. In other words, lower-income states in Mexico will tend to grow more rapidly than states at a higher level of income with consideration of Internet usage and human capital. There are two important kinds of catch-up. First, given the right economic structure and educational environment, poor states tend to have high rates of return to capital. The accumulation of digital physical and human capital, whether financed by domestic saving or capital inflows, leads to rapid growth. They also tend to have rapid rates of growth by emulating the technologies and innovations of the more advanced economies through the Internet. Growth can therefore be facilitated as much through the accumulation of Internet and telecommunications infrastructure as through increases in the efficiency of the use of these factors through education.

The discussion of other factors that researchers have identified as possible determinants of a country's long-term economic performance leads us to point out factors to be included in further research such as: investment in private and public capital, education and training, digital financial intermediation, macroeconomic stability, openness with respect to trade and investment, equality of income distribution and stability of political and social conditions.

To summarize, the study finds that the strongest determinants of countries' long-term growth rates are investment in physical and human capital (especially investment in telecommunications infrastructure and education). Without such investment, the Mexican states seem to diverge in the long run.

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Data         .com.mx         .gob.mx         .net.mx         .edu.mx         .org.mx         .mx         Total           31-MAR-2002         63,418         1,418         653         1,361         2,905         177         69,932           28-FEB-2002         63,431         1,392         657         1,324         2,871         177         69,852           31-JAN-2002         62,626         1,367         6662         1,245         2,759         177         67,617           30-NOV-2001         62,041         1,250         673         1,224         2,772         177         68,013           31-DEC-2000         56,769         935         761         855         2,399         177         61,806           31-DEC-1900         27,520         523         662         584         1,282         177         30,748           31-DEC-1999         17,522         424         515         482         948         177         19,201           31-MAY-1999         16,698         404         511         471         940         177         19,201           30-JUN-1999         15,621         392         498         449         851         177         17,788 </th <th>Appendix A. Evol</th> <th>lution of Reg</th> <th>gistered Int</th> <th>ernet Doma</th> <th>ins in Mexi</th> <th>ico by Date</th> <th></th> <th></th>	Appendix A. Evol	lution of Reg	gistered Int	ernet Doma	ins in Mexi	ico by Date		
31-MAR-2002       63,418       1,418       653       1,361       2,905       177       69,932         28-FEB-2002       63,431       1,392       657       1,324       2,871       177       69,852         31-JAN-2002       62,626       1,367       656       1,280       2,799       177       67,617         30-NOV-2001       62,041       1,250       673       1,224       2,772       177       66,014         31-DEC-2000       56,769       935       761       855       2,399       177       61,896         31-DEC-2000       56,769       935       761       855       2,399       177       61,896         31-DEC-1999       25,026       510       639       557       1,221       177       28,130         31-DEC-1999       17,522       424       515       482       948       177       20,088         31-JUL-1999       17,522       424       515       482       948       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-DEC-1998       10,661       350       355       359       622       189	Data	.com.mx	.gob.mx	.net.mx	.edu.mx	.org.mx	.mx	Total
28-FEB-2002       63,431       1,392       657       1,324       2,871       177       69,852         31-JAN-2002       62,626       1,367       656       1,280       2,799       177       68,057         31-DEC-2001       61,496       1,278       662       1,245       2,779       177       67,617         28-FEB-2001       60,523       990       783       914       2,627       177       66,014         31-DEC-2000       56,769       935       761       855       2,399       177       61,896         31-DEC-2000       27,520       523       662       584       1,224       177       30,748         31-DEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       19,201         31-JAN-1999       15,421       392       498       449       851       177       17,88         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189	31-MAR-2002	63,418	1,418	653	1,361	2,905	177	69,932
31-JAN-2002       62,626       1,367       656       1,280       2,799       177       68,905         31-DEC-2001       61,496       1,278       662       1,245       2,759       177       67,617         30-NOV-2001       62,041       1,250       673       1,224       2,772       177       66,014         28-FEB-2001       60,523       990       783       914       2,627       177       66,014         31-JAN-2001       58,830       965       782       885       2,524       177       61,896         31-JAN-2000       27,520       523       662       584       1,282       177       30,748         31-JLL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-MAY-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       <	28-FEB-2002	63,431	1,392	657	1,324	2,871	177	69,852
31-DEC-2001       61,496       1,278       662       1,245       2,759       177       67,617         30-NOV-2001       62,041       1,250       673       1,224       2,772       177       68,137         28-FEB-2001       60,523       990       783       914       2,627       177       64,163         31-JAN-2000       56,769       935       761       855       2,399       177       61,896         31-JAN-2000       27,520       523       662       584       1,221       177       30,748         31-DEC-1999       25,026       510       639       557       1,221       177       20,688         30-JUN-1999       17,522       424       515       482       948       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       1,257         30-SEP-1998       9,135       322       355       301       557       189       10,	31-JAN-2002	62,626	1,367	656	1,280	2,799	177	68,905
<b>30-NOV-2001</b> 62,041       1,250       673       1,224       2,772       177       68,137 <b>28-FEB-2001</b> 60,523       990       783       914       2,627       177       66,141 <b>31-JAN-2001</b> 58,830       965       782       885       2,524       177       61,896 <b>31-DEC-2000</b> 56,769       935       761       855       2,399       177       61,896 <b>31-JEC-1999</b> 25,026       510       639       557       1,221       177       20,0748 <b>31-JUL-1999</b> 17,522       424       515       482       948       177       20,068 <b>30-JUN-1999</b> 16,698       404       511       471       940       177       19,201 <b>31-DEC-1999</b> 15,421       392       498       449       851       177       17,88 <b>31-JAN-1999</b> 11,356       358       421       377       654       189       13,355 <b>31-DEC-1998</b> 10,661       350       395       359       622       189       12,576 <b>30-NOV-1998</b> 10,55       346       398       344       615       189 </th <th>31-DEC-2001</th> <th>61,496</th> <th>1,278</th> <th>662</th> <th>1,245</th> <th>2,759</th> <th>177</th> <th>67,617</th>	31-DEC-2001	61,496	1,278	662	1,245	2,759	177	67,617
28-FEB-2001       60,523       990       783       914       2,627       177       66,014         31-JAN-2001       58,830       965       782       885       2,524       177       64,163         31-DEC-2000       50,769       935       761       855       2,399       177       61,896         31-DEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       1,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-JUL-1998       7,976       290       306       277       487       189       9,525     <	30-NOV-2001	62,041	1,250	673	1,224	2,772	177	68,137
31-JAN-2001       58,830       965       782       885       2,524       177       64,163         31-JAN-2000       27,520       523       662       584       1,282       177       30,748         31-JAN-2000       27,520       523       662       584       1,282       177       30,748         31-JDEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       19,201         31-MAY-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-AUG-1998       8,634       302       332       293       511       189       10,525	28-FEB-2001	60,523	990	783	914	2,627	177	66,014
31-DEC-2000       56,769       935       761       855       2,399       177       61,896         31-JAN-2000       27,520       523       662       584       1,282       177       30,748         31-JDEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859	31-JAN-2001	58,830	965	782	885	2,524	177	64,163
31-JAN-2000       27,520       523       662       584       1,282       177       30,748         31-DEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-JUL-1998       7,976       290       306       277       487       189       8,200         31-JAN-1998       7,428       284       296       254       469       189       8,920	31-DEC-2000	56,769	935	761	855	2,399	177	61,896
31-DEC-1999       25,026       510       639       557       1,221       177       28,130         31-JUL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,376         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-AUG-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920	31-JAN-2000	27,520	523	662	584	1,282	177	30,748
31-JUL-1999       17,522       424       515       482       948       177       20,068         30-JUN-1999       16,698       404       511       471       940       177       19,201         31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-JAN-1998       7,082       262       272       243       448       189       8,496 <tr< th=""><th>31-DEC-1999</th><th>25,026</th><th>510</th><th>639</th><th>557</th><th>1,221</th><th>177</th><th>28,130</th></tr<>	31-DEC-1999	25,026	510	639	557	1,221	177	28,130
<b>30-JUN-1999</b> 16,698       404       511       471       940       177       19,201 <b>31-MAY-1999</b> 15,421       392       498       449       851       177       17,788 <b>31-JAN-1999</b> 11,356       358       421       377       654       189       13,355 <b>31-DEC-1998</b> 10,661       350       395       359       622       189       12,576 <b>30-NOV-1998</b> 10,505       346       398       344       615       189       12,397 <b>31-OCT-1998</b> 9,964       336       384       333       589       189       11,795 <b>30-SEP-1998</b> 9,135       322       355       301       557       189       10,859 <b>31-AUG-1998</b> 8,634       302       332       293       511       189       10,261 <b>31-JUL-1998</b> 7,976       290       306       277       487       189       9,525 <b>30-JUN-1998</b> 7,428       284       296       254       469       189       8,920 <b>31-JAN-1998</b> 7,082       262       272       243       448       189       7,652 </th <th>31-JUL-1999</th> <th>17,522</th> <th>424</th> <th>515</th> <th>482</th> <th>948</th> <th>177</th> <th>20,068</th>	31-JUL-1999	17,522	424	515	482	948	177	20,068
31-MAY-1999       15,421       392       498       449       851       177       17,788         31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-AUG-1998       8,634       302       332       293       511       189       9,525         30-JUN-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-JAN-1998       7,428       284       296       254       469       189       8,920         31-JAN-1998       7,428       284       296       218       418       7,251         30-NOV-1997	30-JUN-1999	16,698	404	511	471	940	177	19,201
31-JAN-1999       11,356       358       421       377       654       189       13,355         31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-JAN-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-JAN-1997       5,736       179       254       160       367       188       6,884	31-MAY-1999	15,421	392	498	449	851	177	17,788
31-DEC-1998       10,661       350       395       359       622       189       12,576         30-NOV-1998       10,505       346       398       344       615       189       12,397         31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-AUG-1998       8,634       302       332       293       511       189       10,261         31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-MAY-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884	31-JAN-1999	11,356	358	421	377	654	189	13,355
<b>30-NOV-1998</b> 10,505       346       398       344       615       189       12,397 <b>31-OCT-1998</b> 9,964       336       384       333       589       189       11,795 <b>30-SEP-1998</b> 9,135       322       355       301       557       189       10,859 <b>31-AUG-1998</b> 8,634       302       332       293       511       189       10,261 <b>31-JUL-1998</b> 7,976       290       306       277       487       189       9,525 <b>30-JUN-1998</b> 7,428       284       296       254       469       189       8,920 <b>31-MAY-1998</b> 7,082       262       272       243       448       189       8,496 <b>31-JAN-1998</b> 6,402       212       272       180       408       188       7,662 <b>31-JAN-1997</b> 6,043       201       262       168       389       188       7,251 <b>30-NOV-1997</b> 5,736       179       254       160       367       188       6,884 <b>31-JAN-1996</b> 234       13       29       0       16       104       396	31-DEC-1998	10,661	350	395	359	622	189	12,576
31-OCT-1998       9,964       336       384       333       589       189       11,795         30-SEP-1998       9,135       322       355       301       557       189       10,859         31-AUG-1998       8,634       302       332       293       511       189       10,261         31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-MAY-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       1326         31-DEC-1995       <	30-NOV-1998	10,505	346	398	344	615	189	12,397
<b>30-SEP-1998</b> 9,135       322       355       301       557       189       10,859 <b>31-AUG-1998</b> 8,634       302       332       293       511       189       10,261 <b>31-JUL-1998</b> 7,976       290       306       277       487       189       9,525 <b>30-JUN-1998</b> 7,428       284       296       254       469       189       8,920 <b>31-MAY-1998</b> 7,082       262       272       243       448       189       8,496 <b>31-JAN-1998</b> 6,402       212       272       180       408       188       7,662 <b>31-DEC-1997</b> 6,043       201       262       168       389       188       7,251 <b>30-NOV-1997</b> 5,736       179       254       160       367       188       6,884 <b>31-JAN-1997</b> 2,556       81       154       19       164       188       3,162 <b>30-SEP-1996</b> 1,412       48       114       0       104       196 <b>31-DEC-1995</b> 180       12       20       0       13       101       326 <b>30-JUN-1994</b>	31-OCT-1998	9,964	336	384	333	589	189	11,795
31-AUG-1998       8,634       302       332       293       511       189       10,261         31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-MAY-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1996       180       12       20       0       13       101       326         10-OCT-1995       <	30-SEP-1998	9,135	322	355	301	557	189	10,859
31-JUL-1998       7,976       290       306       277       487       189       9,525         30-JUN-1998       7,428       284       296       254       469       189       8,920         31-MAY-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-DEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         30-JUN-1994       5	31-AUG-1998	8,634	302	332	293	511	189	10,261
<b>30-JUN-1998</b> 7,428       284       296       254       469       189       8,920 <b>31-MAY-1998</b> 7,082       262       272       243       448       189       8,496 <b>31-JAN-1998</b> 6,402       212       272       180       408       188       7,662 <b>31-DEC-1997</b> 6,043       201       262       168       389       188       7,251 <b>30-NOV-1997</b> 5,736       179       254       160       367       188       6,884 <b>31-JAN-1997</b> 2,556       81       154       19       164       188       3,162 <b>30-SEP-1996</b> 1,412       48       114       0       104       162       1,840 <b>31-JAN-1996</b> 234       13       29       0       16       104       396 <b>31-DEC-1995</b> 180       12       20       0       13       101       326 <b>10-OCT-1995</b> 100       9       14       0       5       83       211 <b>31-JUL-1994</b> 5       1       0       0       44       50 <b>30-JUN-1994</b> 5       0<	31-JUL-1998	7,976	290	306	277	487	189	9,525
31-MAY-1998       7,082       262       272       243       448       189       8,496         31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0	30-JUN-1998	7,428	284	296	254	469	189	8,920
31-JAN-1998       6,402       212       272       180       408       188       7,662         31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-DEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       40       45         05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       0       1	31-MAY-1998	7,082	262	272	243	448	189	8,496
31-DEC-1997       6,043       201       262       168       389       188       7,251         30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       1       1         25-SEP-1991       0       0       0       0	31-JAN-1998	6,402	212	272	180	408	100	7,002
30-NOV-1997       5,736       179       254       160       367       188       6,884         31-JAN-1997       2,556       81       154       19       164       188       3,162         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-JAN-1996       234       13       29       0       16       104       396         31-DEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       1       1         25-SEP-1991       0       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       0       1<	31-DEC-1997	6,043 5,726	201	262	100	369	100	7,201
37-JAN-1997       2,330       81       134       19       104       188       3,102         30-SEP-1996       1,412       48       114       0       104       162       1,840         31-JAN-1996       234       13       29       0       16       104       396         31-JEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       16       14         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	30-INOV-1997	0,730 2,556	01	204 154	100	307 164	100	0,004
30-3EP-1990       1,412       40       114       0       104       102       1,340         31-JAN-1996       234       13       29       0       16       104       396         31-DEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       40       45         05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	31-JAN-1997 20 SED 1006	2,000	01 /18	104	19	104	162	3, 10Z
31-DEC-1995       180       12       20       0       10       104       330         31-DEC-1995       180       12       20       0       13       101       326         10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       40       45         05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	30-3EF-1990 21_1AN_1006	1,412	40	20	0	104	102	306
10-OCT-1995       100       9       14       0       5       83       211         31-JUL-1994       5       1       0       0       0       44       50         30-JUN-1994       5       0       0       0       0       44       50         05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	31-JAN-1990 31-DEC-1005	180	10	29	0	10	104	326
10-00-1-1935       100       9       14       0       5       03       211         31-JUL-1994       5       1       0       0       44       50         30-JUN-1994       5       0       0       0       44       50         05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	10-0CT-1005	100	0	20	0	5	83	211
30-JUN-1994       5       0       0       0       0       40       45         05-APR-1992       1       0       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	31_ II II _100A	5	1	14	0	0	ΔΔ	50
05-APR-1992       1       0       0       0       1       1         25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	31-30E-1994 30_ 111N_1994	5	0	0	0	0	40	45
25-SEP-1991       0       0       0       0       1       1         28-FEB-1989       0       0       0       0       1       1	05-APR-1992	1	0	0	0	0	1	
<b>28-FEB-1989</b> 0 0 0 0 0 1 1	25-SEP-1991	0	0	0	0	0	1	1
	28-FEB-1989	0	0	0	0	0	1	1