REGIONAL ECONOMIC CHANGE AND THE NEW ECONOMY : ECONOMIC GROWTH AND FOREIGN DIRECT INVESTMENT IN NORTHERN VIRGINIAREIGN

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INTRODUCTION

Although mythology abounds, in general, economic growth is poorly understood. There are a plethora of explanations of why some countries or regions grow more rapidly than others, or why some sectors are more dynamic. At certain times, or in certain places, some or other of these theories would seem to offer valid insights but these insights are seldom long lived and, even when there is durability, they do not stand the test of spatial transferability.

There are many reasons for these gaps in our understanding of growth differentials, especially at the sub national level. Not least of these problems is the inadequacy of good statistical data. In many cases there are problems in determining how a region is performing at the current time, let alone its future economic path. But even with better data, it would be difficult to explain, even in the broadest of terms, the future path of a national economy let alone sub-regions with countries.

The inter linkages that freer trade and improved transportation have facilitated have added to these problems as national, and ipso facto regional economies have become more entwined. Institutional factors are also often neglected. In many cases, while there be good arguments that neo-classical forces of supply and demand will determine regional economic performance, in the shorter term government policies and interventions can distort these forces. Sometimes this may be for the social good, and sometimes not. But that is not the issue here, rather it is simply that government interventions make predicting that much harder.

Setting aside the difficulties of trying to anticipate, let alone foresee the outcomes of, government actions there are some factors that would intuitively seem intuitively important at influencing economic development at the meso level. Here we focus on one of them, foreign direct investment.

Foreign direct investment has grown in importance within the US economy with a particular concentration in number of sectors. This growth has been due to a variety of factors. Certainly the move towards freer trade has exerted some influence in that it has facilitated easier capital movement. The strength of the US economy in the 1990 s and the potential of high returns to be enjoyed in the US were other crucial elements. The very rapid technical changes that occurred in the communications sector in recent years, at which the US was at the leading edge, also shifted the focus towards new opportunities for less risk adverse investors.

This paper looks at the reasons why foreign direct investment may contribute to regional economic development. This discussion is set within some of the ideas that are central to what has become known as the New Growth Theory. This concerns as much the issue of why growth tends to be almost self-perpetuation in a region as it does the determination of appropriate strategies to stimulate slower growing regions. The issue is then looked at in the specific context of the Northern Virginia Economy in the 1990 s when it became one of the most dynamic high technology centers in the US.

FOREIGN DIRECT INVESTMENT IN CONTEXT

There is an abundance of theories that seek to explain why some regions' economies grow faster than do others or why they should ultimately converge. Neo-classical economists argue that with perfect factor mobility, flexible production forms, full information, zero transport costs, etc. in the long term there will be convergence in economic performance. Low-income workers in poorer regions, for example, will migrate to regions offering higher wages. This will create labor shortages in the region the regions that they leave and relieve pressure on recipient regions. This continues until incomes in regions are equated. Rigidities in the system and lack of perfect information besides other things impede and slow this process. While the theory has intellectual rigor, and may well be very realistic in the long term, the empirical evidence suggests that, at least over a relatively short period, convergence is not a common phenomenon.

In particular, there are now available econometric techniques that offer much greater insight into the development paths of regions. The studies by Barro and others[1] on conditional β convergence is perhaps the most cited of this, although there a number of studies using related techniques that seem to generate similar results. The crucial point is that the evidence from a wide range of geographical locations does not suggest convergence at the rate neo-classical theory would imply.

The empirical base has been given an intellectual standing in the work of Romer[2], Lucas[3] and others and their development of the New Growth Theory concept. Basically, they show that with relatively realistic assumptions, rather than regions' economies converging there may well be a tendency for them to continually diverge. The divergence essentially results because as a region grows it automatically enhances its comparative, and often absolute, advantage in certain key activities.

This idea is not entirely new in the sense that other strands of work have isolated 'drivers'. Certain key sectors have often been seen as driving forces for economic growth. In some cases the arguments have centered around the role of infrastructure. This was particularly so for a period following the findings of Aschauer.[4] and Biehl[5] in the late 1980 s but more recently the view has moved towards the position that while infrastructure may be important, it is seldom a driving force in its own right. In other cases, arguments have been advanced that it is important for regional growth for the local industries to 'export' to other regions or internationally.

Perhaps more akin to the ideas of the New Growth Theory economists, was the work deploying neo-Keynesian ideas of circular-and-cu-

mulative causation[6]. This focused on the scale economies that come from regions concentrating on particular economic activities, and especially those that have potential for significant productivity growth. The main interest at the time this theory attracted most attention, the late 1960 s and the 1970 s, was in ways of government could most effectively intervene in the manufacturing sector to reduce what was seen as significant economic resource wastage in regions with high unemployment and slow income growth. If markets were left to themselves, so the theory with it supporting empirical base implied, then these regions were doomed to an existence of, at best, mediocre economic performance, but also with the potential of absolute economic decline. Market interventions to redirection investment were seen as the only ways of avoiding this.

The New Growth Theory has similar general policy conclusions but reflects more on the nature of modern industry. The theory applies more to service sector activities and to high technology products. It emphasizes the role of knowledge and innovation and, in particular, pointed to tendencies for regions ahead of the innovation curve to retain their growth leadership. Essentially these regions generate and assimilate new knowledge and with is, build up a core of expertise that, unless there is a random change technology or market shift, allows them to continually outpace other regions. This poses interesting questions for policy makers in regions behind the growth curve and, also in a less than political neutral world, for policy makers in the rapidly advancing regions who have an interest in retaining their economic dominance.

One way of at least moving up the innovation curve is to attract outside skills and resources. While in some cases this involves hardware in the forms of equipment and plant, in many modern industries, and services in particular, it is often in the form of knowledge and information. Since knowledge tends to be partly explicit (which rapidly becomes ubiquitous) and partly tacit (which is much more context-specific and hard to fomalize), there is a need for regions aspiring to grow to attract specialized knowledge that can then be built upon with less fear of its dissipation.

In this context, it becomes attractive for regions, or actual firms within regions, to seek appropriate foreign investment that complements existing activities and the local development strategy. The advantage of foreign investment is that it often avoids competing directly with other regions in the country for potentially scarce domestic resources. It can avoid the beggar-thy-neighbor issues by injecting new resources into the system from outside. This makes it particularly attractive to governments that have wider geographical responsibilities

Since foreign direct investment flows are determined by market forces for a region to attract them, it must be able to offer some market incentives. Investors from outside of the US, for example, must anticipate a return higher than that offered in their own domestic market, or at least one that is more certain. The premium, whatever its form, may have to be large. In many cases, there is government involvement be it at the national, state or more local level.

The Nobel Prize in Economics for 2001 was awarded to a trio of economists, Professors Mi-

chael Spence, Joseph Stiglitz and George Akerloef for their work on asymmetric information. It is essentially the ideas underlying the work of these academics that offer intellectual justification for this intervention. Basically, those in the region have more and better information about its economic prospects and needs than do the potential foreign investors. The later, due to risk aversion will consequently under invest without some form of government intervention. Interventions may come in a variety of forms; information services, loans, loan guarantees, grants, infrastructure provision, tax advantages, etc. Of course, such actions take it as axiomatic that the government does actually have superior core information to the foreign investor. This may sometimes be questionable.

The empirical work, which has largely been survey based but with some limited econometric analysis, has generally focused on investment in physical facilities. The traditional view was that cost considerations are a key element in the decisions of foreign investors. Essentially, they look for locations that have adequate and low cost labor. Access to markets and/or raw materials is also seen as important, especially if branch or assembly plants are involved. This put a premium on government actions to improve access, provide incubator factories, and enhance local basic labor skills, and to provide guarantees for long term investments.

While costs are not irrelevant in the New Growth Theory framework, a greater focus is put on the revenue generating side. The industry central to New Growth theory concepts is more footloose, involves a higher level of technology, and has a high knowledge content. Traditional costs such as wages and salaries are less relevant because there fewer physical sunk costs in large segments of the New Economy, and especially so in service sector activities.[7] Sunk costs are costs that cannot be eliminated, even by total cessation of production.[8] This means that investors are both more mobile in the sense that they need not tie down their investments but equally they are more sensitive to potential revenue flows since cost retrieval is less of an issue.

Modern investors are also more sensitive to some of the indirect costs of various locations. Such costs are reflected in such things as such as the local quality of life and educational/research facilities.[9] These exert an indirect influence on costs because highly skilled and educated labor seeks out social returns as well as private returns. Good high speed personal access is also important to facilitate continued interactions. For example, those working in modern industries tend to fly about 60% more than those employed in the more traditional sectors.

These features of modern production, but more especially service, industries are important if the are to play a role in breaking the spiral of circular-and-cumulative causation. Because such industry is relatively mobile it may be attracted to areas by industrial policy and by the actions of individual firms. Indeed, the case of Northern Virginia is one where a relatively sluggish economic region has grown considerably since the 1980 s because of its ability to attract such industry. This has largely involved domestic investment but by US national standards with significant foreign investment to complement it.

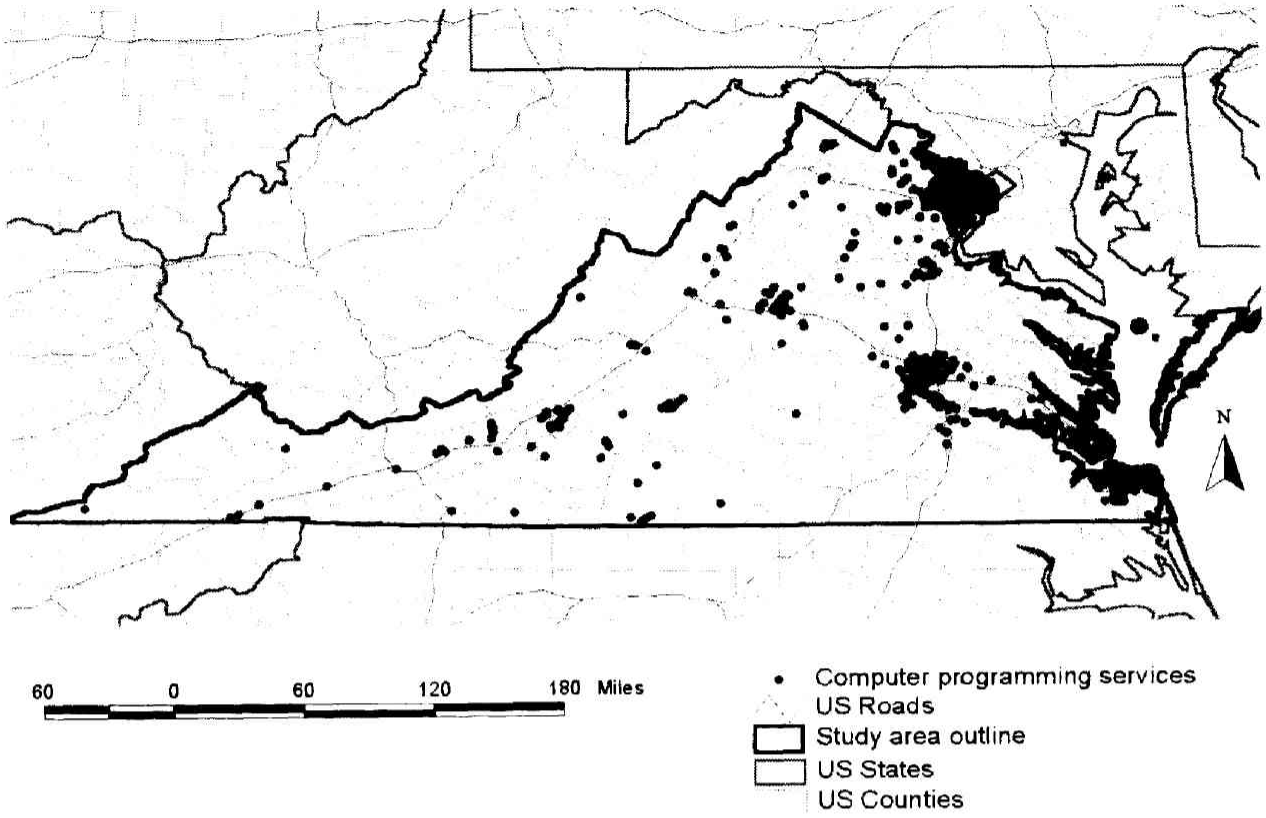


Figure 1. The Distribution of Software Activities in Virginia (1998/1999)

THE NORTHERN VIRGINIA ECONOMY

There have been a number of regions in the US that have enjoyed sustained economic expansion. What is clear about the Commonwealth of Virginia is that it has enjoyed significant population and economic growth over the past twenty years and that in many regions of the state there have been important structural changes in the nature of the economy and the resident population. In the period 1995 to 1999, Virginia was in the nation's top ten states for attracting venture capital with the vast majority of it going to Northern Virginia. Overall the Commonwealth's economy has performed well with non-agricultural employment in 1999 reaching 3.38 million with an unemployment rate of 2.8%.

The Commonwealth has witnessed some of the fastest growth in high technology activity in the country, most notably the metropolitan areas of Northern Virginia[10], Richmond, Hampton Roads and Roanoke. Figure 1, for example,. indicates the geographical distribution of software companies in the state.

In particular, Northern Virginia has seen major expansions in its high-technology activities and significant increases in the incomes of residents in the area-e. g,. Fairfax County had the highest medium household income ($90,000) in the US at the end of 2000.

The Northern Virginia region has been part of a wider structural economic shift in the Greater Washington Area that has seen significant growth in New Economy activities Figure 2).

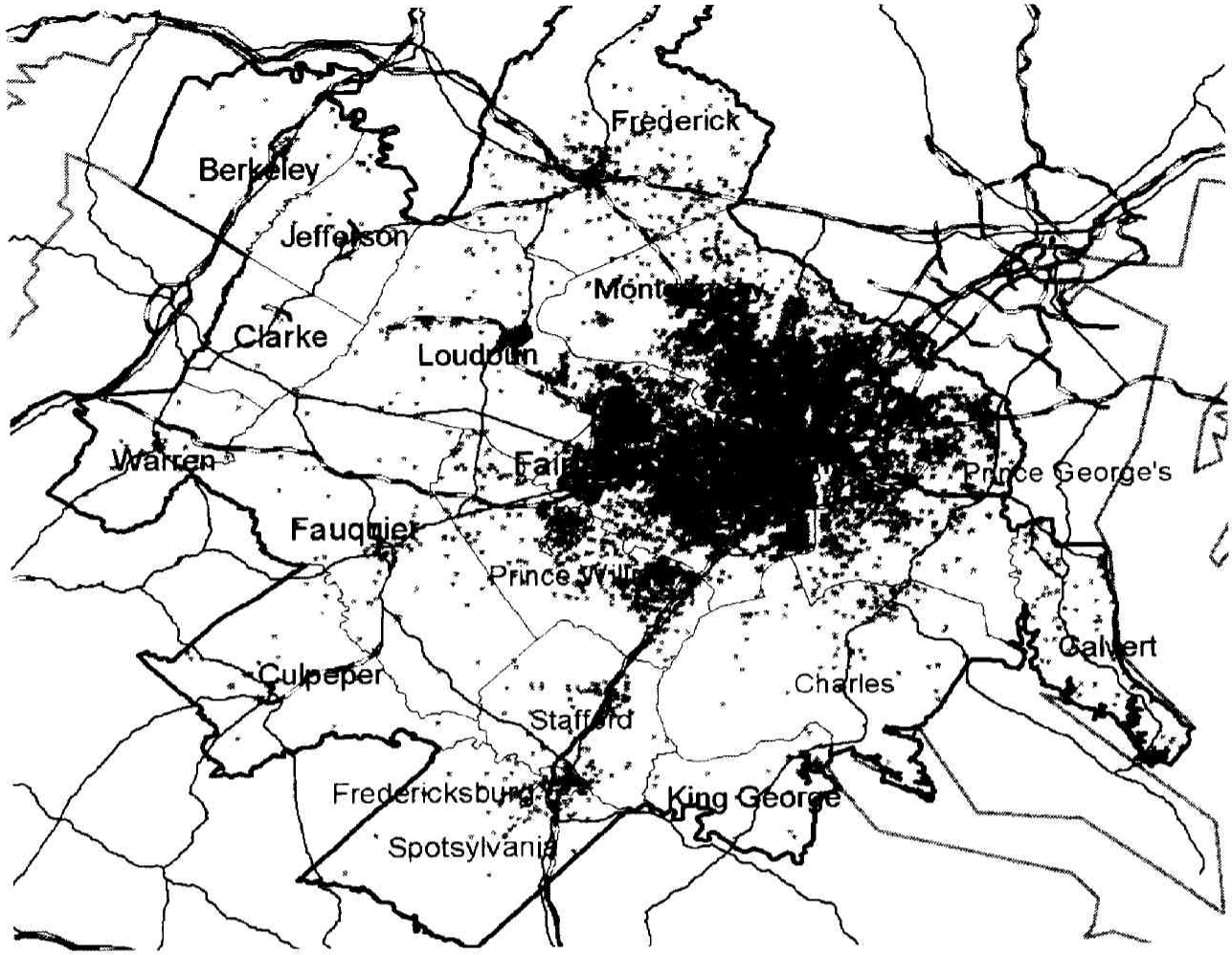


Figure 2. The Distribution of High Technology Industry in the Washington Metropolitan Area

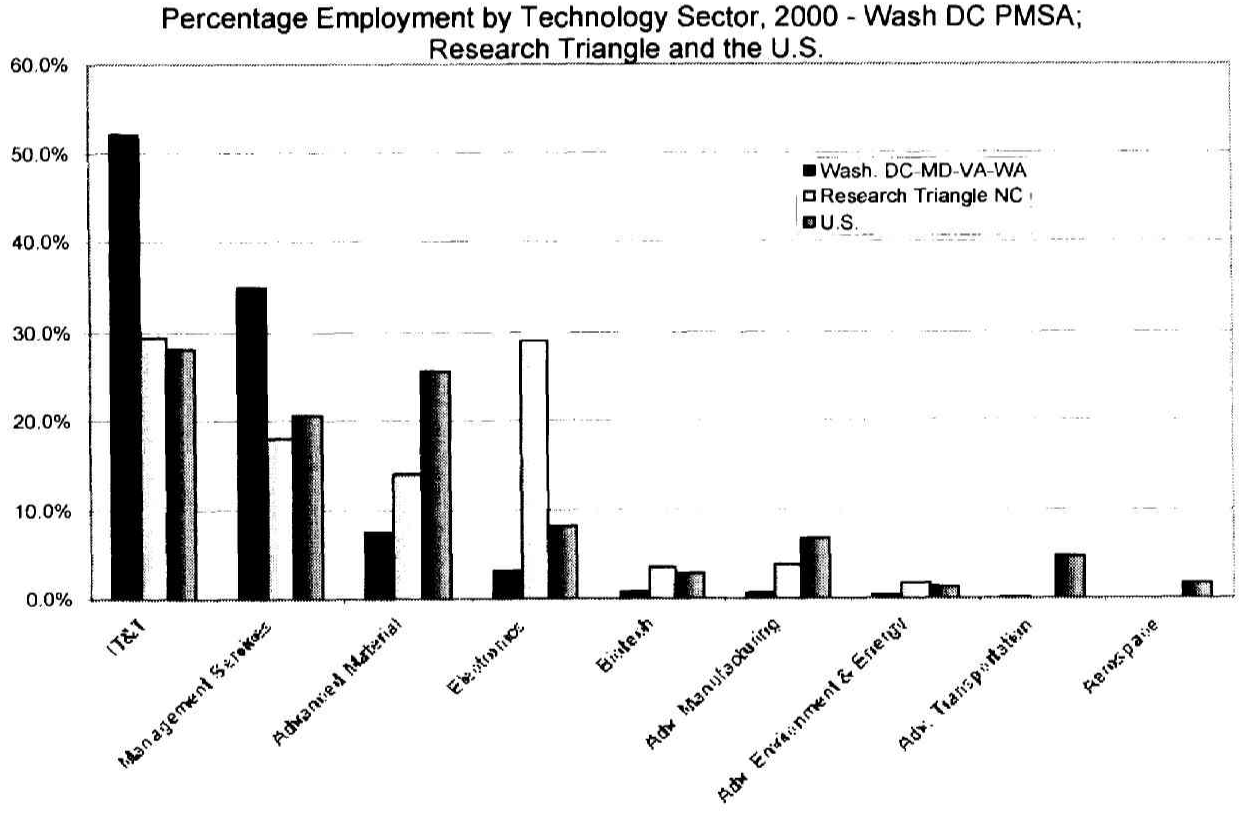
Whilst Northern Virginia focused on telecommunications, southern Maryland has seen important growth in the biotechnology sector. For the region as a whole, the representation of New Economy activities matches that in other high technology concentrations, such as Research Triangle, and exceeds the national average (Figure 3).

Northern Virginia has seen a major growth in its employment base over the past twenty years and the region now constitutes over 30% of the jobs in the Commonwealth. Forecasts indicate that the relative importance of Northern Virginia in the Commonwealth's economy, both in terms of employment and income, is likely to continue to grow into the foreseeable future (Tables 1 and 2).[11] Northern Virginia is anticipated to account for about 50% of the State's population growth between 1998 and 2010. Its share of employment growth within the Commonwealth is projected to be just under 50% and its share of total income growth to be over 60% of the State's rise in total wages and salaries.

The major reason for growth in Virginia has been a structural shift in the economy of Northern Virginia and a rapid rise in the productivity of that sub-region's labor force.[12] In terms of attracting high-technology industry, the driving force behind the economic expansion at the end

of the last century, Virginia ranked 8th amongst US states in terms of high-technology employment creation between 1990 and 1998. In 1999 there were nearly 320 thousand high-technology employees in the state, the majority, over 180 thousand in Northern Virginia. Other centers of high-technology employment in Hampton Roads and Richmond-Petersburg have grown at a slower pace.

This structural shift, for example by expanding and deepening the tax base of the region, has not been without its problems. The change has implications for the relative tax load in Virginia. In terms of its contribution to the state's fiscal purse, Northern Virginian contributes on a per capita basis about one-third more in state income tax than residents in the remainder of the state. The public expenditure patterns in the Commonwealth have resulted in transfers from Northern Virginia to areas in the rest of the state that may pose problems of economic sustainability for Northern Virginia in the longer-term.



Source: Estimated based on the CBP 1989-1997 datafiles, Dept. of Commerce,

Figure 3. The Distribution of Technology Employment in the Washington Region and other High Technology Centers.

TABLE 1 Employment Growth in Virginia 1980－98 and 1998－2010 (employment-numbers in thousands)

Year	Northern Virginia	Rest of State
1980		
Number	694.57	2,022.01
% of State	25.6	74.4
1998		
Number	1,344.66	2,766.83
% of State	32.6	67.4
2010 (forecast)		
Number	1,860.16	3,302.80
% of State	36.0	64.0

Source : George Mason University Mason Center, NPA Data services, Inc.

TABLE 2 Salary, Per Capita Income and Gross Regional Product : 1980, 1998, and 2010 (in 1992 dollars, GRP in billions)

State portion	1980	1998	2010 (forecast)
Mean salary			
Northern Virginia	$ 26,938	$ 34,484	$ 39,195
Rest of State	$ 22,491	$ 27,349	$ 28,457
Per capita income			
Northern Virginia	$ 22,978	$ 32,099	$ 39,500
Rest of State	$ 15,106	$ 20,764	$ 26,348
Gross regional product			
Northern Virginia	$ 30.70	$ 72.69	$ 112.75
Rest of State	$ 74.54	$ 117.30	$ 161.80
NVA as % of the State total	29.2%	38.2%	41.1%

Source : George Mason University Mason Center, NPA Data services, Inc.

Not all parts of the State have performed equally well. Indeed, the evidence would seem to indicate an increase in the level of income inequality across Virginia .[13] In particular those that have been reliant on industries requiring sunk costs have met with difficulties. The far Southwest Virginia coalfields have seen employment decline as automation of the mines has taken place. The area of Southern Virginia bordering North Carolina have seen textile and apparel unemployment losses as the result of the local industry having to compete in highly competitive global markets. Apparel manufacturing employment has been in secular decline with 2,200 jobs going in 1999 alone. A slightly smaller decline has been witnessed in recent years in tobacco manufacturing and a somewhat larger one in the manufacture of transportation equipment.

These and other economic and social changes within the Commonwealth pose continual challenges to regulating agencies such as the State Corporation Commission (SCC) that regulates key sectors. The rapid growth in regions such as Northern Virginia pose not only problems in ensuring that the underlying financial structure of the region's economy is based on a sound foundation but also that the supply of essential infrastructure, such as water supply, is maintained at a satisfactory quality. But the SCC also has concerns of basic supply and the requirement to ensure that the slower growing parts of the Commonwealth are not deprived of essential services such as telecommunications. This is taking place at a time of significant technological change and during a period of important social metamorphosis as the shift into the information age occurs. The definition of the public interest, for example, would not be the same now, as it was when the SCC was established even if there had been no advances in economic thinking on regulatory policy. What the public now wants and hopes for is simply different from a century ago.

NATURE OF FOREIGN DIRECT INVESTMENT

Foreign direct investment in the US is important to the national economy. The country's strong economic showing in the 1990 s in the face of very significant deficits in foreign trade and in the current accounts was in part sustained by inflows of foreign direct investment.

In 1997 foreign direct investment the US amounted to some $ 839, 573 million and it was responsible for about 5, 134, 700 jobs. The flows of foreign direct investment into the US waxes and wanes over time in the light of such things as international confidence in the future performance US economy and the relative positions of national interest rates. For example, the US businesses acquired or established by foreign direct investment grew significantly in the 1990 s, rising from $ 65, 932 in 1990 to $ 215, 256 million in 1998. [14]

The national sources of foreign direct investment also change over time. For example, Japanese investment was $ 19, 933 million in 1990 but fell to $ 8, 048 million in 1999 whilst UK investment in the UK rose from $ 13, 096 in 1990 to $ 110, 115 million in 1999. These geographical variations reflect the strength of national economies at various times and the relative returns from domestic as opposed to foreign investment. Inflows into individual regions or states, however, while partly influenced by their share in the national economy, can deviate from national trends due to their own meso-economic structure and their own economic performance and as a result of actions by their public agencies.

At the meso level, international business in the overall Washington DC Area in 2000 amounted to about $ 15. 3 billion. This was some 6. 6% of the regions total gross product. The forecasts of trends in international business in the region made in late 200 were for about an about 2. 0% growth in for 2001 and 1. 5% for 2002, although the recent downturn in the US economy makes this a somewhat optimistic projection.

Isolating out foreign direct investment inn Northern Virginia is not straightforward because most data is at the state level. The Commonwealth of Virginia as a whole (in terms of gross book value) enjoyed direct foreign investment of $ 10, 702 million in 1990, a figure that rose to $ 15, 129 million in 1995 and to $ 20, 158

million in 1997 (about 2.4% of the national total).[15] In terms of employment, some 5.3% of the labor force in 1997 was in US affiliates of foreign companies, somewhat above the national figure of 4.8%. In total numbers it had risen from 113,300 in 1990 to 143,300 by 1997.

As a rough estimate, about 80% of foreign establishments in Virginia are located in Northern Virginia. Most foreign-owned entities in this region are also non-manufacturing facilities, while in other parts of the state they are more likely to have capital intensive manufacturing facilities. This makes direct comparisons of parameters such as employment extremely difficult.

The region's attraction for foreign investors was largely in the telecommunications sector in which Northern Virginia has been a major regional player. While the region initially had space for development and resources, most notably highly trained workers, being made available from government and military down sizing, it was not its cost structure that was the major economic driving force. Subsequent rises in labor and land costs in the late 1990 s, combined with rising congestion, reinforce arguments that costs, at least as traditionally perceived, were not the main force behind the growth in high technology activities, nor the flow of foreign investment. It was more the potential revenue generation of the new technologies being developed and synergies that come from spatial focusing of development and production.

In this context, the level of direct foreign investment in Northern Virginia was certainly not the dominant factor leading to it breaking out of growth its sluggish economic state in the 1980 s. Nor is it likely to be the dominant factor that will lead to self-sustaining growth in the future. Although, it should also be said that the relatively large foreign presence in the Washington Area economy also provides an important linking mechanism for small and medium local US to move into international markets.[16] The importance of the federal government and its agencies, and the military in the region were direct and indirect drivers in the past and will continue to be so in the future. But the amount of foreign direct investment has been significant, and probably more so in those areas more distant from federal government and the military. Some very large companies, such as British Telecom, have also been important players in the Northern Virginia economy.

CONCLUSIONS

There have been continual shifts over the years concerning the factors that influence regional economic growth. This may partly be due to a combination of technology and institutional changes that have influenced the relative comparative advantages of various locations. The advent of high technology, relatively mobile production and service industries has stimulated new thinking bounded by different parameters. Within the context, the nature of foreign investment has changed and with it the features of the recipient regions being sought by investors.

The Northern Virginia region was one of the US economic success stories of the early 1980 s and the 1990 s in terms of its economic growth. It also seems to be weather some of the recent economic storms rather better than some other parts of the US. The area attracted a disproportionate amount of foreign direct investment into its high technology firms. This was cer-

tainly not the driving force behind the region's economic transformation, but it did contribute and continues to contribute to the area's success. When the history of the region is written in more detail, it seems likely that there were key international players that contributed to Northern Virginia's economic success.

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