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A Study of Factors Affecting the India's Service Sector: An Econometric Analysis

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Abstract_ In the process of economic development, it is noticed that most of the economies follow a definite and distinguished pattern of sectoral structural transformation. The specific objectives of the study are, to study the growth pattern of Indian service sector of its sub sector, to investigate the factors, which affect the growth of service sector in India? To achieve the objectives of the study secondary data from 1990 to 2010 were collected from the different published sources. To study the factors response toward the service sector in India multivariate analysis was carried out.

Keywords- growth, factors etc.

INTRODUCTION

In the process of economic development the economies pass through the different stages of the development in due course of time. In the process of economic development, it is noticed that most of the economies follow a definite and distinguished pattern of sectoral structural transformation. As has been observed across various countries by Kuznets (1966) that the path to economic development is characterized by a change in the composition of aggregate output with a decline in the share of agriculture (primary sector) and the rise in the industry (secondary sector) During this regime, a definite and distinguished pattern of structural transformation among these economies is being observed. One of the characteristic features displayed by these an economy is better known as 'teritiarisation' of the economy. That means the share of service sector to the Gross Domestic Product is continuously rising. It is evident from the National Accounts Statistics released by the Central Statistical Organization time to time that the share of agricultural sector in real GDP at 1993-94 prices declined from 55.5 percent in the 1950s to 28.7 percent in 1990. The share of industry and services increased from 16.0 percent to 27.1 percent and 28.1 percent 44.2 percent respectively during the same period. In the 1950s it was the primary sector that was dominant sector of the economy but the tertiary sector emerged as the major sector of the economy in 1990s. This study also explores the factors behind the dynamism of the services sector in India. One explanation suggested in the literature for fast growth in services is that the income elasticity of demand for services is greater than one. Hence, the final demand for services grows faster than the demand for goods and commodities as income rises. Another explanation is that technical and structural changes in an economy make it more efficient to contract out services that were once produced in the industry. This type of outsourcing has been called the "splintering" of industrial activity. Splintering results in an increase in net input demand for services from the industrial sector, as well as the services sector growing proportionately faster than other sectors. The empirical evidence presented in the study shows that while splintering and high income elasticity of demand for services have served to stimulate services growth in India, it is necessary to look beyond these factors to fully explain the growth acceleration since the 1990s. In particular, important roles also seem to have been played by economic reforms, the advent of the IT era, and growing external demand for services exports.

OBJECTIVES

In this context, an effort has been made to study the factors, which affect the growth of service sector in India. The specific objectives of the study are given below:

- To study the growth pattern of Indian service sector of its sub sector.
- To study the factors affecting the service sector in India.
- To study the potentially challenges of coefficient input & output for service sector in India.

RESEARCH METHODOLOGY

To achieve the objectives of the study secondary data from 1990 to 2010 were collected from the different published sources like: Economic Surveys, Statistical Abstract of India, Statistical Abstract of Punjab, Agricultural Statistics at a Glance, RBI Bulletins, NCEAR, Online Data, Journals, Articles, Newspapers, etc. To study the factors response toward the service sector in India multivariate analysis was carried out. To study the growth pattern in Indian service sector, CGR were estimated by fitting exponential curve on time series data.

RESULT AND DISSCUSSION

Services activities are to constitute the 'tertiary segment' of an economy. Services possess three characteristics that make them different from goods, they are intangible, they are non-storable, and they involve a simultaneous action between the service provider and the service consumer. Unlike goods, ownership of a service is not transferred during the process of service provision; the service supplier stores instead the capacity to provide the service at the time when he has access to a service demander Growth of services. Historically, industrialization was seen as the driving force of modernization and prosperity. The service economy was seen as a mere adjunct to manufacturing. The demand for services has also grown tremendously due to demographic shifts, changes in consumer preferences and technological advancements. Services form 49% of India s GDP, with industry at 29% and agriculture at 24% (2000/01). It employed 19% of the total workforce. This has been the only sector that has shown consistently high growth in the last decade.

Potential for services, Domestic demand has been increasing with the liberalization process creating an additional demand for services like recreation financial services and telecommunications. Globally, the General Agreement on Trade in Services (GATS) governs the trade in services. Liberalization of services could provide as much as 6 trillion in additional income in the developing world by 2015. World services output has grown 2.9% in the last de decade - double that of agriculture (1.4%). The contribution of the service sector to world gross domestic product was 64% in 2000, compared to 57% in 1990.

Concept of Tradability: Tradability refers to the ability to transact in a particular service. Services are often characterized as non tradable. Increasingly, many services, which have long been considered domestic activities, have become internationally mobile. Even services in which consumer provider interaction has traditionally been high (e.g. health) are now amenable to unbundling and, eventually, cross-border trade.

Tradability is on the increase: Separation of the time and space aspects of service provision and service usage are two ways by which tradability has increased. The following developments have led to spatial delinking of these two activities

1. Dramatic drop in Communication costs - A major facilitator in the transfer of services has been plunging telecommunication costs and advances in technology.
2. Trade agreements and deregulation - Trade agreements and increased deregulation of services globally has helped remove artificial restrictions on t he movement of services.
3. Revealed Comparative Advantage - Theoretical concepts like the revealed comparative advantage have helped highlight areas in which is particular nation could compete.

The growth in services has also been accompanied by the rising share of services in the world transactions. Testimony to the rise in international supply of services is the fact that trade in services has grown as fast as trade in goods in the period 1990-2003. Along with this worldwide has been marked shift of FDI away from manufacturing sector towards services sector. The expansion of this sector is expected to play a vital role in generating employment, trade and business opportunities in the most of the economies of future. These reforms have had a major beneficial impact on the economy. By 2006, the average share of imports and exports in GDP had risen to 24%, up from 6% in 1985. Inflows of foreign direct investment increased to 2% of GDP from less than 0.1% of GDP in 1990, with outflows of foreign direct investment picking up substantially at the end of 2006. The combined fiscal deficit of central and state governments has been reduced from 10% of GDP in 2002 to just over 6% of GDP by 2006, with the ratio of debt to GDP falling from 82% in 2004 to 75% by March 2007. There has been a massive increase in output, with the potential growth rate of the economy estimated to be around 8½ per cent per year in 2006. GDP per capita is now raising by 7½ per cent annually, a rate that leads to its doubling in a decade. This contrasts to annual growth of GDP per capita of just 1¼ per cent in the three decades from 1950 to 1980. (Economic survey 2007)

FAST GROWERS SERVICES

- Business services were the fastest growing sector in the 1990s, with growth averaging nearly 20 percent a year. Though disaggregated data for this category are not available, however export and software industry data show that the growth was mainly on account of the IT sector. Despite being the fastest growing sector, business services, particularly IT activity, was growing off a low base and its contribution to service sector and GDP growth was quite modest in the nineties. As we discuss later, this segment is expected to continue growing at a very high rate and is likely to contribute more significantly to services growth in the future.
- Communication services, which registered growth of 14 percent a year during the 1990s, made a significant contribution to services growth. The growth in communication was mostly due to telecom, which accounts for 80 percent of output
- In the banking sector, growth jumped from about 7 percent over the period 1950-1980, to 12 percent in the 1980s, and to 13 percent in the 1990s. Growth was most rapid in NBFIs (which grew by 24 percent in

the 1980s and 19 percent in the 1990s), followed by growth in the banks (10 percent and 9 percent respectively in the 1980s and 1990s). Overall, the contribution of banking to services sector growth was larger than that of the communications sector.

- Community services and hotels and restaurants increased at the trend growth rate through the early 1990s, and experienced a pick up in growth in the latter part of the decade. In community services, this was due to both education and health services (accounting for about 70 percent and 23 percent of the value added, respectively) rowing at an average rate of 8 percent in 1990s.

TREND GROWERS

Among the trend growers, the growth rate of distribution services (the largest service subsector in India), averaged about 6 per cent in the 1980s, higher than in previous decades, and accelerated further to about 7 per cent in the 1990s - just below the threshed for fast growers.

The rate of growth of public administration and defense in the 1990s averaged 6 percent, which was similar to the growth experienced in previous decades. Growth spiked in response to the Fifth Pay Commissioner awards to government employees in the late 1990s, but this did not substantially increase average sector growth for the decade as a whole. The growth rate of personal services jumped to 5 per cent in the 1990s, but remained below the growth in most other services activities. The other sub-sectors such as transport, dwellings, and storage grew more or less at the same rate in the 1980s and 1990 as in previous decade.

Table 1 : Growth Rates and Sectoral Shares

Sector	Activities Included	Avg. Growth in 50s-70s (Share in GDP in 1990)	Avg. Growth in 80s (Share in GDP in 2000)	Avg. Growth in 90s (Share in GDP in 2011)
Trade, hotels and restaurant				
Trade (distribution services)	Wholesale and retail trade in commodities both produced at home (including exports) and imported, purchase and selling agents, brokers and auctioneers	4.8(11.7)	5.9(11.9)	7.3(13.7)
Hotels & Restaurants	Services rendered by hotels and other lodging places, restaurants, cafes and other eating and drinking places	4.8(0.7)	6.5(0.7)	9.3(1.0)
Transport, storage and communication				
Railways		4.2(1.5)	4.5(1.4)	3.6(1.1)
Transport by other means	Road, water, air transport, services incidental to transport	6.3(3.6)	6.3(3.8)	6.9(4.3)
Storage		5.5(0.1)	2.7(0.1)	2(01)
Communication	Postal, money orders, telegrams, telephones, overseas communication services, miscellaneous	6.7(1.0)	6.1(1.0)	13.6(2.0)
Financing, insurance, real estate and business services				
Banking	Banks, banking department of RBI, post office saving bank, nonbank financial institution, cooperative credit societies, employees provident fund	7.2(1.9)	11.9(3.4)	12.7(6.3)
Insurance	Life, postal life, nonlife	7.1(0.5)	10.9(0.8)	6.7(0.7)
Dwellings, real estate		2.6(4.0)	7.7(4.8)	5.0(4.5)
Business services		4.2(0.2)	13.5(0.3)	19.8(1.1)
Legal services		2.6(0.0)	8.6(0.0)	5.8(0.0)
Community, social and personal services				
Public administration, defense		6.1(5.3)	7.0(6.0)	6.0(6.1)
Personal services	Domestic, laundry, barber, beauty shops, tailoring, others	1.7(1.6)	2.4(1.1)	5.0(1.1)
Community services	Education, research, scientific, medical, health, religious and other community	4.8(4.0)	6.5(4.3)	8.4(5.5)
Other services	Recreation, entertainment, radio, TV broadcast, sanitary services	3.4(1.1)	5.3(1.0)	7.1(0.7)

Source: CSO.

WHICH SERVICES HAVE GROWN RAPIDLY?

In this section we identify the drivers of growth acceleration in the services. The data on annual growth rate series over the past fifty years suggests a structural break in growth in services starting in 1980. While through the 1970s, the growth path was more or less flat, the trend shifted upwards in the 1980s and then perhaps again in the 1990s. The acceleration in services growth in the 1980s and 1990s was not uniform across different activities. Some segments grew at a rate much faster than their past average growth rates, while for other sub-sectors, growth rates were similar to the past trend. To identify the growth-drivers within the services sector, we compare the growth rates of various activities in the 1990s with their previous trend growth rates. The trend growth rates are estimated using the three year moving average of the growth rate and the period through 1990 is included in estimating the trend (except for banking for which the trend is estimated using the data to 1980).

CONTRIBUTION OF FAST AND TREND GROWERS TO SERVICES GROWTH

The fast growing activities accounted for about a quarter of services output in the 1980s, but because of their relatively fast growth, these activities represented one-third of these services output by 2000. We show the estimation of the average contribution of the fast growers and trend growers to services growth in the 1950s-1970s, the 1980s, and the 1990s. Based on our estimates, the high services growth in the 1980s was primarily due to the trend growing sub-sectors. These activities made a contribution only about half as large. In the 1990s, by contrast, fast growing sectors made about the same contribution to services growth as the trend growing sectors. In fact, since the growth of trend growing sectors was about the same in both decades, the fast growers collectively accounted for almost all of t he higher services growth in the 1990s. This is consistent with new activities and industries having sprung up in the fast growth sub-sectors, but not in the trend growth ones.

It is found that growth pattern in services sector has not been uniform across all services in India. Some services have grown fast in term of their share in GDP and also in term of their share in trade and FDI (e.g. software and telecommunication services). But there are some services, which have grown fast but have not been able to improve their share in international transaction (e.g. health and education) while there are some services that have in fact witnessed a negative growth and also a low share in international transaction (e.g. legal services).International trade in services has become more important in recent years as advances in technology have permitted new means of providing services across borders. While there is little doubt that services trade is an essential ingredient to economic growth and sustainable development, it is widely accepted that it can only make such positive contribution if appropriately liberalized and implemented across countries. An efficient service sector is crucial for the growth and competitiveness of an economy. (Copeland and Mattoo, 2008)

World services output has grown 2.9% in the last de decade - double that of agriculture (1.4%). Service activity can also be stimulated by technological advances, whereby new activities or products emerge as a result of technological breakthrough—such advances are likely to be particularly relevant in the case of the IT sector (e.g. the internet), telecommunication (cellular phone services) and to some extent in financial services (credit cards, ATMs etc.) Liberalization can also provide a boost to services. In India, important policy reforms were made in the 1990s which were conducive to the growth of services sector, such as deregulation, privatization and opening up to FDI.

ROLE OF SPLINTERING

As noted, changes in production technique can cause a firm to splinter, and, as a result, the proportion of output originating in the services sector to increase. Such splintering would be reflected in an increase in the use of services as intermediate inputs but not as final demand. One way to estimate the importance of splintering to services growth in India is to measure the increase in input usage of services in other sectors through changes in the input-output coefficients. The matrices for different years show that the use of services sector inputs in industry increased by about 40 percent between 1979/80 and 1993/94, that is the input-output coefficient increased from 0.15 to 0.21. The use of services inputs into agriculture almost doubled during this period, but still remained low (only 5 percent of the gross output).

Another way to show how important splintering has been in India is to look at the change in the input-output coefficients for services input in agriculture and industry, which increased by 0.03 and 0.04, respectively, during the 1980s. These coefficient changes would have increased demand for services (as a first round effect) by:

$Y_S = 0.03Y_A + 0.04Y_1$

Where Y_i is the output in sector i. Dividing through by total output Y and evaluating at the average sectoral shares during the 1980s (0.35, 0.25 and 0.40 for agriculture, industry and services, respectively), yields:

$Y_s/Y_{sx} = ((0.03*0.35)) + (0.04*0.25)) / 0.4 = 0.051$

or 5.1 percent over the decades. This would suggest that splintering may have added about ½ percentage point to annual services growth during the 1980s.

ROLE OF FOREIGN DEMAND

With the advent of the IT revolution, it has become possible to deliver services over long distances at a reasonable cost, thus trade in services has increased worldwide. India has been a particular beneficiary of this trend. In India, the exports in services (in dollar) grew in average at 15 percent a year in the 1990s, compared with 9 percent in the 1980s, and at 21 percent a year in the second half of the 1990s. The increase in services exports has been most dramatic in software and other business services (included in the miscellaneous services), but there has also been growth in the export of transport, and travel services. As a result, the composition of services has changed dramatically in favor of miscellaneous services, which includes software exports. From the input/output matrix, the input usage in services is roughly about 40 percent of gross output. Thus, about 60 percent of services exports would be valued added. Based on this assumption, value added by services exports can be calculated to have made a contribution to services growth of about 0.2 and 0.6 percentage points per annum in the 1980s and the 1990s, respectively. Even though the estimated contribution of higher foreign demand to growth in the 1990s is calculated to have been fairly small, services exports have continued to grow rapidly into the 2000s (with the growth of software exports averaging 46 percent per annum during 1995-2003). With the IT sector expected to continue to flourish in the future, its contribution to growth will become increasingly significant over time.

Table 2 : Evolution of Input Output Coefficients in India

	Agriculture	Industry	Services
1979-80			
Agriculture	0.06	0.13	0.04
Industry	0.07	0.35	0.11
Services	0.02	0.15	0.10
1989-90			
Agriculture	0.17	0.04	0.04
Industry	0.14	0.37	0.17
Services	0.05	0.19	0.19
2001-10			
Agriculture	0.15	0.04	0.03
Industry	0.14	0.37	0.15
Services	0.05	0.21	0.20

Table 3 : Private Final Consumption of Services in India

Year	Private Final Consumption (percent of total final consumption)
1950-51	102
1970-71	13.4
1980-81	15.5
1990-91	20.4
2001-10	27.6

Table 4 : Growth Rates of Value Added and Final Consumption of Services and GDP

	Private final consumption of services	Service sector value-added	GDP
1970s	4.6	4.5	2.9
1980s	5.4	6.6	5.8
1990s	7.9	7.5	5.8
2010	8.7	8.1	6.1

ROLE OF LIBERALIZATION

Policy changes are also likely to be a factor behind the growth in services sector activity in India, especially changes relating to deregulation, liberalization of FDI, and privatization of government owned services. An example would be the telecom industry where inefficient government provision led to a situation of effective rationing of services up until the early 1990s. As seen earlier, communications has been one of the fastest growing services subsectors in the 1990s and liberalization undoubtedly played a major role.

In order to empirically relate the growth in services to liberalization measures an index of liberalization is needed, which is difficult to create using the available information. Nonetheless, preliminary support for the effect of reform related measures on growth is provided by analyzing the correlation between the flow of FDI and the increase in private sector participation in services to growth. The relationship between the cumulative flow of FDI in the 1990s and average growth performance is found to be quite strong the positive and significant association holds even if we exclude the fastest growing communication sector. Similarly, the participation of the private sector in service activities also increased in the 1990s (for some activities, the share started increasing in the 1980s).

QUANTIFYING THE CONTRIBUTION OF DIFFERENT FACTORS IN SERVICES GROWTH

Many different factors played a role in explaining the growth of services in the 1990s. We now make a rough estimate of the relative contribution of each factor in explaining services growth. We first estimate the trend part of the growth rates (which could be attributed to income elasticity and splintering effects). For this we estimate the trend rate at which various service activities as a share of GDP increased up until 1990. We use this estimate to predict the size of the services sector during the 1990s. High income elasticity and splintering effects (unless the elasticity's or the input-output coefficients change dramatically) would imply an increase in the share of services in GDP at a predetermined rate, but at one which is not likely to change much over time. We compare the actual share of services in GDP with our predicted share and calculate the difference. This residual (or excess) growth, which is positive for the fast growing sectors, cannot be attributed to elasticity and splintering effects, and reflects other factors such as increased exports, policy reforms and technological progress.

The residual component of growth in fast growers on average accounted for 1¾ percentage points of growth of the services sector in the 1990s. The next step is to net out from the residual growth, the growth attributed to increased exports of services in the 1990s. This we estimated at about ½ percentage points. The remaining growth, of about 1¼ percentage points, can thus be attributed to factors such as reforms.

EMPIRICAL TESTS OF COMPETING HYPOTHESES

Taking a different approach from the previous section, we empirically test for the significance of different factors in explaining growth. We estimate regression equations separately for each activity, and by pooling the data for various activities. The right hand side variables in the regressions include measures of income effect, variations in input coefficients effects, the effect of increased trade in goods and services, and a measure of policy changes. Reasonable proxies are available for most of these variables, but constructing a satisfactory measure of policy changes in each subsector did not prove feasible. We use two alternatives involving dummy variables in order to circumvent this limitation.

First, we estimate separate regression equations using time series data to explain growth in each service activity. To capture the influence of reforms, we use a dummy variable for the 1990s. The justification for such a dummy is that reforms in the services sector were mostly carried out in the 1990s. After controlling for other effects, a significant coefficient for this dummy would indicate that there is an unexplained part of growth which could possibly be attributed to reforms

The other approach we take is to use panel data for different service activities, where the observations are averaged over five year periods. Instead of a general dummy for the 1990s, we construct a dummy variable which assigns a value 1 to activities which liberalized in the periods 1980:90, 1991:95 and 1996:2000. However, this is only a marginal improvement over the previous approach; even so, the results are interesting as described below.

A. Decade-Specific Dummies (Time Series Regressions)

For decade-specific dummies, we use a time series regression to estimate the following equation :

GSERit=Ci + a 1GCDTYt + b 1GTRDt + g iGEXSt + diD80 + liD90 + eit (3)

t = 1952 2000

ei » N (O, s2i)

The dependent variable in (3) is the annual growth rate in the i-th services activity in year t. The right hand side variables include the growth rates of (i) the commodity producing sectors (GCDTY), (ii) the volume of the external trade of goods (GTRD), and (iii) the value of exports in services (GEXS). To smooth out the noise in the annual data, all growth rates are measured as three-year moving averages. GCDTY is intended to capture the effect of income growth on final demand, as well as the effect of growth in other sectors on the demand for services inputs. GTRD is included to see whether increased openness of the economy to external trade has also resulted in higher growth for services. This link is expected to be important a priori for distribution services, transport, and hotels and restaurants. Finally, since certain sectors (especially business services and hotels and restaurants) are highly dependent on foreign demand, we include GEXS in the regressions. In order to account for any residual in growth, we also have separate dummies for the 1980s and 1990s.

The equations are estimated using ordinary least squares. Regression results reported in Table 5 show that for each fast growing sub-sector, the dummy for the 1990s is positive and highly significant. The demand side factors seem relatively less important in explaining growth in these activities, as their coefficients are mostly insignificant. The one exception is GEXS, which, unsurprisingly, has a positive and significant coefficient in the equation for business services (IT). By contrast, in the equations for trend growing activities, at least one of the demand side variables has a significant coefficient. Another contrast is that the dummy for the 1990s is not significant in explaining the growth in most of the activities which grew at trend rates in the 1990s. The results also show that the dummy for the 1980s is significant for business services, financial services and community services. For financial services this could be because deregulation began in the 1980s. For business services, the IT sector was almost non-existent in the 1980s, so the growth is perhaps due to other activities included in business services. As expected, growth in commodity sector and in the volume of external trade in goods are both important in explaining the growth in distribution services.

We considered two modifications in the regressions above. First, in order to capture the income effect on the growth of services demand, we include growth rate of GDP, rather than growth of just the commodity producing sectors. Second, we include separate dummies for the first and second half of the 1990s. The rationale for doing this is that some of the major reforms in the services sector were carried out in mid-1990s and may have affected growth more in the second half of the decade than in the first half. The results for the demand side variable GGDP are stronger; its coefficient is larger and more significant for most activities, which is not surprising. Even with this variable, the significance of the dummy for the 1990s is retained. As expected, results are also found to be stronger for the dummy for the second half of the 1990s, than for the first half.

SECTOR-SPECIFIC LIBERALIZATION DUMMIES (PANEL DATA REGRESSIONS)

Using panel data regressions, we estimate the following equation controlling for fixed effects (which allows for intercepts to vary over different units).

GSERit = Ci + a GINDit + b GAGRit + hGTGit + gGTSit + dDSERit + eit (4)

The regressions are estimated for a panel of growth rates in the following service activities: trade, hotels, and rail transport, transport other means, storage, communication, banking, insurance, dwellings, business services, legal services, community services, and personal services. The time period used is 1970-2000, and the observations are averaged over 1970s, 1981-85, 1986-1990, 1991-1995, and 1996-2000. The dependent variable is average annual growth in rate in services activity i in period t. The right hand side variables are average growth in industry (GIND) and agriculture (GAGR), (ii) the volume of external trade in goods (GTG), and (iii) the value of exports of services (GTS) in period t. A dummy variable (DSER) measures whether reforms were carried out in each services sub-sector.

The variable which is found to be the most significant is the dummy variable for reform measures in each activity. Thus, the sectors which were opened up for FDI, external trade, or private ownership etc. were the ones which experienced faster growth. Among other variables, we find services growth to be significantly correlated with the growth in the industrial sector. As a robustness test, we check whether the dummy for the 1990s (D90s) yields a significant coefficient after controlling for the reform-specific dummy. Result in column II of Table 6 show that the coefficient for D90s is no longer significant. Thus, we argue that the acceleration of the 1990s is likely due to reforms and that this variable is an important determinant of the higher growth during that decade.

Table 5 : Explaining Services Growth using Time Series Data, 1980-2010

	Fast Growing Activities					**Trend Growing Activities**			
	Business Services	***Communi-cation***	***Financial Services***	***Community Services***	***Hotel, Restaurant***	***Distribution***	***Transport***	***Public Administration and Defense***	***Personal Services***
Constant	2.01 .86	5.8*** 8.1	5.13*** 3.95	4.9*** 3.5	1.99*** 3.5	2.52*** 4.8	5.2*** 10.7	7.14*** 8.4	1.81*** 4.25
GComm	-.006 -.01	.12 .72	.82*** 2.78	-.03 -.18	.72*** 5.56	.62*** 5.24	.12 1.11	-.19 -.98	.18* 1.86
Gtrade	-.22 -1.45	.02 .40	.03 .36	-.02 -.49	.07* 1.96	.08** 2.31	.10*** 3.27	-.11* -1.88	-.05* -1.87
GSerEx	.44*** 3.7	.04 1.2	-.09 -1.33	.01 .32	.005 .32	-.02 -.76	-.00 -.09	.06 1.41	-.03 -1.43
D80	9.3*** 4.02	-.71 -1.01	2.92** 2.29	2.0*** 2.78	-.14 -.25	-.45 -.88	-.31 -.66	.88 1.06	.37 .88
D90	22.4*** 5.78	5.9*** 4.99	7.38*** 3.45	5.4*** 4.4	3.3*** 3.5	1.16 1.34	.07 .08	.61 .43	3.53*** 4.99
R2	.62	.74	.42	.37	.70	.55	.36	.11	.66

***, **, * indicates significance at 1, 5 and 10 per cent levels respectively. Regression estimated using data for 1980-2010, number of observations is 48 in each regression. T values are given below the coefficient estimate in each cell.

Table 6 : Explaining Services Growth using Panel Data, 1980-2010

	I	II
GAgr	.99 1.1	.07 .20
GInd	1.33** 2.12	.82* 1.88
GTG	.45 1.1	
GTS	.15* 1.7	.13 1.5
DSer	5.7*** 3.6	5.7*** 3.6
D90s		-1.1 -1.0
R2, adj. R2	.65, .53	.65, .53
F test for equality of intercept across units	2.8 (F-Stat) .00 (p value)	2.8 (F-Stat) .00 (p value)

Number of observations is 65 in each regression, ***, **, * indicates significance at 1, 5 and 10 per cent levels respectively. T values are given below the coefficient estimate in each cell.

SUMMARY & CONCLUSION

It shows that in common with the experience of many other countries, the service sector in India has grown faster than agriculture and industry. As a result, the share of services in GDP has increased over time. In the 1990s, services growth was particularly strong, and this has led to the services share in output being relatively large compared to other countries at similar levels of development. What is also striking about India's growth experience is that the services sector does not appear to have created many jobs. Admittedly the employment data suffer from limitations. Nonetheless, unlike the experience of many countries where productivity growth in the service economy has tended to lag behind that of other sectors, it appears that the Indian service sector has high labor productivity.

The acceleration in growth of the service sector in India in the 1990s was due to fast growth in the communication, financial services, business services (IT) and community services (education and health). The remaining sectors grew at a constant or trend growth rate. The paper shows that factors such as high income elasticity of demand and increased input usage of services by other sectors have played an important part in elevating services growth. However, other factors such as economic reforms and the growth of services exports also played an important role in accelerating services growth in the 1990s. Significant productivity gains appear to have occurred in the faster growing sectors, leading to a decline in their relative prices. Our findings suggest that there is considerable scope for further rapid growth in India's service economy. That Indian services exports have strong future growth prospects is well known, but we also find that there is considerable scope for further rapid growth in other segments provided that deregulation of the services sector continues. Nevertheless, it is imperative that the industrial and agricultural sectors also grow rapidly. The relatively jobless nature of growth in India's services sector further underscores this need.

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