THE GROWTH OF SERVICE ECONOMY IN MALAYSIA AND ITS ECONOMIC IMPLICATIONS

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This is to certify that Bro./Sis ___P.J. ATCHIAH___
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under my supervision. The relevant comments made on the paper
during its presentation have been incorporated in the present
version of the paper to my full satisfaction.

I have pleasure in recommending that the graduate committee may
approve the paper in partial fulfilment of the requirements for
the degree of Master of Economics.

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CONTENTS
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The Growth of Service Economy in Malaysia and its Economic implications.

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Over the past two decades Malaysia has witnessed profound structural changes in her economic system(1). These structural changes have been observed in a) agriculture b) manufacturing c)construction and d) Service sectors in terms of output, productivity per se, capital intensity and employment levels.The robust growth in the first three sectors (especially manufacturing sector) and pragmatic industrialization policies under NEP have stimulated tremendous growth in the service sector(2). The prime focus of the paper is to examine the factors affecting the growth of service economy as a whole and suggest policy implications for such growth trends.

The researches undertaken so far to see the growing role of the service sector in the Malaysian Economy seems quite meagre and superficial.Given the overall implications of this sector in terms of generating employment and income, this sector warrants a deeper study of its own.

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1)Lee Kiong Hock & Shymala Nagaraj(editors),The Malaysian Economy Beyond 1990, Persatuan Ekonomi Malaysia,Kuala Lumpur, 1991; pp9-41

2) ibid ; Also refer to Khor Kok Peng,Recession and The Malaysian Economy,Institut Masyarakat,1983,Penang;Chap.1; Chamhuri Siwar et al;Ekonomi Malaysia,Longman Malaysia,Petaling Jaya;pp 1-56

Objective:

The following issues pertaining to the growth of the service sector deserve to be investigated in this paper.

a) In most developed economies, the demand for services has an income elasticity greater than one(3). As such, as real income per capita increases , the demand for services grows more than the proportionate growth in income.Thus,the service sector consumes an increasing share of national income and national employment as well (Victor Fuchs 1968). Our task is to find out whether this trend is equally true for the Malaysian Economy.

b) It is found that as economic specialization and automation increase with economic growth,it becomes efficient for services once provided within the firm or household sector to be contracted out to experts in the organization(4). In other words, the same volume of services is being provided as before , but that these services are

now measured as a separate market activity (Victor Fuchs 1968). Our object is to ascertain whether the growing service sector in Malaysia exhibits such a trend. If so, how does this trend will affect i) service quality ii) average costs and iii) demand and production of such services.

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3)By using two-sector growth model(manufacturing and service sector),William Baumol and Victor Fuchs(1968) found that the income elasticity for services in the US economy is >1.Please refer to Robert P.Inman, Managing the Service Economy: Prospects and Problems,Cambridge University Press,Cambridge; 1985;pp.2-3
4) ibid

c) It has been emipirically observrd that although the growth of labour productivity in service sector was relatively much slower than that in industry , the proportion of labour force employed in the service sector is relatively much higher(5). In 1968 Fuch's estimates the hypothesis of lagging productivity of service sector in the US economy accounted for 55% of the annual rate of change in the service share of employment. This paper will examine the validity of this hypothesis in the context of the Malaysian Economy.

Hence the basic objective of this paper is to test the hypotheses that have been generated under statement of the problem a) , b), and c). In addition to this we also examine whether the growing prominence of service sector in the Malaysian economy exhibits the trend of a developed economy (where the overall contribution of service sector to GNP and Employment is significantly higher than that of other sectors). That is, whether the theory of stages of growth which is relevant to developed economies is equally applicable to a growing industrial economy like Malaysia(6). The implications of which will be discussed.

It is also pertinent at this point to discuss whether the accelerated growth of service sector in the Malaysian

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6) A discussion on the empirical aspect of stages of growth can be found in Pascal Petit,Slow Growth and the Service Economy,Frances Pinter,London,1986;pp.18-43.

economy has any adverse effects on other sectors (eg. agriculture,mining etc).If so, what policy measures can be taken to harmonize the overall growth of the economic system. This paper will attempt an analysis on all these issues.

Methodology and Data Source:

For the purpose of analysing the growth of service sector(5) in Malaysia, we will use William Baumol's(1967) two sector model of an economy with different productivity growth in manufacturing and service sectors.

William Baumol's two-sector model of an Economy looks as follows:

The Model : $Is = (Ey - 1)LPm + D + (LPm - LPs)(1 + Ep)$
     When:
- a) Is =   Growth in service share employment over non-agricultural employment.
- b) Ey =   Income elasticity of demand for services;$Ey>0$
- c) Ep =   Price elasticity of demand for Services;$Ep<0$
- d) LPs = Rate of growth of labor productivity in service sector.
- e) LPm = Rate of growth of labor productivity in manufacturing sector
- d) D = Exogenous shift in the demand for services over time.

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5)The Malaysian service sector is based on ISIC(International Standard Industrial Classification).It includes i)Transport, storage and communication ii)wholesale and retail trade, hotels and restaurants iii)finance,insurance,real estate and business services.For the purpose of analysis we will also include Government services and other services(ie community, social and personal services.The Malaysia tertiary sector will encompass all these.

Appendix A will provide an overview of model applied in other countries like United States and Japan in the early 60's. For the purpose of estimating the model, OLS approach will first be used to estimate two important parameters namely i) Income elasticity of demand for services and ii)price elasticity of demand for services. For this purpose a stochastic log-linear model was devised to estimate some of the parameters for the model.

Justification for using Baumol's 2-sector Model to analyze service sector in the Malaysian Economy :

The following reasons can be advanced for using Baumol's 2-sector model to analyze service sector in the Malaysian Economy.

i)William Baumol's model is a simple model but powerful in its own right to undertake empirical work on the growth of service sector economy. The model is found to yield consistent results(6).

ii)The 2-sector model includes only service and manufacturing sectors and ignores the incorporation of agricultural sector in the analysis. Several reasons can be stated for this.

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6) Please refer to literature review in Appendix A.

a) Both service and manufacturing sectors are dynamic sectors in Malaysia and they have shown accelerated growth rates in terms of employment and GNP composition(7).Whereas the growth of agricultural sector decelerated over the years and more so in the coming years(8). Hence the model is appropriate in the study of these two dynamic sectors.

b)The other reason is that since the falling growth rates in the agricultural sector is manifested either directly or indirectly in the manufacturing and service sector Baumol's 2-sector analysis becomes relevant and appropriate for the Malaysian Economy.

c)It is envisaged that Malaysia will reach the status of Industrialized economy by the year 2020.Hence,economic policies are geared to fulfill this vision.Such economic direction and policy emphasis will provide even greater prominence to service and manufacturing industries in the future. The model is therefore relevant from the policy perspective as well.

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7)According to 5th Malaysia Plan('85-1990)the GDP contribution of agricultural sector has declined drastically ie 43.4%(1957),32.2%(1987) and 27.4%(1990).This is not the case for service and manufacturing sectors.For example,the share of GDP of service sector has increased from 44%(1985) to 46.3(1990);the share of GDP of manufacturing sector has increase from 19.1(1985) to 20.5(1990);projected annual increase in jobs from 1990-2000 in the service, manufacturing and agricultural sectors are 7.1%, 3.4% and 0.4% respectively

8)ibid

Given the above reasons, the choice and application of Baumol's model to analyze and understand the growth of service sector become relevant.

DATA SOURCES:(9)

The independent variables used in the model and sub-model are : a) Output value of services (Ds) b) GDP at market (Y) c) CPI for services used as proxy for the price of serves d) Exogenous Demand Shift for service (D) e) The rate of labour productivity growth in manufacturing sector (LPm) and f) The rate of growth of labour productivity in service sector (LPs).

The Dependent variable of the model is the Growth in Service share of employment over non-agricultural employment (Is).

a) Ds: For the output value of services, the data has been scaled for consistency (1970 = 100). To calculate this variable various Economic Reports (Ministry of Finance):78/79 ;78/79;83/84;88/89;90/91 for the output value of Tertiary sector.

b) GDP at market prices were used as proxy for National Income. The sources used are the Economic Reports (Ministry of Finance): 78/79;83/84;88/89;90/91

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9) Data and computation of the variables are available on request from the author.

c) For the prices of services, CPI is used as proxy. The 20 years of data from 1970-1990 was obtained from the Quarterley Bullitin 1991 by Bank Negara.

d) Exogenous Demand shift for was services was calculated from the model itself.

e) The rate of labour productivity growth in the manufacturing sector was calculated using log-exponential growth formula. The data was obtained from the Economic Reports (Ministry of Finance): 78/79;83/84;88/89;90/91 Two differents sets of data was used: 1976-1982 (1970=100)and 1981-1989 (1978=100).

f) The rate of growth of labour productivity growth in the service sector was also culculated using log-exponential growth formula. As above, the same sets of data and sources were used for the culculation.

For the depenedent variable of the model (Is), that is the rate of growth of service employment over non-agricultural employment, log-exponential growth formula was used. For the purpose of culculating this variable, 1988/89 and 1990/91

Economic Reports were used (data pertaing to Employment and labour). For Econometric model, (log Ds= Xo + X1 Log Y + X2 log CPI + U), OLS method was used .The values are computed by using Shazam Economertic programme.

COMPUTATION OF VALUES FOR THE MODEL :

a) Prior to the estimation of the model, data was collected to estimate the following econometric model for the demand for services. That is: Log Ds = Log Xo + X1 Log Y + X2 Log P + u (Where Ds=Demand for services, Y=Income derived by services, P= price level for services, Xo,X1 and X2 are coefficients and u=error term).

Using OLS method, the following results have been found:

   i) R-Square= 0.9825 ; R-square Adjusted= 0.9805

   ii)Estimated Coefficient for Log Y = 0.67205 (=Ey);
   Elasticity at Means=0.76613

   iii)Estimated Coefficient for Log CPI(=P)= - 0.34505(Ep)

   iv)Constant(Log Xo)= 2.3430

   v)T-statistic with 18 DF at 5% significant level shows
      that:
      i)   Y-variable is significant (22.317>1.734)

      ii) CPI-variable is not significant(0.19382<1.734)

Based on the above values, the estimated equation is:
      Ds = 2.3430 + 0.67205 Y - 0.34505 CPI

b)   The value of LPm of the Model, ie rate of growth in labour productivity in manufacturing sector was 0.037388; This was calculated based on Log-Exponential growth formula.For the computation of this figure the data pertaing to the value of manufacturing output and of employment for 1981-1989 period are used.

c) The value of **Lps** of the Model,ie rate of growth in labour
   productivity in service sector was 0.0260; This was
   calculated based on Log-Exponential growth formula.For
   the computation of this figure the data relating to value
   of service output of employment are used.

d) The value of Rate of growth of Service sector employment
    over non-agricultural employment during 1979-1988   is
    0.00953 .

EMPIRICAL FINDINGS AND POLICY IMPLICATIONS:

   a) Using our estimates of Income elasticity of demand
for services($Ey=0.67205$), price elasticity of demand for
services($Ep= - 0.34505$),the rate of growth of labour
productivity in manufacturing sector($LPm=0.037388$), the
2-sector model can be quantified as follow:

$Is = (Ey -1)LPm + D + (LPm - LPs)(1 + Ep)$

$Is = (0.67205 - 1)(0.037388)+D+(0.037388-0.0260)(1-0.34505)$,

or

$Is = (-0.01226) + D + (0.00745)$.

        (a)   (b)   (c)

Using the exponential log, the estimated annual rate of
increase in the service employment share (Is) in Malaysia
over a period from 1979 to 1988 is 0.00953. Based on the
above model, the findings are as follow:

a) Since term (a) is less than 0, that is LPm(Ey-1) < 0, the percentage increase in income (Y=GDP) or income hypothesis does not seem to have any significant influence on the annual rate of change in the share of service employment (8) in the non-agricultural sector.

b) The hypothesis of lagging productivity (term c) accounts for 78 percent (= 0.00745 / 0.00953) of the annual rate of change in the service share of employment in the non-agricultural sector. If this finding is true, then it will

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8) In 1967, using the same two-sector model for the US Economy ,Fuchs quantified the model as follow as follow:
Is=(1.05 -1)(0.22) +D + (0.22-0.011)(1 - 0.6); the estimated Is value is 0.008; According to the model i)the lagging productivity hypothesis ii) the rising income hypothesis and iii) the exogenous demand shift hypothesis contributed to 55 percent(=0.0044/0.008), 14 percent(=0.0011/0.008) and 31 percent(=0.0025/0.0088) of the change in the service share of employment in the non-agricultural sector.The values of all the three terms are positive. In the case of Malaysia, only the lagging productivity hypothesis and the exogenous demand shift hypothesis provide useful explanation for the change in the service share employment in the non-agricultural sector. The overall results,using the Model, appear to be consistent for the Malaysian service sector.

it will have significant policy implications for the Malaysian Economy (9).

c) According to the Model, the exogenous demand shift hypothesis (term b) accounts for 22 percent(.00208/0.00953) of the change in the service share of employment in the non-agricultural sector in Malaysia. Several reasons have been cited for this exogenous, outward "shock" for the relative service demand for service (hence service employment) in recent years. Among the most important reasons are i)increased female labour participation ii) change in business practices – that is, contracting for services once performed inside the organization iii)rise in energy costs and iv) enviromental restrictions (10).

POLICY IMPLICATIONS FOR THE MALAYSIAN ECONOMY

a)The common notion that rising income will have significant impact on the service share of employment has been found to be untrue in the Malaysian context. Since for the Malaysian context $LPm(Ey-1) < 0$, the service share of non-agricultural employment will continue to decline.

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9)According to Baumol and Fuchs(1967&68), The growing importance of service employment in the US economy over the period from 1929 to 1965 is due in large part to the lagging productivity performance of labour productivity in the service sector.
10) It is said that recent rise in energy costs and environmental restrictions have raised costs in capital-intensive industries and shifted demand back to services.

b) Since the hypothesis of lagging productivity accounts for 78 percent of the rate of change in the service share of employment, it is imperative that the gap between manufacturing and service productivity, ie (LPm – LPs), will have to be narrowed. Unless the productivity of labour in the service sector rises to the level now enjoyed by the manufacturing sector , the need for more and more workers in services will increase. Given lagging productivity in the service sector and high growth rate of Malaysian economy, the flow of labour to the Service Sector will adversely affect the manpower needs of manufacturing and agricultural sectors in the long-run. It is suggested that the Service Sector should be more capital intensive so that surplus labour can released to other sectors.

c) The fact that the exogenous demand shift accounts for 22 percent of change in the service employment can have important implications for the Malaysian labour market(11). This exogenous shift in demand for services could be due to changes in the structure of the family life (e.g, increased female labour force participation) or business practice (e.g

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11) In the case of US economy , as estimated by Fuchs and Baumol (1967), the exogenous demand shift accounts for 31 percent of annual service growth of the non-agricultural employment.

contracting for services once performed inside the organization). This factor must be incorporated in the manpower forecasts and planning for the country so that realistic labour policies can be formulated.

CONCLUSION:

It is evident that the Malaysian economy is undergoing rapid structural changes and the service sector is becoming more pronounced over the years (12). Whether such trends exhibit the symptom of "take-off" or the economy showing the sign of maturation needs to be investigated and researched further. From the sectorial trends, in terms of employment and GDP composition, we saw that the contribution of agricultural sector is rapidly declining .It appears to be giving way to secondary and tertiary (service) sectors. We are not sure whether Malaysian economy is exhibiting the symptoms of a developed economy where agriculture will eventually lose its ground to tertiary and secondary sectors. If this is so, then one will have to probe deeper whether such trends are economically desirable in the long-run.

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12) The composition of GDP based on the three major sectors like primary, secondary and tertiary of Malaysia during 1947-1992 shows that these sectors are undergoing distinct structural changes in terms of GDP composition. It is not conclusive that such trend will continue.

To my mind, understanding the dynamics of the growth process of the Malaysian economy, in terms of sectors, is vital.The models and stages of growth of Rostow,Kuznets and Chenery must be studied and applied carefully to see whether the Malaysian Economy is heading towards a service oriented economy.The outcome of such studies will definitely provide guide lines to the government for a balanced economic development in the future. William Baumol's two-sector model provides only a partial analysis of the growth of Service Economy in Malaysia . It certainly provides future research possibilities in the service area of the Malaysian Economy.

Literature review

Although literature on service sector productivity analysis in Malaysia and its implications for the overall economy is limited, various important studies have been undertaken on service sector growth in USA, Australia and Canada. Victor Fuchs(1968) and William Baumol(1967) have done seminal work on the role of services in economic development in USA and they found that services cohsume a substantial share of national income and national employment (1). Fuchs found that services had an income elasticity of demand greater than one for developed economies.The implication of this finding is that as real per capita increases, real services per capita grow more than the proportional growth in income. This means in the long run the demand for services surpasses the demand for manufactured goods. Fuchs also argues that given economic specialization and automation the services will ultimately evolve into separate market activity. Further research by Fuchs on the dynamic growth of service sector indicates that although the service sector exhibits slower labour productivity ,its share in national employment is significantly higher than that of

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(1).Please refer to william Baumol's 2-sector model under Methodology (Research Procedure) page 15.

manufacturing sector.Fuchs' evidence is based on the study of USA economy from 1929 to 1965. It should be noted that Fuchs hypotheses on service sector was carefully tested by Willam Baumol in 1967 by using two-sector growth model of manufacturing and service sector in the USA economy.This model was constructed to find possible explanations for the growth in the service employment in the US economy over the period from 1929 to 1965.Of the three possible explanations for the growth in the service shares,Fuch and Baumol found that(2):

i) the hypothesis of lagging productivity accounts for 55% of the annual rate of change in the service share.What does this mean? This means,according to their findings, the growing relative importance of the services in national employment by the **slower** relative growth of labor productivity in services than in agriculture or in industry.

ii)the rising income hypothesis accounts for only 14% of the annual change in the service share.According to this hypothesis services have an income elasticity of demand

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2) Please refer to Baumol's Model in page 4.
Finding i) is measured in the third term of the Model;ii) is measured in the first term of the model and iii) is measured in the second term of the model.

greater than 1 so that as real income per capita increases, real services per capita grow more than the proportional growth in income.

iii) the exogenous demand shift hypothesis accounts for the remaining 31 percent of annual service share growth.It should be noted that exogenous demand for services is brought about by changes in the structure of family life (eg., increased female labour force participation) or business practice (eg.,contracting for services once performed inside the organization).

Following Baumol-Fuchs' empirical findings (that is,lagging performance of labor productivity in the service sector was the primary factor that drove the US economy towards services),economists like Irving Leveson (1982),Gary Saxonhouse (1985) and Robert Summers(1985) conducted further research for the US economy,Japan and a variety of developed and developing economies respectively.

The Saxonhouse and Summers' studies provide international evidence that supports the emphasis in the Baumol-Fuchs hypothesis on lagging productivity as the

central case of the worldwide drift to service economies.By using international cross-section data , Summers found evidence against the simple hypothesis that increases in income lead to the rising share of service output and therefore in employment. Summers finds that:

i)For the category of all services E=0.98 (i.e income elasticity of demand for services is 0.98) for his sample and this almost equal to unity;

ii)For the analysis of various subgroup of services like housing,medical care and "other consumption services" it was found that the income elasticity of demand was greater than 1.

iii)For subgroup of recreation and education, transportation and communication, and government it was found that income elasticity of demand was 1 or less than 1 but greater than 0.

The overall measurement for income elasticity of demand for services was unity.

As for the price elasticity of demand for services, Summers found the value significantly lower than the previous estimate (Baumol-Fuch estimate F=-.0.06).If this is so, Summers argues that the service sector has an even more