

Decomposition of Economic Growth in Sri Lanka: Deep Look into the Service Sector

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Abstract- The service sector gives the highest contribution to the economic growth of the country and it is about more than 50. Therefore service sector give the highest contribution for the economic growth in Srilanka. Through this research the service sector is decomposed. This empirical study was to measuring the contribution for the economic growth in Sri Lanka by service sector. Time series data is used to identify the decomposition of economic growth in Sri Lanka by Service. Annually data is collected from 2006 to 2014. This study mainly focused on growth decomposition methodology developed by Ivanov and Webster and this methodology used to decompose economic growth in Sri Lanka by service sector. This model presents an approach that is general and it can be applied to other countries. The methodology identifies the direct impacts of specific service sector components on the per capita growth of real gross domestic product. The study found that each service sector components in this analysis has a very different contribution to the growth rate in the economy. The research findings would provide guidance to the policy makers to develop policies, procedures, programs and standards.

Key Words- Service Sector; Decomposition; Economic Growth.

1. INTRODUCTION

Decomposition is to use to analyze the contribution of specific variables to another variable. According to Barrell, et al (2015), there are two basic decomposition methods. First one is a shift-share analysis that computed the contributions of several factors to the differences in value added growth rates between countries, and a decomposition method that computed the contributions of several factors to changes in the level of value added over time. In both cases, the variable that was analyzed was economic growth. Burney (1986)[2] stated that the GDP growth will be decomposed as follows;

- I. Factor of production
- II. Components

III. Sectors

Economic growth can be decomposed, according to factor of production. Basically there are four factors of production that influence economic growth within a country. There are natural resources, human capital, capital goods and entrepreneurship. Economic growth can be decomposed, according to its components. There is consumption, investment, government expenditure and net exports. Another way of economic growth decomposed is sector-wise decomposition. Basically economic growth can be decomposed three main sectors. These are agriculture sector, industry sector and service sector. Through this research, Economic growth is decomposed base on the sector-wise.

Table 1: Sectoral Composition as a Percentage of GDP

Sector	1970	1990	2000	2014
Agriculture	28.3	26.3	19.9	10.1
Industrial	23.8	26	27.3	32.3
Services	47.9	47.7	52.8	57.6
Total	100	100	100	100

Source: Central Bank of Sri Lanka

According to table 1, it shows the sectoral comparison as a percentage of GDP. In 2014, agriculture sector has 10.1% composition as a percentage of GDP. Industry sector has 32.3% composition as a percentage of GDP and Service sector has 57.6% composition as a percentage of GDP. When compared with previous years, Agriculture sector composition as a percentage of GDP will decrease and Service sector composition as a percentage of GDP will increase. Therefore service sector give the highest

contribution for the economic growth in Srilanka. Other sectors like industry and agriculture sector have less contributed amounts than service sector.

2. RESEARCH PROBLEM AND SIGNIFICANCE

Economic growth is very important for the development of countries. Each and every sector contributes to the economic growth. Among them the service sector offers

the highest contribution. The service gives a highest contribution for economic growth in Sri Lanka and many other countries. Hence this study tries to “**decomposition of economic growth in Sri Lanka by service**”

According to Ivanov and Webster (2010)[6] suggest that a new methodology for measuring the contribution of specific industries to economic growth. It is most value to both academics and macro-economic policy makers. An efficient service sector can lead to better performance by other sectors of economy like agriculture, mining and manufacturing by improving distribution and transactions (Gani and Clemes, 2010)[5]. By comparing the decomposition of economic growth in a developed country with our economy, we can identify the economic strategies and policies they have used and they can be used for the development of Sri Lankan economy. Through decomposition of service sector we will be able to identify the sector with the highest contribution for service sector. It's important to identify the sector which yield a lowest contribution to the GDP growth and to make strategies to enhance its contribution.

3. EMPIRICAL FINDINGS THAT RELEVANT TO GROWTH DECOMPOSITION

Ivanov and Webster (2010) stated that the contribution of specific industries to economic growth in Bulgaria for the period of 2000-2005. This study uses the growth decomposition methodology developed by Ivanov and Webster for tourism and generalizes it for all industries in the national economy. As the conclusion of their research, they have presented a growth decomposition methodology which allows interindustry comparisons. Vu (2011)[8] stated that the sources of Singapore's economic growth during the period of 1965-2008. In this research mainly analyses the sources of Singapore's GDP growth and labor productivity growth and reveals insights into related trends and patterns. This study uses the growth decomposition methodology to find the sources of economic growth in Singapore. As the results of this research, there are four major findings. Firstly, both GDP and Average labor productivity (ALP) growth in Singapore tended to decline during this period, and the contribution of ALP growth to GDP. Secondly; the contribution of labor to GDP growth was rather stable at approximately 1.5 to 2 percentage points per year, of which an increasing share came from foreign labor. Thirdly, total factor productivity growth improved substantially after the mid-1980s and has become a healthy source of GDP and ALP growth since that time. Zulkhibri et al. (2015)[9] stated that the relationship between structural change and economic for a panel of four developing countries, namely Malaysia, Nigeria, Turkey and Indonesia over 1960-2010 in their research 'structural change and economic growth selected emerging economies'. The results confirm that structural

change and economic growth are integrated at the panel level, indicating the presence of long-run equilibrium relationship. It is also found that structural change and economic growth has a positive and statistically significant but the impact of GDP on structural change is higher than the impact of structural change on GDP. The larger impact of growth on the structural change may imply that higher economic growth tends to accelerate the process of structural change as the structure of demand for products in different sectors has significant impact with increasing income. Roy (2015) Examined whether, the relationship between the industrial and the service sector output at the aggregate level and for different sub services in India and also examines to find out whether the relationship is changing over time. The results confirm that the output of the services sector at the aggregate level and the output of the industrial sector are highly correlated. And also it has been observed that the demand generated for services output from the industrial sector due to changing structure of production within these sectors. McConnell, Megger and Quiros (1999) stated that an empirical study of A decomposition of the increased stability of GDP growth in the US economy. As the results of this study, their analysis of this increased stability shows that every major component of GDP has exhibited smoother growth. Gani and Clemes (2010)[5] stated that an empirical study of the contribution of the services sector to per capita economic growth for Pacific Island countries in their research 'services and economic growth in Pacific Island countries. Gani and Clemes stated that an empirical study of the determinants per capita economic growth in the group of economies forming ASEAN using data from 1965 to 1994 in their research 'services and economic growth in ASEAN economies. This study is given particular attention to the contribution of services to the growth of real GDP per capita. Estimation result of a structural per capita growth equation reveal that growth of services exerts a statistically significant positive effect. As the results of their research they are confirm a strong positive influence of growth in manufacturing and government spending on service sector expansion.

4. METHODOLOGY USED FOR THE STUDY

Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), even though alternative metrics are sometimes used. This research builds on the growth decomposition methodology proposed by Ivanov and Webster (2010)[6]. In this research use the growth of real GDP per capita as a measure of economic growth. The conceptual framework gives an overall idea about the research and describes the method of analysis of the research.

Independent variables

Wholesale and Retail Trade
Hotels and Restaurants
Transport and Communication
Banking, Insurance and Real Estat
Ownership of Dwellings
Government Services
Private Services

Dependent variable

Economic growth



Figure 1

The main purpose of this research is decomposition of economic growth in Sri Lanka by Service. Therefore, this research is conducted as a quantitative research. In this research economic growth is considered as dependent variable and service sector components are considered as independent variables. Table 2 gives the Description of the variables. All data relating to the independent variable and dependent variable were sourced from the central bank of Sri Lanka. The time series data cover 09 years ranging from 2006 to 2014. The purpose of selecting this

time period is to recognize the same components which included by central bank into service sector.

In order to decompose economic growth in Sri Lanka by service sector, we taken the GDP values in current prices and constant prices from previous year (Rs Millions) and size of population ('000). In this research 2006 is considered as a base year and by using this base year we developed the model which used in the decomposition of economic growth in Sri Lanka by service sector.

Table 2: Description of variables

Variables	Measurements	Scales
Economic growth	GDP growth rate	Ratio
Wholesale and Retail Trade	Growth rate of Wholesale and Retail Trade	Ratio
Hotels and Restaurants	Growth rate of Hotels and Restaurants	Ratio
Transport and Communication	Growth rate of Transport and Communication	Ratio
Banking, Insurance and Real Estate etc.	Growth rate of Banking, Insurance and Real Estate etc.	Ratio
Ownership of Dwellings	Growth rate of Ownership of Dwellings	Ratio
Government Services	Growth rate of Government Services	Ratio
Private Services	Growth rate of Private Services	Ratio

Source: Comply by author

5. FORMULATION OF THE MODEL

Ivanov and Webster (2010)[6] used growth decomposition methodology with analysis of the contribution of specific industries to economic growth in Bulgaria for the period 2000-2005. In this research also used this growth decomposition methodology in order to

decompose economic growth in Sri Lanka by service sector.

And also the research of Ivanov and Webster tries to measuring the impact of tourism on economic growth by using the growth decomposition methodology. In this research also use growth of real GDP per capita as a

measure of economic growth. The growth of the real GDP per capita g_r is defined as:

$$g_r = \left[\frac{Y_{q1(p0)} \frac{N_1}{Y_{q0(p0)}}}{N_0} \right] \cdot 100 \quad (1)$$

Where,

- $Y_{q1(p0)}$ is the GDP in current period in constant base year prices,
- $Y_{q0(p0)}$ is the GDP in the base year at market prices,
- N is the average size of the population,
- Index 1 denotes current period,
- Index 0 is the base period.

We disaggregate the nominator of Equation (1) to separate the tourism GDP in constant prices, $Y_{q1(p0)}^t$, from the GDP in constant prices of other industries, $\sum_{i \neq t} Y_{q1(p0)}^i$, and the tourism GDP in the base period, $Y_{q0(p0)}^t$, from the GDP of other sectors in the base period, $\sum_{i \neq t} Y_{q0(p0)}^i$:

$$g_r = \left[\frac{\frac{Y_{q1(p0)}^t}{N_1} + \frac{\sum_{i \neq t} Y_{q1(p0)}^i}{N_1} - \frac{Y_{q0(p0)}^t}{N_0} - \frac{\sum_{i \neq t} Y_{q0(p0)}^i}{N_0}}{\frac{Y_{q0(p0)}}{N_0}} \right] \cdot 100 \quad (2)$$

The regrouping of the expressions in the nominator leads to:

$$g_r = \left[\frac{\frac{Y_{q1(p0)}^t}{N_1} - \frac{Y_{q0(p0)}^t}{N_0}}{\frac{Y_{q0(p0)}}{N_0}} + \frac{\frac{\sum_{i \neq t} Y_{q1(p0)}^i}{N_1} - \frac{\sum_{i \neq t} Y_{q0(p0)}^i}{N_0}}{\frac{Y_{q0(p0)}}{N_0}} \right] \cdot 100 \quad (3)$$



The first g_r^t expression in (3) shows the part of the growth of real per capita GDP that is a result of t th component of the service sector, which is the impact of t th component of the service sector on economic growth:

$$g_r^t = \frac{\frac{Y_{q1(p0)}^t}{N_1} - \frac{Y_{q0(p0)}^t}{N_0}}{\frac{Y_{q0(p0)}}{N_0}} \quad (4)$$

In here this formula uses GDP but gross value added (GVA) better linked to the welfare of the local population. Therefore by using the GVA and GDP we can measure the contribution to economic growth.

There are some advantages of the growth decomposition methodology. The major advantage of this is discussed above is that it generates a performance measure of t th component of the service sector contribution to economic growth showing how effective the service sector is in stimulating the real per capita growth of the GDP (Ivanov and Webster). Another advantage of GDM is that it uses data from the System of National Accounts and unified methodology for every component of the service sector thus allowing comparisons among service sector components. Another advantage is that this methodology does not take initial assumptions in measuring the economic impact of specific service sector components. In this study mention that g_r^t from (4) and it implied that the direct impact of t th service sector component on economic growth.

6. ANALYSIS AND FINDINGS OF THE RESEARCH

Table 3: Service sector contribution towards economic growth

2014	13.25	6.10	0.63	8.43	1.41	-1.56	-2.98	1.21
Rank	—	2	5	1	3	6	7	4
2013	7.82	3.37	0.49	6.87	0.59	-1.55	-2.98	1.04
Rank	—	2	5	1	4	6	7	3
2012	1.68	1.31	0.22	4.62	-0.28	-1.66	-3.28	0.76

	Rank	2007	Rank	2008	Rank	2009	Rank	2010	Rank	2011	Rank
Growth of service sector real GDP per capita	—	-22.58	—	-19.05	—	-17.34	—	-11.57	—	-4.97	—
Wholesale and Retail Trade	7	-6.93	7	-5.78	7	-6.22	7	-4.13	4	-0.97	2
Hotels and Restaurants	2	-0.44	2	-0.47	2	-0.41	3	-0.20	3	-0.001	4
Transport and Communication	4	-3.56	4	-2.39	3	-1.48	1	0.54	1	2.65	1
Banking, Insurance and Real Estate etc.	5	-4.41	5	-3.80	5	-3.26	5	-2.46	5	-1.57	5
Ownership of Dwelling	3	-1.85	3	-1.84	4	-1.84	4	-1.84	6	-1.84	6
Government Services	6	-516	6	-4.70	6	-4.21	6	-3.73	7	-3.71	7
Private Services	1	-0.23	1	-0.06	1	0.09	2	0.25	2	0.46	3

Source: Comply by author using data from appendices table 1, 2&3

Table 3 shows the results of the application of GDM to 07 components of service sector of Sri Lankan economy for the period 2007-2014. Data show that the real per capita

growth of the GDP in Sri Lanka. However, each service sector components in this analysis has a very different contribution to the growth rate in the economy.

This analytical values shows that the real per capita growth of the GDP in Sri Lanka by service sector and it's components have negative contribution from year 2007 to 2011. In this research, we assume 2006 as a base year. During the period of 2007-2011, private services give the positive contribution for the economic growth in Sri Lanka. These negative growth rates lies between -22.583 percent (2007) and -4.969 percent (2011). The most effective service sector component, according to the analysis is private services which ranks first during the period of 2007-2009 and transport and communication which ranks first during the period of 2010-2014.

In 2007, the most effective service sector component is private services which give -0.227 percent contribution for the growth rate. Hotels and restaurants (-0.441 percent) are ranks at second place in the service sector and ownership of dwelling (-1.846 percent) is ranks at third place in the service sector. The least effective service sector component is wholesale and retail trade which give -6.935 percent contributions for the economic growth. The most effective service sector component is private services which give -0.063 percent contribution for the growth rate in 2008. In previous year also this service sector component is ranks at first place. In this year, there is no significant difference in the ranking service sector components. In 2009, the most effective service sector component is private services which give positive rate of growth 0.086 percent contribution for the growth rate. Hotels and restaurants (-0.413 percent) are ranks at second place in the service sector and transport and communication (-1.481 percent) is ranks at third place in the service sector. In 2009 also least effective service sector component is wholesale and retail trade which give -6.217 percent contributions for the economic growth. When it comes to year 2010, the ranks position of the service sector components are changed. In this year, the most effective service sector component is transport and communication which give 0.537 percent contribution for the growth rate. Previous year, it is recorded in a third place in the service sector. Private services (0.248 percent) are ranks at second place in the service sector and Hotels and restaurants (-0.196 percent) are ranks at third place in the service sector. The least effective service sector component is wholesale and retail trade which give -6.129 percent contributions for the economic growth rate.

The most effective service sector component is transport and communication which give 2.647 percent contribution for the growth rate in 2011. Private services (0.462 percent) are ranks at second place in the service sector and Hotels and restaurants (-0.001 percent) are ranks at third place in the service sector. In 2011 also least effective service sector component is government services which give -3.706 percent contributions for the economic growth. In 2012, the most effective service sector component is transport and communication which give positive rate of growth 4.620 percent contribution for the growth rate. In this year, ranks positon of second and third

places are changed. Wholesale and retail trade (1.309 percent) is ranks at second place in the service sector and private services (0.756 percent) are ranks at third place in the service sector. Hotels and restaurants are ranks at third place in the service sector (0.223 percent). In this year also government services give (-3.283 percent) the least contributions for the economic growth. The most effective service sector component is transport and communication which give 6.867 percent contribution for the growth rate in 2013. Its considerable percentage when compared with previous years. . Wholesale and retail trade (3.373 percent) is ranks at second place in the service sector and private services (1.038 percent) are ranks at third place in the service sector. In this year fourth, fifth and sixth ranks goes to Banking, insurance and real estate etc. (0.588 percent), Hotel and restaurants (0.485 percent) and Ownership of dwelling (-1.549 percent) respectively. In 2013 also least effective service sector component is government services which give -2.984 percent contributions for the economic growth. When it comes to year 2014, the ranks (third and fourth places) position of the service sector components are changed. In this year, the most effective service sector component is transport and communication which give 8.430 percent contribution for the growth rate. Wholesale and retail trade (6.100 percent) is ranks at second place in the service sector and Banking, insurance and real estate etc. (1.413 percent) are ranks at third place in the service sector. Private services are ranks at fourth place in the service sector (1.207 percent). The least effective service sector component is government services which give -2.980 percent contributions for the economic growth rate. The most effective service sector component, according to the analysis is private services which rank first from 2007 to 2009. When it comes to year 2010 to 2014, the most effective service sector component is transport and communication which ranks first during that period.

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