Determinants of Private Consumption in Vietnam: A Study in Provincial Level

DR. VO KHAC THUONG & PHAN BUI KHUE DAI & LE HOANG LONG

This paper evaluates the determinants of private consumption of 63 provinces in Vietnam from 2005 to 2011. Being one of a few studies on provincial level, the study attempts to answer question that which determinants have significantly influence on provincial average private consumption in Vietnam and estimate the marginal effect of determinants. As the regression results, GDP, consumption in previous year and the number of people work in services sector have positive impact on private consumption. The CPI may have negative effect on private consumption, but the result is significant when consumption in the last period is omitted from the model. Moreover, public spending appears not to have any statistically relationship with private consumption.

Key words: Private consumption, GDP, CPI, public spending, employment in service sector.

1. Introduction

1.1. Statement of the problem

In development economics, GDP growth rate is the most important macroeconomic indicator because it may explicit reliably the development of Vietnam in term of economy. One essential component of GDP in Vietnam is private consumption, which constitutes a considerable part of GDP, namely about 63% in 2011 (World Bank, 2011). Therefore, the change in GDP may be primarily attributed by the differences of private consumption. Firstly, private consumption may stimulate the supply side of the economy, export and import because consumption provides profit to firms. Secondly, the relationship between consumption and saving, the increase in consumption may decrease the saving which in turn can affect investment and future development. As a result of that, the requirement to understand private consumption is essential to policy makers. Moreover, questions have been posed that which factors influence the private consumption level and how those factors can make a change to consumption.

This paper will evaluate the determinants of private consumption of 63 provinces in Vietnam from 2005 to 2011 in order to answer question that which determinants have significantly influence on provincial average private consumption in Vietnam and estimate the marginal effect of determinants. Those determinants are the GDP, the private consumption in last period, the CPI, the public spending, the employment in the service sectors, and trend variable. This paper will apply regression methods in econometrics to attain regression parameters of the model which indicate the impact of determinant on consumption.

This paper is organized as follows: Section I is the introduction and literature review. Section 2 shows the general model. Section 3 explains the variables and data descriptions. Section 4 estimates model and tests hypotheses. Section 5 is the interpretation of results. Section 6 is group’s conclusion.

1.2. Review of Literature

Being the main contribution to GDP, private consumption plays a central role in economics studies. There are many theories and empirical studies discussing about the determinants of consumption expenditure.

The theory of Keynesian consumer behavior suggests that
private consumption is considerably linked with private income. If the consumer budget increases, the income effect will lead to a growth in consumption, which promotes the consumer utility. Campell and Mankiw (1991) supposed that the change in income have effect on the change in consumption. Moreover, the relationship is shown in linear function form: $C = cY$, with the marginal propensity to consume (MPC) being positive and less than unity. In line with the theory, Friedman (1957) suggested that consumption is a function of permanent income. An interesting hypothesis of dynamic consumption (Hall, 1979) stated that consumption has a random walk and, therefore, is not determined by both current income and lagged income. However, the underlying consumption for this hypothesis is extremely straightforward such as the perfection of credit market and the independence between decisions in labor market and consumption. Furthermore, this hypothesis is not supported by a large number of empirical studies (Blundell, 1988; Raut & Virmani, 1989). Therefore, this paper will employ the current income as an independent variable to examine its relationship with private consumption.

**Hypothesis H1:** There is a positive relationship between private consumption and current income.

Previous consumption may be another determinant of current consumption. The theory of habit persistence states that current consumption behavior can be influenced by the lag value (Brown, 1952). Gartner (2009) also indicated empirical study on the relationship on consumption and consumption in the previous period. This paper, hence, propose a hypothesis about the relationship between consumption and its lag value as follow:

**Hypothesis H2:** There is a positive relationship between private consumption and private consumption in the previous year.

In term of the effect of government spending on consumption, the effect is still a controversy in theories and empirical studies. Firstly, Bailey (1971) indicated that there may be a crowding-out effect between government spending and private consumption. Moreover, Aschauer (1985) and Kormendi (1983) found a significant degree of substitutability between private consumption and government spending for the United States. Some other studies have consolidated these theories such as Ahmed (2016); Aiyagari et al. (1992); Baxter & King (1993); Amano & Wirjanto (1997) and Ho (2010). This group of research argued that an increase in government spending has fiscal crowding-out effect on private consumption, showing negative relation between government spending and private consumption. In contrast, some empirical studies have found different results. Devereux, Head & Lapham (1996); Karras (1994) as well as Blanchard & Perotti (1999) confirmed that an increase in government spending tends to raise the marginal utility of private consumption which is called “crowded-in”.

**Hypothesis H3:** There is a relationship between private consumption and government spending. This could be either a positive effect or negative effect.

Talking about inflation, inflation can erode the real interest rate; thus, reduce the value of future savings. According to the theory of consumer choice, current consumption and savings, which is equivalent with future consumption, are two substitutable goods. Therefore, an increase in inflation can cause a decrease in savings and a growth in current consumption. Advocating this theory, Springer (1977) found that inflation affected on specific components of consumption differently due to measures of predicted inflation. In addition, Katona (1975) suggested that inflation causes uncertainty about the future, leading to more saving of consumers and a decrease in private consumption. However, some studies such as Guo & N’Diaye (2010) found that inflation has no impact on private consumption. This paper will also employ inflation variable in the model to test the theory, which is stated as the forth hypothesis.

**Hypothesis H4:** There is a negative relationship between private consumption and inflation.

The influence of employment in service sector on consumption has also been analyzed by Guo & N’Diaye (2010). The empirical results suggest that employment in services sector increases the labor share of income. The higher share of income brings the higher consumption expenditure. Consequently, employment in services sector has positive effect on consumption expenditure. We have the fifth hypothesis as follow:

**Hypothesis H5:** There is a positive relationship between private consumption and
2. Formulation of a General Model

According to empirical studies, there are many factors affecting on private consumption. Income is considered as the most principle determinant of consumption that has attracted many attentions from economists (Campell & Mankiw, 1991; Gartner, 2009; Keynes, 1935; Friedman, 1957). Marginal propensity to consume (MPC) is positive but less than 1. Moreover, consumption in the previous period plays an important role in consumption in the next period with the positive side (refer to Hall 1978; Gartner, 2009). Public spending is other determinant of private consumption. There may be the crowding - out or crowding – in effect between government spending and private consumption (refer to Bailey, 1971; Aschauer, 1985; and Kormendi, 1983; Ahmed, 1986; Aiyagari et al., 1992; Marianne & Robert, 1993; Amano & Wirjanto, 1997; Ho, 2010; Devereuxet al., 1996; Karras, 1994; Blanchard & Perotti, 1999). Higher inflation may lead to a decrease in private consumption or have no impact on private consumption (refer to Kai Guo and Papa N’Diaye, 2010; Springer, 1977; Katona, 1975). Employment in service sector increases the labor share of income. The higher share of income brings the higher consumption expenditure. Consequently, employment in services sector has positive effect on consumption expenditure (refer to Guo & N’Diaye, 2010).

In this study, we pick up above factors such as GDP, consumption in the previous period, CPI, public spending and the share of employment in the service sector to form a simple model that shows the effect on consumption of province in Viet Nam. The general model as following:

\[ Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 t + u \]

Where: \( Y \) is annual consumption of province; \( X_2 \) is annual GDP of province; \( X_3 \) is the consumption of province in the previous year; \( X_4 \) is inflation, represented by CPI of province; \( X_5 \) is yearly public spending; \( X_6 \) is number of employment in the service sector; \( t \) is trend variable to capture the change of consumption every year.

3. Data sources and descriptions

Data in this paper has been established in the form of panel data. The cross- section data is the data of 63 provinces and the time series data is 7 years, from 2005 to 2011. Therefore, the total observation is 441 observations. Data has been collected from The Statistical Yearbook of Vietnam, published by the General Statistical Office.

The descriptions of variables as shown as Table 1:

4. Model Estimation and Hypothesis Testing

The relationships between consumption and its determinants are estimated in 4 models, and the results are indicated in the Table 2:

The model (1) explores the relationship between

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**Table 1: Mean and Standard Deviation of Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measurements</th>
<th>Expected Signs</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSUMPTION</td>
<td>Total sales of retails of goods and services at current price by province, in billion VND</td>
<td>Dependent variable</td>
<td>20453.51</td>
<td>46636.85</td>
</tr>
<tr>
<td>GDP</td>
<td>Annual GDP at province level, in billion VND</td>
<td>+</td>
<td>31368.46</td>
<td>56791.33</td>
</tr>
<tr>
<td>LSTCONSUMP</td>
<td>Sales of retails of goods and services at current price by province in the previous year, in billion VND</td>
<td>+</td>
<td>15995.9</td>
<td>36397.27</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer price index at province level</td>
<td>-</td>
<td>111.61</td>
<td>7.43</td>
</tr>
<tr>
<td>SERVEMPLOY</td>
<td>The number of people working in the service sector of each provinces, in number of people</td>
<td>+</td>
<td>163580.30</td>
<td>172688</td>
</tr>
<tr>
<td>PUBSPEND</td>
<td>The public spending of province in each year, in billion VND</td>
<td>+/-</td>
<td>12478.04</td>
<td>115933.2</td>
</tr>
<tr>
<td>TIME</td>
<td>Trend variable, indicate the year which 1 for 2005, 2 for 2006, 3 for 2007, 4 for 2008, 5 for 2009, 6 for 2010, and 7 for 2011</td>
<td>No prediction</td>
<td>No calculation</td>
<td>No calculation</td>
</tr>
</tbody>
</table>
consumption and all six determinants, which estimates all effect of determinant on the private consumption. The model (2) explores the impact of determinant, except for PUBSPEND and CPI because they are statistically insignificant in model (1). Furthermore, the model (3) and (4) omit LSTCOMSUMP, consumption in last year, because they may show the evident effect of GDP on CONSUMPTION. However, the model (4) does not include PUBSPEND in the model after PUBSPEND is not statistically significant in model (3).

**Fixed Effect Testing:**

Null Hypothesis: Fixed effect in model is redundant

Four models are tested for whether the fixed effect is redundant and the results from Redundant Fixed Effect Testing indicate that the p-value in model (1), (2), (3), (4) is far more less than level of significance at 5%. Therefore, four models have passed to reject the Null Hypothesis, or fixed effect in models are not redundant.

### 5. Interpretation of Results

The interpretation of results will be accounted for four main parts as following:

#### 5.1 Statistically explanation

Statistical significance: Variables GDP, SERVEMPLOYMENT in estimation results are all statistically significant at level of 1% in 4 models. Besides, TIME reaches the statistically significant at level of 10% in all models. LSTCONSUMP has statistically significant at level 1% in model (1) and model (2). CPI is only statistically significant in model (3), (4). PUBSPEND is statistically insignificant in all 4 models.

**Goodness of fit:** The adjusted R square in each model is considerably high. This states that the consumption is explained well by its determinants in the model. In model (1), adjusted R square is 99.4% that means the 99.4% of variation of consumption can be explained by independent variables. Similarly, the model (2) has adjusted R square about 99.4%, model (3) with 98.6% and model (4) with 98.2%.

#### 5.2 Economically explanation

In the model (1), (2), (3), (4), the independent variables GDP and SERVEMPLOY have positive relationship with consumption. That means the greater GDP and employment in service sector may lead to greater consumption. The independent variables also have positive relationship with the consumption. The positive relationship is significant at 1% in models (1), (2), (3), (4).

<table>
<thead>
<tr>
<th>Table 2: Estimation Results</th>
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<tbody>
<tr>
<td>(1)</td>
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<tr>
<td><strong>TIME</strong></td>
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<tr>
<td><strong>GDP</strong></td>
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<td><strong>SERVEMPLOY</strong></td>
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<tr>
<td><strong>LSTCONSUMP</strong></td>
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<td><strong>CPI</strong></td>
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<td><strong>Intercept</strong></td>
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<td></td>
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<td><strong>Adj. R2</strong></td>
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<tr>
<td><strong>Observations</strong></td>
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</tbody>
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The number in bracket is t- statistic (*) (**) (***): statistical significant at the level of 1%, 5%, 10%, respectively.
variable LSTCONSUMP in model (1) and model (2) and consumption are positive relationship. The consumption in last year may affect positively on current consumption. However, the negative relationship between TIME and CONSUMPTION indicates that the decreasing trend in provincial consumption in 7 years. In model (1) and (2), CPI impacts negatively on CONSUMPTION, that may be explain by the increase in CPI leads to high price and uncertainty in the future condition, so consumption may be decreased. Finally, the independent PUBSPEND does not have any economically relationship to CONSUMPTION based on model estimation, and is not consistent with theories.

5.3. Marginal Effect

Model (1) and model (2), the slope coefficients address the marginal effect of consumption in respect to GDP, employment in service sector and consumption in the last year. GDP, measured by the provincial GDP at current price, this slope coefficient indicates the marginal propensity to consume. For example, GDP increases 1 unit, consumption may be 0.144 units in model (1) and 0.1338 units in model (2), other factors held constant. Besides, if employment in service sector increases 1 unit, then the consumption may rise about 0.061 in model (1) and 0.057 in model (2). Similarily, the 1 unit increase in the number of people work in service sector may lead to the rise in private consumption, namely 0.951 in model (1) and 0.953 in model (2).

Model (3) and (4) explores the relationship between consumption and determinants which excludes LSTCONSUMP. The coefficient of GDP in model increases considerably, that shows the high marginal effect of GDP on consumption. If GDP increase its value by 1 unit, the consumption may increase 0.683 units in model (3) and 0.669 units in model (4). Moreover, the effect of SERVEMPLOY on consumption is also greater than in two first models. The marginal effects of SERVEMPLOY on CONSUMPTION are 0.1812 in model (3) and 0.186 in model (4).

Model (3) and model (4) are the models that coefficient of CPI get statistically significant at level 5%. The marginal effects are -112.9 and -111.2 in model (3), (4) respectively. In general, the hypotheses 1, 2, 4, 5 are advocated, while the hypothesis 3 is rejected.

5.4. Empirically Comparison

The results of this study are compared to the empirical researches, and the evaluation is as follow:

- The positive relationship between GDP and consumption is positive (Campell & Mankiw, 1991; Keynes, 1935; Friedman, 1957).
- Consumption in the previous year has positive relationship with consumption (Hall, 1978; Gartner, 2009)
- An increase in the number of people work in service sector can increase the private consumption (Guo & N’Diaye, 2010)
- Public spending cannot be found to be statistically significant in this study, that result is difference with empirical papers asserted the impact of public spending on consumption (Bailey, 1971; Aschauer, 1985; Kormendi, 1983; Ahmed, 1986; Aiyagari et al. 1992; Baxter & King, 1993; Amano & Wirjanto, 1997; Ho, 2010; Devereux et al., 1996; Karras, 1994; Blanchard & Perotti, 1999)
6. Conclusion

The study has evaluated some determinants which have significant statistically and economically effect on private consumption in provincial level of Vietnam. On the one hand, some determinants have positive impact on private consumption. An increase in GDP, employment in service sector and consumption in last period can contribute to the increase in private consumption, especially the consumption in last year. However, if consumption in last year is omitted from the model, the effect of GDP increases significantly.

On the other hand, the determinants which get negative impact on consumption are time and CPI. In 4 models, the relationship between consumption and time is negative, that shows the decreasing trend in consumption, if other factors held constant. The study finds out that the public spending does not have any statistically significance on consumption.

In term of policy advice, this paper suggest that the provincial authorities may pay attention to control the inflation and employment rate in service sector, which can influence considerably private consumption. Concomitantly, the public spending appears not to have any effect on private consumption and may be neglected when the government aims to the objective of private consumption.

Limitations

Firstly, the provincial data used in this paper is not balanced and the time is only 7 years. The limitation of data can lead to the bias results. Secondly, there could be other factors affecting private consumption, but they do not be included in the model such as interest rate, exchange rate and so on. Finally, the paper only examines the relationship between private consumption and other key variables, but cannot represent the causality effect. Private consumption, for example, can promote the provincial income; however, the reverse causality can occur when higher income can cause an increase in the consumption.

REFERENCES


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