

# The role of institution in development of logistics transport: the case of Ho Chi Minh, Vietnam

**Vu Thi Kim Hanh (author)**

*University of Economics and Law, Vietnam National University Ho Chi Minh City*

**Abstract:** Institutions is playing an increasingly important role in economic development. This paper aims to measure the role of institution in development of logistics transport through assessing the impact of institution on logistics transport productivity using multivariate regression model (MR) with time series data from 2010 to 2020 of Ho Chi Minh, Vietnam (HCM). The study objective is to assess which factors of institutions impact on logistics transport productivity and how they impact. The highlight findings are People's participation at the grassroots level and Public service supply impact on goods productivity calculated on labour, passenger productivity calculated on labour, and passenger productivity calculated on capital. Accountability to the people and Public administrative procedures impact on goods productivity calculated on labour. The publicity and transparency and the control of corruption in the public sector impact on passenger productivity calculated on labour. The control of corruption in the public sector impacts on passenger productivity calculated on capital.

**Key words:** Institutions, logistics transport productivity, Ho Chi Minh, Vietnam, HCM

## I. Introduction

Logistics transportation is a special material industry, it always accompanies the development of mankind, in order to change the position of goods and people from one place to another, it is also an important stage in the global logistics and supply chain activities. In economic structure of Vietnam, logistics transport is one of the major sectors is nine service sectors consists of commerce, logistics transportation, real estate business, finance and banking, accommodation and food services, information and communication, science and technology, education and health. The productivity of logistics transport between 2010 to 2020 was very low and did not have normal fluctuation. There are two kind of logistics productivity which are labour productivity and capital productivity.

The average productivity of logistics transport between 2010 to 2020 of labour productivity and capital productivity are 5.45% and 4.185, respectively. Labour productivity of 2010 is 0.65 billion Vietnam Dong (VND), 2020 is 0.9 billion VND that is also the highest level over the period, and the lowest level is 4.11 billion VND in 2011. Capital productivity in 2010 and 2020 are 0.65 billion VND and 0.62 billion VND, respectively. The highest level is 0.78 billion VND in 2016 and the smallest figure is 0.40 billion VND in 2011.

Currently, Vietnam's economy is facing three major bottlenecks, one of them is the institution. According to the survey of world bank, situation of Vietnam's institution is scored and ranked lowly and weakly over the period of 2010 – 2019 that was surveyed total 214 countries. The score of effectiveness of government at all levels is from -0.27 to 0.07 and rank is between 45.97 and 55.29. Score and rank of policy quality and policy implementation are from -0.67 to -0.26 and from 27.96 to 41.83, respectively. Regarding to rules and compliance with the law, its score is from -0.59 to 0.08 and its rank is from 32.70 to 56.73. About Control corruption that score is between -0.62 and -0.43, rank is between 31.25 and 41.83. The voice and accountability of people and government has score and rank are from -1.50 to -1.36 and from 7.58 to 11.82, respectively. The political stability and no violence or terrorism has its score and rank are from -0.02 to 0.29 and from 44.29 to 56.87, respectively.

Christa Sys, Eddy Van de Voorde, Thierry Vanellander et al (2020) are well aware of the role of institutions and the rule of law, and the issue of infrastructure development and promotion of integrated transport planning to the development of transport logistics. Sameer Abu-Eisheh, Wilhelm Kuckshinrichs, AbdelnaserDwaikat (2020) have recommendations to facilitate the achievement of a sustainable logistics transport system in Palestine, which can be considered for other developing countries. There is a need to supplement plans and integrate them with sustainable transport planning strategies. There should be appropriate adaptation at the national level within the common framework of "Avoid-change-improve" strategies. Attention should also be paid to the measures of the "Avoid" strategy. "Change". Appropriate organizational and supportive governmental frameworks to promote efficient sustainable transport are recommended. Danny Faturachman, SharimanMustafab (2012) consider that there are four main problems in logistics transport that individual agencies or governments willing to take responsibility for security and safety, pricing policy, quality of personnel are not more important than implementation and observance of the rules are not well-ventilated. Policy choices can be suggested to lessen the negative impact of road infrastructure of logistics transportation on employment rates in China. Therefore, it is necessary to eliminate the conflict of the labour market, especially the Hukou system to facilitate labor mobility, in order to increase the bargaining power of labor in China. And redirecting the public spending to road construction. The development of state-owned enterprises can play a role in reducing the unequal impact of road infrastructure, improving operational efficiency (Xun Zhang, Guanghua Wan, Xu Wang, 2017).

The objective of this paper is to measure which factors of institutions impact on logistics transport productivity and how they impact. The content of paper consists of eight sections which are introduction in section 1, literature review is section 2, methodology is section 3, section 4 is data source, section 5 will present theoretical basis of the factors in study model, section 6 is study results, section 7 will have discussion of results and finally is section 8 which is conclusion.

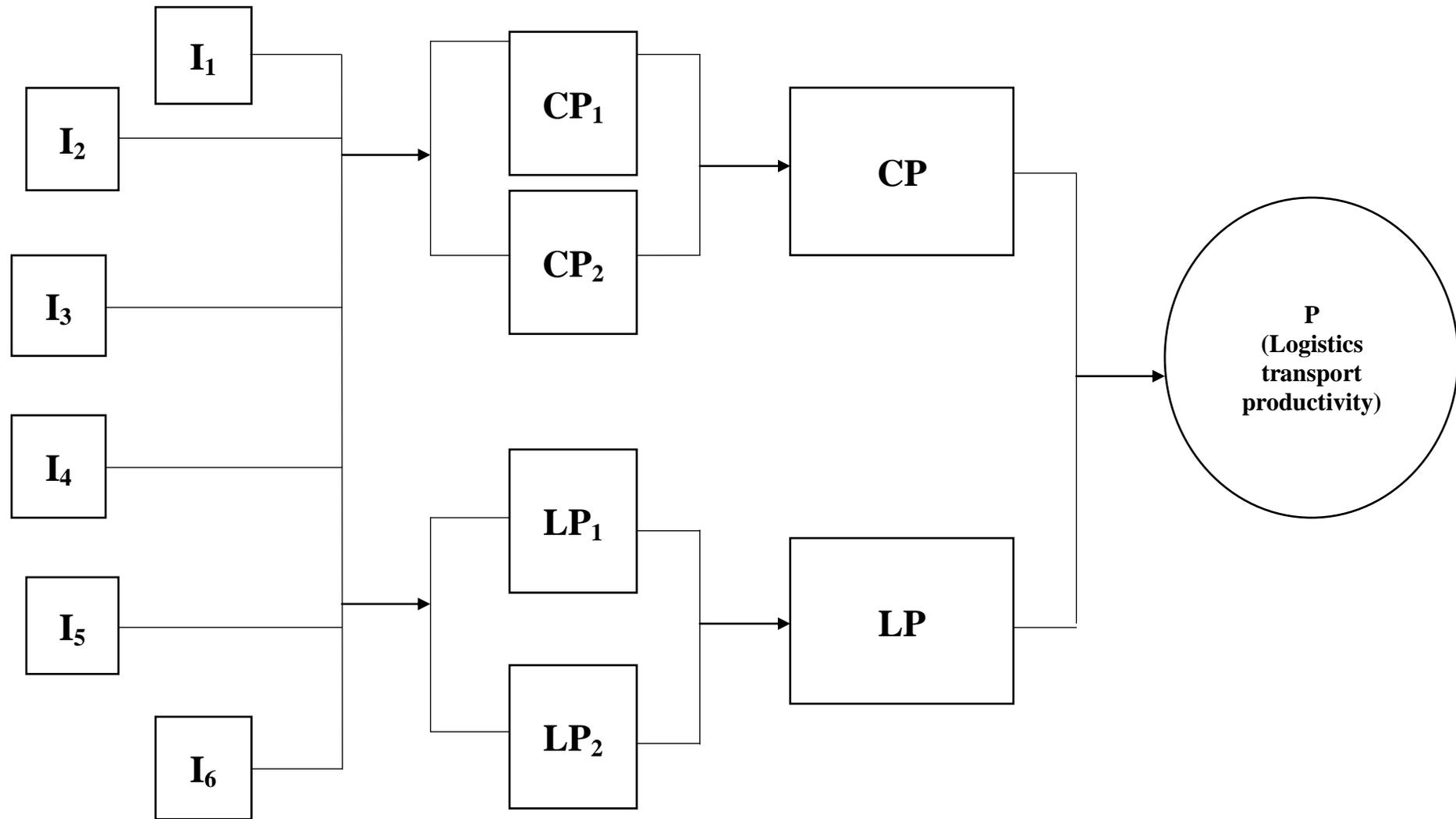
## **II. Literature review**

The policy of deregulation caused a strong growth in passenger and cargo air travel from 2003 onward. From 2003 to 2007, GDP per employee in Tay Tang - China was significantly lower than before due to the removal of aviation regulation, other things being equal. A causal relationship between air transport and the economy is difficult to prove because such a relationship tends to be highly endogenous. This implies that there are incentives for policymakers around the world to invest in the aviation sector because the economic returns of these policies will be greater. Encouraging more efficient and financially responsible airports, allowing regional governments to invest in infrastructure such as airport expansion, streamlining airline access, and create open sky agreements (Jose M. Carbo, Daniel J. Graham, 2020). Air and rail transport have a positive and significant relationship with energy demand. While air and rail passenger transport have a positive influence on energy demand in middle income countries. low, and rail freight significantly increases energy demand in middle- and high-income countries, air transport and passenger rail increase aggregate customs duties. While rail passenger transport positively affects customs tax increases in low-middle income countries, and road does not significantly increase them, customs duties in middle - income and high - income countries, container port traffic greatly affects per capita income between countries. (Haroon Ur Rashid Khan, Muhammad Siddiquec, Khalid Zamand et al., 2018). For the Chinese context but it may be useful to policymakers in other emerging economies and developing countries which are experiencing patterns of infrastructure development and economic growth equivalent. Public investments in the nation's high-quality road and rail systems as well as government spending on traffic maintenance to improve service efficiency could stimulate overall economic growth in China that reach the middle income. Different aspects of transport infrastructure have a heterogeneous impact on growth depending on the level of economic development. Moreover, in order to ensure investment in transport infrastructure to ensure growth, the Government's development strategies in line with general economic conditions are a prerequisite in important policies (Xiao Ke, Justin Yifu Lin, Caihui Fu et al., 2020). It is crucial to consider regional disparities as a potential negative consequence of the expansion of the logistics transport network. Policymakers must comprehensively evaluate both the pros and cons of all aspects, such as labour migration, knowledge spread, logistics when making decisions about whether to invest in projects in order to improve city connectivity or not (Liaoliao Duan, Weizenng Sun, Siqi Zheng, 2020). Takanori Sakai, Kazuya Kawamura, TetsuroHyodo (2016) demonstrate that in Tokyo-Japan, the influence of land prices on the distribution of logistics facilities. The property bubble occurred in the late 1980s and its aftermath led to dramatic fluctuations in land prices affecting logistics facilities. Public policies related to logistics facilities such as land use regulations, development rights in controlled areas, and public support for urban distribution center development that can be important factors. important impact on the distribution of logistics facilities. In addition, an understanding of the impact of public policies is integral to the management of urban logistics systems. In order to

have the full advantages of water transport and reduce transportation pressure for road transport, local and regional governments need to review appropriate investment policies between modes of transport. It is believed that this indicator is not only meaningful for the Mekong Delta region in Vietnam but also for other regions of Vietnam as well as being studied at the national level (Vinh TuongPhia, Thai BinhĐang, 2020). Sabine Limbourg, Ho Thi Quynh Giang, Mario Cools (2016) discovered that in Da Nang City - Vietnam, logistics service quality (LSQ) is a process where customers' perceptions begin to form and develop from placing an order to completing a service, and they can place a different focus on the LSQ. Therefore, logistics service providers should pay more attention to weaknesses such as shipping links, claims and freight charges. Furthermore, Research and Development and development of customer care programs need to be improved. In addition, the government also needs to have many positive policies to create favourable conditions for logistics services. The institutional framework and technology are considered the least important factors for improving Vietnam's logistics system. However, these factors also reveal necessary disadvantages for the country's logistics system. The study results point to the direction that the Government of Vietnam should pay attention to in implementing ideal investment priorities and appropriate regulations to improve the logistics system, reduce resource waste and poor effect of investment, creating conditions for the development of industrialized international trade and industry in Vietnam. In addition, the study provides logistics stakeholders in Vietnam with insights into the current state of the country's logistics system and strategies to achieve its government's goals (Viet Linh DANG, Gi Tae YEO, 2018). In Hai Phong - Vietnam, the development of road network infrastructure should be continued and completed according to the Government's schedule and changes in legal regime, infrastructure and timeliness Thao Phuong Vu, David B. Grant, David A. Menachof, 2020). Thi Yen Pham, Hye Min Ma, Gi Tae Yeo (2017) provided insights for public authorities and logistics service providers. The public sector plays an important role in land resource management, policy formulation, economic strengthening and strategic infrastructure development, including logistics centres. Therefore, to avoid misuse of public funds, logistics professionals who are experts in supply chain management can provide guidelines for creating master plans. In addition, the results of the study contribute to the knowledge needed for logistics service providers to make decisions based on limited resources. At the same time, the study identified and prioritized the criteria for choosing a logistics centre location, the results were suitable for the conditions of a developing country like Vietnam.

III. Methodology

3.1. Study model.



### 3.2. Variables of study model.

$I_1$  is an independent qualitative observed variable, representing people's participation at the grassroots level, including civic knowledge, participation opportunities, election quality, and voluntary contributions. Unit is score.

$I_2$  is an independent qualitative observation variable, representing the publicity and transparency, including the list of poor households, budget revenues and expenditures at commune and ward levels, planning, land use plan, compensation price bracket. Unit is score.

$I_3$  is an independent qualitative observational variable, which represents accountability to the people, is the effectiveness of interaction with authorities at all levels, including the effectiveness of the People's Inspection Committee and the Community Investment Supervision Board. Unit is score.

$I_4$  is an independent qualitative observed variable, representing the control of corruption in the public sector, including control of corruption in the government, control of corruption in public service supply, and fairness in recruitment to the state, and determining to fight corruption. Unit is score.

$I_5$  is an independent qualitative observation variable, representing public administrative procedures, including authentication, certification, construction permits, land use right certificates, and administrative procedures at the ward and commune level. Unit is score.

$I_6$  is an independent qualitative observation variable, representing public service supply, including public health care, public primary education, basic infrastructure, and security and order. Unit is score.

$CP_1$  is the dependent quantitative observation variable, representing the productivity of goods calculated on the total number of human resources. The calculation formula is thousand tons / total number of human resources.

$CP_2$  is dependent quantitative observation variable, representing passenger productivity calculated on the total number of human resources. The formula is million passengers / total number of human resources.

$LP_1$  is the dependent quantitative observation variable, representing the productivity of goods calculated on the total capital of production and business activities. The formula is thousand tons / total capital of production and business activities.

$LP_2$  is the dependent quantitative observation variable, representing passenger productivity calculated on total capital of production and business activities. The formula is million passengers / total capital of production and business activities.

$P$  is a dependent quantitative observation variable,  $P$  represents the productivity of transport logistics sector Ho Chi Minh City, Vietnam.

### 3.3. Multivariate regression model and calculation method.

MR model 1: the relation between  $I_1, I_2, I_3, I_4, I_5, I_6$  and  $CP_1$

$$CP_1 = i_0 + i_1I_1 + i_2I_2 + i_3I_3 + i_4I_4 + i_5I_5 + i_6I_6 + e$$

MR model 2: the relation between  $I_1, I_2, I_3, I_4, I_5, I_6$  and  $CP_2$

$$CP_2 = i_1I_1 + i_2I_2 + i_3I_3 + i_4I_4 + i_5I_5 + i_6I_6 + e$$

MR model 3: the relation between  $I_1, I_2, I_3, I_4, I_5, I_6$  and  $LP_1$

$$LP_1 = i_1I_1 + i_2I_2 + i_3I_3 + i_4I_4 + i_5I_5 + i_6I_6 + e$$

MR model 4: the relation between  $I_1, I_2, I_3, I_4, I_5, I_6$  and  $LP_2$

$$LP_2 = i_1I_1 + i_2I_2 + i_3I_3 + i_4I_4 + i_5I_5 + i_6I_6 + e$$

Where

$i_0$  is the cut point between the vertical axis and the lines of regression.

$e$  is other factors beyond  $I_1, I_2, I_3, I_4, I_5, I_6$  that this paper does not focus on.

$i_0 + i_1 + i_2 + i_3 + i_4 + i_5 + i_6 = 0$  which means that the MR model is suitable to input data and it has no statistical significance.

$i_0 + i_1 + i_2 + i_3 + i_4 + i_5 + i_6 \neq 0$  which means that the MR model is suitable to input data and it has statistical significance.

$i_1 + i_2 + i_3 + i_4 + i_5 + i_6 > 0$  means the  $I_1, I_2, I_3, I_4, I_5, I_6$  impact on  $CP_1, CP_2, LP_1, LP_2$ , separately and respectively.

$i_1 + i_2 + i_3 + i_4 + i_5 + i_6 \leq 0$  means the  $I_1, I_2, I_3, I_4, I_5, I_6$  do not impact on  $CP_1, CP_2, LP_1, LP_2$ , separately and respectively.

**Hypethesis:**

I<sub>1</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

I<sub>2</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

I<sub>3</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

I<sub>4</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

I<sub>5</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

I<sub>6</sub> impacts on CP<sub>1</sub>, CP<sub>2</sub>, LP<sub>1</sub>, LP<sub>2</sub>, separately.

**IV. Data source**

Data of logistics transport productivity are from the Statistics Office of HCM and the HCM Statistical Yearbook.

Data of institution of HCM are from the Provincial Governance and Public Administration Performance Index in Vietnam (PAPI).

**4. Theoretical basis of the factors in study model.**

**4.1. Labour productivity.**

Labour productivity is calculated by the total output of goods and passengers have been transported divided by the total number of human resource in the logistics transportation sector.

**4.2. Capital productivity.**

Capital productivity is calculated by the total output of goods and passengers have been transported divided by the total capital included investment capital and business capital in the logistics transportation sector.

**4.3. Institution.**

According to a theoretical study, property tax limits reduced female labor force participation rates by 0.7 to 1.4 percentage points during the housing boom between 2005 and 2006 (Shimeng Liu, Xi Yang, 2020). Institutions help ensure the functions of money, the division of labor, price stability, and limits on the money supply (Kasper and Streit, 1998). Not only capital accumulation but also technological progress along with social and institutional factors which all play an important role in the economic development of a country (Adam Smith). The quality of a country's institutions has an effect on corruption. A high-quality administrative system is implemented on a strict reward and punishment system will help control corruption (Easterly, 2002). Not allow, cannot, do not want and do not dare to be corrupt (Ly Quang Dieu).

**4.4. Economic development definition.**

Economic development is to improve the welfare of the people. Raising living standards and equality of development opportunities are all fundamental components of economic development. Ensuring political and civil rights is a broader development goal (World Bank, 1992).

Economic development is the process by which a society achieves the satisfaction of the basic needs that society considers to be (Gerard Grilet).

Economic development is a process of growth in all aspects of the economy in a certain period of time. These include an increase in the scale of productivity and an improvement in socioeconomic structure (M. Gillis).

V. Result

**Table 1: Result of multivariate regression model for relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and CP<sub>1</sub>.**

Independent variables	R square (RS)	Adjusted R Square (ARS)	Significance F (SF)	Coefficients	Value of Coefficients (VC)	P-Value (PV)
	0.685796 (69%)	0.214491 (21%)	0.373427705	i <sub>0</sub>	-5.541311	0.090891
I <sub>1</sub>				i <sub>1</sub>	0.062491	0.782157
I <sub>2</sub>				i <sub>2</sub>	-0.141924	0.569423
I <sub>3</sub>				i <sub>3</sub>	0.270039	0.307257
I <sub>4</sub>				i <sub>4</sub>	-0.207396	0.125834
I <sub>5</sub>				i <sub>5</sub>	0.633084	0.10542
I <sub>6</sub>				i <sub>6</sub>	0.259183	0.28382

The figures of table 1 shows RS = 0.685796 (69%), ARS = 0.214491 (21%) which is to mean the output result is explained only 21% input data.  $i_0 + i_1 + i_2 + i_3 + i_4 + i_5 + i_6 = -4.665833803 \neq 0$  which means the MR model is accepted at the SF level = 0.373427705.

$i_1 = 0.062491$ ,  $i_3 = 0.270039$ ,  $i_5 = 0.633084$ ,  $i_6 = 0.259183$ , all are > 0 is to define that I<sub>1</sub>, I<sub>3</sub>, I<sub>5</sub>, I<sub>6</sub>, impact on CP<sub>1</sub>.

$i_2 = -0.141924 < 0$ ,  $i_4 = -0.207396 < 0$  is to tell that I<sub>2</sub>, I<sub>4</sub> do not impact on CP<sub>1</sub>.

P-Value of I<sub>1</sub> = 0.782157, I<sub>2</sub> = 0.569423, I<sub>3</sub> = 0.307257, I<sub>4</sub> = 0.125834, I<sub>5</sub> = 0.10542, I<sub>6</sub> = 0.28382, all of them are small value is to show the output result of MR model has statistical significance.

**Table 2: Result of multivariate regression model for relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and CP<sub>2</sub>.**

Independent variables	R square (RS)	Adjusted R Square (ARS)	Significance F (SF)	Coefficients	Value of Coefficients (VC)	P-Value (PV)
	0.904067868 (90%)	0.76016967 (76%)	0.048409	i <sub>0</sub>	-0.398415397	0.048845
I <sub>1</sub>				i <sub>1</sub>	0.031089858	0.061104
I <sub>2</sub>				i <sub>2</sub>	0.013405154	0.362605
I <sub>3</sub>				i <sub>3</sub>	-0.035958935	0.052236
I <sub>4</sub>				i <sub>4</sub>	0.001273415	0.845337
I <sub>5</sub>				i <sub>5</sub>	-0.004357968	0.813437
I <sub>6</sub>				i <sub>6</sub>	0.062644624	0.006301

In table 2, RS = 0.904067868 (90%), ARS = 0.76016967 (76%),  $i_0 + i_1 + i_2 + i_3 + i_4 + i_5 + i_6 = -0.330319249 \neq 0$  means the MR model is accepted at the SF level = 0.048409.

The independent variables have coefficients > 0 impact on CP<sub>2</sub>, they are i<sub>1</sub>, i<sub>2</sub>, i<sub>4</sub>, i<sub>6</sub> = 0.031089858, 0.013405154, 0.001273415, 0.062644624, respectively.

The independent variables which have coefficients < 0 do not impact on CP<sub>2</sub>, they are i<sub>3</sub> = -0.035958935 and i<sub>5</sub> = -0.004357968.

P- valued: i<sub>1</sub> = 0.061104, i<sub>2</sub> = 0.362605, i<sub>3</sub> = 0.052236, i<sub>4</sub> = 0.845337, i<sub>5</sub> = 0.813437, i<sub>6</sub> = 0.006301 are all small value, so it can be concluded that the output result of MR model has statistical significance.

**Table 3: Result of multivariate regression model for relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and LP<sub>1</sub>.**

Independent variables	R square (RS)	Adjusted R Square (ARS)	Significance F (SF)	Coefficients	Value of Coefficients (VC)	P-Value (PV)
	0.565008 (57%)	-0.08748 (-8.7%)	0.584252	i <sub>0</sub>	-2.445829	0.544028
I <sub>1</sub>				i <sub>1</sub>	-0.111083	0.740021
I <sub>2</sub>				i <sub>2</sub>	-0.307059	0.416057
I <sub>3</sub>				i <sub>3</sub>	0.326734	0.392646
I <sub>4</sub>				i <sub>4</sub>	-0.186131	0.306232
I <sub>5</sub>				i <sub>5</sub>	0.705395	0.191036
I <sub>6</sub>				i <sub>6</sub>	-0.031539	0.923783

The figures of table 3 is to show RS = 0.565008 (57%), ARS = -0.08748 (-8.7%) which means input data of MR model has not been explained by output result yet. It might to show that the collected input data has not suitable to the MR model was built.

**Table 4: Result of multivariate regression model for relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and LP<sub>2</sub>.**

Independent variables	R square (RS)	Adjusted R Square (ARS)	Significance F (SF)	Coefficients	Value of Coefficients (VC)	P-Value (PV)
	0.613201 (61%)	0.033003 (3.3%)	0.50187	i <sub>0</sub>	0.107947	0.808468
I <sub>1</sub>				i <sub>1</sub>	0.010544	0.77975
I <sub>2</sub>				i <sub>2</sub>	-0.011233	0.783595
I <sub>3</sub>				i <sub>3</sub>	-0.035884	0.404391
I <sub>4</sub>				i <sub>4</sub>	0.008174	0.672076
I <sub>5</sub>				i <sub>5</sub>	-0.001876	0.972236
I <sub>6</sub>				i <sub>6</sub>	0.020758	0.584596

In table 4, RS = 0.613201(61%), ARS = 0.033003 (3.3%),  $i_0 + i_1 + i_2 + i_3 + i_4 + i_5 + i_6 = 0.098430711 \neq 0$  means that output result of MR model is accepted at the SF level = 0.50187.

Coefficients of Independent variables which > 0 are  $i_1 = 0.010544$ ,  $i_4 = 0.008174$ ,  $i_6 = 0.020758$  that means I<sub>1</sub>, I<sub>4</sub>, I<sub>6</sub> impact on LP<sub>2</sub>.

$i_2 = -0.011233$ ,  $i_3 = -0.035884$ ,  $i_5 = -0.001876$ , all of them are < 0 is to show that I<sub>2</sub>, I<sub>3</sub>, I<sub>5</sub> do not impact on LP<sub>2</sub>.

P-Value:  $i_1 = 0.77975$ ,  $i_2 = 0.783595$ ,  $i_3 = 0.404391$ ,  $i_4 = 0.672076$ ,  $i_5 = 0.972236$ ,  $i_6 = 0.584596$ . all are small value, that means the output result of MR model has statistical significance.

## VI. Discussion

Based on the MR results have been presented in table 1, table 2, table 3 and table 4 is to give us the information that MR model 1: the relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and CP<sub>1</sub>, MR model 2: the relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and CP<sub>2</sub>, and MR model 4: the relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and LP<sub>2</sub> have been built suitably to the input data and they have statistical significance. However, MR model 3: the relation between I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, I<sub>4</sub>, I<sub>5</sub>, I<sub>6</sub> and LP<sub>1</sub> which ARS = -0.08748 (-8.7%) means that input data of MR model has not been explained by output result yet. It might to show that the collected input data has not suitable to the MR model was built.

Therefore, MR model 1 has I<sub>1</sub>, I<sub>3</sub>, I<sub>5</sub>, I<sub>6</sub> impact on CP<sub>1</sub>, and I<sub>2</sub>, I<sub>4</sub> do not impact on CP<sub>1</sub>. MR model 2 has I<sub>1</sub>, I<sub>2</sub>, I<sub>4</sub>, I<sub>6</sub> impact on CP<sub>2</sub>, I<sub>3</sub> and I<sub>5</sub> not impact on CP<sub>2</sub>. MR model 4 has I<sub>1</sub>, I<sub>4</sub>, I<sub>6</sub> impact on LP<sub>2</sub> and I<sub>2</sub>, I<sub>3</sub>, I<sub>5</sub> do not impact on LP<sub>2</sub>.

## VII. Conclusion.

According to section 6 which describes the results of MR model 1, MR model 2, MR model 3 and MR model 4 in table 1, table 2, table 3 and table 4, and based on discussion in section 7 that we can have conclusion below:

(I<sub>1</sub>) People's participation at the grassroots level, (I<sub>3</sub>) Accountability to the people, is the effectiveness of interaction with authorities at all levels, (I<sub>5</sub>) Public administrative procedures, and (I<sub>6</sub>) Public service supply impact on (CP<sub>1</sub>) the productivity of goods calculated on the total number of human resources. (I<sub>2</sub>) The publicity and transparency and (I<sub>4</sub>) The control of corruption in the public sector do not impact on (CP<sub>1</sub>) the productivity of goods calculated on the total number of human resources.

(I<sub>1</sub>) People's participation at the grassroots level, (I<sub>2</sub>) The publicity and transparency and (I<sub>4</sub>) The control of corruption in the public sector, and (I<sub>6</sub>) Public service supply impact on (CP<sub>2</sub>) passenger productivity calculated on the total number of human resources. (I<sub>3</sub>) Accountability to the people, is the effectiveness of interaction with authorities at all levels and (I<sub>5</sub>) Public administrative procedures do not impact on (CP<sub>2</sub>) passenger productivity calculated on the total number of human resources.

(I<sub>1</sub>) People's participation at the grassroots level, (I<sub>4</sub>) The control of corruption in the public sector and (I<sub>6</sub>) Public service supply impact on (LP<sub>2</sub>) passenger productivity calculated on total capital of production and business activities.

(I<sub>2</sub>) The publicity and transparency, (I<sub>3</sub>) Accountability to the people, is the effectiveness of interaction with authorities at all levels and (I<sub>5</sub>) Public administrative procedures do not impact on (LP<sub>2</sub>) passenger productivity calculated on total capital of production and business activities.

**Acknowledgement:** ("This research is funded by University of Economics and Law, Vietnam National University Ho Chi Minh City / VNU-HCM").

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