

Foreign aid and economic growth: The impact of aid on determinants of growth - The case of Vietnam

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Abstract

The present thesis investigates the relationship between foreign aid and economic growth in Vietnam from 1993 to 2012. The main objective is to contribute to a better understanding of the reality of aid-growth relationship in Vietnam, how and through which channels aid may influence outcomes, and what make aid works better or less well.

In the research, growth accounting analysis is conducted to recognize contributions of foreign assistance to production factors. An empirical model is estimated using the Autoregressive Distributed Lagged (ARDL) approach to cointegration for the purpose of evaluating of the direct impact of aid on final economic outcome. Additionally, the study conducts an analysis reviewing both positive and negative effects of foreign aid across different sectors.

The empirical results indicate that foreign aid has a significantly positive role in promoting economic growth in Vietnam. The results of growth accounting exercise and the analysis of fundamental channels through which aid has contributed to development outcomes also obtain more evidence supporting the beneficial impacts of aid, especially on macroeconomic management, infrastructure, and human capital accumulation. However, at the same time, such aid-related problems as high volatility and unpredictability of the inflow, absorptive capacity constraints, and rent seeking behavior could burden the recipient's administration and in turn, undermine the aid effectiveness.

Based on these findings, a set of policy implications has been suggested. Firstly, Vietnamese government and its donor community should put more effort into improving the coordination among involved parties. Secondly, the analysis implies the importance of systematic evaluations of completed aid programs and projects. Thirdly, the quality of institution and managerial capacity should be strengthened in addition to aid effort. Fourthly, Vietnam needs to be acutely conscious of the problems involving due to high volatility and unpredictability of aid and then implement necessary measures to alleviate pressure on fiscal management. Finally, there is a need to adopt a more self-sustainable approach in enhancing economic growth in the long-run.

Keywords Vietnam, foreign aid, economic growth, ARDL, growth accounting, growth determinants

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1 INTRODUCTION

It is widely common that the domestic capital needed to promote economic growth in developing countries is insufficient. Foreign aid therefore becomes one potential external capital that is expected to significantly boost economic development in developing countries. Accordingly, the debate on the relationship between foreign aid and economic growth has been greatly heightened for decades. Although economic theories are fairly consistent with respect to the pivotal role of aid in spurring growth, the empirical evidence has remained controversial. While some studies have found the significantly positive relationship between foreign aid and final economic outcomes (e.g. Henrik Hansen and Finn Tarp, 2000; Channing Arndt et al., 2010; Juselius et al., 2014), others have reached to the conclusion of insignificant or even significantly negative relation. For example, Easterly (2003) asserts a skeptical viewpoint about aid's role and concludes that aid cannot buy growth.

The debate seems to be mainly driven by the results from cross-country regression analyses, whilst there have been few studies that adopt specific-country approach to investigate the impact of aid on growth. However, it should be noted that the aid effectiveness is diverse across countries. Although cross-country empirical analyses have progressively developed and enormously contributed to our understanding of aid-growth link, there is clear need for country case studies to practicably capture country-specific heterogeneous features. Hence, this study makes a contribution to the less researched country-level literature on aid effectiveness.

With respect to country specificity, Vietnam appears to be an interesting case study. Vietnam has received impressively increasing amount of Official Development Assistance (ODA) since 1993 and been one of the major ODA recipients in South East Asia region. There is a general belief that foreign aid programs and projects have made substantial contribution to Vietnam's success in achieving remarkable economic growth since 1990s. However, to date, research evidence remains scant and ambiguous. In fact, there have been only a few available empirical studies that undertook some investigations into the impact of external assistance on growth (e.g. Chengang Wang and V.N. Balasubramanyam, 2011; Yin Pui Mun and Lau Sim Yee, 2013; and Hong, 2014); yet the final conclusion has still been debatable. Moreover, earlier research appears to lack comprehensive analysis which probes the impact of aid on the basis of understanding the nature of aid inflow to the country and the specific mechanisms through which aid has affected economic development. Therefore, this indicates that there is a need for more in-depth and comprehensive investigation on the aid-growth relationship in this aid-abundant country.

The present research employs pluralistic methodological approach to assess the impact of foreign aid for the purpose of delivering more robust results. At first, the growth accounting analysis is conducted in order to sketch out the sources of economic outcomes and then link them to the contribution of foreign assistance. The estimation of the direct aid impact is carried out using the Autoregressive Distributed Lagged (ARDL) approach to cointegration for the period 1993-2012. This approach avoids the problem of unit roots and yields valid coefficient estimates even in the presence of endogenous regressors. Additionally, the study conducts an analysis reviewing both positive growth-enhancing effects and negative growth-retarding effects of foreign aid across different sectors. The approach aims to capture various channels through which external aid can influence final economic outcomes.

1.1 Research objectives

The main purpose of the present thesis is to provide a country-specific study of aid and growth in one of the largest aid recipients in the world. The final target of the research is not to put out a conclusive statement on whether or not aid is effective in promoting economic growth in Vietnam. Rather it is hoped that the study would contribute to a better understanding of the reality of aid-growth relationship in Vietnam, how and through which channels aid may influence outcomes, and what make aid works better or less well.

On the basis of better comprehension of the factors that might improve or undermine aid effectiveness, this research is expected to contribute some discussions on ways that make aid works better. Accordingly, the study would attempt to come up with policy implications in order to improve aid effectiveness in Vietnam.

1.2 Research questions

In order to conduct the research, some relevant questions include:

- What does empirical evidence show regarding the link between foreign aid and economic growth?
- Which are the specific channels through which aid can positively and negatively influence on final economic outcomes?
- How has foreign aid impacted on Vietnam's growth and developmental outcomes?
- What are the potential challenges to efficiently allocate and implement external aid inflow?

- How can Vietnam handle the negative impacts and maximize the benefits from future aid in order to effectively foster economic development?

1.3 Structure of the Thesis

The present thesis is divided into seven chapters. The present chapter introduces the research topic as well as explains the aim, the objectives, and the research questions of the study. The chapter two presents the highlights of the theoretical and empirical literature and reviews the history and characters of aid inflow to Vietnam since 1993. The chapter three explains methodologies used to estimate aid-growth relationship and data sources. The chapter four goes on to document the results of both estimation methodologies employed. Chapter five and six discuss the positive and negative impacts of aid across different sectors, covering aid management. The final chapter concludes.

2 LITERATURE REVIEW AND BACKGROUND

2.1 Economic theory and literature review

The purpose of this section is to give the reader a brief review of the literature relevant to the present study. The section will continue as follows: the theoretical basis that conceptualizes the role of external assistance in economic development, the empirical evidence, and the review of methodology.

In the early literature, foreign aid is considered as a driving force for economic growth through physical capital accumulation in recipient countries. The Harrod – Domar model of economic growth, which implies that investment is the only factor determining growth, is one popular conceptual framework being used to justify the aid growth relationship. With investment assumed to be equal to savings, the model explains that poor countries suffer low economic growth due to the saving gap, which happens when domestic savings are insufficient to finance the level of investment required to achieve the desired growth rate. Foreign aid is thus expected to play a supportive role in spurring growth by supplementing to domestic savings and filling up the gap. Primarily based on the Harrod – Domar model, the two-gap model of Chenery and Strout (1966) made a significant contribution to foreign aid literature by focusing on not only the saving gap but also the foreign exchange gap. The two-gap model points out that international trade and foreign exchange besides domestic savings are also important to the development of one economy and that a gap between import requirements for a given level of production and foreign exchange earnings can reduce economic growth by constraining both imports and savings. Developing countries barely overcome the shortage of foreign exchange by their own resources and hence foreign aid supposedly helps to relax this constraint.

The above models have however received some criticism as they do not allow the substitution of labor for capital and assume the stable linear relationship between investment and growth. Eventually, further growth models have been developed trying to solve those drawbacks of previous models and contributing to literature on assessment of the impact of foreign aid on economic growth. The Solow-style neoclassical model, in which capital and labor are substitutable and exhibit diminishing return to scale, is considered as an alternative to the Harrod – Domar growth model. The model continuously affirms the crucial role of capital accumulation, part of which constitutes foreign aid, in promoting growth. However, in the model, there is no permanent causal relationship between investment and growth (Easterly, 2003) and therefore, it

restricts the use of the basic neoclassical model to study the impact of aid on growth over the long-run.

An alternative to the neoclassical growth models, endogenous growth models, take into account a complex set of inputs besides physical capital as determinants of economic growth, such as technology, human capital, intermediate new goods, organizational capital, social capital, and institutional design (Easterly, 2003). The model has become a popular theoretical framework used in current aid-growth empirical investigations since it remedies the shortcomings of the neoclassical model of economic growth and provides additional empirical relevance and explanatory power (Sakyi, 2011). In particular, the assumption of increasing returns to capital of endogenous growth model implies that foreign aid may improve growth in long-run and therefore supports the estimation of the long-term economic impact of aid (Kargbo, 2012). Furthermore, the model assumes the non-linear relationship between investment and growth (as opposed to the neoclassical growth model); and so there would be the case of measuring “the quality of investment” and the quality of foreign aid (Easterly, 2003). Based on this model, the contribution of external assistance to growth can be estimated through other factors in addition to capital accumulation. The endogenous model, for instance, also stresses the critical role of human capital in the growth process; and therefore this justifies the assessment of foreign aid on building up human capital in recipient countries. Indeed, aid in the forms of both technical assistance and investment in education and health care system potentially fosters human capacity building and then production outcomes (Kargbo, 2012).

Following the aforementioned growth theories, the debate on whether foreign aid in actuality has been effective in propelling economic growth has intensified over the last few decades. Being cognizant of the enormous amount of the existing empirical studies on aid-growth relationship, this paper will limit the review to the analysis of the main characteristics of aid effectiveness literature and its methodological development. The overview of empirical literature can be described through four main features. Firstly, the final conclusion regarding the positively contributing impact of foreign assistance on economic growth remains fairly controversial. On the one hand, studies have found that aid successfully promotes economic growth in recipient countries¹. On the other hand, some conclude that the impact of aid on growth appears to be statistically insignificant or even negative and significant². Juselius et al. (2014) argue that this divergence is attributed to the differences in analytical framework utilization, estimation

¹ See (Mosley, 1980); (Mosley et al., 1987)); (Henrik Hansen and Finn Tarp, 2000); (Carl-Johan Dalgaard et al., 2004); (Channing Arndt et al., 2010); (Matthijs Lof et al., 2013).

² See (Easterly, 2003); (Rajan, R.G. and Subramanian, A., 2008); (Nowak-Lehmann et al., 2012).

methodology, variable specifications, and initial assumptions. Indeed, basing on same data sources covering 131 countries over the period 1960-2006 as those used in Nowak-Lehmann et al. (2012), Matthijs Lof et al. (2013) employ different econometric model and find positive and statistically significant long-run effect of aid on income, which is opposed to the former's result.

Secondly, empirical literature presents a mounting concern about the conditional relationship between aid and growth, in which aid works in some circumstances but not in others, depending on the characteristics of the recipient countries - e.g. policy, political environment, economic vulnerability, or geographical characters. During early 2000s, Craig Burnside and David Dollar (2000) attracted considerable attention from academia with the idea of testing the aid-growth relation in the presence of policy. Although some papers agree with Burnside and Dollar's conclusion that foreign aid only work in good policy circumstance³, quite many others criticize the methodology approach and challenge the result. Typically, Henrik Hansen and Finn Tarp (2000) find that the aid-growth link is significant and positive, regardless of an unfavorable policy environment. Moreover, Easterly et al. (2004), by using the same variable specifications as Craig Burnside and David Dollar (2000) did but with updated data sample, argue that the role of policy in determining the foreign aid effectiveness disappears. Other examples of this "conditional" strand of the literature are Chauvet, L. and P. Guillaumont (2004) which revisit the relationship between foreign aid and growth while making assumptions that aid effectiveness depends on policy, structural economic vulnerability, and political instability; or Carl-Johan Dalgaard et al. (2004) which find that foreign aid performance seems to be related to geographical location of country sample.

Thirdly, a recent development in the aid-growth literature is the analysis of the long-run cumulative effects of aid on growth. In other words, there is a growing tendency among aid studies toward the discussion of non-growth intermediate determinants through which foreign assistance might affect the final outcome of the recipient country, including health, education, environment and climate change, institution, or politics. Simone Dietrich and Joseph Wright (2012), for instance, conclude that foreign aid on democracy and governance has a consistently positive effect on democratic consolidation using survival analysis for the period from 1991 to 2008 in sub-Saharan Africa sample; or Lynda Pickbourn and Léonce Ndikumana (2013) observe that foreign aid appears to be effective in reducing maternal mortality as well as the gender gap in youth literacy regardless of initial conditions of the recipients. Typically, Channing Arndt et al. (2013) process a comprehensive evaluation of long-run effect of aid in developing countries

³ See (Collier, P. and Dollar, D, 2001); (Eskander Alvi et al., 2008); (Javid, M. and A. Qayyum, 2011).

by thoroughly analyzing the link between foreign aid and a cluster source of growth and deduce that “Aid has contributed to economic growth by stimulating its proximate determinants – e.g., physical capital accumulation and improving human capital, particularly education and health”.

Last but not least, an overwhelming proportion of aid effectiveness literature is cross-country research, which has sometimes been criticized for not being usually informative for country-level perspective. Arguably, the impact of aid on growth is far from equally everywhere since “countries with very different initial conditions and/or aid profiles may see very different responses to aid over time” (Tarp, 2009). Meanwhile, cross-country approach cannot capture the fact that countries are heterogeneous; and thus it does not necessarily guarantee the applicability of cross-country research’s findings in a particular country (Kargbo, 2012). This therefore warrants the need for country case studies in which a particular country’s circumstances and performance would be thoroughly taken into account. On this basis, the present research provides country-level analysis by examining the Vietnam aid – growth experience.

To date, analytical methodologies have been gradually altered and developed with the aim of tackling previous methodological limitations and capturing more precisely the complexity of foreign aid. The first progressive move is the application of Two-stage Square (2SLS) model and Generalized Method of Moments (GMM) model, in which the supposedly endogenous problem of foreign aid and other related variables such as governance, investment, and policy can be handled. Later on, the availability of panel data techniques makes it possible to account for unobserved country-specific factors and exploit variations both across countries and over time (Matthijs Lof et al., 2013). For example, the use of panel GMM regressions to revisit the aid-growth evidence in Rajan, R.G. and Subramanian, A. (2008) was paid attention as it can address the endogeneity of other regressors as well as incorporate fixed effects. Recently, new methods based on vector autoregressive (VAR) model have been emerged reflecting the new trend of foreign aid study - the long-run effect of aid on a set of key macroeconomic variables which finally lead to economic growth - including co-integrated VAR model (Juselius et al., 2014) and panel VAR model (Matthijs Lof et al., 2013).

To sum, the review concludes that the debate on the aid-growth relationship has still been inconclusive and appears to continue. Notwithstanding, the abundant and diversified aid effectiveness literature and the development of analytical methodology have built a concrete foundation for further analysis of a country case study, which will be presented in the next sections.

2.2 Overview of foreign aid in Vietnam

It would be difficult to precisely assess the impact of foreign aid on economic growth of a specific country without understanding the features of aid inflow to this country. Therefore, the following part will briefly discuss the overview of Vietnam's economic development and main characteristics of foreign aid in Vietnam over the period 1993-2012. In the present study, ODA is used as the indicator of foreign aid.

Vietnam has become one of the case studies in development textbooks after experiencing a spectacular transition process since the launch of 'Doi Moi' – a homegrown, political and economic renewal campaign – in 1986. Prior to the Doi Moi, Vietnam was one of the poorest countries in the world due to a century of warfare and ineffective economic mechanism – centrally planned economy. During that time, the country was faced with many problems including high poverty rate, unproductive and underdeveloped agriculture, hyperinflation, extremely poor economic infrastructure, famine, and the trade embargo by the west. Then, the Doi Moi has marked an impressive transition from a centrally planned economy to a so-called socialist-oriented market economy⁴ and from one of the poorest countries in the world to a lower-middle-income country in two decades. According to World Bank (2012), between 1990 and 2010, Vietnam's economy grew at the annual average rate of 7.3 percent. Other than the early 1990s, the only times that growth fell below 7 percent were in the aftermath of the Asian financial crisis, 1998-1999, with the annual average growth rate of 5.2 percent, and during the recent global crisis, 2008-2010, with the annual average rate of 5.7 percent. Since the beginning of the transition process, the supply and demand of external support such as foreign aid have significantly increased because of the normalization of Vietnam's diplomatic relationship with the rest of the world, especially with the west, and the need for physical capital as well as advanced knowledge and technology for the rapid expansion of the economy. This naturally raises the question how much aid has contributed to Vietnam's development and economic growth. In fact, Vietnam is one of Asia's foremost ODA recipients and still receiving a huge and increasing amount of ODA each year. The latest statistics of DAC shows that Vietnam is the fourth largest ODA-recipient all over the world (see table 2.1).

⁴ Socialist- oriented market economy: a multi-sector market economy oriented towards the eventual and long-term development of socialism, where the state sector plays a decisive role in directing economic development.

Table 2. 1 Top 10 ODA receipts by recipients

(US\$ millions, net disbursement in 2011)

1	Afghanistan	6 711	5%
2	Congo, Dem. Rep.	5 522	4%
3	Ethiopia	3 563	3%
4	Vietnam	3 514	3%
5	Pakistan	3 509	3%
6	India	3 220	2%
7	Kenya	2 474	2%
8	Tanzania	2 445	2%
9	West Bank & Gaza Strip	2 444	2%
10	Mozambique	2 047	1%
	Other recipients	100 990	74%
	Total	136 437	100%

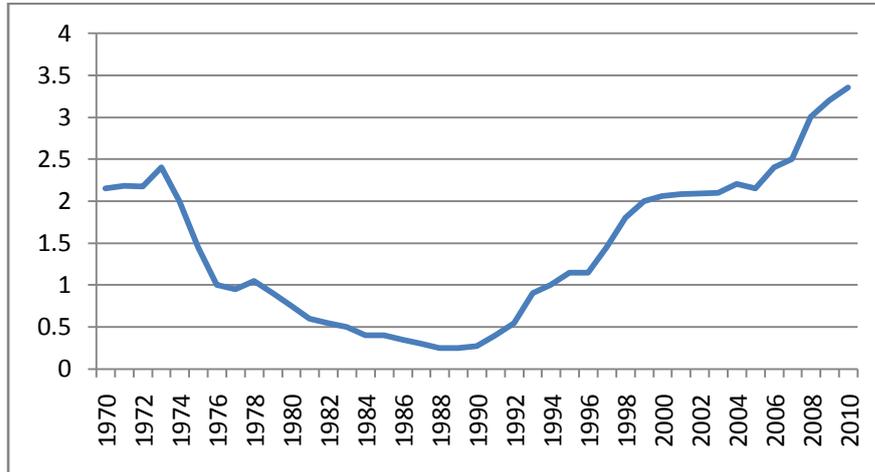
Source: DAC/OECD

Prior to the collapse of Communist Block, Vietnam received ODA mainly from Former Soviet Union, Eastern European countries, and China (OECD, 2004). However, the political changes influencing these donors during 1990s made the main external financial source gradually dry up and led to a big challenge for Vietnam in filling the financial gap needed for economic expansion. Under this circumstance, the first Consultative Group Meeting (CG meeting) for Vietnam conducted in Paris in November 1993, in which a full cooperation between Vietnam and the international financial community was formally established, became a turning point marking the resumption of ODA flow into Vietnam. Since then, the CG meetings are held once or twice per year in Vietnam at which the Vietnamese government and donors exchange views on socio-economic policies and the implementation of the ODA committed by the donors. As a result, the cumulative cooperation between donors and recipient has led to the rapidly increasing flow of ODA into Vietnam since 1993. More explicitly, the figure 2.1, which illustrates the trend in aid to Vietnam since 1970, represents the continuous upward trend from 1993 to present period. According to the Ministry of Planning and Investment (MPI), during the period 1993-2012, international donors have committed to provide over US\$78 billion for Vietnam, of which the disbursed amount reached to US\$38 billion (see figure 2.2). In addition, the amount of disbursed funds over the period has been improved, which is indicated by the slightly increasing trend of the net ODA disbursement per capita in the figure 2.3. Nevertheless, it is the fact that the

average disbursement rate of 48 percent over the period 1993-2012 is still lower than the world average rate⁵. This might signal shortcomings in the cooperation between Vietnamese government and its donors and weaknesses in managerial capacity of the recipient's authority.

Figure 2. 1 Trend in aid to Vietnam since 1970

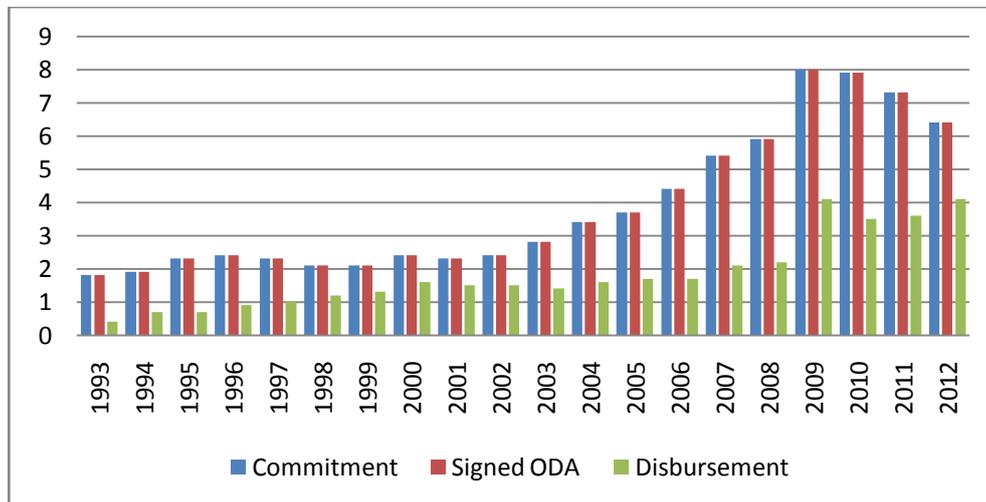
(US\$ billions, 2010 prices and exchange rate, 3-year average net ODA receipts)



Source: DAC/OECD

Figure 2. 2: ODA Commitment, Signed ODA, and ODA Disbursement in 1993-2012

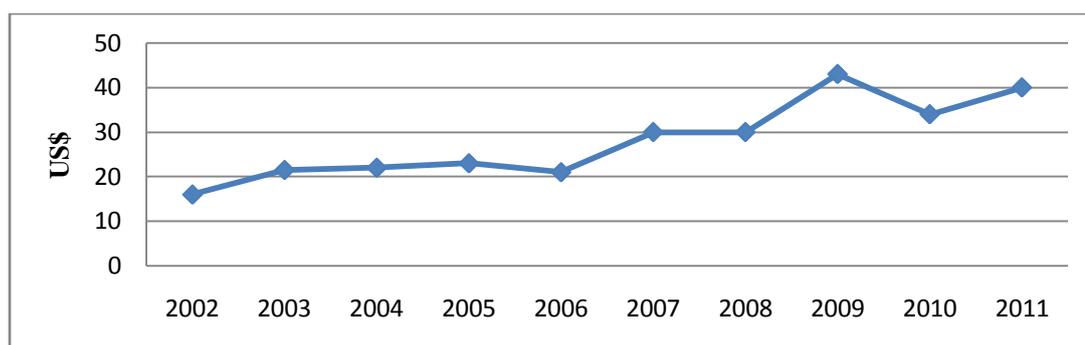
(Unit: US\$ billions)



Source: Foreign Economic Relation Department – MPI

⁵The ratios of ODA net disbursement to ODA commitment (2010 price) to all developing countries in 2010 and 2011 are 80 and 85 percent, respectively. (Source: DAC/OECD)

Figure 2. 3 Total net ODA disbursement per capita



Source: DAC/OECD

The providers of ODA to Vietnam include 28 bilateral donors and 23 international organizations in 2012, increasing from total 26 bilateral donors and international organization in 1993 (MPI). Of all the donors, Japan, IDA⁶, and AsDB Special Fund⁷ are the three largest donors of Vietnam, providing about 75 percent of total ODA value disbursed in Vietnam over 2007-2011. With respect to composition of aid from Vietnam's two largest donors, Japan and IDA, the share of loans is much larger than the share of grants, in which the former accounts for more than 90 percent of the total amount of aid. This proportion partly explains aid composition and the trend of disbursed aid modalities in Vietnam. Over the history of receiving aid, the share of loans has been usually much larger than the share of grants and continually increased over time. According to MPI, the proportion of loans in ODA capital increased from 80% in 1993-2000 to 93% in 2006-2010 and to 95.7% in 2011-2012. Almost all of the ODA loans are long-term and carry preferential interest rate and a long grace period. Around 45 percent of the loans have interest rate lower than 1 percent p.a. and a maturity of at least 30 years, of which 10 years is the grace period. Another trend regarding aid modality is the increasing share of ODA disbursed through general or sector budgetary support and pooled funding (Adam McCarty et al., 2009). The trend toward non-project based modalities and using country system provides recipient's authority with greater ownership but raises the challenges of managerial capacity and moral hazard.

ODA resources have mostly been allocated in accordance with the priority the Government places on economic sectors as well as the preference of the donors. With the aim of creating a favorable environment for economic development and poverty reduction, the Government allocates the aid inflow mainly to economic infrastructure and services, which accounts for 41.3 percent of the total aid. Each donor also has specific preference in terms of aid allocation. More

⁶IDA: International Development Association - The part of the World Bank established in 1960 that helps the world's poorest countries by providing loans (called "credits") and grants for programs.

⁷AsDB Special Fund: Asian Development Bank Special Fund

particularly, Japan, the Vietnam's largest donor, for the purpose of directing toward concrete goals with particular emphasis on increasing industrial capacity and building up country's comparative advantages, concentrates more than 80 percent of its aid into Vietnam on economic infrastructure, then around 10 percent on social infrastructure. In contrast, the United States, the sixth largest bilateral donor of Vietnam, mainly focuses on social infrastructure sector, with roughly 85 percent of the total aid amount; or France, the third largest bilateral donor, assigns about 35 percent of its ODA into Vietnam to the multi-sector⁸.

Another typical feature of Vietnam's ODA inflow is the relatively unequal distribution of aid financing between rural and urban area. It appears that the prosperous urban areas such as Red River Delta and Southeast tend to be allocated large volume of ODA per capita; meanwhile the poorest rural areas such as Northern Midland and Mountainous Areas and Central Highland have very low levels of ODA per capita (see table 2.2). This recognizes the fact that ODA has not fully focused on the issue of regional disparities in development. The most active donors participating in Poverty Reduction Strategy Paper (PRSP) are the World Bank, UNDP, SIDA, and DfID⁹ since they participated in the joint poverty working group with the Vietnamese government. According to Japan International Cooperation Agency (JICA), being cognizant of growing regional disparities, international donors have recently put more emphasis on poverty reduction in their assistance programmes.

Table 2. 2 ODA per capita by regions (2006-2010)

Regions	Poverty rate 2010 (Percent)	ODA budget (US\$ billions)	ODA per person (USD/person)
Red River Delta (Hanoi)	8.4	3,989.47	204.72
Northern Midland and Mountainous Areas	48.6	409.33	36.90
North Central Coast	24.0	1,566.05	79.66
Central Highland	22.2	74.66	15.14
Southeast (HCMC)	3.4	894.39	71.78
Mekong Delta	12.6	907.16	51.71

Source: World Bank, MPI

⁸This data was collected by OECD in 2012 which is available at <http://www.compareyourcountry.org/chart.php?project=aid-statistics&page=0&cr=oeecd&lg=en>

⁹UNDP: United Nations Development Programme
SIDA: Swedish International Development Cooperation Agency
DfID: UK Department for International Development

Finally, although Vietnam has received large sums of foreign aid, the ratio of aid dependency is relatively low. According to the data released by World Bank, over the period 1993-2011, Vietnam's average ratio of net ODA received to GNI is 3.85 percent. Meanwhile, the average rate in Sub-Saharan African countries over the same period is much higher, approximately 10 percent¹⁰, of those the ratios of Guinea-Bissau and Mozambique are 30 and 24 percent, respectively. Specially, in Afghanistan, the largest ODA recipient in the world, this ratio reaches to almost 42 percent, representing its extreme dependence on ODA inflow.

To sum, Vietnam has experienced a robust increase of aid inflow over the period 1993-2012. Being allocated to various socio-economic fields, this external assistance is expected to play an integral role in spurring economic growth and development in Vietnam. However, the relatively low disbursed rate and the current trend regarding disbursed aid modalities have emphasized the need to more effectively absorb and use this financial assistance. Moreover, it is the fact that the external assistance inflow in the future will be ceased growing and gradually decreased together with the higher development level of the country. Therefore, precisely assessing the impact of aid in order to maximize the benefits of this assistant source has become absolutely necessary. Evaluation and analysis of aid impacts on economic growth will be discussed in the following chapters.

¹⁰The ratio is calculated from the data of 47 Sub-Saharan African countries (source: World Development Indicators – World Bank).

3 METHODOLOGY AND DATA SOURCES

3.1 Growth accounting analysis

With the aim of measuring the effect of foreign aid on economic growth, it is necessary to proximately assess the sources of growth. Growth accounting approach, which helps explain the sources of economic outcomes by decomposing growth rate into the contributions of physical capital, human capital, and total factor productivity, is a proper methodology. Within the scale of the present study, there are two main purposes of conducting growth accounting analysis. First, the results would reveal the respective contribution of production factors to Vietnam's economic growth over the period 1991-2012 and then be referred to the impacts of foreign aid on total output. Second, the exercise is expected to provide a robust informative basis to support the analysis of the positive and negative impacts of aid on determinants of growth, which will be discussed in the chapter 5 and chapter 6 of this research.

This study implements the growth accounting analysis using Cobb-Douglas aggregate production function with Hicks-neutral technical change but try to include human capital instead of labor force as a factor of production. Therefore, the aggregate production function has the form as follows:

$$Y = A K^\alpha H^\beta = A K^\alpha (h*L)^\beta \quad (1)$$

where Y is GDP in real terms; A is total factor productivity (TFP) which represents the level of technology and technical knowhow; K is fixed capital inputs; H presents human capital which is the product of labor force (L) and human capital index (h); α and β represent national income share accrued to fixed capital and human capital, respectively. The production function (1) is assumed to be constant return to scale, which means $\alpha + \beta = 1$.

Then, the original production function can be expressed under differentiating form and trans-log form, as follows:

$$\Delta Y_t = \Delta A_t + \alpha \Delta K_t + \beta \Delta H_t \quad (2)$$

$$\text{Ln} \frac{Y_t}{Y_{t-1}} = \alpha \text{Ln} \frac{K_t}{K_{t-1}} + \beta \text{Ln} \frac{H_t}{H_{t-1}} + A_{t,t-1} \quad (3)$$

where Δ denotes the rate of change of each term; $A_{t,t-1}$ indicates the growth in a translog TFP measure. In present study, the share of fixed capital and human capital in total product are assumed to be constant over the considered period.

The above production function will be used to calculate the individual contribution of production factors in growth accounting exercise. In order to complete this estimation, measures of three elements including fixed capital stock, human capital stock, and aggregate factor shares are needed. The following sub-sectors would discuss the method and process to calculate those factors.

3.1.1. Measuring fixed capital stock

The fixed capital stock will be estimated using the Perpetual Inventory Method (PIM), which is a common method in growth literature. The value of capital stock is calculated based on the equation:

$$K_t = (1 - \delta) * K_{t-1} + I_t \quad (4)$$

where K is the capital stock, I is the investment, and δ is the depreciation rate of capital.

In this paper, all capital goods are treated as homogeneous and applied an annual depreciation rate of 5 percent. The same rate of depreciation for the case of Vietnam was used in Le Dang Doanh et al. (2002) and Shenggen Fan et al. (2003).

Following Iradian (2007), we calculate the initial value of capital stock using the approach first introduced in Harberger (1978). Particularly, this approach is based on the observation that if the capital-output ratio is constant in a given period of time, the capital and output growth rates are equal during that period. When reorganizing the equation (4), we derive the equation (5).

$$\frac{K_t - K_{t-1}}{K_{t-1}} + \delta = \frac{I_t}{K_{t-1}} \quad (5)$$

where capital growth rate, $\frac{K_t - K_{t-1}}{K_{t-1}}$, is equal to the output growth rate. Thus, equation (5) can be written as:

$$K_{t-1} = \frac{I_t}{g + \delta} \quad (6)$$

The value of output growth (g) can be calculated by using five-year average annual growth rate of real GDP in which the base year capital stock would be centered in the middle of five-year period. Since the initial capital stock in this study starts from 1990, the average growth rate of real GDP would be calculated during the period 1988-1992.

3.1.2. Measuring human capital

Since data for Vietnam do not allow a reasonable calculation of human capital stock, many previous studies that implement growth accounting exercise used the data of labor force or of economically active population as proxy for human capital stock¹¹. It means that all workers have been treated as if they are identical regardless of their education attainment, working experience, gender, geographical coverage or working hours. However, reality as well as growth literature have shown that both quantity and quality of labor force influence aggregate output. Therefore, present study at the beginning attempted to measure the human capital of Vietnam. Unfortunately, due to lack of data, the measurement could not be conducted. This research has consequently used the results calculated from Hyun Hwa Son (2012), which measures the human capital of Vietnam using the 2008 Vietnam Household Living Standard Survey (VHLSS). In Hyun Hwa Son (2012), the author develops a measure of human capital taking account of different levels of education that people possess and of other control variables using the following Mincerian-type wage regression:

$$\ln(x) = \alpha + \beta(\text{age}) + \beta_1(\text{age}_2) + \gamma D_{\text{sex}} + \varepsilon D_{\text{urban}} + \rho(W_{\text{hours}}) + \tau D_{\text{ethnicity}} + \sum_{i=2}^9 \delta_i D_i + u \quad (7)$$

where D_i are eight dummy variables for each level of educational attainment; the regression coefficient δ_i is interpreted as the productivity of the i th educational attainment level relative to that of having “no degree”; W_{hours} denotes hours of work; D_{sex} , D_{urban} , and $D_{\text{ethnicity}}$ are dummy variable illustrating gender, geographical coverage, and ethnicity of the earner, respectively.

¹¹ For example: (Le Dang Doanh et al., 2002), (Mustapha K. Nabli et al., 2010), and (Seila, 2011).

Table 3. 1 Productivity weight by level of education attainment in Vietnam

i	Level of educational attainment (<i>Di</i>)	Productivity weight (<i>Wi</i>)
1	No degree	1.00
2	Primary	1.02
3	Lower secondary	1.09
4	Upper secondary	1.31
5	Short-term technical	1.41
6	Long-term technical	1.58
7	Vocational college	1.64
8	Professional secondary school	1.68
9	Tertiary general	2.14

Source: (Hyun Hwa Son, 2012)

Overall, the results indicate that an additional level of education gives rise to higher earnings, which represent to higher productivity weight (see table 3.1). Those productivity weight indices are assumed to be constants over the considered period. Then, in order to calculate total human capital, it is necessary to collect the data regarding the structure of employment by education level. In this study, the structure of population 15 years old and older is used to proximately represent the structure of labor force. In particular, the total human capital and the human capital index - (*h*) in equation (1) - of each year can be calculated by:

$$H = \sum(L_i * W_i) \quad (8)$$

$$h = \frac{H}{\sum L_i} \quad (9)$$

where *H* is total human capital, *L_i* is labor force with *i*th educational attainment level, *W_i* is the productivity weight of *i*th educational attainment level.

Nevertheless, once again, due to insufficient data of labor force structure by educational attainment, the quality-adjusted growth accounting result, which presents the contribution of education to economic growth, is only available for the period 2006-1012¹².

¹² General Statistical Office (GSO) of Vietnam has started to process the Vietnam Labor Force Survey and Vietnam Household Living Standard Survey (VHLSS) since 2006. Before 2006, VHLSS was only conducted in 1993 and 1998.

3.1.3. Aggregate factor shares

One common approach to estimate the shares of fixed capital and human capital in aggregate output is to use a priori measure of capital in the range of 0.3 – 0.4 (Iradian, 2007). Present study follows this approach by assuming that the fixed capital share is at the middle of the common range, 0.35, and the human capital share is 0.65. This share was also adopted for some other East Asian countries¹³. In fact, Le Dang Doanh et al. (2002), who undertook the growth accounting analysis for the case of Vietnam, used the share 0.4 and 0.6 for fixed capital and human capital, respectively. However, as discussed in Rainer Klump and Thomas Bonschab (2004), Le Dang Doanh et al. (2002) find that the assumed value of fixed capital share is too high. Therefore, it seems to be reasonable to set the fixed capital share at 0.35.

Another issue that should be taken into consideration is the change of aggregate factor shares during the period within the scope of present study. Indeed, with the case study of Mozambique, Channing Arndt et al. (2006) allow the labor and capital shares to move with the aim of capturing the changing pattern of fixed capital and human capital accumulation before and after the civil war. Regarding the present research, during the considered time period, 1991-2012, the country did not experience large upheaval that may strongly affect factor shares as the civil war did in the case of Mozambique. Therefore, the shares of fixed capital and human capital are considered to be constant in this paper.

3.2 Econometric model

Whilst the growth accounting exercise is a preliminary step for the analysis of fundamental determinants of economic growth through which the impact of aid is indirectly assessed, the following part is a further step to directly evaluate the aid effectiveness using econometric analysis. The main purpose of this empirical model is to estimate the short- and long-run effect of growth determinants, in which foreign aid is considered as one of those determinants. The model used in the current paper is based on aforementioned growth theories including Harrod-Domar, neoclassical, and endogenous growth model. It is consistent among those growth theories that capital is an important determinant of economic growth. Besides, the endogenous growth model has recognized the significant role of public policy in long-run economic growth and then supported the inclusion of policy variable in empirical growth regression. Following

¹³ See (Bosworth et al., 1996), and (Bosworth et al., 2003).

those growth theories, the empirical model for estimating aid-growth relationship is specified as follows:

$$\text{GDPG}_t = \beta_0 + \beta_1\text{ODA}_t + \beta_2\text{INV}_t + \beta_3\text{Policy}_t + \beta_4\text{Crisis}_t + \mu_t \quad (10)$$

where GDPG is real gross domestic product growth rate being a proxy for economic growth; ODA denotes the ratio of official development assistance to GDP presenting foreign aid; INV is the ratio of investment to GDP, used as a proxy for capital; policy is macroeconomic policy index accounting for fiscal, monetary, and trade policies; and crisis is a dummy variable capturing the impact of shocks which are not captured by other explanatory variables¹⁴. The empirical analysis uses annual time series data from 1993 to 2012.

As can be seen, both investment and ODA are included in the growth regression (10). Consequently, there might be the problem of double counting since some part of investment will be funded by aid, leading to a biased coefficient on the aid variable (Feeny, 2005). In some other studies, the authors choose to include the aid variable while omitting the investment variable to avoid the double counting problem. Nevertheless, omitting the investment variable will cause model misspecification and a biased coefficient on the aid variable as not all aid goes to investment (Gomanee et al., 2002; Feeny, 2005). Therefore, this research follows the methodology of Gomanee et al. (2002) and Feeny (2005) to tackle the problem using Residual Generated Regressors technique. In other words, the present study examines the effect of aid on growth taking into account the transmission mechanism of investment. In the first step, the presence of an aid investment transmission mechanism is investigated. In particular, an OLS regression in which investment is treated as the dependent variable is examined. The explanatory variables include foreign aid; the availability of credit (Gomanee et al., 2002; Feeny, 2005); economic growth (Feeny, 2005); and one period lagged investment to account for the dependence of current investment levels on physical capital stock (Gomanee et al., 2002). Because the aid investment mechanism exists, the model can move to the second step in which the variable INVRES is constructed representing the part of investment that is not attributed to foreign aid. INVRES is estimated by using the residuals from an aid-investment bivariate regression, which means that investment is regressed on aid, and then substituted for INV in the

¹⁴ The crisis variable takes the value 1 during period 1998-1999 capturing the consequence of Asian crisis and 2008-2011 expressing the shock from global crisis and Vietnam's self-induced recession. Mustapha K. Nabli et al. (2010) argue that the economy was not well prepared for the crisis and that the global crisis compounded Vietnam's difficulties. Consequently, the country suffered quite lasting economic downturn from 2008 to 2011 due to the effects derived from both the global crisis and the country's macroeconomic instability.

regression (10). The details of investment transmission mechanism process are discussed in the Appendix 2.

As mentioned above, policy is captured by macroeconomics policy index in the growth regression. Kargbo (2012) defends the use of the policy index as it helps to save the degrees of freedom in regression and avoid the potentially high correlation with other macro variables. In this paper, government final consumption expenditure as share of GDP is chosen as a proxy of fiscal policy (Kargbo, 2012; Easterly, W. R. and S. T. Rebelo, 1993); inflation is proxy of monetary policy (Craig Burnside and David Dollar, 2000; Javid, M., and A. Qayyum, 2011); and trade openness measure which is $(\text{import}+\text{export})/\text{GDP}$ is proxy of trade policy (Feeny, 2005; Craig Burnside and David Dollar, 2000). The policy index is constructed using the Principal Component Analysis (PCA) (see Appendix 3 for more details)¹⁵. In general, higher value of policy index indicates better macroeconomic policy.

The econometric procedure adopted in this paper follows the ARDL approach to cointegration which was first introduced by Pesaran, M. H., and Y. Shin (1999) to investigate the long run relationship among the variables of interest. Using this approach has several advantages over other counterpart estimators. First, Pesaran et al. (2001) point out that the approach allows to test for the existence of a relationship between variables irrespective of whether the underlying regressors are stationary $I(0)$, nonstationary $I(1)$, or mutually cointegrated. The approach therefore avoids the uncertainty of unit root pretesting. Comparing to Johansen likelihood approach, another common approach of cointegration, ARDL becomes more flexible as the former is only applicable when the variables have the same order of integration. Furthermore, the integration test results of the base model's variables in the present study are shown a mixed integration order. Thus, ARDL approach seems to be the best option in this case. Second, this approach captures both short- and long-run dynamics when testing for the existence of cointegration which certainly fits the main purpose of this part. Third, the ARDL cointegration approach has been proved to help in correcting residual serial correlation and endogeneity bias (see Inder, 1993; Pesaran, M. H., and Y. Shin, 1999). In fact, the potentially endogenous problem of foreign aid has been commonly discussed due to the fact that foreign aid allocation might be depended on the level of income. This advantage makes the use of ARDL become more appropriate for examining the aid-growth relationship. Finally, the test allows the application to a small sample size which is the case of the present research.

¹⁵ Javid, M. and A. Qayyum (2011) and Kargbo (2012) also use PCA method to calculate policy index when estimating aid-growth regression.

The ARDL approach to cointegration follows six steps. First, the integration test on the time series data must be conducted in order to identify the order of integration as ARDL methodology will be invalidated on I(2) variables. Moreover, this is an important step to determine which approach is appropriate for further investigation. This paper uses two of the common unit root tests namely Augmented Dickey-Fuller (ADF) test and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test to examine the order of integration of the time series data. The ADF test is widely used to determine the presence of unit root, but KPSS is noted to have stronger explanatory power in dealing with small sample size than other counterparts (Yin Pui Mun and Lau Sim Yee, 2013). Considering small sample size of this case study, we consider KPSS test as the main technique of estimation, which implies that the results of KPSS test will be prioritized in the presence of any difference between the two tests' results.

Second, we construct the error correction version of ARDL model, which is specified as follow:

$$\Delta y_t = a_0 + \sum b_i \Delta y_{t-i} + \sum c_i \Delta X_{t-i} + d_1 y_{t-1} + d_2 X_{t-1} + e_t \quad (11)$$

where d_1, d_2 are parameters of the long-run relationship variables; a_0 is vector of constant; b_i and c_i are matrices of parameters; y_t is a vector of endogenous variables; X_t is a vector of explanatory variables.

Embedding equation (10) into the error correction form (11), we have:

$$\Delta \text{GDPG}_t = \beta_0 + \delta_1 \text{GDPG}_{t-1} + \delta_2 \text{ODA}_{t-1} + \delta_3 \text{INVRES}_{t-1} + \delta_4 \text{Policy}_{t-1} + \delta_5 \text{Crisis}_{t-1} + \sum \tau_i \Delta \text{GDPG}_{t-i} + \sum \sigma_j \Delta \text{ODA}_{t-j} + \sum \zeta_l \Delta \text{INVRES}_{t-l} + \sum \omega_m \Delta \text{Policy}_{t-m} + \sum \phi_n \Delta \text{Crisis}_{t-n} + \varepsilon_t \quad (12)$$

where δ_i are the long – run multipliers. (12) becomes the base equation to estimate the short-run and long-run relationship among variables.

Third, the optimal lag of the ARDL model which means (i, j, l, m, n) need to be selected. Following the method used in Pesaran, M. H., and Y. Shin (1999), the maximum initial lag length for annual data is set at two periods for all variables. Then, we look at all possible combinations of lag within this constraint and choose the specification with the smallest Schwartz/Bayesian Information Criteria (SC) value. It should be noted that ARDL-SC has been proved to have comparative advantage over ARDL-AIC (Akaike information criteria). Particularly, Pesaran, M. H., and Y. Shin (1999) show that ARDL-SC performs slightly better

than ARDL-AIC in the majority of the experiments and that SC is a consistent model selection criterion while AIC is not.

Fourth, before further investigating, the specification derived from previous step must pass the diagnostic and stability test, which ascertain the goodness of fit and model adequacy. Because ARDL model is OLS of the error correction version equation, it must satisfy the test for classical least squares assumptions including serial correlation, functional form of the model, normality of the residuals, and heteroskedasticity. Specially, a key assumption in the ARDL Bound test methodology of Pesaran et al. (2001) is that the errors of equation (12) must be serially independent, leaving the serial correlation test becomes the most important one in this model. In particular, this paper uses Breusch-Godfrey Serial Correlation LM Test, Ramsey Regression Equation Specification Error Test (RESET) model, Jarque-Bera normality test, and heteroskedasticity test ARCH. Furthermore, the cumulative sum of recursive residuals (CUSUM) test and the cumulative sum of squares of recursive residuals (CUSUMSQ) test are conducted to detect the structural instability and model misspecification within the 5 percent critical bounds.

Fifth, if the model passes the diagnostic test and stability test, the ARDL Bounds test will be performed to test the co-integration which means to figure out whether there is evidence of a long-run relationship among the variables or not. Basically, the approach bases on Wald test using the F statistic to examine the null hypothesis of no cointegration ($H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$). Nevertheless, the distribution of the test statistic is totally non-standard, which implies that the critical values differ from those in the standard distribution. Therefore, this step will use the critical value for the asymptotic distribution of the F-statistic supplied by Pesaran et al. (2001) and Narayan (2004) to test cointegration¹⁶. There are two critical values in which the lower bound is based on the assumption that all the variables are I(0) and the upper bound assumes that all the variables are I(1). If the calculated F-statistic falls below the lower bound, we cannot reject the null hypothesis, meaning that the variables are I(0) and hence no cointegration is possible. In contrast, if the calculated F-statistic exceeds the upper bound, the null hypothesis is rejected, suggesting the existence of cointegration between the variables regardless of whether they are I(0) or I(1). If the F-statistic appears between the bounds, the test is inconclusive.

¹⁶ Because the critical values generated by Narayan (2004) are set for small sample size of 30 to 80 observations, they are used for the final conclusion of the test in this paper. Narayan (2004) affirms that the use of critical values in Pesaran et al. (2001) may be misleading as it was established basing on relatively large sample size of 1000 observations. In fact, Kargbo (2012) and Yin Pui Mun & Lau Sim Yee (2013) have used Narayan (2004)'s critical values as their benchmark for the cointegration test.

Finally, if the bounds test leads to the conclusion of cointegration, the short-run dynamics parameters and the long-run effects can be estimated illustrating the short- and long-run impact of each determinant on economic growth. At this stage, the error correction term (ECT) which demonstrates the speed of adjustment of the function towards the long-run equilibrium is also estimated. The ECT has to be negative and significant to affirm the long-run relationship among the variables.

3.3 Data sources

The data sources related to ODA are taken mainly from Foreign Economic Relation Department - Ministry of Planning and Investment (MPI) of Vietnam. Other data are collected from General Statistical Office (GSO) of Vietnam, World Development Indicators of World Bank, and Asian Development Bank. In particular, the variables and their units are listed by sources as follow:

General Statistical Office of Vietnam: GDP growth rate; GDP at current price (billion dong); GDP at constant 1994 price (billion dong); structure of population 15 years and older by education level (2006-2012); real export at constant 1994 price (billion dong); real import at constant 1994 price (billion dong).

World Development Indicators – World Bank: Investment which is represented by Gross capital formation as a share of GDP (%); labor force (person); exchange rate (%); inflation (%); government final consumption expenditure as a share of GDP (%).

Asian Development Bank: Domestic credit (1994-2011) at current price (billion dong).

Ministry of Planning and Investment: ODA at current price (US\$ billions).

4 RESULTS AND ANALYSIS

4.1 Growth accounting analysis results (1991-2012)

Table 4.1 and table 4.2 present the summary of growth accounting results which are demonstrated in five-year sub-period and the whole period. Table 4.1 shows the contributions of TFP, fixed capital, and labor force to economic growth, in which education adjustment is excluded from labor inputs. In table 4.2, education improvement of labor force is included, together with labor population, deriving the contribution of human capital to GDP growth. However, the results are only available over restricted period of time (2006-2012). As can be seen from the table 4.2, the quality-adjustment leads to a fall in the TFP measure. Additionally, figure 4.1 provides graphical view of the results presented in the table 4.2 in order to capture the trend of each production factor's contribution over the period.

Table 4. 1 Growth accounting results 1991-2012 excluding educational adjustment

	Real GDP	TFP	Capital	Labor
1991-1995	8.2	2.8	4.0	1.4
%Y	100.0	34.2	48.3	17.6
1996-2000	7.0	0.6	4.6	1.8
%Y	100.0	7.9	66.2	25.9
2001-2005	7.5	2.0	4.0	1.5
%Y	100.0	27.2	52.8	20.1
2006-2012	6.6	1.5	3.8	1.3
%Y	100.0	23.1	57.5	19.4
1991-2012	7.2	1.7	4.1	1.5
%Y	100.0	23.1	56.3	20.6

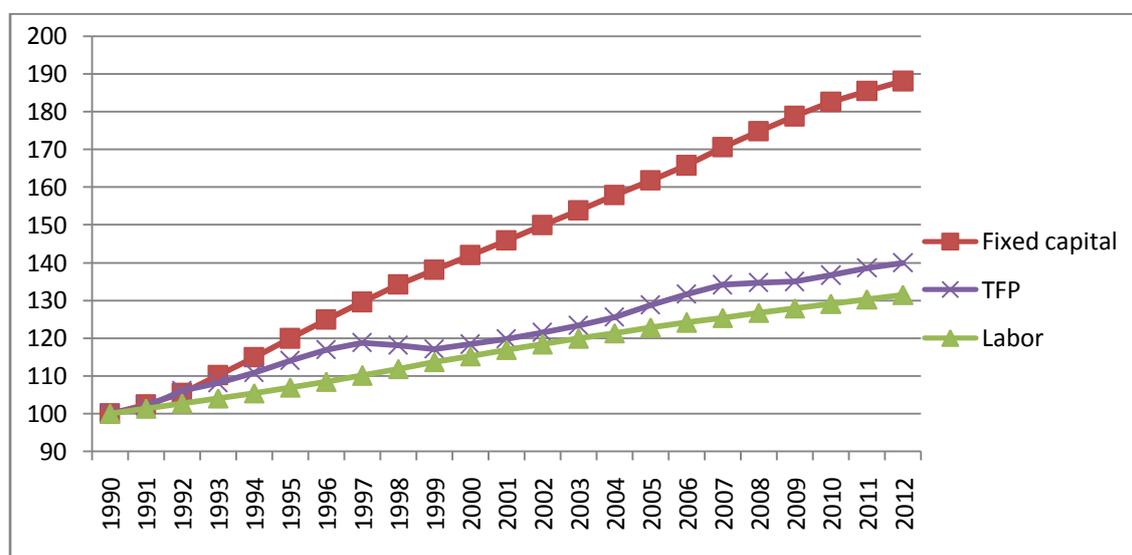
Source: Author's calculation

Table 4. 2 Growth accounting results 2006-2012 including educational adjustment

	Real GDP Y	TFP A	Fixed capital	Human capital	
				Labor	Education
2006	8.2	1.5	4.0	1.3	1.4
% Y	100.0	18.4	48.2	16.1	17.3
2008	6.2	-0.2	4.3	1.3	0.7
% Y	100.0	-3.2	70.3	20.8	12.1
2010	6.8	1.2	3.9	1.2	0.5
% Y	100.0	18.1	57.0	18.0	6.9
2012	5.1	1.1	2.6	1.2	0.2
% Y	100.0	22.1	50.9	22.7	4.3
2006-2012	6.6	0.9	3.8	1.3	0.6
% Y	100.0	14.3	57.5	19.4	8.9

Source: Author's calculation

Figure 4. 1 Indices of growth accounting results 1991-2012 (1900=100)



Source: Author's calculation

An analysis of these results suggests three main findings. Firstly, the exercise reveals that the high level of economic growth in Vietnam has been mainly stemmed from the high growth of the fixed capital stock. During the whole period 1991-2012, fixed capital stock contributes on average 56 percent to GDP growth. Moreover, with the exception of the year 1992, fixed capital always makes the largest contribution compared to the other two production factors. The result reflects the consistently important role of physical capital in gaining high economic growth rate.

This finding also resembles what are found in many other studies such as Le Dang Doanh et al. (2002), Seila (2011), and Rahul Anand et al. (2014)¹⁷. Of those, Le Dang Doanh et al. (2002), whose research covers the period of 1980-2002, explain that physical capital has remarked increasing and large contribution to growth from the announcement of the Doi Moi.

Secondly, TFP contribution has been minor on average and experienced some fluctuations over the considered period. Particularly, TFP's contribution accounts for approximately 23 percent over the period 1991-2012 for the case of excluding educational improvement in human capital, and about 14.3 percent during 2006-2012 for the case of including educational factor. As can be seen from the figure 4.1, the share of TFP in GDP growth has not been stable over time. In particular, during two economic crises, the Asian crisis (1998-1999) and the global crisis (2008-2010), Vietnam's TFP ceased growing or even went negative at some times. Interestingly, Mustapha K. Nabli et al. (2010, p. 557) also notice this TFP trend of Vietnam but without addressing any possible reason. In fact, this phenomenon was also observed in other countries. After implementing the growth accounting analysis for the cases of China and India, Rahul Anand et al. (2014) point out that the economic slowdown of these two countries have been driven largely by the decline in trend TFP growth. They suggest one explanation that the decline in TFP may be overstated if a declining capital utilization rate is not taken into account in the contribution of physical capital accumulation. This might be the reason for the case of Vietnam. Even so, it cannot deny the fact that trend TFP growth in Vietnam appears relatively low compared to other Asian countries such as China, India¹⁸. This obviously reflects the poor technology background in Vietnam and a sort of problems that hinder the TFP growth such as low research and development, poor infrastructure, and low level of economic complexity (Rahul Anand et al., 2014).

Thirdly, there has been relatively strong return of education on aggregate output. Over the period 2006-2012, educational improvement contributes about 9 percent to total economic growth (see table 4.2). Based on the method used in Hyun Hwa Son (2012), the human capital indices of Vietnam for period 2006-2012 have been calculated. The results indicate that human capital has been gradually enhanced over time (see table 4.3). Obviously, this upward trend in human capital index has stemmed from the improvement in educational attainment of labor force to the extent

¹⁷ Specifically, the contribution of fixed capital to GDP growth is estimated at 69.3 percent during 1992-1997 in Le Dang Doanh et al. (2002), 57.7 percent during 1989-2008 in Seila (2011), and more than 50 percent during 1994-2013 in Rahul Anand et al. (2014).

¹⁸ According to Rahul Anand et al. (2014), during the period 1994-2013, TPF contribution to GDP growth accounts for about 35 and 40 percent in India and China, respectively.

that more workers have obtained higher educational qualification. Indeed, in 1993, 36 percent of economically active working population had no educational qualification and only 6.8 percent obtained vocational and tertiary education; but by 2012, the former has dropped by 19 percent and the latter has grown to 16 percent (VHLSS). Thus, it can be concluded that investment aimed at expanding access and improving quality of educational service provision to the whole population, in general, and to labor force, in particular, provides critical foundation to economic growth.

Table 4. 3 Vietnam human capital index 2006-2012

Year	Human capital index (h)
2006	1.155
2008	1.182
2010	1.199
2012	1.207

Source: Author's calculation

To sum, the findings of growth accounting exercise give a robust basis to further explore the contribution of external assistance. It is the fact that foreign assistance has effect on economic growth through affecting the production factors. For example, large and rising ODA inflow to Vietnam since 1993 may exert positive impacts on economic achievement through increasingly accumulating the fixed capital or supporting the development of human capital and technology. Based on the exercise's findings, further analyses regarding the channels through which foreign aid affects GDP growth and the levels of those effects will be discussed in the chapter 5 and 6 of this research.

4.2 Empirical results

Table 4.4 represents the results of the ADF and KPSS integration test for the variables used across the model. Since the ADF and KPSS tests give conflicting results, the variables may have mixed order of integration containing both I(0) and I(1). The nonexistence of I(2) among variables allows us to conduct the ARDL approach to cointegration.

Table 4. 4 Summary of integration test results

Variables	ADF test			KPSS test	
	Test statistics (Level)	Test statistics (1 st different)	Conclusion	Test statistics	Conclusion
GDPG	-2.641068	-3.850595	I(1)	0.152227	I(0)
ODA	-2.441948	-6.663141	I(1)	0.337772	I(0)
INVRES	-2.242501	-4.789694	I(1)	0.413871	I(0)
Policy	-0.683137	-6.175153	I(1)	0.683811	I(0)
Crisis	-2.438431	-3.744838	I(1)	0.272749	I(0)

Source: author's calculation

The error correction version of ARDL model after selecting optimal lag has the form as below:

$$\Delta \text{GDPG}_t = \beta_0 + \delta_1 \text{GDPG}_{t-1} + \delta_2 \text{ODA}_{t-1} + \delta_3 \text{INVRES}_{t-1} + \delta_4 \text{Policy}_{t-1} + \delta_5 \text{Crisis}_{t-1} + \tau_1 \Delta \text{GDPG}_{t-1} + \sigma_0 \Delta \text{ODA}_t + \sigma_1 \Delta \text{ODA}_{t-1} + \sigma_2 \Delta \text{ODA}_{t-2} + \zeta_0 \Delta \text{INVRES}_t + \zeta_2 \Delta \text{INVRES}_{t-2} + \omega_0 \Delta \text{Policy}_t + \omega_1 \Delta \text{Policy}_{t-1} + \phi_0 \Delta \text{Crisis}_t + \varepsilon_t \quad (13)$$

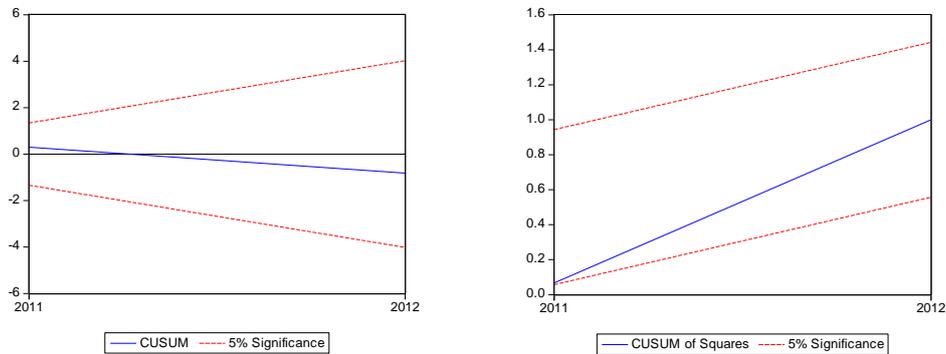
The model of the equation (13) passes the diagnostic and stability test as can be shown in table 4.5 and figure 4.2. In particular, we cannot reject the null hypothesis at the 95% of confidence level in the Breusch-Godfrey Serial Correlation LM Test, Ramsey Regression Equation Specification Error Test (RESET) model, Jarque-Bera normality test, and heteroskedasticity test ARCH. The CUSUM and CUSUMSQ tests plot the cumulative sum of recursive residuals and squares of recursive residuals together with the 5% critical lines. The cumulative sums go inside the area between the two lines illustrating that coefficients of the model are stable throughout the period of the study at 5% significant level.

Table 4. 5 Diagnostic results for ARDL model

Test	Test statistic	P-value	Null hypothesis	Conclusion
Breusch-Godfrey Serial Correlation LM Test:	0.006732	0.9479	H ₀ : No serial correlation	Cannot reject H ₀
Ramsey RESET test	0.692173	0.5582	H ₀ Homoskedasticity	Cannot reject H ₀
Jarque-Bera normality test	0.583331	0.7470	H ₀ : Normal distribution	Cannot reject H ₀
Heteroskedasticity Test: ARCH	3.957010	0.0666	H ₀ : Correctly specified	Cannot reject H ₀

Source: author's calculation

Figure 4. 2 Plot of CUSUM and CUSUM of square of the ARDL model



Source: Author’s calculation

Table 4. 6 Results of Bound test for Cointegration

Test Statistic	Value	df	Probability		
F-statistic	99.09902	(5, 2)	0.0100		
Chi-square	495.4951	5	0.0000		
Critical value for bound test		(Narayan, 2004)	(Pesaran et al., 2001)		
		I(0)	I(1)	I(0)	I(1)
	1%	4.768	6.670	3.74	5.06
	5%	3.354	4.774	2.86	4.01
	10%	2.752	3.994	2.45	3.52

Source: Author’s calculation

Note: The critical values of the lower bound and upper bound are obtained from Narayan (2004, p. 1988) and Pesaran et al. (2001, p. 300), case III: Unrestricted intercept and no trend.

Table 4.6 represents the computed F-statistic for testing the null hypothesis of no long run cointegration among the variables. As the value of the F-statistic exceeds the upper bound I(1) of the critical values that are extracted from both Narayan (2004, p. 1988) and Pesaran et al. (2001, p. 300) at the 1% significant, we can surely reject the null hypothesis. This means that there is evidence of a long-run relationship among the time-series variables in equation (13). This result allows the long- and short-run estimation of the variables in ARDL model, which are reported in table 4.7 and table 4.8.

Table 4. 7 Estimated long-run coefficients from the ARDL model

Dependent variable: GDPG			
Variables	Coefficient	Std. Error	t-Statistic
C	-14.0635	6.698141	-2.09961***
ODA	1.046916	0.594231	1.761801**
INVRES	-0.6586	0.132015	-4.98881***
Policy	0.208624	0.052407	3.980827***
Crisis	-11.6544	2.314093	-5.03625***

Source: Author's calculation

Note: *** and ** indicate statistical significance at the 1% and 5% level, respectively

In the table 4.7, the long-run effects of explanatory variables on economic growth are calculated from the unrestricted ECM equation (13). In particular, the long run coefficients for ODA, INVRES, policy, and crisis are $-(\delta_2/\delta_1)$, $-(\delta_3/\delta_1)$, $-(\delta_4/\delta_1)$, and $-(\delta_5/\delta_1)$, respectively. As the long-run coefficients are nonlinear functions of the estimated coefficients, Delta method has to be conducted to estimate the standard error and t-statistic of each coefficient. Standard errors estimation using Delta method is presented in appendix 4.

As indicated in the table 4.7, the signs of all the independent variables' coefficients except the one of investment concur with theoretical expectation. In particular, the coefficient of foreign assistance is found significantly positive at the 5 percent level of confidence, indicating that ODA has been effective in spurring long-run growth in Vietnam. However, investment unexpectedly turns out to have statistically significant negative impact on GDP growth. Besides, policy variable has been proved to have a significantly positive influence on aggregate outcome. This emphasizes the important role of policy in Vietnam's economic growth to the extent that better policies guarantee macroeconomic stability in both short- and long-run, which finally facilitates the business environment and growth of the country. For example, Mustapha K. Nabli et al. (2010) point out that the Vietnam's high growth rate has its roots in policies of economic openness with trade liberalization at the center stage. Finally, crisis dummy variable has significantly negative sign as expected, confirming the fact that crises are costly to long-term growth and development.

Table 4. 8 Error correction representation of the ARDL model (short-run estimate)

Dependent variable: Δ (GDPG)				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.847880	0.231753	-3.658547	0.0106**
ECT(-1)	-0.933704	0.321643	-2.902918	0.0272**
D(GDPG(-1))	0.222197	0.242024	0.918078	0.3940
D(ODA)	-0.463880	0.584988	-0.792974	0.4580
D(ODA(-1))	0.688973	0.311305	2.213180	0.0688*
D(ODA(-2))	0.236796	0.309540	0.764994	0.4733
D(INVRES)	0.041712	0.085787	0.486224	0.6441
D(INVRES(-2))	0.114545	0.143313	0.799265	0.4546
D(POLICY)	0.052973	0.036892	1.435893	0.2010
D(POLICY(-1))	0.094546	0.032309	2.926342	0.0264**
D(CRISIS)	-1.494025	0.310028	-4.818997	0.0029***
R-squared	0.927527	Mean dependent var		-0.260970
Adjusted R-squared	0.806740	S.D. dependent var		1.139137
S.E. of regression	0.500781	Akaike info criterion		1.707367
Sum squared resid	1.504688	Schwarz criterion		2.246505
Log likelihood	-3.512619	Hannan-Quinn criter.		1.760958
F-statistic	7.678982	Durbin-Watson stat		1.558074
Prob(F-statistic)	0.010668			

Source: Author's calculation

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively

Table 4.8 shows the immediate impacts of the explanatory variables on economic growth. The result observes a significantly positive relationship between aid and economic growth, ensuring the beneficial impact of aid on total output. In the short-run, the contribution of external assistance to GDP growth is slightly smaller compared to that in the long-run. The coefficient of investment variable is positive but insignificant, indicating that physical capital might appear

unimportant for growth in the short-run. Crisis assures its adverse influence on the economy's outcomes with negative and significant estimated coefficient. Smaller magnitude in crisis's coefficient than that in long-run elasticity reasonably illustrates the fact that crisis accumulates its effects on the economy over time. Macroeconomic policy's coefficient is statistically significant but relatively small, which infers that the implementation of policies needs a certain period of time to have impact on the economy. The statistically significant negative relation for the error correction term (ECT) coefficient further insists the long-run relationship among variables. The result of the ECT value at 0.93 refers that after a shock, there is a quick return of the economy to the equilibrium growth rate of GDP in the following year.

As the results have shown, investment is observed to insignificantly and even negatively affect GDP growth in Vietnam, which is unexpected and in contrast with the results from the growth accounting exercise. One possible explanation is that it is not the quantity but the quality of investment which does matter for economic growth of Vietnam. Although the growth accounting analysis exhibits a detailed picture of the relative importance of production factors in the growth process, it does not explain economic growth by the change in preferences or political and institutional factors (Neuhaus, 2006, p. 27). In fact, there are a number of deficiencies in the Vietnamese investment climate that can adversely influence the returns of investment and growth (Dollar, 2002). Such inherent weaknesses in Vietnam as poor governance, policy inconsistency, corruption, macroeconomic instability, and weak managerial capacity might blow away the positive contribution of the relatively high level of physical capital. An alternative explanation is that the model might suffer from specification bias due to limited time-series data. However, due to unavailability of data for longer time series, solving this problem seems to be an arduous task and should be treated with a degree of caution in further research.

In conclusion, the empirical model attempts to examine the short- and long-run impact of foreign aid on economic growth in Vietnam applying ARDL cointegration method. The result reveals that foreign aid significantly promotes both short- and long-term economic development in Vietnam within the period from 1993 to 2012. The finding concurs with the aid-growth theories and resembles what is found in Hong (2014). However, the result turns out to be inconsistent with the findings of Yin Pui Mun and Lau Sim Yee (2013) and Chengang Wang and V.N. Balasubramanyam (2011), which conclude that ODA has negative correlation with Vietnam's economic growth. This contradiction might be attributed to the differences in the methodology of the exercise, the assumptions on which the results rest, and data sources and utilization. Indeed, those two studies use different variable specifications to what the present research uses.

Specifically, although Yin Pui Mun and Lau Sim Yee (2013) also employ ARDL model to examine the impact of aid, they do not include the variables measuring domestic investment, macroeconomic policy, and crisis in the growth regression. Moreover, Chengang Wang and V.N. Balasubramanyam (2011) employ different econometric model to investigate the aid-growth link and assume that physical capital and labor are the only determinants of economic growth. This inconsistency in empirical evidence therefore warrants further investigation besides econometric estimations to better understand the aid-growth relationship in Vietnam.

On this basis, it would be necessary to figure out those elements that have not been taken into account in the empirical model and need further analysis. Present study attempted to include governance factor in the growth regression to investigate the role of governance level in the country's development. It is based on the fact that governance-related factors including corruption, bureaucratic quality, and the rule of law have been well cited as important elements that can influence investment inflow, economic growth, and development. Moreover, the relationship between quality of governance and foreign aid is an empirically interesting issue and worthy of deeper investigation. Although it seems to be reasonable to expect that aid effectiveness positively depends upon the level of governance, Feeny (2005) does not obtain empirical evidence of such supporting relation. Some other studies even reach to the conclusion that foreign aid can undermine institutional and governance quality (see more Knack, 2001; Brautigam and Knack, 2004). Regrettably, the fact that the governance data for Vietnam do not fully cover the needed time-series has hampered empirical investigation on this issue. Besides, as claimed in Rajan, R.G. and Subramanian, A. (2008), foreign aid may negatively influence economic growth by causing Dutch disease, which is described undermining the export competitiveness of recipient countries. Those potentially unfavorable effects of aid will be analyzed in more details in the chapter 6 of this research.

In addition, one difficulty encountered when implementing empirical estimation is that the ODA variable may not fully reflect the impact of foreign assistance on GDP growth. In fact, foreign aid might affect growth through non-growth intermediate channels such as health care, education, institution, or politics. Arguably, those non-growth intermediate outcomes are highly diverse and it would take some times for foreign aid which is transferred to those channels to apparently accumulate into economic achievements. As a result, it becomes very difficult to successfully include and distinguish all of these non-growth outcomes in the growth regression in order to examine the impact of aid on growth. This demonstrates the need for further research

on specific channels through which foreign aid can influence economic outcomes, which is the content of the next two chapters.

5 POSITIVE IMPACTS OF AID

5.1 Aid and macroeconomic management

As discussed above, Vietnam has experienced a long-lasting period of high economic growth after the announcement of the Doi Moi. Dollar (2002) shows that the key to obtaining and sustaining high growth over decades in Vietnam is the reform and continual upgrade of economic institutions and macroeconomic policies, including legal reform, regulatory improvements, private property rights, and openness to foreign trade and investment. There are two main paths expressing the relationship between foreign aid and macroeconomic management. First, foreign aid contributes to the improvement of policy reform, law and regulation, and absorptive capacity through technical support and policy advices. Second, external financing supports the country's current account deficit and provides foreign exchange through balance of payment support and debt relief. In general, these two channels of external aid assist the recipients to enforce macroeconomic stability and thus encourage economic growth. This part would briefly review the macroeconomic performance of Vietnam and then discuss in details the role of foreign aid.

Since the launch of the Doi Moi, the Vietnamese government has implemented a comprehensive series of reforms aiming at reducing poverty and obtaining high level of economic growth. Some key reforms include price reform which marks the shift to market-determined price for most of goods; macroeconomic stabilization program which helps to control money supply and prevent inflation pressure; rural reform which involves dismantling a system of collection farming; trade reform which leads to the liberalization of the trade environment; and the exchange rate reform which includes the adoption of a more market-oriented exchange rate policy (Abonyi, 2005). Those reforms have turned out a remarkable progress in Vietnam economy since early 1990s. Numerous problems that the country had to encounter before the Doi Moi, such as the annual inflation rate was over 700 percent; current account run a huge deficit; budget resources were dried up due to military expenditure and loss-making state owned enterprises (SOEs); and there was no inflow of FDI, have gradually handled. During 1990s, the economy experienced a rapid and steady economic growth with controlled inflation, lower poverty rate, expanded trade sector, and increasing external capital inflow (see Table 5.1). However, it should be noticed that being one of the poorest countries in the world, Vietnam certainly encountered various difficulties when adopting the reforms due to the lack of state budget, advanced knowledge and technology, and management experience. External assistance, therefore, plays a significant role in helping the country to overcome these initial constraints and then facilitate the country's development.

Although when comparing to other external sources of development such as FDI and remittances, ODA has not occupied the biggest shares, it is the catalytic element to attract the other two and support inclusive growth. Arguably, whilst FDI and overseas remittances are private sources of finance and profit driven, ODA is much more likely to be allocated toward public goods and services with high social benefits (Hang, 2007).

Table 5. 1 Selected macroeconomic indicators of Vietnam

	1990	1993	2000	2010
Poverty headcount ratio at \$1.25 a day (% of population)		63.74	49.65*	16.85**
GDP - constant price (VND billion)	131,968.0	164,043.0	273,666.0	584,073.0
GDP per capita - current price (US\$)	118.0	190.0	402.0	1,168.0
Consumer Price Index (CPI) (%)	67.1	5.2	-0.6	11.8
Total export value (US\$ million)		2,985.2	14,482.7	72,236.7
Total import value (US\$ million)	2,752.4	3,924.0	15,636.5	84,838.6
Realized FDI (US\$ million)		1,017.5	2,413.5	11,000.0

Note: *: data for 1998; **: data for 2008

Source: GSO, World Bank

The available evidence suggests that external financing has been instrumental in policy and institution improvement in Vietnam. The economy can directly benefit from ODA through policy-based loans and grants from international donors. In addition, Vietnam might gain policy advices from international community through aid conditionality or consulting dialogue between the recipient and donors. During the period 1993-2003, the share of policy support ranges between 12 and 26 percent of total ODA value. According to Ministry of Planning and Investment (MPI)'s report, for the last 20 years, Vietnam has received and implemented ODA funded programmes and projects with a total value of approximately US\$834 million for improving public financial management system, developing macro financial policies, strengthening national debt management capacity, and managing and monitoring financial market. The list of main credit programs for policy development over the past 20 years includes World Bank's Structural Adjustment Credit (SAC-1 and SAC-2) (WB, 1994-1996), IMF's Extended Structural Adjustment Facility (ESAF, 1997), Miyazawa program to promote private sector development (Japan, 1998), SOE Reform and Corporate Governance Facilitation Program (ADB, 2010-2015), Poverty Reduction Support Credit (PRSC, 2001-2010) co-financed by World Bank and some other donors, World Bank's Public Investment Reform Program (PIR, 2009 -

2010 and 2012), and some other programs for sectoral policy reform and development (MPI, 2013).

There might be an argument that foreign aid in fact has not had as much positive impact on policy reform as international donors have expected since the policy decision process in Vietnam is domestically driven and, therefore, donors' policy conditionality and recommendations are sometimes ignored by the recipient's government¹⁹. There are two possible explanations for this trend. First, a strong sense of government ownership of policy making has been accumulated as Vietnam undertook a long time of centrally planned economy before the Doi Moi. Second, the country always considers sovereignty as its top priorities in its international relation since it fought long wars to regain independence and freedom in the past. As a result, Vietnamese government tends to make its own decisions on policy decision making and follow those aid conditionality and advices that are aligned with the country's reform agenda and Socio Economic Development Plan (SEDP). Nevertheless, it cannot be denied that a large amount of policy-support financing and internationally transferred knowledge and experiences have facilitated policy reform and strengthened policy framework in Vietnam. Moreover, learning from some failures in the past, international donors and recipient's government have made considerable effort toward better harmonization and stronger coordination aiming at increasing aid effectiveness. Typically, Vietnam's large donors such as ABD, WB, Japan, and DFID are working closely together and with the government to come up with a common analytical framework for the country assistance strategy (Hang, 2007).

Besides policy-based loans and grants, donors have actively supported Vietnam's macroeconomic management capacity through technical assistances, which provide Vietnam with a number of consultants, equipment, materials and documentations, study tours, workshops, and trainings. Common factors undermining Vietnam's development as well as ODA absorptive capacity are the limited supply of skilled labors, low capacity of state officials, and weak public administration. Thus, donors' technical assistances, especially in conducting policy research on macroeconomic, sectoral, and local development, have helped Vietnamese government in developing the 10-year Socio Economic Development Strategy and 5-year plan (MPI, 2013). Some examples of technical assistance projects include "Dispatch of Individual Expert 02-03"

¹⁹ For example, the IMF's policy-based lending for Vietnam namely Enhanced Structural Adjustment Facility (ESAF) (1994) was canceled in 1997 due to the fundamental differences over the scope and pace of policy reform between the IMF and the Vietnamese government's reform agenda. Additionally, there was also the reluctance of the Vietnamese government to follow the WB's advices that were not aligned with the domestic agenda in the State-Owned Enterprise Reform in Vietnam Project supported by the Poverty Reduction Strategy Credit I – World Bank. (See more: Abonyi, 2005).

and “Study on the Economic Development Policy in the Transition toward a Market-Oriented Economy in the Socialist Republic of Vietnam” (the so-called “Ishikawa Project”) supported by JICA.

In addition, ODA-funded loans and technical assistance have supported Vietnam in formulating and developing legal and institutional framework in the socio-economic management areas such as laws, decrees of the government, and other legal documents. MPI (2013) indicates that donors have helped Vietnamese agencies in developing various laws and bylaws, particularly during Vietnam’s preparation for joining World Trade Organization (WTO), such as Land Law, Construction Law, Enterprise Law, Investment Law, Procurement Law, Commercial Law, and Government decrees and circulars by ministries and sectors. One typical example is the US\$2.3 million project of the UNDP to set up the new Enterprise Law, which was passed by the National Assembly in 1999 and credited in early 2000s. The announcement of Enterprise Law was observed to create nearly 53,000 new non-state businesses and about one million new jobs (Hang, 2007). Furthermore, Vietnam has gained considerable practical experiences in procurement procedures and processes mainly thank to ODA-funded projects²⁰. Through being supported by technical assistance – e.g. the World Bank Grant for Procurement Capacity Building – and implementing ODA-funded international projects, Vietnam has gradually been familiar with international procurement standards and procedures such as International Competitive Bidding (ICB) and National Competitive Bidding (NCB) (World Bank, 2002).

²⁰ A big proportion of ODA-funded projects are large scale. World Bank (2002) reveals that 45 out of a total of 69 largest contracts in 2000 in Vietnam were funded by ODA. One can expect that most of donor – financed contracts went through bidding since 85 percent of the largest contracts went through bidding.

Table 5. 2 Budget Deficits, Public Debt, and Public Spending in Vietnam (%GDP)

Budget Deficit									
	2003	2004	2005	2006	2007	2008	2009	2010	2011
MoF	-4.9	-4.9	-4.9	-5	-5.7	-4.6	-6.9	-5.5	-4.4
IMF	-4.8	-1.2	-3.3	-0.2	-2.5	-0.5	-7.2	-5.3	-2.5
ADB	-2.2	-0.2	-1.1	1.3	-1	0.7	-3.9	-4.5	-2.5
Public Debt									
	2003	2004	2005	2006	2007	2008	2009	2010	Threshold
MoF					33.8	36.2	41.9	57.3	65
IMF	33.3	38.9	42.2	43	45.6	43.9	49.9	57.1	
Public Spending									
	1990	1995	2000	2005	2009	2010			
ADB	21.9	23.8	22.6	27.3	31.8	30.7			

Note: Ministry of Finance (MoF): Budget deficit after debt service

Source: Budget deficit and public spending: (ECNA - UNDP, 2013)

Public debt: (Anh, 2011)

Over the last 20 years, the fiscal situation of Vietnam has not been sustainable over time. From early 1990s to the mid-2000s, the deficit of general government accounted for 3 percent of GDP on average while the public debt was on a declining trend from over 60 percent to 45 percent of GDP (Benno Ferrarini et al., 2012)²¹. These proportions irregularly changed during the period from 2003 to 2008 (based on IMF's calculation) and sharply increased during 2009-2010. The table 5.2 illustrates in more detail some fiscal indicators including budget deficit and public debt over the period 2003-2011, and public spending during 1990-2010. As can be seen from the table 5.2, one can see that statistics on Vietnam's public debt and budget deficit are very inconsistent between the country's official data and international agencies' measurement such as IMF or ADB²². Regardless of the gaps between figures from different sources, there are two main features of Vietnam's fiscal position. First, Vietnamese government has followed deficit-oriented strategies for the purpose of encouraging economic growth. This partly demonstrates the important role of physical capital in Vietnam's development strategy, which is consistent with what has been resulted from growth accounting analysis in the chapter 4. Second, although

²¹ The data was collected based on the IMF Government Finance Statistic Manual.

²² Those data inconsistencies mainly due to the fact that Vietnamese government and international agencies apply significantly different classification of the expenditures and revenues and that potential size of various government activities are treated off-budget (see more Benno Ferrarini et al., 2012, p. 189).

Vietnam's fiscal position remains relatively safe since public debt ratios to GDP are below the threshold set by Ministry of Finance (MoF), the fact that budget deficit and public debt have increased over the last few years might lead to weaker fiscal situation. This problem might be attributed to high and increasing public spending (see table 5.2). Based on empirical studies, there is a consensus that the optimal public spending scale for developing countries ranges from 15 to 20 percent of GDP (ECNA - UNDP, 2013). However, Vietnam's public spending ratios always go above this range and the gap has been largely widened since 2009²³. Besides, revenue analysis shows that Vietnam's revenue to GDP ratio has already been relatively high and that the chance to raise revenue seems very small. Many revenue sources are considered to be unstable and might slump in the coming years (see more Anh, 2011; ECNA - UNDP, 2013).

With respect to such fiscal position, external assistance seems to be critically important from the point of view of supporting current account deficit and providing foreign exchange. At the early stage after the Doi Moi, ODA inflow provided a backup role in fulfilling Vietnam's urgent needs that were unable to cover by its own tight budget. During 2000s, when the country faces with increasing budget deficit and public debt, the inflow of foreign aid, regardless of its volume, has been becoming important to Vietnam's fiscal discipline. According to the data revealed by MPI, ODA financing occupies a significant proportion of state investment, which accounts for on average 15-17 percent. Regarding the distribution of ODA disbursement by types of assistance, balance of payment support (PBB) accounts for approximate 20 percent of total foreign aid inflow to Vietnam over the period 1993-2003 (UNDP, 2004). Benno Ferrarini et al. (2012) also affirm that the relatively safe fiscal position of Vietnam is facilitated by its access to concessional loans with low interest rate and long grace term and grants. Furthermore, high levels of foreign aid inflow certainly supply critical foreign exchange necessary for investment inputs and consumption.

To sum, foreign aid has been proved to be instrumental in improving Vietnam macroeconomic management, especially in formulating and enhancing policy. Recalling the empirical results which show that policy has significantly positive correlation with economic growth, one can apparently see the positive aid-growth link. Nevertheless, macroeconomic management might also be suffered from negative consequences due to the nature and volatility of aid inflow, which will be further discussed in chapter 6.

²³ It should be noted that it is not quantity but quality of public spending which determines a country's economic growth and development. In fact, recently increasing but ineffective public spending in Vietnam has been criticized as one of the main reasons leading to macroeconomic instability. This partly explains the significantly negative correlation of investment coefficient in growth regression, which is conducted in chapter 3 and 4.

5.2 Aid and economic infrastructure

The crucial role of economic infrastructure in achieving growth and reducing poverty has been consistently observed across literatures. Economic infrastructure involves both physical facilities such as roads, energy generation, or water connections and services such as transport services, energy, or water supply. From the point of view of positive outcomes, the main target of external assistance is to enhance the access of economic infrastructure in the most possibly effective and equitable manner. In fact, donors and Vietnamese government have strongly emphasized on economic infrastructure development. A large proportion of foreign aid – accounting for roughly 41.3 percent for the last 20 years - has been allocated in this sector for the purpose of contributing to growth, trickle-downing economic development, and redistributing to poor people. It is thus necessary to assess the role of aid in improving economic infrastructure in Vietnam. This sub-section will focus on analyzing four main sectors constituting economic infrastructure including transportation, electricity, telecommunication, and water and sanitation.

The available statistics indicate that since early 1990s, each sector of economic infrastructure has experienced impressive growth in terms of access to service. Over the past 20 years, the road network has considerably increased in length. Particularly, Vietnam's road network has expanded from 96,100 km in 1990 to 224,500 km in 2004. National level roads have also expanded from 15,100 km in 1990 to 17,000 km in 2004. The substantial progress in road sector has also been made through rehabilitating and upgrading existing road network. By 2004, the overall condition has improved, with 66 percent of the network being in good and fair condition from 37 percent in 1997, in which 84 percent of the network was paved²⁴. These improvements have certainly facilitated the expansion of road transport activity. Indeed, since early 1990s, the road traffic growth in the country as a whole is about 8 percent per annum, being higher than the growth rate of GDP which reaches to nearly 7 percent per annum²⁵. In terms of water and sanitary condition, access to improved water sources has increased from 26 percent of the population in 1993 to 98 percent at urban areas and 89 percent at rural areas in 2011 (source: World Bank). Regarding accessing to electricity, to date, all urban areas are electrified. In rural areas, thank to rural electrification projects, the number of households being electrified has been risen from 51 percent to 96.8 percent between 1996 and 2012²⁶. Besides, tele-density – the

²⁴ The statistics are collected from World Bank (2008a).

²⁵ According to World Bank (2008a), some analysts have found even higher growth rate of road traffic in the Northern Red River Delta and the Southern Mekong Delta, reaching to about 29 percent per annum.

²⁶ Source: (World Bank, 2006), (MPI, 2013).

number of fixed and mobile line per 100 people – increased from 1.08 in 1995 to around 20 in 2005 and has been observed an extensive improvement during 2010s.

The developmental impact of these improving trends is apparent, both directly and indirectly. In particular, infrastructure improvement supports economic growth and poverty reduction through three channels. First, it helps to enhance economic activities by providing better linkages and access to markets, reducing production and transaction costs, increasing private investment, and raising agriculture and industrial productivity. Second, it assists to remove the bottlenecks in the economy which hinder people, especially those who live in rural and remote areas, from approaching to better conditions to gain higher productivity and asset accumulation. The elimination of these bottlenecks benefits the country's development by creating more employment and income opportunities and supplying better services for its citizens. Third, it guarantees the re-distributional effects on economic growth and poverty reduction, in which poor people have been offered more opportunities to access public services and to participate in the growth process by increasing their engagement in factors and product markets and reducing risk and vulnerability (OECD, 2007).

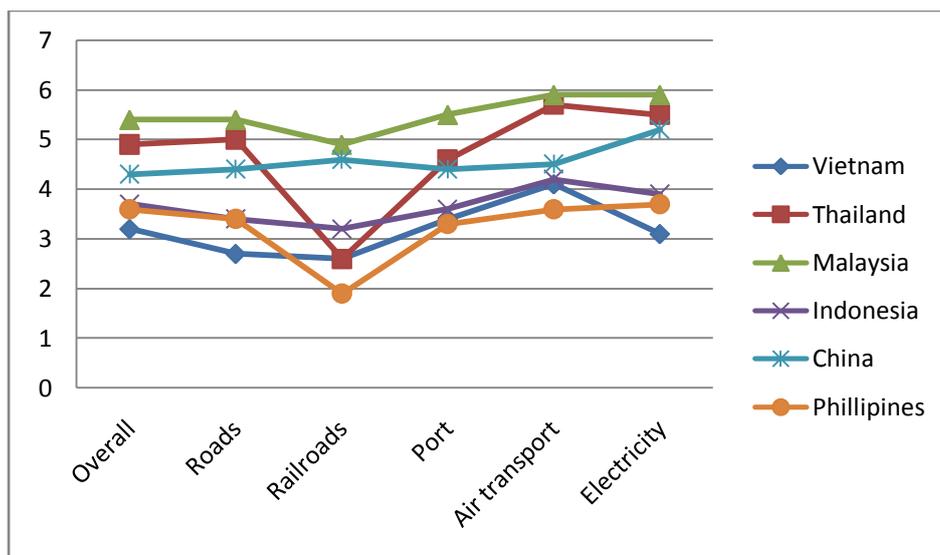
Understanding the fact that economic infrastructure development is the catalyst for economic progress, Vietnamese government particularly prioritizes investment in this sector. In fact, Vietnam is among the world's leaders in infrastructure investment, with annual expenditure reaching an equivalent of 9-10 percent of GDP, nearly half of which is allocated in transportation sector²⁷. Moreover, high proportion of state investment is directed to economic infrastructure sector; for example, the ratio for the period 1997-2002 accounts for 44 percent of state investment (source: GSO). This strategy has accordingly led to positive impacts on spurring economic growth. The linkage between infrastructure development and growth and poverty reduction has been affirmed in both micro- and macro-economic studies. A review conducted by Vietnamese government and international donors in preparing for the Comprehensive Poverty Reduction and Growth Strategy (CPRGS) confirms that large-scale infrastructure plays a critical role in opening up new business opportunities, promoting income diversification and off-farm employment, and achieving poverty reduction in Vietnam (World Bank, 2006). Besides, Larsen et al. (2004) find credible evidence to prove the positive correlation between infrastructure

²⁷ World Bank (2006) finds that Vietnam's infrastructure investment is high relative to other regional countries. Concretely, in 2003, the infrastructure investment rate of Cambodia, Indonesia, Philippines, Lao PDR, and China are 2.3, 2.7, 3.6, 4.7, 7.3 percent of GDP, respectively, while the rate of Vietnam is 9.9 percent. As a result, the rate of Vietnam is higher than many other countries in the world because East Asian countries have high investment rate compared to the rest of the world (World Bank, 2006).

investment and Vietnam’s poverty reduction, in which investment in transport and water and sanitation have a particularly large local impact. For example, they observe that one additional percentage point of the provincial GDP to infrastructure leads to a reduction of the poverty rate by from 0.47 to 0.53 percent.

Despite Vietnam’s success in provision of infrastructure services over the past two decades, the country is now facing with two major challenges. Firstly, the infrastructure network is still incomplete and of low quality, meaning that infrastructure spending and attainments are far below what is needed. The World Economic Forum’s Global Competitiveness Report (2011) expresses particular concerns about Vietnam’s low quality of roads (120th/144), port infrastructure (113th/144), and electricity (113th/144). Comparing to other regional countries, Vietnam’s infrastructure condition is much less competitive, which certainly hampers its investment opportunities and economic development (see figure 5.1 for more details). Indeed, a survey conducted in 2009 reveals that nearly 88 percent of foreign enterprises and 83 percent of domestic enterprises describe Vietnam’s infrastructure as either ‘bad’ or ‘very bad’ and that poor infrastructure is cited as the largest bottleneck for conducting business in Vietnam. Worse still, poor economic infrastructure makes Vietnam suffer relatively large extra expenses. For example, the lack of world-class port infrastructure costs Vietnam an extra US\$1.7 billion in logistics expenses annually as local companies transship goods via ports in Hong Kong and Singapore²⁸.

Figure 5. 1 Quality indices of infrastructure in selected Asian countries



Source: 2011 Global Competitiveness Report

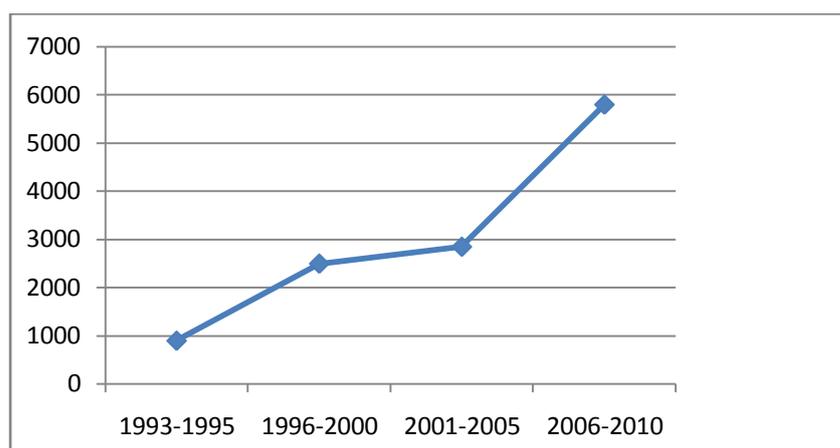
²⁸ Media source: [http://english.thesaigontimes.vn/1201/Lack-of-port-logistics-causes-annual-loss-of-US\\$17-billion.html](http://english.thesaigontimes.vn/1201/Lack-of-port-logistics-causes-annual-loss-of-US$17-billion.html)

Secondly, Vietnam's rapid economic growth continues to create new demands for economic infrastructure, which consequently may burden the limited budget for expanding and maintaining infrastructure network and further worsen bottlenecks in business activities. In road sectors, for example, the rapid growth of transport services can be reflected in the drastic increase in transport activities and passengers and goods services. World Bank (2008a) indicates that over the period 1995-2006, the number of registered vehicles grew from about 4 millions to almost 20 millions. Nevertheless, in 2004, only four percent of the network has four or more lanes. Worse still, capacity constraints are beginning to emerge in the network, particularly in big cities such as Hanoi and HCMC. As a consequence, it seems to be extremely hard for Vietnam with its tight budget to satisfy those continuously surging demands. According to the statistics revealed by World Bank, in 2009, insufficiency in financing the needed infrastructure investment, which amounts to about 9-10 percent of Vietnam's GDP, reaches to US\$ 9 billion.

With respect to the improvements and ongoing challenges discussed above, the considerable influence of external assistance over Vietnam's economic infrastructure sector is evident. Data collected by Larsen et al. (2004) shows that during the period 1996-2000, donors' financing accounts for approximately 72 percent of the public investment in infrastructure sector. To date, support from donors continues to play a significant role. In the field of transport and telecommunications, total ODA signed over the past time has reached US\$16.47 billion and increased over time (see figure 5.2). Specially, transportation sector has been taken priority in receiving ODA and achieved impressive results. Over the past two decades, ODA has supported Vietnam to rehabilitate and develop important transportation projects, contributing to overall national and local economic growth²⁹. Better still, advanced technologies and construction management experience have been transferred to the Vietnam side through ODA-funded projects, which eventually enhance Vietnam's capacity for transportation construction. MPI (2013) affirms that Vietnam's transportation construction personnel are now capable of undertaking large-scale and complicated transportation projects which require advanced techniques and management skills such as Vinh Tuy Bridge in Hanoi and Rach Mieu Bridge in Ben Tre.

²⁹ According to the statistics revealed by MPI, over the period 1990-2015, the transportation sector has completed and is implementing 132 ODA-funded projects with a total value of more than US\$17 billion. Project categories consist of national arterial highways projects, bridge construction projects, and deep seaports expanding projects (MPI, 2013).

Figure 5. 2 ODA support to transportation, post, and telecommunication (US\$ millions)



Note: Totally, there are 22 donors, including 18 bilateral donors, 4 multilateral donors. Some major donors: ADB, World Bank, Japan, France.

Source: Foreign Economic Relation Department – MPI

Besides transportation sector, external aid also encourages the development of energy and water and sanitation in Vietnam. In energy sector, total aid signed during the period 1993-2013 mounts to about US\$10 billion, allocating to more than 70 electricity programmes and projects and 20 technical assistance projects³⁰. ODA projects mainly aim at enhancing power production and transmission, strengthening distribution capacity, and improving service quality in rural areas. Accordingly, foreign assistance has been considered as a supportive factor that assists Vietnam to cope with the growth in power demand at the rate of roughly 15-17 percent annually (MPI, 2013). In addition, external assistance performs an extensive role in water and sanitation improvement in Vietnam by financing nearly 85 percent of total expenditure for this sector. Foreign aid, for instance, has supported the construction of such large-scale irrigation systems as Phan Ri - Phan Thiet irrigation system, and Phuoc Hoa irrigation system, assisting to regulate water for irrigation and flood control and prevention (MPI, 2013).

In overall, the analysis assures the positive effect of external aid on growth through financing much-needed economic infrastructure system in Vietnam. The growth accounting result that highlights the contribution of capital to economic growth further supports this conclusion. One issue ensued from the analysis is that whilst foreign aid appears an enormously important source of economic infrastructure investment, quite a few existing studies express the concern about the possibly downward trend of ODA inflow in the future and call for other financing resources,

³⁰ Some examples of large power plants using ODA funding are Phu My Power plant 2.1 (288 MW), Pha Lai Thermal Power Plant 2 (600 MW), Ham Thuan - Da Mi Hydropower Plant (475 MW), Phu My Thermal Power Plant 1 (1090 MW), O-Mon Thermal Power Plant (600 MW), and Dai Ninh Hydropower Plant (360 MW) (source: MPI).

especially the private sector funding (see more World Bank, 2006). However, this issue will not be discussed here as it is out of the scope of this paper.

5.3 Aid and social infrastructure

Social infrastructure, in general, and education and health sector, in particular, have always been important recipients of global attention and external assistance. Foreign aid inflow to Vietnam also exhibits this tendency. Indeed, ODA allocated to education and health sectors has increased over time and amounted to approximately 9 percent of total aid value over the period 1993-2012. It might be far from easy to accurately quantify the impact of foreign aid on final education and health outcomes since they are influenced by multifaceted contributory factors including social, political, and economic contexts, but only some of which are aid-related. Nevertheless, there can be little doubt that external assistance positively impacts on overall education and health service provision through its contribution to government expenditure on health and education and funding to off-budget projects and programmes directing to these two sectors. This sub-chapter will review the progress as well as challenges of Vietnam's education and health sectors and then point out the linkage between aid and the final outcomes of those two sectors.

Over the past 20 years, Vietnam has obtained impressive improvements in terms of education and health care provision services (see table 5.3 and 5.4 to get some main indicators). In general, these achievements are determined by the expansion and equity of the services to the targeted population and the improvement in quality of the services available. In the education sector, there has been a substantial increase in gross enrollment rate of secondary and tertiary education, in which the former has risen from 57 percent in 1998-1999 to 92 percent in 2012 and the latter has increased to 72 percent in 2012 from 9.5 percent in 1998-1999 (see table 5.3). This recognizes the accomplishments in increasing demand for and rapid expansion of higher education in Vietnam. Since there is no information on changes in education quality, student-teacher ratio and repeater rate have been taken into account to indirectly examine the progress in quality. As table 5.3 shows, these two ratios have been witnessed to decrease between 1998 and 2012, partially illustrating the improvement in quality of educational service provision. Moreover, gender inequality in education, especially in higher education, has gradually reduced over time. More explicitly, while the overall share of females in the population has been fairly stable, the ratio of female to male tertiary enrollment has raised from 66 percent in 1998-1999 to around 101 percent in 2011.

Table 5. 3 Summary of education indicators

	1989/1990	1998/1999	2011/2012
Schooling Enrollment rate - Primary (% gross)	103.4	112.5	104.7
Schooling Enrollment rate – secondary (% gross)	34.4	57.2	92
Schooling Enrollment rate – Tertiary (% gross)	2.7	9.5	71.9
Literate rate Adult total (%)	87.6	90	93.4
Student : teacher ratio - Primary	34.2	32.1	19.4
Student : teacher ratio - Secondary	17.98	28.9	17.4
Repeater primary (%)		3.8	1.3
Repeater secondary (%)		1.9	1.5
Ratio of female to male primary enrollment (%)		95.0	95.9
Ratio of female to male tertiary enrollment (%)		66.2	101.6

Source: World Bank, GSO

Table 5. 4 Summary of health indicators

	1990	1993	1995	2000	2010
Life expectancy	66	68		70	73
Infant mortality (%)	4.44			2.9	1.58
Malnutrition prevalence, height for age (% of children under 5)		61.4		43.4	23.3
Malnutrition prevalence, weight for age (% of children under 5)		36.9		26.7	12
Number of health centers			12,972	13,117	13,467
Number of beds provided by health service			192,300	192,500	246,300
Number of officials working in health sector			30,600	39,200	61,400

Source: World Bank, GSO

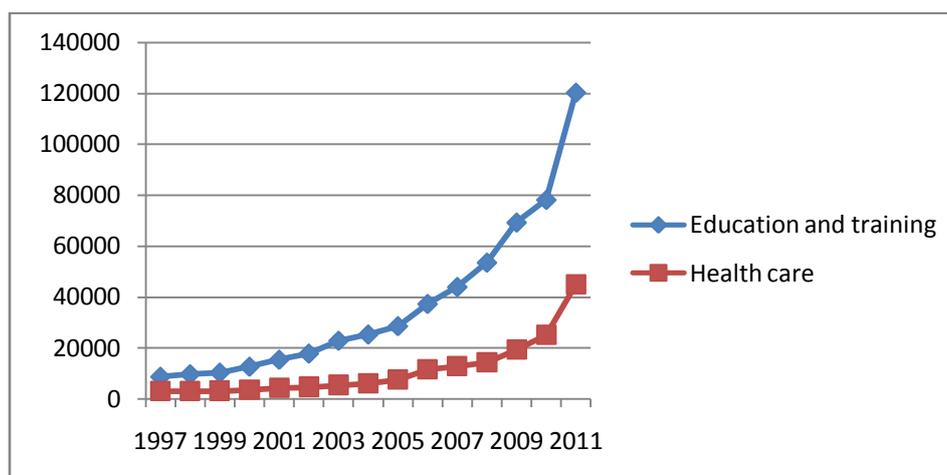
In the health system, the final outcomes are judged according to how well health care service provision improves the health of individuals and populations. Some indicators that can be used to examine population health include infant mortality, life expectancy, and malnutrition prevalence ratio. Over the last 20 years, Vietnam has achieved considerable progress in health – as measured by expanded life expectancy indicator and reduced infant mortality and malnutrition prevalence ratio indicators (see table 5.4). Moreover, health care service provision continues to expand with increasing number of health centers and number of beds provided by health service. For example, the number of beds increased by 54,000 beds between 1995 and 2010. As with

education services, there are little reliable data on quality of health care service in Vietnam. However, the fact that the number of health workers has doubled from 1995 to 2010 might be expected to lower the health worker-patient rate and then improve service quality (see table 5.4).

At an aggregate level, the outcome of remarkably expanded service provision and slightly improved service quality in health and education sectors can be associated with increased spending on these two sectors since 1990s. During 1995-2011, Vietnam's total expenditure on education is relatively stable as a percentage of GDP, which is roughly equivalent to 3 percent. Regarding health sector, the average spending accounts to about 5.7 percent of GDP, in which the total health expenditure was quite steady between 1995 and 2005 and then tends to be slightly increased since 2006 (source: World Bank). In terms of total expenditure as a percentage of GDP, Vietnam is considered comparing poorly in education sector but fairly well in health sector to the rest of its region and to the rest of the world³¹. However, in general, the absolute term in spending on social service provision has considerably increased as Vietnam has been recorded rapid economic growth since 1990s. Looking into the social service financing composition, there is a common feature in both education and health sector that off-budget funding accounts for a large share while public expenditure covers only one-quarter of total spending. Nevertheless, public spending on education and health has significantly heightened (see figure 5.3) and mainly focused on vital necessities and equality of service provision. For instance, in education, state budget is used to build infrastructure, cover teacher-training activities, and renovate curriculum and textbooks (World Bank, 2008b). In health sector, government spending is mainly used to cover social health insurance (SHI) and to exempt the poor from paying user fees with the aim of improving accessibility to health care services for the poor and other vulnerable population groups (Tran Van Tien et al., 2011).

³¹ World Bank (2008b) claims that Vietnam's education expenditure as percentage of GDP is below the expenditure level of other 162 countries all over the world whose the average level reaches to 4.7 percent. However, in health sector, Vietnam's total health expenditure share of GDP is assessed to be higher than other countries of similar or higher income in the region such as Laos, Cambodia, Philippines, Thai Land, Indonesia, and China (see Tran Van Tien et al., 2011).

Figure 5. 3 Public spending on education and health (VND billions)



Source: Ministry of Finance

As discussed above, foreign aid positively supports social service provision through both state budget financing and off-budget projects. Persuasively, the magnitude of expansion of education and health spending would not have been possible without external financial support. Since 1993, committed ODA for social infrastructure has sharply risen, in which total ODA mobilized in the area of education and health in the period 1993-2012 reaches to US\$2.44 billion (US\$1.79 billion of loans and US\$653 million of grants) and US\$2.352 billion (US\$1.254 billion of loans and US\$1.098 billion of grants), respectively (Source: MPI). It is worthy to note that aid inflow to education and training sector in Vietnam strongly encourages equality in service delivery. MPI (2013) observes that almost all ODA programs and projects (except for higher education development projects) are designed to support education development in remote and ethnic minority areas, which eventually improve educational accessibility for the disadvantages. MPI also reports that the ODA allocated to the health sector over the past time has significantly contributed to improved health care services for the people in Vietnam and the progress recorded in the implementation of health-related Millennium Development Goals (MDGs).

Notwithstanding aforementioned achievements, the Vietnamese education and health care system have still suffered from a number of drawbacks and mismatches. The biggest challenge faced by Vietnamese education system is low educational quality and efficiency, especially in vocational and higher education. This concern has become more severe when addressing the significant role of higher education graduates in increasing productivity and country's total output. World Bank (2008b) proves that a one percentage point increase in the share of tertiary graduates would already lead to an increase of about 0.9 percent in labor productivity in

Vietnam. Additionally, growth accounting analysis which was conducted in the chapter 3 also indicates that higher education and vocational training result to higher level of productivity weight. The weakness seems to be attributed to the contradiction between the goals of service expansion and quality improvement and the limited resources in terms of both financial and human resources. Given today's requirement for the development of a knowledge-based economy, both Vietnamese leaders and people are not satisfied with the current education system and call for stronger reforms. The curriculum is usually criticized since it is supply- rather than demand-driven, theoretical rather than practical, and lacking in necessary skills needed for good performance in the workplace. This skill gap has created the ongoing paradox that while unemployed graduates are considerably increased, quite a few job vacancies cannot be filled up due to the fact that candidates do not meet the basic requirements of these positions (World Bank, 2008b).

The second challenge in Vietnam's education system is to create an equity-based system that is accessible to a large percentage of the population. Although over the past 20 years, the gaps in access to education among different ethnic groups and genders have been narrowed, there is evidence that female, minority ethnic groups, poor people, and those from remote regions are not represented in higher education proportionately to their numbers in the population (World Bank, 2008b). Furthermore, Nguyen Quang Kinh and Nguyen Quoc Chi (2008) argue that the proportion of ethnic minority students in upper secondary schools (9.4 percent) and higher education institutions (4 percent) are relatively low and need improvement.

As with education sector, health sector in Vietnam is also confronting with worrying tendency in terms of inequality and low quality of service delivery. Firstly, despite substantial achievements in expanding health care service, there are still large health status disparities cross regions and between demographic and socioeconomic groups. There has been evidence to indicate inequalities in child mortality between the poor and the better off people. Lieberman and Wagstaff (2009), for example, show that Vietnam's richer south and Red River Delta regions have reduced infant mortality faster than the poorer central and northern regions of the country. They also find the inequalities in childhood immunization coverage, in which the poorest fifth of the population saw the smallest enhancement while the richest fifth undertook dramatic increase in the fraction of children fully immunized. Moreover, Vietnam's government health spending mainly targets to urban hospitals (about 80 percent), leading to disproportionate benefits to the economically better off population.

Secondly, low quality of service delivery and inefficiency in health investment are main concerns of Vietnamese government and donor community. The World Health Report 2010 considers that countries with high level of pooled funds - around 5-6 percent of GDP - have often accomplished “universal access to health care for the entire population”. However, Vietnam’s health care service of which pooled funds account for 5.7 percent of GDP is far below international standards and has recently performed poorly after achieving notable improvements during 1990s (Lieberman and Wagstaff, 2009). One manifestation of relatively low quality of health service is the severe overcrowding situation at public hospitals in big cities. For instance, bed capacity in Cho Ray Hospital in HCMC reached 135 per cent in 2013; or at the HCMC Oncology Hospital, there were 560 inpatients per 160 beds³². This situation might be largely due to the lack of human resources, the inefficiency in health investment, and less concern of the government for developing private hospitals and health centers at small cities and rural areas. Moreover, corruption has been claimed to be a major threat to health system performance and health outcomes in Vietnam (Taryn Vian et al., 2012). A recent national survey shows that 65% of respondents experienced corruption at local health services, which certainly limits the access to healthcare services for people, especially the poor, and deteriorates service quality.

In summary, evidence discussed here demonstrates the positive impact of external aid on social service provision and, therefore, on economic growth. This relationship has been partially manifested in the growth accounting results, which explain the strong contribution of education to national economic outcome. Since 1990s, Vietnam has done fairly well in providing its citizens with basic education and health care services. Nevertheless, quality and equality of service delivery have still been serious challenges for Vietnamese government and international donors. Obviously, quantitative expansion alone is not enough to obtain long-term economic growth and sustainable development. Thus, the government, in cooperation with international community, should put more effort into tackling the problem of low quality and inequality of social service provision in Vietnam.

³² Source: <http://vietnamnews.vn/society/252295/public-private-co-operation-to-ease-overcrowding-in-hospitals.html>

6 NEGATIVE IMPACTS OF AID

6.1 Macroeconomic consequences

It has been widely agreed among recipients and donor community that while scaling aid can support economic growth and poverty reduction in low-income countries, it might lead to some adverse macroeconomic consequences. For the purpose of examining the possible macroeconomic challenges risen from increasing external assistance for the case of Vietnam, this section will discuss two main issues, namely Dutch disease and the volatility and unpredictability of foreign aid.

The existence of Dutch disease has been seen as a potentially damaging effect of increasing capital inflows. The fundamental concept of Dutch disease is that the growth in capital inflows could induce the appreciation of the domestic currency and then reduce the competitiveness of export as seen in Netherlands after the discovery of natural gas giving the phenomenon its name. More particularly, capital inflow such as aid will increase the demand for both tradable and non-tradable goods. Due to the fact that non-tradable goods and services are in short supply since they are produced and consumed domestically, the increase in demand of these goods drives up their price relative to the tradable ones and shifts resources out of traded goods sectors. This results in a real exchange rate appreciation. The channel through which aid-induced Dutch disease could hurt the recipients' development is that it squeezes the profit of exporting industries and private sector and therefore the international competitiveness of the country. Isard, P., et al. (2006) note that the Dutch disease effects depend on how aid is used. If aid boosts the productivity favoring non-tradable sector, it could offset the appreciation of the exchange rate and mitigate the Dutch disease consequences. Besides, if aid-induced spending enhances the productivity of private factors of productions, it can increase the long-term welfare and growth in the export sector of the economy (Isard, P. et al., 2006).

In the context of Vietnam, it is far from easy to differentiate the exchange rate impact of foreign aid from other factors such as monetary and fiscal policies. However, this section would analyze the exchange rate regime and real effective exchange rate (REER) trend in Vietnam to point out potential signal of Dutch disease and then try to link it to the aid impact. The approximation of the real exchange rate during the period 1992-2008 is taken from Phuc, N. T. and Duc-Tho, N.

(2009) and Phuc, N. T. and Duc-Tho, N. (2010)³³ (see figure 6.1). The real effective exchange rate indices are defined in foreign currency terms and estimated following the formula:

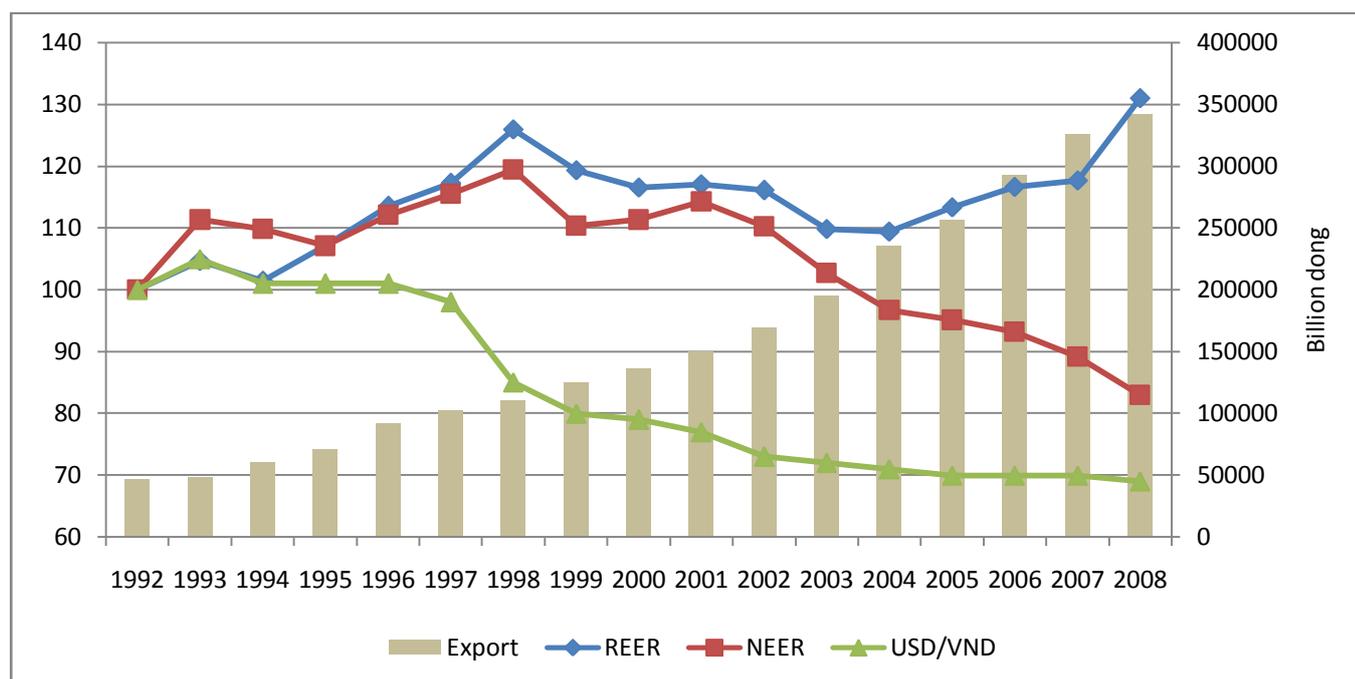
$$REER_t = \prod_{j=1}^n \left(e_{jt} \frac{P_t}{P_{jt}} \right)^{W_{jt}}$$

where n is the number of trading partners, e_{jt} is the nominal exchange rate relative to currency j ; W_{jt} is the weight assigned to currency j at time t ; P_t is domestic price index at time t ; and P_{jt} is the price index of foreign country j at time t .

A real exchange rate appreciation can take place through either domestic inflation or nominal exchange rate appreciation which depends on the exchange rate regime. In countries with floating exchange rate, the central bank sells the foreign exchange associated with aid leading appreciation in nominal exchange rate and then real exchange rate. In countries with fixed or preannounced nominal exchange rate, the real appreciation occurs through domestic inflation. With respect to the case of Vietnam, the country officially maintains a managed floating exchange rate regime, but the VND has usually been pegged de facto to the USD (IMF, 2007). The basic feature of the current exchange rate regime is the announcement of official exchange rate with a band of allowable exchange rate quotations by the Central Bank of Vietnam (SBV). Phuc, N. T. and Duc-Tho, N. (2010) claim that the process of announcing the official exchange rate has not been transparent and appeared to reflect the will of the SBV. The fact that the SBV aims to control short-term changes in the exchange rate has made the nominal exchange rate tend to be sticky or even rigid. Additionally, during the period under consideration, the VND was usually under the pressure to depreciate due to the persistent excess demand of USD from the economy (Phuc, N. T. and Duc-Tho, N., 2010). For these reasons, it would seem that most of real exchange rate appreciation in Vietnam has occurred through spiraling inflation (Menon, 2009).

³³ This study does not use the Vietnam's nominal effective exchange rate (NEER) and real effective exchange rate (REER) that have been calculated in IMF's publications as those data relate to relative short time and to different base years. Besides, Phuc, N. T. and Duc-Tho, N. (2009) have conducted a meticulous estimation which makes use of a basket comprising 25 country partners accounting for about 90 percent of Vietnam's total trade. Moreover, Phuc, N. T. and Duc-Tho, N. (2009) confirm that their methods of compiling the data are very similar to the IMF methods which is reflected by the fact that the two series comply very well at overlapping periods.

Figure 6. 1 USD/VND index, NEER, REER, and export volume (1992-2008)



Note: As both indices are defined in foreign-currency terms, an increase in their value indicates an appreciation of the home currency.

Source: Export volume: GSO

REER, NEER, USD/VND: (Phuc, N. T. and Duc-Tho, N., 2009) and (Phuc, N. T. and Duc-Tho, N., 2010)

The analysis of Vietnam’s REER trend reveals that during much of the period under study, capital inflows have not induced exporting contraction (see figure 6.1). There is an exception during 2007-2008 when the signal of Dutch disease’s existence can be witnessed for a short time but the impact of aid on this trend appears to be modest. As can be seen from figure 6.1, the USD/VND was kept relatively stable with the exception of during Asian Financial Crisis and its aftermath when there was a major weakening of VND against the USD. During the same time, REER was appreciated two times including a slight increase during 1997-1998 and a rapid increase during 2007-2008, both of which associate with spiraling inflation³⁴. While the appreciation of REER occurring in 1997-1998 did not arouse concern about Dutch disease’s existence, the sharp increase of REER in late-2007 and early-2008 causes worry about losing competitiveness³⁵ (see more Phuc, N. T. and Duc-Tho, N., 2010; IMF, 2009). IMF (2009) observes that the remaining upward trend of inflation and the more rapid appreciation of real

³⁴ In 1998, the inflation rate was 7.3 percent, increasing by 126 percent compared to the previous year. In 2008, the inflation rate reached the peak of 23.1 percent from 8.3 percent in 2007 (source: IMF database).

³⁵ In 2008, the annual growth of export was only 5 percent, which is the lowest export growth rate in Vietnam during the period 1993-2012.

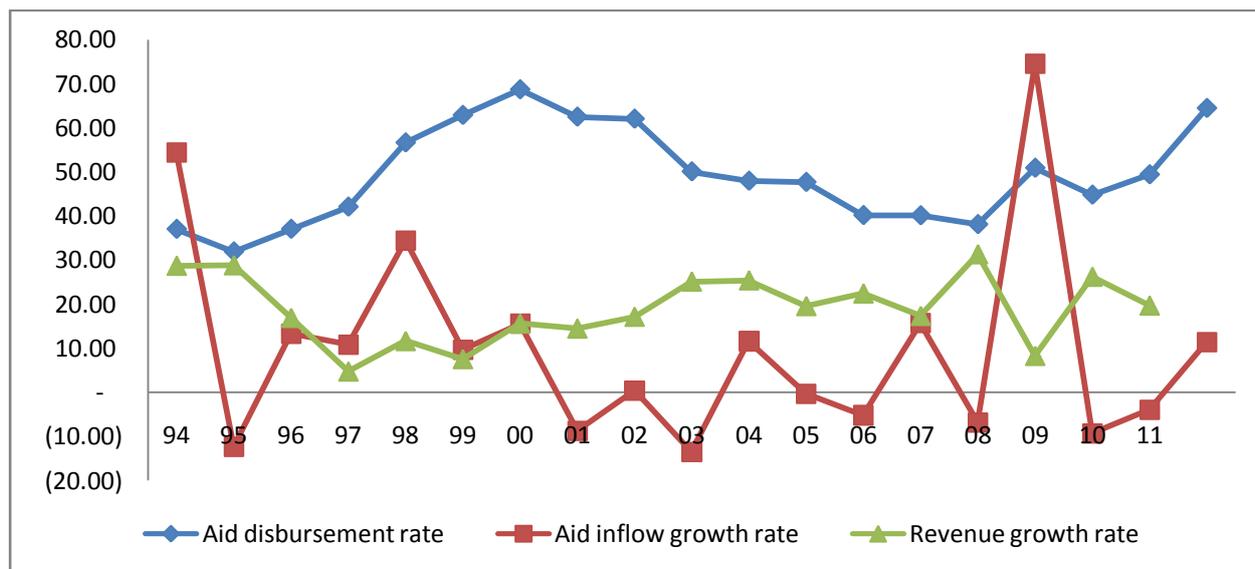
exchange rate could then lead to losses in competitiveness, threaten external sustainability, and undermine investor confidence. A closer examination of this sub-period indicates that the reason of this appreciation of the dong is the surge in capital inflows which mainly stems from the massive growth in FDI. More explicitly, the growth rates of implemented FDI reached 96 percent and 43 percent in 2007 and 2008, respectively, which has been seen as a remarkable upturn when comparing to the average growth rate of nearly 20 percent during previous years. At the same time, the growth of ODA inflow was much smaller, which accounts for 21 percent and 3.5 percent in 2007 and 2008, respectively. Although it is not possible to prove conclusively that whether or not aid inflows cause such Dutch disease's symptom in Vietnam in the absence of further and complicated examination, the evidence is relatively suggestive that aid impact on real exchange rate, if there is the case, seems to be negligible.

In fact, the real exchange rate appreciation occurring since 2007 only lasted for short period of time. Because of the SBV's intervention and sudden downward trend of capital inflows, the REER depreciated in December 2008 (IMF, 2010). After that, the REER appreciated about 11 percent since March 2011, largely reflecting high inflation rate. However, unlike what happened in 2008, the galloping inflation in 2011 is mainly due to the wake of a large macroeconomic policy stimulus in response to the global financial crisis (IMF, 2012).

The second macroeconomic challenge of scaling aid that might pose major problems for budget management and macroeconomic stabilization in recipient country is the volatility and unpredictability of aid inflows. The reason for aid volatility might be associated with donor behavior such as donor conditionality or prerogatives as well as recipient country behavior such as domestic political turmoil, policy performance, or corruption level (UNDP, 2011, p. 165). In general, aid volatility and unpredictability can cause harm in three ways. First, unanticipated decline in aid forces the recipient government to scale down, postpone, or abandon those spending categories that are easy to adjust such as repairs, maintenance, or investment (Isard, P. et al., 2006). In a direct sense, postponing of planned expenditure is costly and harmful to the composition of investment since the government has to shift spending away from growth-enhancing long-term investment (UNDP, 2011, p. 164). Additionally, aid volatility can weaken the general discipline of government operations when unexpected drop in external aid makes the recipient fail to meet its targets (Isard, P. et al., 2006). Second, unpredictable decrease of aid might confront the government with another unattractive alternative that is to finance necessary spending through money creation or debt issuance. Aid volatility, by this way, can lead to volatility in inflation, interest rates, and exchange rates and thereby worsen the macroeconomic

stability (Isard, P. et al., 2006). Finally, in addition to pose challenges for short-term fiscal management, aid volatility and unpredictability also hinder the policymakers from building up an efficient plan to maximize the effectiveness of aid in long-term. Consequently, external assistance might not contribute as much to the recipient’s economic growth and development as it is expected.

Figure 6. 2 Aid disbursement rate, aid inflow growth rate, and revenue growth rate (%)



Source: MPI, MoF

With respect to the Vietnam case, aid volatility and unpredictability appear to happen in relatively large magnitude and cause harm to fiscal management. The figure 6.2 captures the trend of the ratio of committed aid to disbursed aid, aid inflow growth rate, and revenue growth rate with the purpose of providing the measurement of Vietnam’s aid volatility and unpredictability. As figure 6.2 shows, the aid disbursement ratio and aid inflow growth rate in Vietnam have not followed a predictable trend, illustrating the high volatility of foreign aid during the period 1993-2012. Furthermore, comparing to domestic revenue, the magnitude of aid volatility comes out to be much higher. Although there has been limited information regarding how much aid volatility impacts on fiscal management in Vietnam, under the circumstance that aid contribution has accounted for 17 percent of total government investment, aid volatility and unpredictability would certainly confront the Vietnamese government with the difficulty in maintaining fiscal discipline.

To summarize, the analysis seems to indicate that macroeconomic challenges of scaling aid in Vietnam have not been stemmed from Dutch disease effect but from aid volatility and

unpredictability. The uncertainty in aid volume can cause the mismatches between government receipt and planned expenditure. The problem is that with constraint financial resources and limited management capacity, Vietnam might find it difficult to control those mismatches, which can be problematic in the longer run.

6.2 Absorptive capacity

One common concern of both donor community and recipient government is absorptive capacity, which refers to the capacity to use aid efficiently for developmental purposes. It is based on the recognition that aid may yield developmental benefits for recipient country but large amount aid is not necessarily associated with bigger and better impacts. There are several factors that contribute to the absorptive capacity constraints in recipient country. First, poor institutional and administrative capacity undermines the efficiency in implementing and using foreign assistance. Indeed, Hyewon Kang (2010) claims that the existence of an effective system for ODA administration, including ODA-related policies and programming guidelines would be critically important. Second, technical and managerial constraints appear to be major challenge to developing countries in an effort to improve aid absorption. A case in point, the lack of human resources with the right skills at the technical and managerial level might hinder the efficiency of ODA programme and project management or obstruct the coordination between donor and recipient. Finally, absorptive capacity constraint can be attributed to the absent or inadequate coordination among involved parties. The mismatches here can be occurred between donors and recipient's authorities at different levels or among donors. The gap between donors' and recipient's priorities regarding the target of ODA programmes and projects or the lack of coordination at sectoral level to which aid will be allocated are the reasons for the ineffectiveness of aid absorption. In addition, the fact of a large group of donors with inconsistent country assistance strategies may result in conflict in aid conditionality, duplication in aid allocation, or competition among donors for skilled personnel and other scarce human resources, and then lead to inefficient allocations or bottlenecks.

In general, absorptive capacity constraints inflict harms to the recipient country through two channels. First, it diminishes aid effectiveness by driving up the transaction costs and causing a waste of human and financial capital of both donors and recipients without achieving acceptable returns. Second, it influences the volume of aid delivered by discouraging donors and governments from entering into agreements and reducing disbursement rates. As discussed above, large and increasing amount of aid may further intensify the pressures on limited

resources in developing countries. In contrast, foreign aid can relax absorptive capacity constraints through technical assistances and financial supports, especially those targeting to administrative and managerial improvement in recipient country. Therefore, the key challenge is to find ways in which aid can be used to relax the constraints while simultaneously avoiding exhausting the existing resources. One suggestion is that before additional aid is poured into priority sectors, judgments are needed to point out if there is any problem with the existing resources. Then, the potential problems must be diagnosed and solved or else the aid allocation plan should be adjusted (Isard, P. et al., 2006).

Absorptive capacity constraints have been considered as one of the most serious limitations that undermine ODA management and utilization in Vietnam (MPI, 2013). The first and foremost problem refers to institutional and administrative capacity. It appears that ODA-related legal frameworks and guidelines are not consistent and clear enough. MPI reports that processes and procedures for ODA programmes and projects are complicated and inconsistent. Specifically, government decision-making requires multiple levels of approval but the division of roles and powers of different government institutions at different stages are not well understood, sometimes leading to the situation of “double” submission for approval (see more Adrienne Brown et al., 2000; MPI, 2013). Another big impediment is land compensation and site clearance that are required in almost large-scale ODA-funded construction projects. Site clearance is often subjected to delay since the compensation rate is set at a much lower level than the market price, discouraging people from moving away (Hang, 2007). For these reasons, the preparation for implementation of ODA-funded projects often lasts long, ranging from two to three years, and requires the adjustment in total investment due to changes in price and cost of clearance.

Another aid absorptive capacity constraint in Vietnam includes low professional qualification of the project staff, especially at local level. In fact, the staff usually takes project management on part-time and has not been trained properly (MPI, 2013). Furthermore, the lack of experience in project activities and English proficiency of many project officials are also another large problem. JICA and CIEM (2003) claim that those limitations inhibit Vietnamese side from effectively discussing and negotiating project-related issues with foreign consultants and donors. As a consequence, the recipient tends to be more passive, resulting in a donor-driven project formulation and designing (JICA and CIEM, 2003).

Last but not least, coordination among involved parties does greatly matter to aid absorptive capacity in Vietnam. As reported by MPI, coordination among ministries and sectors, between

central and local levels, and with the donors has not been really smooth. In fact, some ODA programmes and projects have not been designed for being suitable to the actual context of Vietnam, in general, or of the localities, in particular. In some cases, various sources of funding are poured into the same sector at the same locality, leading to inefficiency in aid allocation and waste of both locals' and donors' resources (MPI, 2013). Moreover, a large group of donors leads to diversity in donor procedures and then diminishes aid harmonization. Hang (2007) finds that in 2005, the disbursement rate of bilateral donors was double that of multilateral donors, indicating that multilateral donors have more complicated procedures than bilateral ones. This is not for arguing that it would be better when working with bilateral donors but that a common country assistance strategy among donors would be crucially important for a recipient assisted by quite a few donors like Vietnam.

The increasing trend to move toward non-project based and country system used modalities including general or sector budgetary support and pooled funding in Vietnam recently can be seen as the movement of recipient government and donors to mitigate the problem of misalignment between two sides' priorities. It is acknowledged that these instruments have been helpful and should be adopted. First, direct budget support modality has aligned the ODA with government's own development priorities and increase government ownership, which pave the way to support sustainability and independence from donors (Adam McCarty et al., 2009). Second, it may lead to the reduction of some costs and thereby make more funds available for other activities. Indeed, Hang (2007) observes that the shift toward budget support modality would greatly lower the administrative costs of donors. Furthermore, through international competitive bidding, the recipient country can select the tender with the lowest possible cost and highest quality instead of being limited to those tenders favored by donors. For example, Japanese ODA-funded projects have been shown to be relatively expensive since the donor tightly controls bidding terms and procedures which clearly favor Japanese firms to win the contracts (Do, 2007). Third, the Vietnam side might pay more attention to and effort into capacity building, particularly with regards to procurement and financial management when it has to take on full responsibility for implementing the projects.

Although budget support modality offers potential advantages, some concerns regarding its negative impacts should be taken into account. The first constraint is that because of the complexity and large-scale of ODA project and programme, the recipient authority does not have adequate management capacity to maintain effective operation. Adam McCarty et al. (2009), for instance, point out that limited capacity of the government such as the lack of experience in

management has hindered Vietnam from holding a successful international competitive bidding. Furthermore, budget support modality without the supervision from donors may lead to the misuse of aid such as fungibility or corruption. It can be seen that the recent changes in funding modality does not guarantee the improvement in aid outcomes and might even cause adverse impacts; and thus it should not be viewed as panacea.

In sum, the analysis shows that Vietnam has been facing with major absorptive capacity constraints that impair the aid effectiveness. It is considered as the main cause of the relatively low rate of aid disbursement in Vietnam over the past 20 years (MPI, 2013). It should be noted that foreign aid is not “free gift” and that interest rates and loan fees would increase if disbursement is delayed and the use of loans is ineffective. Consequently, this would certainly place heavy burden on future generations and impede the long-run development of the country.

6.3 Aid and governance

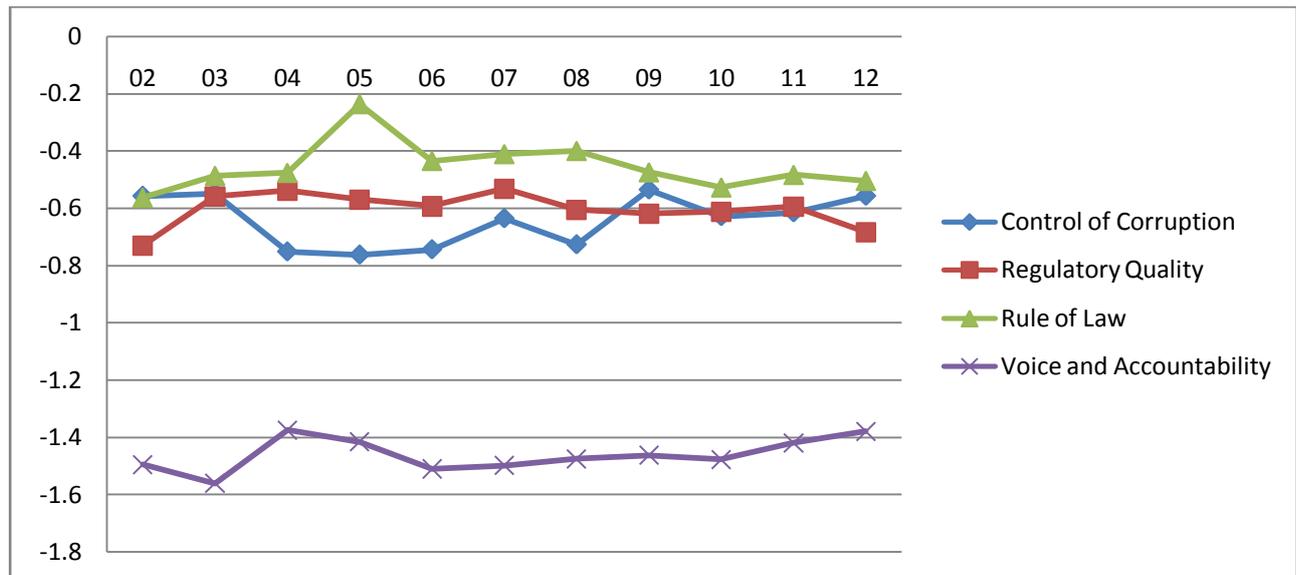
Theory is ambiguous with respect to aid impact on the quality of governance. On the one hand, aid could be associated with improved governance through programmes and projects to strengthen the legal system, public financial management, anti-corruption, or other aspects of governance. On the other hand, foreign aid could adversely affect institutional and governance quality of the recipient countries (see Knack, 2001; Brautigam and Knack, 2004). Thus, a case-study approach is needed to examine more closely the correlation between foreign assistance and quality of governance. With respect of Vietnam case, increasing inflow of aid might have significant effects on governance, both for worse and for better. The previous chapter has already discussed the positive impacts of aid on institutions and governance. This sub-chapter would thus focus on potentially detrimental effects of aid on governance, in which corruption would be treated in greater details than other aspects of governance.

There are two main channels through which high level of aid can weaken the quality of governance in recipient countries. First, external aid can undermine the recipient governments’ domestic revenue effort. In some case, less incentive to invest in effective domestic tax collection might reduce the government’s dependence on its citizens for tax revenue and weaken democratic accountability (Bevan, 2005). The recipient government, in this case, is accountable primarily to the donors rather than to tax payers (Knack, 2001). Second, large aid inflows could intensify rent seeking, undermining the quality of public sector and increasing the incidence of corruption (Isard, P. et al., 2006; Knack, 2001). Arguably, the fact that a large amount of funding

which is implemented under the existence of weak institutional governance and the lack of sanctions when aid fails to improve development performance, seems to facilitate the misuse of funds. Moreover, it is also the case that donors have been either complicit with public sector corruption (Channing Arndt et al., 2006) or unable to effectively monitor the use of their funding at various destinations, which eventually creates greater opportunities for moral hazard.

The association between aid and governance seems strong but precise causal link between them is hard to identify since governance may also be influenced by numerous other factors and we cannot discriminate the impacts of those factors from the impact of aid. However, it is the fact that a sheer volume of aid transferred in the context of poor institutional management would facilitate rent seeking. Therefore, a more feasible approach for the case of Vietnam is to examine the quality of governance and to recognize the existence of scandals over corruption in ODA-related activities. Since the announcement of the Doi Moi, together with impressive socio-economic development, the government has made great effort to improve quality of governance; yet the pace of government reforms has been patchy and uneven. While some improvements have been made through financial management reform, reduction in red tape, devolution of administrative powers to local levels, and enhanced law-making, such areas as accountability, transparency, standards of service delivery, and the quality of state officials remain of considerable concerns (Norad, 2011). Indeed, Vietnam's governance indicators regarding control of corruption, regulatory quality, rule of law, and accountability are at relatively low level and have not been improved (see figure 6.3). The Global Competitive Report 2013 also concludes that Vietnam's public institutions are characterized by rampant corruption and inefficiencies of all kinds. One Vietnamese government's report, for example, releases that bureaucrats misappropriated at least 20 percent of infrastructure spending (Norad, 2011).

Figure 6. 3 World governance ratings for Vietnam (best to worst: +2.5 to -2.5)



Source: Worldwide Governance Indicators – the World Bank

Widespread corruption in ODA-related projects and programmes has aroused deep concerns to both Vietnamese government and its donors. Big scandals that were uncovered over the last years illustrate the severity of this rampant problem. In 2006, many high-ranking officials, even including some ministers and deputy ministers, had to resign when the big scandal, Project Management Unit (PMU) 18, occurred. They were accused of embezzlement, nepotism, and bribery when managing funds for road constructions, including ODA funds from numerous donors to Vietnam for transport infrastructure development (Feasel, 2013). In 2008, the government of Japan had to suspend ODA to Vietnam for four months since a Japanese firm, which was hired as the project consultant, was found guilty of paying bribes to Vietnamese officials in charge of the Ho Chi Minh highway project. Most recently, in 2014, several officials at Vietnam Railways, the state-owned operator of the railway system in the country, were suspended for involving in allegation that a Japanese firm had paid bribes to secure a deal for a rail project in Hanoi.

Another argument for unintended impacts of aid on governance can be based on the extent to which donors have attempted to mitigate the negative institutional dynamics associated with foreign aid. It is argued that the effort of donor agencies to enhance public financial management and anti-corruption illustrates their recognition of potential problems in these areas that can be exacerbated by external funding (Channing Arndt et al., 2006). The examination of donors' assistance strategy over the last two decades indicates that they have increasingly focused on governance reform, in general, and anti-corruption, in particular. Before 2006, donors' support

for governance reform was mainly emphasized on such fields as public administration and financial management, transparency and accountability, and the rule of law. Since 2006, the commencement of the anti-corruption law as well as the establishment of enhanced institutional arrangements have gradually shifted the donors' focus toward anti-corruption activities such as supporting anti-corruption legal and framework (Norad, 2011). For example, UK Department for International Development Vietnam's (DFIDV) 2007-11 Country Assistance Plan (CAP) has been designed with the aim of increasing effort against corruption and helping to set up an effective, new National Anti-Corruption Committee (Norad, 2011). Moreover, Norad (2011) notes that quite a few donors have given considerable attention in recent years to prevent their own ODA projects and programmes from corruption through tightening up programme management and audit arrangements. For instance, ADB has established a special unit to supervise its procurement work.

In summary, the discussion reveals that large inflow of external aid might possibly cause institutional fragmentation and facilitate moral hazard problem in Vietnam. Weak management system has created opportunities for some involved people to take advantage of public loans and grants for personal enrichment. Therefore, the important lesson here is not to attract as much foreign aid as possible but to implement it effectively. Nguyen Duc Thanh, a Vietnamese economist who advises the prime minister on economic policies, has said: "Vietnam should stop regarding ODA as an achievement in international relations so it can tread more carefully before deciding on asking for more international aid."

7 CONCLUSION AND DISCUSSION

7.1 Results

In most developing countries where savings gap, foreign exchange gap, and human capital gap have still existed, foreign aid is expected to narrow those gaps and subsequently boost economic growth. The debate over the aggregate impact of aid on growth in developing countries has been flourished over the past several decades. Vietnam appears to be a typical example of developing countries that have attained remarkable success in economic growth and poverty reduction since 1990s. Simultaneously, foreign aid inflow to the country has been considerably increased and reached the international top levels of sheer size. On this basis, the present study attempts to estimate the influence of external assistance on economic development in Vietnam using growth accounting analysis and the ARDL bounds test approach for the period 1993-2012.

Based on the ARDL model carried out in this paper, foreign aid is found to play a significantly positive role in promoting economic growth in Vietnam. The results of growth accounting exercise and the analysis of fundamental channels through which aid has contributed to development outcomes have also obtained more evidence supporting the beneficial impacts of aid on economic growth. In particular, the analysis reveals that external assistance has been instrumental in making Vietnam's impressive achievements in macroeconomic management and economic infrastructure possible. Besides, aid has been observed to substantially contribute to human capital accumulation in Vietnam since 1990s, particularly improved educational attainment and enhanced health.

At the same time, aid however has not been without problems. Although Dutch disease effect has not been found in Vietnam during the period under consideration, the high volatility and unpredictability of aid inflow seem to pose macroeconomic challenges to Vietnam, especially fiscal imbalance. Moreover, under the current circumstances of relatively weak macroeconomic management and scarce human resources in Vietnam, scaling aid inflow is likely to impose absorptive capacity constraints which, in turn, undermine the aid effectiveness and lower the rate of aid disbursement. Vietnamese government and its donors accordingly direct the focus toward optimizing the use of the current inflow instead of trying to maximize the aid quantity. Another possibly adverse impact of aid refers to the rent seeking behavior. Because Vietnam has had a history of corruption in public institutions and poor institutional management, the misappropriations of external assistance have been proved not to be an exception.

7.2 Discussion and policy implications

A general conclusion emerging from present study is that aid in itself will not ensure developmental success but it can effectively stimulate the process. Nevertheless, it should be noted that foreign assistance does not automatically increase growth and that in the case it does promote growth, past success does not guarantee future progress. Therefore, foreign aid has to be wisely spent so that it can effectively boost economic development and simultaneously offset any detrimental effects from aid scaling. This subsection will discuss some suggestions about how best to improve the aid effectiveness with the Vietnam experience.

First of all, the analysis suggests that Vietnamese government and its donor community should put more effort into improving the coordination among involved parties. It is the fact that the recipient and its donors have continually emphasized the need for more harmonious and effective partnership but the task seems to be fairly challenging and requires working together much more efficiently. The inconsistent coordination among ministries and sectors, between central and local authorities, and with the donors might be one reason why the rate of aid disbursement in Vietnam has always been at low level. It is also partially attributed to the very high transaction costs and the duplication in aid implementing procedure in Vietnam, which consequently may reduce the rate of return to aid. Hence, working in true partnership, which ensures smooth, transparent, and effective coordination among partnership groups is a prerequisite for enhancing aid effectiveness. One problem arising from partnership relationship is that a large group of donors demonstrates the need for a common country assistance strategy among donors but at the same time makes it more difficult to build up an effectively aid coordination mechanism for all involved partners since there is no “one size fits all”. One possible solution is that Vietnamese government and the donors may focus on developing a common country assistance framework that ensures partnership groups be on the right track to aid harmonization as well as allows them to flexibly adapt the best strategy to achieve their desired outcomes.

Secondly, the analysis implies the importance of systematic evaluations of completed aid programs and projects. In other words, improving quality of aid should come before increasing quantity. For the case of Vietnam, there are two reasons why the evaluation of granting effectiveness becomes absolutely necessary. The first argument is that the results of evaluations could shed light on how to mobilize assistance resources to successfully promote development. Foreign aid inflow to Vietnam has been needed to facilitate the achievements of numerous developmental targets. However, it should be noticed that this financial resource is limited and that its provision may carry a relatively high cost to the recipient country. Meanwhile, the aid outcomes are diverse across sectors, projects, regions, and partnership groups. The systematic

and thorough evaluation of previous aid programs and projects would therefore become a useful tool to make sure that the scarce aid resource can be directed to where it can do well. It is not for arguing that aid should not be allocated anymore to ineffective projects and programs but that what make aid work less well should be addressed and solved before implementing additional aid.

The second reason refers to the necessity to tackle the supposed misuse of some external assistance in Vietnam. The movement of taking evaluation seriously is also considered especially suitable for the current trend toward non-project based and country system used aid modalities in Vietnam. In general, the beneficiary has less incentive to involve in the evaluation process since it normally plays passive role in aid partnership and might falsely consider foreign assistance as a free gift. Besides, aid agencies sometimes do not consider evaluation as their first priority as they spend one group of people's money on a different group of people (Easterly, 2003). Thus, strict requirements of carrying out evaluations of every aid programs and projects would compel both the recipient and its donors to allocate and implement external assistance more responsibly and efficiently.

Thirdly, the quality of institution and managerial capacity should be strengthened in addition to aid effort. As discussed in the research, institutional and managerial constraints in Vietnam has been severely restricted absorptive capacity and eventually diminished the effectiveness of aid. Moreover, foreign assistance has been found to exert negative governance impacts which, if are not delicately handled, could impede the aid effort. The endeavor to address those constraints needs to be perceived as both recipient government's and donors' responsibility. From donor perspective, the strong emphasis on financial support and technical assistance directing to improve the quality of institution and administration might contribute to relax the current capacity constraints and accumulate human capital of the recipient country over time.

Fourthly, the volatility and unpredictability of foreign aid inflow might possibly pose difficulties for Vietnamese government in managing fiscal balance. On this basis, the recipient country needs to be acutely conscious of the problems involved and then implement necessary measures to alleviate pressure on fiscal management. On the revenue side, the beneficiary needs to maintain its revenue effort and further strengthen the tax system. Because of the changing nature of foreign assistance, it should not be perceived as a permanent and stable source of revenue but as a supplementary one that can be used to support development. On the expenditure side, the government should formulate more sensible and realistic spending plans consistent with the projections of the aid that is likely to materialize. In other words, the fiscal plan would refer to

the cognizance of the extent to which variations in aid are expected to be permanent or transitory, the rate of aid disbursement, and the future trend of aid inflow. Besides, under the circumstance of high volatility and unpredictability, some other measures can be employed to smooth out the impacts of aid fluctuation such as foreign exchange reserves or fiscal cushions. The combination and measure selectivity might vary over time according to the diverse and changing circumstances under which aid has been implemented.

The final dimension which merits attention refers to the need to adopt a more self-sustainable approach in enhancing economic growth in the long-run. It is the fact that loans cover an overwhelming and increasing proportion of the current aid inflow compared to grants. Although those loans are mainly concessionary, they would certainly impose debt burden on the future generations and long-run development of the country. Additionally, Vietnam might graduate out of assistant associations in the near future. It hence requires the government to formulate and pursue a long-term strategy which would orient the economy toward concentrating on its own resources rather than relying on financing from external sources to attain sustainable economic growth. For the Vietnam experience, external assistance should be wisely implemented directing to where it can eventually help develop the country's own resources such as macroeconomic management, investment climate, business environment, and human capital. Previously successful stories of some Asian countries like Japan or South Korea about how to take full advantage of international assistance to become self-financed developed countries might be good examples to Vietnam.

7.3 Limitations and further research

In order to achieve progress in further research, it is important to point out limitations of the present research. One limitation of this study arises from the fact that the sample size for time series ARDL analysis is fairly small. It might be argued that the model passes all diagnostic and stability tests and that the ARDL model has been shown to be applicable for small sample size. Nevertheless, it has been generally admitted that limited time series data would hinder the corporation of more robust variables and hence possibly lead to biased empirical results. As discussed in the research, the unavailability of data makes it impossible to conduct the model for longer time series.

Another limitation is that the growth regression in the ARDL model does not contain any variable measuring the contribution of human capital to economic growth. It is attributed to the fact that the available data which captures both quality and quantity of human capital do not fully

cover the whole studied period. Besides, the data measuring the quantity of human capital such as population or labor force are likely to be weak proxies. Given these methodological difficulties, the question whether aid works or not has been approached from different perspectives and methods in the present research. Notwithstanding, more research attention should be given to develop alternatives addressing these limitations.

One issue that has not been covered in the present study and deserves further scrutiny is aid disaggregation. It is important to note that not all aid provided is intended to increase growth. In fact, each type of aid has its own using purpose and target and therefore may influence on economic outcomes in a different manner. Additionally, different components of aid are likely to achieve different levels of effectiveness. From this perspective, accounting for the heterogeneity of foreign aid appears to derive more robust conclusion on the effect of aid on spurring growth. Unpacking the aggregate impact of aid also helps to identify which types of foreign assistance are key growth drivers. On the basis of better understanding the contribution of each type of aid, the recipient government and its donors can accordingly reach to strategy for more efficiently allocating the financing resources and hence enhancing the overall effectiveness. Therefore, it would be interesting to disaggregate the foreign aid inflow into smaller categories – e.g. project aid, programme aid, technical assistance, and food aid - and assess their impacts on growth.

Finally, poverty alleviation is the other important objective of aid donors and recipient government. Whilst the analysis has found convincing evidence to support the significant contribution of foreign aid to economic growth in Vietnam, this has not necessarily ensured the causal relationship between aid and poverty reduction. On the one hand, some may argue that as the marked increase in aid inflow to Vietnam since 1990s has been simultaneous with the impressive progress in poverty alleviation, aid seems to be a cure for poverty and inequality problem within the country. On the other hand, there might be possibility that external assistance has not been oriented toward pro-poor or the magnitude of aid impact has not been sufficiently strong to achieve progress in poverty reduction. Hence, a topic of further research in the area of aid – growth relationship is the impact of aid on pro-poor growth.

To close, it seems to be a challenging task to detect the contribution of foreign aid to economic growth because the investigation requires considering both numerous perspectives involving economic outcomes and the changing nature of aid. Although the present paper still faces some limitations, it is hope that this research has provided a comprehensive analysis of the aid-growth relationship for the case study of Vietnam. As a result, it guarantees the applicability of the research's findings in reality and paves the way for further in-depth research.

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APPENDIX 1: Committed, signed, and disbursed ODA for the period (1993-2012)*Unit: Million USD***Table A 1 Committed, signed, and disbursed ODA flow into Vietnam (1993-2012)**

Year	Committed	Signed	Disbursed
1993	1,860.80	816.68	413
1994	1,958.70	2,597.86	725
1995	2,311.50	1,443.53	737
1996	2,430.90	1,597.42	900
1997	2,377.10	1,686.01	1,000
1998	2,192.00	2,444.30	1,242
1999	2,146.00	1,507.15	1,350
2000	2,400.50	1,773.12	1,650
2001	2,399.10	2,433.17	1,500
2002	2,462.00	1,813.56	1,528
2003	2,839.40	1,785.89	1,422
2004	3,440.70	2,598.14	1,650
2005	3,748.00	2,610.29	1,787
2006	4,445.60	2,945.69	1,785
2007	5,426.60	3,911.73	2,176
2008	5,914.67	4,359.55	2,253
2009	8,063.87	6,217.04	4,105
2010	7,905.51	3,207.38	3,541
2011	7,386.77	6,814.46	3,650
2012	6,486.00	5,869.36	4,183
Total	78,195.72	58,432.33	37,597.00

Source: Ministry of Planning and Investment

APPENDIX 2: Investment Transmission Mechanism

The investment regression is given as:

$$INV_{it} = \beta_0 + \beta_1 ODA_{it} + \beta_2 credit_{it} + \beta_3 INV_{i,t-1} + \beta_4 GDPG_{it} + \varepsilon_{it} \quad (A1)$$

The table A2 represents the set of estimates of the investment regression. The result reveals that foreign aid has a significant positive effect on investment and that investment is one of the main transmission through which aid affects growth rate. Therefore, the problem of “double-counting” should be addressed by conducting the variable INVRES which accounts for the part of aid-excluded investment.

Table A 2 Result for investment regression

Dependent Variable: INV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-35.77047	19.22784	-1.860348	0.0856*
ODA	2.703912	1.368896	1.975250	0.0699*
CREDIT	-0.020872	0.030719	-0.679466	0.5088
INV(-1)	1.472714	0.402995	3.654425	0.0029***
GDPG	1.685646	0.606713	2.778323	0.0157**
R-squared	0.831546	Mean dependent var		31.39356
Adjusted R-squared	0.779714	S.D. dependent var		4.071817
S.E. of regression	1.911092	Akaike info criterion		4.363360
Sum squared resid	47.47954	Schwarz criterion		4.610685
Log likelihood	-34.27024	Hannan-Quinn criter.		4.397463
F-statistic	16.04312	Durbin-Watson stat		2.108584
Prob(F-statistic)	0.000060			

Source: Author’s calculation

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

APPENDIX 3: Construction of policy index

The index of macroeconomic policy index utilized in present paper is calculated by Principal Component Analysis (PCA) using R software package. PCA is a multivariable statistical technique of dimensionality reduction, which enables a set of original correlated variables to be transformed into a new set of uncorrelated variables named components. This property allows us to apply PCA into a number of variables measuring different aspects of the same concept for accurate representation of that concept. As mentioned, the variables that form the policy index in present study include government final consumption expenditure as share of GDP as proxy of fiscal policy, inflation as proxy of monetary policy, and trade openness measure which is (import+export)/GDP as proxy of trade policy.

Appendix table A3 illustrates the CPA result for generating policy index. As can be seen from the table A3, the standard value shows that about 71 percent of the total variance is explained by the first component, meaning that it is reasonable to consider the first component as the appropriate measure of macroeconomic policy index. Estimation from the first component indicates that variable weights for inflation, trade openness, and government expenditure are -0.4637332, 0.6114885, and 0.6411188, respectively.

Thus, the policy index calculation is based the following equation:

$$\text{Policy index} = -0.4637332 * \text{Inflation} + 0.6114885 * \text{Open} + 0.6411188 * \text{Gexp} \quad (\text{A2})$$

Table A 3 Principal Component Analysis results for constructing policy index

Principal component	Standard deviation	Proportion of Variance	Cumulative Proportion
1	1.4590	0.7096	0.7096
2	0.8391	0.2347	0.9443
3	0.40880	0.05571	1.00000
Variables	Variable weights		
Inflation	-0.4637332		
Open	0.6114885		
Gexp	0.6411188		

Source: Author's calculation

Note: Open = trade openness, Gexp = government expenditure

APPENDIX 4: The Delta method to estimate standard error

According to Delta method, the estimator of the asymptotic covariance matrix would be³⁶

$$\text{Est. Asy. Var [f(b)]} = C[s^2(X'X)^{-1}]C' \quad (\text{A3})$$

where $C = \frac{\partial \phi_i}{\partial \delta'}$ is Jacobian matrix; C' is the transpose of C ; $[s^2(X'X)^{-1}]$ is the variance-covariance matrix of the coefficients.

The estimation of long-run elasticities is based on the OLS regression of the equation (13)

$$\begin{aligned} \Delta \text{GDPG}_t = & \beta_0 + \delta_1 \text{GDPG}_{t-1} + \delta_2 \text{ODA}_{t-1} + \delta_3 \text{INVRES}_{t-1} + \delta_4 \text{Policy}_{t-1} + \delta_5 \text{Crisis}_{t-1} + \tau_1 \Delta \text{GDPG}_{t-1} + \\ & \sigma_0 \Delta \text{ODA}_t + \sigma_1 \Delta \text{ODA}_{t-1} + \sigma_2 \Delta \text{ODA}_{t-2} + \zeta_0 \Delta \text{INVRES}_t + \zeta_2 \Delta \text{INVRES}_{t-2} + \omega_0 \Delta \text{Policy}_t + \omega_1 \Delta \text{Policy}_{t-1} + \\ & \varphi_0 \Delta \text{Crisis}_t + \varepsilon_t \end{aligned}$$

The long run coefficients for intercept, ODA, INVRES, policy, and crisis are $\phi_1 = -\left(\frac{\beta_0}{\delta_1}\right)$, $\phi_2 = -\left(\frac{\delta_2}{\delta_1}\right)$, $\phi_3 = -\left(\frac{\delta_3}{\delta_1}\right)$, $\phi_4 = -\left(\frac{\delta_4}{\delta_1}\right)$, and $\phi_5 = -\left(\frac{\delta_5}{\delta_1}\right)$, respectively. Least squares estimates of the model parameters with standard errors and t ratios are given in Table A4. The estimated long-run elasticities are $f_1 = -\frac{9.107817}{-0.647621}$, $f_2 = -\frac{0.678005}{-0.647621}$, $f_3 = -\frac{-0.426522}{-0.647621}$, $f_4 = -\frac{0.135109}{-0.647621}$, $f_5 = -\frac{-7.547602}{-0.647621}$. To compute the estimates of the standard errors, we need the partial derivatives of these functions with respect to the six parameters in the model:

$$G_1' = \frac{\partial \phi_1}{\partial \delta'} = \left[-\frac{1}{\delta_1}, \frac{\beta_0}{\delta_1^2}, 0, 0, 0, 0\right]$$

$$G_2' = \frac{\partial \phi_2}{\partial \delta'} = \left[0, \frac{\delta_2}{\delta_1^2}, -\frac{1}{\delta_1}, 0, 0, 0\right]$$

$$G_3' = \frac{\partial \phi_3}{\partial \delta'} = \left[0, \frac{\delta_3}{\delta_1^2}, 0, -\frac{1}{\delta_1}, 0, 0\right]$$

$$G_4' = \frac{\partial \phi_4}{\partial \delta'} = \left[0, \frac{\delta_4}{\delta_1^2}, 0, 0, -\frac{1}{\delta_1}, 0\right]$$

$$G_5' = \frac{\partial \phi_5}{\partial \delta'} = \left[0, \frac{\delta_5}{\delta_1^2}, 0, 0, 0, -\frac{1}{\delta_1}\right]$$

Using equation A3, we can now compute the estimates of the asymptotic variances for the five estimated long-run elasticities by computing $G_i' [s^2(X'X)^{-1}] G_i$ (where $i=1,2,\dots,5$). The results are -14.0634, 1.046916, -0.6586, 0.208624, and -11.6544, respectively. The five asymptotic standard errors are the square roots of above results.

³⁶ See (Greene, 2012, p. 68) for more detail

Table A 4 Regression results for error correction version of ARDL model

Dependent Variable: D(GDPG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.107817	2.803378	-3.248872	0.0831
GDPG(-1)	-0.647621	0.119609	-5.414496	0.0325
ODA(-1)	0.678005	0.269050	2.519998	0.1279
INVRES(-1)	-0.426522	0.043122	-9.891137	0.0101
POLICY(-1)	0.135109	0.013800	9.790704	0.0103
CRISIS(-1)	-7.547602	0.526785	-14.32768	0.0048
D(GDPG(-1))	-1.118264	0.126159	-8.863937	0.0125
D(ODA)	0.007257	0.180961	0.040104	0.9717
D(ODA(-1))	2.941965	0.208261	14.12633	0.0050
D(ODA(-2))	0.874925	0.082315	10.62903	0.0087
D(INVRES)	-0.312501	0.041244	-7.576879	0.0170
D(INVRES(-2))	0.751377	0.060353	12.44972	0.0064
D(POLICY)	0.155953	0.011979	13.01892	0.0058
D(POLICY(-1))	0.092359	0.006748	13.68657	0.0053
D(CRISIS)	-2.820947	0.171429	-16.45553	0.0037
R-squared	0.999299	Mean dependent var	-0.260970	
Adjusted R-squared	0.994396	S.D. dependent var	1.139137	
S.E. of regression	0.085279	Akaike info criterion	-2.461146	
Sum squared resid	0.014545	Schwarz criterion	-1.725958	
Log likelihood	35.91974	Hannan-Quinn criter.	-2.388067	
F-statistic	203.7790	Durbin-Watson stat	1.984842	
Prob(F-statistic)	0.004894			

Source: Author's calculation