

# Public Spending, Aid Effectiveness and Poverty Reduction in Lao PDR

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## Abstract

The allocation of the budget (both domestic resource and foreign aid) is a key instrument for governments to promote economic development and reduce absolute poverty. Its role has become even more prominent in recent years as donors concerned the implementation of national poverty reduction strategy is a conditional on the increase of spending labeled as “pro-poor”. In the case of Lao PDR, the government and donors have increased their spending significantly over the past decades. The critical challenge is how to strike the right balance between the spending by domestic/foreign fund and by sector that focuses primarily on reducing poverty.

Existing studies face a debate on the methodology intensively used time-series, cross-countries and CGE analysis. The paper attempts to revisit this issue by provincial panel data analysis using public spending and aid over 1995/96 to 2011/12. This study finds that both domestic budget and foreign aid contribute to the poverty reduction, though statistically insignificant. The major determinants are initial poverty level and the scale effect of each province’s population. This means the current success in poverty reduction is more pronounced relatively to less poor and large provinces. Moreover, expenditure on education is significantly helpful compared other sectors. Therefore, both the Lao government and donors should strengthen the cooperation to tailor the budget allocation in further fighting against the poverty in Lao PDR.

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**1. Introduction**

Back in 1940, the political scientist Valdimer O. Key presented the basic budgeting problem: ‘On what basis shall it be decided to allocate  $x$  dollars to activity A instead of activity B’ (Key, 1940). In the context of the modern challenge of promoting pro-poor growth, this problem is as real and contemporary as ever. What can be said about the growth and poverty reduction effects of a dollar spent in one sector compared with another? The allocation of the budget (both domestic resource and foreign aid) is a key instrument for governments to promote economic development and reduce absolute poverty. Its role has become even more prominent in recent years as donors concerned the implementation of national poverty reduction strategy is a conditional on the increase of spending labeled as “pro-poor”.

Public spending has the potential to affect growth and poverty reduction in two ways: it can raise the overall growth performance of the economy, and it can increase the chance of the poor to contribute to the growth process (mainly by strengthening human capabilities and reducing transaction costs). The critical challenge is how to strike the right balance between spending that focuses primarily on growth and spending that aims at reducing poverty. But it is difficult to quantify the impact of public spending as its effects are complex and may vary depending on the composition of growth, policies and country conditions. Moreover, the landscape of aid policy has changed in the last decade. The basic objective of development (usually interpreted as GDP growth) in the recipient country has been replaced by the objective of poverty reduction (World Bank, 2000), so that for most donors growth in the developing world is only valuable if it can be construed as pro-poor.

This paper explores how the composition of public spending and aid, and the manner in which the resources are spent may have affected the poverty reduction through the case study of Laos over 1995/96 to 2011/12. Following a review of the

principles guiding public spending and foreign aid determining the impact on the poor in Section 2, we overview the changes in fiscal management, and then formalizes the structures of public spending and foreign aid by center-province relations and by sectors in Section 3. A brief description of conceptual model and data is presented in Section 4. Moreover, we examine the evolution of the composition of expenditures, the extent to which resource or sector expenditure was benefited to poverty reduction outcomes in Section 5. Section 6 ends with some concluding remarks.

## **2. Literature Review**

Public spending and aid effectiveness studies reveal a micro-macro paradox. Consideration of specific projects or operations financed by public spending and aid most often leads to a positive appreciation of their results, whereas the macroeconomic studies of government expenditure and aid effects seem to lead to more nuanced results. The paradox may result from the methodological pitfalls of the macroeconomic studies, or of, less frequently stressed, microeconomic ones. For instance, it could result from negative externalities generated by public spending and aid specific projects, not captured by microeconomic studies. But, as we shall see, government expenditure and aid projects are also likely to generate positive externalities, not easily captured at the micro level. Here we focus on a review of macroeconomic and cross-sectional studies of the contribution of public spending and aid to poverty reduction.

### **2.1. Public Spending and Poverty Reduction**

Public spending can affect growth and poverty reduction in two ways: it can raise the overall growth performance of the economy, and it can increase the chance of the poor to contribute to the growth process (mainly by strengthening human capabilities and reducing transaction costs). Both types of expenditures may reduce poverty, but in the case of more growth-oriented expenditures, the poverty impact is usually more indirect. For both types of expenditures, the impact on poverty levels is likely to be experienced with a time lag.

The 1990s brought a new paradigm for fighting poverty by the World Bank with emphasis on strengthening capabilities of the poor and an increased focus on the non-income dimensions of poverty. Public intervention was supposed to follow a twofold

strategy, promoting labor-intensive growth and investment in human capital via primary health care, primary education and targeted social spending to reduce poverty, thus, avoiding a trade off between growth and poverty reduction. The experience of the East Asian Miracle economies with their high investment in human capital (first, universal primary education, followed by the increasing availability of secondary education and skill building) resonated well with this view (World Bank, 1993). Later in the decade, public investment in infrastructure was emphasized as a means for poverty reduction by facilitating access to markets and reducing the high transactions costs of poor households (World Bank, 1994).

The Millennium Development Goals adopted in 2000 also encouraged social sector spending by broadening poverty objectives to include non-income dimensions. In their aspirations to meet MDG related goals, countries may focus too much on achieving individual targets rather than pursuing integrated cross-sectoral policies - taking into account the impact of interventions on other targets. This calls for a better understanding of the multi-sectoral nature of interventions and development goals (Leipziger et al., 2003); and more evidenced based analysis on what steps need to be taken to achieve these goals.

Concerns are also being raised that the observed shift to social sector expenditures was implemented in an ad hoc manner without a better understanding of how different expenditure options help to address country specific bottlenecks to growth; and without a rigorous economic analysis of their projected impact on poverty and growth. There are also concerns that necessary public investment in infrastructure has been constrained by fiscal stabilization programs to the detriment of economic growth. Finally, there is a growing recognition in many countries that the effectiveness of public expenditures directed to the poor was undermined by weak targeting, elite capture, and an overall poor quality of the public service delivery mechanisms (Wilhelm and Fiestas, 2005).

## 2.2. The Allocation of Public Spending and Aid, and its Impact

The broad principles for guiding public expenditure allocations are based on the need to address market failure (public goods, externalities) to promote growth, and improve distribution and reduce poverty through public interventions. However, the

notion of what constitutes a public good may change over time, and what is considered a market failure may vary with country conditions.

Many studies have attempted to analyze the impact of government spending (education, health, infrastructure, agriculture, or a combination thereof) on economic growth and poverty reduction. Their results vary significantly in terms of the detected effect and efficiency of different expenditure categories in various countries, as the impact of public spending is limited by various factors and constraints. However, a clear understanding of these factors is needed to determine if, and how to intervene.

Expenditure policy interventions can be complementary in two ways as they can either enhance or diminish the desired outcome. First, the benefits of higher expenditure on a particular sector may not be fully realized unless expenditure on other sectors is increased. For example, a better access to basic infrastructure services (water and sanitation) has an important role in improving infant mortality and child health outcomes. Similarly, the construction of rural roads is critical for access to education and education investment may enhance the marginal return of irrigation projects. Better targeting of services is essential for reaching the poor. Specific country conditions, such as urbanization, demographics, and regional poverty patterns can also play an important role in the efficiency of public expenditures. Moreover, countries with better governance tend to have faster growth in the poorest quintile than poorly governed countries (Wilhelm and Fiestas, 2005).

Finally, the impact of public expenditures on income growth is subject to lags as outcomes may be achieved in a direct or indirect way. While well-targeted transfer schemes usually have a direct and immediate impact on the poor by raising their incomes, targeted investment in education has a lagged effect via improved educational attainment, thus increasing the chances of the poor to participate in the growth process in the future. Targeted infrastructure investments can have both, a direct and immediate effect on income as well as an indirect lagged effect via human capital formation (i.e. clean water effect on health outcomes). Investments in agricultural research can lead to increased productivity which directly affects the income of poor farmers, or can have an indirect effect on the poor through cheaper food or higher wages as a result of increased demand for farm and non-farm employment in rural areas (Fan et al., 1999).

Table 1: The Effect of Government Expenditures on Poverty Reduction

Country	Authors	Period	Method	Agriculture	Education	Health	Infrastructure
China	Fan & Hazell, 2001	1970-1997	Regression Analysis	+	++		+
Cross-country	Gomanee et al. 2003	1980-1998	Regression Analysis	(+)	+	+	
Ghana	Dabla-Norris & Matovu, 2002	1999	Dynamic CGE		++		+
India	Fan et al. 1999	1970-1995	Regression Analysis	+	+	+	++
Sub-Saharan Africa	Lofgren & Robinson, 2004	1998-2015	Dynamic CGE	++	+	+	+
Tanzania	Jung & Thorbecke, 2003	1992	CGE		+		
Uganda	Fan et al. 2004	1992, 1995, 1999	Regression Analysis	++	+	+	+
Vietnam	Fan et al. 2004	1993-2000	Regression Analysis	++	+		+
Zambia	Jung & Thorbecke, 2003	1995	CGE		+		

Source: Wilhelm and Fiestas (2005)

The summarized findings shown in Table 1 have important implications for the combination and sequencing of public spending across sectors and at the sub-sectoral level.

### 2.3. Aid Effectiveness and Poverty Reduction

Following the adoption of the MDGs, particularly the first one that is to reduce poverty by half between 1995 and 2015, numerous studies have examined how external aid can contribute to their achievement. The formula “doubling aid to reduce the poverty by half” relied on the implicit assumption that aid was an effective instrument for poverty reduction. The formula and corresponding assumption have of course been debated. Two opposite views have clearly appeared, one, well represented by Jeffrey Sachs in his *End of Poverty*, underlining the need for a big push to get low income countries out of poverty traps, the other one, exemplified by the attacks of William

Easterly against aid, a big push and the idea itself of a poverty trap, but also including arguments about a limited absorptive capacity. The absorptive capacity of aid depends on aid modalities and can be enhanced by a reform of aid.

As summarized by Guillaumont (2009), there are mainly three macroeconomic channels of aid effectiveness for poverty reduction as of: 1) the growth-poverty channel; 2) the public expenditure channel; and 3) the stabilization channel.

The first, traditional channel is from aid to growth and from growth to poverty reduction. In the late 1990s was a watershed in the literature of aid effectiveness, from the circulation and publication of the paper by Burnside and Dollar (1997, 2000), and the debate which followed. The most innovative aspect of the Burnside-Dollar paper was to assess aid effectiveness by a way where it depends on specific features of the recipient countries (macroeconomic policy, an average of indicators of openness of fiscal balance and of monetary stability). Its most debatable aspect was to consider the country policy as the only such feature. The next step, Collier and Dollar (2001, 2002), aimed at designing an optimal aid allocation among countries in order to minimize the number of the poor in the world. These two papers used another concept and measurement of policy, the “Country Policy and Institutional Assessment” (CPIA) index, reflecting the World Bank staff opinions on the recipient countries used for the allocation of IDA funds. This “ABCD paradigm” (for Assessing, Burnside, Collier, Dollar), has been very influential in donors, bilateral as well as multilateral aid policies. However, the aid-growth relationship has been extensively debated. Several kinds of criticism of the ABCD paradigm have been pointed such as the measurement, the specification of the model and the robustness of the econometric, and other conditioning factors (see Guillaumont, 2009 for a review).

The second channel involves the impact of aid on the volume and composition of mainly social public expenditures, particularly on education and health, and the impact of these expenditures on corresponding poverty indicators. The impact of aid may involve its total amount or its social expenditures allocation, which raises a problem of fungibility. The various kinds of public expenditures likely to be influenced by aid have different effects on poverty reduction. Thus, we have to disentangle lessons from the literature on how aid can influence the structure of public spending in favor of the poor. Special attention will be paid to the kinds of conditionality attached to aid given in the

form of budget support.

Numerous works have examined to what extent aid increases total public revenue, considering possible crowding-out of domestic sources of revenue. A positive impact of aid on public revenue is found in most of the panel works recently done, as well as in several country studies using time series analyses. This result is explained by the fact that aid can improve the effectiveness of public administrations in order to compensate for the negative effect due to additional funding (for a survey of the literature, see Brun *et al.* 2008).

The third channel, to some extent neglected in the literature, has been linked to the macroeconomic stabilizing effect of aid, as suggested in several previous works. The effect of aid on economic growth, and the contribution of growth to poverty reduction are linked to their stabilizing impacts. By making growth less volatile, aid both accelerates growth and makes it more pro-poor. With more equivocal findings, this double stabilizing effect on poverty may be supplemented by a third one, as public expenditures are influenced by macro economic instability. Paying a special attention to macro-vulnerability issues is needed for an analysis of aid effectiveness focused on poverty, particularly in the present world economic context (see Chauvet and Guillaumont, 2009 for a review).

Above existing studies have their advantages and limitations. An appropriate specification of the models used, including conditional and non-linear effects, may address this issue to some extent. However, the quality of statistics, as well as the relevance of the aid concept, is often criticized. Country regressions used to test the effect of aid on any variable have been highly criticized for their inability to take the heterogeneity of the country situations into account (Bourguignon and Leipziger, 2007). For an improvement against the issue, this study applies the unified aid concept and statistics by provincial level of one country.

### **3. Background of the Study in the Lao Context**

#### **3.1. Fiscal Management and the Decentralization**

Raising the revenue effort and improving the efficiency in public spending have been longstanding objectives in Lao PDR. At around 13 percent of GDP, Lao PDR had a low revenue effort in 2003/04, severely constraining the government's ability to meet



the country's pressing development needs. The sharp decline in revenues in early 2000s partly reflected lower resource revenues (timber royalties), following the government's decision to impose a ban on the export of unprocessed logs in 2002. A rationalization of the finances of the state-owned commercial banks and state-owned enterprises had also reduced income taxes and dividends from the state sector. Weak technical capacity had also played a role. However, a decentralized revenue administration, in which provinces have responsibility for collecting major taxes, was widely seen as the most important contributory factor (IMF, 2006). Currently, the bulk of revenues are collected at the provincial level. All import duties, natural resource taxes, timber royalties and more than half of profit and income taxes, turnover and excises are collected by the provinces. Apart from SOE dividends and hydro-royalties, the only revenues collected by the center are from few hundreds largest taxpayers administered by the central large taxpayer's unit (LTU).

Reforming the current fiscal system is difficult because provinces have historically been very powerful in Lao PDR (see Box 1). Provincial governors have strong support from regional factions within the party hierarchy and are also individually powerful, often outranking cabinet ministers. Central control over fiscal affairs in the provinces has therefore tended to be weak. The power of the provinces also explains why efforts to centralize fiscal management may not succeed in the absence of broader reforms to center-province relations.

In sum, the lack of central control over revenue and treasury operations in the provinces has long been seen as a key impediment to raising national revenues and improving fiscal management in Lao PDR. However, there has been greater recognition in recent years that reform of center-province fiscal relations is central to making progress in these areas. This reflects the fact that powerful provinces are unlikely to cede control over revenue and treasury functions until a credible revenue-sharing mechanism is in place. Moving towards a centralized or deconcentrated fiscal system will be difficult. The focus, therefore, needs to be on establishing a robust decentralized fiscal system.

## Box 1: A chronology of decentralization in Lao PDR

	<b>Historically, local governments have enjoyed considerable autonomy in Lao PDR.</b> Traditionally, the core political entity was the meuang (or district). Smaller meuang were nested into regional meuang, which were led by princes from aristocratic families. Although all the regional meuang accepted the king of the Lao kingdom as the sovereign, the regional meuang were extremely powerful.
1975	<b>Since the formation of Lao People's Democratic Republic in 1975, all political power has been vested in the Lao People's Revolutionary Party.</b> The Party permeates and controls the government, bureaucracy and the military at both central <i>and</i> provincial levels. In each province, power is vested in the hands of governors, who are Party members and hold ministerial ranks. The central authority is composed of the Party Central Committee, the Government and the Supreme People's Council. Even when the party attempted to establish a centrally planned economy after independence, much of the country was only loosely connected to the center, and the governors used their discretion to adapt central instructions to the local context.
1986	<b>A "New Economic Mechanism" was introduced, which reflected an overt policy of decentralization and led to substantial devolution of power to the provinces.</b> The central government largely ceded control over the management of resources in the provinces. Provincial tax administrations no longer had direct communications with the central Tax Department in Vientiane. The provincial governments were permitted to conclude trade agreements with bordering foreign states. Even the State bank was decentralized, with branch managers appointed by local authorities, and the banks even set their own exchange rates in each province. By triggering a collapse in government revenues and a large increase in the budget deficit, these reforms led to a period of severe macroeconomic instability.
1991	<b>To address these problems, a new Constitution was introduced in 1991, which sought to reassert central control over fiscal management.</b> The new constitution, which laid the foundation for the first national budget, was based on the concept of a unitary "deconcentrated state". In the deconcentrated system, government policy was to be implemented by administrators appointed in the provinces. However, this attempt to recentralize did little to reduce the authority of the provincial governors, which if anything was strengthened by the abolition of provincial people's councils, which had been a forum for popular participation in local government.
1992	- First National Budget is approved since 1975, which includes both central and local government expenditures.
1994	- New budget law is approved, which establishes the principles of State Budget formulation.
2000	<b>Towards the turn of the century, there was a new move towards decentralization with the adoption of the Prime Ministerial Decree 01 on March 11, 2000.</b> The stated objective of the decree was to "establish provinces as the strategic unit, districts as the budget planning unit and villages as the implementing unit". The decree was meant to develop a "bottom-up" approach to budget planning, with the center retaining control over budget execution. In practice, many of the most powerful provinces interpreted the decree as a mandate to take on greater responsibility for revenue administration and budget management in their jurisdictions. - Decree 192/PM on the Implementation of the Budget Law - Instruction 475, defining revenue sources by levels of government. - Instruction 128, detailing planning responsibilities at each level of government.
2007	- New Budget Law. Orders the centralization of Treasury, Customs and Tax Administration functions.
2008	- National Budget Law Implementation Decree
2011	Ninth Party Congress Resolution on decentralization by reinforcing the PM Decree 01/2000, known as "the Three Builds" - which aims to transform the province into strategic units, the district as comprehensive units, and villages as development units.

Source: IMF (2006), Gomez et al. (2008) and LPRP (2011)

### 3.2. Aid Profile

During 1975 and 1985, Laos received foreign aid (both grant and loan) in total amount of 2.5 billion USD. In this period, the regime received aid dominantly from the socialist countries, which accounted 77.9% of the total. The remainders were from multilateral and international organizations 16.6%. Only 5.6% of aid was from western countries. Between 1986 and 1990, Laos had gradually opened the country to the world. Of 1.4 billion USD, the proportion of aid from the socialist countries dramatically declined to 44.5%, and the shares of aid from western countries, and multilateral and international organization increased significantly up to 32.5% and 22.9%, respectively (MoFA, 2006).

Over 1991-1995, after the collapse of former Soviet Unions, Laos was forced to reform the aid policy. It showed that the share of aid from western countries account for 67.4% and the rest was from multilateral and international organizations. Since 1996, the aid profile has no distinction in wording of neither socialist nor western countries. The government has categorized aid received by type of bilateral, multilateral, NGO and institutions. As shown in Table 2, over 1996-2010, Laos has increasingly absorbed foreign aid from various sources. Roughly one-half of the total aids are from bilateral cooperation. The second largest assistance is from international financial institutions such as ADB and IDA. As to be noted, though still a small share, the role of NGOs is increasing significantly (MoFA, 2006 and MPI, 2012).

Table 2: Aid Statistics 1996-2010 by type

	1996-2000		2001-2005		2006-2010	
	Value	Share	Value	Share	Value	Share
Bilateral Cooperation	709.2	47.3	1,019.2	50.8	1,277.1	52.8
Multilateral Cooperation	141.9	9.5	168.4	8.4	203.4	8.4
Cooperation with EU	33.8	2.3	46.7	2.3	66.2	2.7
International Financial Institutions	578.5	38.6	673.8	33.6	698.5	28.9
Mekong River Commission	10.1	0.7	15.4	0.8	55.9	2.3
NGOs	26.0	1.7	83.9	4.2	115.7	4.8
	1,499.6	100%	2,007.3	100%	2,416.7	100%

Source: MoFA (2006) and MPI (2012) (Unit: Million USD)

In November 2006, the government of Lao PDR and 25 partners (countries and international agencies) had signed the “Vientiane Declaration”, which is the Lao version for the Paris declaration on aid effectiveness. The action plan formed the aid coordination scheme under the initiative of the Lao government and UNDP in May 2007, which each sector-working group would target the priority sectors under the National Socio-Economic Development Plan. Since then, the government is monitoring the progress of aid management platform with the assistance of UNDP.

Table 3 shows the top bilateral aid profile to Laos over 2006-2011. Japan, South Korea, Australia and European nations are major donors. Despite the global financial crisis, most donors continue to support Laos at about the same level. In recent years, the neighboring countries such as Thailand, Vietnam and China has increased the amount of aid to Laos year by year. In terms of multilateral and international organizations, ADB and IDA are top two major donors largely providing aid to Laos as shown in Table 4.

Table 3: Top Bilateral Aid Profile to Laos (Unit: Million USD)

Year	1 <sup>st</sup> Rank		2 <sup>nd</sup> Rank		3 <sup>rd</sup> Rank		4 <sup>th</sup> Rank		5 <sup>th</sup> Rank		Total
	Nation	Value	Nation	Value	Nation	Value	Nation	Value	Nation	Value	
2006	Japan	64.1	Sweden	23.7	France	22.9	Germany	18.3	S. Korea	13.6	201.2
2007	Japan	81.5	France	35.5	Germany	23.8	Australia	20.3	Sweden	19.8	239.6
2008	Japan	66.3	Germany	28.8	Australia	28.1	France	25.4	Sweden	20.8	225.2
2009	Japan	92.4	Australia	29.6	Germany	27.4	S. Korea	25.1	France	19.1	260.0
2010	Japan	121.5	Australia	32.7	S. Korea	27.8	Germany	24.8	Switzerland	16.4	285.9
2011 <sup>a</sup>	S. Korea	65.3	Japan	64.4	Thailand	54.2	Malaysia	32.5	Vietnam	31.9	375.5

Source: OECD/DAC Online Statistics and <sup>a</sup> MPI (2012)

Table 4: Top Multilateral and International Organization Aid Profile to Laos (Unit: Million USD)

Year	1 <sup>st</sup> Rank		2 <sup>nd</sup> Rank		3 <sup>rd</sup> Rank		4 <sup>th</sup> Rank		5 <sup>th</sup> Rank		Total
	Agency	Value	Agency	Value	Agency	Value	Agency	Value	Agency	Value	
2006	ADB	57.9	IDA	35.1	EU	8.8	GFATM	7.2	IFAD	4.5	123.7
2007	ADB	57.1	IDA	31.7	GFATM	11.6	EU	8.9	Nordic D.F.	6.1	132.2
2008	IDA	39.3	ADB	39.2	IFAD	19.2	EU	18.7	GFATM	14.6	147.6
2009	ADB	44.2	IDA	30.5	EU	25.9	GFATM	13.2	UNDP	6.1	136.9
2010	IDA	36.7	ADB	24.2	EU	16.0	GFATM	7.1	UNDP	6.0	105.5
2011 <sup>a</sup>	ADB	102.6	IDA	67.4	NGOs	43.2	UNDP	21.9	Global Fund	19.6	329.3

Source: OECD/DAC Online Statistics and <sup>a</sup> MPI (2012)

Table 5: Progress in Poverty Reduction in Laos, 1992-2012

No.	Province	Initial	1992/93	1997/98	2002/03	2007/08	2012 <sup>a</sup>	1997-2012
1	Phongsaly	PSL	72	58	50.8	46.0	40.4	-17.6
2	Luang Namtha	LNT	41	51	22.8	30.5	25.2	-25.8
3	Oudomxay	ODX	46	66	45.1	33.7	44.2	-21.8
4	Bokeo	BK	42	39	21.1	32.6	19.2	-19.8
5	Luang Prabang	LPB	59	41	39.5	27.2	12.8	-28.2
6	Xayabury	XYB	22	18	39.8	15.7	3.6	-14.4
7	Huaphanh	HP	71	71	51.5	50.5	44.8	-26.2
8	Xiengkhuang	XK	63	43	39.8	42.0	8.8	-34.2
9	Vientiane C.	VTC	34	14	16.8	15.2	0.1	-13.9
10	Vientiane P.	VTP	31	28	20.9	28.0	5.2	-22.8
11	Borikhamxay	BRK	17	28	28.8	21.5	15.1	-12.9
12	Khammouane	KM	47	45	33.8	31.4	4.8	-40.2
13	Savannakhet	SVN	53	42	43.3	28.5	10.8	-31.2
14	Champasack	CPS	41	37	18.4	10.0	2.8	-34.3
15	Salavan	SRV	44	39	54.5	36.3	15.5	-23.5
16	Sekong	SK	67	50	41.9	51.8	29.8	-20.2
17	Attapeu	ATP	61	48	44.0	24.6	29.4	-18.6
	Lao PDR		46	39	34.0	27.6	13.0	-26.0

Source: Results from LECS series 1992/93 to 2007/08 and <sup>a</sup> MPI (2013)

### 3.3. Progress in Poverty Reduction

The poverty in Laos has been steadily reduced over the past decades. As shown in Table 5, the average poverty level has declined from 46% of total population in 1992/93 to 13% of total households in 2012. However, there exists a large different among provinces. Generally, provinces in the northern areas e.g. Phongsaly, Oudomxay and Huaphanh tend to have a higher poverty level than provinces in the central and southern areas. At the present, Vientiane capital succeeded in poverty eradication. Major cities such as Luang Prabang, Savannakhet and Champasack also achieved a significant progress in poverty reduction, whereas some provinces are still facing a big challenge in fighting against poor.

## 4. Conceptual Model and Data Source

Most studies have examined the impact of aid on poverty measured by the growth channel (e.g. rate of economic growth and per capita income). Some studies

have considered the effect of aid on the change in the level of another indicators of development or of welfare, such as the Human Development Index, infant mortality, and school enrolment ratio (see Guillaumont, 2009 for a review). Nevertheless, for instance, Calderon et al. (2006) and Mosley and Suleiman (2007) have applied the traditional indices of monetary income poverty such as the headcount index or the poverty gap been directly examined. This paper utilizes their attempt.

Moreover, Clemens et al. (2004) and Reddy and Minoiu (2006) have emphasized the need of disaggregating aid flows and considering their impact on various time horizons, since the concept of net ODA flows, set by OECD and used in most of the papers, obscures its heterogeneous composition. One can also wonder which type of expenditure benefit the most the poor? For instance, expenditures dedicated to agriculture are generally pro-poor, as found by Mosley and Suleiman (2007). However, Berthelemy (2006) argued that public education expenditures are not necessarily pro-poor as they are mainly for secondary and tertiary education and are biased against primary education in most African economies, leading to an unequal distribution of human capital. Similar findings for health expenditures are evidenced by Berthelemy and Seban (2009). In this paper, we test expenditures (both sourcing by domestic and foreign fund) by four sectors including agriculture, infrastructure, education and health.

While most studies utilize time-series or cross-countries data in their analysis of the effect of public spending on poverty reduction, in this study, we attempt to apply panel data analysis method using provincial (disaggregated) data collected from unpublished official statistics from Ministry of Finance and Ministry of Planning and Investment over fiscal year 1995/95 to 2011/12. The econometric regression models are described as below:

$$y_{ij} = \alpha_i p0_{ij} + \beta_i pop_{ij} + \gamma_i pub_{ij} + \delta_i aid_{ij} + \mu_{ij} \quad (1)$$

$$y_{ij} = \alpha_i p0_{ij} + \beta_i pop_{ij} + \gamma_{i1} dagri_{ij} + \gamma_{i2} dinf_{ij} + \gamma_{i3} dedu_{ij} + \gamma_{i4} dhl_{ij} + \delta_{i1} fagri_{ij} + \delta_{i2} finf_{ij} + \delta_{i3} fedu_{ij} + \delta_{i4} fhli_{ij} + \mu_{ij} \quad (2)$$

Variable	Definition/Description	Unit
<i>y</i>	Poverty incidence measured by headcount	Percent
<i>p0</i>	Initial poverty level in 1992/93	Percent
<i>pop</i>	Population size for control the scale effect in 2005	Persons
<i>pub</i>	Public spending sourcing by domestic fund	Million kips
<i>aid</i>	Aid sourcing by foreign fund	Million kips
<i>d-agri</i>	Expenditure on agriculture by domestic fund	Million kips
<i>d-inf</i>	Expenditure on infrastructure by domestic fund	Million kips
<i>d-edu</i>	Expenditure on education by domestic fund	Million kips
<i>d-hl</i>	Expenditure on health by domestic fund	Million kips
<i>f-agri</i>	Expenditure on agriculture by foreign fund	Million kips
<i>f-inf</i>	Expenditure on infrastructure by foreign fund	Million kips
<i>f-edu</i>	Expenditure on education by foreign fund	Million kips
<i>f-hl</i>	Expenditure on health by foreign fund	Million kips
<i>i</i>	Each province (all 17 provinces)	–
<i>j</i>	Each panel year [1997/98 (1995/96-1997/98); 2002/03 (1998/99-2002/03); 2007/08 (2003/04-2007/08); and 2012 (2007/08-2011/12)]	–
$\mu$	Residuals	–

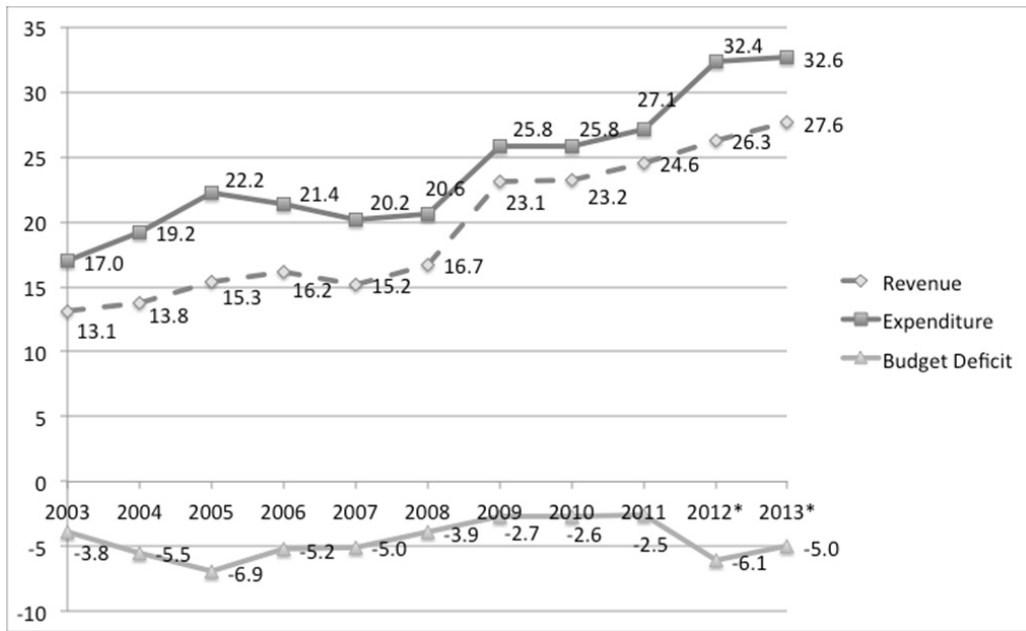
## 5. Findings and Discussion

### 5.1. Public Spending by Source, Region and Sector

As shown in Figure 1, we find that the total expenditure is rising steadily from 17.0% of GDP in 2003/04 to 27.1% of GDP in 2011/12. Gauging from its share to GDP, the government has been increasing the role on economic growth and poverty reduction. Using the unpublished official data from Ministry of Finance and Ministry of Planning and Investment, however, we find that the Lao government has a limited ability to mobilize the domestic fund and heavily rely on foreign fund (see Table 6a and Table 6b). Although expenditures by source, region and sector are largely fluctuated from time to time, we observe that most of the budget has been spent in central level rather than in provincial level. Within domestic fund, the majority of budget is allocated to provinces. In other word, since most foreign fund is concentrated on central level, the government shall allocate the domestic fund back to provinces.

With respect to expenditures by sector, similar trend can be observed (see Table 6a and Table 6b). Both domestic and foreign funds have allocated budget primarily to

Figure 1: the Lao Government Revenue and Expenditure, 2003/04 to 2013/14



Source: MoF (2013). (Unit: Percent of GDP, \*estimate)

infrastructure sector especially for road construction. Education sector has also received a substantial budget in particular to primary education. Agriculture and health sectors have received relatively less budget allocation.

*Agriculture* remains the most important sector in Lao PDR, accounting for one-third of GDP and providing employment for some 70 percent of the workforce. Because of its strong growth over the last decade, agriculture has been the most important driver in reducing rural poverty, but agriculture's share of total public expenditure decreased slightly in recent years. Moreover, centrally approved budgets often do not materialize at the provincial level. Capital expenditures account for substantial percentage of total sector expenditure and remain biased toward physical investments, without appropriate consideration for recurrent spending requirements. Furthermore, the government should achieve a better redistribution of public funds between richer and poorer provinces. Equally important is to promote agricultural research and provide more effective extension services and rural credit to strengthen farmers' capacity and competitiveness. Redressing geographical inequalities is important as well. Helping



Table 6a: Expenditures by Source, Region and Sector in 2001/02 and 2005/06

	2001/02			2005/06		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Budget (Billion Kips)	892	1,158	2,050	323	2,759	3,082
by administrative (%)	43.5	56.5	100	10.5	89.5	100
Central	26.4	59.3	45.0	44.1	63.6	61.5
Provinces	73.6	40.7	55.0	55.9	34.4	38.5
by Sector (%)						
Agriculture	28.2	9.6	17.7	9.1	13.7	13.2
Infrastructure	25.3	34.6	30.5	39.2	47.9	47.0
Education	8.0	14.1	11.4	10.2	22.2	21.0
Health	3.7	12.5	8.7	4.0	6.3	6.0

Source: Authors' calculation (Unpublished official statistics).

Table 6b: Expenditures by Source, Region and Sector in 2007/08 and 2011/12

	2007/08			2011/12		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Budget (Billion Kips)	568	2,509	3,076	1,962	5,641	7,603
by Administrative (%)	18.5	81.5	100	25.8	74.2	100
Central	46.4	73.9	68.8	67.6	92.5	86.1
Provinces	53.6	26.1	31.2	32.4	7.5	13.9
by Sector (%)						
Agriculture	9.8	9.3	9.4	7.5	10.8	9.9
Infrastructure	27.8	36.7	35.0	34.0	47.5	44.0
Education	9.0	18.9	17.0	8.9	33.7	27.3
Health	3.6	4.1	4.0	2.9	2.6	2.7

Source: Authors' calculation (Unpublished official statistics).

subsistence-based communities become more productive and market-oriented is also a key task in the medium term.

**Road** travel is the dominant mode of transportation in Lao PDR. Nevertheless, it is vulnerable during the rainy season. The spending on road construction improved the network and connected an increasing number of rural inhabitants to both markets and social services, resulting in significant socioeconomic benefits. Looking forward, the government will face competing demands for road maintenance, providing all-weather road access to district centers and villages, and upgrading primary roads to handle growing traffic. However, the available financial and human resources will be far from adequate to meet all of these needs. The government should make more effort

to increase the efficiency and cost-effectiveness of road spending. This can be achieved by strengthening local institutional capacity and by promoting market competition and private sector participation in delivering road works.

*Education* development in 2000s has recovered strongly after the collapse in public expenditure in the late 1990s. A high proportion of education spending consisted of capital spending, mainly externally financed. Salary increases for teachers were a high priority, under teachers' conditions in the past, many graduates did continue to take jobs outside teaching and caused a continuing shortage of teachers, especially in poor and remote districts. In recent years, the Lao government has increased the proportion of national resources allocated to education. A sharp salary increases for teachers is achieved in 2012/13, but this put a significant challenge to tackle jointly the problem of recurrent and capital budgeting.

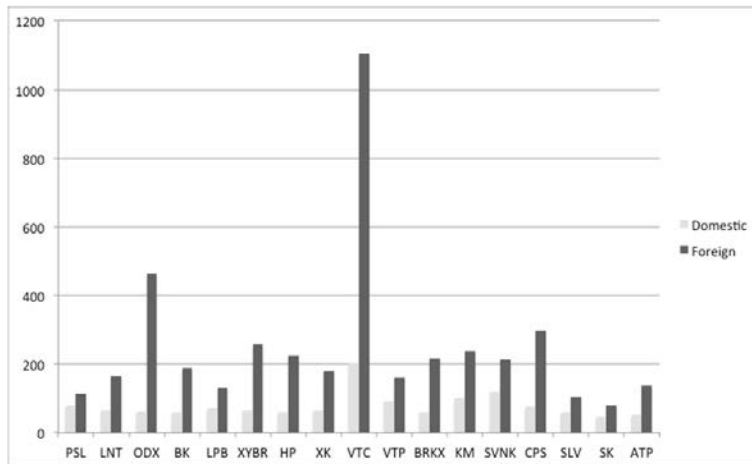
*Health* outcome indicators in Lao PDR have improved over the past decades, from its significantly low level. The government is facing challenges in delivering adequate public health services to the population. The coverage of key maternal and child health programs is low. Capital expenditures account for a substantial share of government health expenditures, reflecting significant donor support. However, there is a shortage of recurrent funds for the operation of health services. Domestically financed government health expenditure is declining slightly and is biased toward the central level. The government should strengthen the targeting of the poor to ensure that they have access to essential health services and are protected from catastrophic health expenditures. Low execution rates reflect a need for strengthening financial management systems to ensure transparent execution and effective monitoring of public spending. It also is important for the GOL to harmonize and align its own and donor programs with its health sector priorities.

## 5.2. Difference between Domestic and Foreign Funding by Province

Figure 2a and Figure 2b show the difference between domestic and foreign funding by province. Most of the expenditures at provincial level are funded by foreign aid, except for some provinces. Overall, the accumulated budget allocation to province has declined during 2008/09-2011/12 compared to 2003/04-2007/08, despite the increase in the total expenditure over that period.

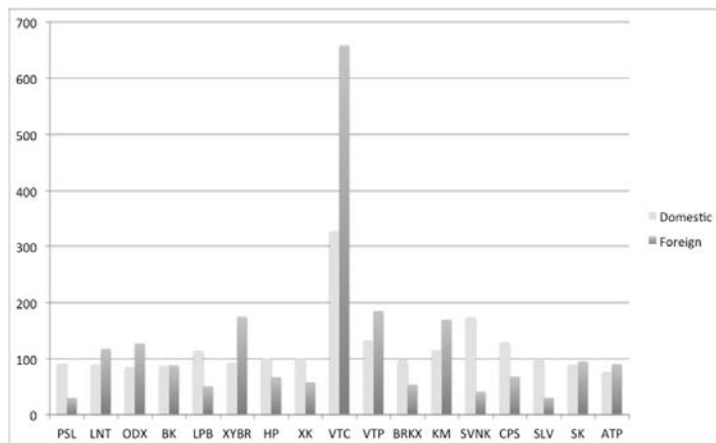
During 2003/04 to 2007/8, in all provinces, the accumulated foreign funding arrangement was dominated domestic source. In opposite, over 2008/09-2011/12, fewer foreign funding arrangements are allocated to provinces, even smaller than domestic funding in some provinces. This is due to the national calendar that Lao PDR has hosted

Figure 2a: Structure of Domestic and Foreign Funding Arrangements by Province, 2003/04-2007/08



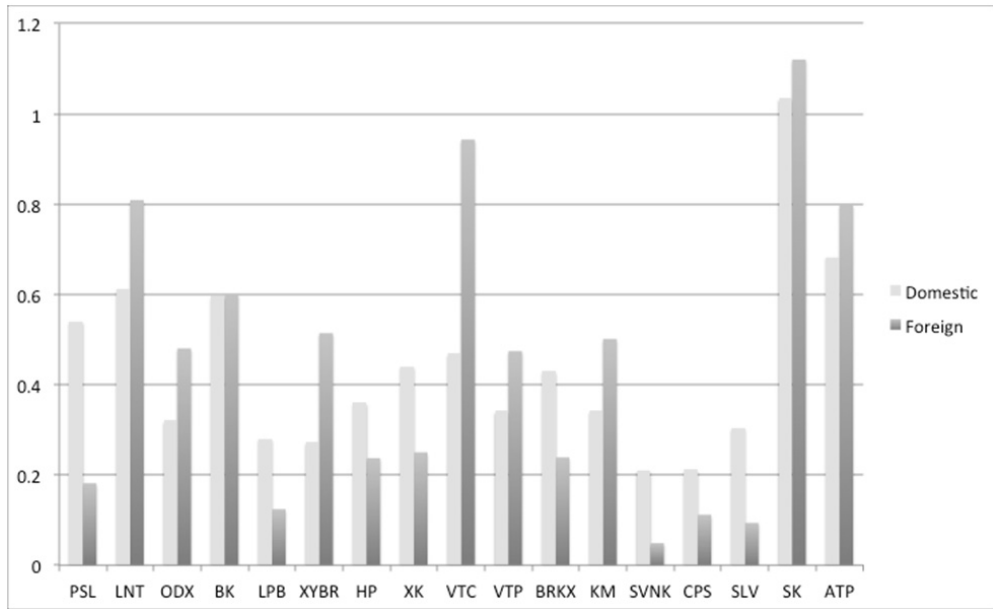
Source: Author's compiled (Unpublished official statistics). (Unit: Billion Kips)

Figure 2b: Structure of Domestic and Foreign Funding Arrangements by Province, 2008/09-2011/12



Source: Author's compiled (Unpublished official statistics). (Unit: Billion Kips)

Figure 3: Per Capita Public Spending and Aid by Province, 2008/09-2011/12



Source: Author's compiled (Unpublished official statistics). (Unit: Million Kips)

many international conferences and events such as the 25<sup>th</sup> SEA Games in 2009 and the 9<sup>th</sup> ASEM Summit in 2012. Thus, the budget allocation is concentrated on central government in line ministries. Consequently, there is a growing concern the decline in public spending and aid at provincial level will affect on the progress of poverty reduction in the nationwide.

Figure 3 shows a different view on per capita accumulated public spending and aid by province over 2008/09-2011/12. We find that there exists a significant gap in the distribution of budget among provinces. As presented in Table 5 above, per capita public spending and aid does not fit with the poverty level of each province. For instance, Sekong, Attapeu, Luang Namtha, Vientiane capital and Bekeo provinces in orderly have received a very high per capita public spending and aid, whereas the ranking of poverty incidences are Sekong, Huaphanh, Phongsaly, Xiengkhuang and Salavan in 2007/08. As a result, the progress in poverty reduction in Huaphanh and Phongsaly is lagged behind other provinces.

### 5.3. Panel Data Analysis on Poverty Reduction

In this session, econometric models are tested using panel data techniques in order to find the determinants of poverty reduction in Lao PDR over 1995/96 to 2011/12. The estimated coefficients could be interpreted directly since we have unbalanced panel, namely first period has 3 years data, second and third periods have 5 years data each, and fourth period has 4 years data. Nevertheless, three methods of OLS, fixed effect and random effect are applied to both basic and extended models.

The result of the regression of basic model is presented in Table 7 using fixed effect model. This study finds that both domestic budget and foreign aid contribute to the poverty reduction as both coefficients show a negative sign, though they are statistically insignificant. The major determinants are initial poverty level and the scale effect of each province's population. The estimated initial poverty level is positive with statistically significant at 99%. This means the current success in poverty reduction is more pronounced relatively to less poor provinces, not to those having a high poverty incidence. The result is consistent with observed statistics shown in Table 5 that provinces having a relatively low poverty incidence tend to succeed in accelerating poverty reduction. Furthermore, provinces having a larger population are likely to achieve a faster poverty reduction. Therefore, the result shows that current status of poverty reduction in Lao PDR is pro-rich rather than pro-poor. This shows the implication for both Lao government and donors to improve and/or reform the policy that better targeting to the poor provinces.

The result of the regression of extended model is presented in Table 8 using random effect model. The estimation shows that initial poverty level and population size remain the significant determinants. Regarding to domestic spending and foreign aid allocation by sector, only domestic spending on education and health sectors are statistically significant. Of which, expenditure on education sector shows a negative sign, meaning that domestic spending on this sector is contributing to poverty reduction over the period of study. In opposite, expenditure on health sector shows a positive sign, meaning that domestic spending on health does not contribute to poverty reduction. This is perhaps expenditure on health sector has indirect effect on poverty reduction and it is more pronounced for mid- and long-term rather than short-term. Moreover, the estimated coefficients of domestic expenditure to infrastructure, foreign spending

Table 7: Estimation Result of Basic Model

	Coefficient	Std. Err.	t-statistics	P-value
Initial Poverty (p0)	0.481491	0.077293	6.23	0.000
Population (pop)	-0.000017	7.51e-06	-2.31	0.025
Domestic fund (pub)	-5.66e-06	0.000032	-0.18	0.860
Foreign fund (aid)	-3.74e-06	0.000010	-0.37	0.715
Constant	15.8621	4.8522	3.27	0.002

Number of Observations = 68 (4×17)

R-squared: 0.373

Huasman Test: chi2 = 0.02 [Prob>chi2 = 0.9999], use Fixed Effect Model

Table 8: Estimation Result of Extended Model

	Coefficient	Std. Err.	t-statistics	P-value
Initial Poverty (p0)	0.446603	0.106224	4.20	0.000
Population (pop)	-0.000019	8.94e-06	-2.15	0.031
d-agri	0.000092	0.000067	1.38	0.167
d-infra	-0.000136	0.000136	-1.00	0.316
d-edu	-0.001030	0.000503	-2.05	0.040
d-hl	0.001885	0.000921	2.05	0.041
f-agri	-0.000026	0.000054	-0.48	0.628
f-infra	0.000014	0.000018	0.78	0.435
f-edu	0.000083	0.000149	0.56	0.578
f-hl	-1.85e-06	0.000067	-0.03	0.978
Constant	20.3147	6.6286	3.06	0.002

Number of Observations = 68 (4×17)

R-squared: 0.457

Huasman Test: chi2 = 19.03 [Prob>chi2 = 0.0147], use Random Effect Model

to agriculture and foreign aid on health show negative sign, meaning that they are on direction of reducing poverty though statistically insignificant, while other expenditures have no significant impact on reducing poverty.

This result raises a question to both Lao government and donors to reconsider their priorities in allocating budget to each sector. It is particularly true for foreign aid that needs further improvement for restructuring the allocation. All together, the finding shows that both Lao government and donors should further allocate the budget to education sector in order to enhancing capability of human resources that needed for all activities of development agenda.

## 6. Concluding Remarks

The allocation of the budget is a key instrument for governments to promote economic development and reduce absolute poverty. The critical challenge is how to strike the right balance between the expenditure by domestic/foreign fund and by sector that contributes to pro-poor.

In the case of Lao PDR, the government and donors have increased their spending significantly over the past decades. Although overall poverty incidence has declined significantly from 46% in 1992/93 to only 13% in 2012, this study finds that the total budget allocation remains concentrated on central government rather than provincial level. Most foreign aid focuses on the central, though domestic fund pay more attention on provinces but it constraints with limited budget. Moreover, there are also imbalanced in budgeting between rich and poor provinces. By using public spending and aid by provincial panel data over 1995/96 to 2011/12, this study finds that both domestic budget and foreign aid weakly contribute to the poverty reduction with statistically insignificant. The major determinants are initial poverty level and the scale effect of each province's population. This means the current achievement in poverty reduction is more pronounced to less poor and large provinces, or so-called pro-rich. Moreover, among sectors, we find that expenditure on education is significantly contributing to the poverty reduction in Laos. Thus, both the Lao government and donors should strengthen the cooperation to improve the efficiency in each spending and to tailor the budget allocation right to appropriate region and sector.

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