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ADB Economics Working Paper Series



The Lao Economy: Capitalizing on Natural Resource Exports

Jayant Menon and Peter Warr

No. 330 | January 2013



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ABSTRACT

Trade and investment reforms in the Lao People's Democratic Republic (Lao PDR) since the mid-1980s have boosted natural resource-based exports, underpinning recent economic growth. A high proportion of the proceeds from these exports accrue directly to the government. Over the 8 years preceding 2011, total government revenue increased from 11% to over 19% of gross domestic product, due almost entirely to revenues derived from mining and hydropower. The effect on the Lao people depends on how the government uses these revenues. This paper examines how the Lao PDR's export-led growth can be channeled into directions that deliver the greatest benefit to the Lao people.

Keywords: Lao PDR, natural resource revenues, Dutch disease, trade and investment reforms

JEL Classification: O13, O24, Q37

EXECUTIVE SUMMARY

Since 1987, the Lao government has adopted wide-ranging, market-oriented economic reforms. These reforms led to the successful development of exports based on the country's abundant natural resources. The result was much higher rates of economic growth and poverty reduction than were achieved prior to the reforms. This growth has been accompanied by a shift away from agriculture, which had accounted for about 60% of value added in 1990, 45% by 2000, and 30% by 2011, just less than that of industry or services, each of which accounted for just above a third. Nevertheless, around 80% of the population continues to derive their income mainly from agriculture. Agriculture remains largely subsistence-based, with some emerging plantation and contract farming.

The proceeds from the Lao People's Democratic Republic's (Lao PDR) natural resource-based exports accrue primarily to the government. Over the 80 years preceding 2011, total government revenue increased from 11% to over 19% of gross domestic product (GDP), due almost entirely to revenues derived from mining and hydropower. The effect on the Lao people depends on how the government uses these revenues. This paper examines how the Lao PDR's export-led growth can be channeled into directions that deliver the greatest benefit to the Lao people.

Almost all of the resource revenues are currently being absorbed into the domestic economy. The evidence is that the level of foreign exchange reserves, as a proportion of GDP has not increased. The paper asks whether this is appropriate. The optimal rate of absorption of the proceeds of the export boom depends on the rate at which the revenues can be absorbed productively and whether the boom is seen as being permanent or temporary. The discussion argues that a policy of gradual absorption of the resource revenues is desirable for the Lao PDR under its current circumstances. With its Sovereign Wealth Fund, Norway has shown the way to do this. Slowing the rate of absorption would reduce adjustment problems associated with the Dutch disease and would give the Lao public service more time to plan how to spend the revenues wisely. Rapid absorption of resource-based revenues is dangerous in a polity characterized by lack of coordination and accountability.

To the extent that natural resource revenues are absorbed domestically in the form of increased public spending, the international evidence strongly suggests that expanded spending should be focused on rural spending, and on social services such as education and health. In contrast, expenditures in these three categories, when added together as a share of GDP, have contracted rather than expanded. Of the three, only education spending has increased as a share of GDP and the level remains very low.

The paper argues that the 'Dutch disease' phenomenon is an empirical reality for the Lao PDR and not just an abstract theoretical possibility. The analysis implies that domestic absorption of the revenues earned from natural resource-based exports undermines the competitiveness of traditional traded goods industries and promotes the expansion of industries producing non-traded goods and services. There are both gainers and losers from this process.

It is tempting to suggest that the losers should be protected from loss. If the boom was temporary, this argument might be sustainable. But the resource boom is apparently not temporary. A more far-sighted policy response than protectionism is to assist those people who are affected negatively, enabling them to find productive opportunities in other sectors of the economy. This means re-training and adjustment assistance. Attempting to keep people in declining industries only perpetuates poverty and dissatisfaction.

I. INTRODUCTION

Over the past quarter-century, economic progress in the Lao PDR has been based on economic reform, with the introduction of more market-oriented economic policies from 1987 onwards, and successful development of exports based on natural resources. These exports include the extractive products of logging and mining, but also hydroelectric power, primarily for export to neighboring Thailand. During 2012, real GDP was growing at over 8%. But despite this economic progress, the Lao PDR was still one of Asia's poorest countries. Per capita income was around \$475, with high levels of poverty incidence, especially in rural areas, and rising inequality. Its accession to the World Trade Organization (WTO) in October 2012 could mark a turning point, placing it on the world radar and providing the impetus to strengthen its growing international commercial relations.

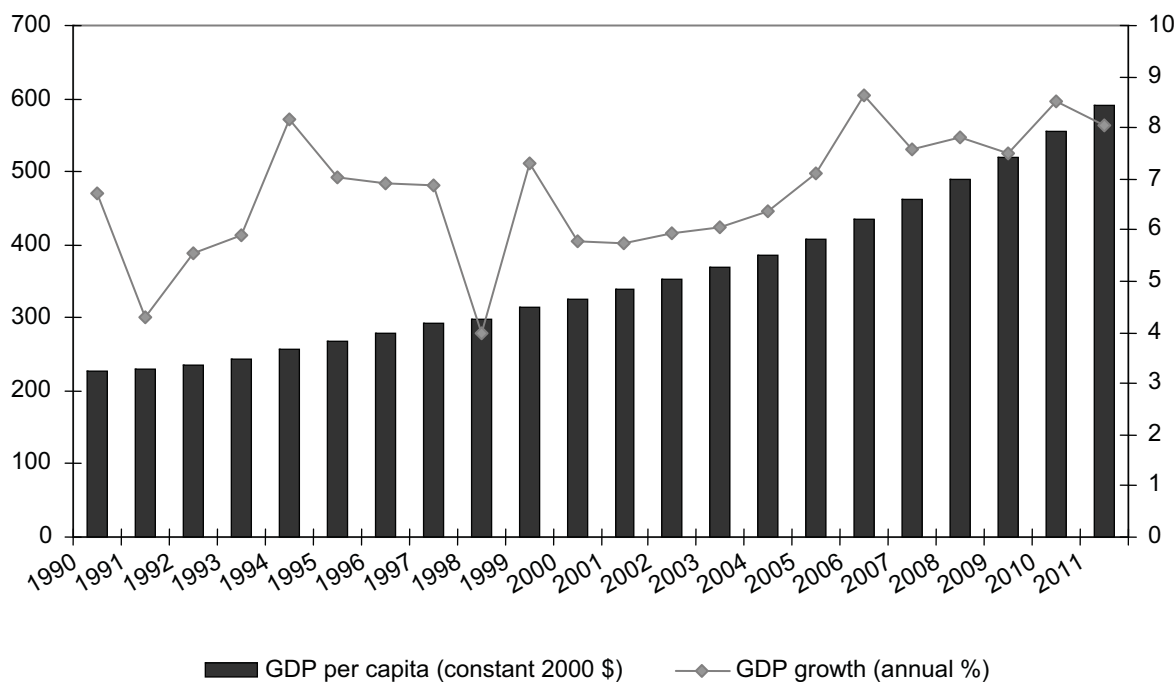
A feature of much of the natural resource-based exports that have underpinned recent growth is the high proportion of their proceeds is received directly by the government. The effect these revenues have on the Lao people therefore depends on the way the government chooses to spend them. The theme of this paper is the policy question of how the Lao PDR's export-based economic growth can best be channeled into directions that deliver the greatest benefit, particularly to the poorest people.

II. DEVELOPMENT OF THE LAO ECONOMY

A. Growth Performance and Structural Change

For much of the 1970s and early 1980s, the Lao PDR remained extremely poor and isolated—the outcome of years of conflict and inward-looking policies based around a central planning system. In 1986, however, the government began decentralizing control and introducing market-oriented reforms under the New Economic Mechanism (NEM). Early reforms under the NEM removed price controls, unified exchange rates, expanded foreign and inter-provincial trade, and encouraged private enterprise in agriculture and manufacturing. Structural reforms continued in the 1990s through a legislative program providing the foundation for market-based rules and private sector development. The centerpiece of this program was the Lao PDR Constitution of 1991, which protects private forms of ownership.

These early reforms produced impressive results. Between 1990 and 1997, just before the Asian financial crisis (AFC), GDP growth averaged 6.4% a year. Economic growth contracted slightly in 1998 as a result of the AFC, but by 1999 the economy had recovered. Continued reforms have since allowed the economy to grow at an average of 7% a year, despite the outbreak of the Global financial crisis (GFC) in 2008. Sustained growth has led to more than a doubling of real per capita income, from \$227 in 1990 to \$592 in 2011.

Figure 1: GDP Growth and Real GDP per Capita (constant 2000 \$), 1990–2011 (%)

Source: Authors' calculations using data from World Bank (2012a).

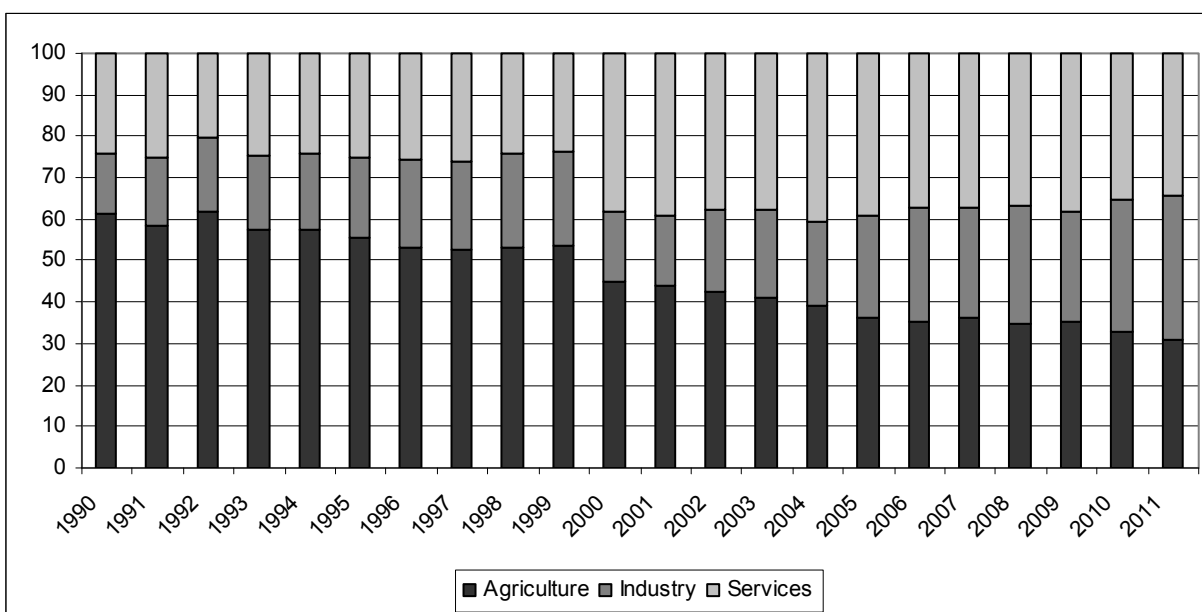
This growth has been accompanied by a gradual shift away from agriculture, which had traditionally fueled growth in the Lao PDR. Industry and services now account for a larger share of value added, and average annual growth in these two sectors has outstripped growth in agriculture since the 1990s (Figure 2). While agriculture accounted for about 60% of value added in 1990, and about 45% by 2000, its share had fallen to about 30% by 2011, just less than that of industry or services, each of which accounted for just above a third. Nevertheless, around 80% of the population continues to derive their income mainly from agriculture. Agriculture remains largely subsistence-based, with some emerging plantation and contract farming (UNDP 2007 and World Bank 2010).

Industry's growing importance in the economy was initially fueled by the growth in manufacturing, particularly in textiles and garments. By 2000, however, nonmanufacturing industries—particularly mining, construction, electricity, water, and gas—made up the bulk of industry's value added. While the share of manufacturing in GDP averaged about 14% in the 1990s, it fell to about 8% from 2000 onwards. Resource-based output increased sharply as a share of GDP from just 5.5% in 1999 to above 27% in 2011. Exports of minerals and electricity and investments in hydropower have driven much of this shift (ADB 2011).

The contribution to GDP growth of these natural resource-based sectors increased from 2.6 percentage points in 2009 to 4.7 percentage points in 2010 (Davading, Phimmahasay, and Boyreau 2012). The non-resource sectors, on the other hand, are expected to contribute an average of 5.5 percentage points to GDP growth during the same period. The Lao government aspires to graduate from least developed country status by 2020 (7th NSEDP, 2011–2015). Growth in the medium-term is projected to hit 8.3% in 2012 and average 7.5% between 2013

and 2015 (Davading, Phimmahasay, and Boyreau 2012). Recent efforts to improve the business environment, such as the amendment of the General Tax Law and the passage of key legislation to bring the country in line with WTO requirements, should contribute to future growth.

Figure 2: Sectoral Value Added, 1990–2011 (% of GDP)



Source: Authors' calculations using data from World Bank (2012a).

B. Trade and Investment

Trade and investment reforms have been an integral part of the government's efforts to move away from central planning and toward a market-based economy. The trade and investment regime has been revamped as part of the ongoing policy of transition. The government has seized opportunities for economic cooperation and has been actively engaged in negotiations on preferential trade agreements.

Early reforms implemented as part of the NEM included a reduction in tariffs, a simplification of the tariff system from a complex multiple tariff rate regime to a simpler six-band structure, and the passage of the Foreign Investment Code to engage foreign investor participation in restructuring state-owned enterprises (Menon, Athukorala, and Bhandari 2006).

The Investment Code was supplanted by the Law on Promotion and Management of Foreign Investment in July 1994, which was again substantially revised in October 2004. The Lao PDR allows 100% foreign ownership in most sectors. A new Investment Promotion Law was passed in July 2009, merging the Law on the Promotion of Domestic Investment and the Law on the Promotion of Foreign Investment. The new law allows foreign investors to invest in all business sectors and investment zones, except those deemed detrimental to national security, the environment, health, or national traditions.

The structure of tax incentives for foreign investors has been designed to reflect the country's mountainous geography and the uneven quality of infrastructure in different regions. Investment projects in areas where there is no economic infrastructure to facilitate investment (Zone 1), are eligible for a 7-year tax holiday and 10% concessionary tax rate (compared to the standard corporate income tax rate of 35%) thereafter. Investment projects in areas with a basic level of economic infrastructure (Zone 2) are eligible for a 5-year tax holiday, a concessionary tax rate of 5.5% for the following 3 years and a 15% rate thereafter. Investment projects in areas regarded as having good infrastructure are entitled to a 2-year tax holiday followed by half of the standard corporate tax rate for 2 years and the full corporate tax rate thereafter.

For large projects in the mining and energy sectors (generally located in remote areas), taxation arrangements are negotiated case-by-case. For instance, the incentive package offered to the Sepon Gold and Copper mining project¹ includes a 2-year tax holiday initially, then 50% of the corporate tax rate for 2 years which then reduces to 33% for the 2 years following. A 4.5% royalty on mineral production applies throughout the period of commercial operation. A 5-year tax holiday followed by 10% and 15% corporate profit tax during the next 5-year period is applicable to the Nam Thuen 2 hydroelectricity project.²

The FIMC aspires to be a 'one-stop shop' for foreign investors with the aim of approving investment applications within 60 working days. However, the Lao investment law lacks supporting implementing regulations and some of its elements are not compatible with various other laws, including the domestic investment law and some other sector-specific legislation. Thus, in practice the Foreign Investment Management Committee (FIMC) must consult other government bodies and agencies on applications for large investment projects. There is also likely to be some input from the Lao PDR government on investment proposals pertaining to sensitive or strategic sectors. As a result, the 60-day deadline for approving foreign direct investment (FDI) applications is not always observed. After receiving an investment license, the foreign investor must also obtain other licenses and permits to operate, for which FIMC may only provide assistance.

The adoption of these unilateral policy reforms has progressively liberalized the country's trade and investment regime. However, recognition that these unilateral efforts could only achieve so much prompted the government to engage in economic cooperation agreements. These agreements have increasingly been used as a tool for overcoming constraints in infrastructure development and trade facilitation, as well as providing leverage for pursuing further economic reforms.

The earliest of these agreements was the Greater Mekong Subregion (GMS) Economic Program initiated by the Asian Development Bank (ADB) in 1992. The GMS agenda has concentrated on the provision of physical infrastructure with public good characteristics (e.g., cross-border infrastructure). Apart from hardware in the form of physical infrastructure, the GMS program has also tried to address complementary software issues. A key initiative towards this end is the Cross-Border Transport Agreement (CBTA), a comprehensive multilateral instrument that supports a range of measures to facilitate trade and investment. Initial implementation of the CBTA has been achieved at various border-crossing points, and an additional agreement has been adopted on additional border crossings for CBTA implementation, between the

¹ This is the largest mining project in the Lao PDR and located in the south, operated by Oxiana, an Australian company.

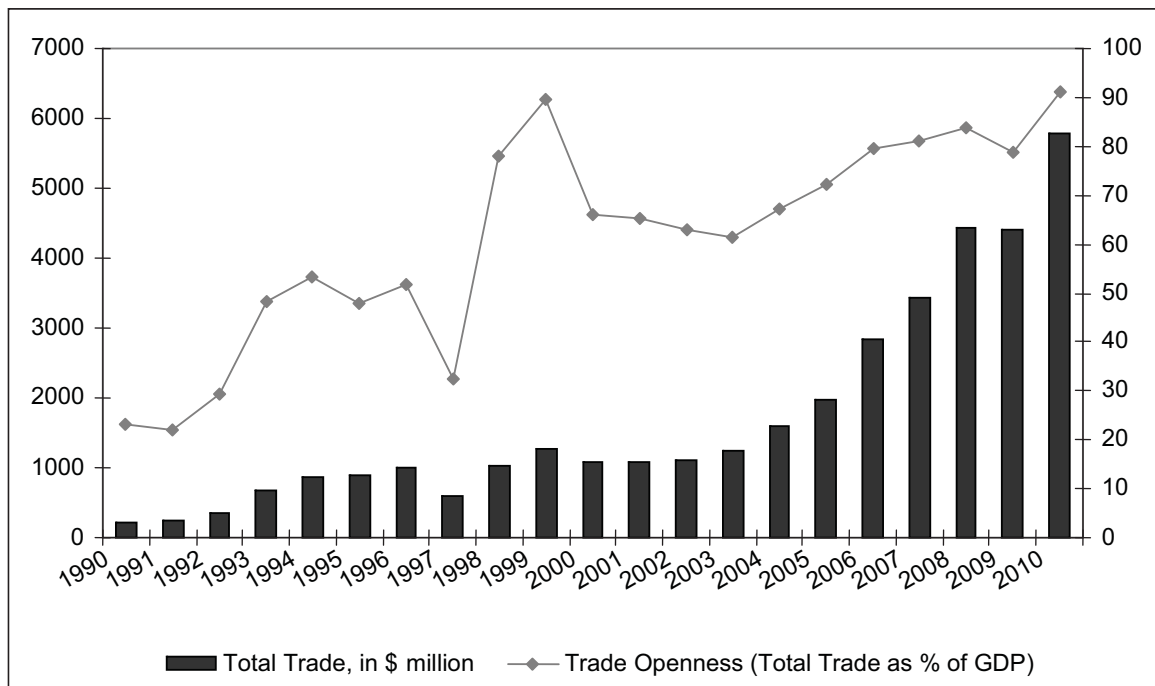
² This is a \$1.3 billion trans-basin diversion power plant in the central region of the country implemented by an international investment consortium led by Electricite du France. (see Menon, and Yusuf 2012).

People’s Republic of China (PRC) and the Lao PDR, such as that along the North–South Corridor, (Menon 2012).

In 1997, soon after the launch of the GMS program, the Lao PDR and Myanmar gained membership in the Association of Southeast Asian Nations (ASEAN), with Cambodia joining a year later. As a member of ASEAN, the Lao PDR participates in cooperation initiatives on trade facilitation, intellectual property, standards and conformity, and transportation and communication. It is also a party to the ASEAN Free Trade Agreement (AFTA). Membership in the AFTA commits the Lao PDR to an ambitious program of tariff reduction on trade with ASEAN members. The centerpiece of the AFTA proposal is the common effective preference tariff (CEPT), which aims to lay the foundation for creation of a single ASEAN market. Under the CEPT, duties on imports from AFTA members must be abolished by 2015. This deadline now coincides with the implementation of the ASEAN Economic Community, which also deals with liberalization of services, capital flows, and skilled labor. In addition to AFTA, the Lao PDR is also increasingly becoming party to bilateral and plurilateral free trade agreements (FTAs) (Menon 2011).

Unilateral policy reforms and greater economic cooperation have led to positive trade growth and greater trade openness in the Lao PDR, despite the short-lived contraction in trade in the wake of the AFC and the more recent GFC (Figure 4). In 2010, the Laos PDR’s total trade reached nearly \$5.8 billion, or 91% of GDP.

Figure 3: Trade Openness in the Lao PDR, 1990–2010

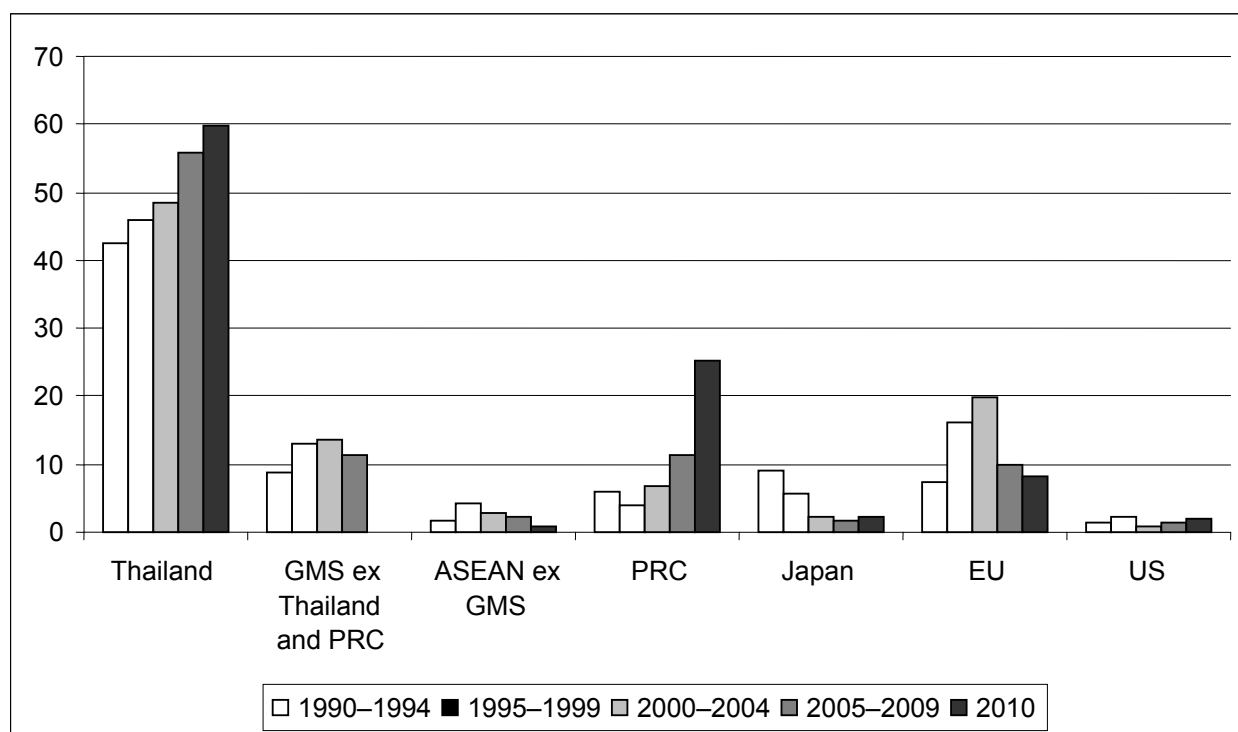


Source: Authors’ calculations using data from ADB (2012).

Thailand has traditionally been the Lao PDR's biggest trading partner, reflecting both trans-shipment arrangements and limited commercial penetration beyond the immediate neighborhood. Between 2005 and 2009, official trade with Thailand made up almost two-thirds of the Lao PDR's total official trade (Figure 4). Trade with Thailand and the subregion is almost certainly much higher than that reported in official statistics, since a significant portion of trade among the GMS economies is informal, involving small merchants or traders, and not recorded. The European Union (EU) was the Lao PDR's second biggest trading partner up until the mid-2000s, but has since been overtaken by the PRC. By 2010, over a quarter of Lao PDR's trade was with the PRC.

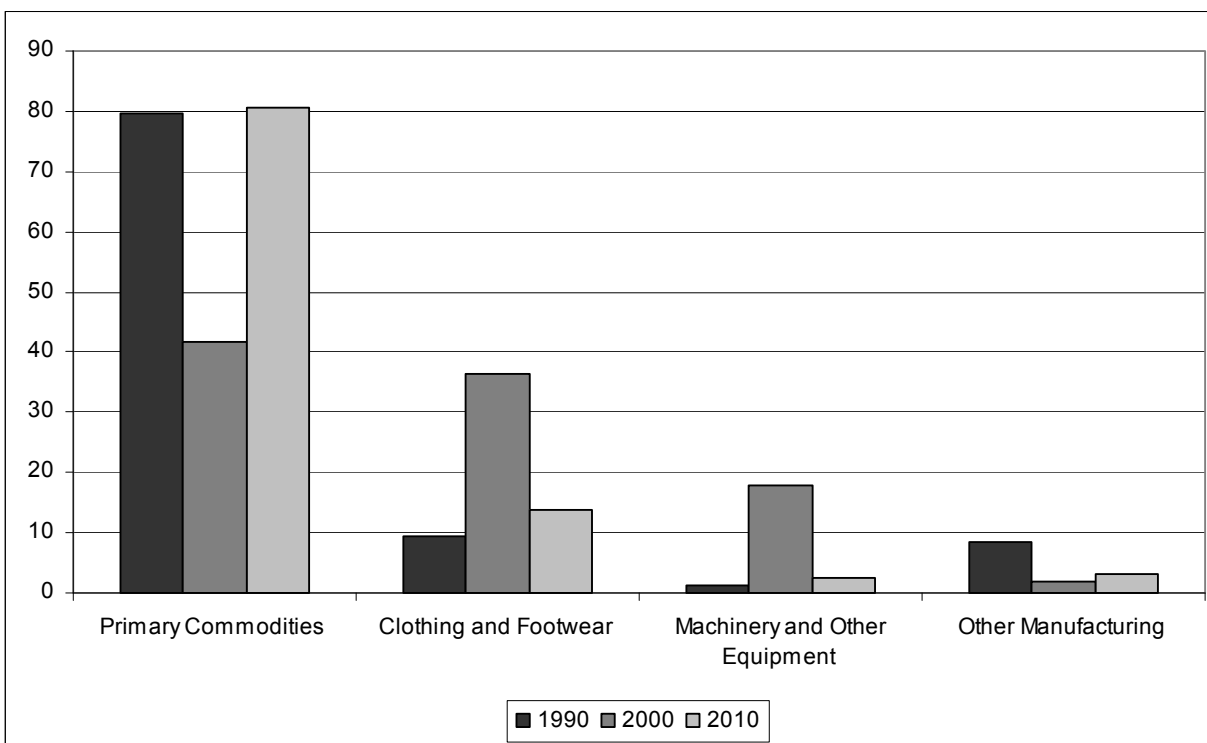
Figure 4: Direction of Trade, 1990–2010

%



Sources: Authors' calculations using data from IMF 2010 (data for 1990-1994); UNCTADStat Database (data for 1995-2010).

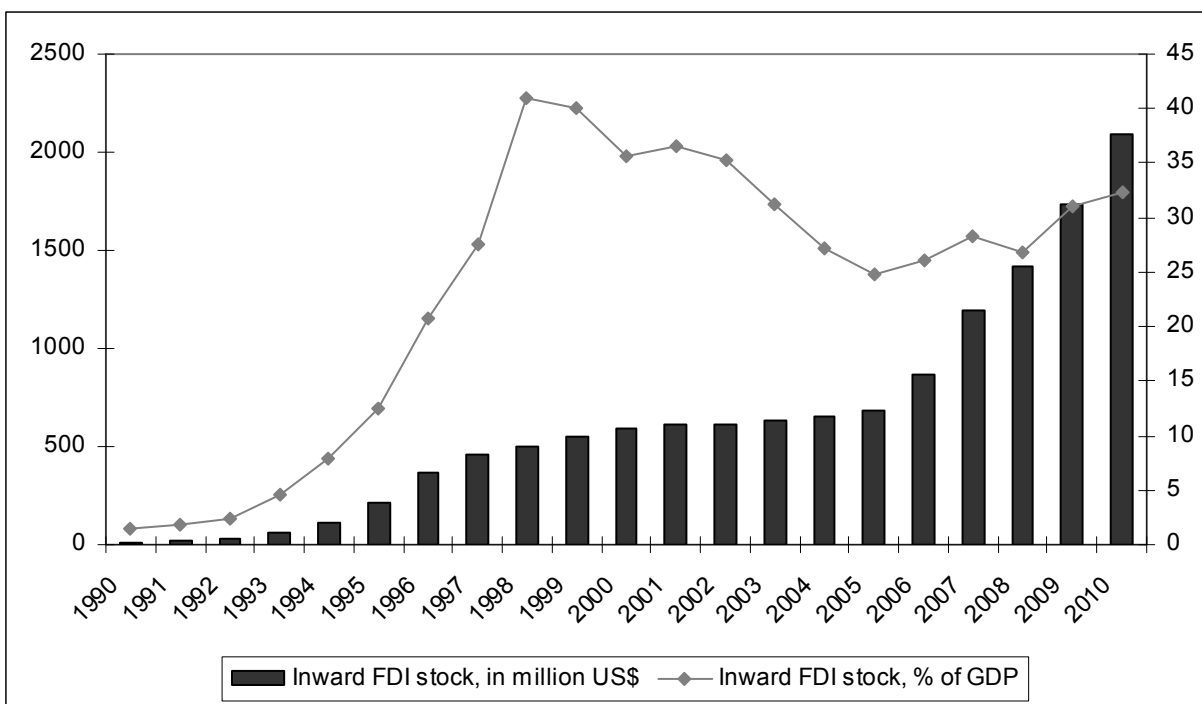
Changing patterns of demand have transformed the structure of exports from the subregion. In 2000, there was a shift away from primary commodities towards manufactured exports, mainly clothing and footwear. This shift was driven mainly by unilateral preferential schemes, such as the Generalized System of Preferences (GSP), provided by Europe in particular. But this trend has since reversed due to increased external demand for primary commodities, particularly ores and metals and fuels (Figure 5). More recently, most Lao PDR exports have consisted of resource-based items, especially mining and hydropower exports.

Figure 5: Composition of Exports, 1990, 2000, and 2010

Source: Authors' calculations using data from UNCTAD COMTRADE database.

Along with trade, FDI in the Lao PDR has also risen over the last 2 decades. In 2010, the country's total FDI stock surpassed \$2 billion, and its FDI stock-to-GDP ratio was 32% (Figure 6). The source country composition of FDI is characterized by a clear intra-Asian bias, with Asian investors accounting for nearly half of total FDI inflows between 2000–2008. The EU is the second biggest source of investments, accounting for 23% of total FDI inflows during the same period.

That trade and investment are growing together is no coincidence. Early signs of a trade–investment nexus are emerging whereby trade encourages investment and vice versa. This is certainly the case for the resource-based investments, such as mining and hydropower projects, which are almost purely export-oriented, but also in agriculture and forestry, which have contributed significantly to export growth.

Figure 6: FDI and FDI Openness, 1990–2010

Source: Authors' calculations using data from UNCTADStat Database.

1. Protection Policy

Regionalism through ASEAN members and the various ASEAN+1 FTAs should have provided the Lao PDR an opportunity to pursue multilateralism aggressively. But the Lao PDR has so far failed to capitalize on the opportunity grasped by the original ASEAN members: to simplify the tariff structure by multilateralizing preferences. Along with ASEAN's other newer members, the Lao PDR has chosen to operate a two-tier tariff system, with a different CEPT and most favored nation (MFN) rate for each tariff line, resulting in a margin of preference (MoP) averaging about 8% in 2007. Trade diversion is now a real possibility for goods with a substantial MoP (Menon 2011).

It is almost certain that the Lao PDR could not have anticipated the multitude of ASEAN+1 FTAs it would be required to join as a member of ASEAN. Five are already signed and in effect, and others are under negotiation or being proposed. Unless the multilateralization approach is employed, this is a disaster in the making. The multiple-rate system is inferior to the multilateralized single-rate system because it is more costly to administer, economically distortionary and therefore welfare-reducing. In this environment of confusing but proliferating ASEAN+1 FTAs, advocacy of the multilateralization approach has shifted from one which relies on the merits of avoiding trade diversion to one based on necessity and practicality, recognizing domestic administrative and bureaucratic-capacity constraints. The Lao PDR would be best-off consolidating all of these preferential and MFN rates around the prevailing lowest rate, which is likely the CEPT rate.

After more than 15 years since the Lao PDR applied to join the WTO, it finally signed the Protocol of Accession on 26 October 2012, paving the way for its membership in 2013. This accession will ensure Laos receives MFN treatment in all member countries, and may induce it to start multilateralizing preferences. Preparations for membership have already produced a spate of trade policy reforms (see Davading, Phimmahasay, and Boyreau 2012 and WTO 2012). To complete its accession, the Lao PDR need only ratify its membership package, and will then become a member after 30 days.

2. Fiscal Policy

Table 1 summarizes aggregate government revenues as a share of GDP from fiscal years 2001–2002 to 2011–2012. In only 8 years, total government revenue increased as a share of GDP from 12 to 21 percent. Of this, revenues associated with mining and hydropower (direct revenues, profit taxes, royalties and dividends) increased from 0.4% to 9.2% of GDP. That is, the increased proportion of total revenue to GDP was due almost entirely to an increase in revenues derived from mining and hydropower, which rose by 8.8% of GDP.

Table 1: Government Revenue and Grants as Percentage of GDP

Fiscal Year	2003– 2004	2004– 2005	2005– 2006	2006– 2007	2007– 2008	2008– 2009	2009– 2010	2010– 2011	2011– 2012
Revenue	11.0	11.8	12.4	14.0	15.9	17.1	18.6	18.4	19.4
Resource revenue	0.3	0.8	2.0	2.7	3.3	2.9	2.6	3.7	4.8
Mining revenue	0.1	0.5	1.7	2.4	2.6	2.1	1.8	2.9	3.8
Hydropower revenue	0.1	0.3	0.3	0.3	0.7	0.8	0.8	0.8	1.0
Profit taxes	0.9	1.1	1.3	2.4	3.0	2.8	2.1	2.6	3.7
Of which: Mining and Hydro	0.0	0.2	0.3	1.3	1.8	1.4	0.9	1.6	2.8
Of which: Non-mining and hydro	0.9	0.9	1.0	1.0	1.2	1.4	1.2	1.0	0.9
VAT	2.3	2.3	2.6	2.7	2.7	3.0	3.6	3.8	3.8
Excise duties	1.9	1.8	2.3	2.6	2.7	3.0	3.2	3.0	2.9
Import duties	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.4
Royalties	1.1	1.2	1.3	1.4	0.8	0.6	1.1	1.2	1.4
Of which: Mining	0.0	0.1	0.6	0.7	0.7	0.5	0.8	0.8	0.9
Of which: Hydropower	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3
Other taxes	0.9	1.1	0.9	1.0	1.1	1.3	1.8	1.6	1.6
Nontax revenue	1.9	2.0	1.8	1.9	1.8	1.7	2.0	2.0	1.9
Dividends: Mining and Hydro	0.0	0.1	0.8	0.5	0.5	0.4	0.4	0.4	0.4
Grants	1.1	1.7	2.0	1.7	1.6	2.3	2.4	1.9	1.7
Total Revenue and grants	12.1	13.6	14.5	15.8	17.5	19.4	21.0	20.3	21.1

Note: Data are provided on a fiscal year basis (October to September).

Source: Authors' calculations using data from the Government of the Lao PDR and IMF estimates.

Data on government expenditures are less readily available, especially those relating to defense and security. Table 2 provides data on expenditures as a share of GDP from fiscal years 2001–2002 to 2007–2008, except that for the last 3 years, the defense and security data provided in the table are estimated by the authors, as explained in the table's footnote. Of particular interest for this study are spending on agriculture, education, and health. As a share of GDP spending on agriculture contracted from 2.3% to 1.1%, spending on health also contracted, from 1% to 0.7%, while spending on education expanded from 2.2% to 2.5%. The sum of these three crucial welfare-relevant categories contracted from 5.5% to 4.3% of GDP.

Table 2: Government Expenditure as Percentage of GDP

Sector	Category	2001– 2002	2002– 2003	2003– 2004	2004– 2005	2005– 2006	2006– 2007	2007– 2008
National Defense	Total	1.83	2.45	2.43	2.34	2.07*	1.78*	1.58*
Security	Total	0.73	0.62	0.63	0.73	0.64*	0.55*	0.49*
Ministry of Foreign Affairs	Total	0.41	0.43	0.35	0.36	0.33	0.32	0.34
Justice	Total	0.06	0.05	0.06	0.05	0.05	0.04	0.05
Planning and Investment	Total	0.10	0.10	0.06	0.09	0.00	0.06	0.19
Finance	Total	3.96	3.30	3.71	3.89	0.29	0.41	1.13
Agriculture and Forestry	Total	2.31	2.57	1.16	1.11	1.44	0.95	1.09
Communication Transport Post and Construction	Total	3.24	4.97	3.43	3.96	4.68	4.06	2.86
Energy and Mines	Total	0.00	0.00	0.00	0.00	0.00	0.31	0.58
Industry and Handicraft	Total	0.38	0.47	0.22	0.09	0.09	0.00	0.00
Commerce	Total	0.07	0.07	0.04	0.25	0.09	0.12	0.09
Information and Culture	Total	0.50	0.40	0.25	0.38	0.11	0.46	0.57
Labor and Social Welfare	Total	0.68	0.83	0.54	0.52	0.49	0.55	0.63
Education	Total	2.18	2.20	1.86	2.22	3.10	3.05	2.47
Health	Total	1.02	1.29	0.73	1.11	0.68	0.60	0.68
Total of Organizations and Provincial Administration	Total	2.87	2.21	1.45	1.22	4.55	4.81	5.66
All sectors	Total current	7.25	7.42	7.47	7.89	8.95	9.31	9.97
	Total capital	13.09	14.56	9.46	10.43	9.66	8.78	8.44
	Total	20.34	21.98	16.93	18.33	18.61	18.08	18.41

* Data unavailable, so these estimates are generated by assuming that the share of total expenditure in GDP remains unchanged from its 2004–2005 level.

Source: Authors' calculations using data from government of Lao PDR and IMF estimates.

Total expenditure and total revenues can be compared for the years 2003–2004 to 2007–2008. The data show a marked reduction in the size of the fiscal deficit over this period, from 4.6% of GDP to 1%. The Lao PDR experienced a period of hyperinflation following the 1997–1999 Asian financial crisis, deriving from monetization of large fiscal deficits. The lesson was learned. One use that has been made of the rising level of government revenues is to cut back on the size of the budget deficit.

3. MDG Progress, Poverty Reduction, and Inequality

Progress towards achievement of the Millennium Development Goals (MDGs) has been mixed. Table 3 summarizes the findings of a recent report prepared by the United Nations Development Programme. Poverty reduction (Goal 1), reducing child mortality (Goal 4), and reversing the spread of diseases such as HIV/AIDS, malaria, and tuberculosis are each on track towards achieving the 2015 target, but other goals are not. The latter include achieving universal primary schooling (Goal 2), eliminating gender inequality in education (Goal 3), and most environmental objectives (Goal 7). The achievement in poverty reduction has been impressive, but much remains to be done. The greatest problems relate to rural areas, which contain around two-thirds of the Lao PDR's 6.3 million people. In 2011, almost a fourth of adults were illiterate, seven in 100 children died by the age of 5 and only 60% of the population had access to an improved water source. These problems were all more severe in rural than in urban areas (Table 3).

Table 3: MDG Progress

MDGs	Target	Seriously off track	Off track	On track	No target
Goal 1: Poverty and hunger	<ul style="list-style-type: none"> • Reduce extreme poverty by half • Reduce hunger by half • Achieve full employment 	✓		✓	✓
Goal 2: Universal primary education	<ul style="list-style-type: none"> • Universal primary schooling 		✓		
Goal 3: Gender equality and women's empowerment	<ul style="list-style-type: none"> • Eliminate gender disparity at all levels of education 		✓		
Goal 4: Child mortality	<ul style="list-style-type: none"> • Reduce child mortality under five years of age by two-thirds 			✓	
Goal 5: Maternal health	<ul style="list-style-type: none"> • Reduce maternal mortality by three quarters • Universal access to productive health 	✓	✓		
Goal 6: HIV/AIDS, malaria, and other diseases	<ul style="list-style-type: none"> • Halt and reverse spread of HIV/AIDS • Achieve universal access to HIV/AIDS treatment • Halt and reverse spread of malaria • Halt and reverse spread of TB 			✓ ✓ ✓	
Goal 7: Environmental sustainability	<ul style="list-style-type: none"> • Reverse loss of environmental resources • Reduce rate of biodiversity loss • Halve the number of people without safe drinking water in rural areas • Halve the number of people without safe drinking water in urban areas • Halve the number of people without sanitation in rural areas • Halve the number of people without sanitation in urban areas 	✓			✓

Source: Based on data contained in UNDP (2008).

Because of its central importance, we will discuss Goal 1, poverty reduction, in greater detail. Starting in the late 1980s, strong economic growth has produced a large decline in poverty incidence. Since 1992–1993, when survey-based data on poverty first became available, the estimated headcount measure of poverty incidence has declined from around 46% to 28% of the population.³ Nevertheless, the Gini coefficient of inequality reveals widening income disparities over the same period, with the coefficient increasing from about 30% to 35%. On average, the poor have gained in absolute terms from economic growth, but the non-poor have benefited proportionately more.

Poverty in the Lao PDR is strongly influenced by geography. Although poverty incidence has declined in both urban and rural areas, rural poverty incidence continues to be significantly higher and rural poverty is most severe in the more remote regions, especially in the upland areas adjacent to the eastern border with Viet Nam. Nevertheless, variations both within and

³ Data on poverty incidence in the Lao PDR are based entirely on a household income and expenditure survey conducted every five years, initially with the technical assistance of Statistics Sweden. The survey is known as the Lao Expenditure and Consumption Survey (LECS) and results are now available for 1992–1993, 1997–1998, 2002–2003, and 2007–2008.

across regions are large. The central region as a whole accounted for the largest absolute number of poor people, but the proportion of the population who were poor (poverty incidence) was much higher in the northernmost and southernmost provinces, which are more remote and have lower population densities.

Poverty reduction receives a high priority in the Lao government's policy objectives. The National Growth and Poverty Eradication Strategy (NGPES)⁴ has targeted poverty reduction interventions to 72 priority districts (47 first priority and 25 second priority districts), chosen using a set of basic needs indicators at the local level. All of these 72 priority districts are overwhelmingly rural. Thus, there is a clear preference, in terms of stated policy, to direct all kinds of expenditures targeted at poverty reduction, including those derived from Nam Theun 2 revenues, predominantly towards the rural sector. Within first priority districts, the estimated headcount measure of poverty incidence is double than in non-priority districts, but poverty severity is almost triple.⁵ Furthermore, school enrolment rates are about 20 percent lower than in other districts, partly a reflection of the fact that the first priority districts are less urbanized and have inferior road access.

Road access is a central issue for rural Lao PDR. The fourth and fifth rows of Table 4 make it clear that poverty incidence is highest in those parts of the country where road access is worst. Villages not reachable by roads that support year-round vehicle access have higher rates of poverty incidence, lower rates of school attendance for both male and female children, lower per capita expenditures on education, higher rates of sickness and lower likelihood of seeking treatment when they are ill. Transport costs are higher for these villages and this simultaneously reduces the prices received for products sold elsewhere and increases the prices paid for productive inputs and consumer goods. Higher transport costs mean higher rates of poverty incidence, lower rates of school attendance and lower health status.

⁴ Available at: <http://www.undplao.org/newsroom/publication/Ngpes/Lao%20PDR%20-%20NGPES%20-%20Main%20Document.pdf>

⁵ The headcount measure of poverty incidence measures only the proportion of the population with expenditures below the poverty line. Poverty severity also takes account of the degree to which expenditures fall below the poverty line.

Table 4: Poverty Incidence and Gini Index of Inequality in the Lao PDR (old)

	Poverty Incidence (headcount measure, %)				Gini Index (%)			
	1992– 1993	1997– 1998	2002– 2003	2007– 2008	1992– 2003	1997– 1998	2002– 2003	2007– 2008
Lao PDR	46.0	39.1	33.5	27.6	30.5	34.9	32.6	35.4
Area								
Urban	26.5	22.1	19.7	17.4	30.9	39.7	34.8	36.3
Rural	51.8	42.5	37.6	31.7	29.0	32.1	30.3	33.4
Rural with road	42.8	31.7	31.3	29.9	29.3	32.1	30.3	33.2
Rural w/o road	60.4	50.8	46.2	42.6	27.5	30.9	29.4	33.3
Region								
Vientiane M	33.6	13.5	16.7	15.2	29.7	36.9	36.0	38.0
North	51.6	47.3	37.9	32.5	26.9	34.5	30.7	35.2
Central	45.0	39.4	35.4	29.8	31.5	32.5	31.0	34.0
South	45.7	39.8	32.6	22.8	32.3	32.4	31.4	32.2
Border								
Inland	47.2	37.5	32.3	29.2	30.2	34.6	33.5	34.5
Thailand	33.4	29.4	22.5	16.1	28.9	35.2	30.9	35.4
Viet Nam	58.4	66.3	61.1	54.5	34.2	28.9	25.8	29.4
PRC–Myanmar	49.1	46.4	28.1	28.2	21.1	31.1	25.9	29.6
Cambodia	68.1	38.5	39.8	23.1	26.8	29.3	28.0	29.8
District slope								
Mostly flat	42.2	30.3	27.4	18.9	31.5	34.7	33.7	34.6
Somewhat steep	38.4	40.5	37.1	31.9	29.3	38.5	31.4	35.9
Mostly steep	56.2	50.9	40.4	38.8	28.1	31.4	30.1	33.5
Village altitude								
Lowland			28.2	20.4			33.3	35.0
Midland			36.5	29.1			31.1	35.2
Upland			43.9	42.6			29.4	32.4
Priority district								
First priority	56.1	63.0	49.4	43.5	29.9	29.7	27.9	31.9
Second priority	58.2	41.7	41.2	36.2	31.9	29.6	32.0	32.7
Other	40.5	30.5	26.3	19.9	30.1	34.9	32.7	35.1

Source: Authors' calculations using data from LECS surveys.

III. NATURAL RESOURCE REVENUES AND THE DUTCH DISEASE

A. Theory: Dutch Disease Economics

The economic effects of a 'booming sector,' also known as the Dutch disease, have been analyzed in depth.⁶ The key point is that absorption of the foreign exchange revenues derived from the booming sector's exports requires an expansion in the non-tradables sector and a contraction in the tradables sector (not including the booming sector itself). The contraction of

⁶ See Warr (2006) and references to earlier literature provided there.

these non-booming exporting and import-competing sectors, and its implication for the people deriving their incomes from them, is the essence of the Dutch disease. The economic mechanism driving the resource reallocation is a real appreciation—a rise in the ratio of the domestic prices of non-traded goods and services to the domestic prices of internationally tradable goods and services.

There are both gainers and losers from this process. The owners of specific factors used in the non-tradables sector will be indirect beneficiaries of the spending, by others, of their windfall gains. But the owners of specific factors used in the tradables sectors will suffer. The effects on the real returns to mobile factors of production, like labor, will depend on the factor intensities of the expanding and contracting sectors. The label ‘disease’ reflects the perspective of those who lose from the adjustment (those closely involved in the non-booming tradables-producing sectors), but it is important that there are also many gainers. It is therefore questionable whether this process should really be labeled a ‘disease’.

An important issue is whether the boom can be expected to be short-term or long-term. If short-term, the costly adjustment just outlined will have to be reversed when the boom ends. Interventions to slow the process, with a view to reducing adjustment costs from the round trip of contracting and then restoring the non-booming tradables goods sectors, could make sense. But if the boom is long-term the adjustment is necessary to reap the benefits available from the resources boom and should not be impeded by protecting the contracting non-booming tradables goods industries.

B. Relevance for the Lao PDR

Has absorption of the natural resource revenues and other sources of capital inflow resulted in a Dutch disease in the Lao PDR? This question is further explored. First, we construct an index of tradables/non-tradables relative prices. The only price data available on a consistent time series basis for the Lao PDR relate to consumer prices. These data are assembled by the government’s National Statistical Centre for the purpose of constructing the consumer price index (CPI) and were made available for the purposes of the present study for the years 1988–2008. The commodities defined in the data were divided into tradables and non-tradables categories and aggregated using their weights in constructing the CPI, themselves based on the country’s household income and expenditure survey. Monthly data were used but were aggregated into annual form for the purpose of this study. The resulting relative price series is shown in Figure 6.

Capital flows are treated as follows. Consider the balance of payments accounting identity

$$\Delta R = CAB + KAB , \tag{1}$$

where, ΔR denotes the change in the level of official reserves, CAB denotes the current account balance (positive if the current account is in surplus, negative if in deficit), and KAB denotes the balance on capital account. Alternatively, rearranging this expression,

$$KAB = \Delta R - CAB = \Delta R + CAD , \tag{2}$$

where, $CAD = -CAB$ denotes the level of the current account deficit (positive if the current account is in deficit).

Now, suppose there is an exogenous inflow of external resources. It could be foreign aid, foreign investment, or royalty payments for electricity exports. This increases the left hand side of equation (2). This inflow may have effects on productivity and output in the medium term, but in the short term the inflow of foreign capital will be reflected in the two right hand components of equation (2): there will be some combination of an increase in foreign exchange reserves of the central bank and a current account deficit. Official reserves will increase to the extent that the inflow is sterilized by the domestic monetary authority and thereby not absorbed into domestic spending; the current deficit will increase to the extent that this does not happen and the capital inflow is absorbed into the domestic economy. It is therefore possible to interpret the magnitude of the current account deficit as that part of the surplus on capital account that is absorbed domestically, rather than 'saved' in the form of an increase in official reserves.

In what follows, we interpret the magnitude of the capital account surplus and decisions on official reserves as exogenous. We wish to see the extent to which the absorption of capital inflows resulted in real exchange rate appreciations and thus, potentially, to Dutch disease effects on the domestic economy.

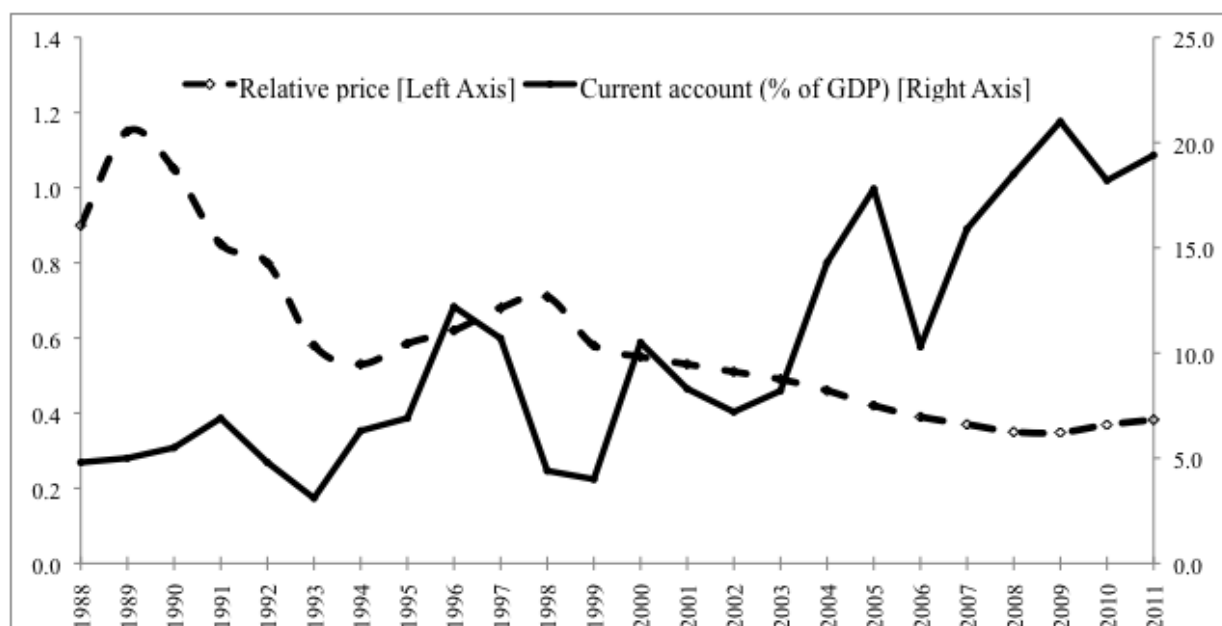
The level of the Lao PDR's foreign exchange reserves increased as a share of GDP from 3% in 1992 to 11% in 2003 and remained at roughly that level until 2011. It follows that since 2003 almost all of the resource revenues have been absorbed into the domestic economy. This must have been reflected in higher current account deficits than would otherwise have occurred.

Figure 7 shows the relationship between the tradables / non-tradables price ratio for the Lao PDR and the current account deficit. The Dutch disease hypothesis implies a negative relationship. Figure 7 seemingly provides some support for such an effect, but the relationship is far from perfect. To analyze the time series data more systematically, the regression equation

$$\ln(P_t^T / P_t^N) = a + b \ln(CAD / GDP)_t + u_t \quad (3)$$

was estimated for the years 1988–2011, using the data shown in Figure 6. The estimated coefficients a and b were (with with t -statistics in parentheses) 0.868 (12.41) and -0.0272 (-4.49), respectively, both significant at the 95% level of confidence. The R^2 and adjusted R^2 were 0.478 and 0.456, respectively. The F-value (1,22) was 20.17, which is significant at the 99% level of confidence. The regression did not suffer from significant autocorrelation. The other diagnostic indicators support the existence of the hypothesized relationship.

Figure 7: Lao PDR: Tradables / Non-tradables Price Ratio and Current Account Balance/GDP Ratio



Source: Relative prices: Authors' calculations using consumer price data from National Statistical Centre, Vientiane. Current account: IMF (2010).

Despite the limited number of observations (24), these results support the existence of a Dutch disease effect for the Lao PDR. Nevertheless, many events other than changes in capital inflows were occurring during the period covered by these data, with possible relevance for real exchange rates. These included a trade policy reform beginning in 1987 and extending to the mid-1990s, followed by a hyperinflation and heavy nominal exchange rate depreciation in the late 1990s.

IV. POLICY OPPORTUNITIES AND CHALLENGES FOR THE LAO PDR

In this section we identify three policy questions for the Lao PDR, each deriving from our theme of growth deriving from natural resource-based exports. These questions are:

- Macro policy. To what extent should the revenues be absorbed now, or saved for absorption later?
- Expenditure policy. How should the government spend that part of the foreign exchange inflow that is absorbed, recalling that the inflow accrues primarily to the government?
- Protection policy. Should the government prop up traded goods industries made unprofitable by the real appreciation that accompanies the Dutch disease, or should it let those industries contract?

A. Macro Policy

As noted, almost all of the resource revenues are being absorbed into the domestic economy. Is this appropriate? The optimal rate of absorption of the proceeds of the export boom depends on the rate at which the revenues can be absorbed productively and whether the boom is seen as being permanent or temporary. In economics, very little is truly 'permanent.' This is especially true of resource booms based on non-renewable resources, such as forestry or mining, although hydroelectric power is based on a resource as permanent as any—the annual replenishment of rainwater. The capacity of the Lao public service to implement efficient and productive use of new sources of revenue is surely limited. This argues for caution and restraint in the short run, lest the revenues be wasted. Moreover, provided the Thai economy continues to prosper, its requirement for electricity will grow, but continued economic growth in Thailand cannot be assumed. Pessimism in this respect argues for slower and more cautious absorption, lest the resource boom proves to be shorter-lived than is currently expected.

These points suggest that a policy of slowed absorption of the resource revenues is desirable. With its Sovereign Wealth Fund, Norway has shown the way to do this. Slowing the rate of absorption would slow the rate at which adjustment problems associated with the Dutch disease arise and would give the Lao public service more time in which to plan wise expenditure of the revenues. Moreover, rapid absorption of resource-based revenues is dangerous in a polity characterized by lack of accountability. The governance problem is accentuated by the absence of a need to tax the local population at more than minimal rates, due to the presence of revenues from resource extraction. The existence of these revenues makes it possible for the government to buy off opposition and, where necessary, provides the resources needed to suppress it.

B. Expenditure Policy

To the extent that natural resource revenues are absorbed domestically in the form of increased public spending, international evidence strongly suggests that expanded spending should be focused on rural spending, education, and health. Nevertheless, as noted, expenditures in these three categories, added together, have contracted as a share of GDP, rather than expanding. Of the three, only education spending has increased as a share of GDP and the level remains very low.

A recent paper (Warr, Menon, and Yusuf 2012) constructs a multisector, multihousehold computable general equilibrium model of the Lao economy to analyze the effects of increased government spending financed by natural resource exports. The analysis focuses in particular on the consequences for poverty incidence. The analysis shows that the increased spending does indeed produce Dutch-disease effects on the structure of the economy, as predicted by the discussion. But the spending also has the effect of reducing poverty incidence under the full range of assumptions considered. The existence of a Dutch-disease as a result of public spending therefore does not necessarily imply that the poor are harmed. The study found the degree to which the spending reduced poverty depended most critically on the degree to which the spending was focused on rural, rather than urban areas. The greater the rural focus, the greater the reduction in poverty.

C. Protection Policy

The Dutch disease is an empirical reality for the Lao PDR and not just an abstract theoretical possibility. It implies that domestic absorption of the natural resource revenues undermines the competitiveness of traditional traded goods industries. There are losers from this process and it is tempting to suggest that these losers should be protected from loss. If the boom was temporary, this argument might be sustainable. But it is apparently not temporary. The adjustment in the structure of the overall economy means that non-tradables sectors will expand and traditional traded goods sectors will contract. A more far-sighted policy response than protectionism is to assist those who are affected negatively to find productive opportunities in other sectors of the economy. This means retraining and adjustment assistance. Attempting to keep people in declining industries only perpetuates poverty and dissatisfaction.

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The Lao Economy: Capitalizing on Natural Resource Exports

Trade, investment, and other market reforms in the Lao People's Democratic Republic (Lao PDR) since the mid-1980s have boosted natural resource-based exports, underpinning recent economic growth. Almost all the proceeds from these exports accrue directly to the government. The effect on the Lao people depends on how the government uses these revenues. We examine how the Lao PDR's export-led growth can be channeled into directions that deliver the greatest benefit to its people.

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