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Limping on Three Legs: The Development Problem of Timor-Leste

Mats Lundahl and Fredrik Sjöholm

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Foreword

This country economic report on Timor-Leste is part of a series of studies, undertaken by various Swedish universities and academic research institutes in collaboration with Sida. The main purpose of these studies is to enhance our knowledge and understanding of current economic development processes and challenges in Sweden's main partner countries for development co-operation. It is also hoped that they will have a broader academic interest and that the collaboration will serve to strengthen the Swedish academic resource base in the field of development economics.

The present study is the third in a sequence of studies by the same authors, funded by Sida and published in the Sida Series *Country Economic Report*.¹ The two earlier studies dealt with the promises and problems offered by the oil sector, respectively the potential for agricultural development in Timor-Leste. The present study focuses in particular on the creation of a modern private sector. It also explores the economic mechanisms governing the behaviour of rural farm households, in view of the inability, so far, to develop a viable alternative to agriculture.

The study was undertaken by Mats Lundahl at Stockholm School of Economics and Fredrik Sjöholm at The Research Institute of Industrial Economics and Örebro University.

Per Ronnås
Chief Economist

¹ The two earlier studies are Mats Lundahl and Fredrik Sjöholm, *Poverty and Development in Timor Leste*, Country Economic Report 2005:3 (Stockholm: Sida) and Mats Lundahl and Fredrik Sjöholm, *Economic Development in Timor Leste 2000–2005*, Country Economic Report 2006:4 (Stockholm: Sida).

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Author: Mats Lundahl, Stockholm School of Economics and Fredrik Sjöholm,
The Research Institute of Industrial Economics and Örebro University

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Introduction

The first handful of years after the Indonesian exodus from Timor-Leste in 1999 were characterized by considerable political and economic optimism. After almost three centuries of Portuguese supremacy and two and a half decades of Indonesian occupation the Timorese were finally free to take their fate into their own hands. The freedom fighters had been released from the Indonesian prisons and the exiles had returned home to the arduous but stimulating task of forging the new nation. Reconstruction of the economy and the infrastructure in the wake of the havoc wreaked by the occupants and their allies could begin. GDP increased by almost one-fifth in real terms in 2001. The following year the sovereign nation of Timor-Leste was officially proclaimed.

The first four years of independence were a period of economic muddling through, with growth rates that were barely sufficient to keep pace with an abnormally high rate of population growth in a country where 40 percent of the population was living in poverty (Lundahl and Sjöholm, 2005, p. 13). Still, there were good reasons for a cautious optimism: during 2004 it became clear that Timor-Leste was on the threshold of substantial revenues from large oil deposits in the Timor Sea. In a sense, the country was facing an *embarras de richesse* instead of the usual tight budget constraint imposed by poverty on developing countries. The main problem was how to spend the new riches so as to maximize their development impact. An oil fund which would ensure a perpetual revenue flow was created as Timor-Leste was enhancing its capacity to absorb expenditures. The future looked reasonably bright in a medium and long run perspective. The United Nations, which had administered the country during the transition from Indonesian to Timorese rule, reduced its presence.

Soon, however, the reality would be different. The years 2006 and 2007 were years of considerable political and social turmoil in Timor-Leste. Dissatisfaction had been spreading in certain army circles for a number of years, and in February 2006, the stopper was pulled out of the jug. A cycle of violence and counter-violence, at times on an almost daily basis, begun (Lundahl and Sjöholm, 2007): a cycle that culminated with the fall of the government of Prime Minister Mari Alkatiri and the establishment of a potential guerrilla force under the leadership of the former head of the military police, Major Alfredo Reinado. The economy suffered a blow. In the spring and summer of 2007, the citizens of Timor-Leste went to the urns for both presidential and parliamentary

elections. President Xanana Gusmão and Prime Minister José Ramos Horta swapped jobs and the country got a new government, based on a potentially fragile four-party coalition.

All this has created a new situation in Timor-Leste. The political turbulence, violence and riots that began in 2006 are still plaguing the country. There is a definite change of mood both among local people and among the foreign donor community. The enthusiasm of the early years has vanished. It was hoped that Timor-Leste would develop quickly with the help of a committed leadership and with the perhaps largest amount of foreign assistance per capita ever received by any post-conflict country (Scanteam, 2007, p. 14).¹ The high expectations have not been met and most observers now realize that the road to prosperity is going to be both long and rocky.

The political turbulence in Timor-Leste since 2006 is both a cause and a consequence of poor economic development. Political instability will deter much needed long-term investments, and outright violence will effectively halt most economic activities. At the same time, however, one of the main reasons for the political turbulence is precisely that the economy has developed relatively poorly since independence. It is likely that nation building in a new country requires not only a sense that all groups are included in the shaping of policies, but also that the lot of broad segments of the population is improving (Scanteam, 2007, p. 4).

In a situation with no or weak prospects of economic growth it is likely that interest groups will fight over the control of existing assets rather than focusing on the creation new ones. The obvious case here is oil: a tempting bait dangling in front of the different contenders for power. The experience from such countries as Venezuela eloquently demonstrates that oil funds of the Timorese (Norwegian) variety by no means constitute a guarantee against misuse (International Monetary Fund, 2005, p. 22; Lundahl and Sjöholm, 2008, p. 80). After all, the legal construction of the petroleum fund is such that it can be changed by a simple majority in the parliament. To avoid this temptation in a situation where the capacity of productive spending is low is a major political challenge.

Also, the political turbulence and the gang violence associated with it feed upon a growing number of unemployed youths. Unless more people get access to jobs and regular incomes, the crime gang problem will continue (World Bank, 2007b, 2007c). Unfortunately, it seems difficult to change the main structural weakness of the country: a high population growth, a lack of a modern private sector, an almost exclusive reliance on subsistence agriculture for employment and an oil sector that only serves to bring in revenue, not to create jobs. The latter is hence of little direct relevance in the short run. It is only in the medium and long term that a carefully monitored spending of the country's oil revenue may have any effect.

The Timorese economy is not of the traditional, dual, variety (see e.g. Lewis, 1954), but it is a *triple* economy, a three-legged table,² where the modern, oil, and agricultural sectors play very different roles. The table 'limps', as it were, since its legs are all of different length, and in the short run, the development strategy in this type of context has to rely mainly on two of the legs. People must be given the opportunity to move out of agriculture where marginal productivity levels are very low and into an

¹ Timor-Leste received US\$ 3.6 billion in international assistance between 1999 and 2006 (Scanteam, 2007, p. 14).

² The metaphor of an economy as a three-legged table has been used in a totally different context by Claudio Véliz (1963): three interest groups. Our employment of the term differs from his.

expanding modern sector. However, since the modern sector has not been able to absorb the growing labor surplus in the economy, this surplus has had to go into subsistence agriculture instead. Hence, the second leg of agriculture has to increase productivity levels in different ways if the extent and depth of poverty are not to increase in the country.

The present report in different ways will focus on the tripartite division of the Timorese economy. Lundahl and Sjöholm (2006) deals with the promises and problems offered by the oil sector, and Lundahl and Sjöholm (2007) discusses the potential for agricultural development in Timor-Leste. Consequently, the present effort will focus more on the second requirement of the development strategy: the creation of a modern private sector. As a consequence of the inability, hitherto, to develop a viable alternative to agriculture, we will also focus on the economic mechanisms governing the behavior of rural farm households. Before we go on to the development complex proper, we will, however, offer an account of the main political, economic and social development in the recent past.

Recent Political Developments

After two election rounds, in April and May 2007, former Prime Minister José Ramos Horta became the second president of Timor-Leste. The Fretilin candidate Francisco Guterres won the first election round but received only 31 percent of the votes in the second round, compared to 69 percent for Ramos Horta.

On 30 June, parliamentary elections took place and the largest political party, Fretilin, mobilized to remain in power. However, Gusmão managed to gather substantial support in a relatively short time for his new political party – Congresso Nacional da Reconstrução Timorese (The National Congress for Timorese Reconstruction, CNRT). A total of fourteen political parties participated in the election. The election campaign started violently with the killing of two CNRT supporters but subsequently, the situation became more peaceful (*Sydney Morning Herald*, 2007). No single political party managed to obtain a majority. Fretilin became the largest political party with 29 percent of the votes, followed by CNRT with 24 percent, PSD-ASDT with 16 percent, and the Democratic Party with 11 percent, respectively.³

Discussions regarding possible coalitions started immediately after the elections. The process, however, was very slow. The new parliament was sworn in on 30 July but there was still no government. On 6 July, CNRT, the PSD-ASDT and the Democratic Party formed a coalition – Aliança da Maioria Parlamentar (Alliance for Parliamentary Majority, AMP), which as the name suggests had a parliamentary majority. An attempt to constitute a national unity government including both the AMP and Fretilin failed. The coalition finally decided to form a government on its own and Xanana Gusmão was sworn in as Prime Minister on 8 August. The former prime minister Mari Alkatiri of the Fretilin party declared the government illegal, and Fretilin supporters started riots and burned down about 600 houses, killing at least two people (*International Herald Tribune*, 2008).

Alkatiri has continued with an aggressive style of opposition. On 2 February 2008 he demanded the resignation of Gusmão and called for new parliamentary elections in 2009. He does not recognize the constitutionality of the new government, since his own Fretilin was the party which won most votes in the June 2007 elections. Alkatiri argues that the

³ PSD-ASDT is a coalition of the Partido Social Democrático (Social Democratic Party) and the Associação Social Democrática Timorese (Timorese Social Democratic Association).

coalition has demonstrated that it does not know how to govern during its first six months, a party with "... generalized incompetence, witch hunt, squander, generalized corruption and nepotism, and unacceptable interference with justice" (*Semanário*, 2008b). According to Alkatiri, the new government has neither plan nor program, and all it wants to do is to convert the state into a welfare institution giving alms that will convert Timor-Leste into a country of pensioners and a people living on subsidies, a policy that constitutes 'the coup de grace in the national development' (*Semanário*, 2008b).

The new government recognizes the important challenges ahead. On the economic side, it is important to achieved broad-based economic growth if poverty is to be reduced, an issue that will be discussed later in this report. On the political side, four issues were given the highest priority: the compensation of the war veterans, the internally displaced people, the Reinado affair and the violence in Timor-Leste (Democratic Republic of Timor-Leste, 2007). We will briefly discuss each of these issues below.

The War Veteran Problem

Timor gained its sovereignty after a long and hard armed struggle against the Indonesian occupation. The Timorese resistance forces initially included about 30,000 men, but with time their numbers dwindled (Durand, 2006, p. 74). By the 1980s they amounted to about 7,000 men in dispersed guerrilla units, and in the 1990s they were probably fewer yet. Many had died during the struggle. (Around 80 percent of the initial forces in 1975 were lost already by 1977 (Durand, 2006, p. 76).)

Around 1,500 former guerrilla soldiers were recognized as such after the 1999 referendum and 600 were offered positions of different kinds in the public sector (Smith, 2004, p. 287). However, many of the war veterans still feel that their 25 years of fighting and great sacrifice have not been appropriately acknowledged and rewarded. All Timorese governments have been concerned about how to deal with them, mainly because of a sense of duty but also because of the realization that this group could pose a real threat if not handled appropriately. The war veteran compensation issue has turned into a lengthy consultative process. Problems have arisen both when it comes to identifying the people who were active in the struggle and when the actual rewards for service of different length and type in the resistance movement are to be decided.

The commissions under the Office of the President have registered 75,143 living or dead war veterans (IFC and ADB, 2007, p. 67), but the actual payment of the proposed pensions and compensations to the veterans has been delayed. It still awaits parliamentary approval. As it seems, veterans who served more than 8 years will receive between 85 and 407 US\$ per month in pensions, veterans serving less than 8 years will get a once-and-for-all payment of US\$ 200 for each year served, and the widows of those who died in the struggle will get a pension of US\$ 85 (IFC and ADB, 2007, p. 67).

Given the large budget surplus in Timor-Leste, the veteran expenditure can be financed within the public budget. Some observers are, however, concerned that injecting this type of cash in to the economy will increase the inflation, which in turn could have a negative effect on the ability to develop a modern private sector.

The Internally Displaced People

The turmoil in 2006 created a wave of internally displaced people (IDPs). About 150,000 men and women were forced to move. Today, around 100,000 are still displaced (United Nations, 2008, p. 1). Various sources claim that between 30,000 and 67,000 of them live in refugee camps in and around Dili (International Crisis Group, 2008, p. i; International Organization for Migration, 2008). Living conditions in the camps are harsh but so are conditions for many people outside. Some of the main problems in the camps concern sanitation and food security. The camps also tend to serve as recruitment bases for various street gangs.

There is yet another reason why the government has given the refugee issue high priority. The issue must be resolved to prevent the camps from becoming permanent settlements. For the IDPs to return to their homes, their safety needs to be guaranteed and they need a house to return to. The first aspect is of course crucial and it is understandable that many IDPs feel uneasy about moving back to the very same areas that they were forced to flee from, often by their own neighbors. There is no easy solution to this problem and it definitely requires a continued presence of UN troops and police. The government plans to build new houses on the outskirts of Dili for those people who for security reasons cannot return to their former homes (Pathoni, 2008, p. 1).

Several thousand homes were burned during the 2006 riots. Very few have been rebuilt and new occupants have sometimes moved into abandoned houses. It has been decided that the government will provide financial assistance to people who leave the camps and return home. There is a risk that this will create anger among those poor Timorese who are not eligible for the support if the amount handed out is too high. A US\$ 15-million program is being set up by the government, and the idea is to pay some US\$ 3,000–4,500 to returning refugees, a considerable amount of money in Timor-Leste (IRIN, 2008, p. 2). In addition, returning IDPs will receive a two-month food ration and a transport stipend (Pathoni, 2008, p.1). Some observers claim that the program is not sufficient and that not enough efforts have been made on other issues that are important for a successful replacement program, such as security enhancement, livelihood support, reconciliation and social safety nets (International Crisis Group, 2008, p. ii).

The government is also trying to complement the carrot of financial support with the stick of declining support to IDPs remaining in the camps. Food rations were cut in half in February 2008 and were abolished completely in April, except for the support to particularly vulnerable people (IRIN, 2008, p. 2).

The Reinado Affair

Major Alfredo Reinado entered the stage of Timorese politics in April 2006 when 600 soldiers were dismissed after having staged protests and demonstrations in Dili in response to what they perceived as injustice in promotions and conditions (Lundahl and Sjöholm, 2007, p. 26). These riots were followed by exchanges of gun fires between 'rebel' and 'loyalist' troops. The rebel soldiers left Dili and went in to hiding in the hills, soon to be joined by Reinado and his men. After being captured by Australian troops, on 26 July 2006, Reinado managed to escape prison at the end of August and again moved into the hills with his rebel troops.

The search for Alfredo Reinado was interrupted in April 2007, in order to open the door for a solution based on dialogue and negotiation.

Nothing came out of this, however. In November Reinado staged a military parade in Gleno, some 60 kilometers south-west of Dili and declared himself in control of the area. In his budget speech to the Parliament in December 2007, Prime Minister Xanana Gusmão (2007, p. 5) mentioned that his government had decided to give Reinado one last opportunity to negotiate a peaceful solution to his conflict with the authorities. He did not seize this opportunity. Instead he chose to release a CD where he accused Gusmão of having planned the 2006 crisis. Attempts to find a negotiated solution continued, primarily supported by President Ramos Horta, and a meeting was planned between government representatives and Reinado in the town of Ermera as late as 6 February. The meeting never took place, however, because of the nearby presence of Australian troops (Toohey, 2008).

Instead, on 11 February Reinado unleashed an unexpected attack against Prime Minister Gusmão and President Ramos Horta. The latter was shot in the lower abdomen and in the chest and was taken to the Australian army hospital and later evacuated to a hospital in Darwin where his conditions stabilized. Reinado was killed by the presidential guard.

Violence

The riots in August and the attack on President Ramos Horta are clear signs that a new political landscape has been established after 2006. The use of violence seems to have become a viable option for interest groups who want to pursue their different political agendas.

The present security situation is, however, substantially better than in 2006 and with the exception of the Reinado attack, no major incidents have occurred since August 2007 (United Nations, 2008, p. 6). This is reflected in crime rates where murder, rape and abduction rates have declined substantially. Most importantly, gang violence has declined, several gang leaders have been arrested, and large amounts of weapons have been seized (United Nations, 2008, p. 6).

The importance of this should not be exaggerated since history teaches us that violence can flare up quite unexpectedly in Timor-Leste. The current state of emergency and the relatively low profile of the political opposition after the Reinado attack may also have contributed to the calm situation. International and national police forces have also been playing a role in improving the security situation. The domestic police force is now taking over the sole responsibility of some districts in Dili (La'o Hamutuk Bulletin, 2007). Whether this force, which during the old regime was seen as both corrupt and incompetent, will rise to the challenge, however, remains to be seen.

Violence in Timor-Leste, especially among youngsters, is the result of a host of factors. Most important are presumably the low economic growth and the lack of employment opportunities. The violence is also conditioned by factors such as lack of community cohesion, political marginalization and dissatisfaction, as well as socio-cultural factors, expressed through e.g. domestic violence, machismo, militarism and alcohol consumption (World Bank, 2007b, pp. 9–15). Addressing all the causes of violence in Timor-Leste is a formidable challenge for the government.

Past Economic Growth and Planned Government Expenditure

Against the background of the wholesale destruction of the Timorese infrastructure in 1999, it is unfortunate that after a successful recovery in 2001 the economic growth in Timor-Leste has been very volatile and rather poor (*Table 1*). The first two years after independence (2002–03) saw GDP contract by more than six percent annually, an extraordinary poor performance considering the low initial level of income and the massive internationally supported, still on-going, reconstruction effort.

Table 1: Timor-Leste Non-Oil Gross Domestic Product, 2000–2007
(million US dollars at constant 2000 prices)

Sector	2000	2001	2002	2003	2004	2005	2006	2007 (prel.)
Non-oil GDP	316.3	368.4	343.9	322.6	323.7	331.1	319.9	--
Non-oil GDP excluding the UN	232.9	276.9	283.6	284.0	295.7	314.1	296.0	320.5
Percentage change	-8.0	18.9	2.4	0.1	4.1	6.2	-5.8	8.3
Agriculture, forestry and fishery	81.5	88.6	93.9	93.5	99.1	105.3	105.6	103.2
Industry and services	98.2	107.9	107.5	106.2	108	110.5	95.2	108.4
Public sector (excluding the UN)	53.2	80.4	82.2	84.3	88.6	98.3	95.2	108.9

Source: *International Monetary Fund (2008)*, pp. 1–3

The main reason for the negative growth of total non-oil GDP seems to be the scaling down of foreign personnel in international organizations in Timor-Leste. Large part of the UN output is included in the regular non-oil GDP figures. This is questionable since this output is not really part of local production. It does of course not mean that the UN will not affect the 'local' GDP but it will do so only as long as, for instance, employee salaries are spent in restaurants and hotels in Timor. Excluding UN operations substantially decreases the GDP figures but it also shows that there was no contraction in 2002 and 2003.

The situation improved in 2004 and 2005 with growth rates of more than 4 and 6 percent, respectively. The main cause of higher growth was

a positive development in agriculture and increased public expenditures whereas the contribution of the modern private sector (industry and services) was modest.

The turbulence in 2006 had a strong negative impact on economic growth, despite the fact that the number of foreigners increased again. The economy contracted by almost 6 percent. It was mainly the private sector that shrank when riots and turbulence effectively put a brake on economic activities. Growth picked up again in 2007, mainly as a result of large increases in public spending, but the recovery of private sector activities had an impact as well.

It is clear that the government tries to increase growth by increasing expenditures. Table 2 shows the budget for 2006–2008. The 2007 figures refer to the second half of that year, since Timor-Leste then changed the fiscal year so as to coincide with the calendar year.

Table 2: The General Budget of the State of Timor-Leste (millions of US dollars)

	2006–07	2007	2008
Total revenue	1,056.8	711.7	1,379.3
Petroleum revenue	1,004.5	697.3	1,358.6
Domestic revenue	40.9	14.4	20.7
Total expenditure	138.7	91.8	319.2
Salaries and wages	33.1	19.1	46.7
Goods and services	73.2	57.5	124.4
Minor capital	9.1	3.0	23.8
Capital and development	11.6	0.1	60.5
Public transfer payments	11.8	2.1	63.9
Subsidies	6.1	20.6	22.2
Budget surplus	901.9	599.4	1,037.9

Source: Democratic Republic of Timor-Leste (2008).

Public expenditures are budgeted to increase substantially to about US\$ 171 million for recurrent expenditures (wages, goods, services) and 84 million for capital expenditures. The increased recurrent expenditures include salary increases to civil servants and quick disbursing grants for rural communities. The capital expenditures are planned to increase partly by accelerating implementation of various infrastructure projects. It is likely that capital expenditures will increase but the magnitude is very uncertain. The main reason is the poor budget execution rate and the problem is especially pronounced for capital expenditures. For instance, actual public expenditures have only amounted to about 20 percent of the budgeted ones during the last few years, and a great deal less than so for capital expenditures (World Bank 2007a, p. ii). For instance, for the fiscal year 2006/07, less than 3 percent of the committed capital expenditures were actually disbursed (IFC and ADB, 2007, p. 16).

Increased expenditures can be financed. The oil revenues are so high that there are practically no financial constraints on the government. All of the current oil revenues come from one field, Bayu Undan, which is expected to generate substantial revenues for another 15 years. Other fields are in the process of being developed and the prospect of large future oil revenues is good (Lundahl and Sjöholm, 2008). The oil rev-

enues are invested in the Petroleum Fund and only the return on the fund is used to finance budget expenditures. The fund is expected to amount to about US\$ 3,116 million at the end of 2008 (Democratic Republic of Timor-Leste, 2008, p. 44). The returns from it used in the budget are set to a modest 3 percent of the petroleum wealth under the Petroleum Fund Law. The petroleum wealth, in turn, consists of current assets and of expected future incomes. The total return on the petroleum wealth amounts to about US\$ 294 million in the 2008 budget. Together with the other expected domestic revenues of 20 million, it is sufficient for financing the budgeted expenditures even under the unlikely scenario of complete budget implementation.

What may be discussed, however, is if the absorptive capacity of Timor-Leste is sufficient for handling expenditure increases of the planned magnitude. There is a serious risk that inflation may pick up. In fact, this seems to be the case already. The annual inflation rate reached 17 percent in February 2007 partly because of a rice shortage (Democratic Republic of Timor-Leste, 2008, p. 44). It declined later in 2007 but still seems to have amounted to around 8–9 percent on a year-to-year basis, which is the highest figure since independence (International Monetary Fund, 2008, p. 4).

Income Growth and Living Standards: the Empirical Picture

Poverty alleviation has been a central theme in Timorese development policy ever since the beginning of independence. The first national development plan stressed a development strategy with two overriding goals: the reduction of poverty in all sectors and regions of the nation and the promotion of an economic growth that is equitable and sustainable, and which improves the health, education and well-being of everyone (Planning Commission, 2002). The objectives were consistent with the profile of the budget, which during the first years of independence had a strong focus on poverty reducing activities (Lundahl and Sjöholm, 2005, p.7).

However, the discussion in the previous sections suggests that the government has by and large failed to promote high and sustainable economic growth. Several observers also claim that poverty reduction has failed to materialize (e.g. Scanteam, 2007, p. 7). The poverty situation at the time of independence was relatively well documented (Lundahl and Sjöholm, 2005). Thereafter, however, documentation is not so abundant. This makes it difficult to judge the development and the efficiency of public policy.

The poor economic growth has of course led to a poor development of per capita income. The latter amounted to about US\$ 385 in 2002 but declined to about US\$ 351 in 2006. About 40 percent of the population was considered poor in 2001 and this figure is likely to have increased significantly because of the declining per capita income (IFC and ADB, 2007, p. 15).

Other measures of material living standards may be used to complement the per capita income figures. *Table 3* shows the ownership of consumer durables one year before independence (2001) and in 2007. The first conclusion that may be drawn is that the possession of durable goods is scant on both occasions. Most durables are owned by a small fraction of the population. For instance, about seven percent have a bicycle or a motorcycle, six percent a refrigerator and 16 percent a TV. The second conclusion is that although the possession of durables is not widespread, it has increased since 2001. The ownership share has increased for all goods except stoves, buffets, radios, and mosquito nets.

Hence, the decline in GDP per capita does not correspond to any decline in material possessions, which suggests that the situation is slightly better than what can be concluded from income figures. Finally,

the figures in *Table 3* show that the difference between urban and rural areas is very large: the share of population owning different durables is many times higher both years and for most goods in urban areas.

Table 3: Ownership of Durable Goods in 2001 and 2007 (percent of the population)

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Stove	7.9	1.6	0.3	5.5
Refrigerator	2.9	5.7	0.7	19.6
Washing machine	0.3	0.9	0.7	1.3
Sewing/knitting machine	2.9	4.4	2.8	9.2
Cupboard for clothes	32.5	53.6	46.5	73.7
Buffet	16.5	8.2	7.2	11.1
Fan	4.1	5.7	0.9	19.3
Television	6.9	15.6	4.9	45.7
Video player	2.9	3.2	1.3	8.6
Tape/CD player	6.8	10.4	5.0	25.5
Camera, video camera	1.0	1.1	0.2	3.6
Personal computer	0.1	0.3	0.0	1.0
Mobile phone	n.a.	11.2	3.6	32.4
Radio	32.4	25.0	20.9	36.5
Bicycle	5.2	7.4	4.1	16.7
Motorcycle, scooter	3.0	6.8	2.5	18.9
Car, truck	1.8	2.7	0.8	7.9
Motor boat	0.0	0.7	0.9	0.1
Boat without a motor	0.5	1.2	1.5	0.3
Generator	0.5	1.0	0.8	1.4
Water dispenser	0.4	0.9	0.0	3.5
Electric rice cooker	2.2	2.6	0.3	9.3
Mosquito net	45.0	40.1	32.2	62.3

Source: Directorate of National Statistics (2007), Table 4.1.

Poor economic growth is not the only reason for the declining per capita income. The latter is also a consequence of a very high population growth. The rate is about 3.2 percent per annum. The main driving force is a very high fertility rate, about 7.7, which is among the highest in the world (IFC and ADB, 2007, pp. 36–37).

Another consequence of the extreme fertility is that Timor-Leste has a very young population. *Table 4* shows the population in Timor-Leste by age in 2001 and 2007. Almost 43 percent of the population was below 15 years of age in 2007, a very high figure despite a small decline since 2001.

**Table 4: Population Structure by Age Groups in 2001 and 2007
(percent of the total population)**

	2001 National	2007 National
Total	100	100
<5	16.8	15.7
5-9	16.5	14.3
10-14	12.1	12.8
15-19	9.0	10.6
20-24	5.6	8.6
25-29	8.1	5.6
30-34	6.7	6.1
35-39	5.7	5.5
40-44	4.7	4.8
45-49	3.5	4.1
50 +	11.3	11.8

Source: Directorate of National Statistics (2007), Table 1.1.

Such a skewed age structure has several economic implications. One is that the need for public provision of for instance education is high, which has put heavy stress on the government, an issue that will be discussed below. Another and perhaps even more important implication is that the need for job creation is very high. It is estimated that between 15,000 and 20,000 young Timorese enter the labor market each year (e.g. IFC and ADB, 2007, p. 49). Unfortunately, the alternatives for making a living are small. For instance, there are only about 37,000 paid workers in the formal sector (World Bank, 2007c, p. 8). Moreover, job creation has been almost non-existent except for some recent but insufficient short-term job program initiatives (World Bank, 2007a). Most Timorese are left with no other possibility than to try to eke out a meager existence from subsistence farming, a problematic situation considering the large surplus of labor in the agricultural sector (Lundahl and Sjöholm, 2007). We will come back to the mechanics of this below.

Table 5 shows the labor market situation in Timor-Leste. The figures support the conclusions from the discussion above and show that the new labor market entrants tend to stay in agriculture which has increased its share of the labor force from 81.6 percent of the population in 2001 to 85.4 percent in 2007. Looking at the other sectors, it is seen that their share of the labor force has declined with the exception of public sector activities such as administration, health and education.

Table 5: Employment by Sector in 2001 and 2007
(percent of the total employed population 15–64 years old)

Sector	2001	2007
Total	100	100
Agriculture	81.6	85.4
Industry	3.9	1.0
Wholesale trade, retail, restaurants and hotels	5.1	2.4
Public administration, military	1.0	2.1
Health	0.4	1.1
Education	2.4	2.7
Other community, social and personal services	2.3	1.7
Other	3.2	3.6

Source: Directorate of National Statistics (2007), Table 7.7.

It is particularly interesting to look at the development in the industrial sector and in the sector consisting of restaurants, hotels and similar services. Industry has seen a large decline in relative employment: from about four percent of the population to one percent. Considering the importance of manufacturing as an employer and as an engine of growth in most dynamic developing economies, this is of course a cause for worry. When it comes to the fifty percent decline in relative employment in the formal private service sector, this is a development which is surprising. This sector is located mainly in Dili and to a large extent it services the foreign community. A continuing large foreign presence has unfortunately not enabled the sector to act as a significant creator of new jobs.

Declining employment shares in the modern sector are a major explanation of low incomes. They are also an important ground for criminality and political turbulence. Once such conflicts run out of control, it is often the availability of young men with little prospects of jobs and incomes that makes the situation dangerous. Youth crimes and participation in riots are due to the lack of alternatives and productive employment (Scanteam, 2007, p.6, World Bank, 2007b, 2007c). Unless jobs are created at a large scale, it is likely that political instability will continue.

It is hence problematic that unemployment remains high in Timor-Leste. The very concept of unemployment is of course dubious in a country where few can afford to be formally unemployed. Bearing this caveat in mind, the reported unemployment of 31.6 percent for young urban men (15–24 years old) must be considered a serious economic, social and political problem (Directorate of National Statistics, 2007, Table 7.3).⁴

Incomes and growth are closely related: increased employment through an expanding modern sector will increase incomes, and high growth will generate new jobs through increased consumption and linkage effects. The experience from other developing countries in East Asia, such as China, Indonesia, Thailand and Vietnam, suggests that a consistent manufacturing based economic growth of at least about 7 percent is necessary for creating sufficient employment and poverty reduction. The government seems aware of the problem and aims for an

⁴ Other reports suggest that the youth unemployment might be even higher. The International Finance Corporation and the Asian Development Bank (2007, p. 74) claim that unemployment for 15–19 year-old youths is 43 percent nationally and 58 percent in Dili. The World Bank (2007c, p. 8) argues that unemployment in Dili is 42 percent for youths aged 20–24 and 62 percent for youths aged 15–19.

economic growth of 7–8 percent over the next years. This is higher than what has typically been the case since independence (cf. *Table 1*).

Many observers do not anticipate such high economic growth in the near future. For instance, the International Monetary Fund (2007, p.12) projects economic growth in Timor-Leste under two different scenarios: one with a positive high-growth development and one with what is called a moderate policy implementation. The first scenario gives an economic growth of about 7 percent annually between 2008 and 2011, the government target, and the second scenario gives a growth of about 5 percent. The high-growth scenario requires an investment rate of about 50 percent of GDP, a much improved business environment, and agricultural development. Even the moderate scenario, which generates an economic growth which is higher than the average annual growth rate since independence, requires substantial policy improvements. More specifically, investments have to increase from the present 20 percent of GDP to 40 percent, the legal and institutional framework has to be improved and the budget execution rate has to increase.

The two scenarios show that it will be difficult to increase growth to the targeted 7–8 percent. It is not difficult to imagine a gloomier future scenario with continued political turbulence, absence of private sector activity and subsistence agriculture having to employ the growing labor force in a setting characterized by falling productivity and income levels. We will come back to the issue below.

Social Development Since Independence

Timor-Leste is a very poor country. However, it is not difficult to argue that not only the level of income and development but its change is also important. A poor country's citizens will obviously prefer a situation where life is gradually improving to a situation of poverty combined with stagnation.

The social and economic conditions in Timor-Leste before independence were mapped through a large household survey covering 1,800 households (Democratic Republic of Timor-Leste et al., 2003, World Bank, 2003) The situation was one of a very low level of development and widespread poverty. The Directorate of National Statistics (2007) has recently published preliminary findings in a survey covering 5,400 households. This enables us to examine the changes that have taken place between 2001 and 2007.

Health

The food situation in Timor-Leste has improved but not substantially. *Table 6* shows that people claim to have more months of low food consumption than of high and the situation is only marginally better than in 2001. The percentage of the population with at least one month of low food consumption has declined from around 86 to about 73. However, the percentage with months of high food consumption has also declined and the average household faces about three and a half months with not enough rice or maize to eat, a figure that has been stable since 2001.

Table 6: Food Security in Timor-Leste 2001 and 2007

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Food consumption (months)	12.0	12.0	12.0	12.0
High	1.7	1.8	2.1	1.2
Average	6.7	7.0	6.3	8.7
Low	3.6	3.2	3.6	2.0
At least one month of low food consumption (% of population)	85.7	72.9	80.7	51.0
Not even one month with high food consumption (% of population)	53.9	61.8	57.5	74.0
Not enough rice or maize to eat (months)	3.6	3.5	4.0	2.0

Source: Directorate of National Statistics (2007), Table 9.7.

The situation is worse in the countryside than in urban areas. Recent reports confirm that the food situation remains difficult and that as many as 200,000 Timorese need food assistance (e.g. IFC and ADB, 2007, p.15). The low food consumption shows that most people face harsh conditions. One group that is especially vulnerable is the children. Malnutrition is widespread in Timor-Leste.

Table 7 shows three measures on malnutrition: the weight for age, the height for age, and the weight for height indicators. These indicators are compared to a reference population set by the World Health Organization. Low figures are indicative of long-term deficiencies in nutrition, starvation, and severe diseases (diarrhea in particular). No figures are available for 2001 so we can not examine the development over time. What is certain is that many children below five years of age are suffering from malnutrition. Weights and heights are substantially lower than one would expect from the age of the children. About fifty percent display signs of malnutrition according to these two indicators and between 12 and 18 percent are subject to severe malnutrition. The situation is slightly better in the urban areas than in rural Timor-Leste. The last indicator, weight for height, compares the ratio of the relatively low weights and heights. The indicator show that about 19 percent of the children are suffering from weight loss or insufficient weight gain relative to height.

Table 7: Height and Weight Indicators for Children Below 5 Years of Age

	National (2007)	Rural (2007)	Urban (2007)
Weight for age			
Severely underweight	11.9	11.6	13.0
Moderately underweight	38.4	39.9	33.4
All underweight	50.3	51.5	46.4
Height for age			
Severely stunted	17.7	17.5	18.4
Moderately stunted	32.2	32.2	32.2
All stunted	49.9	49.7	50.6
Weight for height			
Severely wasted	2.0	1.7	3.1
Moderately wasted	16.8	17.8	13.3
All wasted	18.8	19.5	16.4

Source: Directorate of National Statistics (2007), Tables 6.27, 6.29, 6.31.

Hence, the situation for children is poor. One consequence of malnutrition is that the likelihood of catching various diseases increases. Efforts have been made by the Ministry of Health to improve the situation. The focus has been to develop basic primary health care in the local districts and the presence of 300 Cuban physicians in Timor-Leste has served to reduce the shortage of medical personnel (Lundahl and Sjöholm 2005, p. 28; IFC and ADB, 2007, p. 36).

An example of the progress that has been made is the large vaccination program targeting children below 5 years of age. *Table 8* shows the percentage of children who have received different types of vaccinations. The progress made since 2001 is impressive. The coverage of the four different vaccinations has increased from between 17 and 37 percent of the children to about 57 to 73 percent. The number of children receiving each vaccination has increased by between 96 percent (polio) and 230 percent (measles). Still, only about one-fifth of the children have full

immunization.⁵ Interestingly, there are no major differences between urban and rural vaccination levels against individual diseases but a big difference is found when it comes to the percentage of children having full immunization.

Table 8: Vaccination of Children (percent of children below 5 years of age)

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Tuberculosis	31.6	71.3	70.5	74.0
Polio	37.2	72.8	72.5	73.9
Tetanus	26.2	68.4	68.0	69.8
Measles	17.1	56.6	56.1	57.9
Full immunization				
Male	1.7	19.2	16.6	28.1
Female	2.7	20.5	19.5	23.3

Source: Directorate of National Statistics (2007), Tables 6.11, 6.13, 6.15, 6.17, 6.19.

Education

Considering low general level of economic development of Timor-Leste it comes as no surprise that the educational level is also very low, lower than in most parts of Asia. It was very low at the time of independence and only modest improvements have taken place thereafter (Lundahl and Sjöholm, 2005). The adult literacy rate is about 50 percent (e.g. UNDP, 2007, Table 1).

An alternative measure of literacy, shown in *Table 9*, is the share of the population that is functionally literate: able to read and write a letter. This is true for about half the population, a very high illiteracy rate, but progress has been made since independence when about 60 percent of the population were functionally illiterate. The rate varies between different parts of Timor-Leste and the table shows that the problem is substantially worse in rural than in urban areas. Finally, looking at gender differences, it is seen that the literacy rate is about eight percentage points higher for males than for females. About three out of four urban men are seen to be functionally literate. Rural women are found at the other end of the spectrum: less than 40 percent.

⁵ Full immunization includes vaccination against tuberculosis, polio (4 shots), tetanus (3 shots), and measles.

**Table 9: Functional Literacy in Timor-Leste
(percent of the population above 19 years of age)**

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Total	100	100	100	100
Both read and write without difficulty	36.4	47.3	40.4	66.7
Both read and write with difficulty	6.6	4.1	4.2	3.7
Unable to either read or write	56.3	48.2	55.1	29.0
Other	0.7	0.4	0.3	0.7
Male	100	100	100	100
Both read and write without difficulty	44.3	55.7	49.1	74.1
Both read and write with difficulty	6.9	4.4	4.6	3.6
Unable to either read or write	48.2	39.6	45.9	21.9
Other	0.5	0.4	0.3	0.4
Female	100	100	100	100
Both read and write without difficulty	28.7	38.7	31.4	59.1
Both read and write with difficulty	6.3	3.8	3.9	3.8
Unable to either read or write	64.2	57.0	64.5	36.2
Other	0.8	0.5	0.3	1.0

Source: Directorate of National Statistics (2007), Table 5.5.

One important reason for the improvement since independence is that younger cohorts are more educated than their older counterparts. School enrolment rates have increased, as seen in Table 10. The net enrolment rate in primary schools is still far from including all children but it has gone from around 71 percent to 74 percent. The improvement has been most pronounced for men, and it is also relatively large for junior secondary education including, for instance, almost half the urban youths. Senior secondary enrolment rates have also increased, especially for females, but to a lower extent than the junior secondary ones. There are variations in enrolment rates not only between the urban and rural populations but also between different regions with a relatively high enrolment in the Baucau, Lautem and Viqueque regions and a relatively low enrolment in Oecussi.

Table 10: Net School Enrolment Rates in Timor-Leste 2001/02 and 2004/05 (percent)

	National (2000/01)	National (2004/05)	Rural (2004/05)	Urban (2004/05)
Primary (≥7 years but <13 years)	70.5	74.1	73.1	77.0
Male	68.8	74.3	72.2	80.3
Female	72.3	73.9	73.9	73.9
Junior secondary (≥13 years but <16 years)	18.5	33.4	28.5	45.7
Male	15.3	32.6	27.9	45.0
Female	22.2	34.3	29.1	46.5
Senior secondary (≥16 years but <19 years)	13.7	17.8	11.4	32.5
Male	16.5	15.4	10.2	30.0
Female	11.0	20.8	13.0	34.7

Source: Directorate of National Statistics (2007), Table 5.7.

Hence, the school enrolment figures point to some minor progress since independence. This progress is, however, partly illusory, i.e. the situation deteriorated in 1999. A comparison of the statistics from the Indonesian occupation and the present figures shows little if any progress. Although the enrolment rates were lower in East Timor than in other parts of Indonesia, they still match those in Table 10. Primary school enrolment

was 72 percent in 1995, Junior secondary 27 percent and Senior secondary 18 percent (World Bank, 2004). Dropout rates are very high. Only about 46 percent of the children who begin the primary cycle reach primary 6, and only 80 percent of the children starting lower secondary education reach grade 9 (IFC and ADB, 2007, p. 19).

The quality of education is poor in Timor-Leste. The lack of good books and other teaching material is a problem. Moreover, 83 percent of all classrooms need rehabilitation or replacement (IFC and ADB, 2007, p.19). Teachers are typically not very well trained and insufficient efforts are being made to improve the situation (World Bank, 2007a, p. 41).

On average, students are not acquiring even a rudimentary knowledge. A 2004 report by the World Bank (2004, p. 26–31) claims that third graders answered 28 percent of questions in mathematics correctly, which is only marginally better than what they were expected to achieve had they simply guessed on all the questions. Fourth graders did slightly better but still only managed to answer about 37 percent of the questions correctly. Another example of the poor quality comes from a 2006 survey that found that 79 percent of the grade 3 pupils and 76 percent of the grade 5 pupils failed to reach even a minimum level of knowledge in mathematics (IFC and ADB, 2007, p. 22). The situation in tertiary education is less well documented but there are reasons to expect it to be poor because of the large number of institutions providing higher education and the lack of any quality control.

The choice to use Portuguese as the language of instruction instead of Tetum has probably contributed to the poor situation. The use of Portuguese as an official language is seen by many Timorese as a measure imposed by the political elite without consulting the population (Scanteam, 2007, p. 57). As seen in *Table 11*, the share of the population which speaks Portuguese has increased since 2001 but it remains small, only 16 percent. As could be expected, the situation differs between urban and rural Timor-Leste with a higher share in the former. Moreover, the concept of speaking a language is rather vague and some observers contend that the statistics include people who are not sufficiently fluent to being able to use it efficiently as a medium of instruction. Thus, a joint report from by the International Finance Corporation and the Asian Development Bank (IFC and ADB, 2007, p. 22) claims that 96 percent of the grade 3 students and 90 percent of the grade 5 students fail to meet even minimum requirements of Portuguese.

Table 11: Main Languages Spoken in Timor-Leste in 2001 and 2007 (percent of the population)

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Tetum	81.7	87.2	83.9	96.7
Bahasa (Indonesian)	42.6	37.3	32.7	50.0
Portuguese	5.3	16.1	11.8	28.2
English	2.0	4.8	2.0	13.0
Only Tetum	40.2	47.0	48.8	41.9
Tetum and Bahasa	35.3	23.8	23.3	25.3
Tetum, Bahasa and Portuguese	3.9	8.1	6.8	11.8
Other combinations	3.9	9.1	6.0	17.9
None of the main four	16.8	12.0	15.1	3.1

Source: Directorate of National Statistics (2007), Table 1.9.

The share that speaks only Tetum has increased from about 40 to 47 percent of the population. It is obvious that these people will not be able to cope with an education in Portuguese. Some schools have adapted to the situation and are said to use a combination of Portuguese and Tetum despite the official policy. Still, official figures suggest that Portuguese is the language of instruction for 79 percent of all primary school students, up from eight percent in 2001 (Directorate of National Statistics 2007, Table 5.11.) The corresponding figures for junior and senior secondary schools are 70 (up from 4) and 52 (7) percent respectively.

It is obvious that the present policy is creating obstacles for both students and teachers. National tests have shown that students taught entirely in Tetum perform better than students instructed in a mixture of Portuguese and Tetum (World Bank, 2004, p. xxii). This is not surprising since research shows that literacy and numeracy skills are easiest to acquire when taught in the mother tongue (IFC and ADB, 2007, p. 20). It would be preferable to change the policy to better correspond to the situation and use Tetum as the language of instruction, and teach Portuguese as what it actually is: a foreign language. According to the figures in *Table 11* Tetum is spoken by 87 percent of the population, which makes it the *lingua franca* in Timor-Leste.

What People Feel

As a complement to the above figures covering various aspects of the overall standard of living, measures of subjective well-being may be used. These measures try to capture how people feel they have been affected by the economic and social changes that have taken place since the beginning of independence. *Table 12* shows some such measures, related to basic needs, such as food consumption, housing, clothing, health care, education and income.

The first conclusion is that the situation has improved since 2001 when, for instance, three-quarters of the population considered their incomes to be less than adequate, compared to about 63 percent in 2007. Even so, however, it is clear that the situation is difficult and that the lack of household income is perceived as a worse problem than failure to meet other basic needs. This may reflect the subsistence farming orientation of the typical household.

The food situation stands out as precarious. More than half of the population think it is less than adequate. The post-independence improvement has been relatively modest.

Table 12: Subjective Well-Being in Terms of Basic Needs (percent of the population)

	National (2001)	National (2007)	Rural (2007)	Urban (2007)
Household's total income				
Less than adequate	75.4	62.7	67.0	50.5
Just adequate	24.3	35.9	31.5	48.2
More than adequate	0.3	1.4	1.5	1.3
Food consumption				
Less than adequate	59.2	54.1	62.3	31.2
Just adequate	40.5	44.0	35.6	67.5
More than adequate	0.3	1.9	2.1	1.3
Housing				
Less than adequate	48.9	40.0	45.6	24.3
Just adequate	50.8	58.3	52.5	74.6
More than adequate	0.3	1.7	1.9	1.1
Clothing				
Less than adequate	64.0	36.4	42.6	19.0
Just adequate	35.9	62.4	56.0	80.2
More than adequate	0.1	1.2	1.4	0.7
Health care				
Less than adequate	35.9	30.2	35.3	15.8
Just adequate	62.8	67.3	61.8	82.6
More than adequate	1.3	2.5	2.9	1.5
Children's education				
Less than adequate	52.9	31.4	33.7	24.7
Just adequate	41.1	59.0	54.6	71.5
More than adequate	0.6	3.0	3.5	1.6
No children	5.3	6.6	8.2	2.2

Source: Directorate of National Statistics (2007), Table 9.3.

The figures of *Table 12* once more show that the health sector is doing relatively well. About two-thirds of the population think health care is just adequate. It should be noted, however, that health care was perceived to be adequate also in 2001.

Finally, around 60 percent of the population think that the situation is adequate in terms of housing, clothing and education. The relatively positive perception of education is surprising in view of the discussion above. One possible reason sometimes heard from observers in Timor-Leste, is a general lack of interest in education among broad segments of the population (World Bank, 2004, p. xix).

The figures presented above give a mixed picture of the living standard in Timor-Leste. Incomes suggest that living standards have deteriorated whereas, for instance, ownership of durables or subjective measures of well-being indicate that improvements have taken place. Measures related to basic health and educational services also suggest that the situation is poor but that it may have improved slightly since independence.

It is therefore interesting to note that people's own perceptions of the overall change in their well-being since 2001 tend to be negative. *Table 13* shows that a vast majority of the population considers the situation in 2007 as worse or equal to the one prevailing in 2001. More precisely, around 49 percent perceive it to be the same, 17 percent a little worse, and 15 percent a lot worse. The rural population tends to be more negative than the urban dwellers. There are also large variations between different regions. For instance, about one-third of the rural population in the Bobonaro, Cova Lima, and Liquica regions thinks that the situation has become a lot worse. On the other hand, about 19 percent of the urban population in the Baucau, Lautem, and Viqueque region and in the Oecussi region think of it as a lot better.

**Table 13: Subjective Assessment of Changes in Well-Being since 2001
(percent of the population)**

	National (2007)	Rural (2007)	Urban (2007)
Is household's life better than in 2001			
A lot better	9.7	8.6	12.9
A little better	9.7	9.7	9.8
About the same	49.1	48.3	51.3
A little worse	16.7	17.7	14.0
A lot worse	14.7	15.7	12.0

Source: Directorate of National Statistics (2007), Table 9.5

Summary

It is not quite easy to sum up the above section on the social and economic development in Timor-Leste. On the one hand it is clear that the failure to generate high economic growth has had a severe negative impact on the per capita income. It, however, also appears as if other aspects of welfare have improved slightly from the very low level prevailing around the time of independence. Ownership of various consumer durables has increased, school enrolment rates are higher although the quality of education is low, and more children are protected against various diseases. It also seems to be the case that subjective well-being is higher in 2007 than in 2001.

Despite this progress, it is clear that people who can compare their present situation with the one before independence tend to think that it is the same or worse. Few people state that it has improved. We can only speculate about why the perceived development since independence is so negative. One possible reason is that it has not met people's expectations. It could be that the population hoped for more substantial improvements in living standards as a result of independence, democratization and the large oil revenues. Another possible cause is that people include other aspects than materialistic ones and that the continued political turmoil after 2006 has made their assessment of the situation more negative.

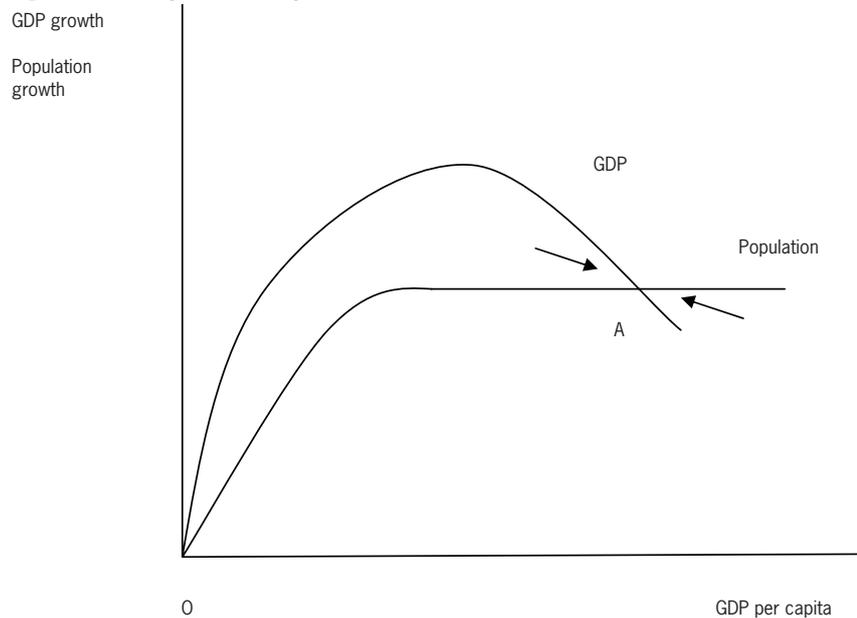
What seems clear is that Timor remains a very poor country six years after independence and that large progress needs to be achieved to lift people out of poverty. Increased economic growth and more job opportunities are arguably critical in such development and we now turn to these issues.

Improving the Standard of Living

The Population Trap

The most serious economic problem of Timor-Leste is the exceedingly rapid growth of the population: 3 percent per annum, which means that its size doubles in 17 years (Lundahl and Sjöholm, 2004, p. 16). As *Table 1* above eloquently demonstrates the non-oil GDP of the country has fluctuated substantially since 1999, and its growth rate is far from always high enough to exceed that of the population.

Figure 1: The Population Trap in Timor-Leste



The dilemma is illustrated in *Figure 1*. The figure contains two intersecting curves. The first one shows rate of population growth as dependent on the level of GDP per capita up to a certain level of the latter. On low income levels we may expect death rates to be a function of the income and food standard. The lower the latter, the lower the rate of growth of the population. At some point, however, the relation may be broken and population growth becomes autonomous, under the influence of modern medicine. The population growth curve becomes a straight line. The

second curve shows the rate of growth of GDP as a function of the level of GDP per capita. It rises up to a certain point, but as diminishing returns to labor set in, in an economy characterized by a simple and stagnant technology, sooner or later the growth rate will be lowered. As the curve has been drawn, the rate of growth of GDP exceeds that of the population up to point A in the diagram. In A the two growth rates coincide. A is a stable equilibrium point. To the left of this point GDP grows faster than the population, raising GDP per capita in the process. To the right of A the opposite applies. The population grows faster than GDP, depressing the level of GDP per capita until point A is reached. The economy is trapped in A. Both the growth rate of the total product and GDP may fluctuate, but sooner or later they will revert back to the stable equilibrium.

This population trap may be broken in two ways. The first road to a higher standard of living goes via a reduction of the rate of population growth, i.e. via a reduction of the birth rate. This shifts the population growth curve downwards and the intersection point between the curves to the south-east. A new equilibrium will be established at lower rates of growth of both population and GDP, provided that the GDP growth curve is not affected. The second road to increased prosperity goes via an upward shift of the GDP growth curve. This can be achieved e.g. via productivity-increasing investment, either directly in the productive sectors or in infrastructure, including education. Adding the oil revenue directly would produce the same result, but this is not desirable, since it would only produce a one-shot effect, and once the money has been spent, the curve will once again shift downwards unless the money has been spent productively. What is needed is the spending of the perpetual revenue in a fashion that produces a durable shift in the curve. The choice is one between a quick and transitory increase of the living standard and a piecemeal and gradual, but durable one.

The Lewis Model of Economic Growth

If we accept the hypothesis that the Timorese economy is more or less caught in a long-run low-income trap where the growth of the population tends to swamp that of the non-oil GDP, making sustained rises of the living standard difficult, the obvious question then is what can be done to break out of the trap. One of the most celebrated models of economic development is the one connected with the name Arthur Lewis (1954), the one of dualistic economic development. Let us for a moment forget the oil sector and concentrate simply on the employment-generating sectors: the agricultural one and the modern (non-agricultural) one.

Figure 2: Dualistic Economic Growth

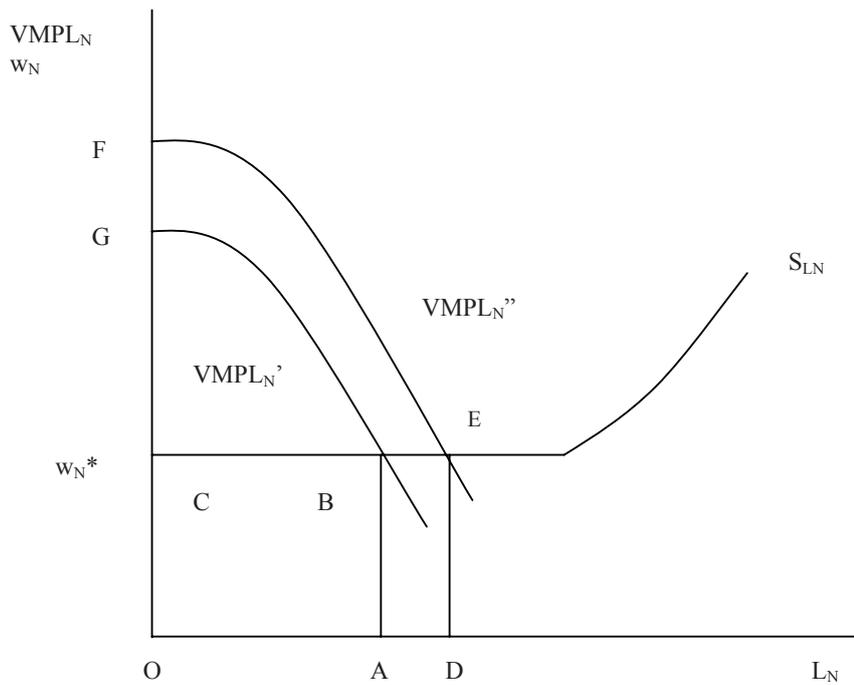


Figure 2, which depicts what happens in the modern, non-agricultural sector, summarizes Lewis' essential ideas. What it shows is the expansion of the modern sector. At the outset OA workers will be employed. Profit-maximizing producers increase employment to the point where the value of the marginal product of labor in the modern sector ($VMPL_N'$) equals the cost of employing it at the margin, i.e. the wage rate w_N^* . The value of the total output of the sector is $GBAO$. The workers obtain $OABC$ and the surplus GBC accrues to the capitalists in the form of profits. This surplus is invested in the modern sector. This increases the marginal product of labor and the $VMPL$ curve shifts upwards to $VMPL_N''$. Employment expands to OD and profits to FEC . In this fashion the modern sector grows through the reinvestment of profits.

The labor supply curve S_{LN} does not have the traditional upward slope until after a certain point. Before that, the modern sector obtains its workers from subsistence agriculture at the wage rate w_N^* . The rightward movement along the labor supply curve is a movement over time, and all it takes to obtain the given wage is that the population growth is rapid enough to balance the increased demand for workers as the modern sector expands. The workers leaving agriculture are constantly being replaced by new entrants in the labor market. Over 85 percent of the Timorese labor force is found in subsistence agriculture (Lundahl and Sjöholm, 2007, p. 9) and there is evidence that this share is increasing over time (cf. *Table 5*). The Lewis assumption of a given wage rate corresponds to the one in the model of the population trap, where GDP per capita is given in the long run.

Economic growth in the sense of Lewis is precisely an expansion of the modern sector. This expansion is relatively fast since it can take place without driving up the wage rate. It is only when the sector has become so large that further expansion of it will swamp the new entry into the labor market that the supply curve starts bending upward in the conventional fashion. At this point the living standard of the workers both in the modern sector and in agriculture will begin to improve. The population trap has been broken.

The Modern Sector in Timor-Leste

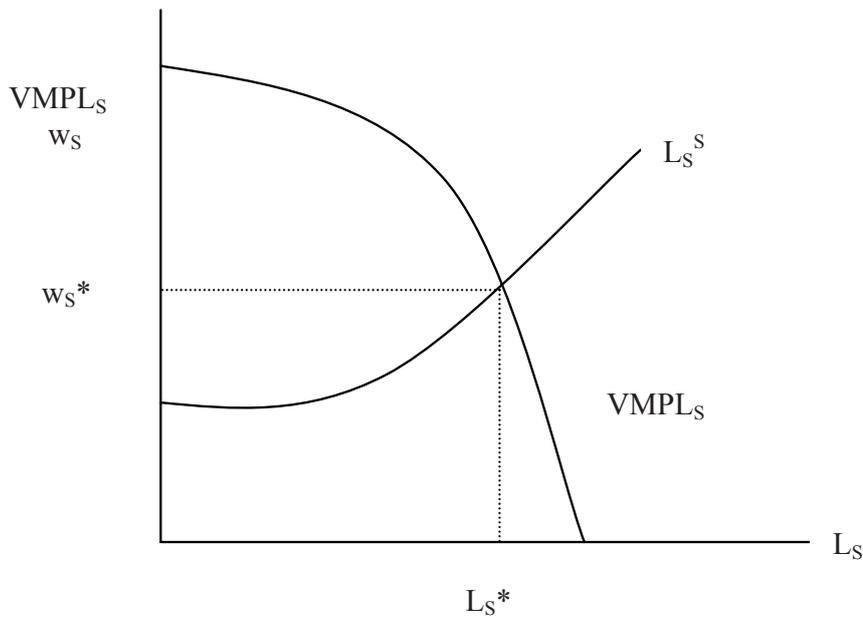
The Lewis model describes the interplay between the modern and the traditional sectors of an economy in a simple and elegant way and it highlights the role of investment when it comes to increasing the standard of living in an economy characterized by high population growth. The model tells an analytical story of structural change away from low-productivity agriculture and into high-productive modern pursuits, notably manufacturing industry.

The Lewis model may be used as a pedagogical device when it comes to the problem of how to make the Timorese economy grow. It has three central features. The first one is the given wage rate, basically given by the value of the marginal product of labor in agriculture, or by the income level prevailing in that sector. The second is investment as the driving force of the expansion process, investment undertaken by an entrepreneurial class in the modern sector. The third is demand. The modern sector cannot expand unless there is a demand for its output, a demand which is high enough to make production worthwhile. Not least, the sector must be able to compete with imports. None of this is guaranteed in the case of Timor-Leste. Let us next proceed to an examination of how this sector works.

The modern sector of the Timorese economy consists basically only of services: the mainly trade-related activities that serve the international community in the capital on the one hand and on the other hand the public administration, i.e. the state bureaucracy (see *Table 5*). The size of the latter may be taken as given. (After independence, a conscious decision was made to keep the latter at a much lower level than during the Indonesian occupation, and the government has managed to stick to this.)

The service segment is shown in *Figure 3*. The equilibrium wage w_s^* is given by the intersection of the labor supply curve L_s^s and the curve for the value of the marginal product of labor in services $VMPL_s$. This also determines the equilibrium employment level L_s^* . Given the supply curve, the wage level is determined by the size of the international community in Dili. It should be noted that the wage assumption which is fundamental to the Lewis model is not valid in this case. It is not possible simply to draw people out of the agricultural sector. The skills necessary in the urban sector differ from those needed in agriculture, i.e. service personnel is scarce, so the labor supply curve has the conventional upward slope.

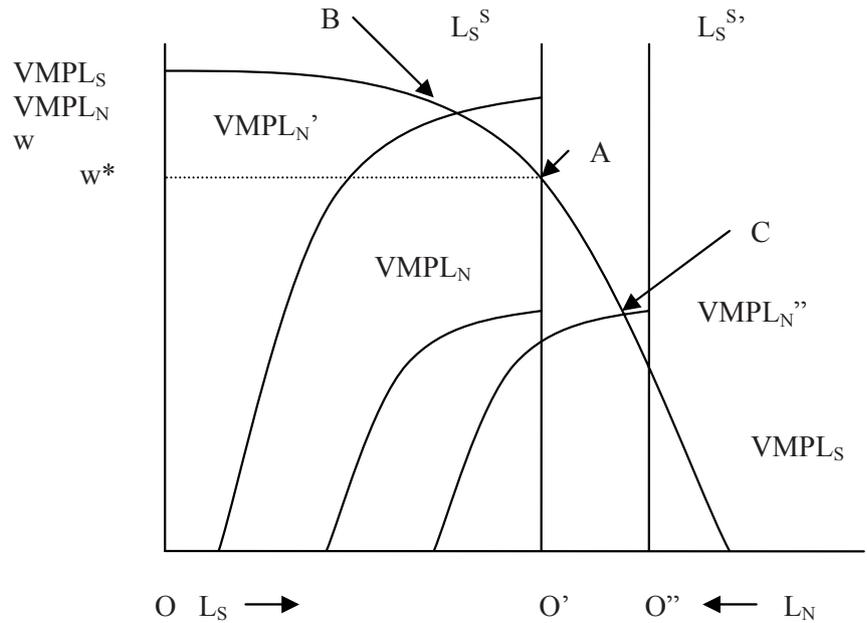
Figure 3: The Modern Service Sector



When the size of the international community increases, the $VMPL_S$ curve shifts upwards as a result of the increased demand for services, which drives up their price. This increases the wage level in the sector and expands employment there. In the short run, however, the labor supply curve is likely to be nearly vertical, so the main effect then is simply that the wage level will increase. This is borne out by the extremely high wage level in the Dili service sector, much higher than for example in Indonesia (Lundahl and Sjöholm, 2006, p. 12).

One of the main problems of the Timorese economy is how a non-service modern (industry or formal services) sector can be introduced. This problem is illustrated in *Figure 4*. Employment in the service sector is measured rightwards on the horizontal axis and employment in the non-service modern sector leftwards. In the absence of a non-service sector, the entire labor force in the modern sector is absorbed by services at wage w^* . This takes place at point A, which is the intersection point between the $VMPL$ schedule of the service sector and the short-run vertical supply schedule of labor in the modern sector, L_S^S . The problem of the non-service sector in Timor-Leste so far has been that labor productivity there is low, so low that it can hardly compete with the service sector (or with imported goods). This is represented by the $VMPL_N$ schedule. This is measured leftwards from the vertical labor supply line, and it lies below the $VMPL_S$ schedule in its entirety. The service sector continues to absorb the entire modern labor force.

Figure 4: Introducing a Non-Service Modern Sector



As *Figure 4* also shows, there are two ways in which a non-service sector may be established. The first is when the $VMPL_N$ schedule is raised so that it begins at some point above *A* in the diagram, for example to $VMPL_N'$. This would create a new equilibrium in *B*, with both services and non-services in operation, dividing the labor force between them, at a higher wage than before, services accounting for the share extending from the origin *O* to the point given by a vertical line from *B* to the horizontal axis (not drawn) and the non-service component for the rest. The shift could be caused by increased demand for non-service products, causing a price increase. Hitherto, however, the lack of demand has acted as a constraint on modern-sector development in Timor-Leste. In a 2004 survey, 38 percent of the formal and 40 percent of the informal enterprises reported that demand for their products was a constraint on growth (Das and O'Keefe, 2007, p. 21).

The upward shift of the $VMPL_N$ could also be caused by some kind of technological progress in the non-service sector. What springs to mind in policy terms is first and foremost infrastructure. If an industrial sector or a tourism sector is to be established, power, credit, a functioning judicial system, transportation etc. is needed.

The second possibility is that the supply of labor increases in the modern sector, say from L_S^S to $L_S^{S'}$. This moves the origin of the $VMPL_N$ schedule rightwards, from *O'* to *O''*, i.e. to $VMPL_N''$. The new equilibrium in the labor market will be in point *C*, where the wage has fallen as a result of the increased labor supply. In policy terms we are talking about education and training of the kind that makes it possible for workers in the agricultural sector to move into the modern sector instead, mainly literacy and numeracy as well as some basic skills. More advanced knowledge belongs to the first case, since this serves to shift the VMPL schedule upwards in the non-service sector.

There is also a third way in which a non-service modern sector may be created, but this way is both less likely and less desirable. This is through the eventual shrinkage of the service sector, for example via a shrinking of the international community in Timor and the consequent reduction of demand. This will shift the $VMPL_S$ schedule downwards

and lower the wage rate, possibly to the point where an incipient industry or a tourist sector could begin to compete. However, this will not happen unless these sectors can also compete efficiently with foreign competitors. Otherwise, labor will simply be pushed out of the service sector and back into agriculture.

How Much Growth?

The importance of a dynamic modern sector from the point of view of employment creation can be seen with the aid of a very simple calculation exercise:

$$(1) \quad L_A + L_N = L$$

where L is the total labor force, A is agricultural employment and N employment outside agriculture, in the ‘modern’ sector. Taking changes yields

$$(2) \quad (dL_A/L_A)(L_A/L) + (dL_N/L_N)(L_N/L) = dL/L$$

The rate of change of total employment equals a weighted sum of the changes of employment in the two sectors of the economy where the weights are the shares of the sectors in total employment. *Faute de mieux*, we take the labor force growth rate to equal the growth rate of the total population, 3.2 percent per annum, and agriculture accounts for a little more than 85 percent of total employment. Thus, if agricultural employment is not to grow we must have that

$$(3) \quad 0.15(dL_N/L_N) = 0.032$$

i.e. that $dL_N/L_N \approx 0.21$. Employment in the modern sector must grow with 21 percent every year.

If we exclude the public sector and the unspecified ‘other’ category, and let the modern sector consist only of industry, wholesale and retail trade and restaurants and hotels, the employment share shrinks to 3.4 percent, and the required rate of growth of over 106 percent!

What does this mean in terms of growth of output? The employment elasticity of growth may be defined as

$$(4) \quad e_{gN} = (dL_N/L_N)/(dN/N)$$

the change in modern sector employment when the output of this sector increases. No estimates of this elasticity exist. *Table 14* shows the output growth rates in the modern sector, broadly and narrowly defined, which are necessary if new entrants in the labor market should not have to go into agriculture, under different assumptions about the employment elasticity in the sector. As can be seen, even with very optimistic assumptions regarding this elasticity, the required rates are very high, and once we move downwards in the table the required growth rates quickly increase to completely impossible levels.

Table 14: Required Output Growth in the Modern Sector

Employment Elasticity	Required output growth	
	Broad definition	Narrow definition
1	21 %	106 %
0.8	26 %	133 %
0.6	35 %	177 %
0.4	53 %	265 %
0.2	105 %	530 %

Entrepreneurship in Timor-Leste

The above gives an indication of the requirements that must be put on the modern sector if it is to serve as an agent of change and growth in the Timorese economy. The task is clearly formidable. Next, let us turn to the supply side. The central actors in the Lewis model are the entrepreneurs in that sector. What does the supply of entrepreneurs look like in Timor-Leste?

Entrepreneurship may be defined in different ways, ranging from the ambitious and innovative to the activities of the run-of-the mill everyday businessman (Hébert and Link, 1989, Wennekers and Thurik, 1999, Henrekson and Stenkula, 2007). According to the more ambitious definitions, as exemplified by that of Joseph Schumpeter (1961), an entrepreneur is a person who discovers or creates novel combinations of production factors. At the opposite end of the spectrum, exemplified by the approach of Israel Kirzner (1973), entrepreneurship simply amounts to arbitrage, taking advantage of unused profit opportunities in the market, without making any genuinely new or innovative contributions.

In the case of such a poor and undeveloped economy as that of Timor-Leste it should go without saying that any reasonable definition of an entrepreneur should be close to the latter end of the scale and very far from the former. The problem of creating a cadre of entrepreneurs in the country is basically synonymous with that of making people engage in ordinary, routine, business activities, setting up an enterprise, ranging from one-man operations to firms with several employees. This is the low-level definition of entrepreneurship that will be used throughout the present discussion.

The Empirical Picture

Given the above definition, what does the entrepreneurial map of Timor-Leste look like? In 2004, a survey of formal and informal urban enterprises in Timor-Leste was undertaken (Das and O'Keefe, 2007). 487 formal and 552 informal establishments were covered in the Dili, Baucau and Maliana districts. The survey revealed that the vast majority within each group were very small. More than half of the informal establishments were one-man ventures, and only 0.4 percent had more than 10 workers. Virtually all were household ventures. Among the formal enterprises more than 72 percent had less than 10 workers, and a mere 0.4 percent had more than 50. This also meant that their business

volume was relatively modest. As many as 45 percent of the formal and close to 90 percent of the informal urban enterprises had a turnover of less than US\$ 5,000 (IFC and ADB, 2007, p. 49).

The urban establishments were concentrated mainly in the trading sector (including maintenance and repair) (almost 41 percent of the formal and 93 of the informal ones) and to a lesser extent in construction (close to 20 percent of the formal ones) and services. Manufacturing accounted for only 2.5 percent of the formal enterprises. Trading activities dominated among all size categories. This, in turn, has created some employment opportunities for women, who may otherwise be at a disadvantage in the labor market vis-à-vis the men, with a participation rate of just 40 percent against 81 percent among the latter (Das and O'Keefe, 2007, p. 9).⁶ No less than 43 percent of the informal enterprises were owned by women in 2004, against a mere 18 percent of those in the formal sector (Das and O'Keefe, 2007, p. 14).

Timorese enterprises are mainly home operations (61 percent of the informal and 43 percent of the formal). Only one-fourth of the informal and a little less than 40 percent of the formal ones had a 'formal' establishment (factory, shop or kiosk). Around 13 percent in the former category operated as mobile vendors or from street or market stalls.

Most firms are very new. The vast majority were set up after 1999, particularly during the first two years after the Indonesian exodus, 1999 and 2000, while 2003 and 2004 saw a decline in the wake of the reduction of UN activities in the country. The rate of attrition of registered business entities the latter year was high. In 2004, a mere 13.5 percent of the non-company licenses falling due, and 40 percent of the company licenses, were actually renewed. At the end of the year licenses were held by 1,800 companies and 2,760 other entities (Conroy, 2006, p. 18). Presumably most of the non-renewal was due to failure among small and micro-size enterprises, but not all of it. Some enterprises may simply have found it too costly to re-register in a situation where the control exercised by the authorities has not been very strict.

In an editorial in *Semanário*, José Gabriel (2008) referred precisely to this:

Speaking of enterprises, at the present time Timor-Leste possesses hundreds of thousands of enterprises registered in the Ministry of Development, but when we travel along the streets all over the country some enterprises have 'plates with their names', others don't have them, yet other enterprises have plates but don't develop any activity whatsoever. What became of them?

In spite of all obstacles, over 84 percent of the formal and almost 29 percent of the informal enterprises covered by the 2004 survey reported that they were going to hire new personnel next year (Das and O'Keefe, 2007, p. 18). (Presumably the lower figure for the latter category is due to the fact that more than half of them were one-man enterprises.) Following the political turmoil to which Timor-Leste has been subjected since 2006 one would suspect that figures are lower today.

Government Policy on Enterprises

The constitution of Timor-Leste envisages a leading role for the private sector and requires the economy to be based on market principles (Ministry of Development and Environment et al., 2004, p. vii). Overall,

⁶ The low figure could also be due to measurement problems: self-employment, part-time work, household work, etc.

however, Timor-Leste ranked as 168 out of 178 countries on the Ease of Doing Business Index computed by the World Bank (World Bank and IFC, 2007, p. 2), a very low rank, after such countries as Indonesia (123), the Philippines (133) and Laos (164) and very far from the top performers in the region: Singapore (1), Thailand (15) and Malaysia (24). The country has a long way to go.

The government is aware of this. Prime Minister Xanana Gusmão has stressed that the state and the private sector must walk hand in hand if Timor-Leste is to be developed economically (*Semanário*, 2008a). The state alone cannot create employment. For this a private sector is needed. What is not so clear is what this statement means in practice. Gusmão is not a fanatical supporter of private enterprise, and he is keen on establishing criteria that the private sector must adhere to: 'If we don't do what is necessary, our people will end up losing. Because of this we speak of criterion, what must be taken as the model to be followed by the private international sector, in order not to get lost' (*Semanário*, 2008a). One much discussed issue is transparency and communication in the deals between the public and the private sector, notably in issues related to government procurement, where the capacity of the chosen companies to carry out the projects is not always sufficient (Gabriel, 2008). Gusmão also stresses the importance of transparency within the private sector itself, to the benefit of its customers (*Semanário*, 2008a).

What has the government of Timor-Leste done then to promote the development of the private sector? The logical starting point is the observation that since the Indonesian exodus in 1999, the legal and regulatory framework in Timor-Leste has gradually moved away from Indonesian law. As could readily be expected, this has led to a number of ambiguities, contradictions and inconsistencies within the legal system. Another factor complicating the situation is the decision to adopt Portuguese as the official language, as well as the use of English in some cases during the UNTAET (United Nations Transitional Administration in East Timor) period between 1999 and 2002. Indonesian law was complicated enough in itself, the access to legal expertise familiar with it was limited for Timorese businessmen, and copies and translations of the laws were lacking (World Bank, 2006b, p. 9).

To complicate matters further, the economy had to be restarted virtually from scratch in 1999. A multi-agency Joint Assessment Mission tackled the most pressing short-term issues, like 'restarting the flow of goods and services, transportation, payments system, procurement, currency exchange, claims on deposits in Indonesian banks, micro-credit, taxes and customs, as well as a number of macroeconomic policies which 'included the need for clear rules to enable the private sector to restart activity; the crucial importance of financial intermediation, adoption of a tax system that would reduce the dependence on border taxes... a sound budget and expenditure process, and decisions on currency and exchange rate mechanisms' (Ministry of Development and Environment et al., 2004, p. 1).

The work was continued by the UNTAET administration, establishing banking regulations that allowed foreign banks to operate in the country as branches, introducing interim leasing systems, establishing a regulation for business registration, creating a system for personal income taxation and taxation of corporate earnings and adopting the US dollar as the currency of Timor-Leste. Activities slowed down somewhat in 2001. Emphasis was put on issues related to the upcoming elections, the constitution and politics in general, to the detriment of business

development. An attempt was made to draft a law regulating foreign investment, but ‘inertia’ in the production of laws and regulations relating to issues such as bankruptcy, leasing, contracts, land, non-bank financial institutions, cooperatives, NGOs, collateral, loan foreclosure and insurance, and others did not allow much progress to be made in the private sector regulatory framework’ (Ministry of Development and Environment et al., 2004, p. 1).

Subsequently, however, things began to move again. In 2003–04, legislation was begun on the oil sector. A petroleum tax law and a petroleum mining code were drafted. The corporate tax was reduced from 40 to 30 percent (Ministry of Development and Environment, 2004 et al., p. 2).

In 2005 two investment laws were passed, one on domestic and one on foreign investment. These laws make for tax deductions for the employment of Timorese nationals for five to ten years (five in Dili, seven in rural areas and ten in Oecussi or Ataúro), tax and duty exemptions on capital goods, raw materials for the manufacturing sector, semi-finished products, components and spare parts as well as fuel for power generation. The minimum investment required is US\$ 100,000 for foreign and US\$ 5,000 for domestic firms. This has the disadvantage that it discriminates against foreign investment. Also, the tax deduction for employment has been made dependent on the number of employees, which discriminates against small firms. Complaints have also been voiced against the administrative complexity of the regulations which may lead to delays and arbitrariness in the bureaucracy. It appears desirable to merge the two investment laws into a single, simplified, one (IFC and ADB, 2007, p. 48).

Two agencies have been created to facilitate the establishment and development of businesses in Timor-Leste: Trade Invest Timor-Leste (TITL) whose task it is to attract foreign investment and promote exports, and a domestic Instituto Apoio Desenvolvimento (IADE – Empresarial Institute for Entrepreneurial Support). The idea is that these should act as facilitators, hopefully one-shop stops, for investors. IADE is taking over the functions of the successful Business Development Center network created after 2001 as part of a World Bank-sponsored small enterprise project (World Bank, 2006b, pp 10–12).

Legislation takes time. However, implementation of existing laws often appears to be more of a problem than the drafting and passing of new legislation. A World Bank document summarizes the situation (World Bank, 2006b, p. 2):

Even in those cases where laws and regulations exist, there are widespread complaints that they are not being adequately administered. Despite recent progress, the court system is so overburdened with criminal cases that it has devoted hardly any time at all since 1999 to commercial dispute resolution, debt collection or other civil cases. There have been complaints about the difficulties in registering a business. Bureaucratic hold-ups at the port have been a major problem. Getting approvals from Government departments, across the board, is a problem, capacity in the civil service is very thin, there are bottlenecks caused by the centralization of decision making at higher levels, and there have been anecdotal reports of corruption in some public entities.

The problem is compounded by the fact that as time goes by more and more new laws and regulations come into force, which of course increases the demands put on the government institutions that have to interpret and implement them, in a situation where trained and experienced personnel capable of exercising sound judgment is lacking. At the same time, it must be emphasized that the government is aware of the situation and is doing its best to change the situation.

Institutional Obstacles

As things stand today, anyone who attempts doing formal business in Timor-Leste faces a number of institutional obstacles. This is amply borne out by the country's low rank on most indices computed in the Doing Business project of the World Bank (World Bank and IFC, 2007, Das and O'Keefe, 2007). Setting up a business in Timor is very costly, comparatively speaking. The average number of days required is 82, in 2008, against a best practice of 2, in Australia, which puts the country at rank 140 of 178. This is less than in countries like Indonesia and Laos, but much more than in Malaysia, the Philippines or Thailand. The Business Registration unit provides bad service. Its personnel is untrained and often there is considerable confusion regarding the interpretation of the rules. The World Bank has suggested a small number of simplifications which would presumably improve the business entry rank of Timor-Leste very considerably, by almost 100 places (World Bank, 2006b, p. 14). As it seems, the call has been heeded. In his budget speech to Parliament in December 2007, Prime Minister Xanana Gusmão (2007, p. 6) announced that his government had cut the time for issuing business activities registration and licensing certificates from 30 days to between three and five.

Enforcing contracts is even worse (World Bank and IFC, 2007, Das and O'Keefe, 2007). Timor ranks at the very bottom of the international scale: 178. It takes on average 1,800 days, involves no less than 51 procedures, and the cost amounts to more than 163 percent of the value of the claim. These values are way above those of the comparable economies in the region. Timor-Leste still lacks a civil code, and the courts are completely overburdened with criminal cases, so civil cases have had to wait. The country also lacks a supreme court. Its functions are at present handled by the Court of Appeal. Until recently, Timor-Leste has also lacked a cadre of domestic judges. This is because Portuguese has been instated as the official language and when in 2005 an examination of the judges in this language was undertaken every single one of them failed and had to be remitted to a two-and-a-half year course at the Legal training Center at the Ministry of Justice.

A World Bank document reports that discussions with private investors confirmed 'that they regard the court system as practically non-functional and since legal certainty is one of the major criteria upon which investment decisions are made, this weakness is a major deterrent to private investment in the country' (World Bank, 2006b, p. 18).

The political violence during 2006 and 2007 did nothing to improve the situation. On the contrary, the judicial system has had to struggle hard to uphold its functionality, and then mainly in the criminal sphere. At the end of January 2007, the total prosecution caseload amounted to 1,658, a figure which was significantly higher than the one from the end of 2005: 985, but still not as high as the 2,700 backlog from January 2005. Because of the language problem, the system rested on international judges, prosecutors and defenders until in mid-2006 the first

Timorese judges, prosecutors and public defenders who had completed their course work at the Legal Training Center could be reappointed on a probationary basis, under the supervision of international personnel. Another 12 were scheduled for graduation at the beginning of 2008 (World Bank, 2007a, p. 3).

The weakness of the judicial system is not found only in the court area. Timor-Leste does not have any alternative dispute resolution mechanisms that could act as substitutes for court decisions. The few practicing lawyers that were active in 2005 also had to undergo Portuguese training before they were allowed to go back to their profession. Timor-Leste furthermore lacks an approved accounting system and there is no certification of accountants and auditors in the country (World Bank, 2006b, p. 9).

Investor protection against insider looting of corporate assets is comparatively weak under Timorese law. The country ranks 122 out of 178. The index is an average of three subindices, all of which range from 0 to 10, where higher values indicate better investor protection. The extent of disclosure index (= 3) covers issues related to the approval and disclosure of proposed transactions to the shareholders and the public at large. The extent of director liability index (= 4) deals with the ability of investors to hold directors and board members liable for damage. The ease of shareholder suits index (= 5), finally, covers the investor access to information and related issues in case of a trial. Overall, Timor-Leste receives a score of 4 on the investor protection index

Property rights is another difficult problem, notably land rights. In spite of the promulgation of various land and property laws since 2003 (World Bank, 2006b, p.15), the basic weakness has not been addressed: the absence of reliable land titles. This makes it impossible to use land as collateral when obtaining a loan. Also, Timor-Leste ranks at the very bottom in the 2008 *Doing Business* survey (World Bank and IFC, 2007, p. 24) when it comes to the Registering Property indicator (which includes the number of procedures, the duration in number of days and the cost in percent of the property value), not because of delays and high costs, but because the country cannot even provide any cases. The 'complexity and incompleteness of the legal and regulatory framework and the lack of capacity in the Land and Property Department' (World Bank, 2006b, p. 15) makes it futile to even try.

Unfortunately, this situation can be expected to continue for quite some time (World Bank, 2006b, p. 15):

Although preparatory work on a land titling system has been underway in Timor-Leste for several years, the requirements are still complex and full implementation will depend on the resolution of conflicts over titles obtained during various periods in Timor-Leste's history. These include traditional land ownership structures dating back centuries, changes effected during the Portuguese and Indonesian occupations, the enforced uprooting of large sections of the population in 1999 [and 2006–07], and decisions taken during the UN transitional administration and under the rule of the present independent government. These uncertainties can be expected to continue until a new land titling system is fully designed and implemented. This will depend in turn on the completion of a cadastre, but progress on this so far has been very limited.

Completion of this complex framework has been subject to long delays, because of lack of capacity combined with slow decision making and the need to accommodate many stakeholders.

Export and import trade is tedious in Timor-Leste, especially the preparation of six different documents in the case of exports and seven in the case of imports, which in both cases requires 16 days. Adding customs clearance, controls, handling, etc. brings the total time to 25 and 26 days, respectively, at a total cost of close to US\$ 1,000 in both cases. Altogether this places the country at rank 78, worldwide, on the Doing Business index (World Bank and IFC, 2007). The new government has commissioned an independent study (World Bank, UN, New Zealand) of the functioning of the customs authority in order to detect possible irregularities and increase efficiency (Gusmão, 2007, p. 5).

Dealing with the tax authorities is comparatively easier. Here Timor-Leste is in position 62, outperforming countries like Thailand, Indonesia, Laos and the Philippines, with a (low) total of 15 payments per year, a total of 640 hours to complete the various tax statements and a total tax rate of 28.3 percent on profits (World Bank and IFC, 2007). The position may be expected to improve in the near future, since the company profit tax rate will be lowered to 10 percent. The government has also begun to reform the tax department, a potential corruption site.

Wages and the Labor Force

The wage level in Dili is very high in comparison to the one prevailing in neighboring countries (Das and O'Keefe, 2007, p. 25). The informal minimum wage of US\$ 85 is dramatically higher than the one prevailing for example in Vietnam or Indonesia, comparable, for example, to that of Uruguay in the 1990s, a country with a per capita income of almost US\$ 6,600 against US\$ 472 for Timor-Leste and 7.6 years of schooling on average among the population over 15 years, against 4.6 years in the Timorese case. The latter is comparable to that of the Dominican Republic, which had a minimum wage of US\$ 42 in the mid-1990s. The per capita income level, in turn, is comparable to that of Pakistan, where the minimum wage level was 50 US\$ in the mid-1990s. The monthly minimum wage in West Nusa Tenggara in Indonesia, finally, was US\$ 40 in 2003, less than half the figure for Timor-Leste (US\$ 85).

More important than the minimum wage is the actual wage level. The trade union movement is still weak in Timor-Leste, with the possible exception of such categories as the Dili port workers (Das and O'Keefe, 2007, p. 22). It is estimated that one-fourth of the urban workers earn less than the minimum wage (Das, 2004, p. 5), so in that sense, the minimum wage is not binding. However, that presumably goes for a number of the countries of comparison enumerated above as well. On the other hand, in 2001 the nominal monthly *average* wage in urban areas was US\$ 150, to be compared with the informal minimum wage of US\$ 85. Three years later, the figure was only marginally higher: US\$ 158. Given the inflation rate that prevailed during the intermediate years: 10 percent 2001–02 and 4 percent 2002–04, it hence seems as if the real wage declined (Das and O'Keefe, 2007, pp. 23, 25). It should be noted, however, that the figures are averages for various worker categories and hence a bit difficult to interpret. In which direction the future lies will to a great extent be determined by the extent of continued international presence, in particular in Dili.

The wage level has to be compared with the skill level of the employees. In the 2004 survey, formal employers reported various kinds of deficiencies among their personnel (Das and O'Keefe, 2007, p. 27):

Across all categories of workers, English and Portuguese language skills were identified as the most important skill gap. Manual workers need a range of skills, the most important of which appear to be language, technical and practical skills, and basic numeracy/literacy. The most significant skill gaps for service workers appear to be language, customer handling skills, and administrative and financial skills. In the case of administrative workers, enterprises report them as being most deficient in administrative and financial and language skills. Technical and professional workers appear to need language and technical/practical skills, while managerial workers need to hone language skills most, but also their management, administrative, marketing, and negotiating skills. Clearly therefore, language skills and technical skills appear to be the most lacking among workers of formal enterprises.

This does not necessarily mean that these are the skills demanded by employers. When asked which skills they considered would become important during the two next years, formal employers pointed to customer handling, driving, problem solving as well as advanced IT and software, before technical and practical skills, literacy, numeracy, communication and foreign languages. This will put demands both on the general education system and on training within the enterprises themselves. Some 40 percent of the latter provide such training, possibly because they do not value the formal training institutions highly (less than 40 percent of the formal employers). Short courses are in much more demand than the three-year programs supplied at present (Das and O'Keefe, 2007, pp. 27–29).

To what extent the workforce constitutes a constraint to enterprise growth in Timor-Leste is not clear. Less than 15 percent of the formal employers and less than 2.5 percent of the informal ones reported that they had problems finding appropriate workers (Das and O'Keefe, 2007, p. 21). It should, however, be noted that this does not tell us anything about the views of the *prospective* entrepreneurs, those thinking of setting up a business.

Timor-Leste is in the middle range on the Doing Business index when it comes to hiring and firing: number 73 of 178, with a rigidity of employment index of 34 (an average of three subindices: the difficulty of hiring, the rigidity of work hours and the difficulty of firing; the maximum rigidity is 100), zero non-wage labor costs and a firing cost of 17 weeks of wages (World Bank and IFC, 2007). This may in part have to do with the fact that Timor-Leste lacks a formal labor code. Still, labor regulations stand out as relatively rigid in comparison with the state of art in most countries in East Asia and the Pacific. However, the country ranks favorably in comparison with for example Indonesia, the Philippines and Laos.

Infrastructure

The infrastructure in Timor-Leste is very poor and presumably a large obstacle to the development of a modern sector. It is even likely that the situation is worse than during the Indonesian occupation. Indonesia invested a substantial amount of resources in the development of, for instance, roads, partly as a means of facilitating troop movements (Lun-

dahl and Sjöholm, 2007, p. 16). However, the destruction of infrastructure in 1999 was extreme. For instance, 85 percent of the telecommunications structures, the airfield in Dili, and large parts of the electricity producing capacity were destroyed (Lundahl and Sjöholm, 2005, p.6), and all of it has not been replaced.

Even with good infrastructure that would make Timor-Leste a single integrated market, this market would be of a very small size but for instance the lack of roads makes transports costly and slow, and segments an already small market into even smaller parts. It is estimated that the length of existing roads is about 1,400 kilometers (IFC and ADB, 2007, p. 64). This is insufficient when it comes to reaching much of the territory. The situation is particularly troublesome in the rural areas. One sign of this is that country people have to walk by foot for an average of two hours to get to the nearest market (UNDP, 2006, p. 29).

Not only the quantity but also the quality of the roads needs to be addressed. Only around 30 percent of the major roads are of reasonable good quality and most secondary roads are in very poor shape (Ministry of Agriculture, Forestry and Fisheries, 2004, p. 2). The situation is even worse during the rainy season when many roads become impossible to use. Some observers claim that it is particularly urgent to address the poor quality of rural feeder roads (IFC and ADB, 2007, p. 64).

Access to international markets is of crucial importance for a modern sector, both to secure timely and efficient delivery of inputs and to facilitate transport to export markets. Aviation is underdeveloped in Timor-Leste which has a single international airport, Dili, with no more than two daily international flights, one to Indonesia and one to Australia. There is no airline providing regular routes within Timor-Leste (UNDP, 2006, p. 18). The port in Dili is used for most international transports but the capacity is low and the process of clearing goods slow. Domestic ferry routes are also undeveloped, and the longest one going from Dili to the enclave Oecussi is kept in operation only through financial assistance from the government and foreign donors (UNDP, 2006, p. 18).

When it comes to power supply, the situation is once more precarious: only about 20 percent of all households have access to electricity, and more than half of these households are in Dili (IFC and ADB, 2007, p. 43). Only 10 percent of rural households have access to electricity (UNDP, 2006, p. 19). The cost of electricity is very high mainly because power generation to a large extent depends on imported diesel fuel. However, most of this cost falls on the government which subsidizes electricity.

Poor maintenance and lack of spare parts means that the full capacity of the existing power plants is not used. Moreover, extensive bypassing of prepaid meters encourages wasteful use of electricity and contributes to power supply shortfalls during peak hours (IFC and ADB, p. 45). Recently, however, there have been some indications of improvements. In particular, the operation of the Comoro Power Station since 2007 has increased the power supply capacity significantly (IFC and ADB, 2007, p.43).

The final aspect of infrastructure which is relevant for the business sector is telecommunications and IT services. Both may to some extent mitigate the negative effects of a dysfunctional physical infrastructure. (For instance India is a good case in point.) Unfortunately, here again the situation is one of poor availability and high prices. For instance, the IFC and the ADB (2007, p. 59) claim that only about 5 percent of the population have access to telecommunications in the form of fixed telephone

lines, mobile service or internet. The 2007 survey of living standards gives a figure of 11 percent of all households for mobile phones, whereas access to computers is almost non-existent according to the same source (cf. *Table 3*). One of the main causes of the problematic situation seems to be the monopoly by the Timor Telecom which is said to restrict supply and increase demand (IFC and ADB, 2007, p. 60).

Credit

Access to finance is a major problem for Timorese enterprises. The country ranks as low as 170 out of 178 in this category of the Doing Business index (World Bank and IFC, 2007). The financial system which existed during the Indonesian occupation was completely destroyed in 1999 and had to be rebuilt. A World Bank report summarizes the situation prevailing in 2006, one of strong excess demand for credit (Conroy, 2006, pp. 6–7):

Since the reintroduction of banking, the level of domestic credit has grown as a proportion of non-oil GDP, suggesting some recovery of financial depth, while rising bank deposits as a proportion of non-oil GDP point to improving levels of financial intermediation. Financed in the aggregate entirely by domestic deposits, bank credit rose very rapidly throughout 2004 to reach almost 22% of non-oil GDP early in 2005. This was only half the proportion for all 'low-income' countries, of which Timor-Leste is one. The system was intermediating 87% of the deposits to domestic lending. Together with evidence of excess demand for expanded savings mobilization to bring Timor-Leste up to a more appropriate level of financial depth.

[...] There is substantial unsatisfied demand for financial services and the great majority of the population untouched by formal financial services. Historical experience from the years of Indonesian rule suggests that aggregate savings in Timor-Leste could increase substantially beyond the 2005 level. With a population of some 200,000 households and fewer than 60,000 deposit accounts in 2005, it would be appropriate to plan the extension of services to the great majority of these households ... A total of 200,000 deposit accounts in all classes of institutions by 2010 would be realistic.

The banking system is very undeveloped in Timor-Leste (Conroy, 2006). The Banking and Payments Authority is best described as an embryonic central bank, with a limited role, since Timor-Leste uses the US dollar and inflation control rests largely on fiscal policy. The scope of activities of the three commercial banks that operate in the country is limited as well. Each one has its own niche. The Australia and New Zealand Banking Group (ANZ) has catered mainly to the international community and serviced trade with Australia. Deterred by unsuccessful experience, the bank has essentially withdrawn from credit operations. It can be considered as a non-lending institution.

The Caixa Geral de Depósitos (CGD), a Portuguese, state-owned bank, has been much more active, accounting for over 85 percent of all bank credit in Timor-Leste. It has offices not only in Dili but in several provincial towns as well, and its lending operations have grown rapidly. It has strong links with the government of Timor-Leste, handling salary payments to civil servants and extending 'payroll' credits, secured by salaries, for consumption purposes to them. It also services trade with Europe, notably Portugal. The bank is the main provider of commercial

bank credits to small-scale and micro enterprises in the country, mainly to the construction sector, presumably mainly to households for reconstruction of houses (40 percent of the total) and to a lesser extent (less than 20 percent) to the 'trade and finance' sector.

The third bank, the Bank Mandiri, a state-owned Indonesian bank, with some 10–12 percent of the total bank credit, concentrates mainly on trade with Indonesia and on servicing Indonesian interests in Timor-Leste, but it has also extended credit to the largest Timorese microlending institute and to a coffee producer cooperative. The remaining 2 percent or so comes from the *Instituição de Microfinanças de Timor-Leste* (IMfTL), which is best described as a quasi-bank operating with a limited banking license, providing microfinance.

Overall, the credit extended to the business sector has been very limited. (Conroy, 2006, p. 33):

From inspection of BPA records for late 2004 and early 2005, it appears that overall the banking system provides negligible finance for agriculture, industry or tourism (although Mandiri allocated almost 10 % of its lending to industry). In aggregate, the largest loan category appears to be construction, including the rehabilitation of housing, at around 40 % of the total (but only 2.3 % of Mandiri's lending), followed by 'trade and finance' at around 19 % (but for Mandiri 69 %). 'Individual borrowing forms some 7 % or 8 % of the total (Mandiri 0.1 %), while 'transport, communications and services' account for around 5 % (Mandiri 15 %).

Bank Mandiri is the main lender to trade, services and industry, but it provides only negligible finance to housing. It does, however, not reach very many clients: 91 in May 2005, with an average mean balance of almost US\$ 94,000, a large figure in Timor-Leste (Conroy, 2006, p. 33).

The commercial banks reach very few actual and prospective entrepreneurs, and they do not reach small businessmen or – women at all. This has been the task of the microlending institutions. The latter have formed the Association of Microfinance Institutions in Timor-Leste (AMFITIL) (Conroy, 2006, pp. 40–44), which serves as a standard-setting and self-regulatory organization.

The largest member of AMFITIL, *Instituição de Microfinanças de Timor-Leste*, is situated somewhere in between the commercial banks and the microcredit institutions proper. IMfTL offers direct microfinance (Conroy, 2006, p. 38):

... including group loans with weekly repayments, extended mainly to women (some 1,2050, with mean balance outstanding of \$46). About 290 market vendors have daily repayment loans at an average outstanding balance of \$130. In addition, there is some seasonal crop lending (more than 500 loans with mean balance around \$230) and a group of somewhat larger 'business' loans (180 at about \$400).

The micro finance loans have not been without problems. Delinquency rates (30 days or more overdue) have been high, possibly as high as 25 percent on average. 'Management of overdues is said to be lax' (Conroy, 2006, p. 38).

Microfinance loans, however, constitute a small part only of the IMfTL activities. No less than 80 percent of its loans consist of payroll lending, secured by the salaries of the borrowers, divided among some 1,500 borrowers. Presumably many of these loans have in practice financed microenterprises of various kinds.

The most important and best performing of the pure microfinance

institutions is Moris Rasik, a Grameen Bank-inspired organization backed by a credit line from the Bank Mandiri, with some 7,000 borrowers in late 2004, a mean balance outstanding of US\$ 70 and a low 3.6 percent portfolio at risk. Moris Rasik also provides credits of up to US\$ 1,000 to borrowers who have successfully serviced at least four progressively larger loans, although the core of its activities is microfinance proper. No microfinance institution has yet achieved sustainability. At the end of 2004, together, the four largest operators earned only 57 percent of what was required for sustainability, or 40 percent if financing costs were also taking into account. The entire sector is dependent on support from international non-governmental organizations (Conroy, 2006, p. 42).

During the Indonesian occupation of Timor-Leste some 27 credit unions also operated in Timor-Leste. The system collapsed in 1999 and a subsequent Asian Development Bank monitored effort to revive it between 2001 and 2003 failed. In 2004, the effort was discontinued. Altogether, the AMFITIL lender organizations (including ImfTL) for which data are available (8 out of 11) served 19,200 borrowers at the end of 2004, out of an estimated economically active population of 435,000 (the 'maximum' market) (Conroy, 2006, p. 28).

Overall, in Timor-Leste, enterprises on all levels, except perhaps the largest ones (very few) which may use cross-border arrangements, experience problems when it comes to obtaining investment and working capital. The number of commercial banks is very low, lending is limited and competition is restricted. The microfinance sector is not yet consolidated but is dependent on subsidies. The 2004 enterprise survey found that access to capital appears to be the most important constraint to entrepreneurial development in Timor-Leste (Das and O'Keefe, 2007, pp. 19–20). Almost 84 percent of the formal and almost 88 percent of the informal enterprises had relied on personal funds for start-up capital. Less than 7 percent in both categories had obtained bank loans, i.e. institutional finance for setting up an enterprise was virtually unavailable. This, in turn, contributed to keeping the start-up capital low, less than US\$ 1,000 for one-fourth of the formal and close to four-fifths of the informal enterprises. More than 60 percent of the former and 81 percent of the latter also reported financial constraints as the most important barrier to expansion.

Internationalization

The internationalization of entrepreneurship in Timor-Leste has been slow. The main achievements have been the production sharing contract with Australia for the Bayu Undan oil field and the two agreements, also with Australia, which will make possible the development of the Greater Sunrise field (Downer, 2007), hitherto the object of territorial dispute between the two countries, the Timor Telecom venture, and the three foreign commercial banks. The agency responsible for the promotion of foreign investment, Trade Invest Timor-Leste (TITL) has also signed a few letters of intent with potential overseas investors, a fisheries project and an oil refinery, among others, and a few more projects may be underway (World Bank, 2006b, p. 11), but in practice very little has happened. The oil sector will not contribute anything in terms of employment or spillover effects into the rest of the Timorese economy, since they are located outside the country's *terra firma*.

The fact that the country has two different investment laws, which make a strong difference between foreign and domestic companies, favoring the latter, does not help. Nor do the awkward procedures for exports and imports, and the same argument may be advanced for all the other factors that we have dealt with, with the possible exception of credit, where foreign companies may have a competitive edge since they are not dependent on Timorese facilities.

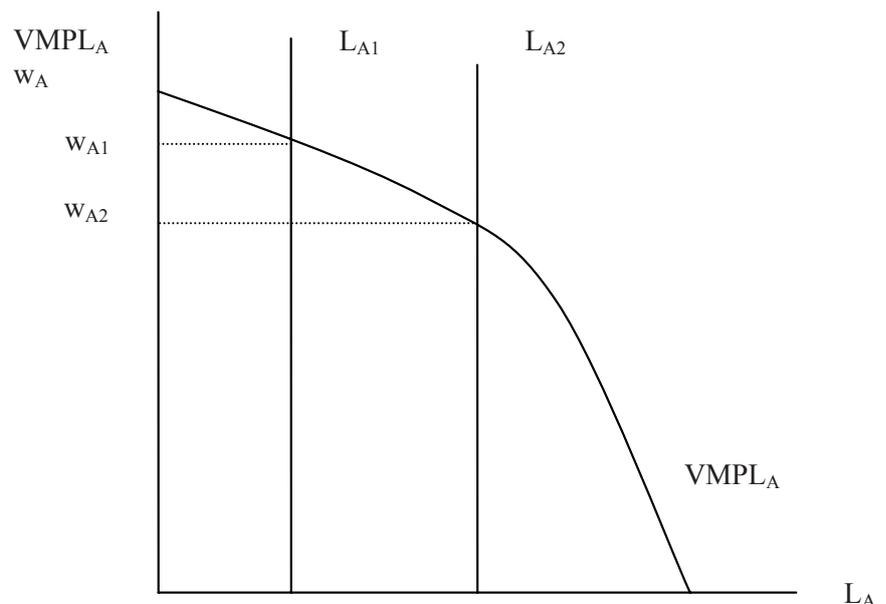
In one sense, the main internationalization effects are those that stem from the presence of the international community in a post-conflict setting, but such ventures are often inherently footloose. Hotels and restaurants are easy to close. Whenever, political and social conditions get to the point where this presence is no longer required, demand will contract, and unless other non-agricultural business opportunities have by then been developed, the urban economy risks to find itself at the end of a temporary bubble. By and large, the sustainable internationalization of entrepreneurship in Timor-Leste lies in the probably not so near future.

Traditional Agriculture: A Sink

The only possible conclusion to be drawn from our computational exercise and our survey of the problems of entrepreneurship in Timor-Leste is that the agricultural sector will continue to act as a sink for the labor force. Even the most optimistic assumptions with respect to labor absorption in the modern sector yield output growth rates that are completely unrealistic. This conclusion is borne out by a comparison of the distribution of the labor force in 2001 and 2007. As indicated by *Table 5* above, if anything, the share of the agricultural sector in total employment grew between these two dates.

The problem with labor absorption in subsistence agriculture is that it is subject to diminishing returns. As shown in *Figure 5*, when the supply of labor increases in the sector, from L_{A1} to L_{A2} , the value of the marginal product in agriculture decreases and with that also the implicit agricultural wage and, with a given land area, income per capita.

Figure 5: Diminishing Returns in Agriculture



The question that arises at the present stage is what can be done to increase productivity and incomes in the agricultural sector. As John Conroy (2006, p. 21) puts it:

While the transfer of labor from agriculture to industry and services is a necessary structural change, the present imbalance in numbers between the farm and non-farm sectors makes it essential to maintain the capacity of the farm sector to absorb labor. Hence, while it is necessary to strengthen the capacity of the non-farm economy to generate opportunities, the parallel improvement of economic prospects for the young in rural communities is necessary. It is more accurate to describe this as facilitating rural income-generation, rather than as 'job-creation'.

To this we will now turn.

On the most basic, and quantitatively most important, level we find the peasants. Some 80 percent of all Timorese are dependent on agriculture for a living, but productivity is low in the sector. It only accounts for some 30 percent of non-oil GDP (World Bank, 2006a) and one of its most important economic functions is to serve as a 'sink' for the growing labor force in the absence of gainful employment outside the sector.

John Conroy (2006, p. 20) has argued that the discussion of 'private sector development' in Timor-Leste has to take this as its point of departure:

Given these circumstances, it is pertinent to ask the question; what is the meaning of 'private sector development' in Timor-Leste? With such a large subsistence element remaining in the rural economy, it seems most appropriate to commence private sector development there. This would be done by managing the transition of farm households from subsistence to monetized production, and by encouraging them to produce marketable surpluses. Such surpluses would require increasing levels of agricultural productivity, per unit of both land and labor. Fortunately, a self-contained rural economy producing food mainly to the limit of its own subsistence requirements, as in Timor-Leste, will normally have unused resources of labor and land. Given the stimulus of market demand, these can be brought into production to increase output and to diversify into higher value crops. These may be commodities such as coffee, vanilla and high-end coconut products, or ... foodstuffs for domestic consumption. While the former will support export expansion, the latter can help to improve nutritional standards and consumer welfare more generally, through greater diversity of food supply.

Conroy hence suggests that increased demand for either cash crops or food crops may serve to increase agricultural production, notably production for the market. He also suggests a second mechanism that may serve as a stimulus (Conroy, 2006, p. 21):

Specialized traders underpin the operations of local markets in villages and sub-district centers. Most other market traders in these centers are members of farm households. They come to sell small amounts of seasonal produce, but also buy consumer goods produced in the formal sector. In Timor-Leste they bring produce to the market to gain access to cheap and appropriate Indonesian consumer goods. There is evidence to suggest that in districts where such goods are more readily available the level of informal monetized economic activity is relatively high. The availability of consumer goods, in

marketplaces and village 'kiosks', stimulates production and marketing of subsistence foodstuffs and other higher-value, crops. This in turn improves nutritional standards, especially of wage- and salary-earners, most of whom are in urban areas.

Thus, as in many other peasant societies, according to Conroy, peasants will not bother to produce for the market, unless they can get access to industrial or other consumer goods which they cannot produce themselves.

Conroy's overall argument implies that the subsistence sector resembles the vent-for-surplus economy portrayed by Hla Myint (1958), where both labor and land are unemployed for lack of demand. The economy is producing at some point inside its production possibility curve, to use a textbook term, and if and when the demand for its goods increases, combining land and labor in the prevailing fixed proportions may serve to bring it quickly to the curve, where production becomes efficient in the sense that it will no longer be possible to increase the output of any given commodity without simultaneously reducing that of some other good. There are no longer any unused resources in the sector.

Whether such a process will materialize is, however, doubtful. In the first place the land frontier that exists in the economy must be put under the plow, as it were. The frontier must be 'cleared' before it can be used for production and this is costly in itself (Findlay and Lundahl, 1994). Second, it is only at the macro level that a hand-in-hand expansion of labor and land can take place. The process does not work at the level of the individual household. The confused situation with respect to property rights (Fitzpatrick, 2001, 2002) makes it probable that when the agricultural labor force grows, most of the absorption of this growth will take place on land already under cultivation. Labor absorption in agriculture, however, is subject to diminishing returns, i.e. to falling income per head. Thirdly, even if land and labor can be combined in fixed proportion, diminishing returns to labor are likely to set in, since the land added to cultivation is likely to be either of lower and lower productivity or of more and more distant location, in the Ricardian fashion.

A Model of the Agricultural Household in Timor-Leste

With the above proviso, we may shed some light on the question whether agricultural 'entrepreneurs' will seize the opportunities offered by the market with the aid of a simple model of farm household behavior (cf. Lundahl and Ndulu, 1990). In this model, the utility function of rural households contains three elements: consumption of food and purchased commodities, respectively, and leisure, and households produce food and a cash crop (which they do not consume themselves) on a given land area. The consumption and production decisions are hence interdependent. The households maximize their utility given the relative prices of cash and food crops. (The price of purchased goods is the *numéraire*, i.e. the prices of other goods are measured in terms of the number of units of purchased goods they can buy.) Utility maximization yields an equilibrium, where the households distribute the available time between production and leisure, the time devoted to production between cash crops and food production and the resulting income between the consumption of food and purchased goods, all according to their preferences and the prevailing relative prices. It also determines how much food is sold on the market.

The utility function of the agricultural household is

$$(5) \quad U = U(F, M, L_e)$$

where F denotes food, M purchased goods and L_e leisure. Utility is positive and diminishing for all arguments of the function.

Households produce two crops, food and cash crops, with the aid of labor and a fixed quantity of land. The cash crop is not consumed at all by the households themselves, but the entire output is sold outside the agricultural sector:

$$(6) \quad q_f = q_f(L_f)$$

$$(7) \quad q_c = q_c(L_c)$$

These production functions display diminishing returns to labor. The total quantity of labor (time) is divided between leisure, food and cash crop production:

$$(8) \quad \bar{L} = L_e + L_f + L_c$$

Households maximize their utility subject to (8) and to

$$(9) \quad M = [(p_f/p_m)q_f(L_f) - F] + (p_c/p_m)q_c(L_c)$$

where the p 's denote prices. The price p_m is equal to 1, since purchased goods are used as the *numéraire*. What is available for spending on purchased goods is the sum of the value of food production minus what is sold in the market and the value of cash crop production.

Utility maximization yields the following first-order conditions:

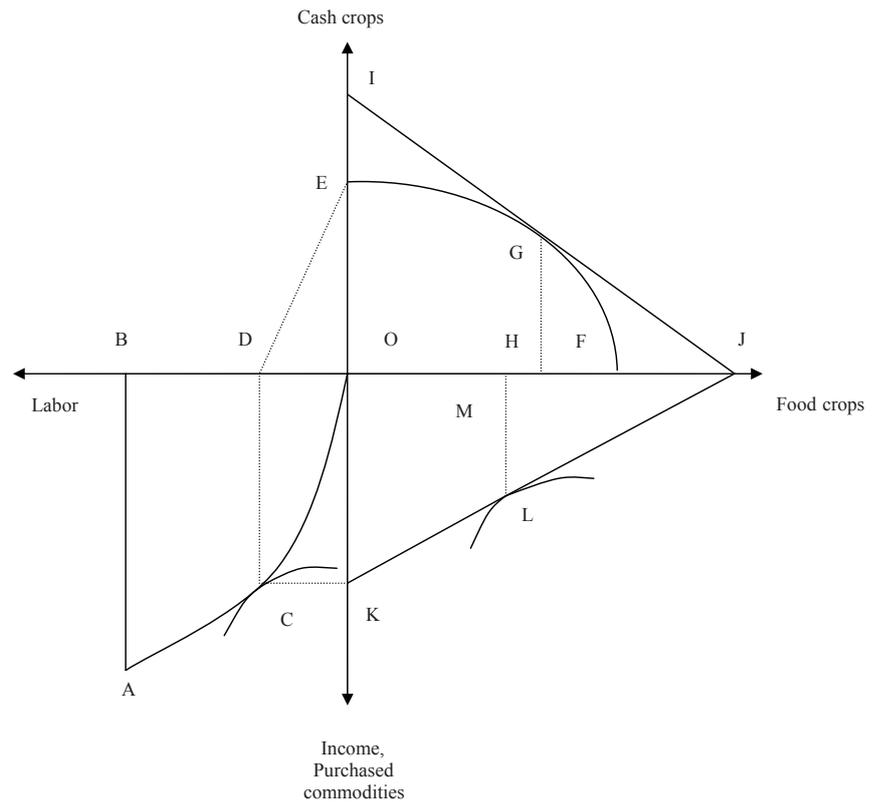
$$(10) \quad U^M(p_f/p_m) = U^F$$

$$(11) \quad U^{L_e} = U^M(p_f/p_m)q_f^L = U^M(p_c/p_m)q_c^L$$

where the superscripts denote first derivatives. In equilibrium, the valuation of a unit of food must be the same at the margin regardless of whether the household chooses to sell it in order to buy purchased goods or consumes it in the household. Also, at the margin the household must obtain the same satisfaction of a unit of time regardless of whether it is dedicated to leisure, food production or cash crop production.

The situation is illustrated in *Figure 6*. Beginning with the OA curve, this shows the income-leisure tradeoff for the household. The number of hours available is OB . Work (as opposed to leisure) is measured leftwards in the diagram, and income downwards. The more hours the household works, the higher is its income, which increases at a decreasing rate. Given the preferences of the household for income and leisure, respectively, it chooses point C on the tradeoff, working OD hours and taking out DB hours of free time. This yields a total income of OK , measured in terms of purchased goods.

Figure 6: The Equilibrium of the Farm Household



The OD hours worked must be distributed between food and cash crop production. If only the latter is chosen, the maximum output will be OE, one of the two endpoints on the household's production possibility curve. If the household specializes on food production instead, the maximum output is given by the other endpoint of the curve, as OF. The production possibility curve is drawn on the assumption of a given factor endowment (labor, or work, and land) and shows the different possible combinations of food and cash crops that can be obtained with the aid of this endowment. The actual choice of production point is determined by the relative price of the two crops, as given by the price line IJ. This line is tangent to the production possibility curve at G, which is where the value of output is maximized at the given prices.

The output combination given by G gives a farm household income of OI, measured in terms of cash crops, or OJ, if we choose to measure in terms of food instead. Given the relative price prevailing between food and purchased good, this translates into an income of OK, in terms of the latter, our *numéraire*. The only thing that remains to determine is the consumption of the household, given this income, represented by the budget line JK. Given the preferences of the household for the two goods, the consumption point is L, where OK of the purchased goods is consumed and OM units of food. This, in turn, leaves a food surplus of MH, which is sold in the market.

Farm Household Response to Market Incentives

Next, we will use our model to examine the proposition offered by John Conroy (2006, p. 20): that Timorese farmers may be expected to increase production for any of the following three reasons:

1. Increased prices on cash crops
2. Increased prices on food crops
3. Reduced prices (increased availability) on goods not manufactured by the farmers but purchased from outside

We will next examine the probable effects of each one of these price changes with the aid of our model.

Increased Prices of Cash or Food Crops

Let us begin by examine what happens when the price of cash crops increases ($dp_c > 0$) while the other two prices are kept constant. The price increase serves to rotate the income-leisure tradeoff in *Figure 6* anti-clockwise, since the value of marginal product of labor in the production of cash crops increases. For any given labor effort in agriculture, the household income will increase. At the same time, leisure will become more expensive in terms of income forgone. Again, we have an income effect and a substitution effect, and it will not be possible to reach a general conclusion of whether more hours will be devoted to agriculture than before, or the number of leisure hours will increase. However, if leisure is an inferior good, as hinted by Conroy, the number of hours worked will increase. This is a quite realistic case in a poor economy. Households have plenty of idle time. Should income possibilities improve, it is then quite likely that the farm household prefers to work more and not less. Leisure does not even have to be inferior. It is enough that the substitution effect is strong enough to swamp the increased demand for leisure at given prices.

What will happen to the production of the two goods? The first-order condition (11) may be rewritten as:

$$(12) \quad (p_f/p_m)q_f^L = (p_c/p_m)q_c^L$$

Differentiating (8) yields:

$$(13) \quad dL_f = -(dL_c + dL_e)$$

and from (12), keeping p_m and p_c constant (normalizing all three prices = 1, at the outset), we obtain

$$(14) \quad q_f^{LL}dL_f = q_c^{LL}dL_e + q_c^L dp_c$$

Combining (13) and (14) gives us

$$(15) \quad -(q_f^{LL} + q_c^{LL})dL_c = q_c^L dp_c + q_f^{LL}dL_e > 0$$

provided that $dL_e < 0$, since $dp_c > 0$ and the second derivatives of the production functions are negative. By the same token we must have that $dL_c > 0$. Provided that the rise of the price of cash crops leads to a reduction of leisure, the production of these crops must increase. Even if dL_e is positive, the production of cash crops may increase, if the price rise is large. The production of food crops may increase as well, in the case where the reduction of the hours devoted to leisure exceeds the increase in the number of hours devoted to cash crop production. Finally, what will happen to the marketed surplus of food crops is uncertain. On-farm demand for it will increase if the production of cash crops, and hence

incomes, increases, since the relative price of food and purchased goods remains constant, but food production may also increase.

In the same way as above it may be demonstrated that an increase in the price of food will lead to increase food production provided that leisure is reduced or provided that the increase in the price of food is large. What will happen to on-farm consumption and the marketed surplus of food is not clear. When incomes rise in terms of the purchased goods the farm households will demand more of both these goods and food at given relative prices. However, there is also a substitution effect due to the increase of the relative price of food. This serves to reduce the consumption of food and increase that of purchased goods. The net outcome of this is not given. Very much depends on the income elasticity of demand for food products among the farm households themselves.

Normally, we should expect Engel's Law to operate, i.e. when incomes rise, less and less of the income increase will be devoted to food consumption, so that the share of the household budget spent on food will decrease as income increases. In Timor-Leste, however, this is not necessarily the case. Various empirical investigations have shown that households experience a shortage of food between November and April, i.e. for some four months every year (Lundahl and Sjöholm 2005, pp. 15–16; see also *Table 6*). Hence, given the low income level and the large share of the population living in poverty, it is far from certain that Engel's Law is operative. It is not possible to rule out the possibility that an increase in the price of food will lead to a reduction of the marketed surplus.

Cheaper Purchased Goods

Finally, we have to investigate whether a cheapening of the goods which the farm households purchase from the outside will serve as a stimulus to increased production and sales (in the case of food). Again, we differentiate (12), but this time holding p_f and p_c constant, while allowing p_m to fall. This yields

$$(16) \quad q_f^{LL}dL_f - q_f^L dp_m = q_c^{LL}dL_c - q_c^L dp_m$$

In the initial equilibrium the value of the marginal product of labor in food production must equal that in cash crop production (remembering that we have normalized all prices = 1 at the outset). Hence the second terms on both sides of the equality sign in (16) are equal. What remains is

$$(17) \quad q_f^{LL}dL_f = q_c^{LL}dL_c$$

Either the production of both food and cash crops will increase, or both decrease. Rewriting (13) as

$$(18) \quad dL_c = -(dL_f + dL_e)$$

shows that the crucial determinant here is what happens to leisure as purchased goods become cheaper. Since we have chosen the price of purchased goods as our *numéraire*, making these goods cheaper amounts to increasing farm household income. The income-leisure tradeoff in *Figure 6* will rotate anti-clockwise, exactly as when the price of cash crops or food increased. Once more, we have an income effect and a substitution effect, and if the net outcome of these is to reduce leisure (presumably the most likely case) the production possibility curve will shift outwards and the production of both

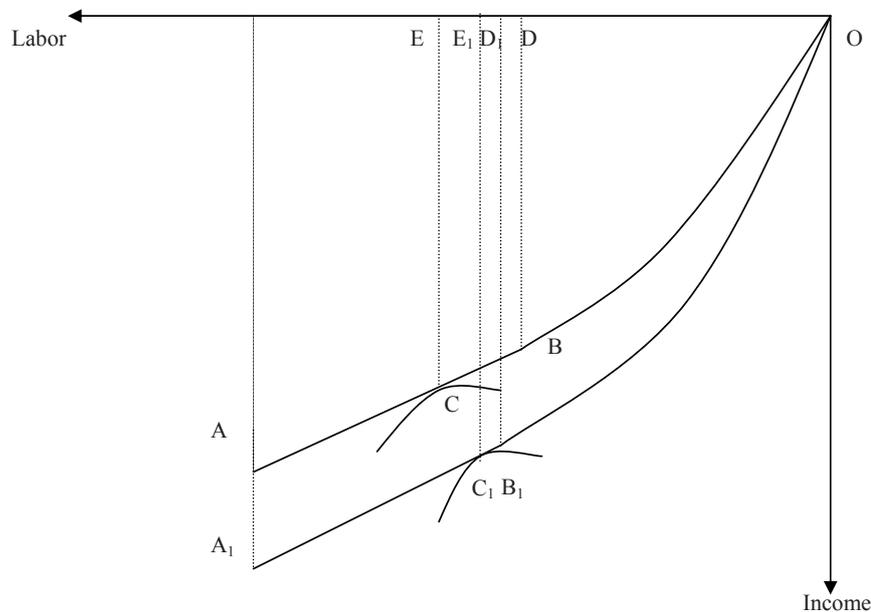
cash and food crops will increase. In the opposite case, it will fall. Again, what will happen to the marketed surplus of food crops is not certain. The same considerations as before apply.

The Importance of Outside Alternatives

So far, we have considered farm households with no options work outside of agriculture. The Household Survey carried out in 2001 (see Lundahl and Sjöholm, 2005, p. 14) reported two very significant findings 1.) Among those individuals that were in the labor force, those belonging to household whose heads were limited to farm employment were considerably poorer than when the heads worked in wage employment, household business or other outside ventures. 2) Almost 70 percent of all Timorese belonged to families with no or only small possibilities of obtaining income from outside agriculture.

This clearly points to desirability of creating employment outside the agricultural sectors. Smallholders in the third world often derive their income from a variety of sources, and this serves to increase their standard of living. This finding can easily be incorporated into our model. In *Figure 7* the possibility of earning a given outside wage equal to w/p_m , when measured in terms of purchased goods, has been incorporated. The household keeps working in agriculture until the value of the marginal product there falls to the level given by the constant outside wage. At this point (B), the the income-leisure curve becomes a straight line. Thereafter the remaining hours worked are spent in wage employment, up to point C. The income from this must be added to that from farm work. Hence, the total line will lie outside IJ, and outside the budget line JK. The incorporation of outside employment changes our conclusions. Let us begin with the case of increased prices of cash crops.

Figure 7: An increase in the Relative Price of Cash Crops



When p_f increases, as before, the income-leisure tradeoff rotates anti-clockwise, from OA to OA_1 . The value of the marginal product increases in agriculture, and more hours will be worked there. Outside work will no longer begin at B (or D), but at B_1 or (D_1). The total number of hours worked will, however, decrease. Provided that leisure is not an inferior

good, points C_1 and E_1 lie to the right of C and E , respectively as long as some outside work takes place both before and after the price increase. The reason is that the substitution effect disappears. Leisure is no more expensive at the margin after the price increase than before, since the marginal valuation is given by the wage rate and not by the price of cash crops, and the wage rate does not change. All that remains is the income effect, and this makes for increased leisure. Income increases as well, but as a result of the reallocation of work hours between wage labor and farm work. Should leisure on the other hand be inferior, C_1 will be to the left of C and E_1 to the left of E . Work will increase both inside and outside of agriculture at the expense of leisure.

Turning to the allocation of work hours between cash and food crop production, (12) may now be rewritten as

$$(19) \quad (p_f/p_m)q_f^L = (p_c/p_m)q_c^L = w/p_m$$

where the wage rate is given in terms of purchased goods. Also, the available labor time has to be distributed among leisure, crop production and outside work. This changes (8) to

$$(20) \quad \bar{L} = L_e + L_f + L_c + L_w$$

Differentiating (19) when p_c changes and the other two prices and the wage rate are held constant yields

$$(21) \quad q_f^{LL}dL_f = q_c^L dp_c + q_c^{LL}dL_c = 0$$

or

$$(22) \quad dL_c = - [q_c^L/q_c^{LL}]dp_c > 0$$

and

$$(23) \quad dL_f = 0$$

The output of cash crops increases while that of food remains constant. Here, price incentives work unequivocally, and since all cash crops are sold in the market, outside sales will increase as well. The marketed surplus of foodstuffs, on the other hand, will be reduced. Farm household income has increased, and both food prices and the price of purchased goods remain constant. Hence, there is only the income effect, and no substitution effect. The demand for both food and purchased goods among farm households will increase, but food output remains constant. The marketed surplus of food must therefore shrink.

The analysis is analogous for the case of increased food prices. There will be more leisure and larger food production while cash crop production will remain constant. In this case, however, we don't know with certainty what will happen to the marketed surplus of food. The price of the latter increases and the substitution effect will be reintroduced. Possibly the on-farm consumption will be reduced and more food will be sold outside.

The conclusions will change also when the price of purchased goods is reduced. The income-leisure tradeoff again rotates anti-clockwise, more leisure is enjoyed, less work takes place outside the farm and more inside. (16), in turn, becomes

$$(24) \quad q_f^{LL}dL_f - q_f^L dp_m = q_c^{LL}dL_c - q_c^L dp_m = 0$$

and

$$(25) \quad dL_c = - [q_c^L/q_c^{LL}] dp_m < 0$$

$$(26) \quad dL_f = - [q_f^L/q_f^{LL}] dp_m < 0$$

but $dp_m < 0$ so the production of both cash crops and food will increase. The farm households will increase their consumption of purchased goods, and possibly, but not with certainty that of food as well. However, since the production of foodstuffs increases as well, the net result of the cheapening of purchased goods may be both increased leisure (provided that leisure is a superior good) and increased farm production, and increased sales of both cash crops and food.

The model analysis has some policy implications. The first one is that we cannot be certain that price incentives will necessarily work for farm households that have no outside opportunities. The increased income opportunities may be converted to more leisure instead of to increased output. On the other, hand, given the widespread poverty in the countryside, this is perhaps less likely. Then, in the case of higher cash crop prices, more output will be put on the market. The case of food crops is different, since these are consumed also by the farmers themselves, and given the regular periodic food scarcity, an increased output is likely to be absorbed to a certain (unknown) extent by increased on-farm consumption. Access to cheaper purchased goods will increase the production of both types of crops, provided that it reduces leisure, but we as well we don not know with certainty whether this will result in more food in the marketplace or not.

The second policy implication is that once farm households get access to outside income opportunities, agricultural production is likely to increase as a result of price incentives. As long as leisure is not an inferior good, all three price changes will result in more leisure, but at the expense of outside work. The increases of the value of the marginal product of labor in agriculture that are due to the price changes will ensure that the output of the crop whose price increases will increase as well, and when purchased goods become cheaper, the production of both types of crops will expand. The marketed surplus of food will shrink when the price of cash crops increases, but not necessarily in the other two cases, where not only the on-farm consumption but also the production of food increases. (If leisure is inferior, both outside work and work in agriculture will increase. The effects on agricultural production will be the same.)

Thus, altogether, it appears likely that price incentives stand a better chance to work once the farmers have access to outside income earning opportunities as well. Also, in that case, improved access to purchased consumption goods may serve as an important stimulus to agricultural production. This, in turn, may be important for non-agricultural enterprises, which, as we have seen, often perceive that their operations are constrained by insufficient demand. However, the situation to a certain extent resembles that of the hen and the egg. If outside goods are avail-

able, farmers may produce more, and this may provide a market for domestic modern enterprises, but unless the latter provide outside goods in the first place, there may be no response from the farmers. The analogy is not perfect, however. The initial stimulus could come from imported goods, and once domestic entrepreneurs see this, they may develop substitutes for imports. But then, on the other hand, a business environment conducive to entrepreneurship must be created, and here, Timor-Leste has some way to go.

Concluding Remarks

The past year has been an eventful one in Timor-Leste. The country got a new president and a new government. Fretilin, the party which has dominated politics during the entire post-independence period lost the elections, and now the country is governed by a government resting on a four-party coalition under the leadership of Xanana Gusmão. The political violence that characterized 2006–07 has continued on a more irregular basis. It culminated with the shooting of President José Ramos Horta at the beginning of February 2008.

The new government has identified four main short-term political problems: the economic compensation of the war veterans, the resettlement of the internal refugees, the ending of the semi-guerrilla activities of the dissatisfied army soldiers who started the wave of riots that swept the country in 2006–07, and the ending of violence in general.

Economic growth has displayed an uneven and volatile trend during the post-independence period. Years of recovery have alternated with weak years and outright bad years, like the riot-plagued 2006. The new government is intent upon stimulating the economy by increasing budgetary spending. As it seems, funding is no problem, given the revenues emanating from the petroleum fund. Spending is another matter. While it should not be too difficult to increase recurrent spending, the difficulties when it comes to increasing capital spending to the budgeted levels continue to be substantial.

The development of the living standard in Timor-Leste since independence presents a somewhat mixed picture. Per capita income appears to have declined from 2002 to 2006, but the available statistics on ownership of durable goods do not confirm this. By and large they point to some progress between 2001 and 2007. The employment picture, on the other hand, leaves some causes for worry. Unfortunately, it seems as if the agricultural sector has increased its share of total employment, a finding that is consistent with a falling per capita income. The outlook for economic growth in the near future is uncertain. Different scenarios exist, but those which result in high growth tend to yield unrealistic demands on investment.

Social indicators as well paint a mixed picture of the last few years. The food situation, which by and large has been characterized by several months of insufficiency everywhere in the country, has improved, but only marginally, and malnutrition continues to be widespread, not least among children. Progress has, however, taken place when it comes to

child health, mainly through ambitious vaccination campaigns against major diseases. On the education side, some progress has been made in terms of literacy, although the available statistics are not always crystal clear. School enrolment figures have improved somewhat, but not the quality of education, which continues to be dismal in many instances. The situation is complicated by the linguistic situation in the country. A multitude of languages are spoken. All Timorese do not even understand Tetum, the *lingua franca*, and the official medium of instruction, introduced only after independence, is Portuguese. If official figures are to be believed, the share of the population speaking Portuguese has tripled since independence, but it is in no way clear what this implies in terms of practical language proficiency. The perceptions of the Timorese themselves regarding the change in well-being between 2001 and 2007, finally, are simply not consistent. Marginal improvements in terms of income, food, housing, clothing, health care and education somehow add up to a negative overall view of the change.

The bulk of the present report deals with the fundamental development problem of Timor-Leste, the problem of how to diversify an economy which rests all too heavily on subsistence agriculture into one with a modern sector capable of providing enough growth and employment both to absorb the new entrants in the labor market and reduce the dependence on the already overcrowded agricultural sector for employment and incomes.

At the root is the population problem. The growth rate of the population in Timor-Leste is among the very highest in the world, and it is difficult to make the growth of GDP exceed this rate. The situation resembles the classical population trap, where population and GDP growth rates balance each other, with the result that GDP per capita remains stationary in the longer run. The high population growth tends to create an infinitely elastic supply of unskilled agricultural labor, i.e. labor is available at a given wage rate. Possibly, this could serve as the basis for expansion of a modern sector, but in the Timorese case, this sequence of events has not materialized. The modern sector does not build on manufacturing. The industrial sector hardly exists at all, and its size has possibly even been reduced over the past few years. The Timorese modern sector consists almost exclusively of the state bureaucracy on the one hand and various service establishments catering to the international community, mainly in Dili. This sector has little use for completely unskilled labor. If anything, labor is scarce there, and non-service establishments have problems competing for the available workers.

As a result, the modern sector does not provide the growth which is necessary to prevent employment in agriculture from growing, a growth which tends to result in falling incomes. Modern sector growth cannot come from the public administration. It must rely on the private sector. The growth of the latter, is constrained by a variety of factors which operate to limit entrepreneurship in Timor-Leste. The existing enterprises are all of recent origin. The attrition rate among them is high, although official statistics may exaggerate the extent somewhat.

The business environment of Timor-Leste is not conducive to entrepreneurship. The political and social situation has recently been turbulent. Business legislation is incomplete and implementation is deficient. The courts are overburdened with criminal cases and bureaucrats lack experience. Setting up a business, enforcing contracts and exporting or importing are expensive and time-consuming. Investor protection is

weak and property rights are chaotic. Urban wages are high, transportation is bad, power is expensive and telecommunications are deficient. The main problem for prospective entrepreneurs is credit. Setting up a business requires personal funds. The country has only three commercial banks. One does no lending. The microfinance movement is not yet viable. Overall, the credit market is characterized by excess demand. The development of a sustainable modern sector will require both time and effort.

Meanwhile, agriculture will have to continue to absorb the additions to the labor force, as it has done in the past. This, in turn, leads to the question of how the agricultural sector works. The typical farm produces both food crops and cash crops (notably coffee) and consume food and manufactured goods purchased from the outside. They do so at the cost of leisure forgone. Since the vast majority of the Timorese are found in agriculture, finding ways of stimulating agricultural production and sales is of supreme importance for the living standard of the vast majority of the population.

The report analyzes three different stimuli: increased prices on cash crops, increased prices of food crops and reduced prices (or increased availability) on manufactured goods. Altogether, the examination of the mechanics of the agricultural sector tends to indicate that availability of outside employment alternatives has an important role to play not only when it comes to providing incomes but also when it comes to stimulating farmers to produce and sell more. People work in agriculture because they have no alternatives, but unless such alternatives are created, it may be difficult to stimulate agricultural production. The road towards a sustainable economy in Timor-Leste goes via the simultaneous development of the modern and the agricultural sectors. If no modern sector is created, the population will have to continue to be absorbed in subsistence agriculture. Diminishing returns to labor will be stronger and stronger and the economy will be put on a path of secular decline of the per capita income. The money is not lacking. The country has not managed to spend the entire annual revenue emanating from the oil fund yet. Seen in this perspective, the central issue in the foreseeable future is how Timor-Leste may increase its capacity to absorb the oil revenue in a productive way. The bottlenecks that constrain the spending of the capital budget must be broken.

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SWEDISH INTERNATIONAL
DEVELOPMENT COOPERATION AGENCY

SE-105 25 Stockholm Sweden
Phone: +46 (0)8 698 50 00
Fax: +46 (0)8 20 88 64
sida@sida.se, www.sida.se