

Industrial Oil Palm Development

**Liberia's Path to Sustained Economic Development
and Shared Prosperity?**

Lessons from the East

**Matthias Rhein
Seventy Three Pte. Ltd.**

FEBRUARY 2015



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“The purpose of studying economics is to learn how to avoid being deceived by economists.”

Joan Robinson, Economist, 1903–1983

Purpose

The purpose of this paper is to contribute to Liberia’s debate on economic policy, specifically, recent efforts around industrial-scale palm oil development against the context of the wider role of the rural sector in economic development.

Rationale

A real understanding of the technical detail behind economic analyses, or the specific economic policies supported by experts, can seem a daunting task for non-specialists in effect excluding them from any real participation in public decision-making. Fortunately, the biggest part of economics is just common sense made complicated. Economic principles can provide a useful framework for thinking through public policy issues without excessive detail or complicated tools. Once these principles are understood and the facts are presented, citizens can make robust judgments on economic policies that affect their lives and livelihoods, and challenge the experts.

Scope & Structure

This report is composed of two distinct parts, the palm oil story and the macro story:

- The first part takes a closer look at the features and impacts of large-scale palm oil development in Indonesia and, to a lesser degree, Malaysia. These countries supply more than 80 percent of the world’s palm oil and are home to transnational palm oil companies operating in Liberia, such as Sime Darby and Golden Veroleum. Hence, it is sensible to assume that these countries hold lessons for industrial-scale palm oil development in Liberia.
- The second part takes a broader view on industrial-scale crop development and the role of the rural sector in economic development in Liberia.

INDONESIA'S PALM OIL STORY

FEATURES & TRENDS

Production

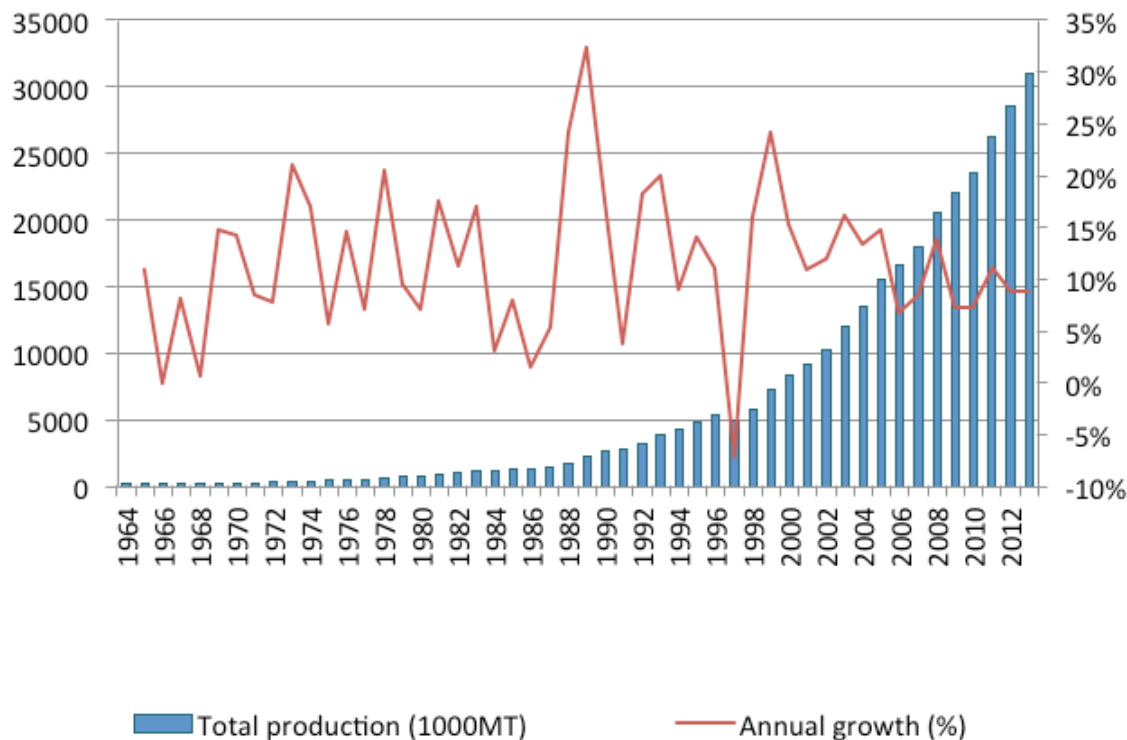
In 2008, Indonesia became the global leader in palm oil production, harboring the world's largest oil palm estate. Since the Asia Financial Crisis in 1997 until 2013, Indonesia's palm oil production expanded by an average of 12 percent annually. Current production is about 31 million tons of Crude Palm Oil (CPO) per year. The national production target for 2020 is 40 million tons per year.

Growth was driven by a historic commodity price boom and sustained by unprecedented levels of excess liquidity in global capital markets due to aggressive monetary policies (e.g., quantitative easing) and stimulus programs in ailing industrial economies after the global financial crisis in 2008.

Area

The production area has almost tripled since 1997, approaching eight million hectares. An estimated 15 million hectares have been licensed for oil palm development. About 65 percent of Indonesia's oil palm estate is located in Sumatra, followed by at least 30 percent in Kalimantan, three percent in Sulawesi, and the rest in other parts.

FIGURE 1: Indonesian palm oil production



Source: Directorate General of Estate Crops. Government of Indonesia, 2013.

Yields

There are many different CPO yields reported for Indonesia. The FAO reports 3.6 tons/hectare/annum (t/ha/a), while the OECD 3.4 t/ha/a. Yields reported by palm oil companies tend to be higher as they usually refer to the performance of fully stocked sample plots at peak production. Such figures neither reflect the age structure of an estate nor do they account for the fact that estates are never fully stocked. If we take these factors into account, the average CPO yield of Indonesian oil palm estates would be closer to 3 t/ha/a.

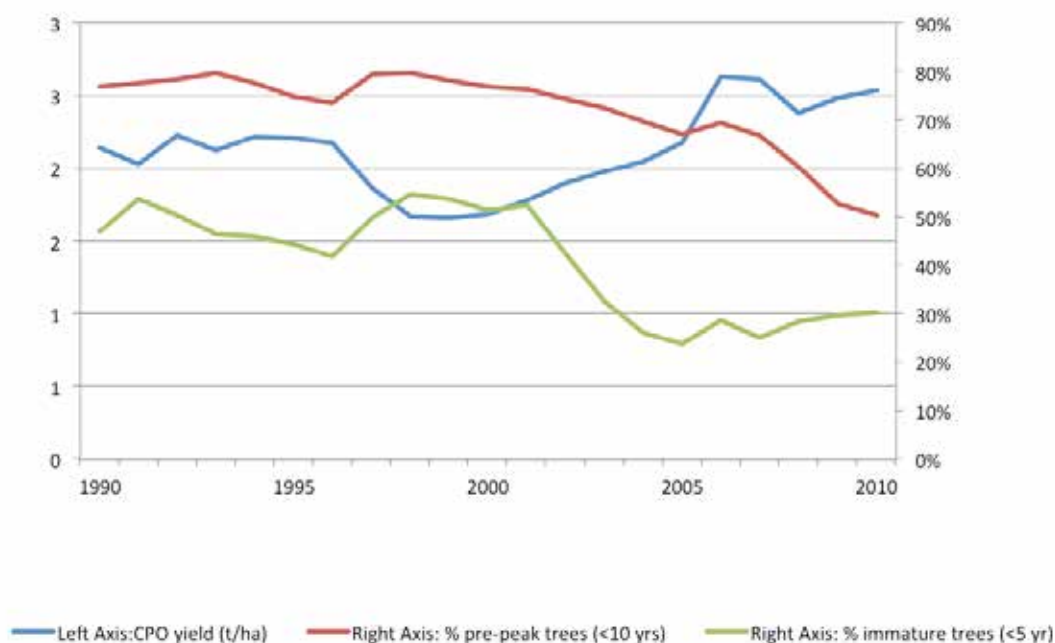
The trends in reported yields suggest that production has passed its peak in both Malaysia and Indonesia. CPO yields are now steadily declining on existing estates. While Malaysia has achieved increased yields compared to the 1990 level, Indonesia's yields dropped below the 1990 level. This trend becomes even more apparent when we adjust the data for the age profile of the Indonesian oil palm estate.

Productivity

The inherent productivity of oil palm has given it a head-start over other oil crops. However, other fundamental qualities, including its limited scope for mechanization, have precluded further productivity gains. In terms of output per worker, rapeseed and soybean are over 15 times more efficient than palm oil.

Due to the long innovation cycles of palm trees, which average about 25 years, seed companies have focused their R&D efforts on breeding improved annual oil crops strains.

FIGURE 2: CPO yields in relation to age class



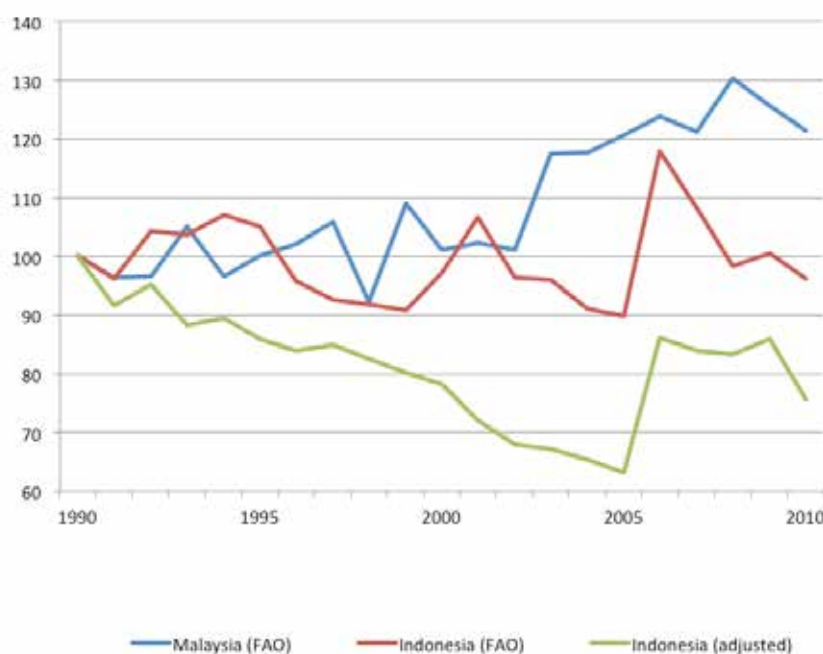
Source: Directorate General of Estate Crops. Government of Indonesia, 2013.

Until 2007, the average yield of a single crop of rapeseed was about 3.5 t/ha (1,600 liters of crude oil). To date, improved strains and hybrids (e.g., Visby) yield about 5.2 t/ha (2,360 liters of crude oil).

All reports reviewed during this study focus on oil yield when comparing different crops. This view can be misleading as it neither reflects crop-specific dynamics, nor does it capture the economic returns on land use:

- Oil seeds are annual crops that produce at peak from the first year, with annual productivity gains due to improved strains and high-level mechanization. An oil palm plot takes about four years to start producing and about seven years to reach peak production. After the peak, yields begin to decline until the end of the typical 25 year rotation cycle.
- A single plot of land under oil seeds can produce up to two additional harvests per year. A typical European farmer can produce between 150 to 220 t/ha/a of wheat grain in addition to 1,600 to 2,300 liters of crude rapeseed oil on the same plot within a single year. Once an oil palm plot closes its canopy, its only product will be palm oil for the next 20 years.
- An oil seed producer can switch crops every year to respond to changes in demand and prices. An oil palm farmer is locked into one market for decades, often tied to a single buyer, unable to adjust production to demand changes. At scale, this tends to cause structural oversupply when the market is slow, which further suppresses prices and reinforces boom and bust dynamics.
- The infrastructure for oil seed processing is inherently decentralized, competitive and dynamic. The infrastructure for palm oil processing tends to be concentrated in a few large companies.

FIGURE 3: Trends in CPO yields (Index: 1990 = 100)



Source: Directorate General of Estate Crops. Government of Indonesia, 2013.

In a nutshell, the palm oil industry does not achieve increased production through productivity gains on existing estates but through expanding the area under production. This is achieved by enlarging the estate under corporate control and/or by buying Fresh Fruit Bunches (FFB) from smallholders. Furthermore, new smallholders are encouraged to plant and tie themselves to the mill, thus expanding the area under production with development cost and risk carried by the smallholders.

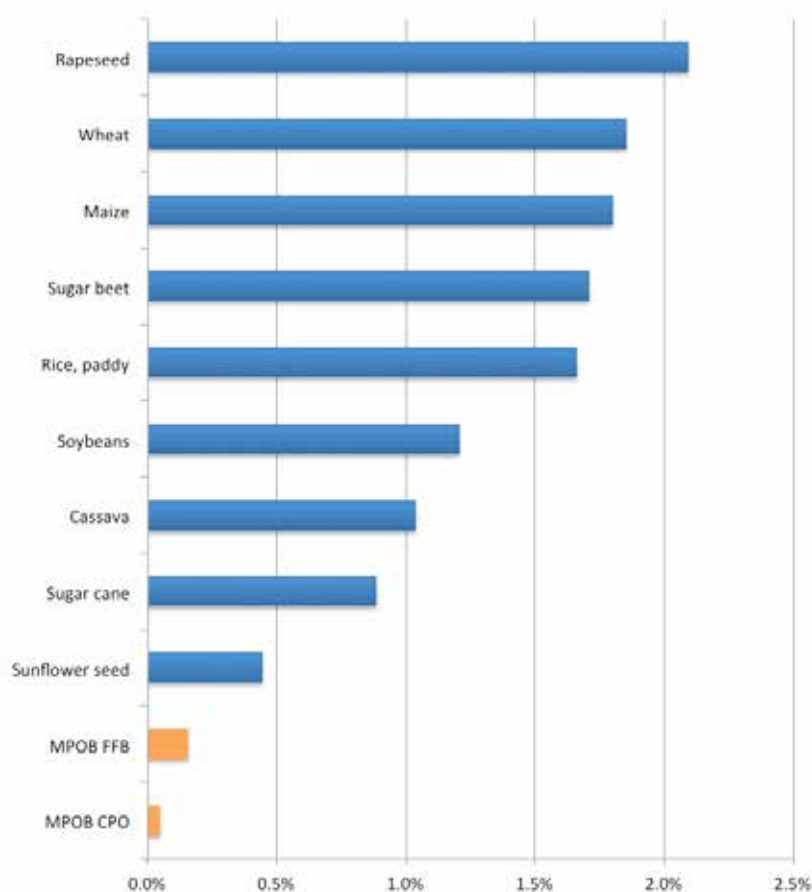
Costs

The growth of the global market share of palm oil over the past decade was mostly due to its cost competitiveness vis-à-vis other vegetable oils and animal fats. Palm oil does not compete on quality but on price. Traditionally, palm oil trades at a discount to other vegetable oils.

In industrial-scale palm oil production, operating costs amount to almost half of total cost. About half of the operating costs can be attributed to fertilizer and a quarter to labor. RSPO+ certification costs, including production losses from setting aside conservation areas, can add another 20 percent of production costs to total costs.

For a smallholder the establishment cost makes up the lion's share of production costs, followed by operation costs (e.g., the costs of inputs such as fertilizer) and milling costs.

FIGURE 4: Annual yield growth (percent pa), 1975–2007



Source: SeventyThree. CLUA. Interpreting Indonesia's rural economy, 2014.

When extrapolating the current trends in productivity, wages, and yield growth, we observe that palm oil stands to lose much of its cost competitiveness by 2020 and might be overtaken by other vegetable oils with cheaper production costs and higher productivity gains.

Prices

CPO prices are correlated to the price of crude oil. CPO prices are currently in the range of US\$ 700-750 per metric ton, a more than 40 percent drop since the peak in early 2011. This development reflects growing structural over-supply in the face of weakening demand. In real terms, CPO prices have returned to their long-term average price level. Prices are likely to stay flat over the coming years.

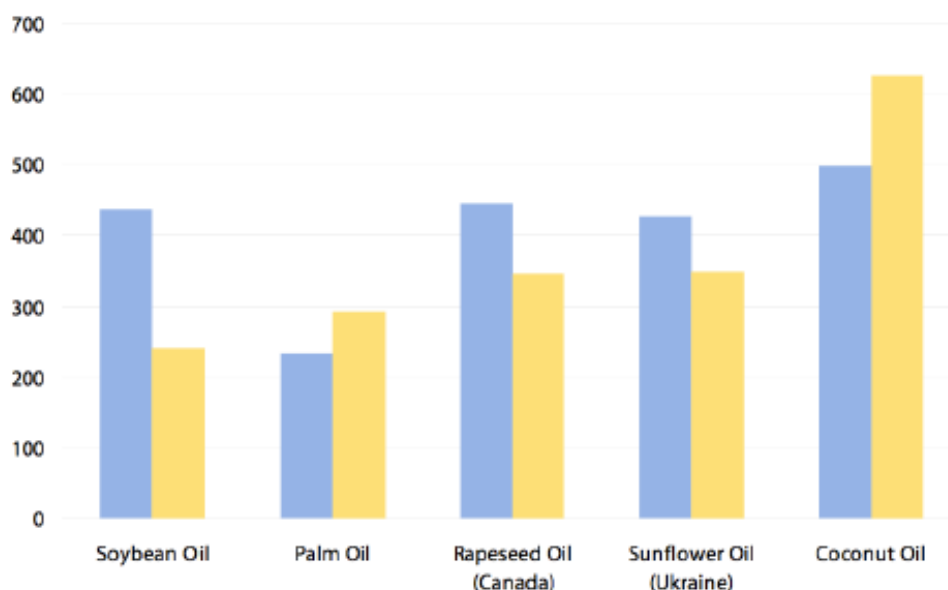
Both Malaysia and Indonesia publish a benchmark FFB price for smallholders, which is based on the global CPO price. However, the Indonesia FFB price is **34 percent lower** than the Malaysia benchmark.

FIGURE 5: Typical cost structure of palm oil production



Source: CLUA. Support for the development of a private sector engagement strategy for Indonesia, 2013.

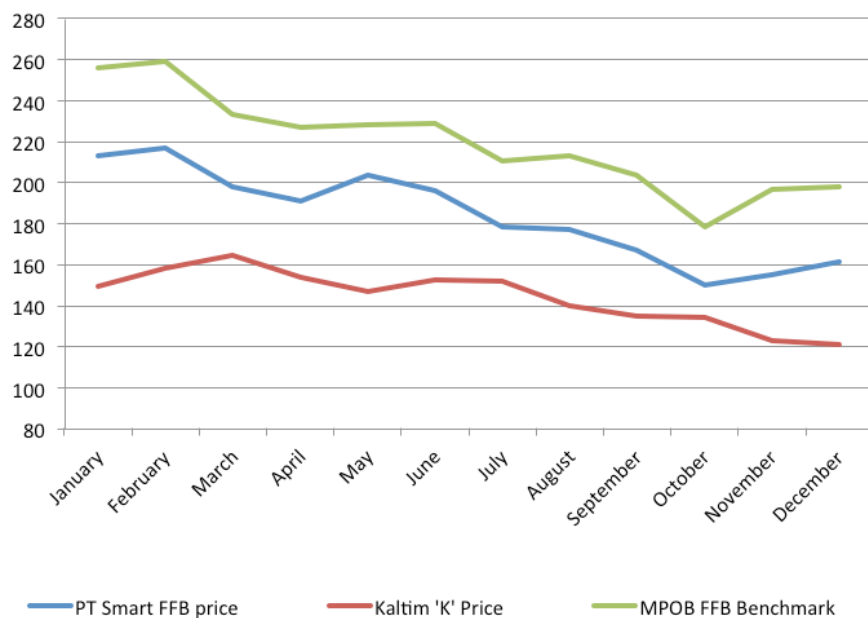
FIGURE 6: Production costs of vegetable oils in 2010 (real) and 2020 (projected)



Source: LMC International, based on FAOSTAT, 2013.

FIGURE 7: CPO prices, 1983-2013 (US\$/MT)

Source: COMSTAT, 2013.

FIGURE 8: Average FFB reference prices in US\$ after tax, 2011

Source: Malaysian Palm Oil Board, 2013.

This translates into lost income for Indonesia to the tune of US\$ 1.5 billion for FFB. It also means that Malaysian smallholders sold their FFB at a premium of US\$ 256 ha/a compared to Indonesian smallholders. One explanation for this is that FFB pricing mechanisms and related negotiations are more transparent in Malaysia compared to Indonesia.

Profits

Between 2008 and 2012, Malaysia's production cost ranged between RM 1,248 to 2,975 per ton of CPO. Hence, we've set the average break-even line at RM 2,000/t. Figure 9 shows that CPO prices over the last five years have been below the break-even point for five months and below a 15 percent profit margin for 15 months, despite a historical record high for CPO prices.

In order to remain viable, Malaysia's palm oil production depends on cheap seasonal migrant workers, which account for 76 percent of the work force of the domestic palm oil industry. Almost 90 percent of these migrants are from Indonesia, where labor costs are about four times cheaper and palm oil production costs are about 67 percent cheaper compared to Malaysia.

Despite the massive inflow of cheap seasonal foreign labor, we now observe that Malaysian smallholders are beginning to cut down their oil palm plantations to replace them with rubber.

Sensitivity tests suggest that the factors that matter most to the profitability of large growers are price, yield, operating costs, compliance costs, capital costs, and operational disruptions. These are all strategic concerns. At a price of US\$ 750 per ton of CPO, an annual increase in operation costs of five percent would reduce profits over a 25 year rotation cycle by about 35 percent. RSPO+ certification would reduce profits by almost 40 percent. A three percent increase in capital cost would lead to the same level of reduction of profits.

FIGURE 9: Malaysian CPO prices (RM/t), 2008-2012



Source: Malaysian Palm Oil Board, 2013.

Industry Composition

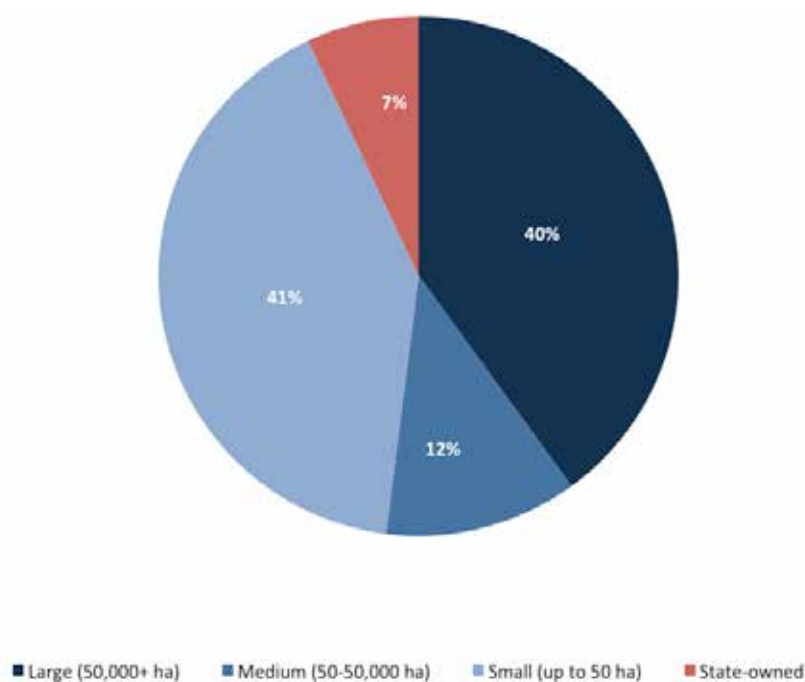
There are four distinct segments in the industry:

- Large conglomerates dominate the sector and account for 48 percent of total CPO production.
- Medium-sized estates are mostly found on Sumatra. They tend to be financed by opportunistic local elites with individual holdings of 1,000 ha on average. Typically, these businesses operate as outgrowers attached to large conglomerates with milling capacity.
- Smallholders, with an average plot size between four to 10 hectares, are the fastest growing segment of the industry. 28 percent are structurally bound by contract or credit agreement to a particular mill. The remaining 72 percent are independent.
- The share of state-owned enterprises is steadily declining, from 33 percent of the production area in 1990 to seven percent by 2013.

The higher productivity of plantations held and operated by large private enterprises compared to those operated by smallholders is commonly attributed to economies of scale and higher labor productivity. However, the data suggest that the favorable age profile of large estates compared to smallholder plots, which entered the industry at a later state, is another critical factor behind this phenomenon.

Consequently, we currently observe higher productivity gains on smallholder plots which are catching up with large industrial estates. Independent smallholders tend to lack access to finance, inputs, technology, and markets. FFB yields on their plots tend to be 10-15 percent lower compared to smallholders with corporate support.

FIGURE 10: Industry segments by production area, 2013



Source: CLUA. Support for the development of a private sector engagement strategy for Indonesia, 2013.

Ownership

The top nine private palm oil companies control more than 20 percent of Indonesia's oil palm estate and account for 35 percent of total CPO production.

Golden Agri Resources is part of the Sinar Mas group, which also dominates the Indonesian pulp & paper sector. When including smallholder plots, the company's total palm oil production area amounts to some 460,000 hectares. Sinar Mas, controlled by the Chinese-Indonesian Widjaja family, is also engaged in Liberia's palm oil sector through its subsidiary Golden Veroleum, as is Sime Darby.

Capital

Industrial-scale oil palm estate development is capital intensive. It takes, on average, almost US \$25 million to establish a 1,000-hectare oil palm plantation. While many palm oil companies started with finance provided by their founders, they have become increasingly reliant on international public equity and debt markets to secure the capital needed for expansion. 75 percent of all large palm oil companies and 90 percent of SE-Asian palm oil companies are fully or partially listed on the stock exchange (44 percent IDX, 31 percent SGX; 25 percent KLSE). The market capitalization of SE-Asian palm oil companies increased from US\$ 7 billion in 2005 to US\$ 55 billion in 2012. Only a small number of investors, about 20, control 80 percent of the funds invested in the palm oil sector. In 2011, foreign investors, most of which are based in Singapore and Malaysia, controlled almost 70 percent of Indonesia's CPO production.¹

TABLE 1: Large private companies operating in Indonesia's palm oil sector, 2011

Company	Origin	Corporate holding (ha)
Sime Darby	Malaysia	530,000
Astra Agro Lestari	Indonesia	263,281
Gutrie Berhad	Malaysia	220,204
Wilmar	Singapore	198,285
Golden Agri Resources	Indonesia	98,000
Kulim Berhad	Malaysia	97,263
Golden Hope Plantation Berhad	Malaysia	96,000
Kuala Lumpur Berhad	Malaysia	91,170
Total		1,594,203

Source: SeventyThree. CLUA. Interpreting Indonesia's rural economy, 2014.

TABLE 2: FDI flows into Indonesian oil palm estates without investment in processing (in million US\$)

	2009	2010	2011
Thailand	—	22.6	51.5
UK	—	91.4	91.0
Malaysia	4.4	203.2	112.8
Singapore	82.3	287.9	540.1

Source: Indonesia Investment Coordination Board. Government of Indonesia, 2012; National Statistics, 2013; IMF, 2013.

Our analysis suggests that the high FDI flows into the palm oil sector after the Global Financial Crisis (GFC), which peaked in 2011, are a result of the excess liquidity in global capital markets, e.g., the estimated US\$ 4 trillion “tsunami of hot money” that flooded emerging economies and commodity export economies. Aggressive monetary policies, in particular, quantitative easing by the US Federal Bank, and economic stimulus programs such as China’s US\$ 586 billion economic stimulus program, sustained the palm oil boom until 2011.

Political Economy

The political culture around industrial-scale oil palm development is characterized by a deep-rooted patronage system. Sharing a similar culture of patronage politics, Malaysian and Singaporean businesses were particularly successful in inserting themselves into the existing Indonesian networks, which control and operate the country’s key industries. This patronage system serves as the basic structure for the production, marketing, and distribution of palm oil. It connects significant actors in order to facilitate their businesses through legitimate mechanisms such as palm oil consortia, which usually consist of local strongmen, senior bureaucrats, and influential businessmen with close links to top national leaders.

Business Model

The need for economies of scale in mills and to process FFBs soon after harvesting require palm oil companies to have access to large tracts of cheap land for mono-cropping, which concentrates production in tropical frontier areas. Since these areas are perceived as high risk, palm oil producers have to generate a premium in order to raise the capital required for the establishment and expansion of CPO production. Scaling production requires significant investments, which, in turn require the conversion of access to land into bankable rights in order to reduce perceived risk and the cost of capital. Bankable rights, such as land deeds or concession titles, are then leveraged to raise the required capital.

From the above findings emerges the principle business strategy of the palm oil industry, which is to gain and maintain market shares by selling cheaper than the competition while, at the same time, delivering higher returns than the competition.

This strategy can be realized in two ways: (i) by accessing cheaper production factors than the competition; or (ii) by achieving continuous productivity and efficiency gains. The first approach is built on an absolute advantage, the second on a comparative advantage. The transnational palm oil industry operates by the first principle.

As demonstrated by historical record – and argued by one of the founding fathers of neoclassical economic theory, David Ricardo, more than a hundred years ago – only businesses based on a comparative advantage can be successful in the long run. An absolute advantage is but a transient condition that always erodes in the long run.

Outlook

Following a period of hyper-growth, the profitability of palm oil production is now getting rapidly squeezed. Production costs, in particular, labor cost, have risen significantly; financing costs have become an issue; CPO prices have dropped by more than 40 percent since their peak in early 2011; and productivity has stayed flat, or even declined. As the global commodity market has entered a down cycle,

high price and investment boom for growers is coming to an end. Downstream CPO processors, on the other hand, benefit from low prices and report a significant increase in profits.

In order to maintain profit margins, the industry will have to focus on managing costs and downstream operations, e.g., through the vertical integration of supply chains. A lower price environment will lead to rising debt levels. This is likely to add to a growing pressure for consolidation driven by economies of scale, such as the acquisition of indebted medium-sized holdings by larger companies.

IMPACTS

Gross Domestic Product

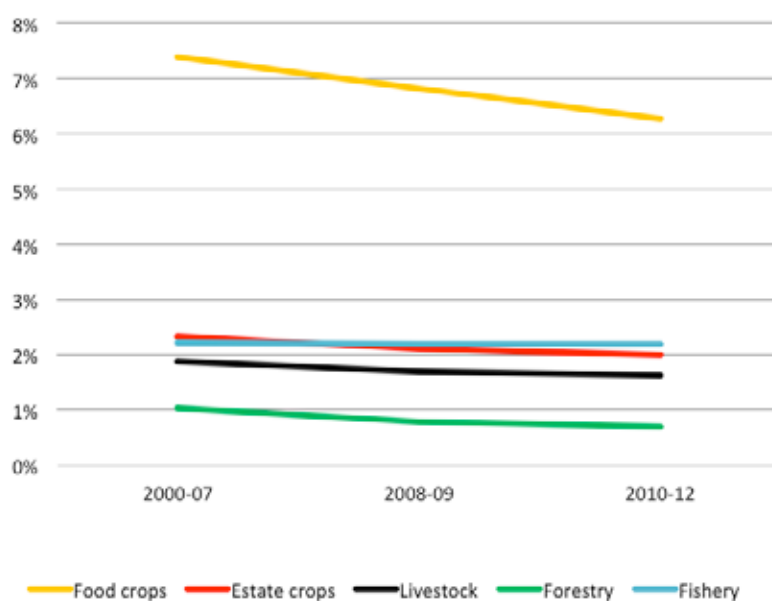
Counter to popular perception, the palm oil sector has added little real value to the Indonesian economy. The average contribution of estate crops, including oil palm and rubber, to GDP was only 2.2 percent per year during the peak of boom cycle. Value added dropped to below two percent in 2012 as the global commodity market entered a down cycle.

Food crops add significantly more value to the economy. The contribution of the fishery sector now outperforms estate crops. Our analysis confirms that these sectors also generate higher economic multipliers and welfare impacts in Indonesia's economy compared to estate crops.

Trade

Counter to the media hype, export earnings from palm oil play only a minor role in Indonesia's export portfolio. The contribution of estate crops, including CPO, to total export earnings dropped from

FIGURE 11: Contributions to GDP



Source: National Statistics (BPS). Government of Indonesia, 2013.

6.2 percent in 2001 to 5.4 percent in 2011. In 2011, the export of low-tech manufactured goods, led by leather shoes, exceeded the export earnings of CPO by more than eight times.

Since 2011, Indonesia spends more on importing food than it earns from exporting CPO and rubber. The massive oil palm estate expansion during the boom phase, attracting most of the investments, came at the expense of domestic food production.

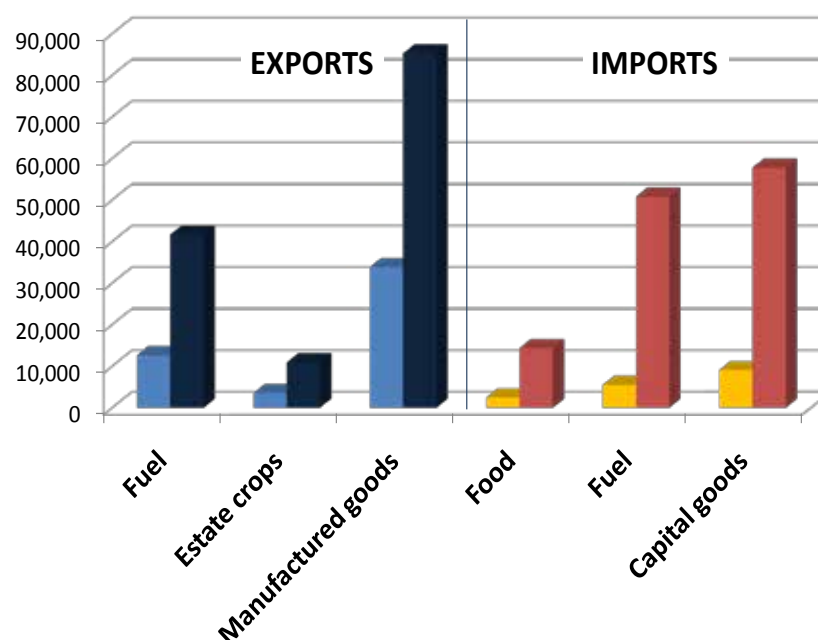
Employment

According to Indonesia's last employment survey (2008), food production is the main source of rural employment and income, engaging two-thirds of the rural workforce, or some 61 million people. Oil palm production only occupies the eighth rank in rural employment, engaging some 1.4 million people. About half of them are smallholders.

Oil palm development has generated higher incomes for rural plantation workers compared to subsistence farming or working on rice or rubber estates. However, as demonstrated by Government's employment survey (Figure 13), it has not increased the number of jobs available in rural sectors compared to the 1990 level, not even during its most rapid growth phase.

Another trend is that oil palm development created mostly casual and seasonal employment, which had a negative impact on job security. There were more than twice as many regular jobs in the rural sector at the onset of the rapid expansion of palm oil estates compared to after the peak expansion phase. As oil palm developments took place in remote and sparsely populated areas, it triggered massive in-migrations of labor, often to the detriment of the local population and indigenous groups. Equally important, this development has exposed the livelihoods of a large part of the rural population to the volatility of global commodity markets and global shocks.

FIGURE 12: Trade in 2001 and 2011 (in US\$ million)



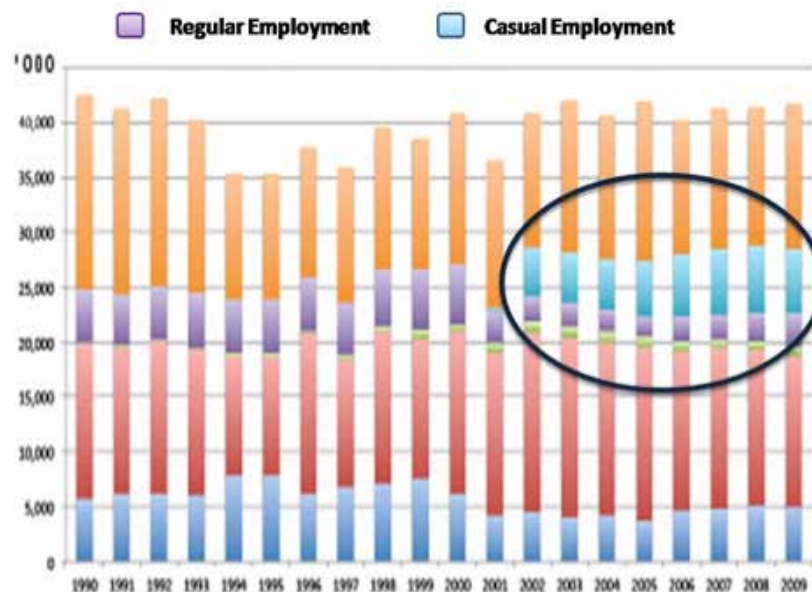
Source: World Bank. <http://data.worldbank.org>, 2013.

Despite sketchy data with regional variations, there is a clear trend in all data reviewed. Smallholder production creates more jobs than industrial-scale production, both in absolute numbers or per land unit.

Income

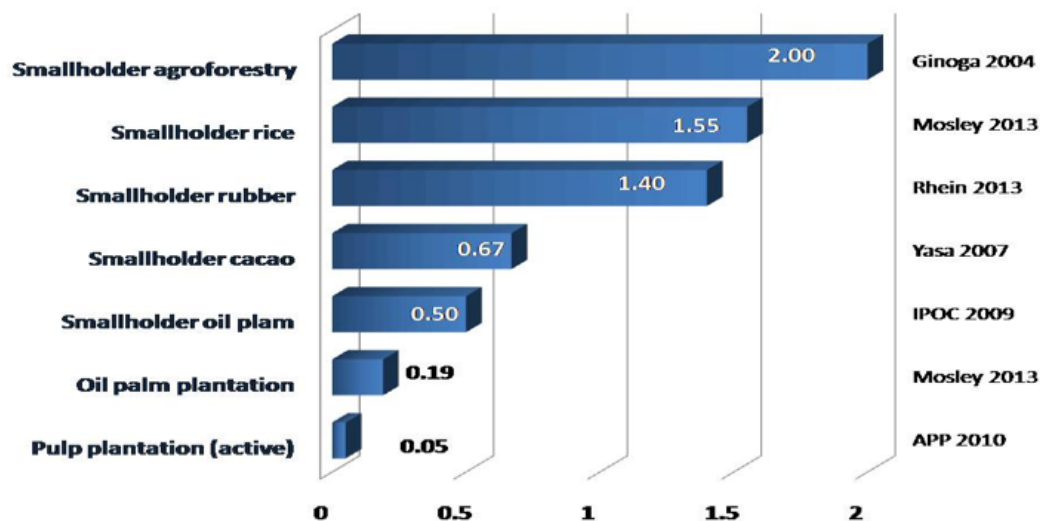
According to Indonesia's last employment survey, smallholders growing oil palm and rubber had the highest median monthly incomes which were IDR 1.2 million and IDR 0.96 million, respectively.

FIGURE 13: Level and composition of rural employment, 1990-2009



Source: Ministry of Agriculture. Government of Indonesia, 2011.

FIGURE 14: Jobs per hectare



Plantation employees earned much lower incomes of IDR 760,000 on oil palm and IDR 650,000 on rubber plantations. The monthly income of IDR 720,000 for smallholder coconut growers was almost on par with that of workers on oil palm plantations.

Smallholders engaged in commodity production tend to have higher earnings than both rice farmers and workers on large-scale plantations. Smallholders also have higher capital accumulation and benefit from increasing asset values, especially the value of their land. On the downside, absent a functioning insurance sector, they face higher risk exposure and higher start-up capital needs.

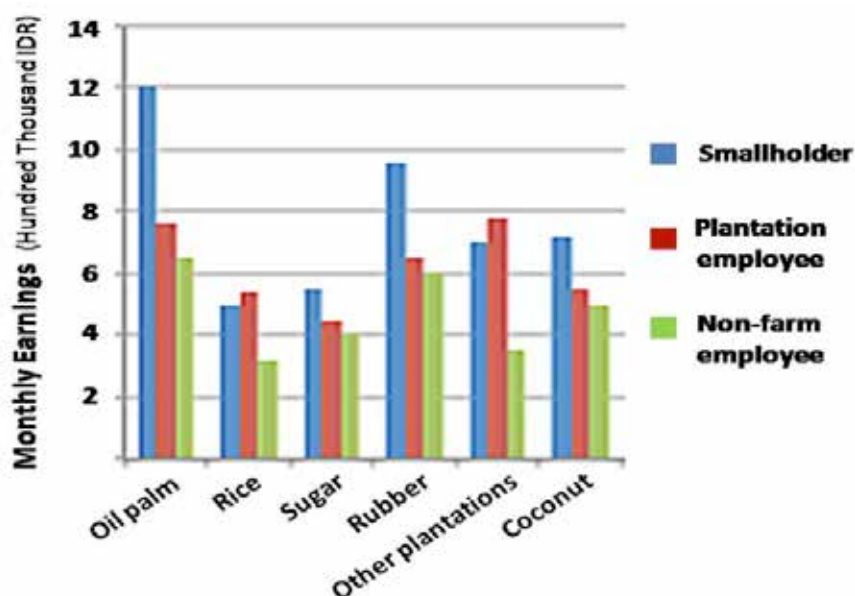
The reported average incomes of laborers on industrial palm oil estates in West Kalimantan ranged between US\$ 22 to US\$ 33 per month during the 2009 planting and harvesting season. On average, earnings from FFB for smallholders provide 75 percent to 100 percent of total household income. Working on a rubber estate would have provided an income of about US\$ 6 per month, though it would have offered full employment over the whole year compared to seasonal employment on an oil palm estate. The wages for labor on oil palm estates are now declining due to the down cycle of the commodity market. A smallholder owning an average-sized plot of two hectares generated an average income of US\$ 651 per month after debt repayment.

Equality

We observe a reversal of the earlier trend in income distribution with the onset of the global commodity boom. Inequality, which had been decreasing, began to rise sharply, meaning lower income strata are increasingly excluded from the benefits of growth.

The sharp rise of inequality during the boom phase, when massive and rapid palm oil development took place, has halved the growth-poverty elasticity ratio from 1.23 (1999 to 2004) to 0.55 (2005 to 2011). This ratio reflects the contribution of GDP growth to poverty reduction. It now requires a doubling of growth rates to keep poverty reduction at a constant rate.

FIGURE 15: Rural wages and earnings, 2008



Source: Government of Indonesia, Labor Force Survey, 2008.

Property Regimes

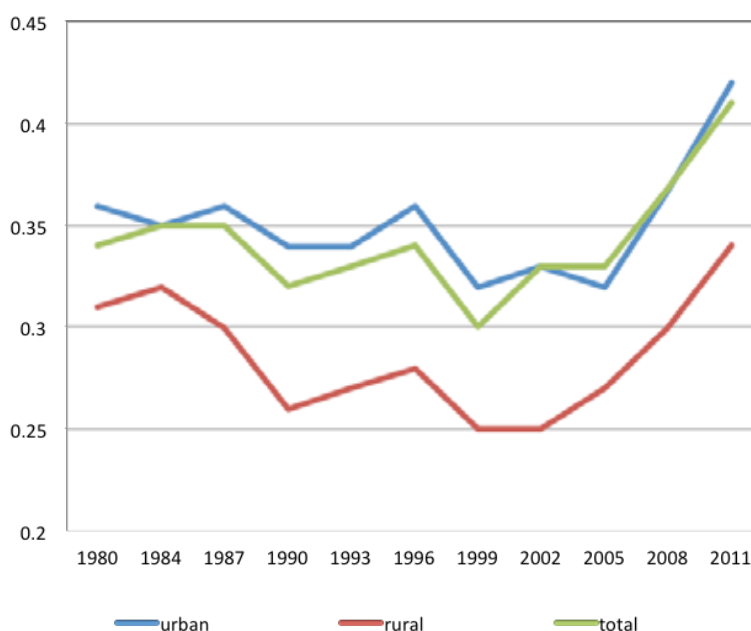
During the development of industrial-scale oil palm estates on customary land:

1. Community members gave up their **right to benefit directly from their land for the opportunity to benefit from corporate palm oil production, and the infrastructure, facilities, and handouts (e.g., sacks of rice and micro-credit) that came with it.**
2. Companies played in a variety of political arenas through patrimonial networks to convert access to land into rights to land, mostly through legal recognition by local, regional, and central government institutions.
3. The initial deals struck between companies, government, and communities marked the onset of a shift in property regimes that unfolded during the expansion of production areas.
4. Customary rights and property, the departure point of the land acquisition and administration process, have now been replaced by contracts based on state law.

As a result of this development, plots that were previously recognized as belonging to a particular community, family, or farmer can now no longer be legally distinguished within vast industrial oil palm estates. Enclave plots are the only remnants of the old customary system. This shift in property regimes has replaced a more flexible and equitable tenure system, well suited for subsistence farming, with a more rigid and inequitable individualized tenure system, suited for industrial-scale cash crop production. Recent developments in West Kalimantan provide an example of this situation:

To date, 67 percent of West Kalimantan's land mass, some 14.9 million hectares, are under the control of corporations and no longer accessible to the population. Some 4.9 million hectares – divided into 326 long-term concessions – are allocated to palm oil corporations, 3.7 million hectares to timber

FIGURE 16: Income distribution (Gini ratio)



Source: National Statistics (BPS). Government of Indonesia, 2013.

corporations and 1.5 million hectares to mining corporations. Of the remaining 4.9 million hectares which are directly controlled by corporations, some 3.7 million hectares are conservation areas, although some 842,000 hectares of oil palm concessions overlap with these conservation areas.

Only 1.2 million hectares remain accessible to support the livelihoods of the five million people living in West Kalimantan.

One outcome of this development is the frequent and abundant occurrence of disputes and conflicts over land rights.

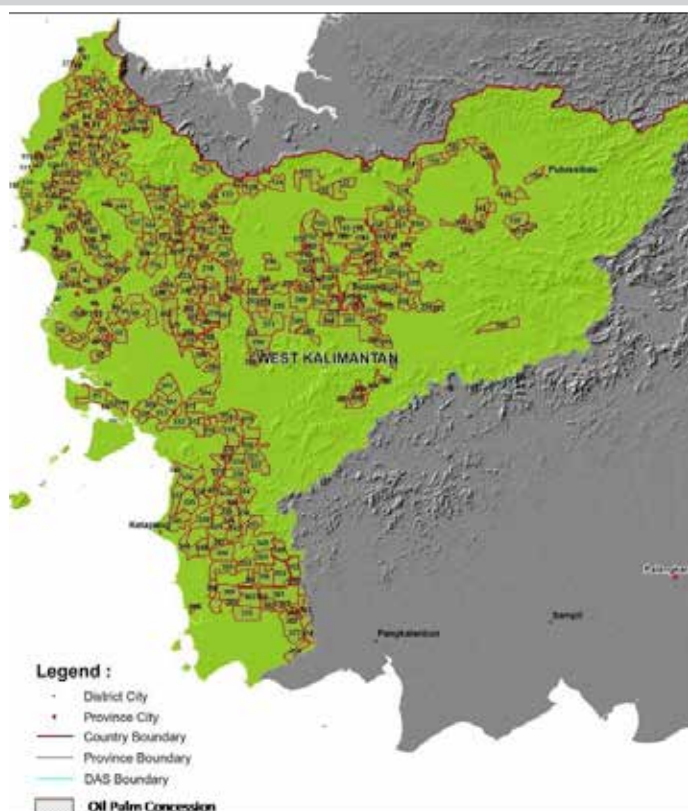
There is no single authoritative map on land ownership or land use allocation. Different government agencies at the central, provincial and district level operate on the basis of distinct maps, data and classifications. Land registration and administration costs in Indonesia are significantly higher than in China, India, Brazil, the Philippines, or Cambodia.

Community Perceptions and Choices

Community members have shown a shared tendency to judge propositions by palm oil companies on perceived comparative benefit flows rather than on the abstract concept of rights. Simply put, villagers have not been “mobilizing their rights,” rather seeking better incomes.

A common perception among local communities is that working on oil palm estates yields higher returns than working on rubber or rice estates. Hence, oil palm is perceived as the best choice, especially in the absence of a credible alternative.

FIGURE 17: Oil palm concessions in West Kalimantan



Source: National Statistics (BPS). Government of Indonesia, 2013.

Most locals are well aware that owning a small plot is a better way to benefit from oil palm development compared to casual labor on corporate estates. Many communities and farmers have established successful small agriculture and tree crop businesses without any outside interventions. While tree crops, such as teak or rubber, are perceived to be suitable for community and smallholder businesses, oil palm is commonly considered to be “a rich man’s crop.” It has therefore not been a part of traditional community or farmer enterprises. Reasons for this include the facts that an oil palm plantation takes a long time to reach full production and the production of quality CPO requires heavy investments in processing technology. Let alone, state law prohibits the establishment of communal mills or the operation of mobile mills that could be financed and shared by several smallholders.

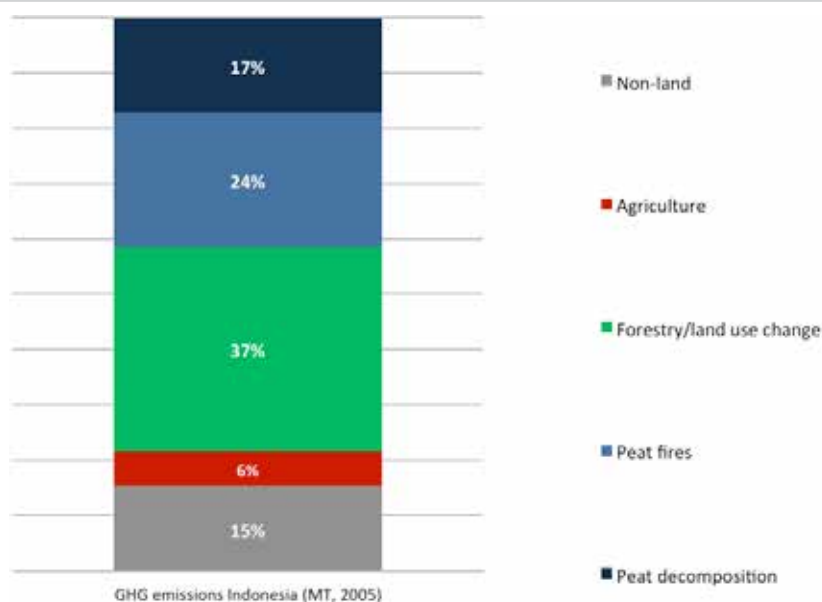
Environment

One outcome of the massive conversion of landscapes, mostly forests, into mono-crop oil palm estates is the increasing occurrence of droughts, floods, and fires. Fires, in particular, a cheaper way to clear land compared to mechanical methods, have become a serious issue. The resulting smoke has frequently led to the grounding of air traffic in Sumatra, Kalimantan and in neighboring provinces and countries. This has caused widespread economic damage and international tension. Singapore and Malaysia have now lodged official complaints in an attempt to force the Indonesian Government to tackle this issue. The irony of this situation is that most of the companies responsible for these fires are owned by investors in Malaysia and Singapore.

Climate

Indonesia is the world’s fourth largest emitter of greenhouse gases (GHG). Almost 80 percent of Indonesia’s current GHG emissions stem from deforestation and land use change, and the draining and burning of peatland.

FIGURE 18: Indonesia’s GHG emissions, 2008



Source: Indonesia National Council on Climate Change. Government of Indonesia, 2010.

Each hectare of peatland drained for oil palm development releases an estimated 3,750-5,400 tons of CO₂ over a 25 year rotation cycle, in other words five to six times the amount released from clearing a hectare of tropical forest.

The palm oil and the pulp & paper sector account for almost half of Indonesia's GHG emissions.

CONCLUDING REMARKS

Drivers

The long-term trend in CPO price (i.e., the critical variable behind the expansion, stagnation or contraction of the industry) is affected by factors such as comparative productivity improvements and production cost developments of competing oil crops, structural oversupply, market distortions, and the development of CPO substitutes.

When excluding fixed parameters set by geographical conditions, we find that the rapid expansion of palm oil production has been shaped by a range of international and domestic variables, most notably: global commodity and capital markets; the business strategy of the industry; government policy; and the political economy. These drivers shape the emerging state-company-community relationships, which, in turn, affect the outcomes of the process (e.g., who wins and who loses).

Winners and Losers

The biggest losers in this process were locals who lost their lands and livelihoods but have not been incorporated in the new economy on advantageous terms. Indigenous Peoples, subsistence farmers, and women were the most vulnerable groups. Smallholders owning and managing their own oil palm plots have fared better than wage laborers on corporate oil palm estates.

The main winners were the owners of palm oil companies and the 20 or so investors that control 80 percent of all funds invested in the global palm oil industry. As evident from the data and the analysis, the business model of the transnational palm oil industry is designed to deliver on capital, not on shared economic development.

Impacts

The evidence from Indonesia and Malaysia suggests that the development of industrial oil palm estates can make positive contributions to the rural economy by generating opportunities for smallholder oil palm growers and offering higher pay jobs compared to other seasonal plantation type employment. However, the number of net jobs available in the rural sector has remained stagnant since 1990, despite the rapid and massive development of vast oil palm estates. Since oil palm developments focus on scarcely populated remote areas, labor needs are often met through in-migration, which has caused considerable tension and conflicts to the detriment of the indigenous population.

The contribution of the palm oil industry to the wider economy is largely confined to export earnings ranging from five percent to seven percent of Indonesia's total export earnings between 2006 and 2011. In terms of the value added to the economy – currently below two percent of GDP – the palm oil sector remains insignificant.

The evidence raises many questions about the long-term viability, the environmental footprint, and the welfare impact of the transnational palm oil industry. Indonesia's massive palm oil development has not led to equitable economic development. Inequality, both within the rural sector and between the rural and urban sector, has risen sharply.

Limits

As demonstrated by the example of Malaysia, at the point where economic development achieves traction, and when domestic living standards, wages and asset values begin to rise, the palm oil industry begins to lose its cost advantage and, with it, its long-term commercial viability. The viability of Malaysia's palm oil industry depends on the massive seasonal influx of cheap foreign labor.

This development is consistent with the historical record and trends observed in the global vegetable oil market, an absolute cost advantage always erodes over time. The competition is catching up as oil seed production costs are dropping while palm and coconut oil production costs are rising, and both land and labor productivity of oil seeds are rising while the productivity of palm oil remains stagnant.

On to the Next Low-cost Frontier?

In order to stay competitive, the transnational palm oil industry depends on access to cheap production factors, mainly land, labor and, to a lesser degree, subsidized fertilizer. High CPO prices and the promise of cheap production factors have motivated the industry to move on to the next perceived low-cost frontier, which includes Liberia.

Liberia's Comparative Advantage

Neither cheap labor nor cheap fertilizer can be considered Liberia's comparative advantage in CPO production. It may seem counterintuitive but Liberian labor is not cheap, just poor. Firms operating in Africa face significantly steeper labor cost curves than in other regions. At purchasing power parity, assuming identical salaries, a worker from a low-income country in Asia or Latin America can purchase a lot more goods and services than a Liberian worker. This leaves cheap and abundant land as Liberia's only comparative advantage for industrial-scale oil palm development.

This advantage might turn out to be something of an optical illusion. Liberia seems richly endowed with land and natural resources only in relative terms, because there are so few man-made resources (industrial assets, machines, infrastructure, real estate, etc.) or skilled labor in the domestic economy. In terms of land per capita, Liberia only occupies rank 66 globally, trailing well behind potential competitors such as Guyana, Suriname, Brazil, Equatorial Guinea and many other countries with a potential for industrial-scale palm oil production.

Oil Palm Development: During a Down-cycle and in the Face of Structural Oversupply

The rapid growth of Indonesia's palm oil production was driven by an unprecedented commodity price boom. It was sustained beyond the boom by unprecedented levels of easy liquidity flowing into commodity export economies. In contrast, Liberia's attempt at industrial-scale palm oil development unfolds during a period of structural oversupply of CPO, suppressed CPO prices, growing competition from other oil crops, and reducing capital flows into commodity export economies.

Due to the long rotation cycles of the oil palm crop there is a lag between price movement and adjustment of production. When the CPO price is high, investments are made in new plantations, which, once mature, tend to drive down prices for long time periods and produce structural oversupply during market down-cycles. When the price is low, the economics of established plantations are much stronger than those of greenfield palm oil projects. The finance and banking industry puts the break-even point for an Indonesian oil palm project at US\$ 700 per ton of CPO on a lifecycle basis. Another noteworthy trend associated with these price cycles is that more land is always secured and cleared, speculatively, than is consequently planted. For instance, in West Kalimantan, about five hectares of forests are cleared to develop a single hectare of plantation.

Risk

The Liberian Government's budget allocation to agriculture falls well short of the 10 percent target agreed at Maputo, signaling the continuation of chronic underinvestment in the sector. A key risk in prioritizing industrial-scale palm oil development at the expense of wider agricultural development is in the creation of an inefficient and capital intensive rural sector. This could result in a rural sector trapped in low-productivity and low-wage equilibrium, incapable of producing adequate livelihoods for the mass of the rural population, while also lacking linkages and multipliers to provide a stimulus for the wider economy, with the exception of growth in informal petty services and casual rural employment.

Considering the inflexible long-term nature of palm oil production, the recent developments in global markets as well as medium to long term market trends, there is a risk of misallocating resources and misaligning production with demand trends.

Policy Choices

There is a simple truism expressed by rural folks all across Indonesia: "Oil palm is a big man's crop, rubber is a small man's crop."

In other words, prioritizing the development of a transnational palm oil industry means prioritizing the interest of the "big man" at high capital costs. As demonstrated by South-East Asia, the likely outcome will be a bimodal distribution of land with a few big foreign companies controlling large estates, many small plots tended by farmers and nothing much in between.

Prioritizing the development of a more diversified rural sector, including a variety of food, fiber, and energy crops for both local consumption and exports, means prioritizing the interest of the "small man." If done right, the likely outcome will be a healthy mix of small, medium, and bigger players.

The rubber sector might offer a good starting point with significant win-win options along the value chain at comparatively lower capital costs. For instance, building a decentralized low-cost infrastructure for rubber processing would turn a perishable lower-value good (latex) into a higher value durable good (smoked rubber) that can be hauled over longer distances despite poor road conditions. It would offer economic opportunities to remote producers, which are currently excluded from the market due to poor infrastructure. Thailand provides an example of this approach, and abundant evidence on its positive economic and welfare impacts.

In sum, prioritizing the development of the rubber industry—and food production—to generate exportable surplus, over the development of the palm oil industry, appears to be a better choice for the

vast majority of Liberians. A similar logic applies to the engagement of the aid industry and civil society. Engaging in the palm oil sector is mainly about ameliorating the negative impacts of industrial-scale crop development for the mass of the rural population. Engaging in the rubber sector or the food sector offers opportunities for more constructive rural development.

Whether either of these choices will lead Liberia's economy onto the path of long-term economic development is a question of macroeconomics. To explore this issue, we will have to expand our focus from interpreting the palm oil sector to interpreting the role of the rural sector in wider economic development and structural change.

LIBERIA'S MACROECONOMIC STORY

MACROECONOMIC SNAPSHOTS

Cyclical growth patterns...

The long-term trajectory of Liberia's growth rate (Figure 19) reflects the turmoil created by two civil wars. It marks the recovery of the economy by 2004, preceded by the peace treaty in 2003 and followed by the first post-war elections in 2005. This turmoil obscures important fundamental trends which appear more clearly when we exclude the period of conflict from the data (Figure 20).

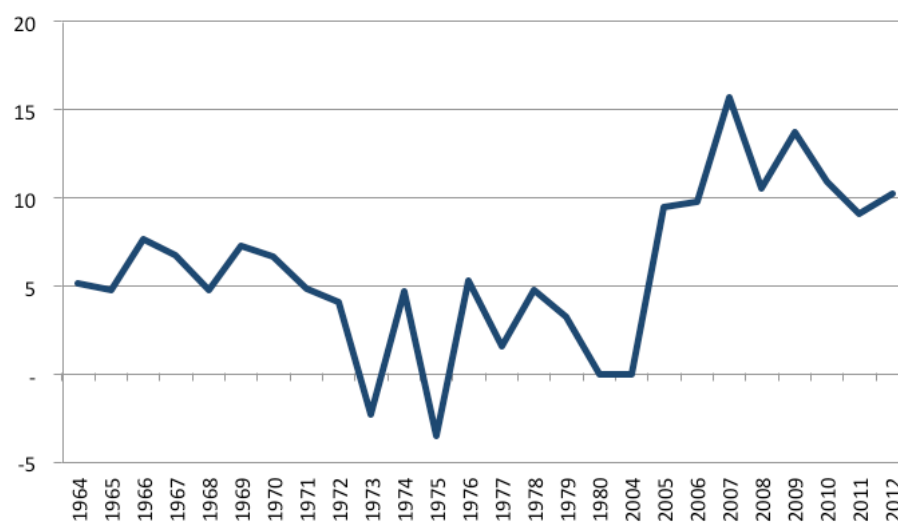
Liberia's growth curve exhibits the cyclical pattern that is typical for economies that are highly dependent on natural resource extraction and cash crop production for export. From 2004 to the present, Liberia's growth curve has been influenced by fluctuations in commodity prices, heavy inflows of overseas development assistance (ODA) and, more recently, foreign direct investment (FDI) centered on mining and cash crop production (Figure 21). Both FDI and government revenue have been dropping since the global financial crisis.

Figure 22 demonstrates the high dependence of the Liberian economy on trade, trailing well above total gross domestic product (GDP).

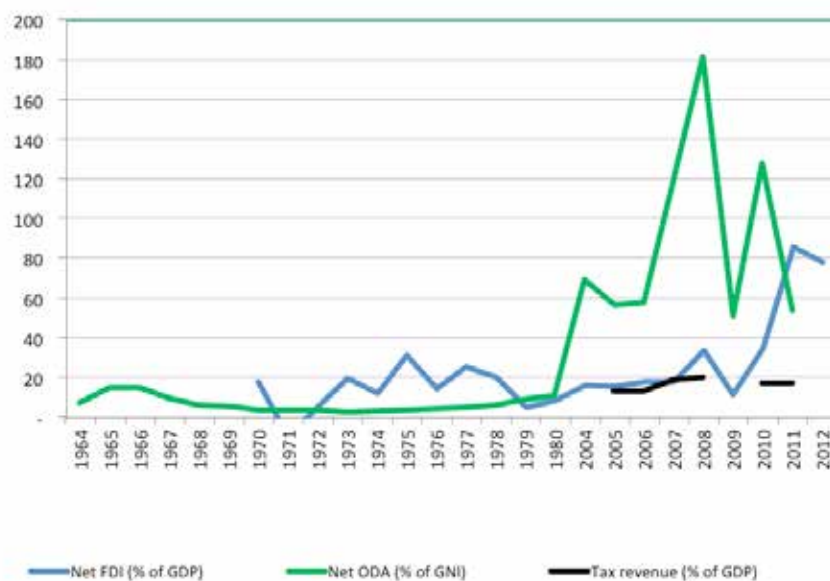
FIGURE 19: Long-term growth rates



Source: World Bank. <http://data.worldbank.org>, 2013.

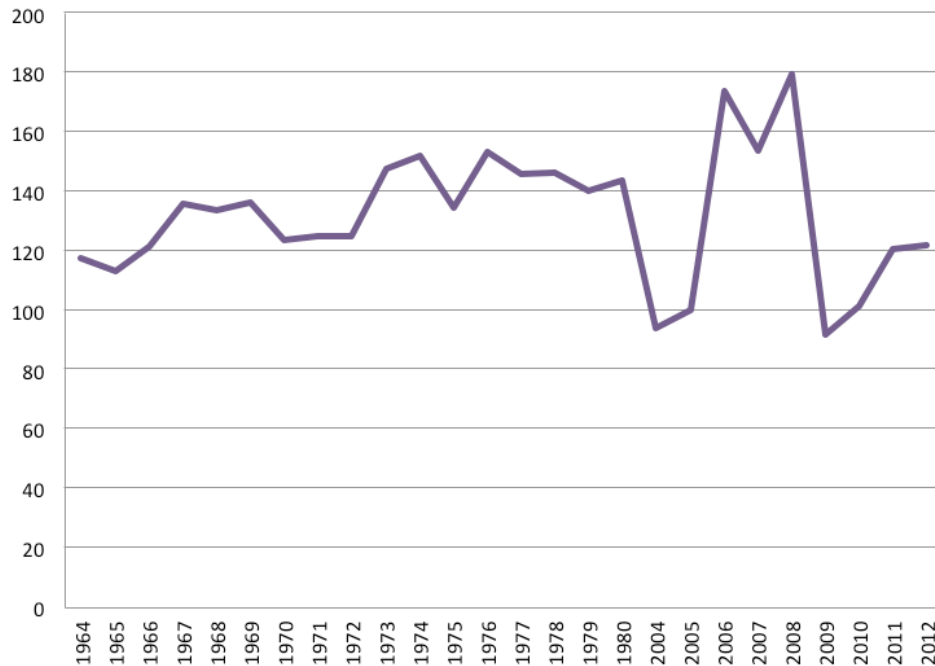
FIGURE 20: Adjusted display of growth rates

Source: World Bank. <http://data.worldbank.org>, 2013.

FIGURE 21: Capital flows (in percent GDP or GNI)

Source: World Bank. <http://data.worldbank.org>, 2013.

FIGURE 22: Trade (in percent GDP)



Source: World Bank. <http://data.worldbank.org>, 2013.

...reflect the volatility of commodity markets...

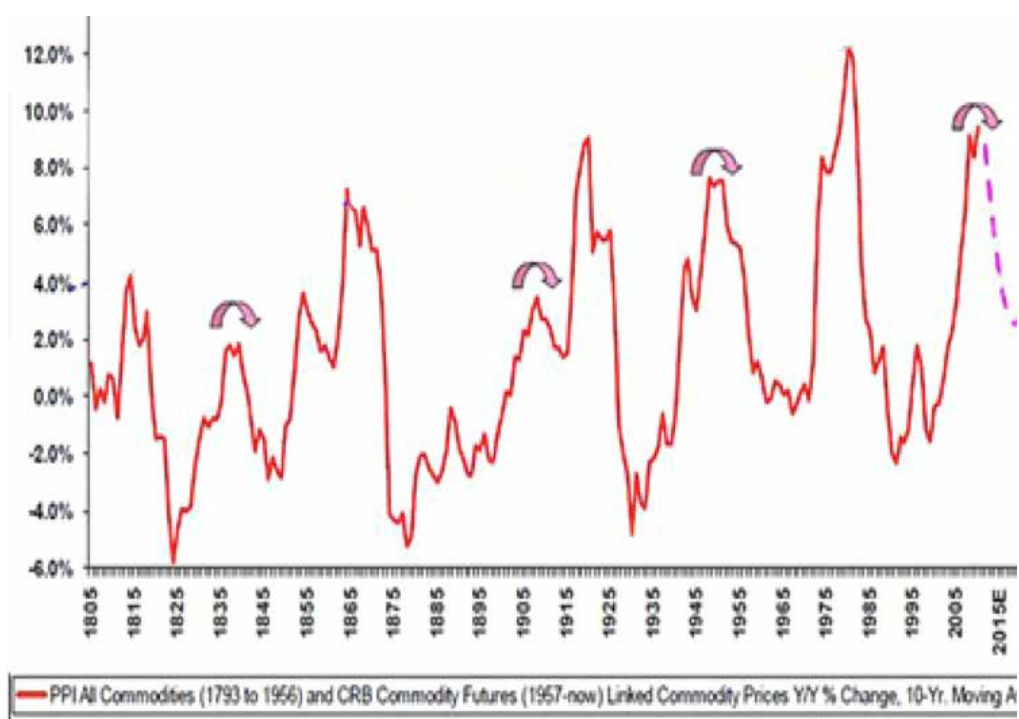
Liberia's high dependence on natural resource and cash crop exports, interrupted by the civil war, is set to rise with the removal of the export ban on timber and the restart of the mining industry. 2012 was the first post-war year with uninterrupted iron ore export.

If industrial palm oil development were to succeed, then dependency and volatility would increase even more. This means that Liberia's economic development would be increasingly determined by the movements and the volatility of global commodity markets, prone to following their cyclical boom and bust pattern.

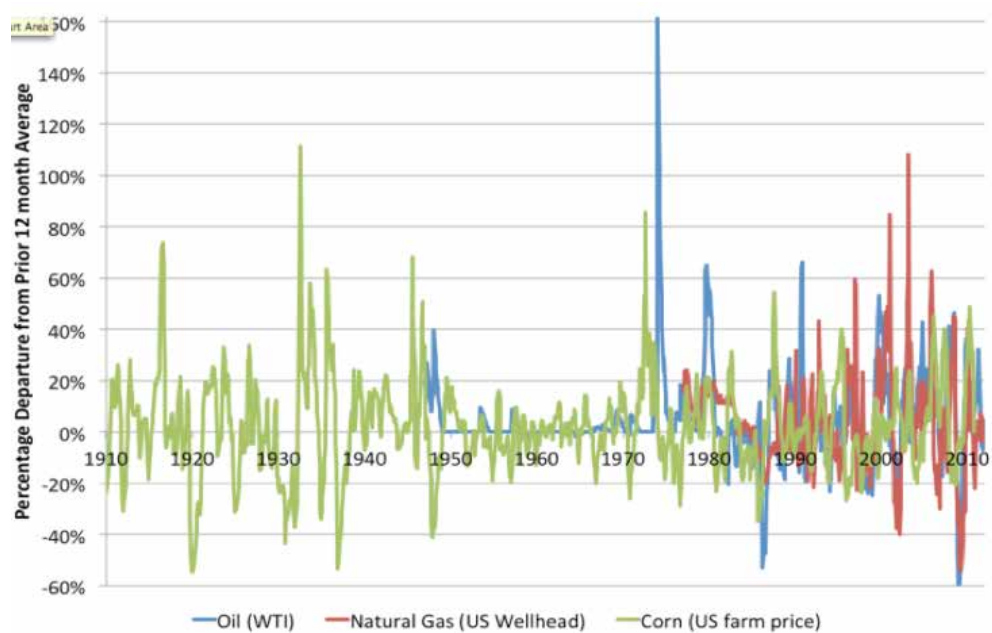
...which can turn into fragility.

Managing the cyclical growth pattern and the increasing volatility that come with being an economy that depends on natural resource exports in order to sustain economic development presents many challenges. It demands, for instance, counter-cyclical public spending. Many developing countries have found it difficult to muster the political will or discipline required to address these challenges and implement such measures.

Typically, we observe that public spending increases during boom phases and collapses during down-cycles, during which public expenditure levels and developmental efforts can only be sustained through external capital inflows such as aid or debt. This process of periodical readjustment is associated with high social costs and, often, conflict. It can turn systemic economic volatility into state fragility.

FIGURE 23: 200 years of commodity super-cycles

Source: Barry Banister. 2012.

FIGURE 24: Volatility of commodity markets, 1910-2011

Source: Price indices for corn, oil and natural gas, 2011.

Rebuilding a capital-intensive and inefficient rural sector with low job creation potential...

One of the inherent dilemmas of economies that are centered on industrial-scale commodity production and extractive industries is that these activities are very capital intensive and do not generate a lot of jobs so as to distribute the gains of economic growth. At current costs, creating a single full-time job requires, on average, an investment of US\$ 300,000 in the mining industry and more than US\$ 100,000 in the palm oil industry. In comparison, the mining industry creates fewer but higher skilled and higher value jobs than the palm oil industry.

From this dilemma emerges the risk of creating an inefficient and capital intensive rural sector which is trapped in a low-productivity and low-wage equilibrium, incapable of producing adequate livelihoods for the mass of the rural population, lacking linkages and multipliers to provide a stimulus for structural change and wider economic development, with the exception of growth in informal petty services and casual rural employment.

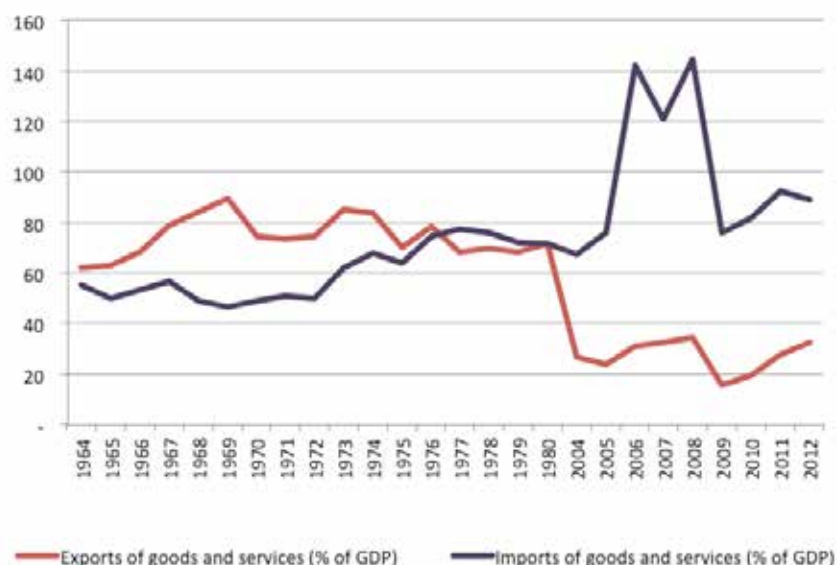
...is a downward slope...

Liberia's economy used to be a net exporter until the mid-1970s. Since the 1980s it has turned into a net importer. The fact that imports currently amount to almost 90 percent of GDP reflects the post-war situation. Absent a local manufacturing base, most goods, food, and skilled labor have to be imported.

Between 1970 and 1989, agricultural exports rose steadily, from US\$ 40 million in 1970 to US\$ 130 million in 1989, contributing the lion's share of export earnings. From 1990 to 2002, the country's agricultural exports fell dramatically, reaching an all-time low of US\$ 10 million in 1993.

In the pre-war period, mining accounted for two-thirds of national exports and 10 percent of GDP. It was dominated by iron ore, accounting for over half of national export earnings in the 1970s and 1980s, followed by gold and diamonds.

FIGURE 25: Liberian exports and imports (in percent GDP)



Source: World Bank. <http://data.worldbank.org>, 2013.

Liberia's increasing dependence on natural resource and commodity export presents yet another dilemma, particularly the widely observed decline in the terms of trade between primary products and manufactured goods, which was first formulated by Prebisch and Singer in 1950. Producers of commodities and raw materials gradually become poorer relative to producers of manufactured products.

A recent IMF study tested this hypothesis on 25 commodities and found that all of them displayed increasing levels of volatility over time, and half of them followed the downward relative price slope predicted by the Prebisch-Singer hypothesis.¹⁶ Clearly, exporters of raw material tend to get raw deals, as demonstrated by Liberia's unfavorable terms of trade.

...that offers little potential for sustained economic development.

Economic theories such as the Hartwig rule suggest that the exploitation of natural wealth can lead to sustainable economic development if the following conditions are met: (i) returns from the exploitation of natural resources must be reinvested into a structural upgrade of the economy; and (ii) the economic returns on this investment must outperform the economic cost of exploiting a country's natural assets. Simply put, the purpose of exploiting natural wealth is to build an economy that no longer relies on natural resource endowments.

Sustained economic development is hinged on structural change.

Structural change is associated with the diversification of economic activities into higher levels of productivity and the reallocation of resources between key sectors, broadly, moving from agriculture towards manufacturing. The timelines of sector shares in GDP reflect Liberia's pathway, moving in the reverse direction, from a diverse economy at the early stages of industrialization towards an economy concentrated on the extraction, production, and export of a few selected commodities.

FIGURE 26: Decline of relative price of commodities, 1854-1993 (1980 = 100)



Source: James M. Boughton. Commodity and manufactures prices in the long run. IMF working paper, 1991.

From the 1960s to the mid-1970s, when Liberia's economy was growing steadily at an average annual rate of 5.8 percent, the industrial sector added most value to the economy. From 1964 to 1979, agricultural commodities amounted on average to little more than a quarter of GDP.

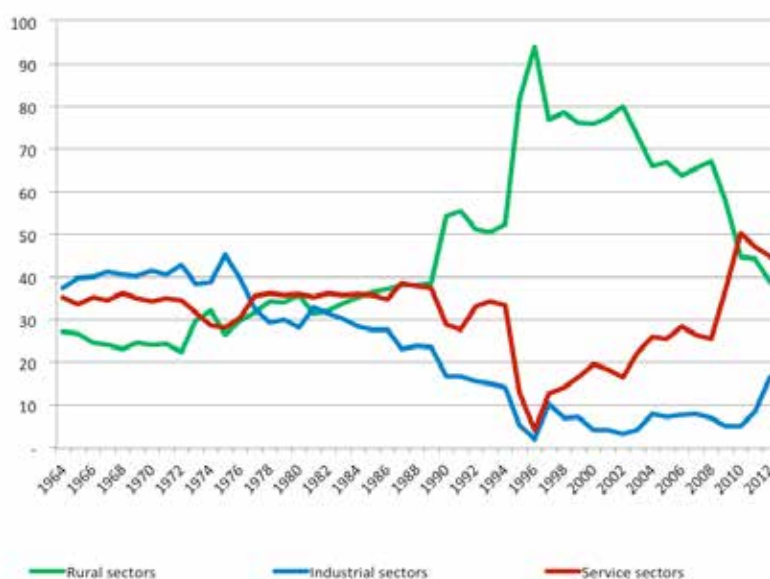
This changed in the 1980s. As Liberia's economy began to concentrate on the export of natural resources and commodities, the GDP share of manufacturing, which stood at 8.6 percent by 1979, dropped to 3.3 percent in 2012.

When civil war erupted, absolute production in rural sectors dropped dramatically as rubber and timber production were shut down. When iron ore extraction, construction, and manufacturing ceased with the destruction of plants and mines and the enforcement of embargos, the relative share of agriculture increased, despite decreasing absolute production.

Now that India's Arcelor Mittal has taken over one of the country's main iron ore mines while China Union has signed a US\$ 2.6 billion contract to take over another large-scale iron ore mine, the share of the industrial sector is, once again, increasing. However, this trend does not signify the onset of manufacturing, let alone structural change. Unlike in many of the other African countries in which these corporations operate, their activities in Liberia are focused exclusively on raw material extraction. It would require a consistent supply of water, electricity, basic infrastructure, and a skilled labor force to diversify into value-adding processing of raw materials.

The recent rise of the service sector has sometimes been interpreted to mean that Liberia could leapfrog manufacturing and rely instead on services as an engine of growth. This view is both misleading and unrealistic. Firstly, the rising share of Liberia's service sector reflects mostly informal low-value and low-productivity personal and trade services. It is distinctly different from the high-value and high-education business services found in, for instance, the USA, UK, or India. Secondly, considering the comparatively lower tradability of services, a higher share of services in GDP means a lower share of export earnings, which is reflected in Figure 25. Thirdly, the general reason for the rising share of services is not that people consume a much larger share of services but mainly that services have become ever more expensive compared to

FIGURE 27: Sector shares in Liberia's GDP (percent)



Source: World Bank. <http://data.worldbank.org>, 2013.

manufactured goods. Productivity growth in manufacturing has, by far, outperformed productivity growth in services. The historical record suggests that no country, with the exception of very small populations, has so far been able to achieve decent living standards by relying on services.

Manufacturing appears to be a better engine for growth and a better vehicle for structural transformation. Manufacturing holds the promise of absorbing and upgrading large numbers of low-skill labor, which otherwise would remain trapped in low-productivity sectors. Manufacturing is the only sector that displays the tendency of unconditional convergence. Once a country has successfully entered a specific industry, productivity will rise towards the global frontier irrespective of the conditions in the country itself.

It follows that the deindustrialization of Liberia and the renewed focus of post-war economic policy on concentrating the economy on the industrial-scale production and export of a few selected commodities is a serious concern. The historical record strongly suggests that this policy is highly unlikely to generate sustained economic development, let alone lead Liberia on a path toward shared prosperity.

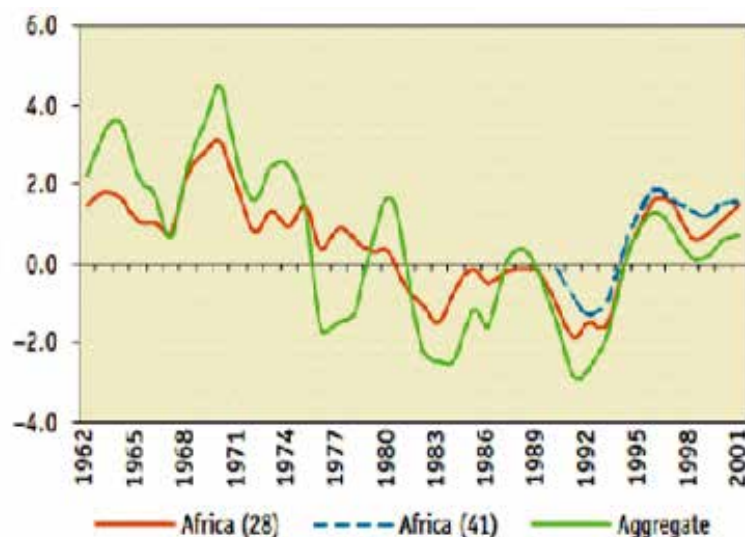
The causes behind the de-industrialization of the region...

Although civil war contributed significantly to the deindustrialization of Liberia's economy, this development was not specific to the country but rather happened throughout the Sub-saharan region between 1980 and the 2000s. This suggests that there are deeper, more fundamental forces at play. During this period, the region, unlike any other region in the world, failed to grow. At average, per capita income growth between 1980 and 2005 was only 0.2 percent; otherwise stated, it took the region some 25 years to regain their income levels of the 1980s.

...are debatable.

The view of multilateral development banks (MDBs) is neatly summarized in the Africa Economic Outlook 2013 report: "Not only did industrialisation not come about: worse, the large public sectors and

FIGURE 28: Long-term growth rates



Source: World Bank. <http://data.worldbank.org>, 2013.

high levels of protection for inefficient sectors built up during the early push for industrialisation proved to be economically and socially unsustainable, leading to a decade-long process of structural adjustment that started in the mid-1980s.”¹⁷

This explanation is convenient for the aid industry, but it remains inconclusive and unconvincing. For instance, the described inefficiencies, high-level protection, large public sector and kleptocratic elites are but typical, often transient, characteristics of an economy at the early stage of industrialization. Most of today’s high income economies displayed the same characteristics during their early stages of industrialization, for instance:

- In the 1880s, the USA became one of the fastest industrializing economies in the world. It had one of the most protectionist trade regimes in the world, with industrial tariffs ranging between 40 percent and 55 percent. Policies discriminated heavily against foreign investors and companies. In the finance sector, foreigners were prohibited from becoming company directors and foreign shareholders were prohibited from exercising their voting rights. The majority of the population was excluded from voting, and elections were frequently rigged. Corruption and nepotism were rampant in both the public and private sector. Not a single civil servant was recruited on merit in open competition.
- China offers a more recent example. During its rapid industrialization and early growth stage, economic policies imposed heavy restrictions on capital flows and trade, with industrial tariffs well above 30 percent. A state-owned banking sector imposed severe limitations on foreign ownership of financial or strategic national assets. Foreign companies were subjected to tougher regulatory and tax regimes than domestic companies. The economy featured large numbers of unprofitable state-owned enterprises, sustained only by monopolies and subsidies. Corruption in the private and public sector was widespread.

Hence, these characteristics cannot be the cause for the reversal of the region’s industrialization process. Our analysis suggests that reversing the causality suggested by the MDBs offers a better fit with the evidence and the historical record.

Did good policies go bad?

In the 1970s, global economic output dropped, partly due to the energy crises which caused recessions in many high income countries. Hence, the decline of African growth in the 1970s merely reflects the global trend. It was not specific to the region. However, the global economic downturn forced most economies in the region to seek loans in order to sustain public spending and development. In this way, African economies were forced to prematurely adopt free-market and free-trade policies through the conditions imposed by the Structural Adjustment Programs (SAPs) in the 1980s. The sudden and heavy exposure to international competition that came with the SAPs wiped out Africa’s nascent domestic industries. SAPs, driven by their underlying free trade paradigm, demanded a rapid increase of exports, which reinforced the region’s role of the global economy’s mine for hard and soft commodities.

Due to their limited capabilities, African economies ended up producing and exporting a small range of similar commodities, which resulted in a suppression or even collapse of prices. As a result, most Sub-Saharan economies had to increase production and exports while earning less (see Figure 26). This

meant that governments had to cut budgets, especially on infrastructure and human development, which further disadvantaged local producers and industrialization.

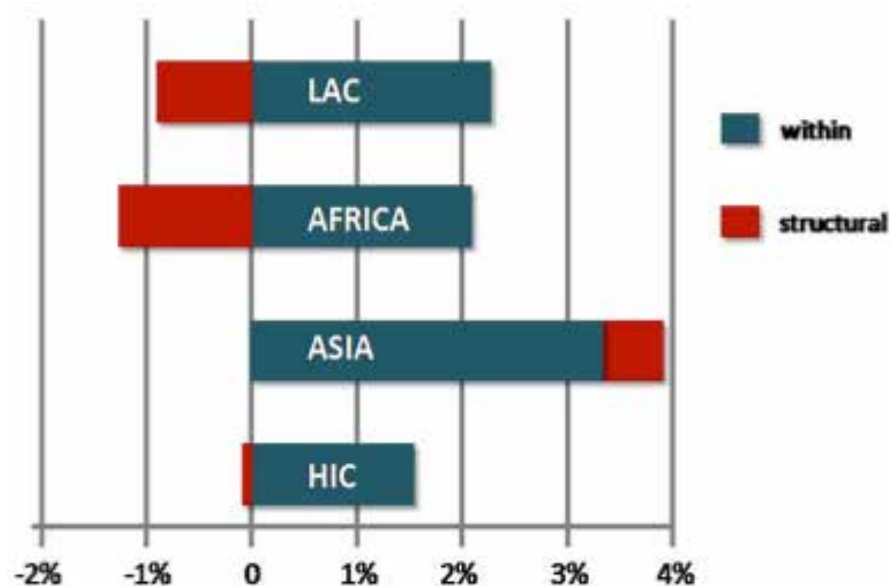
This development increased resource dependence and exposure to the volatilities of global commodity markets as well as to the stagnant production technologies and the low-quality institutions that characterize hard and soft commodity sectors. The minimalistic extractive institutions required for natural resource extraction and export are widely known to favor elites and large foreign corporations over domestic producers. They are distinctly different from the inclusive institutions that shape good economic policy or promote sustained and shared economic development.

Research conducted by Dani Rodrik and Margaret McMillan (2011) disaggregates labor productivity growth by being caused within a sector or by structural adjustment. Structural adjustment had a positive impact on Asia but a negative impact on Africa and Latin America. Reasons identified by the authors include that Africa and Latin American economies are centered on primary products, did not encouraged new tradable goods and service, and exposed tradables to import competition too early and too excessively, courtesy of the SAPs.

One lesson that can be drawn from the above is that whether a specific economic policy is actually good or bad often depends on the state of development and the structure of an economy.

Our analysis suggests that the premature liberalization is only a part of the bigger story behind the region's – and Liberia's – failed attempt at industrialization. Another important aspect of this story hides in the counterintuitive role of agriculture in structural transition and wider economic development, which reveals itself in the dynamics of the transition from subsistence farming towards modern industrial economies.

FIGURE 29: Decomposition of productivity growth, 1980-2005



Source: Dani Rodrik, Margaret McMillan. Structural change, labor productivity and globalization. 2011.

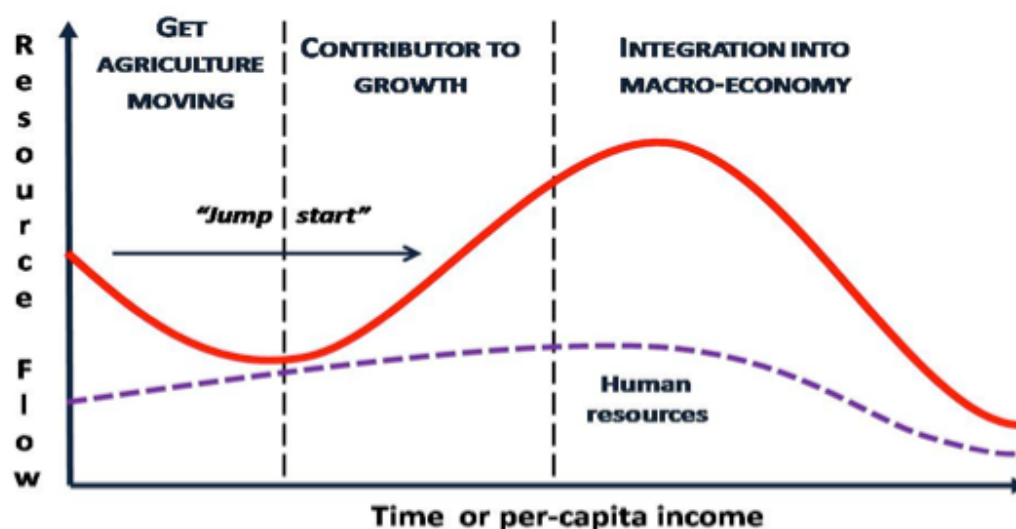
The agrarian transition exhibits two uniform and pervasive trends...

The structural transition from subsistence farming towards a modern industrialized economy has been remarkably uniform around the globe when expressed in terms of resource flows.

Whether in socialist or capitalist countries, Asian, Latin American, European or African, currently developed or still developing, this transition displays two uniform and pervasive tendencies, both of which are consistent with neoclassical economic theory:

1. Rapid agricultural growth accompanies or precedes industrialization. Economies in which agriculture is stagnant show slow or no industrial development, with a few exceptions in extremely oil or mineral rich economies, to prove the rule. Economies that transitioned successfully either already had a large agricultural surplus relative to (rural) subsistence needs, such as Russia, or were in the process of generating large productivity gains in agriculture before the onset of industrialization, such as Europe and parts of Asia. Countries which attempted to industrialize without meeting one of the above conditions began to de-industrialize after a while, often at heavy social and economic costs. This has been the case in many Sub-saharan economies.
2. (Absolute) growth in the agriculture sector leads to the (relative) decline of agriculture's shares in GDP. A less-than-unitary income elasticity for agricultural products guarantees that their gross value grows slower than GDP. Another factor contributing to this decline is rapid growth in agricultural productivity, which leads to a deterioration of the rural-urban terms of trade. The combination of these dynamics puts pressure on rural resources to move into more rapidly growing sectors of the economy.

FIGURE 30: Typical agrarian transition in terms of rural-urban resource flows



Misperceptions of the role of agriculture in structural change are widespread and have often led to poor policy decisions or, at best, the benign neglect of the sector. A common misinterpretation is that the rural sector is a mere reservoir of resources that does not require targeted support or a favorable policy environment for its own development. The popular consensus behind Liberia's economic policy, past and present, appears to be that labor, savings, assets, and even foreign exchange to buy the products demanded by an urban elite can be had from an uncomplaining rural sector.

...and unfolds in distinct stages.

Joseph Siglitz and Raj Kumar Sah conclusively demonstrated in 1983 that if the rural sector is still at an early stage of the transition, then squeezing the rural sector for resources does not “jump start” industrialization (see Figure 30). The historical record shows that economic policies that focus on capital-intensive resource extraction and industrial cash crop production, at the expense of wider agricultural development, did increase capital accumulation but did not generate the desired economic and welfare impacts. These policies always led to higher volatility in the long run. They often led to economic stagnation and did not bring about lasting structural change. The lower strata of both the rural and the urban population were found to be worse off. Inequality had increased.

TABLE 3: Transition stages

First stage: Getting agriculture moving	The transition starts when agricultural productivity rises, (such as through public investment in infrastructure, R&D, and extension) and creates a surplus. The initial investment required to get agriculture moving explains the initial ditch in the transition trajectory (Figure 30). As productivity improves and production increases, the rural sector generates a surplus relative to subsistence needs.
Second stage: Agriculture becomes an important contributor to growth and subsidizes structural change	This surplus is tapped directly, through taxation and factor flows, or indirectly, through tweaking the rural-urban terms of trade (e.g., macro-pricing) in order to develop urban and industrial sectors. The emerging differences in income and productivity trigger the urban-rural divide.
Third stage: Integration of the rural economy into the macro-economy	For resources to continue to flow from the sector, rural factor, product and credit markets must become better integrated into the rest of the economy. Consequently, the rural sector becomes more vulnerable to price volatility, trade, and other macroeconomic factors. Narrowing the urban-rural divide becomes a political issue.
“Final” stage: ?	The “final” stage is characterised by a low share of the labor force in agriculture (< 20 percent) and a low share of food in household expenditure (\approx 30 percent). When the integration is not successful, governments can encounter serious budget, price, and allocative distortions. So far, no country has been able to fully industrialize or integrate the rural sector.

Guiding and managing this transition requires a continued effort by policy makers, even when the integration is “complete”. Neglecting this task presents both an economic and political risk.

There are parallels to Liberia’s past economic development and lessons for future economic development in the evidence on the agrarian transition. They reaffirm our earlier finding that different stages of development require different economic policies. Considering Liberia’s current need to “get agriculture moving”—well beyond the level of food sufficiency—raising productivity in the wider agricultural sector ought to become a policy priority.

Rural peculiarities have often led to an urban bias against agriculture.

One of the reasons why the critical role of agriculture for priming structural change has been, and continues to be, neglected originates from the many peculiarities that distinguish the rural sector from industrial and urban sectors. These distinctions tend to reinforce the urban bias against agriculture. The fact that the rural sector is home to traditional people and lifestyles—the antithesis of what politicians and decision makers at the center envision for their societies—adds to this bias.

Farming is, in essence, a very decision-intensive private-sector type activity; yet, the sector is highly dependent on a conducive policy environment. These decisions are made by a multitude of individual farmers. Hence, making agricultural policy is an entirely different proposition from making industrial policy. Government could round up a handful of CEOs in any industrial or urban sector to agree on policies or targets. However, if Government decides to, say, raise food production, about half a million Liberian farmers must find it in their own interest to do so. Hence, agricultural production and productivity is primarily conditioned by incentives. Getting these incentives right is key to good agricultural policy.

These incentives are difficult to structure in an efficient manner unless farmers own the land that they are farming. Unlike in most industrial sectors, the integration of ownership, management, knowledge, and operations is an important success factor in crop production. Where these factors are disintegrated, it requires a host of complicated contractual and institutional arrangements just to achieve only second-best outcomes.

Another important distinction of the agriculture sector is in the importance of the size distribution of farms. There is abundant academic evidence that demonstrates that:

- in a **unimodal distribution of farm sizes**, composed of mostly small farms operating above the subsistence level, rural development can become a powerful strategy for structural change and inclusive economic development, whereas
- in a **bimodal distribution of farm sizes**, composed of a mix of many small farms, a few large industrial crop estates, and nothing much in between, the scope for progress and structural change is limited. This setting tends to gravitate towards a low-productivity equilibrium. High level inequality is one of its systemic features.

The consolidation process that occurs in most unimodal settings – resulting in a diverse mix of large, medium, and small enterprises – is an entirely different outcome from the bimodal land distribution with decidedly different impacts on long-term economic development.

Thirty years of research conducted by Klaus Deininger, the world’s leading authority on land policy, strongly suggests that only one developing country was able to maintain a long-term high growth rate

with a highly bimodal land distribution. This country was Brazil which, according to Deininger, is the “false prophet” of growth.

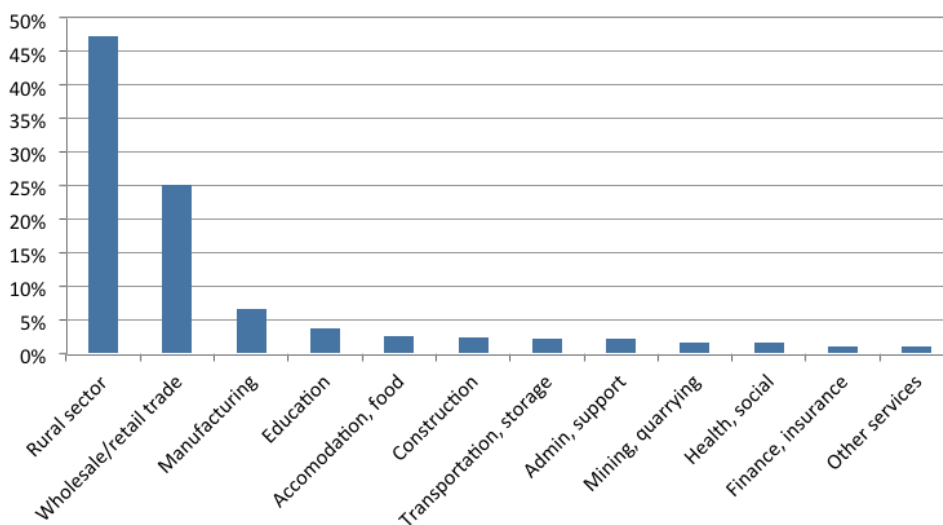
Bigger is not always better.

According to Liberia’s latest labor force survey, about half of the total working population (508,000) is employed in the agriculture sector, including forestry and fishing, including over 70 percent of the rural working population and 15 percent of urban workers. About a quarter (270,000) is employed in wholesale-retail trade, followed by manufacturing (70,000) and education (40,000). Roughly three-quarters of the national labor force operate in the two sectors with the lowest productivity, namely, agriculture and wholesale/retail trade. In the debate on Liberia’s economic policy, this data has often been interpreted to reflect a misallocation of labor across sectors. Since industrial production implies higher labor productivity, it is frequently used as an argument in favor of prioritizing industrial-scale crop production over smallholder crop production.

This argument is flawed for several reasons. Firstly, it is too static and too reductionist, ignoring both the dynamics of structural change and the current position of Liberia’s economy on the transition trajectory. Liberia’s current distribution of labor across sectors (Figure 31) is but a typical reflection of an economy at its early stages of development. It has been the same for most economies around the world. The issue is not whether this is a misallocation of labor but how to generate the highest value from a huge low-skilled labor force in the rural sector. The historical record suggests that trapping the rural labor force in low-wage seasonal jobs on industrial plantations does not deliver structural transition. As discussed earlier, moving this labor force straight into advanced manufacturing or high-skill services is not a realistic option.

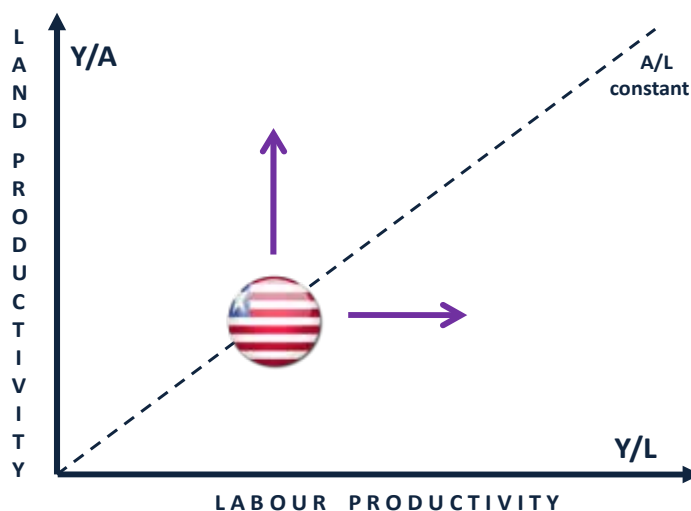
Secondly, the argument is too narrow. Labor productivity is only one dimension of agricultural efficiency. There is also land productivity. As any gardener knows, gardening delivers the maximum output per land unit. What matters more, labor or land productivity?

FIGURE 31: Labor force survey, 2010



Source: Government of Liberia, ILO, National labor force survey, 2011.

FIGURE 32: Productivity compass



Again, we find that the answer depends on the structure and developmental state of the economy, and on what society is trying to achieve with it.

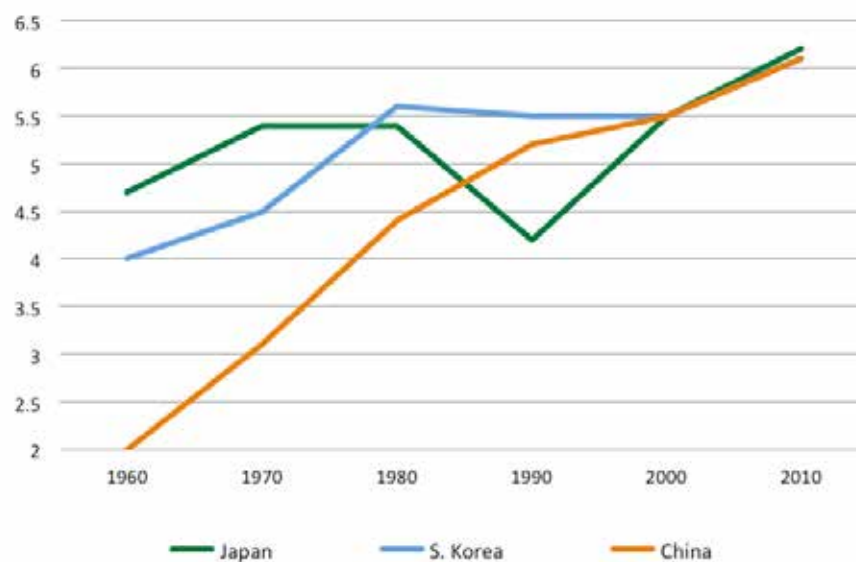
Considering the current state and structure of Liberia's economy, there is a strong case for changing the predominant "bigger-is-better" paradigm on agricultural productivity. Our analysis suggests that Liberia's economy would be better served by maximizing crop production and land productivity until the return on any more labor falls to zero. To substantiate the proposed paradigm shift, we shall, once more, look to the evidence from Asia.

The ways of the East

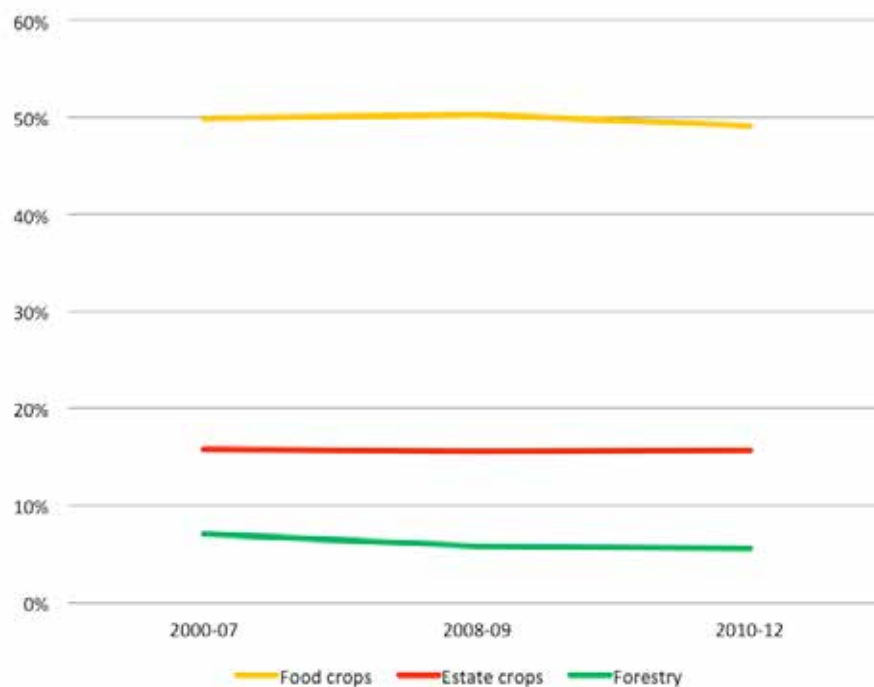
The evidence from Asian economies that have transitioned successfully from subsistence farming to modern industrial economies, such as Japan, China, Taiwan, or South Korea, shows that these economies emphasized land productivity through family and smallholder farming, and more equitable distributions of land size and ownership, during their early stages of development – which is basically the opposite of Liberia's current economic policy.

In these countries, crops are not grown on vast industrial estates but rather on small family plots under two hectares,³ which have by far outperformed large estates in terms of productivity growth and yields. Even at a global scale, large-scale rice or wheat farms cannot compete with yields achieved by smallholder or family plots in China, Japan, or South Korea (Figure 33).

The same applies to Java. Food production on family and smallholder plots which are, on average, less than half a hectare in size, have by far outperformed industrial palm oil, rubber, or pulp production on Sumatra and Kalimantan in terms of the value added to the economy. They have achieved this at a mere fraction of the capital costs of industrial palm oil and pulp production. Rice farming on small plots provides livelihoods for six times more people than the entire national palm oil industry.

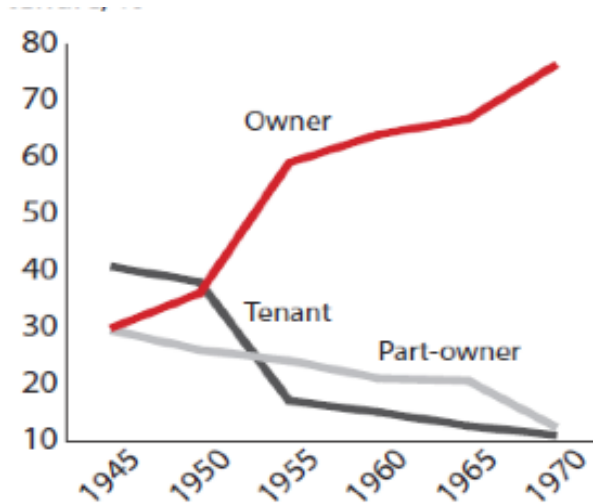
FIGURE 33: The triumph of Asia's gardens (average rice yield in t/ha/a)

Source: FAOSTAT, USDA, 2013.

FIGURE 34: The triumph of Java's gardens (percent of agricultural GDP)

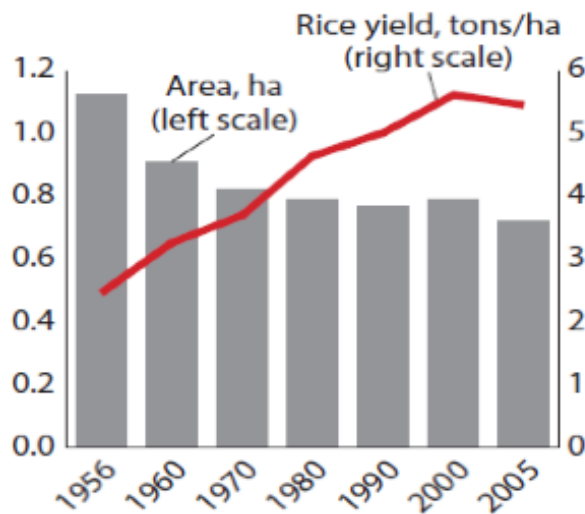
Source: National Statistics (BPS). Government of Indonesia, 2013.

FIGURE 35: Taiwan's farm tenure



Source: Council of Agriculture, Government of Taiwan, 2013.

FIGURE 36: Taiwan's farm size and rice yields



Source: Council of Agriculture, Government of Taiwan, 2013.

The “secret” ingredient to raising agricultural productivity and production in China, Taiwan, Japan, and South Korea was an egalitarian distribution of land, as exemplified by the data on Taiwan (see Figures 35 & 36).

Generating a massive surplus in the agricultural sector through prioritizing land productivity over labor productivity and small-scale family farming over industrial-scale crop production enabled these economies to generate the highest economic value out of an unskilled labor force concentrated in the rural sector.

This, in turn, created the wealth that was required to upgrade the structure of the economy and the national workforce. The net surplus of family farming was directed towards building a competitive export-oriented manufacturing sector. This generated higher value and higher productivity jobs to absorb surplus rural labor, thereby changing the allocation of the workforce and increasing labor productivity across the economy.

Another critical step in the successful transition of these economies was keeping banks under state control so as to direct finance to high-yield small-scale family farming and manufacturing while providing strong financial incentives for innovation and export performance. Compared to smallholder farming, large-scale industrial plantations tend to deliver higher returns on capital to their transnational owners and their local patrimonial networks. Hence, without public intervention, commercial capital gravitates towards industrial crop estates, thereby starving smaller-scale farming and local enterprises of finance, and arresting structural change.

Without an egalitarian land reform, there would have been no increased production and agricultural surplus to prime industrialization. Without the focus on manufacturing for export, there would have been no way to engage tens of millions of former farmers in the modern economy, and no opportunity to climb up the value chain. Without state interventions in the finance sector, it would not have been possible to direct capital towards developmental purpose.

In all successful transitions, markets were made to serve economic development during the initial stages of the transition. Local industries were nurtured and protected during their infant stages before subjecting them to head-on global competition. Asian economies that transitioned successfully managed to resist the imposition of premature trade and market liberalization through the IMF, MDBs, WTO, etc for just long enough.

Counter to popular belief, markets are not efficient or effective drivers of development on their own, nor are they living entities that work with “invisible hands.” They are but tools made and shaped by societies through their institutions and politics. They can be shaped into highly effective tools for the efficient allocation of resources. They have shown to be less effective in achieving distributional efficiency.⁴

CONCLUDING REMARKS

Quo vadis Liberia?

It appears that Liberia’s economic policy is headed towards the past, aiming to rebuild a structure that is similar to the pre-war economy rather than creating something different or better. This risks trapping Liberia’s economy in a low-productivity equilibrium that is prone to commodity-driven boom and bust cycles. Prioritizing the development of a large-scale transnational crop industry over the pursuit of productivity gains in the wider agriculture sector and the support of small-scale domestic producers and local enterprises is likely to create an inefficient and capital intensive rural sector which is incapable of producing adequate livelihoods for the mass of the rural population. Hence, Government’s continued under-spending on agriculture, far below the 10 percent target agreed at Maputo, and its general neglect of rural development is a concern.

Since the 1980s, MDBs have announced on about two dozen different occasions that African economies are just about to turn the corner, ready to convert natural wealth into structural change and sustained

economic development. Yet, this did not happen. Even in Botswana, Africa's "growth miracle" poster child – the reinvestment of well-managed natural resource revenues in education – has not led to structural change, let alone the diversification or structural upgrade of the economy. The fact that this did not occur suggests a deep-seated misconception of the relationships between natural wealth and long-term economic development, and the dynamics of this transition. There is no reason to assume that Liberia's economic policy of increasing dependence on natural resource extraction, industrial-scale crop production, raw material exports, or government's faith in the benign impetus of the transnational extractive/commodity industry will break this mold so as to put Liberia on the path of sustained, let alone shared, economic development.

There are many reasons that point towards diversifying Liberia's economy towards value-adding manufacturing rather than rebuilding an economy that is centered on the extraction, production, and export of a few commodities. It might seem counterintuitive, but Liberia's best chance of achieving this transition, as demonstrated by economies that transitioned successfully, is to focus economic policy on generating dramatic productivity gains in smallholder and family farming, well beyond food sufficiency, so as to generate an exportable surplus and prime an export-oriented manufacturing industry. The evidence further suggests that government would be well advised to shape markets to serve developmental purposes, direct capital flows towards this purpose, provide financial incentives for productivity gains, innovation and export performance, and nurture and protect its nascent domestic industry during the early stages before exposing it to head-on global competition.

In light of the evidence, it could be said that failed rural development, resulting in cheap labor and undervalued rural assets such as land is a pre-condition for the emergence dominant transnational crop industry. Hence, Liberia would be well-advised to adopt and adapt the economic policies applied by China, Taiwan, Japan, and South Korea during their early stages of economic development, rather than following the policies adopted by Indonesia or Brazil, the "false prophets" of growth.

Is Liberia destined for under-development?

The economic decline of the Sub-saharan region between the 1980s and 2000s (see Figure 28) has given birth to the hypothesis of "Africa's chronic failure of economic growth" (Collier & Gunning, 1999) or the "African growth tragedy" (Sachs & Warner, 1997). The arguments behind these hypotheses are based on the view that the reasons for Africa's under-development are structural; more pointedly inevitable outcomes of geography, history, or culture, depending on the preference of the author. Many variables were found to correlate with the region's economic decline and interpreted as causing it.

A critical weakness of these hypotheses has already been revealed earlier in this analysis. During the 1960s and 1970s, per capita income in the region grew steadily at an average of about 1.6 percent per year. Admittedly, this is not an Asian "miracle" growth rate but a growth rate that is fully consistent with the early stages of economic development. Most of today's high income economies grew at similar rates during their early stages of industrialization (1820 – 1913). If structural factors really constituted binding constraints, neither Liberia nor the rest of the region should have grown during this period.

Simply put, there has never been a "chronic failure of growth" or a "growth tragedy" caused by structural handicaps. When we expand the time horizon of our analysis—from the slave trade in the Dahomey kingdom/colony, to the cocoa boom at the Gold Coast, the copper boom in post-colonial Zambia, on to the diamond-led growth in Botswana—we find that periods of regional growth and decline have always been highly correlated with the volumes and prices of commodity trading.

BOX 1. NATIONAL INCOME VS. GDP

The concept of national income, defined as the sum of all income available to the residents of a given country, is closely related to the concept of GDP, defined as the value of all products and services produced within the borders of a given country. However, there are important distinctions between these concepts. In order to derive national income from GDP, one has to first subtract the depreciation of a country's capital stock from GDP to calculate the net domestic product (usually about 90 percent of GDP). Next, one has to subtract the net income paid to foreign investors. It follows that a country whose firms and assets are owned by foreign investors may well have a high GDP but a much lower national income. Conversely, a country that owns a large share of foreign companies and assets can generate levels of national income that are well above its GDP. The historical track record suggests that economies with a relatively high share of foreign investment over domestic investment can only be sustained through systems of political domination in the long-run, as was the case in the colonial era.

According to the analysis of the French economist Thomas Picketty, presented in his bestselling book “Capitalism in the 21st Century” (2014), none of the Asian economies that have moved closer to the developed economies of the West in recent years has benefited from large foreign investments. In essence, all of these countries financed the necessary investments in physical and human capital on their own, initially from surplus generated in the rural sector due to smallholder farming. Conversely, economies built on foreign investment have been less successful, most notably because they have tended to specialize in areas without much prospect of future development, and because they have been subject to chronic political instability.

According to Picketty, part of the reason for this chronic political instability is the recurrent and almost irrepressible social demand for expropriation that increases with the share of foreign ownership of a country's assets. Such countries tend to get caught in alternations between revolutionary governments, usually with limited success in improving actual living conditions for their citizens, and governments dedicated to the protection of existing property owners, thereby laying the groundwork for the next revolution or coup.

Clearly, participation in the global economy is not negative in itself and autarky has consistently failed to promote prosperity. The Asian countries that have lately been catching up with the rest of the world have clearly benefited from openness to foreign influences. But they have benefited far more from open markets for goods and services and advantageous terms of trade than from free capital flows.

Many studies show that gains from free trade come mainly from the diffusion of knowledge and from the productivity gains made necessary by open borders, not from static gains associated with specialization (e.g., from large foreign investment in industrial-scale plantations or natural resource extraction) which appear to be fairly modest. In other words, the poor catch up with the rich to the extent that they achieve the same level of technological know-how, skill, and education, not by becoming the property of foreign investors. Knowledge diffusion depends on a country's ability to mobilize financing and create institutions that encourage large investment in education and training of the population while guaranteeing a stable legal framework that various economic actors can rely on. It is therefore closely associated with the achievement of a legitimate and efficient government. Concisely stated, these are the main lessons that history has to teach about global growth and international inequalities.

Regardless of the strength or weakness of any specific argument around structural parameters, most of which make fascinating reading, they all share a common weakness which is the underlying assumption that the existence of structural handicaps means that outcomes are predetermined.

The historical record of the world's economies shows that structural handicaps are not binding constraints to economic development. All structural handicaps faced by Liberia's economy – geographical, historical or institutional – have been faced and overcome by other economies. The evidence suggests that economic development is not a matter of destiny but a matter of choice and pragmatism, as opposed to following any externally imposed dogma on economic development. At essence, it is about making good decisions, and then implementing them.

ENDNOTES

¹ CLUA. Support for the development of a private sector engagement strategy for Indonesia, 2013.

² England's industrial revolution (1700 to 1850) was built on an agricultural revolution. This revolution was the arrival of the lowly and unspectacular turnip which brought a tremendous rise in agricultural productivity through changes in crop rotation at low capital requirement. Similarly, Germany's industrial revolution was hinged on the arrival of the potato. Most of Asia's industrialization followed tremendous productivity gains in rice, wheat, and other food crops. To note, the crops that boosted productivity and enabled both surplus and industrialization are characterized by low-capital requirements, strong productivity gains, and short rotation periods, which are pretty much the opposite characteristics of the oil palm crop.

³ The average size of a rice farm is 1.2 ha in Japan, with 88 percent of all farms below 2 ha, and 1.05 ha in South Korea, with 92 percent of all farms below 2 ha (Eastwood et al., 2004, Volume III of the Handbook of Agricultural Economics, University of Sussex).

⁴ For a more detailed discussion of this topic, we recommend "How Asia Works" by Joe Studwell (2013).