CHAPTER 4

THE DISTORTING EFFECTS OF THE RESOURCE SECTOR ON NATIONAL ECONOMIES: A CASE STUDY FROM PAPUA NEW GUINEA

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Overview

This paper explores Papua New Guinea's (PNG) economic development experience in order to offer some lessons for a possible future independent Bougainville. The focus is on using traditional economic tools to examine the contribution of the resource sector (ie mining, oil and gas) and the non-resource sector (which includes agriculture, fisheries, manufacturing and wholesale and retail trade) to PNG's economic development. The non-resource and resource sectors are analysed by examining their respective contributions to incomes, exports, employment and the national budget. The paper also considers briefly the implications of a high exchange rate – caused by the influx of resource sector-related foreign currency – on the economy as a whole.

Measuring PNG's development progress should not be limited to economic measures. There are also important social and health characteristics that are vital to understanding a country's level of well-being. Generally, PNG's performance is very disappointing and on many indicators the worst of any country in the Asia Pacific region.

In PNG, it is estimated that[1]

- 39.3% of the population lived below the USD 1.90 per day poverty line in 2014 – the highest rate in the Asia Pacific region for those countries where this information is collected
- the under 5 mortality rate per 1,000 live births is 57
- the prevalence of malnutrition (wasting) among children under 5 is 14.3%
- the maternal mortality rate per 100,000 live births is 215
- the incidence of malaria per 1,000 population is 185.

There are inevitable difficulties in suggesting that an alternative development path would have produced better outcomes for PNG. However, PNG's poor outcomes relative to those of its neighbours suggests that economically it would have been difficult to have done worse short of a descent into widespread civil war. A possible future independent Bougainville should be careful of repeating PNG's mistakes.

Impact on incomes

The resource sector has been growing as a share of the economy with strong growth rates while the rest of the economy has declined (see Graph 1). This is a classic indicator of the "resource curse".[2] Specifically, the non-resource sector, after allowing for inflation and population growth rates, has fallen from PGK[3] 9,800 per capita down to just below PGK 6,000 per capita between 1980 and 2017.[4] This is an extraordinary drop in economic living standards of 41%. People in PNG are, on average, over one-third worse off than they were just after independence from Australia. This is a damning development failure. No other country would want to go down such a path.

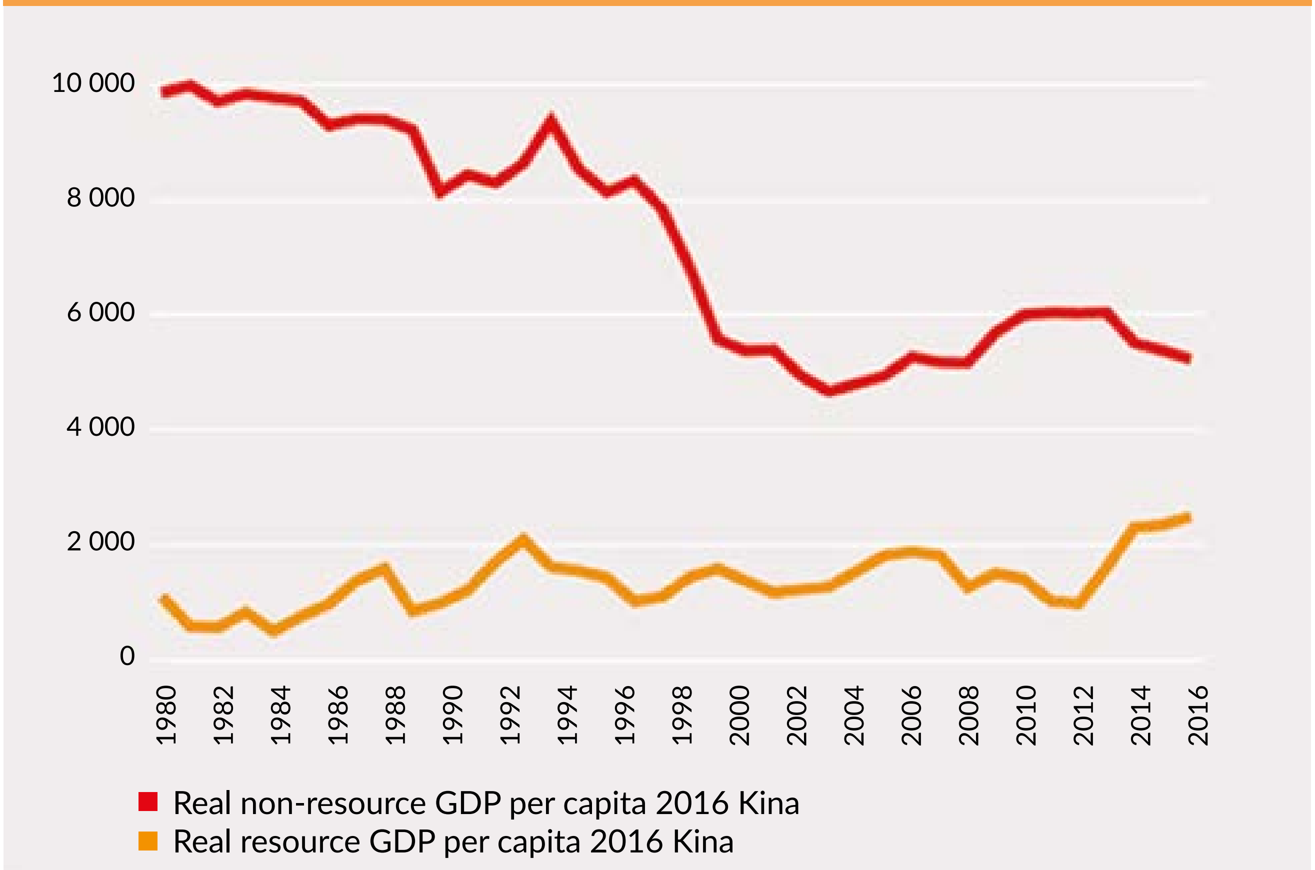
1. Asian Development Bank, *Basic Statistics 2017* (Asian Development Bank: Manila, 2017) https://www.adb.org/publications/basic-statistics-2017.

2. "The resource curse—that countries and regions with an abundance of natural resources tend to have slower economic growth, weaker development outcomes, and more instability than resource-scarce countries—has been a prominent and recurring theme in the academic literature on natural resource management, and especially those concerned with Africa (see, for example, Sachs and Warner, 1995, 1997, and 2001). (Charlotte J. Lundgren, *Boom, bust, or prosperity?: managing Sub-Saharan Africa's natural resource wealth* (International Monetary Fund: Washington, D.C., 2013)).

3. Papua New Guinea Kina, PGK 9,800 is worth approximately USD 2,950 at today's exchange rate.

4. The best measure of economic well-being is household income (see (Joseph Stiglitz, 2009). This information is not available in PNG. The closest available proxy is non-resource GDP per capita as most of the resource sector is owned by international investors and PNG's population has been growing rapidly.

Graph 1: PNG real per capita incomes 1980 to 2016



At the same time, PNG's resource sector has boomed. It has increased from around PGK 1,000 per capita to PGK 2,000 per capita. Using 5 year averages (to smooth out some of the volatility of the resource sector), this part of the economy has more than doubled – indeed an increase of 129%.

However, the net impact, given the relatively small size of the resource sector, is that total economic income per capita has decreased by 29% since 1980.

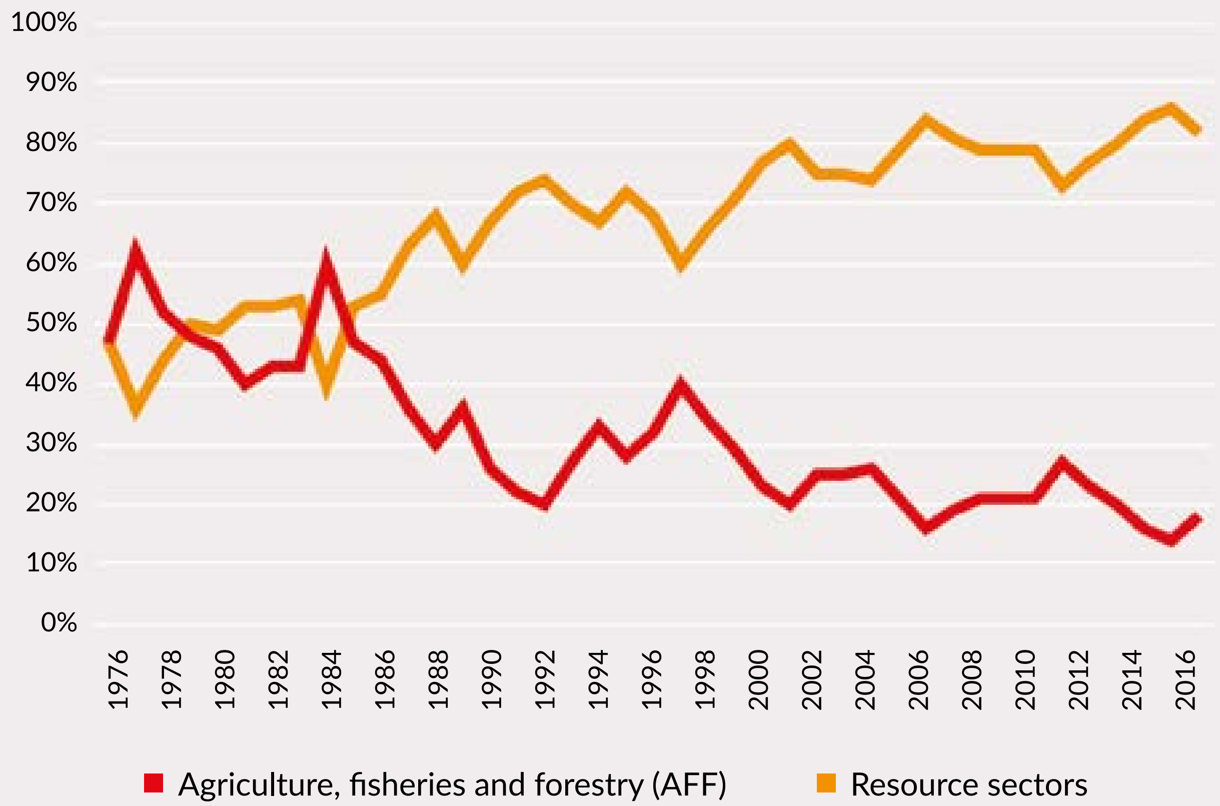
Impact on exports

At the time of PNG's independence, the massive Bougainville Copper mine had been in operation for three years. Even then, over the first decade of independence, exports of agricultural, fisheries and forest products slightly exceeded those of the resource sector. This started to change dramatically from 1985 and over the last 10 years resource exports have averaged 80% of PNG's total exports with agriculture, fisheries and forest products comprising just 20% (see Graph 2). This increasing export dependence on the resource sector may reflect the distorting implications of the resource curse on the exchange rate discussed later in this paper.

This is an extraordinary level of export dependence on the resource sector. However, few of these export receipts stay in PNG. They are held in foreign currency accounts to repay loans that financed the initial investments as well as remitting profits to external shareholders. On the other hand, given the nature of PNG's agriculture sector with greater levels of local ownership, a much larger proportion of foreign exchange earned as exports actually returns to benefit the country. And as will be discussed below, record levels of resource exports has not translated into significant returns to the PNG budget.

This decline in the relative share of agriculture,

Graph 2: PNG - Share of exports - agriculture and resource sectors



Source: Bank Papua New Guinea, Quarterly Economic Bulletins (various issues)

Cocoa beans drying, north Bougainville

Photo credit: Christina Hill

Table 1: Moves in export volumes of PNG's key agriculture commodities

5 year average	Tea '000 tonnes	Copra '000 tonnes	Copra oil '000 tonnes	Rubber '000 tonnes	Coffee '000 tonnes	Cocoa '000 tonnes	Population millions	Logs '000 cubic meters	Palm oil '000 tonnes
1976-80	6.7	93.3	30.1	4.2	46.3	28.7	3.1	510.2	30.7
2012-2016	2.2	34.8	15.8	3.3	52.6	36.3	8.0	3556.2	502.5
Change	-67%	-63%	-48%	-22%	14%	26%	157%	597%	1537%

Hides Gas Conditioning Plant, part of the PNG LNG project, during a blockade

Photo credit: Michael Main

The resource sector employs very few people – some 0.4% of total employment – and, in 2016, less than 5% of formal sector employment in PNG.

fishing and forestry products is not just because resource exports have been so high. When these exports are expressed as a share of the economy (or gross domestic product (GDP)), there has been a steady pattern of decline for the first 15 years of independence, some recovery in the 1990s but a distinct fall again from just over 10% in 2011 down to current levels just over 5%. The extent of this decline can be measured in several ways. In absolute terms of production (see Table 1), there have been falls in exports of tea, copra, copra oil and rubber. There have been slight increases in coffee and cocoa. The major increases have been in logs and palm oil which are those areas with the highest levels of foreign ownership.

The potential returns from agriculture exports could have been much greater if PNG's agriculture sector had received better support including through clear and consistent policy instruments. Potentially, for the six cash crops dominated by smallholders (those on the left hand side of Table 1) PNG could have lifted annual export earnings from PGK 1.2 billion to PGK 4.7 billion if it simply maintained agricultural production at post-independence levels per capita, and had on-going productivity increases of just 1 per cent per year. This has been a major missed development opportunity for PNG. Bougainville's agricultural potential is also substantial and has not been adequately tapped.

Impact on employment

The resource sector employs very few people – some 0.4% of total employment – and, in 2016, less than 5% of formal sector employment in PNG.[5] Indeed, it is the smallest of the measured (or formal) sectors of the economy employing 14,400 people in 2016. The resource sector does have indirect impacts on other sectors, including the services that are provided to the resource sector such as transport and food. Estimates are these can be three to four times as much as the direct employment effects but even with these indirect impacts the resource sector still represents a small fraction of formal employment. Employment does temporarily increase during the investment or construction phase of a resource project. For example, during construction of the PNG LNG project, peak employment was estimated to have reached 21,200 in 2012 but has since fallen back to 2,500 in December 2016.[6]

Formal sector employment is very small in PNG. In 2014, out of an estimated 4.6 million people aged between 15 and 64, formal wage employment was estimated at 465,000 people or about 10% of the 15 to 64-year-old population. The actual labour force has been estimated at 3.1 million, with 2.5 million economically active in the subsistence sector or in the informal economic sector. The overall pattern of formal employment creation in PNG has been extremely disappointing and it has not kept up with population growth. In fact, formal employment has actually started to decline in recent years in absolute terms.

Impact on the national budget

In PNG, resource taxes and dividends have averaged just 13% of PNG total revenues and grants since 1975. So nearly 90% of revenues to fund PNG's budgets and development have come from other sources and sectors of the PNG economy.

These resource revenues are highly volatile. They have moved from lows of under 5% of revenue and grants during the early 1980s (when Bougainville Copper was not contributing much to government revenues due to lower commodity prices), 1990 and 1991 (following the closure of Bougainville Copper mine) and in 2016 (largely due to excessive tax concessions given to the PNG LNG project and Ramu Nickel mine). Even with the PNG LNG project, and Lihir, Ok Tedi and Ramu Nickel mines at full production, the contribution is expected to lift to only 6% by 2022. PNG has been reducing its tax rates on the resource sector down to 30%, it has an ineffective additional profits tax, generous depreciation arrangements over 10 years even though project life is 30 years, has struggled to pay for the equity share it takes in projects (from 22.5% in gas to 30% in oil), allows its royalties and development levies (2% each for the PNG LNG project) to be calculated on a discounted well-head value of production, has granted tax holidays of up to 10 years and has allowed tax credit claims for infrastructure work outside the project site.

Another key feature of PNG's resource revenues is that PNG Governments have tended to spend these expected revenues before they are received. PNG has experienced this recently with the major expenditure expansion in the 2013 Budget, funding items such as a massive decentralisation (and political) program by shifting nearly 10% of the budget to political constituency funds. This is a characteristic of many other countries and is known as the "Presource Curse".[7] The Presource Curse describes the adverse impacts of governments spending up big in anticipation of large resource revenues, and then the fiscal problems encountered when these resource revenues aren't as large as anticipated. PNG

5. The figures for the structure of the labour force are primarily drawn from Table 8.6 and Table A8.2.1 from L Jones and P McGavin, Grapping afresh with labour resource challenges in Papua New Guinea (Institute of National Affairs: papua New Guinea, June 2015). The 2011 Census estimate for formal wage employment in the "Mining and Quarrying" sector was 9,011 has been increased to 14,441 in line with movements in Bank Papua New Guinea's employment index for the "Mineral" sector.
6. Ernst and Young, Papua New Guinea Extractive Industries Transparency Initiative (PNG EITI) Report for 2016 (PNG EITI: Port Moresby, 21 December 2017), p. 32.

7. J Cust and D Mihalyi, 'The Presource Curse 'in *Finance and Development* Vol. 54, No. 4, December 2017.

The underlying revenue crisis facing PNG is the fact the resource sector is paying very little tax.

had a similar experience of spending up big in the early 1990s with Kutubu Oil and new mines leading to rapid increases in spending. An unexpected fall in international commodity prices in 1994 led to a major fiscal and currency crisis.

Resources taxes have another worrying trend in PNG. Average resource taxes are generally falling while average tax rates on the general PNG population are increasing. For the non-resource economy, this measure of average tax rates has increased reasonably consistently from 11.3% in the early 1980s to around 16.7% currently.[8] It slid back somewhat during the economic crises of the 1990s and 2010s, but there has been an underlying pattern of increase. In contrast, although more volatile, average resource taxes have been falling, especially since 1998 and most markedly since 2008, and are now under 5% – less than one-third the level for the rest of the economy.

The underlying revenue crisis facing PNG is the fact the resource sector is paying very little tax. The reasons for this are two-fold. First, the collapse in commodity prices have hurt company profitability and therefore taxes. However, this has happened several times before in PNG's past, but the outcome has never been so bad. The second and most likely reason is the pattern of tax concessions and tax planning used by existing resource projects. For example, the International Monetary Fund is very clear that the PNG LNG project has a low tax arrangement in comparison to similar projects around the world.[9] The Ramu Nickel mine has been given a 10 year tax holiday[10] and Oil Search has been a major user of a tax credit scheme[11] to build major infrastructure for sporting events and political meetings (such as APEC Haus) though projects that have received little public scrutiny and are not tendered for. Further, the increased sophistication of transfer pricing and complex company structures used by large global resource companies offers opportunities to reduce tax liabilities in PNG.[12]

8. Average tax rates are defined as the level of revenues raised by parts of the economy relative to their GDP size.
9. International Monetary Fund, Papua New Guinea IMF Country Report No. 17/411, Washington D.C., December 2017.

Impact on exchange rate

The resource curse usually manifests itself through two mechanisms. The first is to drag precious labour and capital into resource projects and away from the rest of the economy. In the case of PNG, with a general lack of formal employment and excess capital available looking for good bankable projects, this pattern of distortion is unlikely to be significant. The main exceptions are increased wage costs for domestic skilled labour, as well as rental prices for scarce housing supply.

The second major mechanism for the resource curse is lifting the exchange rate to a higher level due to changes to (or distortions of) the economy caused by the influx of large amounts of foreign currency. This influx of foreign currency increases demand for the Kina and this pushes up the price of the Kina relative to other foreign currencies. PNG's exchange rate – measured by the Real Effective Exchange Rate (which considers how prices in other economies are moving relative to PNG) – has increased, especially since the early 2000s, and with this the county's competitiveness has declined. Looking forward, the PNG Treasury expects the competitiveness of PNG's non-resource sector to continue to decline.

This higher exchange rate effectively acts as a tax on all other types of exports (such as agriculture exports which have declined as a

10. PNG EITI Report for 2016, p. 41.
11. PNG EITI Report for 2016, p. 125.
12. Tax Justice Network – Australia, Opening Statement/Submission Senate Inquiry into Corporate tax Avoidance, 2017 https://bit.ly/2OEpGzY.

share of exports), a tax on all foreign investment, and a subsidy on all imports and for all external movements of capital (such as buying houses in Cairns or Singapore). Of course, none of these things are desirable in the context of trying to grow the non-resource parts of the economy, and to start reversing the 41% decline in economic living standards discussed earlier.

A lower exchange would benefit other sectors. If for example, the exchange rate was 30% lower (or more competitive) then every coffee or cocoa grower would receive 30% more Kina when they sold their bags of produce at the factory gate or to a commodity trader. This is because prices are adjusted according to movements in international commodity markets which are based on US dollars. As a high level of people's expenditure is on local products (such as costs for schools or food bought at local markets) this has an immediate, positive impact on their costs of living. Partially offsetting these real income gains will be increased Kina costs of some imports such as rice.

Further, a lower exchange rate would make PNG less expensive relative to the rest of the world when it comes to export items such as tourism or down-stream processing of logs or fisheries. Manufacturers and others rightly complain about their high cost structures relative to those in the Philippines or Indonesia for example. This is due to higher energy, transport and security costs. All these elements would be eliminated with a lower exchange rate making PNG a more attractive prospect for investment and down-stream processing, as well as opening other markets for export.

Conclusion

The resource sector has been the major factor behind most of the crises that PNG has faced since independence, including its current economic crisis. The resource sector only accounts for 0.4% of formal employment in PNG and has averaged just 13% of PNG's total revenues and grants since 1975. The resource sector does though dominate exports and it is this domination that serves to distort the economy through changes to the exchange rate. A higher exchange rate makes it harder for non-resource sector exports (such as agricultural products) to complete globally, which in turn deprives PNG's rural population of increased incomes.

This paper argues that the distorting impacts of PNG's resource sector have exceeded any benefits.

This paper argues that the distorting impacts of PNG's resource sector have exceeded any benefits. This is reflected in the resource sector thriving since independence, with high growth rates, while the rest of the economy has slid badly backwards. On average, and measured by non-resource GDP per capita, people in PNG are over one-third worse off than at the time of independence.

An alternative is to focus on areas of comparative advantage that will contribute to more equitable and sustainable development and on those sectors of the economy where there are already high levels of participation, such as agriculture and the subsistence economy. Bougainville, like PNG, has some extraordinary opportunities. It is ethnically diverse and it has huge biodiversity. Its land and seas can support agriculture and fisheries, tourism[13] and new forms of patents and provide new opportunities with greater potential for women, the rural poor and small businesses. Looking back over the last 40 plus years of PNG's development since independence, there has been too much emphasis on the resource sector as a focus for development. Bougainville can learn from this now and need not wait 40 years themselves to draw the same conclusion.

13. See for example Radio New Zealand, 'Adventure tourism growing in Bougainville', 17 July 2018, https://www.radionz.co.nz/international/pacific-news/362002/adventure-tourism-growing-in-bougainville.