



PAPUA NEW GUINEA ECONOMIC BRIEFING

Navigating Turbulent Waters: Addressing looming policy challenges for revived growth and improved living standards

THE WORLD BANK GROUP IN PAPUA NEW GUINEA

2013—2

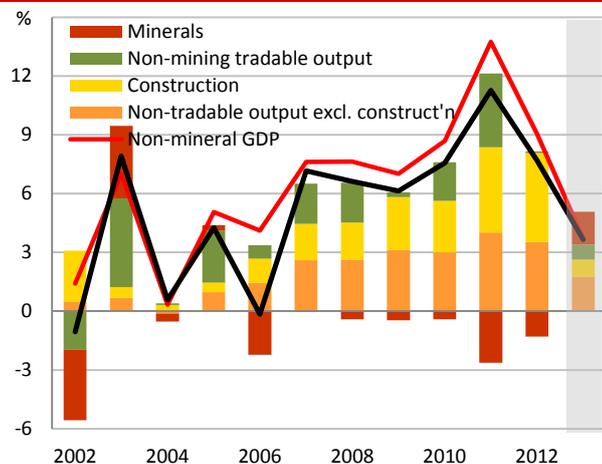
Papua New Guinea's economy has slowed from the very strong growth rates of recent years, as construction of the PNG LNG facility nears completion and export prices weaken, weighing on domestic activity. The depreciating Kina is cushioning PNG's economy from weaker export prices and slowing domestic demand by supporting farmers' and exporters' incomes and improving PNG's competitiveness. In 2014 and 2015 the start of LNG exports will significantly raise the level of GDP, although the impact on gross national income, the current account and government revenues will be far more modest, especially in the immediate future. The baseline outlook remains for non-resource GDP to record limited growth over the coming years.

The government is trying to support domestic activity through stronger public spending, especially on capital works. Despite weaker commodity receipts, it has been able to maintain its revenues through stronger compliance efforts. PNG's budget deficit is projected to widen in 2013 and 2014. Financing these deficits will raise public debt to at least 35 percent of GDP by the end of 2014, reaching the upper limit set by the medium-term debt strategy. With increasing public debt adding to off-balance sheet and contingent liabilities of as much as 20 percent of GDP, it will be increasingly important for the government to at least meet the deficit targets in its revised medium-term fiscal strategy to contain risks of macroeconomic instability.

Meanwhile enormous challenges remain for ensuring PNG's growth is durable and benefits the whole population. For most Papua New Guineans, average living standards in 2010 were little changed from 15 years earlier. Approximately forty percent of the population consumes less than a minimal basket of food and material items, and rates of hardship are higher in rural areas, especially rural Momase. Hardship is higher for households that have had limited access to education or are unable to access employment opportunities. These rates correlate with other indicators of welfare, such as the 40 percent of 5-year olds who are malnourished.

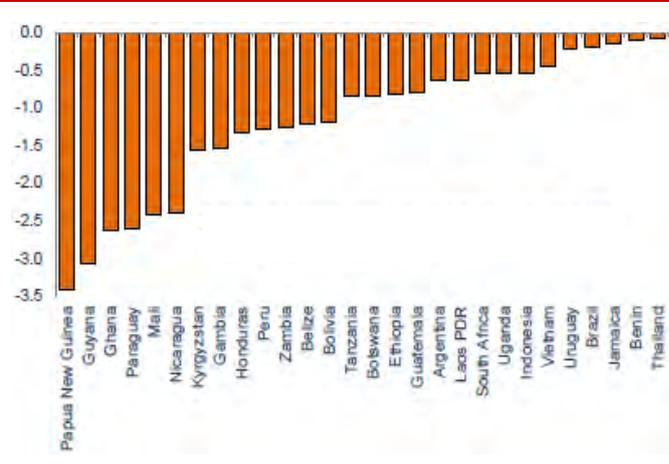
Improving welfare is likely to be more challenging in coming years, as growth is likely to be more narrowly concentrated in resource production than the broad-based growth of the past decade. The government can do much to support shared growth without putting its financial health at risk through better quality spending. Spending can be more effective, for example by tackling the barriers and leakages that prevent funds from reaching the final points of delivery of health and education services. In many areas, relatively simple regulatory reforms would cut costs and create new opportunities for Papua New Guinean businesses to emerge and grow. Importantly, for both domestic and international investors and employers, consistent, transparent and predictable actions regarding property rights and contractual obligations are essential to nurture sustained growth.

Figure 1: PNG's economy slowed in 2013, with growth slowing across all parts of the non-resource economy, and it is likely to slow further in 2014 notwithstanding the start of PNG LNG production (percentage point contributions to real GDP growth)



Sources: IMF, Treasury and World Bank staff projections

Figure 2: The drop in global commodity prices weighs on PNG's economy more than most (estimated impact on trade balances from the fall in commodity prices between the average levels of 2012 and 2013, expressed as a percent of nominal GDP)



Source: World Bank Development Prospects

1. Economic Update: Growth started to slow in late 2012, and with weaker international conditions, the slowdown appears to have become more entrenched into the second half of 2013

A. Lower export prices and investment are slowing the real economy

PNG's economy has been slowing since late 2012, although indicators are mixed on the rate of slowdown

Economic indicators into the second half of 2013 were mixed. On the one hand the Treasury Department raised its growth forecasts for 2013, from near 4 percent to near 5 percent, and some other observers also raised their forecasts. The Treasury Department attributed its upgrade to stronger production from various resource projects, as well as to greater government spending on capital works, and to an upward adjustment in its estimate of PNG LNG construction expenditure in 2013. Treasury expects non-extractive GDP growth of 4.7 percent in 2013, about half the rate of 2012, with the slow-down spread broadly across sectors. (Figure 1) it again attributes over half of its forecast total real GDP growth in 2013 to increased construction activity, which is expected to grow by 12 percent. These figures suggest the level of construction activity value added in PNG tripled between 2009 and 2013.¹ Meanwhile, Treasury expects agriculture production, including subsistence activities, to grow by only 0.5 percent in 2013, after contracting by 1.6 percent in 2012.

Retreating prices for PNG's exports and the conclusion of PNG LNG construction are slowing domestic demand and activity across many sectors of the economy

In contrast with the Treasury's upwards revisions, private sector operators across most sectors of the economy reported sales and investment conditions to be declining, often by more than they had expected, and some banks reported rising loan repayment difficulties. Lower international commodity prices have been the key factor weakening activity across PNG's economy, and the decline in international commodity prices is likely to be a larger drag on PNG's economy than other commodity exporters. (Figure 2) To date the reported slowdown appears to reflect long-expected cyclical factors, related to project development and global commodity price cycles, however if macroeconomic and fiscal stresses re-emerge and policy actions detract from the positive domestic private sector dynamic that has driven much of the economy's growth in recent years, the current slowdown may be the start of a return to structurally slower rates.

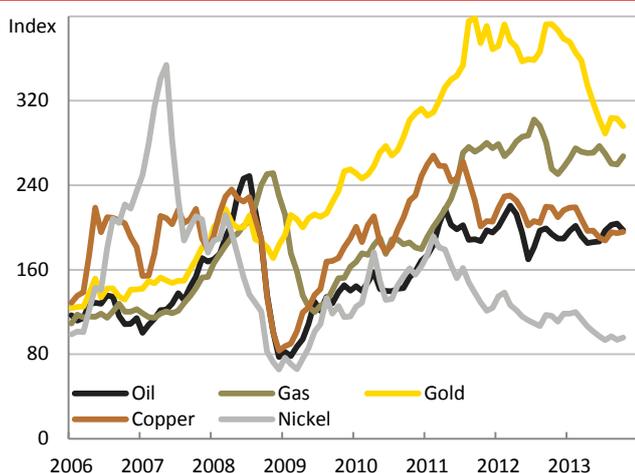
International prices for PNG's hard and soft commodity exports continued to retreat into late-2013, with some offset for local producers' incomes coming from the 25 percent depreciation in the PGK against the USD between January and November 2013 (IMF/World Bank exchange rate data). Lower international prices are due to slowing and re-balancing of growth in many developing countries, most notably China, as well as to a stronger US dollar and favorable supply conditions for most commodities. The retreat in gold prices has been particularly important for PNG, with prices falling by over one-quarter in the twelve months to October 2013, to below US\$ 1300 per ounce. Gold prices were last at this level in late 2010, although these prices are still higher than a ten-year average of US\$ 965 per ounce. Copper prices weakened by 11 percent over the year to October 2013, to prices last seen in mid-2010, although these levels also remain above longer-term averages. (Figure 3)

International soft commodity prices were also flat or weaker over the year to October 2013. International benchmark coffee prices fell by a quarter, and palm oil and rubber prices by 15 percent, while copra and cocoa prices were flat. The weakening Kina has offset some of these falls in international prices, helping to partly protect domestic farmers' and processors incomes. Nevertheless, Kina prices for all of PNG's soft commodity

¹ These statistics may over-state the true growth of output from the construction sector in PNG, as they may not be appropriately adjusted for spending on imported items installed as part of the construction.

exports are below their 5-year average. (Figure 4) More of the production inputs for soft commodity are produced in PNG and are denominated in Kina, meaning producers' returns rise as the Kina weakens, unlike hard commodity production which makes greater use of globally-sourced and US\$-priced inputs, such as equipment, fuels, and skilled labor.

Figure 3: International prices continued to weaken for PNG's hard export commodities...
(international US\$ benchmark prices, indexed to 100 in 2005)



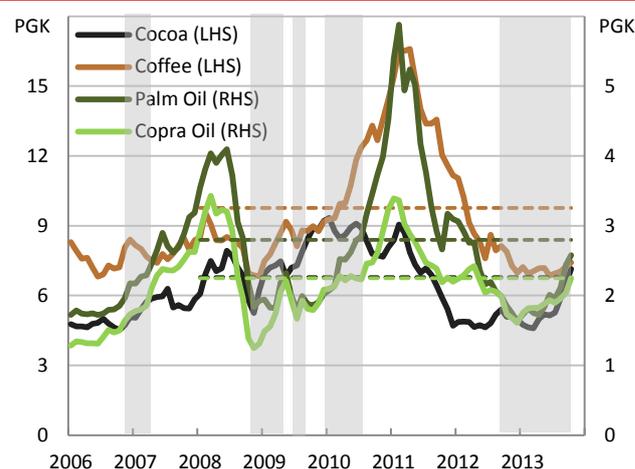
Sources: World Bank data and staff calculations

With weaker cash crop prices exacerbating ongoing production and processing issues, farmers have responded to lower returns by further cutting back their production, reducing export receipts and income flows to rural communities

Farmers have continued to respond to the lower returns on their efforts due to weaker prices, poor extension services, aging coffee, copra and cocoa trees, and high logistical and processing costs, by producing less. Rain falling at unhelpful times in 2012 exacerbated the difficulties for coffee production. Combined with lower prices, lower production has significantly cut the income for a sizable share of PNG's population. The 2001 Census and the 2009-2010 PNG Household Income and Expenditure Survey (HIES) data suggest that around 2.1 million mostly rural Papua New Guineans live in households that grow coffee, and a further 0.9 million live in households growing cocoa. Since most of PNG's poor and especially the most vulnerable households live in rural areas, this decline in income may be significantly harming welfare (vulnerability in PNG is discussed in Part 3 below and Box 1 discusses the longer-term trends of deteriorating production of cash crops in PNG.)

Export volumes of coffee over the four quarters to the June quarter 2013 were down by half compared with a year earlier, and cocoa exports were 30 percent lower.² The low volumes, combined with lower prices, reduced the Kina value of coffee and copra exports by almost two-thirds, and cocoa exports by 40 percent, despite the support to Kina receipts from the currency's depreciation. (Figure 5) Coffee exports for the year to the June quarter 2013 of PGK 317 million were the lowest since 2007, while cocoa export receipts of PGK 143 million were the weakest since 2002 and compare poorly with average annual receipts of PGK 267 million for the last decade (all in nominal terms). For palm oil, although export volumes have weakened since the peaks of 2011, they are still 10 percent above longer-term averages. However weaker international prices have more than offset the weaker Kina, cutting export values by 18 percent. Anecdotal reports suggest that all of these trends continued through the third quarter of 2013.

Figure 4: ...and soft export commodities, although the depreciating Kina has provided some offset
(shaded areas indicate periods when the Kina depreciated against the USD; international prices per kilogram, converted to PGK; dashed lines show average price 2008-2013 of corresponding cash crop)



Sources: World Bank data and staff calculations

² June quarter 2013 data are preliminary estimates, based on initial export reports from traders. Final figures are generally revised higher as BPNG receives more information about exports. These revisions would reduce the size of the falls reported here, although they are unlikely to change the broader trends.

Box 1: Challenges for Tree Crop Production in PNG and Its Importance for Household Welfare

Income from tree crops is the primary source of cash income for thousands of rural households in PNG. It is estimated that there are about 270,000 households where the main activity is growing coffee, 140,000 growing cocoa and roughly 18,500 households mainly involved in smallholder production of oil palm. Income from tree crops typically comprises a significant share of these households' income, and, for many other households, tree crop production supplements other sources of income. A recent survey of households producing coffee across the Highlands provinces revealed that on average between 45 percent and 60 percent of the household's net income is derived from coffee. For households producing cocoa in East New Britain (ENB) and the Autonomous Region of Bougainville (ARB), income from cocoa constitutes about one-quarter of net household income. Cocoa producing households appear to be more reliant on off-farm income with about 45 percent of income from off-farm sources as opposed to about 12 percent of income from off-farm activities among coffee-growing households. Unlike other countries in the region, tree crop farmers are more likely than the average household to face hardship, and most poorer households grow tree crops. (Figure 13)

PNG is a small coffee producer in the global context, producing roughly 1 percent of global production. It annually exports nearly all of its production, or close to a million 60 kilogram bags on average. Industry experts recognize that PNG's production could be significantly increased by improving yields and efficiencies on the existing land area. A recent survey in four highlands provinces revealed that on average coffee yields in PNG are about 380 kilograms per hectare. This is a fraction of the average yields attained by the world's largest producer of coffee, Brazil. Average yields of Arabica coffee in Brazil are reportedly 1,200 kilograms per hectare.

Increasing coffee yields require significant investment in replanting since much of the coffee being harvested today in PNG grows on very old trees. It will require better farm management and husbandry, adoption of good agricultural practices, increased planting of improved varieties that are higher yielding, more pest and disease resistant and more adapted to changing climatic conditions. It will also require improvements in quality and post-harvest processing.

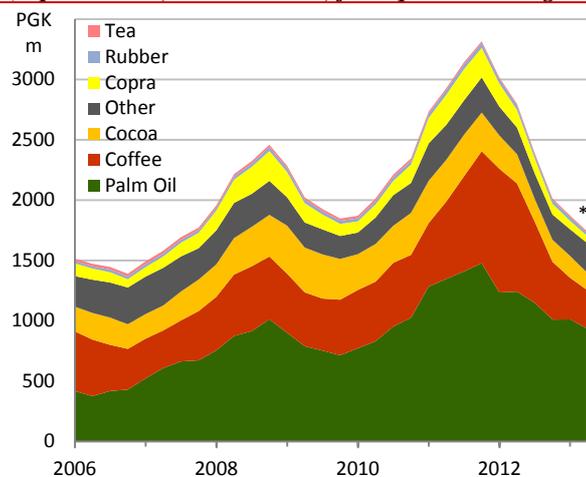
Like coffee, PNG's low cocoa yields are explained by minimal attention to management and agronomy. The same household survey of coffee and cocoa farmers, indicates that average cocoa yields in the two provinces surveyed (ENB and ARB) are about 169 kilograms per hectare dry bean equivalent. By comparison in Indonesia average cocoa yields are 430 kilograms per hectare. The recent baseline survey for PPAP revealed the highest yields were on younger mature blocks in East New Britain. Blocks that were on average between 3 -6 years old reported yields of 427 kilograms per hectare as compared to an average of 258 kilograms per hectare on blocks over 10 years old. But even within PNG there are huge differences in yields between provinces with young mature blocks – for example, blocks in North Bougainville only achieve yields of 62 kilograms per hectare.

PNG cocoa growers also face the threat of cocoa pod borer (CPB). Ninety-nine percent of households surveyed in ENB reported that their cocoa had been affected by CPB, and it is becoming an increasing problem in ARB as well. With CPB most households report a substantial decrease in the number of trees producing cocoa compared to before the outbreak.

Yields in the palm oil sector compare favorably with other growing countries, although are lower among small-holders, who are reluctant to replant aging trees and are affected by poor infrastructure. Unlike coffee and cocoa where the vast majority of production is by smallholders, 70 percent of PNG's oil palm is produced in the plantation sector. With average yields of about 21 tonnes per hectare in 2010, productivity in the plantation sector compares favorably with yields in top producing countries such as Malaysia and Indonesia. Yields in the smallholder sector however are much lower, averaging about 14 tonnes per hectare in 2010. Unlike smallholder coffee and cocoa, the quality of planting material used by smallholder oil palm growers is on average far superior, as the inputs are provided by the palm oil milling companies – unlike most coffee farmers, who sourced seedlings from their own coffee blocks. Nonetheless, there is a reluctance to replant oil palm for a number of reasons, including relatively high prices in recent years, unwillingness to lose a valuable stream of income in the absence of other income sources while the trees are re-growing, and land tenure issues have meant that many smallholder blocks have aged trees resulting in low productivity. Productivity typically begins to decline among trees older than 18 years. Another major factor affecting productivity in the oil palm sector is poor rural transport infrastructure. Fresh fruit bunches should ideally be processed within 24 hours of harvest to minimize fatty acid build-up, but poor road conditions and uncertainty of fruit pick-up means farmers are often uncertain that their crops will make it to the processing facilities in time, leading them to be reluctant to harvest their crop.

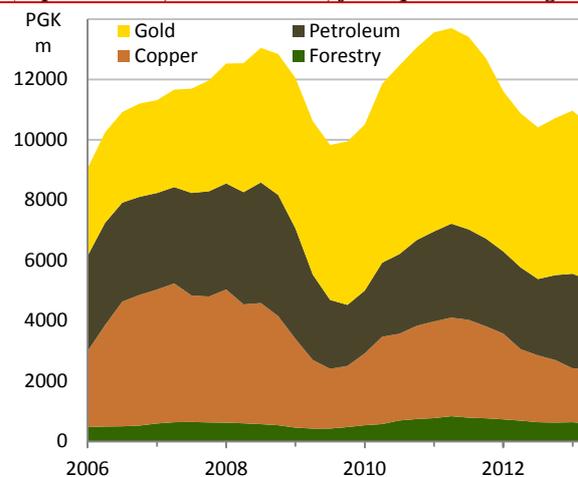
Sources: FAO, Productive Partnerships in Agriculture Project data and World Bank staff

Figure 5: Weaker prices and less production are cutting PNG's income from cash crops, especially cocoa, copra and coffee, with palm oil being more robust
(export values, PGK millions, four quarter rolling total)



* Q2 2013 data based on preliminary reports, and are likely to be revised higher. Sources: BPNG and World Bank staff.

Figure 6: Extractive commodity export values have been more stable, supported by the gold price and, since late 2012, by the depreciating kina
(export values, PGK millions, four quarter rolling total)



* Q2 2013 data based on preliminary reports, and are likely to be revised higher. Sources: BPNG and World Bank staff.

Construction is nearly complete on the PNG LNG project, an important achievement and an inflexion point for the economy

Ninety percent of the US\$ 19 billion PNG LNG project had been constructed by August 2013, and it appears set to export its first gas on schedule in the second half of 2014. This represents an important inflexion point for the PNG economy. The start of LNG exports is expected to raise the level of GDP by one-third or even more by 2015. On the other hand, discharging of the PNG LNG construction workforce is amplifying the impacts of weak commodity prices and domestic demand, while fiscal pressures mount as the government seeks to fund continued economic momentum despite weakening revenues.

Lower commodity prices and receipts are generating a cycle of weakening in other sectors of the economy, which are only partially offset by the increase in government spending

Fiscal and investment risks associated with the project have diminished greatly as construction completes. One of these risks is the government's guarantee of part of the project debt until construction is complete (valued at US\$ 2.7 billion). Another surrounds the securitization of the government's AU\$ 1.68 billion loan from the Abu Dhabi International Petroleum Investment Company (IPIC), which financed the State's equity share in the project. The loan was made in the form of exchangeable bonds, which IPIC can exercise in March 2014. It will be able to exchange the bonds for the government's 196.6 million shares (or 14.7 percent stake) in the publically listed Oil Search Ltd. The bonds are exchangeable at a minimum "strike price" of AU\$ 8.55 per share – if the prevailing market price is below that level, the government will be obliged to fund the difference to IPIC. Oil Search holds 29 percent of the PNG LNG project and its share price is expected to benefit from the start of production. In early December 2013, Oil Search traded near AU\$ 8.25 per share on the Australian Stock Exchange.

The retreat in international commodity prices has affected PNG's economy more than most. (Figure 2) Weaker international hard commodity prices and agricultural incomes have affected both existing resource operations and new investments. This has created a reinforcing cycle, as workforces are cut, investment weakens and incomes from exports fall, leading to lower domestic demand, which reduces profitability, delays investment and reduces jobs for firms supplying the domestic market. As an example of this process, the total value of gold exports for the year to mid-2013 was 23 percent lower than the peaks of 2011, while annual copper export values fell by almost PGK 1.5 billion, or 45 percent (preliminary BPNG data for Q2 2013). (Figure 6) In response, at least 150 national and international jobs are reported to have been directly cut from the Lihir Gold operation with further job cuts among contractors, and project timelines on the Wafi-Golpu gold and

copper resource have been delayed. These negative events are having substantial multiplier effects reducing economic activity across the northern region of PNG, with anecdotal reports of manufacturers in Lae and Madang reducing capacity and their workforces in response.

The government argued that its deficit-financed 23 percent real increase in budgeted spending in 2013 would offset some of these external and domestic weaknesses. However, domestic firms are yet to report any significant support from this spending. Retailers are reporting turnover 5 to 15 percent lower in mid-2013 compared with a year earlier, manufacturers report pressure from both weaker demand and greater competition from lower-cost imports, and logistics firms report significant drops in the volume of goods being moved domestically.

B. ...and domestic price pressures have relaxed

Inflation has remained subdued with the weakening in global prices and domestic demand

Inflation, as reported by the National Statistics Office, rose somewhat through the first half of 2013, to 3.5 percent year-on-year in the September quarter. This modest increase in inflation appears to be due to increases in tobacco and betelnut prices. Lower fruit and vegetable prices (largely locally produced) reduced food prices over this period. Prices across other items were broadly flat, apart from the 'other' component, which fell at the start of the year reflecting the introduction of tuition and healthcare fee subsidies.

The Kina's depreciation creates some upside risks for inflation, and already its effects are evident in the prices of fuel and many imported foods. On the other hand, other domestic and global developments are subtracting from inflationary pressure. Domestically, weakening demand coupled with new supply, especially in the urban property markets and for skilled labor, should feed into slower price growth more generally. The lags in the property cycle are resulting in new developments becoming available just as demand starts to retreat. Workers earlier attracted by new projects are now being released as the projects conclude and others are exiting newly-established training programs and entering the workforce. Meanwhile, international food prices have retreated with other international commodity prices and good growing conditions in most major producing areas. For example, Thai rice prices fell by around 20 percent in USD terms in the year to October 2013, while international benchmark wheat prices fell by around 15 percent.

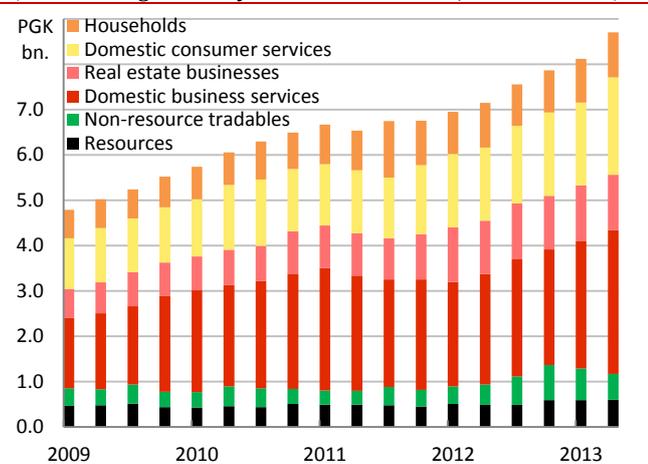
CPI data for PNG must continue to be treated with caution. The PNG CPI, based on 1976 consumption patterns, has been out of date for many years, and various indicators suggest deepening measurement issues. This makes interpreting the inflation rate difficult and brings significant risks of policy not reacting to the actual rate of inflation that could be disrupting market signals and undermining workers' real incomes. In 2012 an updated consumption basket was estimated which incorporated expenditure items and relative weights identified through the 2009-2010 HIES. However the collection of price data to produce the updated CPI is still to be completed.

C. Bank lending has accelerated

With lower profitability, firms have turned to bank loans to source capital, while efforts to ease monetary policy are constrained by the weak monetary transmission mechanism

Bank lending accelerated into mid-2013. Growth in lending to businesses and households jumped to 22 percent in the year to June 2013, compared with average annualized growth of 2.5 percent during the previous two years. Growth in lending since mid-2012 was broad based. (Figure 7) Particularly notable were the expansions in lending since early 2012 to hotels and restaurants, utilities (generally state owned enterprises), building and construction firms, and 'other' businesses. Lending to households was more stable. Anecdotally, lenders reported that much of the increased demand for credit is from customers who had in recent years financed investments and working capital through retained earnings and cash flow. Since late 2012, as profitability and cash flow have been compressed, these businesses have turned to banks for financing.

Figure 7: Bank lending to the private sector accelerated into mid-2013, with lending expanding to all sectors apart from agriculture and manufacturing (outstanding loans by commercial banks, PGK billions)



Source: BPNG and World Bank staff calculations

BPNG, slightly loosened the official stance of monetary policy in March 2013 by lowering the Kina Facility Rate (KFR) by 50 basis points, to 6.25 percent. This is the KFR's lowest level since June 2008. But the impact of the KFR on rates that affect savings and investment decisions and external capital flows is very limited. About half of the movement in the KFR appears to have been transmitted into interest rates on very short-term Central Bank Bills. However, it does not appear to have reduced interest rates faced by the private sector, on Treasury Bills or longer-term (5 or 10 year) government bonds ('Inscribed Stocks'), commercial bank term deposits, or bank loans. In addition, given the very limited extent of short-term capital flows, and the limited liquidity and depth of the foreign exchange market, the cut in the KFR rate is unlikely to have influenced movements in the PGK.

D. BPNG has sought to moderate the Kina's depreciation

The Kina depreciated against the USD much in line with other commodity exporters after mid-2012...

The PGK depreciated by 25 percent between January and November 2013 against the USD (IMF International Financial Statistics/World Bank exchange rate data). Up to August 2013, this movement reflected a general strengthening of the USD. Commodity exporting countries were particularly buffeted by the strengthening of the USD and weakening of the USD-denominated price of commodities. The Kina's weakening against the USD was in line with other currencies, after accounting for the importance of commodities and the impact that weaker commodity prices have had on PNG's terms of trade. (Figures 8, 9 and 10) It is notable that since 2012 among commodity exporting countries with floating exchange rates, the extent of legal restrictions on movements of capital appears to have had little effect on the scale of the exchange rate's appreciation and depreciation. (Figure 8)

...and accelerated from August 2013...

Between August and November, the USD stabilized or weakened against most currencies. However, the Kina continued to depreciate, by 10 percent against the USD and by 14 percent against the AUD, before it stabilized in November. The Kina's depreciation was far greater than other commodity exporters and it occurred despite BPNG taking making significant interventions to slow the depreciation. (Figures 8, 9 and 10)

Figure 8: The Kina's depreciation was consistent with other commodity exporters' from June 2012 to July 2013, but accelerated thereafter

(percent change in local currency to USD exchange rate over indicated period, correlated with commodities' share of exports, and legal restrictions on capital flows, June 2012 to July 2013, July 2013 to November 2013)

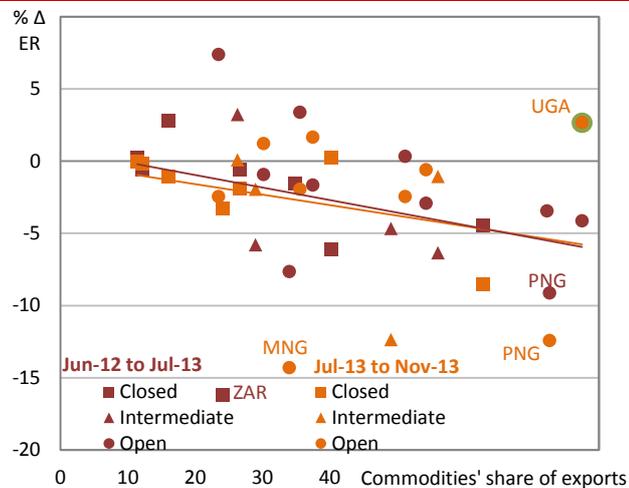
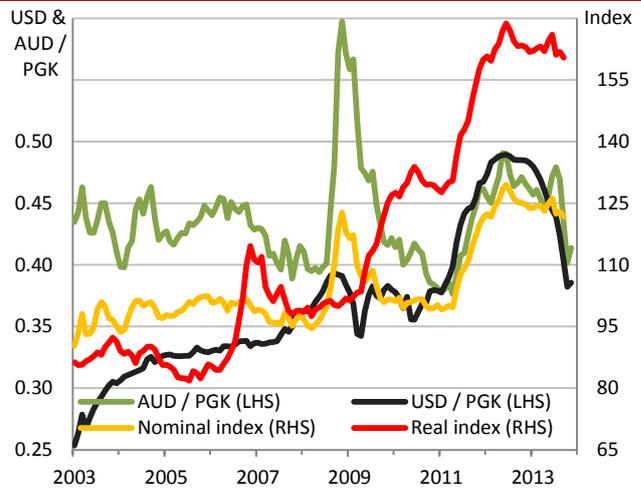


Figure 9: Even after the depreciation since mid-2012, the Kina remains above longer-term averages
(bilateral Kina per USD and AUD exchange rates, and nominal and real exchange rates indices, 100 in 2005)



Countries with floating or free-floating exchange rates, and commodity exports exceeding 10 percent of total exports.

Sources: IFS and World Bank data on exchange rates. Exchange rate regime from IMF Annual Report on Exchange Rate regime (2012). Capital account legal status from 2011 update of M Chinn and I Hiro (2006). 'What Matters for Financial Development? Capital Controls, Institutions, and Interactions,' *Journal of Development Economics*: 81(1), pp 163-92. Commodity export shares from IMF (2012) *World Economic Outlook*, April, Chapter 4.

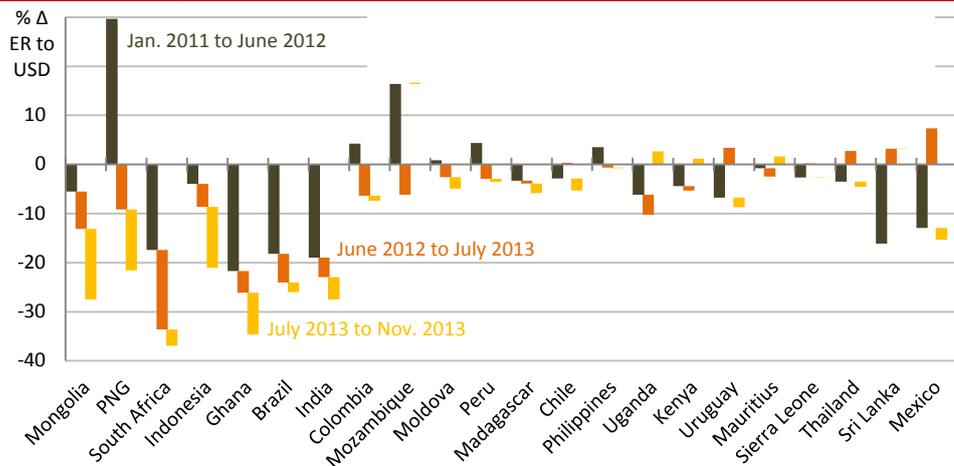
...but the Kina still remains above longer-term levels

Nonetheless, even after its weakening since mid-2012, the Kina has remained above its average values of the past decade. This is especially the case relative to a broader basket of the currencies with which PNG trades, and after adjusting for PNG's higher inflation rates relative to its trading partners (as reflected in the Real Index in Figure 10). Indeed, the Kina's appreciation in 2011 and early 2012 was greater than most other commodity exporters'. (Figure 10) Much of the Kina's relatively stronger appreciation was due to the significant inflows financing PNG LNG construction work, as well as the strength of PNG's exports and oil and mining tax receipts as commodity prices rose. All of these peaked mid-2012. (Figure 3)

BPNG has leant against this depreciation, with large sales of its buffer of foreign exchange reserves

BPNG has been working to slow the depreciation of the Kina against the US dollar, through sales of its foreign exchange reserves. PNG's foreign exchange reserves fell from near US\$ 4 billion at the start of 2013 to below US\$ 3 billion in September 2013. (Figure 11) BPNG focuses on the US dollar exchange rate in its interventions in the foreign exchange market. Its interventions since 2011 have been symmetric. The reduction of reserves in 2013 takes them back to the levels of late 2010, fully unwinding the buffer BPNG built during the period of particularly strong exports and foreign investment inflows of 2011 and early 2012. The intervention has also been large – larger than most other commodity exporters with floating exchange rates. (Figure 10) The sale of US\$ 1 billion or one-quarter of PNG's foreign exchange reserves was equivalent to one-half of PNG's current account deficits in 2013.

Figure 10: The Kina's appreciated by more than most commodity exporters in 2011 and early 2012, and then fell by more than most from mid-2012 to late 2013
*(percent change in local currency to USD exchange rate, January 2011 to June 2012;
 June 2012 to July 2013, and July 2013 to November 2013 or latest)*



Countries with floating or free-floating exchange rates and commodity exports exceeding 10 percent of total exports. Sources: IFS and World Bank data on exchange rates. Exchange rate regime from IMF Annual Report on Exchange Rate Regime (2012). Commodity export shares from IMF (2012) *World Economic Outlook*, April, Chapter 4.

Box 2: The Depreciating Kina: Who benefits and who is hurt?

The Kina's depreciation affects different groups in different ways. At the simplest level, it supports incomes for those exporting or competing against imports, such as farmers and manufacturers, while it increases costs and cuts the real spending power for those consuming imports or those with other offshore payment obligations (eg, repaying foreign currency loans).

A weaker Kina supports the welfare of cash crop farmers. Cash crop farmers are more likely than the average Papua New Guinean to live in hardship (ie, below a material poverty line, discussed in Section 3). The Kina's depreciation has done much to protect coffee growers' welfare from the decline in global coffee prices. Since the Kina started to depreciate against the USD in mid-2012, global Arabica coffee prices have fallen by 32 percent. The depreciation reduces this decline to 13.7 percent in Kina terms. An indication of the beneficial impact of the depreciation can be obtained by simulating the impact of different coffee price reductions on household hardship. World Bank simulations using the PNG HIES data suggest that a decline in coffee prices of around 30 percent could have pushed an additional 440,000 people living in households growing coffee below the material poverty line. On the other hand, the depreciation's support for the Kina value of coffee sales would have helped limit this number to around 130,000. Further, for coffee-growing households already surviving below the material poverty line the depreciation would have helped limit the severity of hardship. These simulations are based on a partial equilibrium analysis and do not take into account any indirect positive or negative impacts coming from other sectors, such as inflation. The depreciation similarly protected the welfare of thousands of households growing other tree crops.

On the other hand, the depreciation makes imported items more expensive in Kina terms. This can be very significant for poorer households, especially in urban areas, who consume imported rice and imported tinned foods and have little opportunity to grow more food themselves. It also cuts the spending power for richer households, who tend to spend relatively more of their incomes on imported items. And it makes it harder for PNG entities to invest abroad, given that the Kina buys less foreign exchange. Fortunately, Asian benchmark rice prices have fallen enough over 2013 to largely offset the Kina's depreciation, meaning that when converted into Kina terms, benchmark Asian rice prices are little changed.

Rising rice prices would place many more Papua New Guineans in hardship. As a rough estimate, an increase in rice prices of 20 percent is likely to place about 0.8 percent and 0.5 percent of the urban and rural populations respectively (around 35,000 people) into hardship. The price increase would disproportionately affect households already in hardship in both rural and urban areas, with the severity of poverty rising. These households, already living below the material poverty line, would have to find an additional 0.5 percent (urban) or 0.8 percent (rural) of their budgets to maintain the same level of consumption following a 20 percent increase in wholesale rice prices. Larger increases in rice prices would have more-than-proportionate impacts on living standards. The 20 percent increase of rice prices would be sufficient to push up national inflation by 1.4 percentage points, with urban CPI likely to rise by more. A shock to wheat prices is predicted to have a smaller effect on hardship. Although there is significant consumption of bread and other wheat-based foods in urban areas, it is not as important a food as rice.

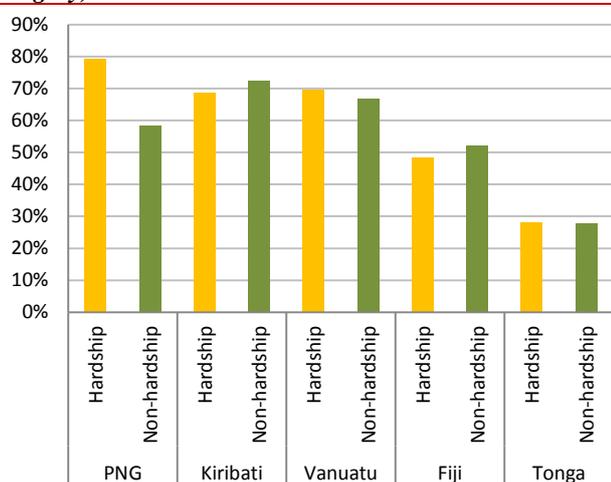
The impact on petrol and diesel prices is also an important transmission mechanism. An increase in domestic oil prices due to a lower Kina is felt across a range of expenditure items by households, and is estimated to push the greatest number of people into

hardship. An oil price shock leads directly to higher petrol and kerosene prices. It also increases the cost of public transport and electricity, and pushes up the cost of most goods by increasing the cost of transport both to and within the country. The large size of the shock and the diffused impacts via transportation costs of goods means that a price shock entails more severe impacts on those in hardship. The estimated impact of an increase in oil prices by 30 percent is to push 116,000 people below the poverty line – 1.6 percent of the total population. Again, urban populations would be the hardest hit, as they spend larger fractions of their budget on imported goods and transport to get around urban areas to access services and work opportunities. As much as PGK 60 million would be needed to compensate those in hardship for the price rise.

Finally, the weaker Kina can make other external payments more demanding. In particular, it can create difficulties in repaying loans in foreign currency if those loans are serviced through streams of Kina-denominated income. This can be a concern for both the private and public sectors, although the government has reduced this source of potential stress through its efforts during the mid- and late-2000s when revenues were strong to reduce its stock of non-concessional or shorter-term foreign currency debt.

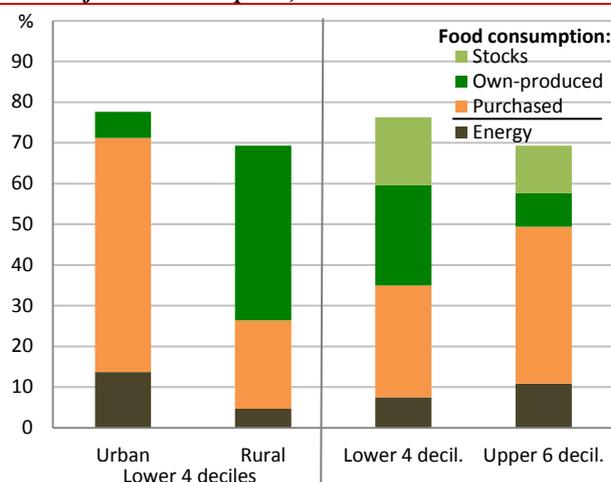
This Box only describes the immediate, direct effects of the depreciation. In time, the direct effects can induce second-round responses, which could reduce the direct impact of the depreciation. For example, when the Kina depreciated sharply following its float in the early 1990s, and the price of imported food increased sharply, many households started gardening again and returned to consuming home-grown foods.³

Figure 11: A larger share of PNG households, especially poorer households, grow cash crops than elsewhere in the Pacific (percent of rural households growing cash crops, by hardship category)



Source: World Bank staff calculations from various HIES

Figure 12: Poorer and rural households spend less of their budgets on energy and produce more of their food themselves, protecting them from higher import prices as the exchange rate depreciates (percent of total consumption)



Source: World Bank staff calculations from PNG HIES

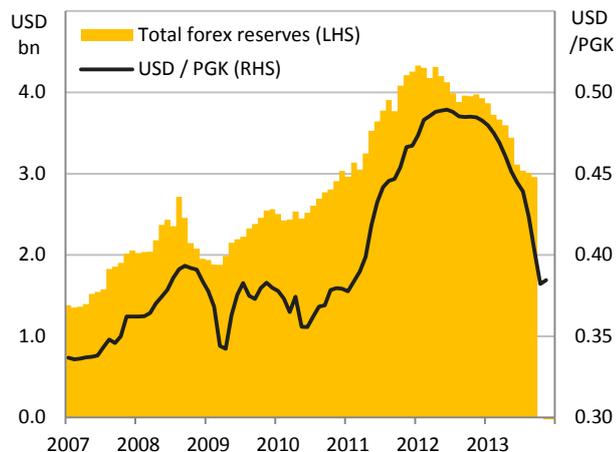
Sources: World Bank staff

Intervention in the foreign exchange market can smooth the exchange rate's movements and help manage inflation, but can undermine the protection a floating exchange rate provides from economic shocks

There are several arguments for such significant interventions, both through periods of exchange rate appreciation and depreciation against the USD. In the short term, it ensures that the often thin foreign exchange market remains liquid. It smooths exchange rate movements, reducing volatility in rates day-to-day or week-to-week, which in turn reduces uncertainty for businesses making international sales or purchases. Over longer periods, by reducing volatility in the prices of imported items for businesses and consumers, it acts as a key inflation management tool for BPNG in a context where other instruments of monetary policy, such as the policy interest rate, have limited impact on the behavior of firms and households.

³ Described in D Mellor (2010), 'Social Impact of Commodity Price Volatility in Papua New Guinea', in A Bauer and M Thant (eds), 'Poverty and Sustainable in Asia: Impacts and Responses to the Global Economic Crisis', Asian Development Bank, Manila.

Figure 13: The sale of foreign exchange reserves since mid-2012 unwinds the buffer built when export prices and investment inflows were strong
(total foreign exchange reserves and PGK per USD)



Sources: IFS and World Bank data.

In the long run, a sensible means of supporting the value of the Kina is to ensure that PNG offers a competitive climate for national and international investors, that is attractive for international capital and domestic savings and where exports and domestic producers are competitive. This means ensuring that the macro-fiscal framework is robust and external debt levels are sustainable, that regulation reduces rather than adds to the cost of doing business, that industries are competitive and firms are able to enter and exit sectors according to capacity and opportunities, and that investors do not face uncertainty around the security of their property rights and contracts. Where those conditions are deteriorating, domestic savings are more likely to seek opportunities to exit, foreign investors will avoid making commitments, and domestic businesses will be less able to grow and compete. Such developments tend to weaken the exchange rate.

E. As the economy drags the government's revenues, its high spending plans mean a widening deficit and growing public debt

Weaker commodity prices and domestic activity are lowering budgetary, but the government has partially offset this by strengthening tax compliance

Government revenues in the first half of 2013 were generally weaker than anticipated, and were lower than the level achieved in the same period of 2012. (Figure 15) At the time of preparing its 2014 Budget, the government expected revenues and grants for 2013 to match its budget forecasts (PGK 10.4 billion). The government attributes this to improved compliance and collections, especially for personal income and company taxes and for GST. This has offset significantly weaker mining and trade tax receipts, mostly due to minerals prices being significantly below the government's budget and mid-year projections. For example, the government lowered its projected 2013 prices of gold by US\$ 260 to US\$ 1429 per ounce and its copper price by US\$ 700 to US\$ 77344 per tonne, but even after these adjustments the prices assumed by government remained above prevailing spot prices.

Over the last five years, there have been several notable trends in sources of tax receipts. The importance of personal income tax for overall government revenues has grown relative to corporate and indirect taxes, including minerals & petroleum taxes, despite the rise in commodity prices. In 2008, personal income taxes contributed 16 percent of total government receipts, while corporate tax payments made up 40 percent. In its 2014 Budget, the government estimated personal tax payments to contribute 27 percent of total receipts, close to the contribution of company tax payments. It expected total indirect tax payments to contribute 23 percent of total receipts in 2013, only modestly more than in 2008 (20 percent). The contribution from foreign grants fell from 14 percent to 11 percent of total receipts over 2008 to 2013. (Figure 15)

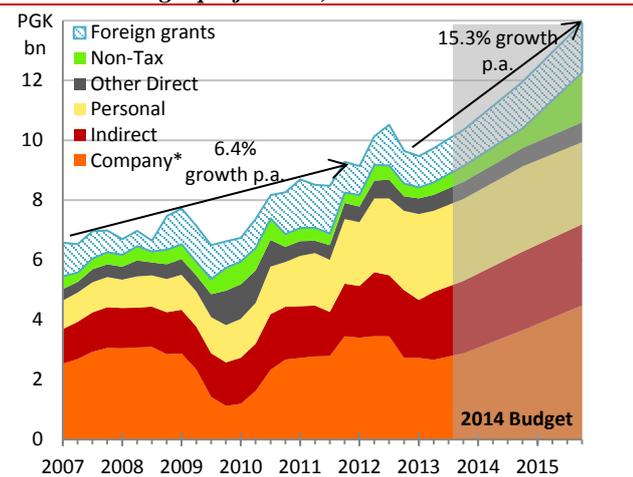
The government expects the compliance-driven gains in taxes on income and profits to continue to support revenues, with revenues and grants projected to grow by 15.3 percent in 2014 from 2013 levels. Through enhanced compliance measure, it expects the Inland Revenue Commission (IRC) to collect an additional PGK 600 million in 2014, PGK 300 million in 2015, and PGK 150 million collected each year from 2016. The transition of the PNG LNG project from construction to production, combined with ongoing growth in tax payments from the non-resource economy, will be the key determinants of government revenue. On the one hand the reduction in the workforce as

The government expects revenues to grow faster over coming years than during the recent commodity price boom, notwithstanding tax concessions limiting payments from the major new resource projects

construction ends will reduce personal income tax. On the other, the government expects the start of the PNG LNG project to raise mining & petroleum taxes by 90 percent between 2013 and 2015. These payments are separate from corporate tax payments on the project's profits. PNG LNG production and the growth in output at Ramu Nickel will contribute little to corporate tax receipts due to the tax concessions and holidays respectively the projects have received.

Overall, during its forecast period from 2013 to 2018, the government expects total revenues and grants to increase at an annualized rate of 9.7 percent, and receipts on taxes on income and profits to grow by 12.0 percent. This rate of revenue growth exceeds what the government achieved during the years of rising commodity prices and strong production – between 2006 and 2011 total revenues and grants grew by 8.6 percent annually on average while growth in taxes on income and profits averaged 9.0 percent. From a longer perspective, the strength of the government's current revenue projections from 2013 to 2018, contrast with the more modest forecasts and actual outcomes made at most budgets since 1990 is noteworthy.

Figure 14: After a period of increase, revenues weakened from early 2012, though in 2014-2015 the government again expects strong, broad-based revenue growth
(tax receipts, billions of PGK, rolling four-quarter total and 2014 budget projections)

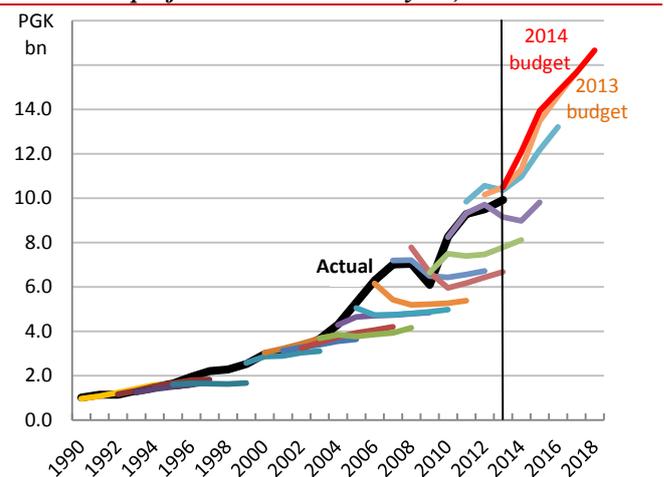


Sources: BPNG data, Treasury projections and World Bank staff calculations. Asset sales excluded from revenues.

The government expects to fully spend its much-expanded 2013 budget

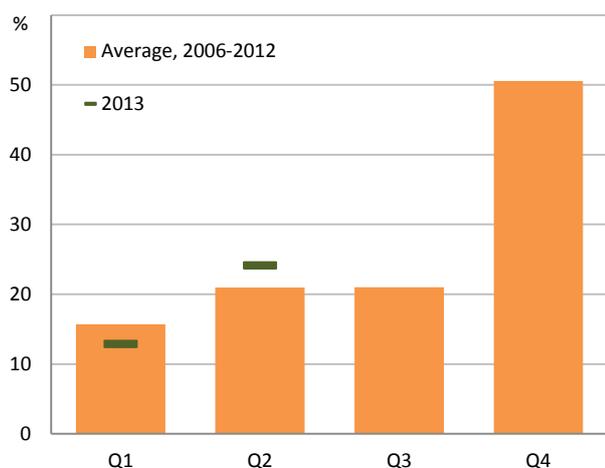
The government expects to spend slightly (1 percent) less than budgeted in 2013. On the one hand it expects to over-spend its recurrent budget, due to overruns in provincial personnel emoluments. On the other, it expects only a fraction of its capital spending to be public investment program, PGK 1.88 billion remained to be spent. This is despite the faster-than-usual spending over the first half of the year. The government spent 30 percent of its budget up to the end of June, which is stronger than the average over recent years of only 25 percent. (Figure 16) Under-spending the budget is to be preferred to poor quality but complete spending. Lower disbursement rates on capital spending in 2013 are to be expected, given the substantial increase in the investment budget and the inclusion of a number of complex projects requiring extensive preparation and demanding supervision. Rolling these funds into future years, to be spent once the projects are fully prepared, would be a prudent means of getting the greatest public returns from this spending.

Figure 15: The growth in revenues projected in the government's 2013 and 2014 budgets is more ambitious than its past forecasts
(total revenues and grants, billions of PGK, actual and projections; each colored line starts at the budget year and shows projections made in that year)



Sources: Budget papers (via INA library), IMF data, World Bank staff calculations. Revenues exclude asset sales after 2005.

Figure 16: After a slower-than-usual start, spending of the expanded budget accelerated in the second quarter (quarterly total spending, as a share of budgeted amount, 2013 and average over 2006 to 2012)



Notes: Shares of annual budgeted spending sum to more than 100 percent if realized spending is greater than budgeted amounts. *Sources:* BPNG, IMF, and World Bank calculations.

The government's spending plans from 2014 continue trends of more funds for 'development enablers', especially big infrastructure projects, but lagging funding for ongoing operations of the government

Continuing the trend since 2007 of deteriorating balances, the government expects sizeable budget deficit in 2013 and 2014...

examinations, as well as capital spending for rehabilitating universities. PGK 372.6 million (37 percent) of additional funding for health is largely for the rehabilitation and development of various hospitals around the country. A larger share of the PGK 273.4 million (27 percent) of additional funds for law and order is allocated to building staff capacity, including the first pay increase for village court officers in 24 years, and recruiting personnel into corrections, armed forces and police. The transfers to provinces, districts and local-level governments (LLGs) under the respective service improvement programs increased substantially in the 2013 budget are maintained in 2014 (at PGK 5 million per district to each province, PGK 10 million to each district, and PGK 0.5 million to each LLG). Further directions have been provided on how these grants can be used, with prescribed shares to be spent on education, health and other services, although it is unclear how effectively these allocations can be monitored and enforced.

The trend since 2007 has been for PNG's budget balances to deteriorate from sizable surpluses, which restored the health of PNG's public finances, to expanding deficits. This shift has been greater in PNG than most other countries managing similar trends in external economic conditions. (Figure 17)

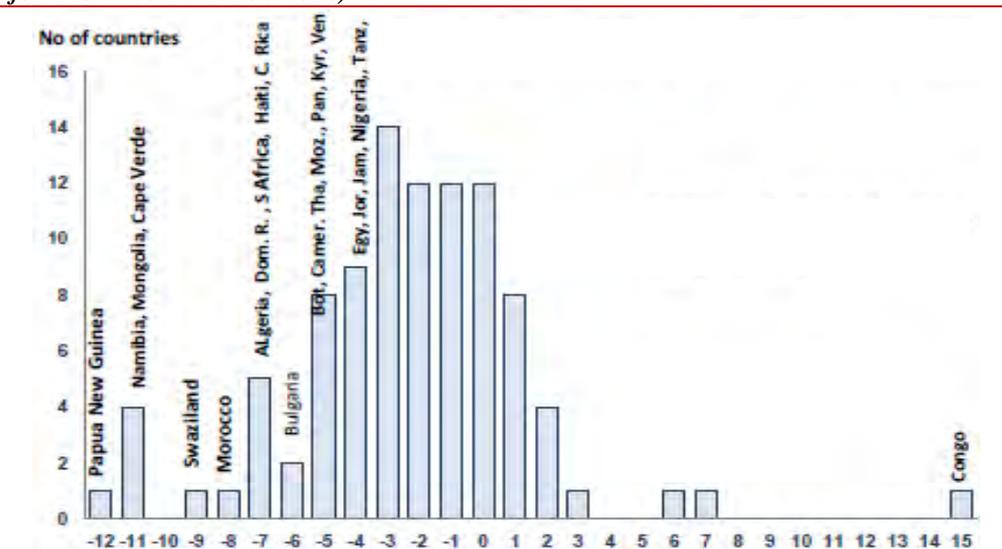
The government's projections in its 2014 budget can be interpreted as presenting two scenarios. (Figure 19) In the headline case, in 2013, the government's expectations of slightly weaker revenues and strong spending raise its deficit projections towards 8 percent of GDP, following a deficit of 4.3 percent in 2012.

The government budgets spending 18.4 percent more in 2014 than it did in 2013, following almost 30 percent growth in 2013.⁴ It then expects to increase spending by only 5 percent between 2014 and 2017. This profile is typical of the past decade, with each budget presenting substantial growth in spending for the immediate budget year, followed by flat or declining spending projected for the medium-term (Figure 18).

The 2014 budget again allocates substantially more resources to capital spending (almost 30 percent increase from 2013), despite the ongoing difficulties in implementing the existing capital budgets. These funds have generally been allocated to building or rebuilding roads and airports, and to rehabilitating hospitals and educational facilities. Among the sectors, the government has notable additional spending plans on Education, although most of the additional funds will be used to keep pace with the growth in enrollments following the recent tuition fee subsidy policy. Additional funding has also been allocated for curriculum development, books and

⁴ This excludes the government's payment of PGK 1205 million to maintain its equity share in the PNG LNG project. This payment was needed to maintain the State's and landowners' equity share in the project after its development cost was increased by US\$ 4 billion in 2012. While the State's equity in the project is held by IPBC and is off the government's balance sheet, the government financed its additional contribution by issuing short-term Treasury Bills. In its budget statements, the government is reporting its transactions in PNG LNG project equity as expenses and revenues, consistent with its accounting standards. It is nevertheless useful to look at expenditures and revenues without including these special asset-related transactions.

Figure 17: PNG's budget balance has deteriorated by more than most countries'
(change in fiscal balance between 2007 and 2012, percent of GDP, PNG figures account for trust account transactions)



Source: World Bank Development Prospects

...with deficits declining slowly into the medium-term

From 2014, the government's ambitious revenue projections outpace its planned growth in spending, allowing it to project declining budget deficits. In 2014, the government presents a deficit of 5.9 percent of GDP. After 2014, projections of declining spending in real terms allow the government to project further reductions in the deficit, to 2.5 percent of GDP in 2015, 2.2 percent of GDP in 2016 and below 2 percent of GDP from 2017 (as shown by the red line in Figure 19).

The government's forward deficit projections make a prudent adjustment for the usual under-forecast of spending in the medium-term

Underlying the government's projections is a second implicit scenario, which abstracts from the following adjustments to projected revenues and spending:

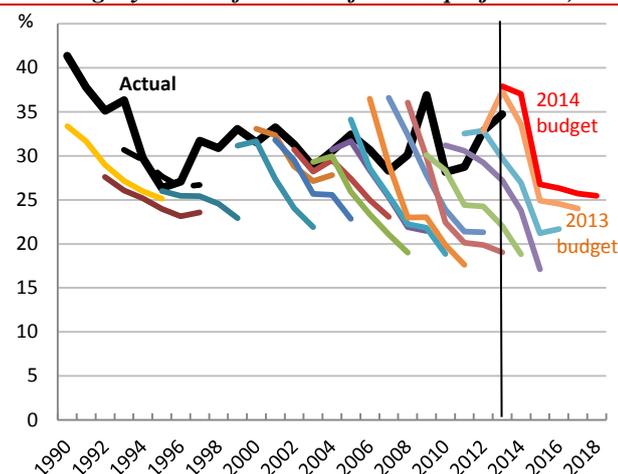
- In calculating its 2012 and 2013 deficits, the government includes PGK 900 million and PGK 350 million respectively of 'LNG equity purchases' in its spending.
- In calculating its 2014 deficit, the government includes PGK 600 million in 'asset sales' related to its PNG LNG equity holdings in its revenues.
- It discounts 2014 expenditure by 1 percent for 'aggregate estimates', which appears to allow for under-spending of the budget.
- From 2015, the projected budget balances allow for spending on top of the forward expenditure projections. This allowance is modest, at 1 percent of projected spending in 2015, rising to 5 percent by 2018. This adjustment prudently reduces the risks of repeating the historical pattern, of each budget projecting flat spending in the medium-term, which creates the appearance that budget balances will improve, but only for actual spending to exceed plans and the budget balance to deteriorate.
- The government discounts 2014 and 2015 expenditure by PGK 100 million for 'payroll efficiency savings', which are related to efforts to, for example, clear the payroll of duplicate and inactive records and terminated employees, improve payroll supervision, and enforce its 'one person—one position—one pay' principle.

Excluding the PNG LNG equity financing transactions reduces the budget deficit to 1.5 percent of GDP in 2012, and 7.0 percent of GDP in 2013. Further, given that only 52 percent of the public investment program had been spent by November 2013, it is likely that 2013 realized expenditure will be lower than budgeted, reducing the deficit. For 2014, excluding the PNG LNG equity financing transactions and the expenditure discounts

and adjustments, but not the ‘payroll efficiency’ adjustment, raises the projected budget deficit to 7.8 percent of GDP. Into the medium-term, these adjustments imply a sharper decline in budget deficits than is presented in the headline scenario (indicated by the red diamonds in Figure 19).

Figure 18: Historically each budget the government has announced substantial increases in spending, followed by consolidation, but the planned consolidation has typically not materialized

(total expenditure, percent of GDP, actual and projections made at each budget; colored lines start at the budget year and follow the forward projections)



Sources: Budget papers (via INA library), IMF data, World Bank staff calculations. Actual expenditure adjusts for trust account transactions.

With the shift to budget deficits, public debt has been increasing rapidly, mostly financed through very short-term domestic Treasury Bills

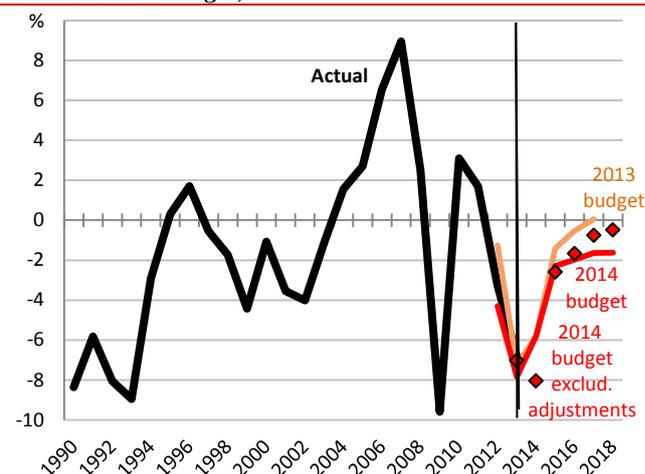
The looser fiscal stance in recent years has expanded the government’s stock of debt. (Figure 20) The nominal value of debt on the central government’s visible balance sheet (excluding that held through state-owned enterprises and contingent liabilities) increased by 56 percent between June 2011 and June 2013, to reach 31 percent of GDP, and this ratio is likely to have risen in the second half of 2013 as spending accelerated. The government has been largely financing its recent deficits through domestic debt issuance, especially short-term Treasury Bills. These have short tenors, around six months, meaning that each year the government needs to refinance significant amounts of its existing debt stock as well as raise new finance for its deficit. By 2013, the average maturity of the government’s domestic debt had fallen to 4.0 years and 47 percent of outstanding domestic debt was in the form of Treasury Bills. In 2014, the government is committed to repaying PGK 4.96 billion in Treasury Bills – only marginally less than the PGK 5.10 billion it intends to raise.

The government is looking to reduce its refinancing risks by issuing more longer-term Inscribed Stocks

Longer-tenor (3 to 17 years) ‘Inscribed Stock’ reduce the refinancing risk of short-tenor Treasury Bills. But longer-tenor domestic debt is significantly more expensive. While 6- and 12-month Treasury Bills yielded 2.21 percent and 2.64 percent respectively in June 2013, interest rates on 3-year Inscribed Stocks was assumed to be 5 percent in budget papers, and 10-year Inscribed Stocks sold in late November 2013 at a yield of 9.16 percent. The government aims to make greater use of Inscribed Stock or other long-dated domestic bonds to finance the budget deficit over coming years, and aims to reduce the share of domestic debt held in Treasury Bill to one-quarter by 2017. In 2014, it intends to raise the value of Inscribed Stock on issue from PGK 4.64 billion to PGK 6.21 billion. Various

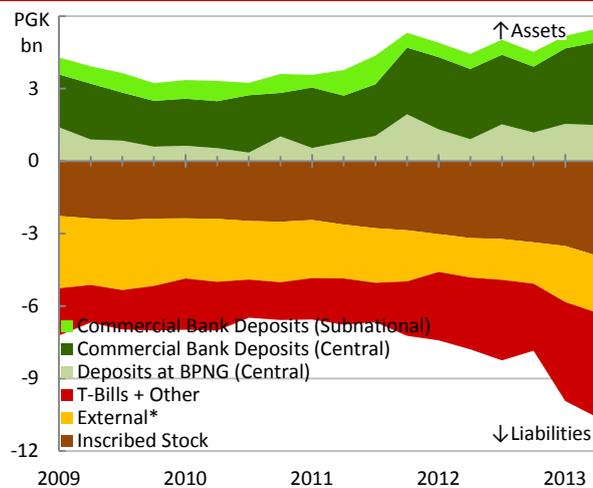
Figure 19: The 2013 and 2014 budget stances are broadly consistent, with an historically large short-term widening in the deficit, followed by projections of a longer-term return to sustainable deficits

(budget balance, percent of GDP, actual and projections made at each budget)



Sources: Historical data from IMF and World Bank staff calculations. Balance adjusted for trust account transactions. * ‘Adjusted 2014 budget’ excludes PNG LNG project financing transactions and ‘expenditure adjustment’.

Figure 20: Government debt has risen with the recent shift in fiscal stance to deficits, with much of the extra spending financed through short-term Treasury Bills (government financial assets and liabilities, billions of PGK)



* External debt valued at prevailing exchange rates.
Sources: BPNG and World Bank staff calculations

domestic financial sector actors indicate that there is currently potential demand for additional issuance of Inscribed Stocks. This contrasts with retail banks, the main purchasers of Treasury Bills, which indicate that given their current holdings, they are nearing exposure limits. Creating a liquid secondary market for Inscribed Stock would facilitate this transition. Giving investors greater scope to trade Inscribed Stock after they have been purchased would reduce the yields they demand.

Public external debt expanded only modestly up to 2013, remaining near one-quarter of the government's total outstanding debt. Much of this rise was due to revaluation effects as the Kina depreciated against the US dollar, rather than greater borrowing. The need to finance the expanded deficit, and ongoing discussions of various large China EXIM Bank financing arrangements for construction projects suggests that the role of external debt may rise significantly for the public sector in coming years, although the timing and terms of these financing agreements is unclear.

2. The Outlook: Beyond the rise in aggregate GDP with LNG production, a return to sustained and broad-based growth will require more than waiting for another big resource investment

A. In the short-term LNG production will raise aggregate GDP impressively, but the non-resource economy is likely to remain flat...

The economy has evolved much as anticipated, with non-resource activity set to stabilize near current levels

In 2014 and 2015, overall non-resource activity is expected to stabilize near current levels, while construction activity will reverse some of the very strong PNG LNG-related growth of recent years. This follows a decade of strong growth in PNG's non-resource economy, and an immediate challenge will be to ensure that the additional business and workforce capacity developed over recent years is utilized once the impulse from PNG LNG and related construction ends. Meanwhile movements in aggregate GDP will be overwhelmingly driven by the start of LNG production and exports in the second half of 2014.

...while larger economic benefits from the start of PNG LNG production will be limited in the near term

In its initial years, despite the large increase in GDP, the impact of LNG exports on the broader PNG economy will be modest. Only a fraction of receipts will be retained in the domestic economy. The impact on gross national income will be far smaller than the impact on domestic production. The project is approximately four-fifths owned by non-residents, and three-quarters of the construction costs were funded through international debt, which needs to be serviced. Employment benefits will also be limited, with ongoing employment on the project less-than one-tenth of its levels during construction.

The key channel from PNG LNG production to broader economic activity and living standards across PNG will be through the quality of spending by the national and relevant provincial governments and how well landholder groups use the funds they receive. In due course, the national government will receive revenues directly through taxes paid by the project, indirectly through taxes paid on consumption and income by individuals and associated firms, and through dividend payments on its 16.8 percent total equity interest

in the project. Royalty payments will be transferred to landowner groups under the benefit-sharing agreements, along with dividends on the landowners' equity share of 2.8 percent. Tax-reducing arrangements that were provided as investment incentives to the project are expected to delay significant tax payments until early next decade. The government expects revenues from PNG LNG to total PGK 1.6 billion to PGK 2 billion annually from first production in 2014 through to early next decade, although some of these receipts simply replace amounts previously contributed by the existing oil wells. From 2015 the national government expects to receive about PGK 650 million to PGK 800 million in dividends annually from its equity share. But this amount may not be available to pay into the sovereign wealth fund as a buffer against future negative macroeconomic shocks or to be spent on the government's development enablers through the budget. Rather, reports suggest that the dividends will first be used to service the loans that funded the State's equity holdings in PNG LNG and then to finance equity in future resource projects.

B. ...while medium-term downside risks have grown ...

...and risks to the outlook have become more negative

While the economy has generally evolved as anticipated, the risks to the forecasts for resource and non-resource activity have tilted more to the downside. In the short-term there are reports of significant disruptions to production at some mines in mid-2013, while other reports suggest cash crop production remains weak. International risks around the PNG LNG project are mitigated by the pre-contracted sale of gas using a pricing formula fixed in line with the relatively high LNG prices prevailing in northern Asia (lower middle graph in Figure 21).

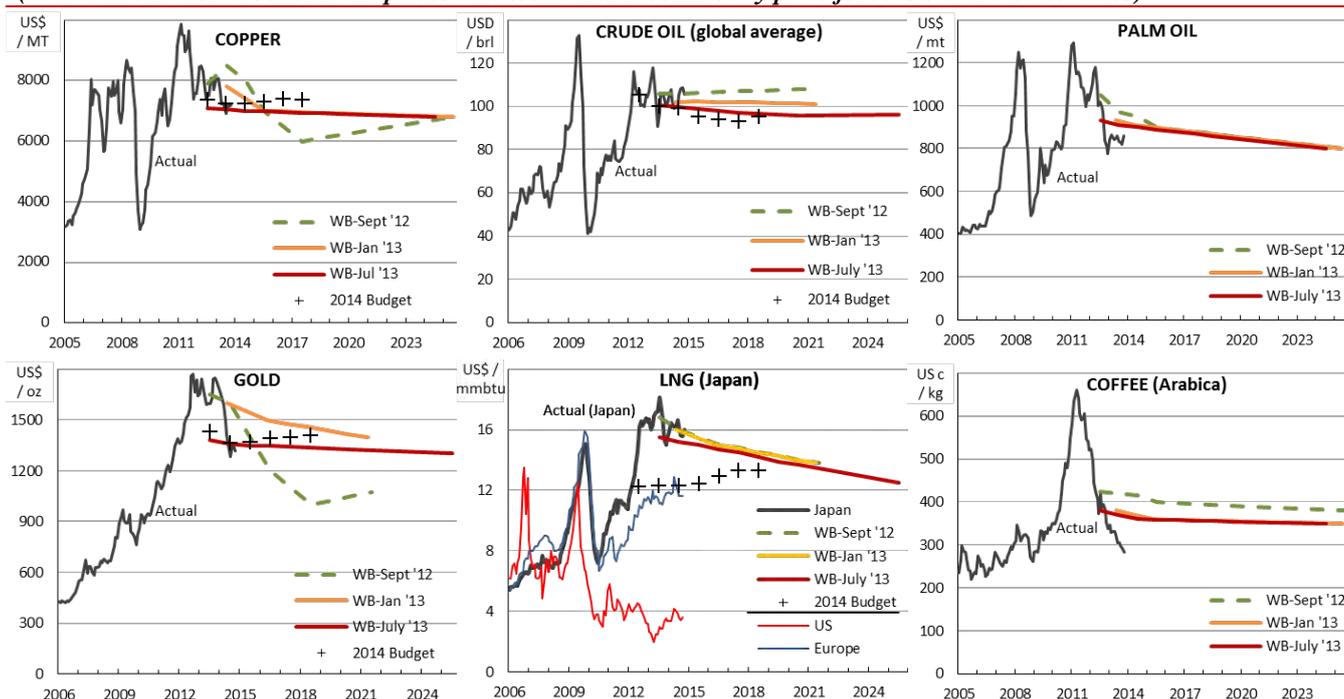
In the medium term, there is the risk of the current long-anticipated cyclical slow-down in the economy will become a return to the structurally slower growth rates PNG experienced through much of the 1980s and 1990s. This risk emanates from both the project investment cycle and from the need for policy to ensure that PNG maintains a stable macroeconomic and fiscal framework, and a sound business environment.

More expensive and scarcer international capital is especially a concern for PNG, given the country's high reliance on foreign loans to finance projects

Since the start of 2013, the likelihood that any of the major new resource or other projects currently under preparation will be approved has receded. High costs of doing business in PNG mean that many projects need relatively high prices to be viable. Anticipated returns on projects have declined with the retreat in international commodity prices and as global conditions for financing becoming less attractive. (Figure 21, Figure 22) International capital costs started to rise in mid-2013 from historically low levels as international financial markets started to anticipate winding down of the US Federal Reserve's quantitative easing of monetary policy. While this 'tapering' was deferred in September, it is now on investors' horizons, and the cost of capital on global markets is likely to continue to rise and capital flows have declined, especially for higher-risk economies.⁵ The cost and availability of international capital is particularly important for PNG, given the high reliance of projects, including PNG LNG, on international financing. (Figure 23) PNG's high levels of *private* external debt relate to the financing arrangements of specific projects, and the risks around repayment of these debts are reduced because they are financing pre-contracted production for export. Nonetheless, the high reliance on external debt for investment projects means future projects are exposed to developments in international financial markets.

⁵ The October 2013 'East Asia & Pacific Economic Update' provides a fuller discussion of recent developments in G3 monetary policy and their potential implications for emerging East Asia and the Pacific (at www.worldbank.org/eapupdate)

Figure 21: Near-term projections of PNG's export commodity prices have been lowered over the past year, while in the longer-term prices are expected to fall gradually, although remain above their levels of the mid-2000s (actual international benchmark prices and World Bank commodity price forecasts at indicated dates)



Source: World Bank commodity price data and forecasts

While new projects continue to be discussed, it is unclear when any will reach investment decision

Various proposals for a second LNG project, linked to Interoil, continue to be discussed. Proposals range from constructing a new liquefaction facility at a greenfield site in Gulf province, through to a joint venture with Exxon that uses spare capacity at the PNG LNG site to construct a third and perhaps a fourth liquefaction train. But all these proposals have been discussed for some years and it is not clear when an investment decision will be taken. Structurally, new LNG projects risk selling at weaker prices as new conventional and unconventional fuel supply becomes available from elsewhere in the region and globally. In addition, the central forecast is for the premium on Asian LNG prices to decline over coming years. Meanwhile, the agricultural sector remains in poor health, with falling cash crop production in recent years and little investment in the complementary extension and marketing services required to improve farmers' incentives and productivity. (Box 1)

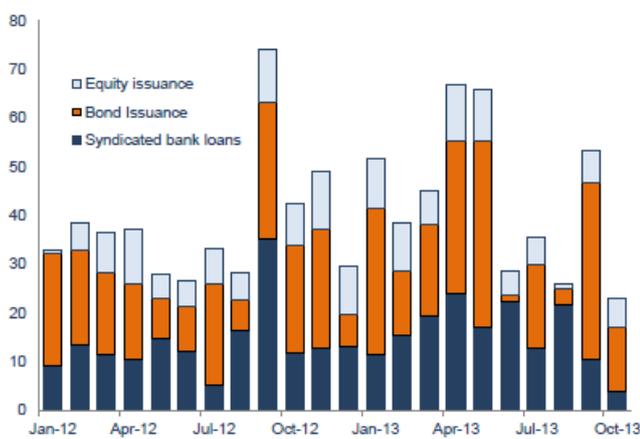
Fiscal policy needs to return to a sustainable stance and public debt stabilize at moderate levels, otherwise PNG risks repeating the mistakes of the 1990s

Macroeconomic risks will re-emerge in coming years if the government does not return fiscal policy to a sustainable path of modest deficits with a manageable debt burden. PNG's headline public debt ratio provides a useful anchor for fiscal policy. The medium-term debt strategy allows for public debt to rise to 35 percent of GDP in 2013 and 2014, before returning to below 30 percent of GDP in 2015.

In its 2014 budget, the government re-affirmed its medium-term commitment to reducing debt loads from their 2014 levels, although without a plan to return the budget to balance in its forecasts. Debt levels below 35 percent of GDP in 2014 and 30 percent of GDP from 2015 are considered to be consistent with manageable risks of debt-related problems. But there are significant risks that this ratio will be exceeded in 2014. Further, these ratios are weakened by the various debts and contingent liabilities held off-budget by parastatals and through unpaid superannuation liabilities, valued at approximately 20 percent of GDP and perhaps even more.

Over coming years, servicing these off-budget debts will consume revenues that could have been allocated to the general budget, to staff health centers or recruit and train teachers. Now that these debts have been incurred, they add to the risks faced by PNG, and paying them down at the earliest opportunity will strengthen the State's balance sheet and ability to withstand future economic shocks. Paying down debt and shifting the portfolio to lower-cost sources through the 2000s cut the annual interest burden from 18 percent of total spending in 2003 to 5.1 percent of the 2013 budget; if the share of the budget allocated to interest payments had not changed, PGK 1.7 billion less would have been available for spending on the country's 'development enablers' in 2013.

Figure 22: The prospect of tighter monetary conditions in major developed economies immediately made financing scarcer for developing economies (gross capital flows to developing countries, billions of USD)

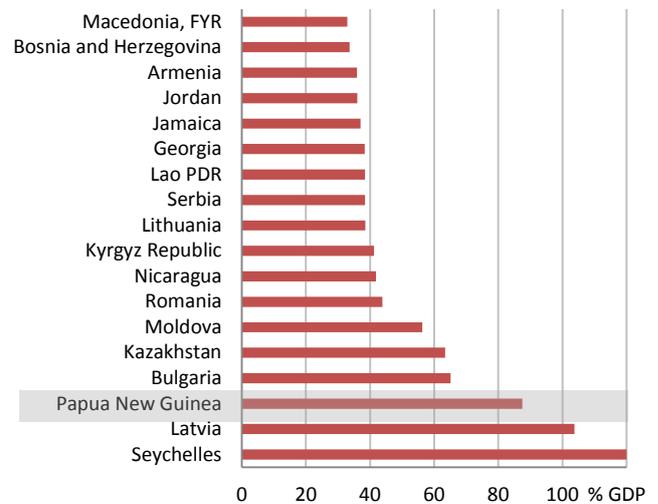


Sources: Dealogic and World Bank

...with the priority being to spend well, rather than spending more

In 2013, spending for projects still being planned or where effective disbursement and accountability mechanisms are still being developed, could be carried over to future years. This would reduce the budget deficit and financing needs for 2013, while ensuring that when the funds are spent, they achieve a greater social return and that the promised public goods and services are delivered. After 2013 the priority needs to remain on spending well rather than spending more, especially given the outlook of slower revenue growth. The government's Economic Ministers and senior officials affirmed this imperative when presenting the 2014 budget.

Figure 23: PNG is heavily reliant on international financing for its major investment projects, although the bulk of PNG's private external debt has been borrowed by the PNG LNG project (external debt held by the private sector, percent of GDP)



Sources: World Bank data and staff calculations

Box 3: Making Funding Work to Deliver Health Services

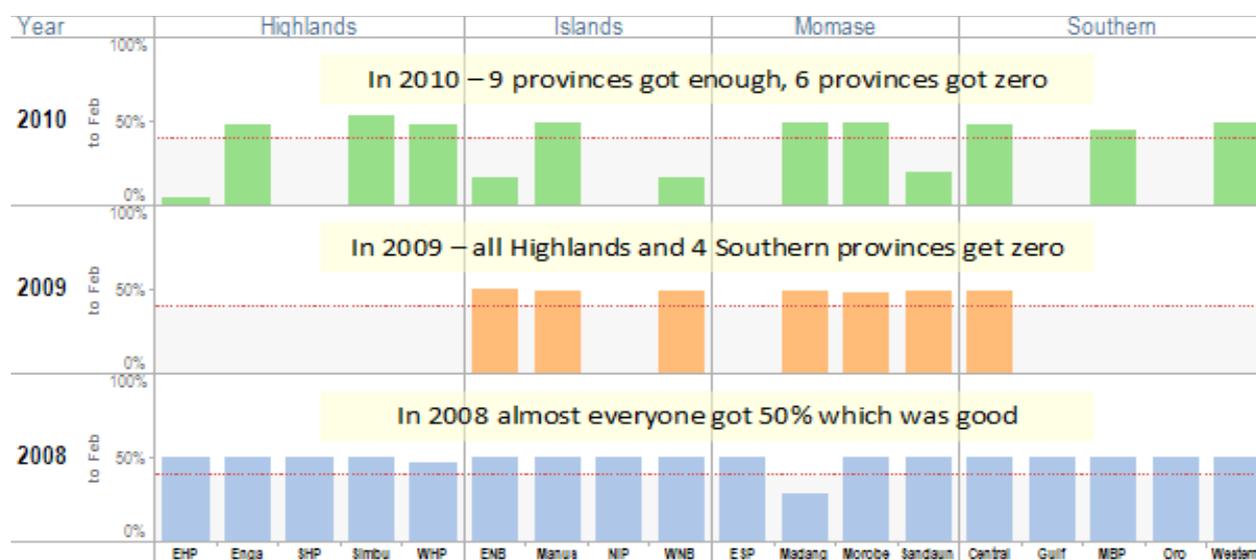
Access to healthcare remains limited for most Papua New Guineans. Most people have limited contact with health services compared with other, comparable countries, although access does vary significantly between different provinces and socio-economic groups. In recent years, the government has been increasing its spending on important components of the health budget, while development partners have continued to invest heavily in healthcare in PNG. For a majority of provinces, specifically those that are reliant on national grant funding, there has been a real improvement in the levels of spending on frontline rural health services since 2009. Frontline rural health service delivery encompasses activities such as facility operations, patrols, medical supplies distribution, emergency patient transfer, rural water supply and facility supervision.

With the weakening fiscal outlook, there is less room for further increases in spending on health, implying that the focus must now be on ensuring that these resources are used more effectively. Nowhere is this more important than the rural health function grants, which are targeted directly at improving health service delivery for the most devolved levels of the system – rural, primary care services. A top-down analysis of fund allocations and financial arrangements can give insights into why service delivery falls short. This analysis can cover the *level* of funding for frontline services, whether these funds are *available for the right staff* to ensure that facilities remain open and operational, and whether the *funding is regular and reliable* enough to ensure that outreach activities happen on a regular planned basis.

Allocation of expenditure: between 2009 and 2012, more funds have been allocated to frontline health service activities, particularly by provinces relying partly or entirely on grants. Higher funded provinces (those with access to funds from GST or from natural resources) allocate much less of their budget to frontline rural health. Most islands and Momase provinces spend less on facilities than other provinces (with the notable exceptions of East New Britain and Sandaun). Provinces that appear to be allocating small shares of their budgets to rural health services may fund rural health in their province in another way, eg, from user fees. If this is the case, then rigorous implementation of the ‘free primary healthcare’ policy may undermine healthcare in these provinces as it would no longer be permitted to charge user fees.

Accessibility of funding: The release of funding by Treasury to provinces/provincial health needs to be timely, consistent and predictable. The evidence suggests funding is inconsistent and often disbursed too slow or too late by Treasury to be spent effectively on service delivery at the sub-national level. (Figure 27)

Figure 24: Core funding from the national level for rural health needs to be timely and consistent
(cash release from the National government by February of each year, 2008-2010, ordered by region; shaded areas represent the 40 percent funding target that provinces need to commit to before service delivery is assessed to be feasible)



Source: ‘Below the Glass Floor’, Alan Cairns, World Bank with National Economic & Fiscal Commission and Department of Health.

Quality and effectiveness of spending, including clarity over functional responsibility: Much more funding appears to be allocated and spent on facility operations. But the effectiveness of this spending appears to have often been poor, according to the expenditure tracking work by the National Research Institute with the Australian National University (ANU). Unclear responsibilities may explain poor maintenance of health facilities, for example. Functional responsibilities are also ambiguous with respect to executing spending on clean water supply, and on distributing and maintaining drugs and other medical supplies. Such ambiguity makes it less likely that funding and cost arrangements will best match those responsibilities.

Source: ‘Below the Glass Floor: Analytical Review of Expenditure by Provincial Administrations on Rural Health from Health Function Grants & Provincial Internal Revenue’, Alan Cairns, World Bank in partnership with the National Economic & Fiscal Commission and the National Department of Health, 2013. Details of the NRI-ANU ‘Promoting Effective Public Expenditure’ (PEPE) project can be found at <https://devpolicy.crawford.anu.edu.au/png-budget-project/expenditure-survey>

C. ... making priorities of maximizing the public services delivered from the resources available, cutting regulatory burdens to reduce operating costs, and ensuring entrepreneurs and investors have a certain operating environment

Through more effective spending and regulation, the government can provide better services to more Papua New Guineans and make it easier for businesses to emerge and grow...

PNG can deliver better public services and goods even with slower spending growth. Weaknesses in funding chains for health and education, and in procurement decisions all mean that Papua New Guinea receives less than it could from public spending. These issues have been highlighted in recent work by the National Economic and Fiscal Commission, the Office of the Auditor General, the National Research Institute (NRI) and Australian National University (ANU), and the World Bank. For example, only a fraction of the funds allocated to rural health moves on time from the national authorities to provinces and then to the healthcare centers. (Box 2) More positively, improved provision of textbooks and other steps to raise the quality of education are likely to have been some of the factors that induced a 20 percent and 18 percent increase in girls' and boys' enrollment in primary schools between 2006 and 2011 – before the tuition fee subsidy was introduced.

...including in infrastructure and social investments, where smaller, well-executed efforts to make it easier to do business can bring higher returns than many high-cost and complex investments

Meanwhile, prices remain high and service delivery poor in sectors protected by restrictive regulation, making it harder to do business in PNG. The 2013 *Doing Business* survey found that other countries made it easier for entrepreneurs to setup, invest, employ and operate while PNG lagged. PNG's overall ranking slipped 5 places compared with 2012, to 113 out of 189 countries surveyed. The difficulties in enforcing contracts were highlighted as an important obstacle.

The impediments to operating businesses extend beyond the *Doing Business* indicators – and many can be addressed through relatively low-cost and straightforward adjustments in market conditions.

...such as competitive access to telecommunications infrastructure...

For example, PNG's broadband internet is among the most expensive in the world, and access among the lowest. Businesses cite internet access and telecommunications behind only law and order, corruption and the state of electricity and transport infrastructure among impediments to operating, investing and expanding employment. With significant existing and growing investment in physical infrastructure, the wholesale monopoly provided to Telikom can be readily amended at minimal cost to the public sector, and steps were taken in this direction in March 2013. Already these initial efforts have led to immediate drops in prices and improvements in services, benefitting both businesses and households. Taking these steps further would cost the budget little, lead to new firms emerging and growing to provide greater competition, and spur business development. (Box 4)

...allowing entrepreneurs to register businesses online

As another example, the on-line business registry launched in late November allows people within PNG and overseas to register and maintain details of companies, business names and other business entities on-line, without having to visit an IPA office. On-line searching for details of all entities is free to any on-line user. The system will greatly speed up the processing of new and changed business registrations and generate substantial savings in time and cost to businesses in PNG. The decision by the IRC to co-locate their business registry with the Investment Promotion Authority also reduces transaction costs for businesses, at minimal cost to the agencies.

...and investing small amounts on ongoing, basic maintenance rather than spending far more to rebuild infrastructure

Similar points can be made around addressing PNG's large transport infrastructure gaps. The government has budgeted for and is preparing very large investments to rebuild and expand road infrastructure, notably around existing urban areas and increasing the capacity of existing road corridors. However there is the risk that, again, building and expanding roads will be at the cost of maintaining the roads PNG has already built. A

minimal level of routine, preventative maintenance of existing investments has massive economic returns. For example, the South African National Road Agency Ltd. estimates that the cost of repairing roads increases to six times the cost of preventative maintenance after three years of neglect, and to 18 times after five years of neglect.⁶ The PNG Department of Works expects a well-maintained sealed road to last 25 years, while an unmaintained road lasts 7 years, on average. Over 25 years, the total cost of this kilometer of sealed road, including the cost of construction, would be PGK 3.6 million, half its cost of PGK 7.1 million if it does not receive regular maintenance but has to be periodically rebuilt. This difference only includes the direct financial cost of the road, not the larger economic and social costs of having an ill-maintained road.⁷ The National Roads Authority has been created to facilitate adequate, ongoing maintenance of this nature, but receives only a fraction of the funding required for its maintenance mandate.

If the government addresses looming economic and policy risks, ensures regulation supports business and investment, respects property rights and contractual commitments, and makes the most of PNG's human and financial resources, there are solid grounds for optimism about PNG's economic outlook

Longer-term, there are grounds for optimism around PNG's prospects, if the government addresses emerging risks and ensures policy interventions encourage investment and innovation, rather than creating uncertainty and raising costs. Efforts are being made to better manage the State's enterprises and mineral and oil & gas assets, notably through consolidation into a proposed 'Kumul' holdings. This is a challenging task and outcomes will likely hinge on the quality of governance and transparency arrangements that are put in place. The government has also passed legislation taking ownership of the major Ok Tedi mine from the PNG Sustainable Development Program (SDP), and this appears to have halted SDP's large number of social investment programs across the country. These unfolding policy changes are likely to be followed closely by national and international investors aiming to make long-term commitments to sustainable and inclusive growth in PNG. International experience shows that sustainable investment and development is only possible where the integrity of property rights and contractual obligations is not subject to doubt.

Separately, the government is making efforts to address years of under-investment in public sector capabilities, through re-staffing the public service – again, a task that many governments have found challenging. Finally, recent announcements around spatial development, focusing on PNG's main towns, are consistent with the successful international experience. Building on the economic momentum around existing core urban areas, while ensuring all citizens across the country are able to access the benefits and opportunities created by these centers, is an effective means of supporting deeper and sustainable development for most Papua New Guineans.

⁶ Burningham, S. & N Stankevich, 2005, 'Why road maintenance is important and how to get it done', World Bank, Washington D.C., cited in Alejandrino-Yap et al, 2013, 'Infrastructure Maintenance in the Pacific: Challenging the Build-Neglect-Rebuild Paradigm', Sydney, Australia: Pacific Infrastructure Advisory Centre.

⁷ Reported in Alejandrino-Yap et al, 2013.

Box 4: Low-Cost Reforms With High Returns for Doing Business: The case of broadband

Liberalization of the mobile market has allowed PNG's ICT sector to experience significant growth in the last decade. Mobile penetration has increased dramatically from a mere 1.2 percent of the population in 2005 to at least 45.5 percent in 2013, with nearly a quarter of users now enjoying 3G mobile broadband. This rapid growth in mobile ownership has been relatively equitable, with the 2010 PNG HIES suggesting that around one-third of poor households owned a mobile phone compared with 52 percent of non-poor households. This is largely attributed to the ambitious network expansion and competitive prices that followed the entry of Digicel PNG, a subsidiary of the Jamaica-based Digicel Group, in July 2007. Until then the mobile market was home to just one state-owned operator, Pacific Mobile Communications (PMC). As of March 2013, Digicel held 68.5 percent of the wireless market, followed by Telikom (21.1 percent) and BeMobile (10.4 percent).

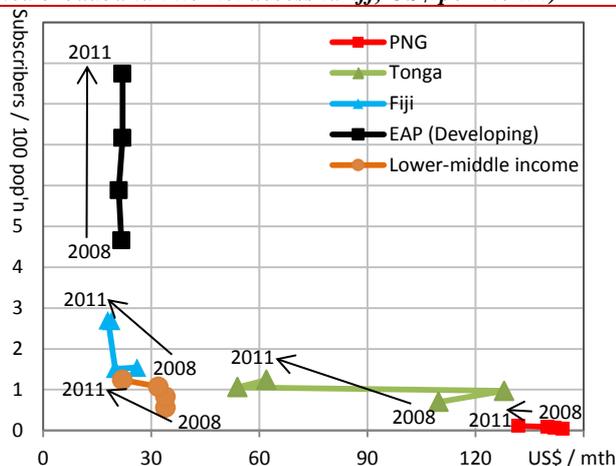
Despite these advances, fixed broadband penetration is still extremely low, remains far beyond the pockets of average citizens and small businesses, and is a real hindrance to business and investment in PNG. Fixed broadband penetration stands at just 0.11 per 100 people, significantly lower than the averages for the emerging economies of East Asia and Pacific (at 8.7 per 100 population), and even neighboring countries like Fiji (1.24 per 100 population), or Tonga (2.7 per 100 population). (Figure 28) Access to internet and telecommunications is ranked just after law and order, corruption, and energy and transport infrastructure in terms of impediments to doing business in Papua New Guinea, according to the 2012 Institute of National Affairs/ADB 2013 private sector survey.

PNG's extremely low internet penetration rates are due to: (1) lack of network infrastructure, particularly in rural areas; and (2) exceptionally high prices of internet services.

Fixed broadband internet prices are extremely high, despite PNG's access to international fiber optic networks. According to the World Development Indicators, fixed broadband in PNG cost around US\$140 per month⁸ in 2010, plus additional fees for usage. (Figure 28) Tonga, where a fiber optic cable only arrived in June 2013, had significantly lower prices and a higher fixed broadband penetration rate at that time.

Telikom PNG's quasi-monopoly on international access has hindered the development of internet services in PNG at competitive tariffs. Telikom PNG retains a 100 percent market share for wholesale capacity and access to the two international fibre-optic submarine cables. After NICTA's establishment by the National ICT Act (2009), internet service providers (ISPs) were issued international gateway licences, and access to the Madang cable were made available to private operators in 2013. However, connections still remain largely through satellite, and apart from satellite, international capacity into PNG has not increased much as Telikom's cable investments preceded the Act.

Figure 25: Broadband subscription rates are very low in PNG, while internet access costs are extremely high (fixed broadband internet subscribers per 100 people, and fixed broadband internet access tariff, US\$ per month)



Source: World Development Indicators

applicability of the rate reduction (from 9t (US\$0.04) to 3t (US\$0.014) per MB), and it remains evident that actual reductions in retail prices may need to be monitored by regulators.

A recent ministerial declaration may change this situation. On March 21 2013, Minister of Communications and IT, issued the "Wholesale Service Declaration No. 1", which empowers NICTA to issue specific pricing principles and enforce non-discriminatory access to Telikom's submarine cables and international gateway services. The declaration designated certain wholesale services relating to access to submarine cable landing station facilities and transmission capacity on international submarine cables as 'declared services'. Under the NICTA Act of 2009, any telecoms company that supplies a 'declared service' must comply with non-discrimination obligations, which will require wholesale price charged by Telikom to be cost-based, in the interests of fair competition.⁹

Telikom PNG immediately responded by announcing a new "Wholesale Internet Plan" that offered a 68 percent reduction in rates on wholesale bandwidth. Under the plan, ISPs would acquire a bandwidth ranging from 5 to 155 MB per second for a fixed monthly fee, as opposed to the previous pricing by total usage. It is expected that ISPs would be able to allow the lowered wholesale pricing to pass into their retail pricing. However, there have been speculations about the general

⁸ Fixed broadband Internet access tariff is the lowest sampled cost per 100 kilobits a second per month and are calculated from low- and high-speed monthly service charges. Monthly charges do not include installation fees or modem rentals.

⁹ Telegeography, <http://www.telegeography.com/products/commsupdate/articles/2013/03/01/declare-if-you-dare-nicta-tells-minister-after-submarine-showdown/>

Schemes to expand ICT infrastructure are also underway. For instance, IPBC is leading the development of a National Broadband Network, which aims to connect major population centers via a cross-country network of fiber optic cables.¹⁰ Under this initiative, a fiber-optic cable connecting the Gulf Province with the LNG plant 30 kilometers from Port Moresby was completed in early 2013. DataCo, a state-owned wholesale telecoms operator set up by IPBC, is expected to run the network, with an aim to provide non-discriminatory access to all licensed operators. Additionally, a US\$ 15 million Rural Communications Project (financed by the World Bank) aims to develop rules and regulations for a Universal Access Scheme (UAS) to expand voice and internet services in remote and isolated areas of the country, where such services had been considered commercially unviable. Meanwhile, Digicel is investing PGK 200 million in 4G mobile broadband networks, and the government through IPBC is making efforts to strengthen the management and competitiveness of BeMobile.

The Government's continuous commitment to regulatory reforms would be vital to further stimulate broadband development and achieve ICT-enabled innovation and growth. A World Bank 2009 study concluded that a 10 percent increase in broadband penetration results in a 1.4 percent increase in annual average GDP growth in developing countries.¹¹ Access to affordable broadband is also essential for local businesses, in particular small and medium enterprises (SMEs), to connect to the global economy while fostering local innovation. It is also essential for building an inclusive digital society. In a draft National Broadband Policy published by NICTA in April 2013, the government tentatively set a goal of achieving broadband service availability in 100 percent of urban areas and of 70 percent of rural areas by 2017.¹² These goals will not be attainable without the Government's strong commitment to further deregulate the fixed line market and pave the way for a healthy and competitive pricing scheme for the end users.

Sources: World Bank Data, Telegeography Global Comms Database , World Development Indicators, and World Bank staff

¹⁰ <http://www.businessadvantagepng.com/progress-on-papua-new-guineas-national-broadband-network/>

¹¹ World Bank 2009. Information and Communications for Development: Extending Reach and Increasing Impact.

¹² <http://www.nicta.gov.pg/Pages/Home.aspx>

3. The Long-term Agenda: Living standards in Papua New Guinea

The 2009-2010 PNG Household Income and Expenditure Survey allows for a comprehensive assessment of living standards in PNG

In August 2012, the Minister of National Planning launched the 2009-2010 Household Income and Expenditure Survey (PNG HIES) Summary Tables and dataset.¹³ The PNG HIES is the first comprehensive and nationally representative survey of the socio-economic status of PNG households since 1996. The survey was conducted from July 2009 to January 2011 in all 19 provinces of PNG, and covers a sample of 4,191 households. The data are representative of each PNG's four regions plus the two main urban areas, and can be broken down by gender.

Welfare is a complex, multi-faceted concept, and there are many ways of measuring it

'Welfare' is a complex, multi-faceted concept. Many aspects are qualitative, even subjective, and these aspects can be difficult to reduce to quantitative indicators that allow for comparisons between individuals and communities, across regions and over time. Measures of welfare can range from narrow definitions of achieving a minimum level of food consumption to much broader concepts of well-being and the capacity of individuals to realize their capabilities. The latter can start to be quantified through health and educational attainment or employment outcomes – the UNDP's Human Development Index combines a range of such indicators into one composite index.

A. Welfare is commonly assessed relative to minimum levels of consumption

Most countries assess national welfare in terms of the share of the population consuming at least a minimum threshold, complementing this core measure with other welfare indicators

Most developing countries track their national welfare in terms of the share of the population achieving a minimum level of consumption, where consumption includes both items purchased through the market and produced by the household.

There are a range of approaches to determining the minimum level of consumption, or 'poverty line'. The approach adopted by many countries, and supported by World Bank analysis, is to calculate a *food* poverty line valued at the cost of a minimum level of food consumption (between 2000 and 2400 calories per day for an adult) given local consumption patterns, plus a very minimal allowance for essential non-food consumption. A less austere poverty line, the *material* or *basic needs* poverty line, allows for greater non-food consumption, calculated from the actual spending patterns of households near the food poverty line. (Figure 28)

This single, quantifiable consumption-based welfare measure expresses core aspects of living standards through a few statistics. This allows for comparisons across households and over time to be robust. These statistics include the poverty headcount ratio (the share of the population living in households where average consumption is less than the poverty line) and statistics that also include information on how far those households' consumption is below the poverty line. These consumption-based measures can then be corroborated with other measures of welfare, such as health outcomes, educational achievements, access to jobs and material well-being, which quantify broader measures of welfare that indicate an individual's ability to realize their potential.

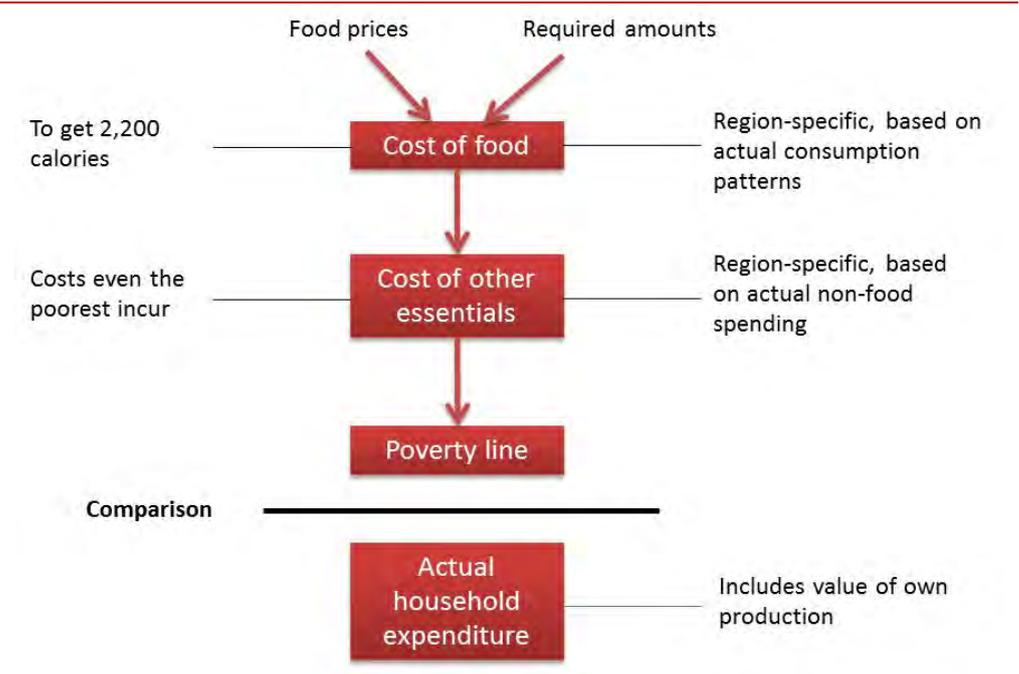
The cost of a basic needs poverty line varies greatly between PNG's regions

The cost of meeting basic needs varies substantially across regions, from just over PGK 1300 per adult per year in rural Momase to just under K3400 per adult in the National Capital District. (Figure 29) For each region, the cost of meeting basic or the 'poverty line' is the sum of: i) the cost of attaining a minimum number of daily calories (2200 calories per day for each adult-equivalent) based on prevailing local diets and food prices, plus ii) an allowance for the purchase of essential non-food items. The price data collected in the 2009-2010 PNG HIES allows the value of the poverty line to be calculated for each of six regions.

¹³ A summary of various indicators in the 2009-2010 PNG HIES can be found in Papua New Guinea Economic Briefing 2013-1.

An individual's consumption is calculated as an equal share of the amount consumed in their household. Children (aged 6 or younger) are assumed to consume half as much as an adult. For the survey, a representative of each household recorded the household's consumption each day over a 14 day period, as well as noting the overall changes in the household's stock of food. Households noted in their diaries the volume of items consumed, as well as their value. Large, less frequent consumption items were also recorded. The items consumed by the household include those that they produced or grew themselves.

Figure 26: The consumption-based welfare measure using the value of a minimum consumption bundle



B. Consumption-based welfare measures correlate well with other indicators

Nation-wide, 40 percent of Papua New Guineas lived in households where consumption was below the material poverty line in 2010

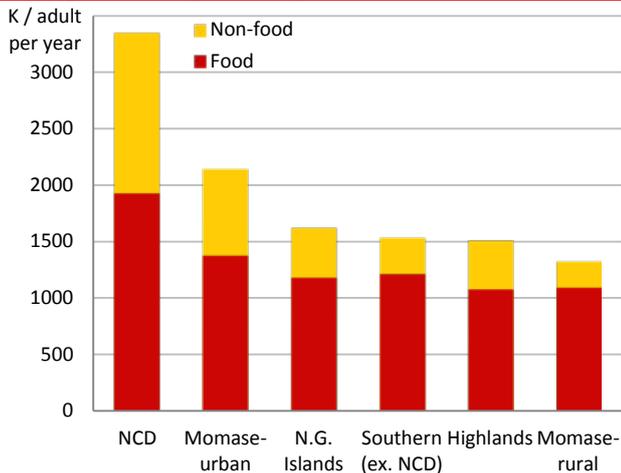
Forty percent of Papua New Guineas are estimated to have consumed less than a 'basic needs' minimum basket of food and other goods and services in 2010. The comparable 'food' poverty rate was at around 25 percent of the population nation-wide. (Figure 30) The 'food' poverty rate should be interpreted as indicating the share of the population unable to consume just a minimally nutritionally-adequate diet, with extremely limited allowance for material consumption, rather than in a more literal and extreme sense of the share unable to consume enough calories to survive.

...and this correlates with other welfare indicators

These poverty rates are generally corroborated by other non-monetary indicators. For example, HIES-based estimates as well as estimates by the World Health Organization (WHO) find that more than 40 percent of children under 5 years of age suffer from moderate to severe chronic under-nutrition, as indicated by weight and height. Life expectancy at birth is 63 years, considerably below the Pacific regional average of 75 years; infant mortality rate is 248 per thousand compared to regional average of 116; and the maternal mortality ratio is very high at 230 per 100,000 live births. The Human Development Index (HDI) computed by UNDP combines achievements on income, health, and education and ranks Papua New Guinea 153 out of 187 countries, placing it among countries with "low human development".

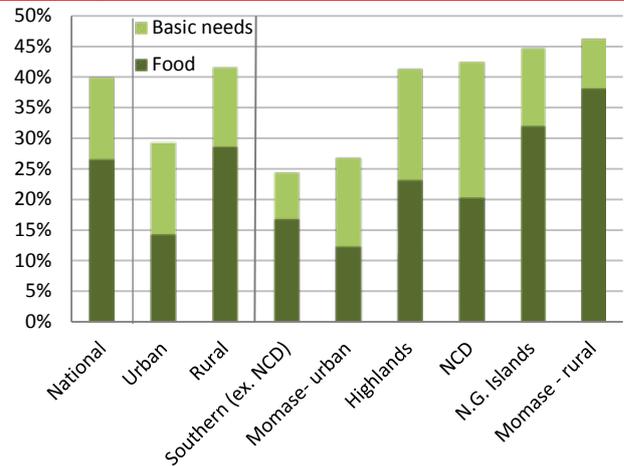
Further, health outcomes and access correlate with household welfare. Children in poorer households (in the lower two quintiles or lower 40 percent of the population when ranked by household consumption) are more likely to report being sick. (Figure 32) But they have less access to a health facility than higher-consumption households, due to the distance and cost of the health center, and because of quality issues with the health center, such as the worker being present. (Figure 32 and Figure 33)

Figure 27: The cost of the minimum consumption bundle varies considerably across PNG's regions (Kina per adult equivalent per year, 2009-2010 values)



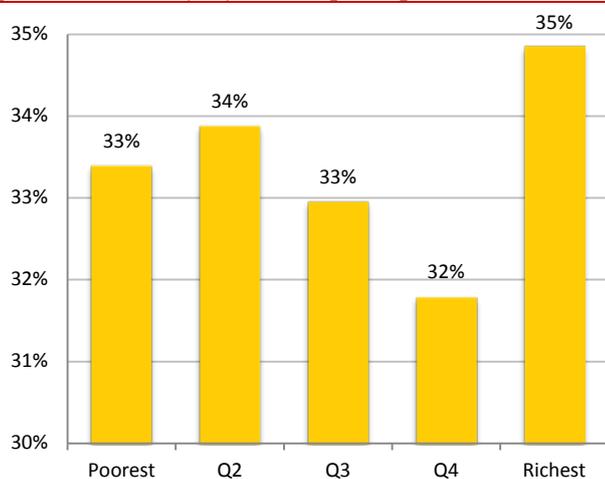
Sources: NSO (PNG HIES) and World Bank staff calculations

Figure 28: ...as do the rates of poverty (share of population living in households with average consumption below the 'basic needs' level, 2009-2010)



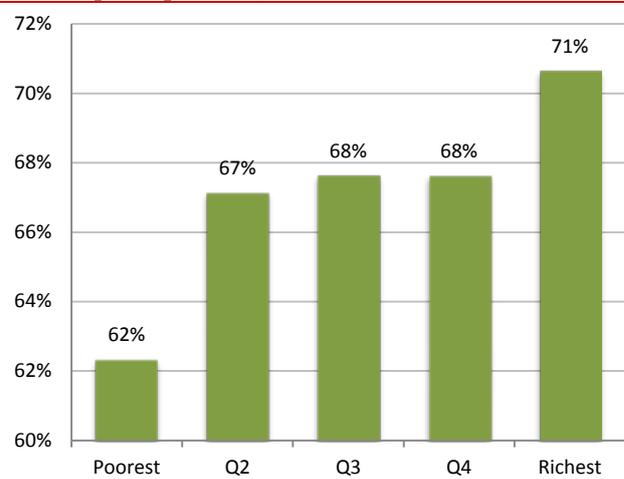
Sources: NSO (PNG HIES) and World Bank staff calculations

Figure 29: Children in poorer (and the richest) households are more likely to report being unwell (percentage of children reported sick in the 30 days prior to the survey, by consumption quintile)



Sources: NSO (PNG HIES) and World Bank staff calculations

Figure 30: ...but poorer children are less likely to seek medical treatment... (percentage of persons who sought treatment, by consumption quintiles)



Sources: NSO (PNG HIES) and World Bank staff calculations

The rate and intensity of poverty also varies significantly across regions

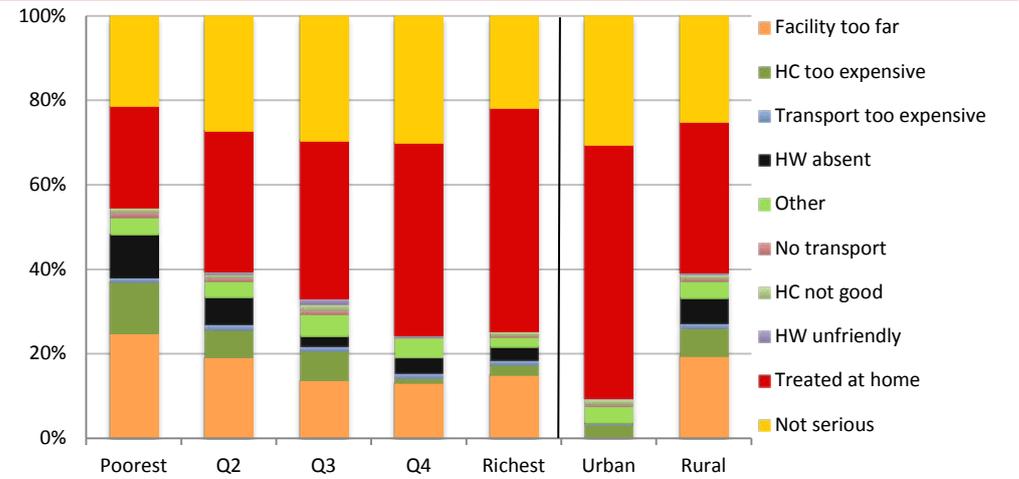
The share of the population living below the poverty line varies considerably between regions, and the incidence of poverty is geographically concentrated. (Figure 30) Poverty is significantly more prevalent in rural than urban areas of Papua New Guinea. Geographically, material poverty rates range from 24 percent in the Southern region (not including NCD) to 46 percent in rural Momase. Reflecting their higher populations, more than two-thirds of all the poor in PNG are located in the Highlands and rural Momase.

Not all poor face the same level of hardship. When the severity of poverty is assessed by the how far consumption falls short of meeting basic needs, it is found that in NCD,

Southern (excluding the NCD), Highlands, and urban Momase regions, many of the poor consume just less than the basic needs poverty line. However there are pockets of more severe poverty, where many poor households' consume less than the equivalent of 2200 calories each day of reasonable nutritional quality per adult equivalent. In rural Momase and the Islands, many of the poor have very limited consumption and are much further below the poverty line, as can be seen in Figure 30 by the higher shares of poor households consuming less than the 'food' poverty line.

Severe poverty can have lasting effects. Children of the poorest-of-the poor are more likely to suffer from chronic under-nutrition which should receive immediate attention, as early-age deprivation not only has strong welfare impacts but also impairs their long term development, productivity and life opportunities.

Figure 31: ...as medical facilities are less likely to be accessible, affordable or staffed (reason for not seeking treatment, by consumption quintiles and location)



'HC' and 'HW' denote Health Center and Health Worker. Sources: NSO (PNG HIES) & World Bank.

Households where the household head is more educated, works in the formal sector, or has migrated from a different region are less likely to be poor

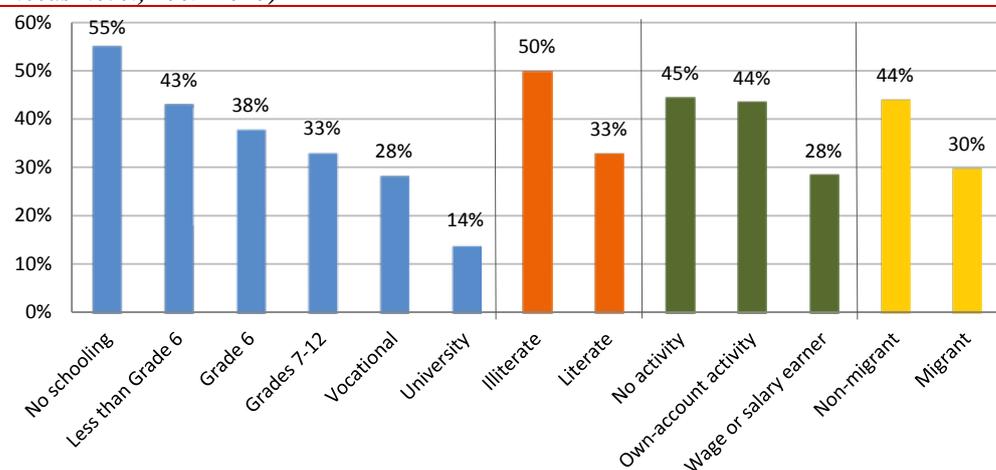
Living standards are strongly related to education. (Figure 34) Households headed by literate persons are 50 percent less likely to be in poverty than households with an illiterate head. Apart from education being a human development goal in its own right, education is also a key human capital investment that allows individuals to improve their livelihoods. The observed inverse relationship between education of the household head and poverty, suggests that education can be a powerful antipoverty intervention.

Households unable to access formal sector incomes are 53 percent more likely to be in poverty than households headed by a wage or salary earner. (Figure 34) A large share of consumption is self-produced in Papua New Guinea, with most households accessing gardens for much of their food consumption, and this is key for limiting food poverty rates and maintaining minimum levels of consumption. Nonetheless, cash is still needed to purchase many essential items, ranging from clothing to school fees to kerosene and cooking equipment. Access to cash incomes also helps households manage through periods when agricultural productivity is low or when members of the household are unable to work in the gardens. Lower poverty rates among households headed by wage-earners indicates that these households are better able to protect themselves from such issues, and that priority should be given to efforts to improve the income-earning possibilities of households working in the informal sector or in semi-subsistence.

Perhaps correlated with the relative prosperity of wage-earning and literate households, migrant-headed households are 32 percent less likely to be in poverty than non-migrant households. (Figure 34) Migration to areas of greater economic opportunity or where an

individual's skills are more valuable is another investment that can improve livelihoods. In 2010, 29 percent of PNG's population lived in households where the household head was born in a province different from where they were currently living. The lower rate of poverty among migrant-headed households compared to non-migrants contradicts the common belief that migrants are among the poorest people in PNG, given they often loosen their connections with their land and their wontoks. Though migrants may face challenges in areas where they do not own land or have social ties, the result suggests that, as in many other countries, migrants are usually those who have better skills and are thus able to access more opportunities. Indeed, if attention is restricted to NCD where issues of migration and illegal land settlement are most prominent, it is the people who live in households where the head was born in NCD that are the poorest, with a poverty rate of about 52 percent compared to the rate of 40 percent where the household head was born elsewhere.

Figure 32: Households tend to be better off if the household head is literate and better educated, earns wages or salaries, or has migrated to their current residence (share of the population living in households with average consumption below the 'basic needs' level, 2009-2010)



Sources: NSO (PNG HIES) and World Bank staff calculations

The gender and age of the household head appear to have little impact on the likelihood of the household being poor

Neither age nor gender of the household head has a strong relationship with poverty. (Figure 35) Households headed by 31-40 years olds are slightly more likely to be in poverty, but the difference is small, and it may be related to the typically larger household size when the household head is in this age range, with more children to provide for who are too young to start working in the gardens or earning incomes. Nonetheless, both age and gender may be important characteristics when considering disadvantage in other dimensions, for example the allocation of food and other goods within the household, but this cannot be readily assessed from surveys at the household level, such as the PNG HIES.

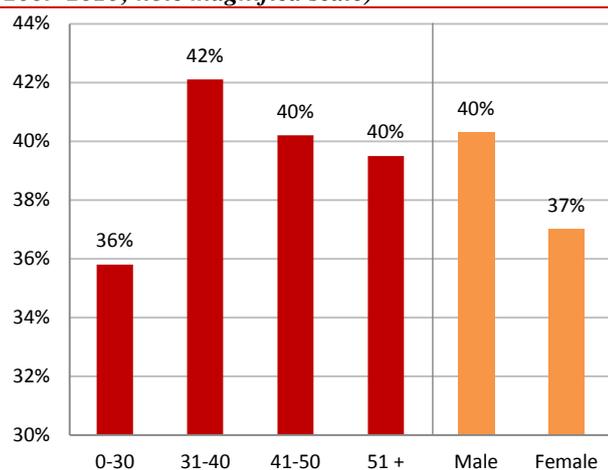
C. Living standards appear to have changed little between 1996 and 2010

Average living standards in 2010 were little changed from 1996....

In 1996, another comprehensive Household Survey was taken of spending, welfare and other socio-economic indicators across PNG. Its design and format was similar to the 2009-2010 PNG HIES, which helps ensure comparability. Comparing the two surveys, average living standards changed little between 1996 and 2010 for most Papua New Guineans. (Figure 36) The share of the population living in households below the 'basic needs' poverty line was not statistically significantly different, either nationally or in any region apart from NCD. In NCD, the rate rose from 31 percent of the population in 1996 to 42 percent.

Other indicators also generally corroborate this finding. For example, child nutrition rates were also little different between 1996 and 2010. But some other indicators suggest living standards improved overall through this period. For example, the Human Development Index rose modestly, from 0.405 in 1995 to 0.458 in 2010 – although it rose by more in most other countries over these years.

Figure 33: There are only small differences in living standards between female- and male-headed households, or by the age of the household head (share of the population living in households with average consumption below the ‘basic needs’ level, 2009-2010; note magnified scale)



Sources: NSO (PNG HIES) and World Bank staff calculations

...although over this period there was probably a significant deterioration and then an improvement for many Papua New Guineans

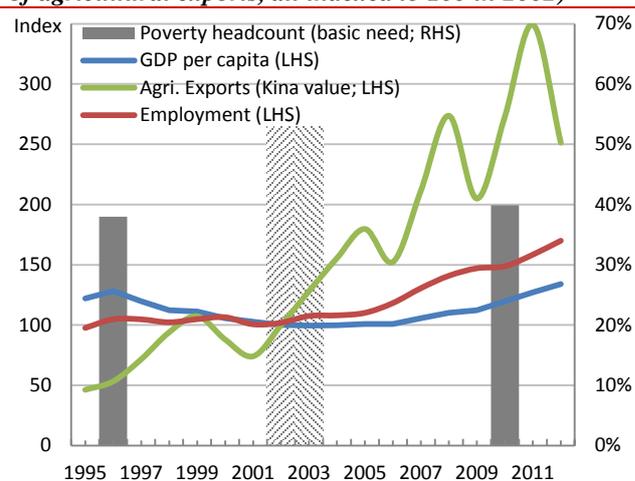
Comparing the 2010 and 1996 snapshots of living standards is likely to mask significant variation over this fifteen-year period. Economic conditions deteriorated significantly in PNG between the early 1990s and the early 2000s, before PNG entered a decade of very strong growth in output and employment. These trends are likely to have brought worsening living standards and rising poverty rates until a nadir around 2002, which were reversed over the subsequent years. Using macroeconomic indicators of GDP growth and inflation, World Bank staff simulations suggested that the poverty rate rose from around 40 percent to just above 50 percent in the early 2000s, before returning to 40 percent in the 2010 survey. Consistent with this pattern, formal sector employment declined by 2.8 percent between 1996 and 2002 before rising by 46 percent between 2002 and 2010 (and a further 14 percent between 2010 and 2012). Nominal cash crop export receipts (in Kina) rose by 88 percent between 1996 and 2002 but jumped by 173 percent between 2002 and 2010. (Figure 36)

D. The welfare assessment sets the stage for government to better tailor policies for broader improvements in living standards across PNG

The government is yet to formally endorse an assessment of living standards in PNG. While the NSO with the Department of National Planning and Monitoring (DNPM) implemented and published the PNG HIES, and have extensively discussed the living standards assessment, the government has not formally endorsed any approach to assessing living standards in PNG. This endorsement is key for developing a national consensus around PNG’s living standards and to assessing whether policy decisions lead to sustained improvements in the quality of life and opportunities for all Papua New Guineans.

Figure 34: Poverty rates changed little between the 1996 and 2010 household surveys, although living standards are likely to have deteriorated until the early 2000s, and then improved

(share of the population living in households consuming less than the ‘basic needs’ consumption bundle, and real GDP per capita, formal sector employment, and the value of agricultural exports, all indexed to 100 in 2002)



Sources: PNG HIES, BPNG, IMF & World Bank staff calculations

The government is yet to take a formal position on the living standards assessment, but this will be vital for ensuring policy decisions help lift living standards for all Papua New Guineans

While ongoing, deeper analyses of HIES is providing a more granular and definitive assessment of key contributing factors to better living standards, the poverty profile suggests that it is the combination of lack of capabilities and opportunities that perpetuates poverty in PNG. With low skilled capacities (made more complicated by difficult geography) very few are able to take advantage of the opportunities provided by the growing sectors and regions of PNG. For the majority of the population who live outside of a few of the urban areas and some of the areas of natural resource extraction, little seems to have changed over recent decades, as opportunities have not expanded. Low productivity, semi-subsistence agriculture and limited cash crop production continue to prevail.

Government will have to play a pivotal role in leading the change. Building human capabilities is a medium to long term task, and will mean vastly improving the effectiveness of the health and education sectors. Research by the National Research Institute and Australian National University, and by the World Bank, suggests there has been notable improvement in recent years for access to education but that access to healthcare has deteriorated. Creating opportunities requires not just building hard infrastructure but also improving the regulatory and implementation capacity of the government, including controlling high rates of crime and violence that impose exorbitantly high costs of doing business for small and medium-sized enterprises, which have the strongest anti-poverty linkages.

Finally, to energize and focus the campaign to raise living standards in PNG, consideration could now be given to place a dedicated and high-powered unit within a core central policy area of government, such as the PM's office, DNPM or Treasury. The unit would oversee formulation and implementation of sound poverty reduction policies, and could assess policy proposals for how effectively they contribute to broad-based improvements in living standards. The unit could also help ensure that policies are adequately evidence-based and take full consideration of key factors that have a bearing on poverty and welfare.

This Papua New Guinea Economic Briefing was prepared at the World Bank Group office in Papua New Guinea, drawing on material produced by staff across the World Bank and International Finance Corporation (IFC). It reports on and synthesizes recent quarters' key developments in the national economy, assesses the outlook, and draws some implications for future policy. It is intended to prompt further discussion of economic issues in Papua New Guinea among a wide audience, including policy makers, business leaders, and the community of analysts, professionals and citizens engaged in Papua New Guinea's development. This complements the World Bank's East Asia & Pacific Economic Update (www.worldbank.org/eapupdate) and various global economic analysis publications (www.worldbank.org/prospects).

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