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The World Bank Group in Papua New Guinea

Papua New Guinea Economic Briefing

The challenge of transforming today's boom into better living standards for tomorrow

WBG-PNG 2012–I

1. Overview

PNG's strong economic expansion continued into early 2012, but the forces propelling this growth are likely to have peaked. The moderation in growth and expanded supply capacity will slow recent rapid price growth. And the passing of the boom in government revenues will challenge authorities in the coming years. Meeting the community's expectations of improving services will require spending better as much as spending more. Important policy steps are being taken in this direction, but the pressures to meet short-term demands, and PNG's social needs, are great.

2. PNG's economy is reaching the peak of the current investment surge

PNG's economy continued to grow strongly in the second half of 2011 and early 2012, although the underlying drivers have peaked

PNG's economy continued to expand strongly through the second half of 2011 and into early 2012. Over 2011, the economy is likely to have expanded by 9 to 10 percent, driven by the direct and spin-off investments in future resource production, high commodity prices and supportive agricultural conditions, as well as government spending. (Figure 1) (Box 1 describes recent spending trends and the 2012 budget.) The strength of these drivers is likely to have peaked around the turn of 2012, especially as the appreciated Kina and weakening global commodity prices start to drag rural incomes and government revenues. Growth in prices across the economy, while still high, moderated.

The PNG-LNG investment, now at its peak phase, remains the main driver of the economy, directly and as a spur for other investments

Ongoing construction of the PNG-LNG project continued to be the major factor driving PNG's economic expansion. (Figure 1) The USD 15.7 billion investment (revised up from USD 15 billion, due to the strong AUD in which some components are priced according to project partners) is at its peak of activity. Importantly for domestic capacity constraints and labor market conditions, it is shifting from a civil works focus in the earlier stages (eg, building runways and access roads or preliminary development of refinery sites) to higher-skilled engineering works (eg, skilled welding). These tasks will draw more extensively on temporary expatriate workers and less on national employees than was the case in 2011, despite efforts by the project to build technical skills of national workers.

The project managers report construction of some key components to be ahead of schedule, while others are near schedule or have been affected by disruptions associated with both the natural environment and interventions by customary landholders. The first gas delivery is still expected in late 2014. Meanwhile a suite of ancillary investments in building new capacity to supply this and other projects – ranging from technical training of workers, to trucking and logistics firms, through to hotels and catering – are reaching final stages of development or are entering operation, expanding the economy's capacity and stabilizing or even lowering prices of such inputs.

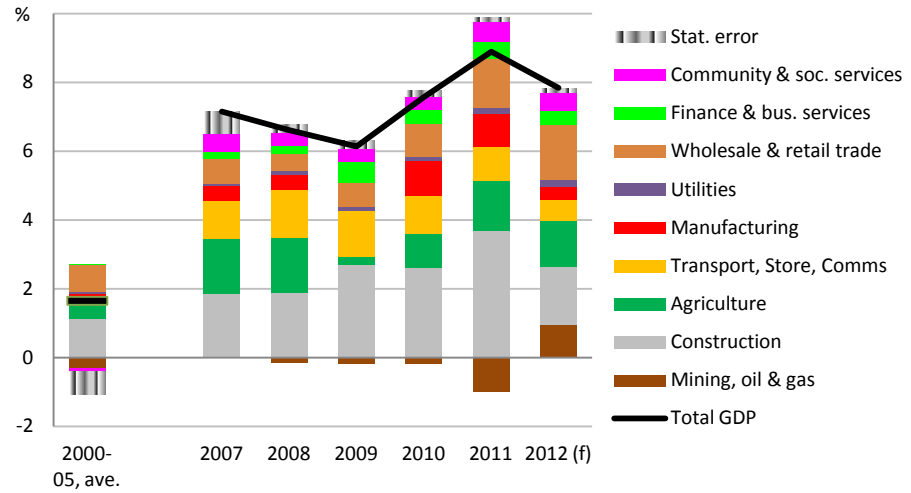
This Papua New Guinea Economic Briefing was prepared at the World Bank Group office in Papua New Guinea, drawing on material produced across the World Bank and International Finance Corporation (IFC). It reports on and synthesizes recent quarters' key developments in the national economy, assesses the 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.

Tim Bulman (Country Economist) prepared this Update, under the direction of Vivek Suri (Lead Economist, Pacific Department). It benefited from comments and suggestions from colleagues in government and the development community, and particularly from members of the PNG World Bank Group country office team, and was reviewed by the World Bank Papua New Guinea Country Manager, Laura Bailey. Media queries should be directed to Raymond Palangat (rpalangat@worldbank.org).

… these investments are in future resources production, while the output from existing mines declines

Meanwhile, minerals and oil & gas production continued to subtract from growth (Figure 1). Oil production continued to wane, some major mines were shut for temporary reasons, and openings of new mines continued to be delayed. The most significant delay, of the opening of the Ramu Nickel/Cobalt mine, appears to have been resolved as court cases around landowner and environmental impact issues are cleared. Preparation of various other potential, large minerals and non-mineral investments continued, although none reached investment decision.

Figure 1: Construction and agricultural output made the largest contributions to recent growth, with resource production subtracting in recent years
(percentage point contributions to annual growth in GDP)



Sources: Treasury estimates of GDP and forecasts for 2012; and World Bank staff calculations

The current boom continues to lead to higher prices for consumers, although the pace of inflation slowed in the later part of 2011

Inflation, while remaining high, peaked in the first half of 2011. (Figure 2) The official urban CPI inflation rate moderated from its recent peak near 10 percent over the year to Q2 2011 to 6.9 percent in the year to Q4 2011 and 4.0 percent in the year to Q1 2012.[1] Volatile prices (largely betelnut) and the stabilization in fuel prices explained much of the slowing in late 2011, with underlying inflation remaining stronger, at around 7¾ percent in the year to Q4 2011. The introduction of the tuition fee-free education policy subtracted approximately 2½ percentage points from inflation in Q1 2012. Domestic prices continued to outpace imported prices through 2011, a recent reversal of the historical pattern in PNG.

Various anecdotal reports suggest that other prices are slowing or declining. While workers' expectations of future wage rises appear to be ratcheting up to the inflation rate, employers are less commonly describing growth in employment costs or bidding wars to retain skilled labor. Prices for all types of higher-end and commercial real estate in the main urban centers appear to be stabilizing or even falling as new supply responds to the earlier surge in demand and prices, lifting vacancy rates. Additional new supply of residential and commercial land, and investment in businesses' capacity and workforce, will help further unwind earlier price rises.

Interestingly, prices appear to have been rising at similar rates across PNG, at least as reported by the five urban CPI price series reported by the NSO. Between the fourth quarter of 2009 and the first quarter of 2012, prices in Goroka (representing the Highlands) increased by 13.7 percent, slightly less than in the main cities (Port Moresby and Lae) and several percentage points less than in the coastal towns (Madang and Rabaul). Given that the current

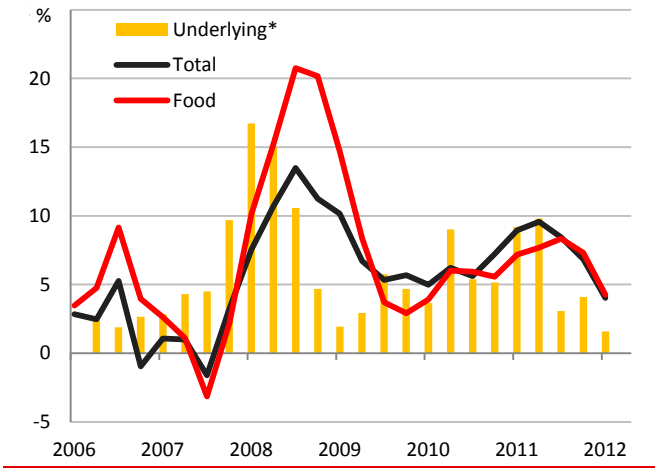
[1] PNG's official consumer price index (CPI) suffers significant compositional and measurement errors that bias it downwards. It is expected to be updated for the first time in 33 years when a new consumer price index based on urban consumers' spending patterns recorded by the 2009/10 Household Income and Expenditure Survey (HIES) is fielded mid-2012.

boom is driven by investments in the Highlands directed from the urban centers, and is characterized by local shortages of essential inputs, a larger dispersion of inflation rates may have been expected between these areas.

Authorities are primarily managing inflation by allowing the exchange rate to appreciate… which it has, to historical highs

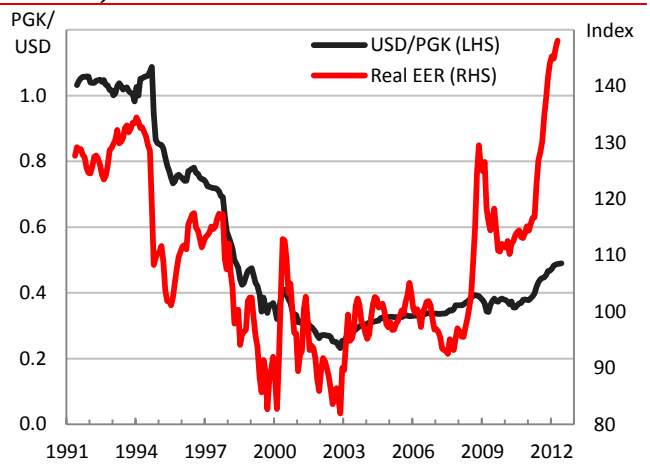
Since mid-2011, the central bank has largely relied on the appreciating exchange rate to manage inflation. The Kina appreciated to near 2 Kina per USD by March 2012, 9 percent stronger than in September 2011 and 25 percent stronger than a year earlier; it stabilized near that rate through to mid-June. (Figure 3) The Kina's appreciation does not just reflect the weakness of the USD, with the appreciation similar when expressed against the exchange rates of PNG's other major trading partners. In nominal terms, this is its strongest Kina exchange rate against the USD since commodity prices collapsed in the late 1990s following the Asian financial crisis. Taking into account the differences in inflation and the movements across different exchange rates (the 'real effective exchange rate'), in March 2012 the Kina was 10 percent stronger than its all-time peak reached in 1994, just before it was de-pegged, and continued to strengthen through to May. (Figure 3) While real effective exchange rate movements do not necessarily reflect changes in relative production costs or competitiveness of exports for an economy like PNG's, they do provide some insight into the long-term movements in relative purchasing power.

Figure 2: Inflation remained high through 2011, even if the pace moderated a little later in the year
(urban consumer price index, year-on-year percentage change)



* 'Underlying inflation' is quarter-on-quarter annualized trimmed mean. *Sources:* NSO, BPNG and World Bank staff calculations

Figure 3: The appreciating exchange rate is likely to have slowed price growth
(PGK per USD and Real Effective Exchange Rate, 2000=100)



Sources: BPNG and World Bank

Pass-through of the stronger Kina into the prices of imported retail items and of domestically produced items that compete with imports, appears to have been partial, perhaps reflecting the build-up of price pressures earlier in the current boom. Based on the historical link between the exchange rate and inflation, this appreciation would have subtracted as much as 8 percentage points from underlying inflation by the fourth quarter 2011.[2] That reported underlying inflation is near 7½ percent, just a couple of percentage points below its level at the start of the appreciation, may speak to both the extent that the measurement errors in the official CPI understated the extent of inflation earlier in the cycle (with those errors likely to bias the inflation rate towards zero) and the scale of upstream price pressures in late 2010 and early 2011 that were yet to be passed into retail prices.

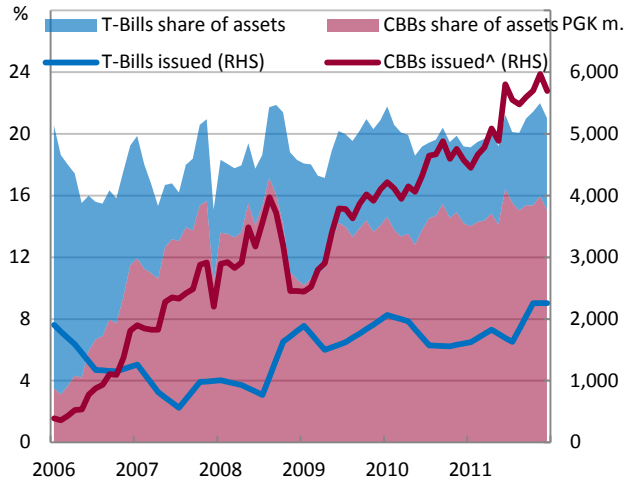
[2] T Sampson, J Yabom, W Nindim and J Marambini (2006), 'Exchange rate pass-through in Papua New Guinea', *Pacific Economic Bulletin* 21:1.

Through 2011 BPNG worked to both reduce the volatility of the exchange rate and slow its appreciation by accumulating foreign exchange reserves. These reached USD 4.3 billion in December 2011, compared with just over USD 3 billion early in the year. Much of the capital inflows underlying this accumulation in reserves are associated with funds entering the country to pay for components of the PNG-LNG project, as well as strong export receipts associated with high commodity prices. The pressures to appreciate appear to have declined in the second quarter, with foreign exchange reserves declining a little from their December peak while the exchange rate was stable against the appreciating USD.

…as other tools of monetary policy are stymied by high liquidity in the banking system and limited interest in borrowing

Meanwhile BPNG held its main policy interest rate, the Kina Facility Rate (KFR), at 7.75 percent through the second half of 2011 and the first months of 2012, after raising it by 75 basis points earlier in this year. Instead it took steps to reduce the amount of free liquidity held by banks, and the cost structure of banks' funds, by raising the minimum amount of funds they must hold at the central bank. BPNG increased Banks' minimum reserve requirements from 4 to 6 percent in mid 2011, and then by another 100 basis points to 7 percent in late March 2012; these requirements last peaked at 10 percent in the early 2000s.

Figure 4: Banks appear to have sated their appetite for short-term government bills
(deposit-taking institutions' holdings of Treasury and Central Bank Bills, share of total assets and PGK millions)



^Central Bank Bills. *Sources:* BPNG and World Bank staff calculations

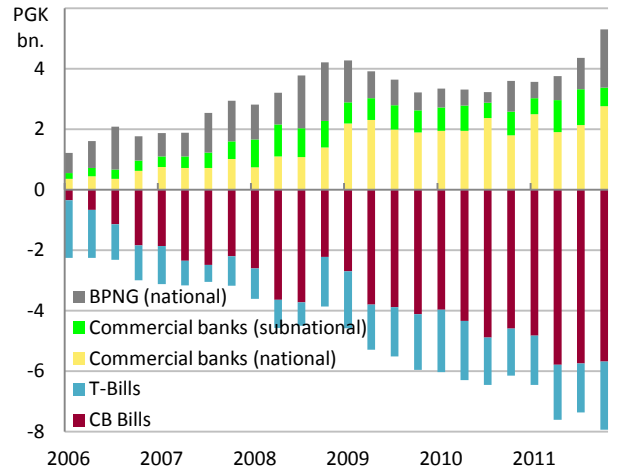
At times, BPNG has worked to absorb the growth in liquidity generated by the rise in foreign exchange reserves by issuing more central bank bills. (Figure 4) Indeed, growth in reserves has been the main driver of growth in the money supply in 2011. (Figure 6) The central bank has repeatedly, publically but unsuccessfully asked fiscal authorities to support these efforts by shifting the government's sizeable cash holdings from commercial banks to the central bank. Instead, the government's deposits in commercial banks have been growing while those at the central bank have been flat overall. (Figure 5) At the same time as it has been building its deposits, the government and central bank have been issuing more short-term Bills (with terms of approximately 1, 2, 3, 6 and 12 months). (Figures 4 and 5) The immediate risk of this liquidity becoming inflationary appears limited, however, with commercial lending growing by less than nominal GDP and banks reporting difficulties finding customers who meet their lending criteria. (Figures 6 and 7)

Overall, interest rates are low

Despite these efforts, market rates generally remained low. Banks reported that the higher reserve requirement raised their costs, but this appears to have only temporarily raised rates for loans, deposits or short-term paper. Rates on central bank and Treasury paper rose by 1 to 1¾ percentage points in the first six months of 2011 with the increase in the KFR, reserve requirements and increased central bank bill issuance. They then slid by December to around 3¼ to 3¾ percent for 28 to 182 day central bank and Treasury bills. Term deposits rates are around 2 percent. Anecdotal reports suggest that large, secure borrowers have been able to access loans at interest rates near 10 percent. These rates compare with average consumer price inflation approaching 10 percent and likely to remain above 5 percent into the medium-term, and with risks of higher default rates as demand growth moderates.

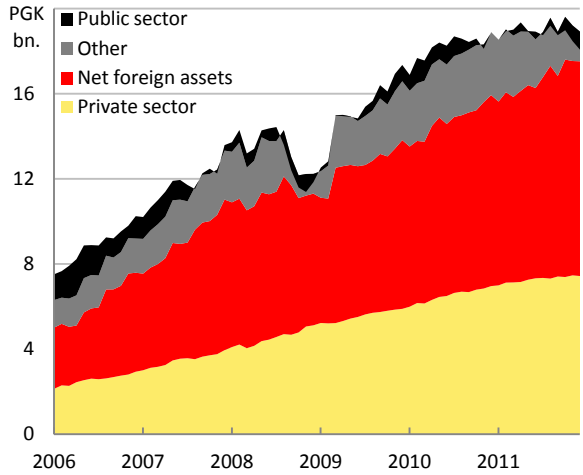
Commercial banks, flush with deposits, report competition for quality borrowers is keeping lending rates low. They suggest that the current surge in investment is funded instead by retained profits among the incumbent businesses in each sector and foreign direct investment among new entrants. They appear to have saturated their appetite for government paper (T-Bills) and central bank bills (CBBs), with their holdings reaching new highs in both absolute values and as a share of total assets. (Figure 4)

Figure 5: While the government's bank deposits have stabilized with higher budget disbursement rates, it has shifted these holdings from BPNG to commercial banks ***(billions of PGK)***



*The spike in Q4 2011 includes the PGK 300 million allocated for the tuition fee-free education policy, which was disbursed in Q1 2012. *Sources:* BPNG and World Bank staff calculations

Figure 6: Growth in the stock of money is being driven by increasing reserves and not by banks growing lending… ***(outstanding credit to each sector; billions of PGK)***

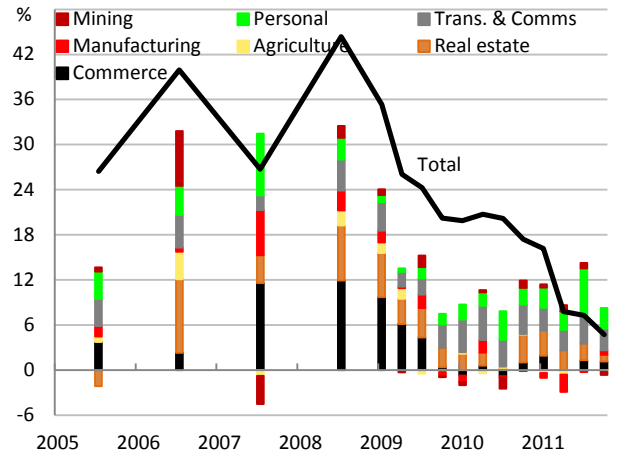


Sources: BPNG and World Bank staff calculations

Government debt levels continued to drift down, and appear sustainable under most scenarios, even after accounting for significant liabilities currently off the government's balance sheet…

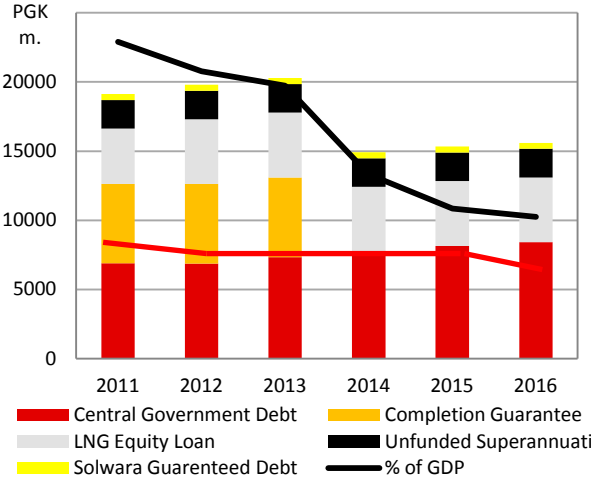
Official public debt, near 25 percent of GDP, is assessed to be sustainable, and the underlying dynamics are favorable. (Figure 8) This debt includes only those liabilities currently on the government's balance sheet. It does not include the AUD 1.7 billion debt used to fund the government's equity share in the PNG-LNG project (which falls due in 2014), or its superannuation liabilities. Together, these liabilities would raise levels by approximately 20 percent of GDP. In addition, the government faces various contingent liabilities, most notable is the LNG project completion guarantee (around US$2.5 billion or PGK 5.4 billion) and the government's guarantee of Petromin's US$200 million borrowing for equity participation in the Solwara Deep Sea Mining Project (the first commercial mine of its type in the world).

Figure 7: … the slowdown in lending to 'commerce' and to real estate are particularly notable ***(year-on-year growth in total lending; percentage point contributions from borrowers from selected sectors)***



* Total lending growth differs from the components due to other sectors not presented here, such as 'other' businesses and lending to government. *Sources:* BPNG and World Bank

Figure 8: Including off-balance-sheet and contingent liabilities raises the government's debt levels significantly, but with the underlying dynamic positive, small deficits financed by low-cost funds will be sustainable mid-decade ***(millions of PGK and percent of GDP)***



Source: Treasury

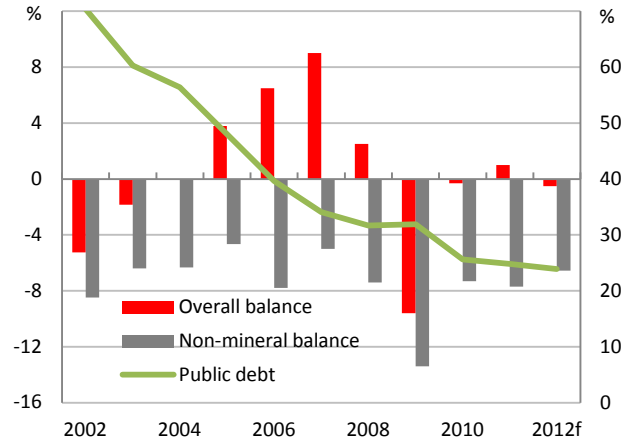
…these off-balance sheet liabilities are almost as large as those on its books

In a shift from previous arrangements, the government is funding its PGK 900 million equity contribution for the increased construction cost of the LNG project by selling government bonds in the domestic market, largely as short-term Treasury Bills. The AUD 1.7 billion debt financing the initial cost of the government's 18.2 percent equity share in the project is held by the IPBC (Independent Public Business Corporation), off the government's books. Even counting the full LNG liability, assuming the PNG-LNG does not suffer serious set-backs delaying its first deliveries to after 2014, the government's debt levels are likely to be robust enough to support budget deficits of 2 to 3 percent of GDP mid-decade, during the years after revenues from current resource projects have declined and before the LNG project starts to generate significant fiscal revenues towards 2020. Under this baseline scenario, after this several years of modest deficits, the fiscal position would be expected to return to balance as resource revenues recover. The sustainable, short-term deficit mid-decade would be smaller should expected long-term revenues be lower due, for example, to a deterioration in the global economy lowering long-term projections of commodity prices and making additional resource projects less likely.

Box 1: The 2012 budget and recent budget performance

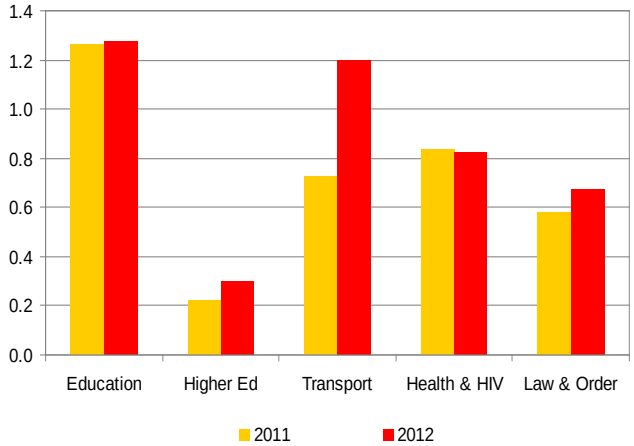
In December 2011, the O'Neill-Namah government presented to Parliament and passed the 2012 Budget. The budget projects total spending of PGK 10.5 billion, 12 percent more than 2011's final budget outcome (and 20 percent more than the 2011 outcome projected when the 2012 budget was being prepared). At budget time authorities expect this spending to be largely funded by higher revenues and withdrawals from funds set aside in trust accounts in the 2011 supplementary budget and in earlier years. Overall, this implies a small deficit, of around 1½ percent of GDP. (Figure 9) (This is different from the government's presentation, which treats funds paid into trust accounts as expenditure in the year they are deposited into the trust account rather than the year they are withdrawn and actually spent.) Under the Medium-Term Fiscal Strategy (MTFS) 2008-12, the 2012 budget should be in a modest surplus, based on budget-time commodity revenue projections and given the rule limiting the 'ongoing' non-mineral deficit to 4 percent of GDP, and the government's expectations of robust mineral revenues under its strong projections for commodity prices in 2012.[3] However revenue receipts through the first months of 2012 were weaker than expected largely due to weaker commodity export earnings, although it

Figure 9: The government is budgeting for a modest deficit in 2012
(budget balance and public debt, percent of GDP)



Sources: Treasury, IMF, NSO, and World Bank staff estimates

Figure 10: Many of the government's medium-term development priorities received higher funding; the overall allocation to education was flat
(billions of PGK)



Sources: Treasury and World Bank staff calculations and estimates

Centerpieces of the 2012 budget were the expanded tuition-fee free education subsidy and increase in the threshold for paying income tax. Parents are no longer charged tuition fees for children in Years 1 through 10, and those in Years 11, 12 and in vocational education receive a 75 percent tuition fee subsidy; parents still incur various other non-tuition related fees (eg, the cost of buying

[3] The MTFS defines the 'ongoing' deficit as the difference between 'normal' revenues and current outlays, plus already-committed capital spending (ie, it does not include new capital projects). 'Normal' revenues are non-mineral revenues plus an estimate of trend mineral revenues. The estimate of the trend mineral revenues is based on the average of recent years plus projections of mineral revenues through the period of the MTFS (ie, to 2012).

uniforms or boarding fees). Anecdotal reports suggest that this policy was largely successfully implemented at the start of the 2012 school year, despite the significant administrative and logistical challenges of ensuring all the schools disbursed across the country could access the funds. The program is expected to support improved equity of access to education – the earlier waiver of tuition fees for the first years of primary school led to a significant increase in the enrollment of girls, and reports suggest that enrollment increased sharply at the start of 2012, including through many older students returning to school. The impact on the behavior of smallholder farmers, who have traditionally harvested cash crops to collect the funds to cover school fees, is known. Other priority areas from the government's medium-term develop plan received additional funds, including regional roads and some other capital works projects, and law and order. (Figure 10)

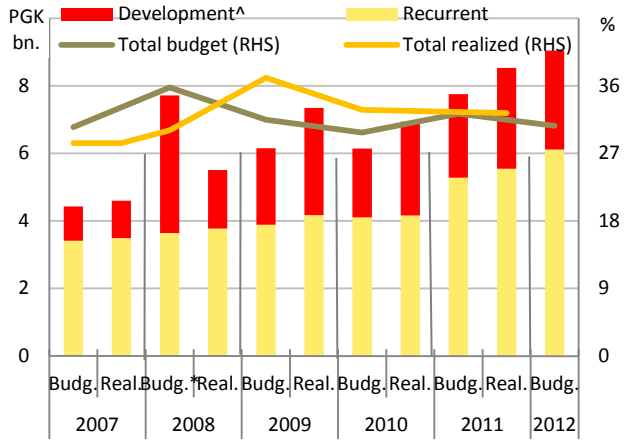
The budget also contained several measures to support real household incomes. The threshold for paying income tax was raised from PGK 7000 to PGK 10,000, above the minimum wage, raising take home salaries by hundreds of kina for most tax-paying households. The tariff reduction program was extended to intermediate goods such as meat, flour, shoes and steel, with the aim of reducing inflationary pressures. Tariffs on affected items were cut by 5 percent on average at the start of 2012.

In most countries, rapid increases in government spending tend to be stymied by the limits to a government's capacity to plan and implement new or expanded programs. This is especially the case for capital expenditure, where each project can be quite different from other projects, adding to planning, contracting and implementation hurdles. PNG's development budget also appears to be affected by this problem. (Figure 11) Realized spending in most recent years fell short of budget-time ambitions – despite the trust account facility, which ensures funds are set aside for specific multi-year spending programs and project managers do not need to navigate the uncertainty of having to seek re-appropriation of a project's funding in each year's budget. Two policy steps may improve this situation: the 2012 budget proposes to develop the mechanisms for multi-year capital budgets; and the Development Funds component of the Sovereign Wealth Fund organic law will provide a focused facility to manage extended-term spending projects.

Uncertain revenues can further harm budget realization rates, which is particularly a problem in countries like PNG that are highly reliant on volatile receipts from commodity production. (Figure 12) Budget realizations rates and the effectiveness of spending can also be affected if the resources available are uncertain and there is the risk of, for example, mid-year spending reservations or of new projects being added late to departments' workloads. PNG's budget in recent years has suffered a more positive version of this problem – uncertainty, but with positive 'surprises' each year with realized government revenues higher than projections, meaning additional resources are available for late-year appropriations through Supplementary Budgets. This under-projection in revenues reflects highly conservative commodity price forecasts adopted in each year's budget, relative not just to actual commodity price outturns but also the consensus among international commodity price forecasters. (Figure 13)

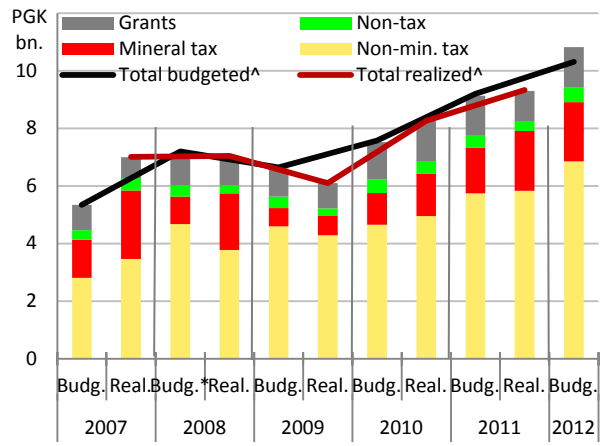
Using positive revenue 'surprises' in good years to pay-down debt and build fiscal buffers through reserves can ensure smoother and so more effective spending, including when conditions deteriorate. PNG has followed this path in some recent years. In 2011 windfall revenue was partly used to pre-fund the tuition fee-free education commitment. In 2010 it has been used to pay down high-cost debt and fund some of the government's sizable superannuation liabilities. In contrast, little of the large increase in 'additional priority expenditure' in 2008 was disbursed. (Figure 11)

Figure 11: Budget realization rates have risen in recent years
(billions of PGK; budget and realization as a percent of GDP)



^ 'Development expenditure' excludes grant-funded projects and spending financed by draw-downs of trust accounts. It is assumed to approximate capital spending. * 2008 'Budget' numbers are based on authorities' revised projections after the budget was prepared.
Sources: Treasury, IMF and World Bank staff calculations and estimates

Figure 12: Budgets have consistently under-projected government revenues
(annual central government revenues, billions of PGK)



^ Total includes other revenue sources. * 2008 'Budget' numbers are based on authorities' revised projections after the budget was prepared.
Sources: Treasury, IMF and World Bank staff calculations and estimates

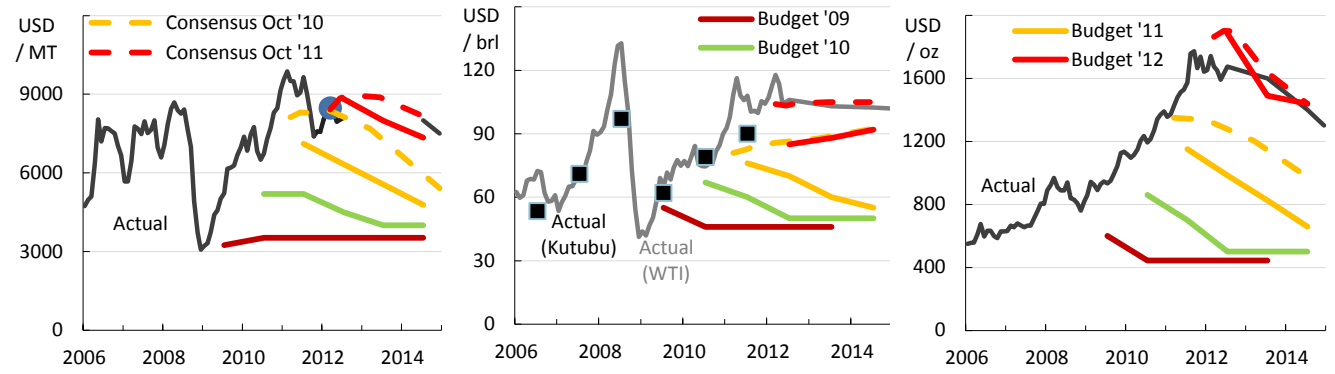
One factor behind the under-projection of revenues in recent years has been the strength of the prices of PNG's commodity exports – a key source of government revenues. These sequentially reached new historical highs, with the boom in commodity prices in recent years unprecedented in terms of both its length and scale. Assessing the harm to fiscal stability to be greater from short-falls than

windfalls, budget forecasts have prudently been more conservative than the consensus among financial market forecasters. During the boom of recent years, these, in turn, have been lower than the actual prices outturns (Figure 13). This reflects the general tendency for forecasters to assume prices remain near current levels over the projection period – meaning that price forecasts are likely to be too high when prices are falling.

Rather than attempting to generate its own forecast for commodity prices, the 2012 budget assumes that commodity prices follow the path projected by the average financial market forecaster, summarized by the Consensus Forecasts Inc. surveys of forecasters. Various researchers find that these are the least biased forecast, on average, over the longer-term. But there may be some risk of forecasts being 'sticky' as prices recede from current highs, just as they were as prices rose, with forecasters projecting that prices will only rise or fall slightly from where they are at the time of producing that forecast, as illustrated by the horizontal lines in Figure 13. If these forecasts are too optimistic, there will be risks of realized revenues falling short of budget projections, creating pressures for disruptive cuts to spending late in the fiscal year. Indeed, preliminary revenue reports and the retreat in international prices through the first half of 2012 suggest this may be the case for the 2012 budget.

Figure 13: …partly because budget forecasts have been conservative in their projections of commodity price forecasts than market forecasters – and actual outcomes have been higher than both in recent years

(copper, USD per metric tonne) *(crude oil, USD per barrel)* *(gold, USD per ounce)*



Legend references apply to all charts. 'Actual' series includes realized prices to May 2012 and June 2012 World Bank *Global Economic Prospects* forecasts for 2012-15. *Sources:* Budget papers, Consensus Forecasts Inc. and World Bank commodity prices data and forecasts.

Sources: Treasury budget papers and World Bank staff

3. Growth is likely to slow from the current peak, challenging policy makers to provide improved services while fiscal space and real incomes flatline

As current projects wind down, and new supply capacity comes online, the economy is likely to slow

PNG's non-mineral economy is likely to moderate through to 2015, as construction of the LNG plant winds down, and the retreat in cash crop and other commodity prices combines with the stronger PGK to dampen real incomes. These factors are likely to slow growth in the non-mineral economy to below 5 percent by 2014. Supply bottlenecks are likely to remain a significant issue into mid 2013, but less so than in 2010 and 2011, as new capacity becomes available. This should reduce inflationary pressures, although the ratcheting up in inflation expectations and the economy's ongoing structural changes are likely to maintain inflation above 5 percent.

…just as more Papua New Guineans, with new work experience, will be looking for opportunities

Just as importantly, many Papua New Guineans are finding new jobs during the current boom and developing skills and deepening the communities' engagement with the cash economy. But many of these are temporary and will only end as current major construction projects winds down – for example, thousands of workers on the PNG- LNG construction will be released from late 2012 through 2014. Most come from areas around the LNG plant, where there are few alternative formal sector employers. In 2014 and 2015, the start of gas production is expected to raise the measured level of GDP by as much as one-quarter, but this will only be associated with about 800 direct, ongoing jobs. PNG's fast-growing population adds to these pressures, with a rapid growth in the numbers reaching employable age. (Box 2)

The private sector is generating new opportunities, through innovative business structures and technological changes that fit PNG's conditions well

There is a sizable pipeline of potential new minerals and other large infrastructure projects currently being prepared and considered for investment. Together, these projects could generate tens of thousands of jobs, many for the long-term, with each worker supporting as many as a dozen others through extended family networks. With an appropriate fiscal framework, in particular avoiding tax holidays, these projects can generate sizable additional fiscal space for the government to investment in improved social services and infrastructure. However, these projects are only part of the solution for generating broad employment opportunities. Two other developments complement these.

First, a select group of commercially-focused landowner companies are generating new opportunities. These companies, born from national content requirements and the benefit sharing arrangements negotiated for resource projects, are developing commercial capabilities in key sectors (eg, logistics or catering). Combining political skills and long-term business nous and vision, they are able to compete with major international firms to supply major customers including outside the resource sector. In the process, these Papua New Guinean owned and managed companies are building deeper management capacity and linking together different communities across the dispersed nation.

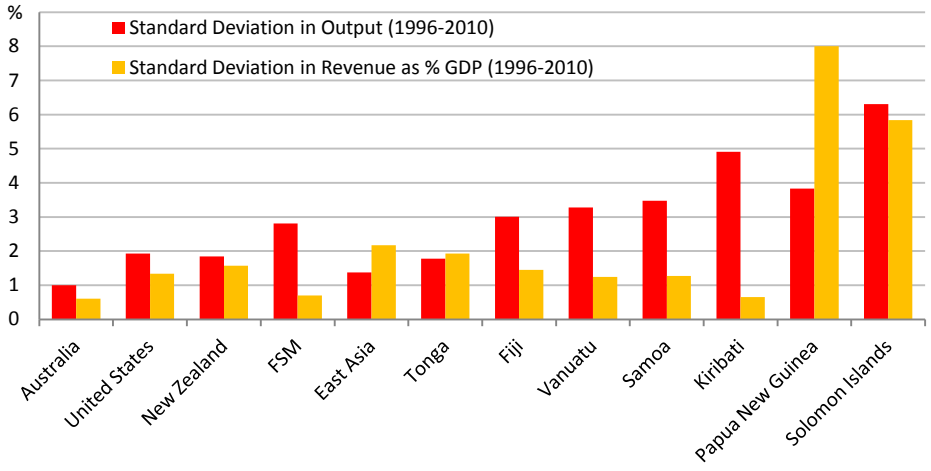
Second, technological innovations are opening access to new business opportunities. As many as 2½ million Papua New Guineans had mobile phone handsets by early 2012, compared with only thousands 4 years previously. This employs large numbers directly (eg, Digicel has a network of around 30,000 distributors of pre-paid credit vouchers either new to informal retail business or enjoying increased turnover). The benefits of mobile phone technology are particularly great for a country constrained by PNG's geography and often remote population, for example on access to finance. BPNG issued Digicel with the country's first mobile banking licence in February 2012. Meanwhile major retail banks are trialing new banking platforms designed to enable access to financial services, particularly savings accounts. These services include mobile agents using low-cost tablet computers connected with mobile phone networks to open bank accounts for individual. Individuals and small businesses are then able to transfer funds by mobile phones and deposit and withdraw funds from local agents, located in trade stores for example. This reduces the costs of dealing in cash – for example, of theft or in handling cash, which can be scarce in remote areas. BSP is targeting 200,000 holders of such bank accounts by 2014. These innovations have the potential to dramatically deepen many Papua New Guineans' engagement with the cash economy. They can allow small farmers to shift from relying on opportunistic production of cash crops when cash is needed to more strategic production, so raising incomes and allowing savings to be built to buffer against shocks or to support investments in productive capacity.

Establishing the sovereign wealth fund is an important step to locking-in recent gains in the macroeconomic environment and ensuring it supports investment and service delivery

The government took an important step towards improving the effectiveness with which natural resource revenues can be translated into public goods and services by passing the Organic law (constitutional amendment) establishing a PNG Sovereign Wealth Fund (SWF). The scheme will create a fund into which all tax revenues and government dividends from natural resource revenues will be paid, and will be invested offshore.

Under the scheme, the revenues will then flow back to general revenue at a rate equal to the 15-year average of minerals revenues and dividends relative to non-mineral revenues. PNG's government revenues are unusually volatile, reflecting the importance for the government of volatile receipts from the commodities sectors. (Figure 14) Reducing the variability and uncertainty around the amount of resources the government has available each year should allow for better planning and execution of government spending, in particular ensuring that funds are available each year for basic recurrent expenditures (discussed in Box 1).

Figure 14: The importance of volatile commodity receipts for PNG's government revenues makes them highly volatile, and the Sovereign Wealth Fund is designed to mitigate this ***(standard deviations as percent of GDP)***



Source: **World Bank staff calculations**

Under the SWF framework, the stream of funds flowing from the stabilization fund will be allocated through the annual budget process into a 'development fund' for particular projects and activities – infrastructure development and recapitalization of SOEs are currently envisaged, implemented through newly-created authorities, but the scope may be expanded to include education investments, for example. After being allocated through the budget process and until the projects need to draw on them, these funds would be largely, possibly entirely, held offshore, thereby reducing the current problem of excess liquidity in the banking system associated with the government's deposits in commercial banks. There is some concern that creating new planning and implementation authorities peripheral to the central government may undermine the capacity and effectiveness of existing agencies, given the thinness of existing capacity and risk of multiple agencies leading to weaker accountability and governance.

The Organic Law contains strong governance and transparency requirements. These are intended to limit the politicization of the SWF's administration and management, and to ensure transparency of its transactions. Details around management and structure of the fund will be developed through 2012, with the aim of the Fund starting to operate in 2013.

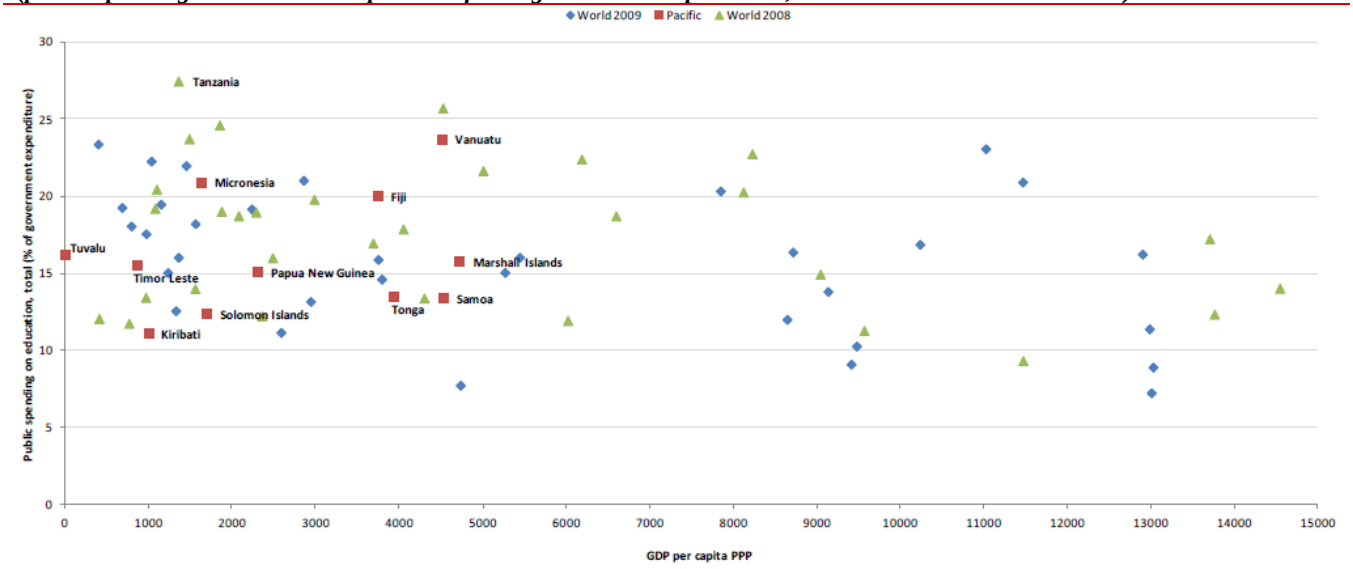
In contrast with the boom of the past half-decade, the PNG-LNG project will barely maintain current revenues…

The LNG project is expected to become a significant source of government revenues late in the decade, after the capital depreciation allowances expire. The government expects the PNG-LNG revenues to make up for declining revenues from the Ok Tedi and other mines and the closure of the Southern Highlands oil wells. On its own, according to Treasury projections, PNG-LNG will barely replace existing revenues, and will not generate space for new spending programs.

…while new projects, currently being prepared but none yet approved, could generate more spending space and another growth surge later this decade

A number of minerals, gas and large infrastructure projects are being prepared, including other LNG production, new mines, and electricity generation. These are advancing through project appraisal processes, but have not reached investment decision. If approved, these investments will become new drivers for PNG's emerging non-resource economy. Sometime after their completion, they will bring additional revenues that will generate the fiscal space for new public investment and service delivery programs. But this is not on the immediate horizon. All are contingent on moderate to positive scenarios for the global economy, particularly that international commodity prices not fall significantly below current levels – a factor well beyond PNG's influence. PNG's authorities can determine whether these investments generate broad-based benefits, by building on the past decade's gains in the stability of government and the quality of economic management.

Figure 15: PNG allocates similar shares of resources to public service delivery as other countries near its income level…
(public spending on education as percent of total government expenditure, 2008/09 or latest available data)



Source: World Bank staff calculations based on publicly available statistics

In the meantime, authorities face the difficult task of improve the effectiveness of spending to manage flattening revenues and growing community demands

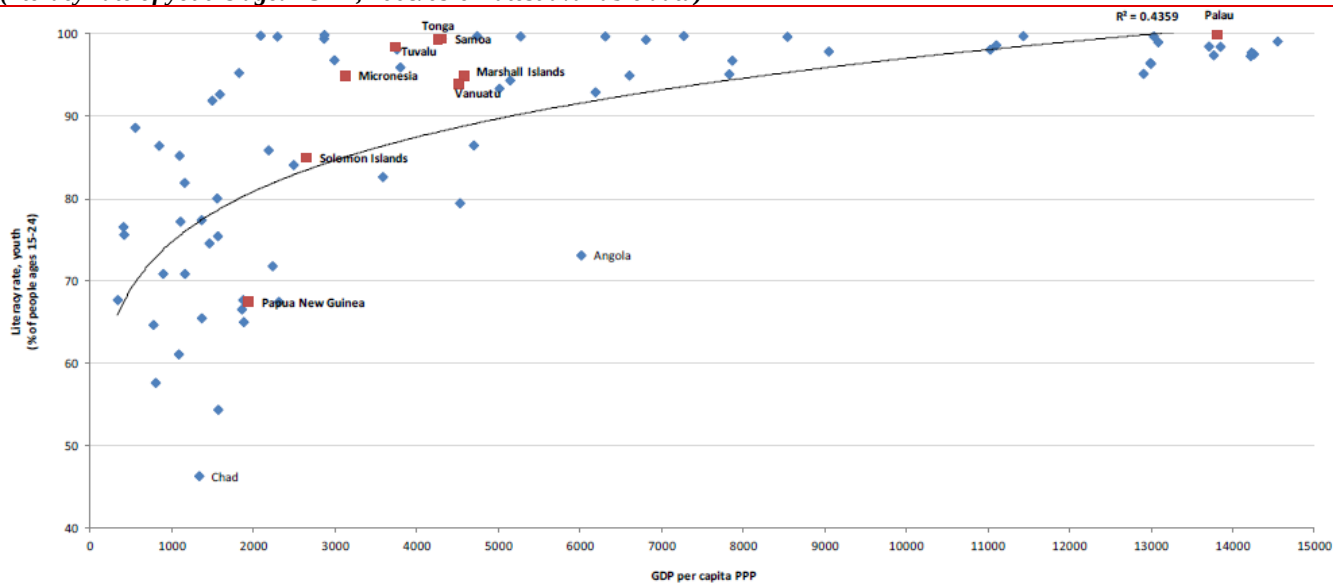
Before the revenues from the PNG-LNG and the potential additional projects start flowing, late this decade, government revenues are expected stagnate, especially relative to rising costs of skilled employees and of materials and the demands of a population growing by around 2¾ percent each year (Box 2 presents preliminary results of the 2011 national population census). At the same time the community will continue to expect the government to provide more and better services, towards benefiting from the boom occurring in parts of the economy.

To manage these opposing pressures, it will be essential for the government to better ensure that spending from the budget is translated into education, health and other services delivered to the end user with fewer leakages en route, or that investments in infrastructure are appropriately maintained. This will require both better planning and implementation – the establishment of the sovereign wealth fund and the government's move towards multi-year budgets for capital projects are steps in this direction. More effective, especially in the short term, will be reducing leakages. Stronger institutions of governance, throughout the public sector, and developing a pervasive culture of accountability can help achieve this. International experience finds these efforts can be most enduring when they incrementally develop from existing formal and informal institutions and practices, through consensual processes which are widely owned and respected by the community. As an example, the efforts of the National Economic and Fiscal Commission already demonstrate the government's capacity to assess and publish service delivery costs and needs, although there is still some distance before this work is translated into more resources flowing to where they are most productive At the same time, the government's current fiscal situation permits it to finance modest real, per capita growth in priority expenditures by borrowing in the years before considerable LNG revenues start flowing, provided that borrowing is low cost, is not short-term and so does not need to be re-financed before revenues improve, and does not come with conditions that restrict the government's ability to build domestic productive capacity and use the funds efficiently.

Translating natural wealth of the scale enjoyed by Papua New Guinea into better living standards for all citizens is a great challenge. Some countries have successfully managed this challenge of the 'resource curse'. Already PNG has created a climate that attracts investment in its resource production, and is developing the institutions to ensure that this wealth supports a stable macro-economy. For long-term development and prosperity, it will be essential to design

Papua New Guinean institutions that ensure political leaders have the incentives to turn the nation's wealth into long-term, broad-based development, rather than maximizing the potential for it to generate short-term private rents. Failing to do this may undermine the gains of the past decade and the potential ongoing boom currently working its way through the project planning and preparation pipeline. Standard & Poor's warned of this risk in February when it shifted its outlook for the country's long-term sovereign debt from stable to negative. There are grounds for optimism. Already Papua New Guineans are developing businesses that marry traditional land and clan relationships with competitive, modern business practices. The challenge will be for the leadership that emerges from the mid-2012 elections to replicate these efforts in the public realm.

Figure 16: …but these seem to be less effectively transformed into quality outcomes, even if their reach is high
(literacy rate of youths aged 15-24, 2008/09 or latest available data)



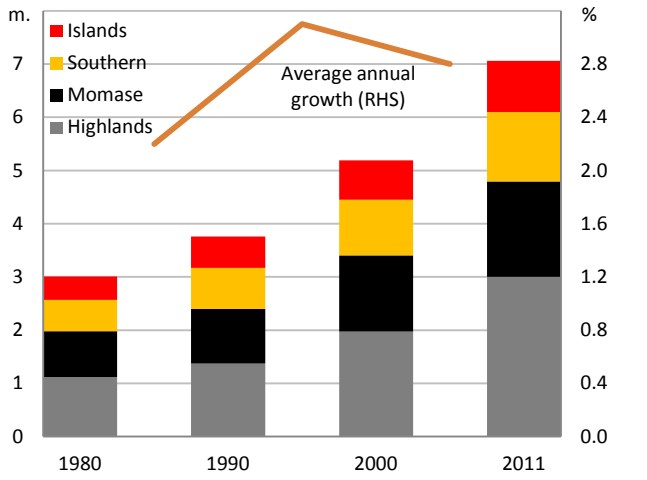
Source: World Bank staff calculations based on publicly available statistics

Box 2: PNG's seven-million population, and other early highlights from the 2011 national population census

In mid July 2011, the Papua New Guinea National Statistics Office (NSO) conducted the fourth national population census. Preliminary results, released in April 2012, give a national population of 7.059,853 on census day, living in 1,424,835 households. This is nearly 1.9 million or 36 percent more people than at the time of the last census, in 2000, giving an average annual population growth rate of 2.8 percent, slightly slower than the previous decade. (Figure) At this rate, the population is likely to be near 7.25 million by mid 2012. Men reportedly outnumber women by 7.9 percent. Nearly half of the population (3 million) lives in the Highlands, where the population is growing fastest (3.8 percent per annum). Most dwellings housed just over 5 people. The average population density is 11.2 persons per square kilometer, peaking at 111 people per square kilometer in the Southern Highlands (not including the National Capital District that incorporates Port Moresby).

The Census also collected data on age, marital status, religion, education, fertility, and information on economic activity such as employment status, occupation, work sector, and household activities. Questions on deaths in the household, and on the materials used in household construction were also asked. The NSO is yet to indicate when this information will be published.

Figure 17: PNG's population continues to grow rapidly
(number and average annual percentage change)



Source: NSO