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*Papua New Guinea:
Country Economic Memorandum*

Pathways to faster and more inclusive growth





PAPUA NEW GUINEA
Country Economic Memorandum

Pathways to Faster and More Inclusive Growth

Preface and Acknowledgments

The *PNG Country Economic Memorandum (CEM)* was prepared by a multisectoral World Bank team led by the Macroeconomics, Trade and Investment Global Practice, under the guidance of Stephen N. Ndegwa (Country Director), Lars Christian Moller (Practice Manager), Stefano Mocci (Country Manager - until October 2022), Jane Sprouster (Acting Country Manager - until March 2023), and Khwima Lawrence Nthara. The core team comprises Ruslan Piontkivsky (Task Team Leader), Ruth Nikijuluw (Task Team Leader), Virginia Horscroft, Christopher Miller, Lars Sondergaard, and Giorgia Demarchi, with contributions from Rubayat Chowdhury, Rashad Hasanov, Samuel Wills, John Grinyer, David Craig, Ildrim Valley, Juliana Weingaertner, Blair Lapres, Rochelle Eng, Son Thanh Vo, Allan Oliver, Emily Schmidt, Miok Kasek Komolong, Sharon Inone, Matthew Dornan, Ning Fu, Mits Motohashi, Katsuyuki Fukui, Gerard Fae, Pedro Antmann, Ximing Peng, Wilfred Lus, Robert Van der Gest, Trang Thu Tran, Alina Antoci, William Gain, Katia D'Hulster, Xavier Vincent, Nina Doetinchem, Francis Sinclair Chopin, Dimitria Gavalyugova, Uzma Quresh, Alice Calder, Tessa Walsh, Kari Hurt, Changqing Sun, Darian Naidoo, Sharad Alan Tandon, Undral Batmunkh, Da Woon Chung, and Aneesa Arur. Michelle Lee and Rachel Leka provided administrative support. Susi Victor edited the text. Dissemination is organized by Tom Perry and Ruth Moiam.

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Table of Contents

PREFACE AND ACKNOWLEDGMENTS	II
EXECUTIVE SUMMARY.....	3
CHAPTER I. INTRODUCTION.....	9
1. Why should economic growth become the focus for policy makers?	10
1.1. Modest headline growth masks low per capita growth	10
1.2. Per capita income is not converging	12
1.3. It is time to focus on the growth agenda	13
2. Why and how governance and institutions matter for growth in PNG.....	14
3. Growth is not only about extractives	18
CHAPTER II. SEEKING STABILITY.....	20
4. Excessive macroeconomic volatility and risks to macroeconomic stability	21
4.1. PNG’s economy has been volatile.....	21
4.2. High risk of debt distress	23
5. Explaining high volatility and challenges for macroeconomic stability.....	24
5.1. Economic structure and exposure to commodity markets.....	24
5.2. Macroeconomic policies.....	26
6. Reducing volatility and safeguarding macroeconomic sustainability	33
6.1. Fiscal sustainability	33
6.2. Countercyclicality of macroeconomic policies	35
CHAPTER III. BOOSTING PRODUCTIVITY	38
7. Symptoms of lagging productivity growth.....	39
7.1. Sectoral reallocation is mainly driven by extractive projects	40
7.2. Declining labor force with significant gender gap	44
7.3. Underdeveloped within-firm productivity	45
8. Constraints to Productivity Growth.....	48
8.1. Business environment constraints deter investment and increase trade costs.....	48
8.2. Political economy and security challenges weaken institutional contributions to productivity	53
8.3. Gaps in access to reliable infrastructure undermine competitiveness	56
9. Policy Priorities to Lift Productivity.....	61
9.1. Strengthening PNG’s business environment and facilitating competition and investment in non-traditional sectors	61
9.2. Improving the predictability and efficiency of governance and public goods with a focus on implementation	63
9.3. Expanding access to infrastructure and markets.....	64
CHAPTER IV. EXPANDING ENDOWMENT.....	66
10. Human capital remains underutilized as a source of growth	67
10.1. Limited growth and progress in human capital compared to peers	67

10.2. PNG is lagging in several dimensions in developing its human capital	70
10.3. Gender gap and low level of completion in education impede transition to work.....	74
11. Explaining limited progress in expanding human capital endowments	76
11.1. The human capital crisis is not sufficiently visible - to society and to policy makers	76
11.2. Challenging structural features make it especially challenging and costly to improve human capital outcomes	77
11.3. Limited resource allocation, quality of key inputs, and access to core infrastructure.....	79
11.4. Insufficient skills development and barriers in accessing employment for women.....	83
12. Expanding human capital endowment	85
12.1. Making the human capital crisis more visible and turning plans into actions	85
12.2. Improving access and quality to services that address deficiencies in the early years.....	86
12.3. Improving service delivery management, quality of inputs, and access to core infrastructure.....	87
12.4. Facilitating transition from education to work and promoting inclusive employment.....	89
CHAPTER V. REVISITING RECOMMENDATIONS USING A GOVERNANCE LENS	91
13. Drivers and implications of PNG’s key governance and institutional challenges.....	92
13.1. At PNG’s income level, weak governance and institutions are to be expected but declines in them are concerning	92
13.2. PNG’s governance and institutional challenges and their trends are consistent with the political economy dynamics of competitive clientelist states	94
13.3. Implications of competitive clientelist political economy dynamics for growth-enhancing policies	97
14. Reform priorities	100
14.1. Seeking Stability	100
14.2. Boosting Productivity	102
14.3. Expanding Endowment.....	104
14.4. Cross-Cutting Themes	106
REFERENCES	109
ANNEXES	114
Annex 1: Selection of Comparators	115

LIST OF FIGURES

Figure 1: PNG enjoyed some years of extremely high economic growth ...	11
Figure 2: ... yet due to significant volatility, the average growth has not been as strong as in EAP.....	11
Figure 3: Growth of GDP per capita has not been robust.....	12
Figure 4: Income growth in PNG lags its structural peers ...	13
Figure 5: ... and it is not converging to its peers in the region.....	13
Figure 6: PPF Framework	14
Figure 7: Political parties play a weak role in defining policy positions as a basis for electoral support.....	15
Figure 8: ...and in influencing the political positions taken by party members	15
Figure 9: PNG has a challenging context for developing broad bases for collective action	16
Figure 10: The extent of clientelism in PNG is estimated to be high.....	16
Figure 11: Potential growth impacts of governance characteristics.....	17
Figure 12: Economic volatility in PNG has been significant during 1981–2021	21
Figure 13: ... however the 1990s were the most turbulent years for PNG.	21
Figure 14: Value added in the extractive sector drove GDP volatility in PNG.....	22
Figure 15: Budget expenditure has also been volatile	22
Figure 16: Formal employment in the non-extractive sector has been on a steady decline since 2014.....	23
Figure 17: While the extractive sector employment displayed higher volatility.....	23
Figure 18: Government debt in PNG has been increasing sharply over the last decade.....	24
Figure 19: Government debt in PNG and peer countries	24
Figure 20: Extractive sector gained dominance in the overall GDP in the last decade.....	25
Figure 21: ... and was highly volatile relative to the other sectors.	25
Figure 22: Energy exports led by natural gas boost up overall exports in recent years.....	25
Figure 23: ... and made economic performance highly dependent on the extractive exports.....	25
Figure 24: Commodity prices of the extractive exports were more volatile in the last decade.....	26
Figure 25: Greater volatility was led by natural gas.....	26
Figure 26: Fiscal revenue dropped sharper than the expenditure.....	27
Figure 27: Development expenditure has not received as much attention as recurrent expenditure	27
Figure 28: Revenue from extractive sector was flat while non-extractive revenue dropped.....	28
Figure 29: Tax revenue also fell sharply following a slowdown in economic growth.....	28
Figure 30: Real GDP and real government expenditure	29
Figure 31: Compared to the peer currencies, kina moved slowly against the US dollar	30
Figure 32: A slower depreciation was able to reduce inflation volatility.....	30
Figure 33: Response to a 10 percent positive shock to commodity prices and exchange rate.....	32
Figure 34: Import recovery was slow following a sharp contraction in 2014.....	33
Figure 35: Import growth and sectoral contributions.....	33
Figure 36: Aggregate decomposition of per capita value addition, 2008–2019	40
Figure 37: Labor productivity and employment by sector.....	41
Figure 38: Sectoral contribution to per capita growth.....	41
Figure 39: PNG’s agri-food system is driven by primary agriculture.....	42
Figure 40: Productivity levels of major staple food and cash crops in PNG.....	43
Figure 41: Labor force participation rate	44
Figure 42: PNG’s markets can improve on competition, trade, and financial inclusion	46
Figure 43: New business entry.....	47
Figure 44: Simulated spillover effects of increasing new firms	47
Figure 45: Digital adoption lags among people relative to businesses and government.....	48
Figure 46: Business licensing and permits are a greater constraint than among peers	49
Figure 47: FDI flows are low... ..	50
Figure 48: ... and skewed toward extractives.....	50
Figure 49: PNG is roughly in line with structural peers but far behind income group average in providing credit to the private sector.....	52

Figure 50: Rule of law is in line with most peer countries	53
Figure 51: Implementation of laws and regulations is a persistent challenge	54
Figure 52: More firms are affected by security in PNG than among any comparators	55
Figure 53 : Increased violence in the current years and concentration of incidence in resource-rich provinces	56
Figure 54: Infrastructure and electricity constraints are a significant obstacle for economic activity.....	57
Figure 55: Logistic performance is the lowest among peers....	59
Figure 56: ...and declining over time	59
Figure 57: Growth in per capita wealth and per capita human capital since 1995.....	68
Figure 58: Share of human capital in total wealth in 1995 and 2018 in PNG and its peers	68
Figure 59: Wealth per capita and contribution of natural capital across time.....	69
Figure 60: Human capital index, 2020.....	70
Figure 61: Human development index, 1990 and 2020.....	70
Figure 62: Stunting rate in EAP region and comparator countries	71
Figure 63: Changes in fraction of under-five children not stunted.....	71
Figure 64: Expected years of schooling.....	71
Figure 65: Net enrolment rates	71
Figure 66: Estimated proportion of 10-year-olds who cannot read and understand an age-appropriate text... 72	
Figure 67: Education outcomes of the cohort born during 1995–2000	73
Figure 68: Impact of education on select health outcomes	74
Figure 69: Gender parity across educational levels in PNG and peers	75
Figure 70: Youth not in education, employment, or training	75
Figure 71: Policy makers do not appear to recognize the magnitude of their countries’ learning deficits..... 76	
Figure 72: Policy makers do not appear to prioritize foundational learning.....	77
Figure 73: Growth of population ages 0–14 between 2001 and 2021	78
Figure 74: LDI 2017	78
Figure 75: Percentage of women ages 15–19 begin childbearing by wealth quintile	78
Figure 76: Percentage of women ages 15–19 begin childbearing by level of education.....	78
Figure 77: Adolescent fertility rate (births per 1,000 women ages 15–19)	79
Figure 78: Total enrolment and per student expenditure (real terms), 2012–2021	80
Figure 79: STR by level of education and province, 2017.....	81
Figure 80: Physicians per 1,000, most recent data.....	81
Figure 81: Net enrolment rates (%) in preprimary education in PNG and EAP peers	82
Figure 82: Immunization rates, HepB3.....	82
Figure 83: Children (0–23 months) with access to adequate WASH	83
Figure 84: Access to electricity (average 2008–2019), % of population.....	83
Figure 85: Gender gap in employment and presence of young children	84
Figure 86: Government effectiveness.....	93
Figure 87: Control of corruption.....	93
Figure 88: PNG and comparators CPIA (2005–2020)	93
Figure 89: Gross revenue and tax revenue (% of GDP) (2018–2019).....	93
Figure 90: Intertemporal Credibility and Political Inclusiveness.....	95
Figure 91: Returns to spending are highest in the early years of life	105

LIST OF TABLES

Table 1: Summary of Policy Recommendations.....	7
Table 2: Pipeline of potential extractive sector projects in PNG.....	18
Table 3: Estimation of fiscal cyclicity with three different specifications.....	30
Table 4: PNG-LNG revenues to Kumul Petroleum and subsequent dividend payments to the government .34	
Table 5: Selected SWFs in East Asia and the Pacific	37
Table 6: RCA Values for Select PNG agricultural products.....	43

Table 7: Gender Employment Gap Index.....	45
Table 8: Top perceived constraints by firm type.....	57
Table 9: Women Business and the Law Indicators, PNG and comparators (2022).....	85
Table 10: Summary of reform priorities.....	107

LIST OF BOXES

Box 1: Data availability and quality challenge	19
Box 2: The cyclical policy of fiscal policy in Papua New Guinea	29
Box 3: The macroeconomic effects of commodity price and exchange rate shocks in PNG	31
Box 4: Potential fiscal revenue from soaring LNG prices	34
Box 5: Sovereign Wealth Funds	35
Box 6: PNG’s agriculture sector characterized by low value addition and high potential for increasing yields	42
Box 7: Spatial regressions show impact of greater business entry but with few spillover benefits	47
Box 8: Exporting profits: An accounting of low productivity in the wood industry.....	60
Box 9: The untapped potential of the fisheries sector.....	62
Box 10: A phased approach to energy sector reform	64
Box 11: Overview of PNG’s wealth accounting.....	69
Box 12: Enhancing household-level data to support public policy	88
Box 13: Applying the analytic framework of rents to riches to PNG.....	96
Box 14: Reforms to introduce a robust system of intergovernmental grants	98

Abbreviations and Acronyms

ADB	Asian Development Bank
AGO	Auditor-General's Office
BPNG	Bank of Papua New Guinea
BSP	Bank of South Pacific
CAGR	Compounded Annual Growth Rate
CEM	Country Economic Memorandum
CIT	Corporate Income Tax
CPIA	Country Policy and Institutional Assessment
DAI	Digital Adoption Index
DDA	District Development Authority
DHS	Demographic and Health Survey
DSA	Debt Sustainability Analysis
DSIP	District Services Improvement Program
DSP	Development Strategic Plan
EAP	East Asia and Pacific
ECE	Early Childhood Education
EEZ	Exclusive Economic Zone
EITI	Extractive Industries Transparency Initiative
EU	European Union
FCV	Fragility, Conflict, and Violence
FDI	Foreign Direct Investment
FTI	Fast Track Initiative
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GEGI	Gender Employment Gap Index
GER	Gross Enrolment Rate
GNI	Gross National Income
GPI	Gender Parity Index
HCI	Human Capital Index
HIES	Household Income and Expenditure Survey
ICT	Information and Communication Technology
ILG	Incorporated Land Group
ILO	International Labour Organization
IMF	International Monetary Fund
IPA	Investment Promotion Agency
IRF	Impulse Response Function
KPHL	Kumul Petroleum Holdings Limited
LDI	Linguistic Diversity Index
LFP	Labor Force Participation

LMIC	Lower-Middle-Income Country
LNG	Liquefied Natural Gas
LPI	Logistics Performance Index
MFI	Microfinance Institution
MP	Member of Parliament
MTDP	Medium Term Development Plan
NEA	National Energy Authority
NEFC	National Economic and Fiscal Commission
NFA	Net Foreign Asset
NPL	Non-performing Loan
NSO	National Statistical Office
PAC	Public Accounts Committee
PFM	Public Financial Management
PIM	Public Investment Management
PILNA	Pacific Islands Literacy and Numeracy Assessment
PIP	Public Investment Program
PIT	Personal Income Tax
PNG	Papua New Guinea
PNGX	Papua New Guinea Stock Exchange
PPF	Production Possibility Frontier
PPL	PNG Power Limited
RCA	Revealed Comparative Advantage
RIGFA	Review of Intergovernmental Financial Arrangements
RISE	Regulatory Indicators for Sustainable Energy
SABLs	Special Agriculture and Business Leases
SDGs	Sustainable Development Goals
SIP	Service Improvement Program
SLOS	Social Law and Order Sector
SMEs	Small and Medium Enterprises
SOE	State-owned Enterprise
STR	Student-Teacher Ratio
SVAR	Structural Vector Autoregression
SWF	Sovereign Wealth Fund
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UNICEF	United Nations Children's Fund
UMIC	Upper-Middle-Income Country
UNDP	United Nations Development Programme
WASH	Water, Sanitation, and Hygiene
WDI	World Development Indicators
WGI	Worldwide Governance Indicators
WHO	World Health Organization

Executive Summary



Executive Summary

Introduction

The Country Economic Memorandum (CEM) focuses on long-term growth, outlining the challenges Papua New Guinea (PNG) faces to achieve sufficient economic growth to expand the incomes of its rapidly growing population as well as what is required for PNG to make the transition to a higher, more stable, and more inclusive growth path. PNG's modest headline economic growth has translated into limited per capita income growth in the past four decades. While the economy expanded by 3.2 percent on average during 1980–2021, per capita gross domestic product (GDP) recorded an average annual growth rate of only 0.9 percent. Moreover, the gap between PNG's per capita income level and those of its peer countries has widened. Despite being at a similar level of development in the 1970s and having enormous natural wealth, PNG's income level is diverging away from the East Asia and Pacific (EAP) region. This calls for a renewed policy focus on boosting economic growth, by addressing PNG's excessive macroeconomic volatility, low productivity growth, and high reliance on natural capital as opposed to human and physical capital.

Governance and institutions have a critical impact on economic growth and in part explain why PNG's growth performance has fallen short of its potential. The contemporary state in PNG has a limited capability for collective action and is dominated by short-term time horizons. While there is political competition, political mobilization occurs primarily along patronage lines rather than on the basis of programmatic policy and service delivery platforms. Resource riches add another dimension to the challenges. These characteristics make it more challenging to tackle macroeconomic volatility as well as achieve the policy settings and infrastructure provision required to support private sector development and human capital investment.

Unless PNG makes significant policy changes before the implementation of new extractives projects, these projects will not yield higher, more stable, or more inclusive growth. Global experience from resource-rich countries demonstrates that resource riches only yield sustainable improvements in livelihoods when a significant share of the rents from resource extraction are reinvested in physical and human capital. This means that while the endowment of natural capital is depleted, the endowment of physical and human capital is expanded, in turn expanding the country's growth potential. Under PNG's current policy settings, this conversion of natural capital to physical and human capital is not occurring to a sufficient degree. If that does not change, then once the construction boom from new projects is over, PNG will return to a trajectory of meagre per capita growth. Policy change is difficult, particularly in weak governance and institutional contexts. But change is necessary, and this report focuses on what is required for PNG to make the transition to a higher, more stable, and more inclusive growth path.

Seeking stability

PNG's economy faces challenges for its stability as economic growth has been among the most volatile globally, and the risk of public and external debt distress is high. PNG experienced the largest economic growth volatility in the world since the 1980s, except for a few structural peers, characterized by heavy dependence on natural resources. The extractive sector has been the most volatile, followed by construction, which is heavily linked to the infrastructure development for resource projects. Heightened macroeconomic volatility has been accompanied by government budget expenditure volatility. For some expenditure categories—such as use of goods and services and public investments—the interannual swings are even more pronounced. This heightened volatility of budget spending negatively affects service delivery. Public debt had been increasing over the last decade, well before the COVID-19 pandemic began, increasing challenges for macroeconomic stability. The debt

PAPUA NEW GUINEA

Country Economic Memorandum

situation could negatively affect capital accumulation and economic growth through reduced investor confidence and elevated interest payments which crowd out productive government spending.

A combination of ‘natural’ and policy factors contributes to volatility in PNG. The extractive sector gained share in the overall economic output and triggered greater volatility. Like other natural resource dependent economies PNG is exposed to external shocks, particularly to those arising from the global commodity markets, and is also highly prone to natural disasters. With commencement of the largest extractive sector project (PNG-LNG) in 2010, PNG’s economic growth became more reliant on the extractive sector’s performance.

Macroeconomic policies have not been conducive to reducing volatility. Despite intensified economic volatility in the last decade, fiscal and monetary policies were not effectively designed to stabilize the economy. In the absence of an adequate revenue buffer from large resource projects, the government had to increase the fiscal deficit and eventually ended up with large debt stock. Following depreciation over 2012–2015, the central bank moved away from a floating exchange rate regime to limit currency depreciation and exchange rate pass-through on inflation, although at the cost of market restrictions and foreign exchange rationing. While these policies achieved some of the goals, such as lower inflation, they were not efficient in reducing overall economic volatility. In addition, the exchange rate controls and forex rationing hurt imports, lower transparency, and have negative consequences for the long-run economic growth.

More needs to be done to reduce volatility and address macroeconomic sustainability. The government has adopted and started implementing a fiscal consolidation (‘budget repair’) program as a pre-condition for safeguarding debt sustainability. However, to strengthen the macroeconomic policy framework further, the policies could be centred on alleviating fiscal sustainability concerns and improving countercyclicality of macroeconomic policies. To alleviate fiscal sustainability concerns, the authorities should continue fiscal consolidation and focus on increasing domestic revenue mobilization, reducing inefficient spending, and enhancing the Fiscal Responsibility Act. To improve countercyclicality of macroeconomic policies, the government and Bank of Papua New Guinea (BPNG) should develop high-frequency macro statistics and reduce delays in data releases, operationalize the Sovereign Wealth Fund (SWF), reintroduce kina convertibility and allow greater exchange rate flexibility, and plan phase-in of new resource projects asynchronously.

Boosting productivity

PNG has struggled to channel its considerable natural resources into delivering broad-based and sustained productivity-driven growth. While productivity is growing, the rate of growth lags structural peers, reflecting the limited backward links between the extractives sector and the wider economy. Two main factors undermine productivity growth. First, PNG has a relatively low participation in paid employment, particularly among women, especially outside subsistence forms of agriculture, informal, and vulnerable work. A recent estimate suggests that GDP per capita could be 20.8 percent higher in the long run in PNG if women’s access to better employment were to match men’s.¹ Second, the impact of structural change on productivity that is associated with labor moving from sectors of lower productivity to sectors of higher productivity is limited. This structural transformation plays an important role in the growth trajectory for middle-income countries and PNG needs to tap into this potential.

Weaknesses in the business environment and access to infrastructure deter investment and limit the positive economic spillovers from the country’s natural capital. PNG attracts very little foreign direct investment (FDI) outside of the extractive sector, while financial deepening is less than half the global average for a country with PNG’s level of per capita income. Critical bottlenecks in the business environment include

¹ World Bank staff estimates using Demographic Health Survey (DHS) 2016–2018, based on Gender Employment Gap Index (GEGI) methodology by Pennings (2022). Better employment is defined as paid employment outside of agriculture.

PAPUA NEW GUINEA

Country Economic Memorandum

constraints on firm entry through restrictive licensing and FDI restrictions, high regulatory compliance costs for firms, a lack of competitive neutrality by state-owned enterprises (SOEs), and complex procedures for land use. In addition to these constraints, there are significant gaps in access to (and the reliability of) key infrastructure services for production and trade, including transportation, information and communication technology (ICT), logistics, and energy as well as the critical infrastructure to build human capital.

The productivity of working-age women is hindered by laws, norms, and gender-based violence (GBV). Current legislation poses restrictions on women's access to paid jobs, particularly in the industry sector, and contains no provision for equal remuneration or non-discrimination in access to credit. Limited access to credit, land, and information constrains female farmers and entrepreneur's ability to grow their business. PNG's progress on gender-equitable legislation has been slower than for its peers, and the country remains one of handful worldwide with no adequate public-administered maternity leave. Social norms channel women into less productive sectors of work and agricultural activities and determine a significant trade-off between women's household roles and paid work. Safety risks manifested in high rates of sexual harassment and intimate partner violence affect above all women's well-being but also their employment decisions and productivity. Absenteeism due to these occurrences is estimated to cost PNG's economy about 0.5 percent of GDP a year, with the overall economic cost of GBV likely much higher.

Policies aimed at expanding private sector participation in the economy will help facilitate long-term productivity growth. The greatest opportunities to improve the productivity of PNG's economy lie in increasing access to better forms of employment, particularly among women, and delivering on structural change to open more of the economy to business entry and competition. Several policies can be responsive to both these goals. The first is improving the business environment by facilitating greater domestic and foreign investment, improving the efficiency of government to business service delivery, and increasing competition in domestic markets. Second is expanding access to infrastructure and improving the management of infrastructure assets, pursued by expanding the role of the private sector. Finally, remove discriminatory clauses in employment legislation affecting women and provide for greater and more equitable access to economic inputs such as land and credit—in law and practice. Beyond policy reform, effective initiatives could be scaled up that address sexual harassment at the workplace and enroute to work and that link women to formal work opportunities through tailored training, job placement programs, and outreach.

Expanding endowment

With a growing young population, PNG's future growth and quality of life hinge on improving human capital. Human capital growth is a key driver of per capita growth in wealth in most low-, middle-, and high-income countries. While PNG's wealth has been dominated by natural capital, at the heart of PNG's weak economic performance is an underutilization of potential human capital. Human capital accounts for only 46 percent of total wealth, below virtually all of PNG's peers, and PNG has posted very little growth since 1995. The outsize role of natural capital in the national wealth is also experienced by PNG's structural peers that are heavily dependent on extractive industries. However, human capital growth has been found to be the driving factor in the peers with the highest per capita growth in wealth (since 1995).

PNG's weak human development outcomes present missed opportunities for faster economic growth as PNG is lagging in several dimensions. The symptoms of this underutilization are visible across the board: PNG has one of the highest rates of stunting in the world, and while more children are now enrolling and completing a primary education, an estimated 72 percent of 10-year-olds are still not learning to read and understand an age-appropriate text. Without this ability to read, and with a low level of secondary enrolment among its peers, PNG has one of the highest rates of young people—nearly 2 million individuals—who are not in training, not in education, and not in employment. Transitioning from school to the workforce is difficult for

PAPUA NEW GUINEA
Country Economic Memorandum

many as they find that they are unprepared or unqualified for the jobs that are available. The gender gap in education enrolments further exacerbates the challenges.

The human capital crisis is caused by a combination of governance, structural, and resource factors. First, the crisis is largely invisible to policy makers and society. Surveys of senior government officials in other low- and middle-income countries suggest a lack of awareness of the magnitude of their countries’ learning deficits. Second, some underlying structural features—high population growth and high linguistic diversity—provide headwind and imply that additional efforts (and resources) are needed to improve human development outcomes. Third, too few resources are spent, resulting in a lack of critical inputs and infrastructure and a poorly prepared and supported teaching and health sector workforce. Fourth, the secondary and technical and vocational education and training (TVET) system remains underdeveloped, resulting in insufficient opportunities for young people—especially women—to gain training and transition into employment.

To turn its youthful population from a risk into an engine of growth, PNG needs more action on several fronts. In a society with a high degree of violence and crime, having a ‘youth bulge’ population, without the stabilizing anchor of participating in training, in education, or in employment, would put future development at risk. The government has taken several promising steps in this direction, with good reform plans, but a lot more focus is needed to make the human capital crisis more visible and to implement these plans. To address the structural features of a young population, access to and quality of services that address deficiencies in the early years need to be improved. Improvement in the quality and skill of health and education workforce is also critical to meet the needs of a growing population. Lastly, promoting more inclusive employment and developing the skills required by industries would facilitate better transition from education to work.

Table 1: Summary of Policy Recommendations

Area	Recommendation
Seeking stability	<p>To alleviate fiscal sustainability concerns:</p> <ul style="list-style-type: none"> • Increase domestic revenue mobilization, including revenue from the extractive sectors. The authorities can boost revenue by regularizing the transfer of PNG-LNG revenues through the controlling SOE Kumul Petroleum Holdings Limited (KPHL). • Reduce inefficient spending. • Enhance the Fiscal Responsibility Act. <p>To improve countercyclicality of macroeconomic policies:</p> <ul style="list-style-type: none"> • Develop high-frequency macro statistics and reduce delays in data releases. • Operationalize the SWF. • Reintroduce kina convertibility and allow greater exchange rate flexibility. • Plan phase-in of new resource projects asynchronously.
Boosting productivity	<ul style="list-style-type: none"> • Catalyze a more dynamic and productive private sector by (a) encouraging formalization with lower compliance costs and support for market access, (b) expanding financial inclusion and the deepening of capital markets, (c) improving conditions to attract FDI in the non-resource sectors, and (d) improving the efficiency and predictability of government to business services through digitalization and process reform. • Expand access to (and the reliability of) infrastructure services and markets through a combination of public and public-private partnerships, reforms to strengthen the management of infrastructure services, and a more structured approach to public investment planning. • Strengthen women’s access to better employment by (a) amending outdated labour laws (Employment Act) to promote equal access to employment opportunities, (b) promoting female entrepreneurs’ access to productive resources, (c) adopting measures to facilitate young out-of-school women’s transition to employment, and (d) implementing national commitments and scaling up promising interventions to address the prevalence of GBV.

PAPUA NEW GUINEA
Country Economic Memorandum

Area	Recommendation
Expanding endowment	<ul style="list-style-type: none"> • Make the human capital crisis more visible in the policy agenda. • Improve access to and quality of services that address deficiencies in the early years, including primary health care service delivery, maternal health services, and immunization. • Improve service delivery management, quality of inputs, and access to core infrastructure, including by strengthening the information systems, improving the quality of teachers and health workers, and expanding coverage and reliability of core infrastructure such as electricity and water, sanitation, and hygiene (WASH). • Facilitate transition from education to work and promote inclusive employment.

Identifying entry points for reforms

Many of the recommendations presented in this study are not new, making it important to understand why it might be so challenging for them to be adopted and implemented in PNG and to identify possible opportunities for change. PNG’s underlying political economy dynamics are important factors in why these long-standing challenges have not been addressed already. The capability of the state to make credible commitments over time tends to be weak, affecting its capacity to give effect to policy and maintain it over time. This capability is especially critical for a resource-rich state. In addition, the state’s cohesion and capability for collective action tend to be limited. In states with these governance and institutional challenges, top-down and system-wide reform is unlikely to be a successful means for growth-enhancing policies to be adopted and implemented. Instead, reformers need to capitalize on existing—or build new—pockets of effectiveness in particular state institutions and build coalitions that include stakeholders beyond the state, to pursue specific reforms.

The CEM uses a governance and institutions lens to identify some possible entry points or opportunities for reform in the areas prioritized by this report. It does this for a subset of top priorities from among the recommendations made in the CEM. To reduce excessive economic volatility and safeguard macroeconomic stability, the top priorities are to continue the fiscal consolidation effort with a focus on increasing domestic mobilization; reintroduce kina convertibility and allow greater exchange rate flexibility; and operationalize the SWF with all flows via government budget. On boosting productivity, the top priorities are to improve the delivery of key infrastructure services, particularly energy; increase competition for both domestic and foreign firms; and strengthen the implementation of legislation that can provide equal access to economic inputs and labor markets. On expanding human capital endowment, the top priorities are to improve access to and quality of services that address deficiency in early years; strengthen service delivery management, with a focus on public financial management (PFM) and data; and invest in the education and health workforce with better training, support, and monitoring. Several cross-cutting themes emerge from the analysis of possible entry points or opportunities for reform, including the need to empower reformers by increasing the availability or relevant and timely data, improve prospects for change by fostering more effective oversight mechanisms, and capitalize on involvement of non-state actors as a key part of building coalitions for change.



▶ CHAPTER I

Introduction

Chapter I. Introduction

1. **This chapter discusses three aspects related to growth in Papua New Guinea (PNG) relevant to the analysis of this report.** First, the economic growth in PNG has not been sufficient to expand the incomes of its rapidly growing population. While the economy expanded by 3.2 percent on average during 1980–2021, per capita gross domestic product (GDP) recorded an average annual growth rate of only 0.9 percent. Second, governance and institutions have a critical impact on economic growth, and weaknesses in them help explain why PNG’s growth performance has fallen short of its potential. The contemporary state in PNG has a limited capability for collective action and is dominated by short-term time horizons. While there is political competition, political mobilization occurs primarily along patronage lines rather than on the basis of programmatic policy and service delivery platforms. These characteristics make it more challenging to tackle macroeconomic volatility as well as achieve the policy settings and infrastructure provision required to support private sector development and human capital investment. Third, unless PNG makes significant policy changes before the implementation of new extractives projects, these projects will not yield higher, more stable, or more inclusive growth. Instead, PNG will remain on a trajectory of meagre per capita growth once the construction boom is over, with its natural resource wealth not converted into the physical and human capital needed to substantially improve livelihoods.

1. Why should economic growth become the focus for policy makers?

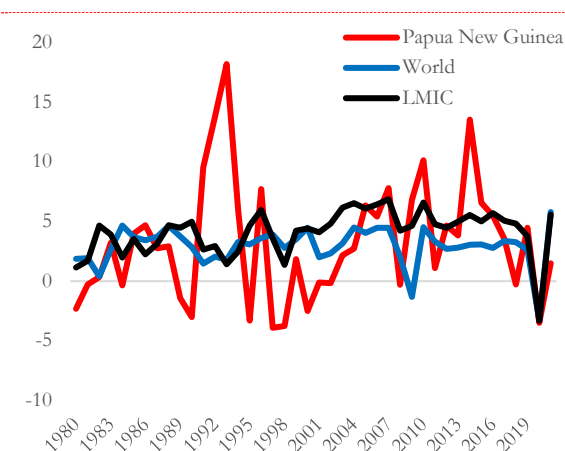
1.1. Modest headline growth masks low per capita growth

2. **PNG is a richly diverse country endowed with abundant geographic and natural resources.** With more than 800 different languages spoken among a population of over 9 million, PNG is the most heterogeneous country in the world. Tropical rainforests cover around 75 percent of the country’s surface, and its exclusive maritime economic zone is the source of over 10 percent of the global tuna harvest. PNG is also a significant global producer of gold, liquified natural gas (LNG), and agricultural products such as coffee, cocoa, coconut (copra), and palm oil. In 2025, PNG will celebrate the 50th anniversary of its independence and aspires to become an upper-middle-income country by 2030. PNG achieved a notable improvement in its human development—evidenced by a 60 percent increase in its human development index during 1985–2019. As this report argues, however, the country continues to fall short of its potential despite its enormous natural wealth and a young and diverse population.

PAPUA NEW GUINEA

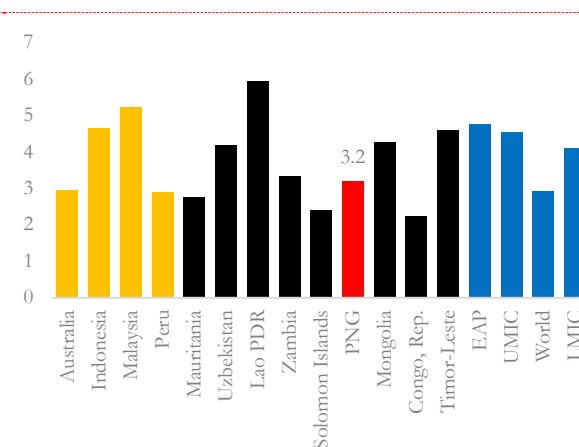
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Figure 1: PNG enjoyed some years of extremely high economic growth ...
(Annual GDP growth, 1980–2021)



Source: World Development Indicators (WDI).²

Figure 2: ... yet due to significant volatility, the average growth has not been as strong as in EAP
(Average annual GDP growth, 1980–2021)



Source: WDI.

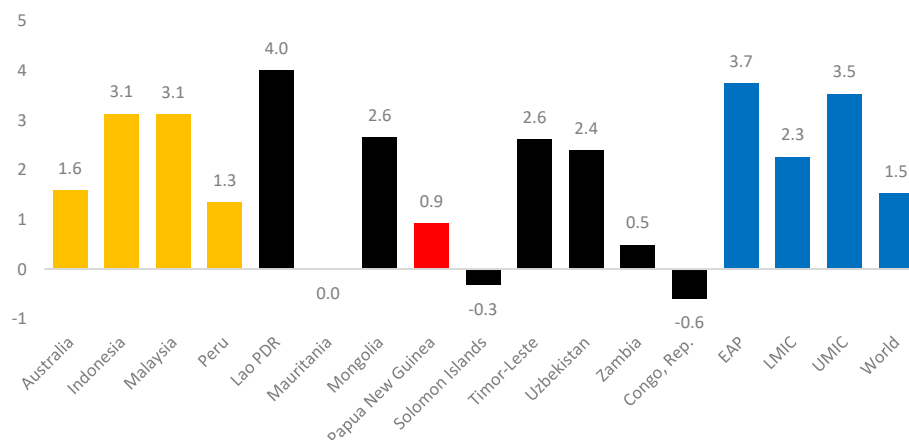
Note: Data start in 1984 for Lao People’s Democratic Republic, 1981 for Mongolia, 2000 for Timor-Leste, and 1987 for Uzbekistan. EAP = East Asia and Pacific.

3. **The modest headline economic growth in PNG has translated into limited per capita income growth.** PNG enjoyed several years of extremely high growth, but it was highly volatile, primarily reflecting changes in the production of resources and commodity prices’ fluctuations (Figure 1). While the PNG economy expanded by 3.2 percent on average during 1980–2021 (Figure 2), per capita GDP recorded an average annual growth rate of only 0.9 percent (Figure 3), reflecting a 2.3 percent growth rate in population. As a result, the GDP per capita in constant 2015 US\$ increased from US\$1,822 in 1980 to US\$2,655 in 2021. Meanwhile, the group of upper-middle-income countries that started at a similar income level (US\$2,373) in 1980 achieved an average annual growth of 3.5 percent, reaching US\$10,055 by 2021. Moreover, structural peers that were at lower income levels, such as Mongolia and Uzbekistan (US\$1,433 in 1981 and US\$1,480 in 1987, respectively), surpassed PNG with 2.6 percent and 2.4 percent average annual growth, respectively. Annex 1 discusses the selection of comparators for this report, including structural, governance (used for discussion of governance aspects), and aspirational peers.

² <https://databank.worldbank.org/source/world-development-indicators>.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure 3: Growth of GDP per capita has not been robust
 Average annual growth of GDP per capita (constant 2015 US\$) (1980–2021)



Source: WDI.

Note: Data start in 1984 for Lao PDR, 1981 for Mongolia, 2000 for Timor-Leste, and 1987 for Uzbekistan. Estimates for EAP, lower-middle-income country (LMIC), upper-middle-income country (UMIC), and World are based on growth rates.

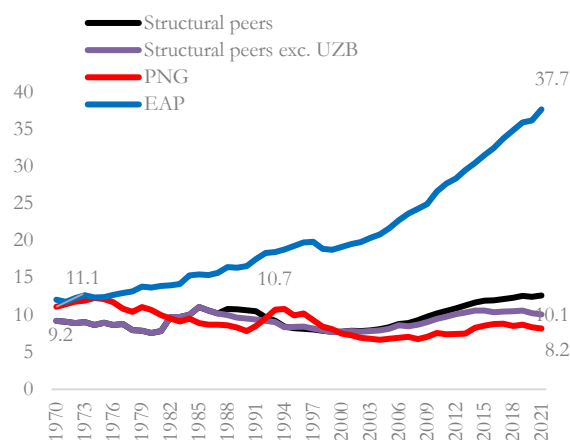
1.2. Per capita income is not converging

4. **Even more importantly, the gap of per capita income level to important peers either has not converged or has widened.** Due to the weaker growth of per capita income in PNG, gaps in income levels are widening compared to the structural, aspirational, and regional peers. While the per capita income level in PNG was equivalent to over 11 percent of the income level in Australia in 1970, it declined to 8.2 percent as of 2021 (Figure 4). Meanwhile, the income level in its structural peers improved from 9.2 percent to 10.1 percent during the same period—surpassing PNG. Furthermore, the EAP region, the fastest growing region in the world, on average is catching up to Australia at a much faster pace. Despite being at a similar level in the early 1970s and some progress gained in the early 1990s, the income level in PNG is now diverging away from the income levels in the EAP region (Figure 5). PNG now has to catch up to not only its structural peers but also its regional peers in EAP, including Indonesia which had a per capita income level of only US\$672 in 1970.

PAPUA NEW GUINEA

Country Economic Memorandum

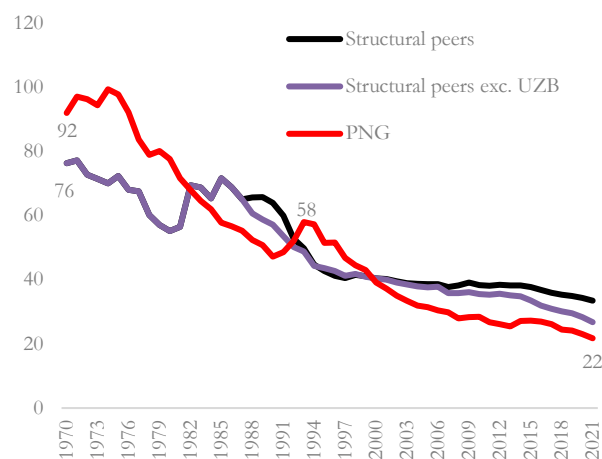
Figure 4: Income growth in PNG lags its structural peers ...
(GDP per capita relative to Australia's GDP per capita)



Source: WDI.

Note: Australia = 100. Structural and aspirational are average GDP per capita weighted by population. Data for Uzbekistan start in 1987. The jump in structural peers in 1982 is associated with a 20 percent growth in the Republic of Congo's per capita income growth.

Figure 5: ... and it is not converging to its peers in the region
(GDP per capita relative to EAP's average)



Source: WDI.

Note: Structural and aspirational are average GDP per capita weighted by population. Data for Uzbekistan start in 1987. The jump in structural peers in 1982 is associated with a 20 percent growth in the Republic of Congo's per capita income growth.

1.3. It is time to focus on the growth agenda

5. **This calls for a renewed policy focus on economic growth.** The economy of PNG suffers from three interrelated challenges: (a) excessive macroeconomic volatility, (b) low productivity growth, and (c) excessive reliance on natural capital and not enough on human capital.³ Each of these challenges implies a certain welfare loss and, therefore, scope for improvement.

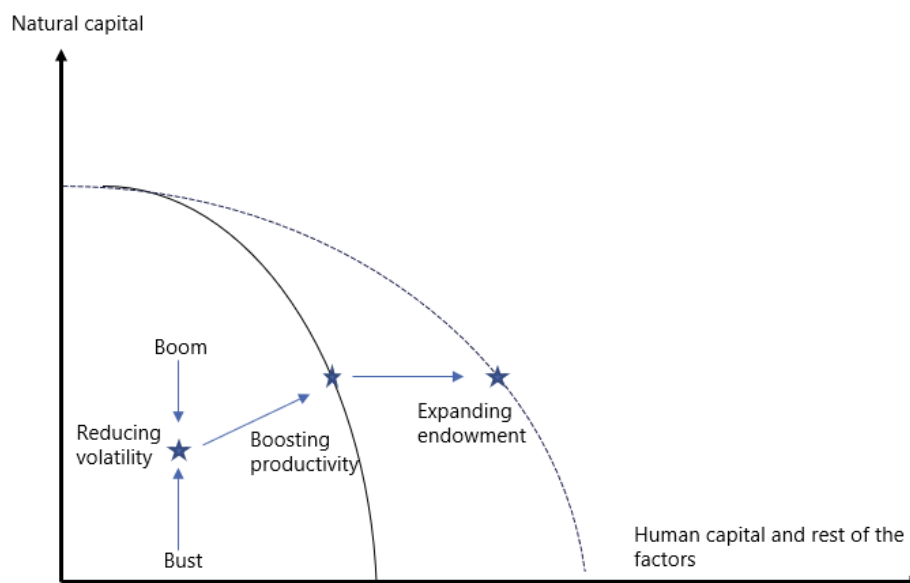
- **Reducing volatility and safeguarding macroeconomic sustainability** would lower uncertainty and encourage firms and households to invest more, make long-term plans, and enter long-term contracts, which would be positive for investment, productivity, and growth.⁴
- **Boosting productivity** would imply moving from inside to the edge of the production possibility frontier (PPF), and hence would translate to higher levels of income in the future.
- **Expanding and making better use of underutilized human capital** in the production process would mean pushing the PPF outward (Figure 6).

Together, pursuing these three key levers would also support deeper links between the extractive and non-extractive sectors, leading to a more equitable distribution of income and growth.

³ This report follows the organizing framework of the Mongolia Country Economic Memorandum (2020). Mongolia is one of the structural peers for PNG and faces some similar challenges.

⁴ The inverse association between the level and volatility of per capita growth is documented, in particular, in Ramey and Ramey (1995), Hnatkovska and Loayza (2005), and Loayza et al. (2007).

Figure 6: PPF Framework



Source: Author's adoption based on the framework presented in Nganou et al. (2020)

2. Why and how governance and institutions matter for growth in PNG

6. **Governance and institutions have a critical impact on various aspects of economic growth.** In resource-rich countries like PNG, governance and institutional arrangements that smooth public expenditure across resource cycles enable the stable provision of essential public services like law and order, health, and education. Governance and institutional arrangements that facilitate policy stability increase the time horizons of investors and decrease political risk, affecting the nature and structure of resource sector investments. Governance and institutional arrangements also affect the extent to which the state obtains an adequate share of the benefits from the resource sector and distributes that nationally through investments in physical infrastructure and human capital. All the public service delivery and public investment affects the extent and quality of the physical and human capital that is available. That combines with the way the state regulates markets to affect the competitiveness of investments in different economic sectors, in turn affecting investment decisions; the resultant structure of the economy; and the nature, extent, and stability of growth.

7. **Given the importance of governance and institutions for economic growth, this section provides an essential backdrop for the three chapters that follow on stability, productivity, and endowments.** It is complemented by a more detailed analysis in the concluding chapter. But since governance and institutions matter for all the areas covered by this report, a brief introduction to them is provided here.

8. **The nature of the contemporary state in PNG is a 'competitive clientelist' state.** That term refers to states where political rule depends on enrolling the support of multiple, potentially rival powerholders with their own support bases. As alliances of otherwise fairly independent powerholders, such governing coalitions tend to be unstable and have a limited capability for collective action.⁵ There is political competition in such states, but political mobilization occurs primarily on patronage lines. That is, the benefits political leaders compete to provide to their support bases are primarily clientelist—provided by patrons to their client groups—rather than provided on a programmatic basis. In competitive clientelist states, political competition can lead to

⁵ See Khan (2010).

PAPUA NEW GUINEA
Country Economic Memorandum

deepening patronage by providing new opportunities and imperatives for it. This is especially likely in countries where society is fragmented and political parties play a weak role in politics, as in PNG (Figure 7 and Figure 8).

Figure 7: Political parties play a weak role in defining policy positions as a basis for electoral support...
 (Distinct party platforms)

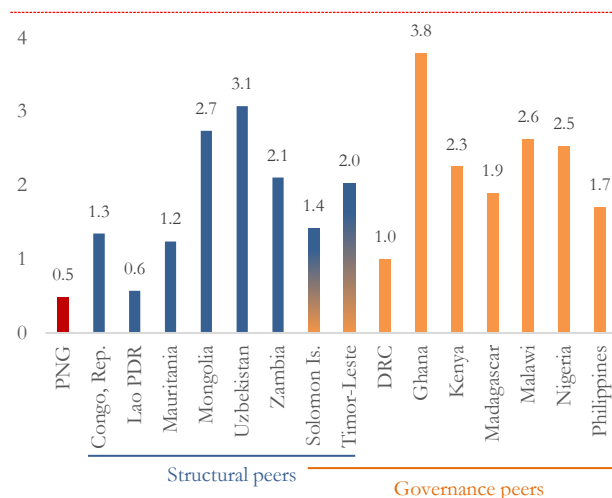
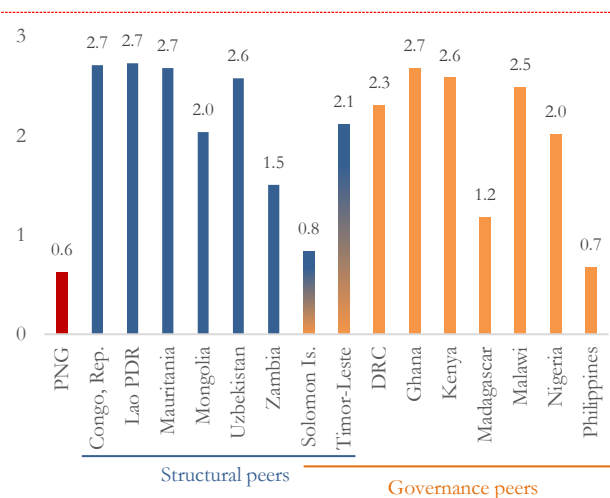


Figure 8: ...and in influencing the political positions taken by party members
 (Legislative party cohesion)



Source: Varieties of Democracy (V-Dem).

Note: The indicator measures ‘How many political parties with representation in the national legislature or presidency have publicly available party platforms (manifestos) that are publicized and relatively distinct from one another?’ The value of 0 indicates none or nearly none of the parties with platforms. The value of 4 indicates that all or nearly all have party platforms.

Source: Varieties of Democracy (V-Dem).

Note: The indicator measures ‘Is it normal for members of the legislature to vote with other members of their party on important bills?’ The value of 0 indicates very weak party discipline. The value of 3 indicates high party discipline with members voting with their parties almost all the time.

9. **PNG’s competitive clientelist state is the product of the way PNG’s society and state have interacted with and shaped each other over time.** While there is considerable variation across PNG in the way electoral support is mobilized and in the conduct of elections, voting is predominantly driven by local factors rather than by party policy platforms.⁶ This reflects the small scale of the societal units that make up the population and the strength of highly localized identities.⁷ (PNG’s linguistic diversity is one proxy indicator of its societal segmentation - see Figure 9). It also reflects the limited bases for wider trust, social capital, and collective action that have developed in PNG.⁸ PNG’s mountainous and archipelagic geography presents formidable challenges to the establishment of connective infrastructure within the country, and PNG is still to experience large-scale urbanization or structural economic transition from agriculture to manufacturing or services—socioeconomic transformations that can provide alternative, wider bases for social and political interests and identities. The extent to which the contemporary state has been able to consolidate power within itself and project its authority and reach across its territory is only partial. That limits the extent to which programmatic policy platforms can really be delivered through the state, in turn constraining the effectiveness of electoral mobilization strategies based on such platforms. Instead, local patron-client relationships dominate electoral mobilization: many voters look to candidates to deliver benefits to them directly, and many elected representatives look to

⁶ May (2001, 2022). Local factors include the candidates themselves (the regard in which they are held, their clan and wider social connections, and the benefits they are expected to return to their supporters), as well as the extent of electoral irregularities in each constituency (vote-buying, communal bloc voting, intimidation, violence and other electoral fraud). See also Haley and Zubrinich (2018).

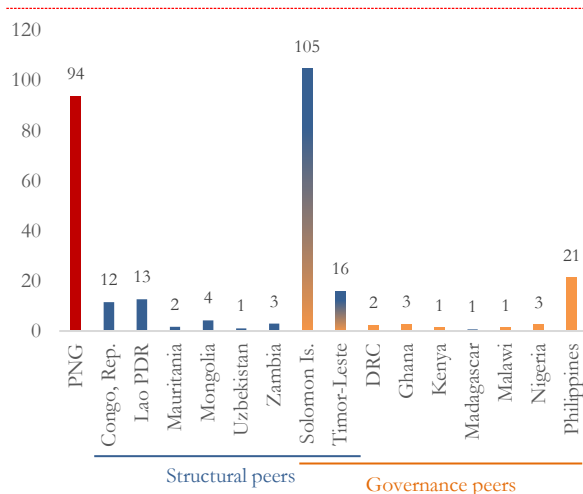
⁷ See Harris (2007), Fukuyama (2007), and Bizhan and Gorea (2020). On ‘segmentary’ societies more generally, see Sigrist (1984).

⁸ Ibid.

PAPUA NEW GUINEA Country Economic Memorandum

secure resources from the state to deliver directly to their client bases.⁹ As a result, PNG exhibits a high degree of clientelism than its peers (Figure 10).

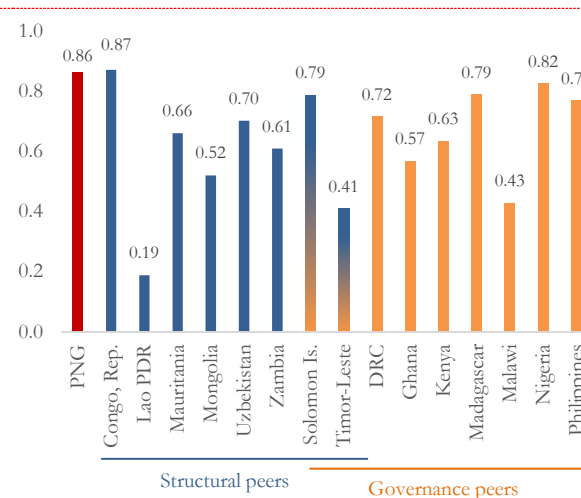
Figure 9: PNG has a challenging context for developing broad bases for collective action
(Languages per million people)



Source: Eberhard, Simons, and Fennig 2019.

Note: The relatively small size of language groups in PNG is only a proxy for societal fragmentation. The basic societal groupings that structure land and resource access, kinship, and social identity for most Papua New Guineans are clans, of which there are some 22,000. Clans might exist within wider culture groups or tribes (not so much over them as giving another potential dimension to collective action), but there are still a very large number of them (estimated at around 7,000).

Figure 10: The extent of clientelism in PNG is estimated to be high
(Clientelism index)



Source: Varieties of Democracy (V-Dem).

Note: The indicator measures the extent to which politics are based on clientelistic relationships. The clientelism index consists of indicators that measure vote buying, the provision of particularistic versus public goods, and whether party links are programmatic or clientelistic. The index ranges between 0 and 1, with higher values indicating greater degrees of clientelism.

10. **This situation is dynamic, and the state will continue to evolve over time.** Driven by the clientelist political dynamics described above, a number of governance and institutional changes in recent decades have served to increase the public resources flowing into clientelist channels.¹⁰ At the same time, attempts have been made to curtail these drivers.¹¹ The greater the resources distributed through clientelist channels, the more limited the resources for—and political interest in—delivery through the public administration, intensifying clientelist-based political competition. Arguably, these rising benefits to political office holders and their clients—and parallel rising costs of exclusion to losing candidates and their clients—are contributing to the observed increase in the extent of electoral irregularities and violence in PNG.¹² PNG now has what Slater (2010) characterizes as a ‘provision pact’. This is a situation where elites reach agreement and work together to allow each to secure a share of the resources available to the state for them to distribute—as patronage—to their own clients. Such pacts are likely to undergo transition over the long term. Although the pacting processes may themselves be stable,

⁹ May 2022; Wood 2018, 2022a, 2022b.

¹⁰ These include the provincial and local government reform in 1995 that further concentrated competition over power and resources at the national level, the introduction and expansion of constituency development funds (Service Improvement Programs, SIPs), the establishment of governmental authorities at district level led by members of parliament (District Development Authorities, DDAs), and the progressive fragmentation of state institutions to provide separate spheres of control to the growing membership of executives.

¹¹ The most notable is the constitutional reform regarding political parties in 2001, designed to reduce the extent to which members of parliament could swap allegiance—swaps that both reduce political stability and drive increases in the resources required to secure their allegiance to maintain government. Only some of these reforms survived legal challenge. Others include the introduction of limited preference voting and alternative forms of political leadership emerging among some younger, often more urban, political leaders, encouraging their constituents to see service delivery as part of a programmatic state activity for which they should be held accountable.

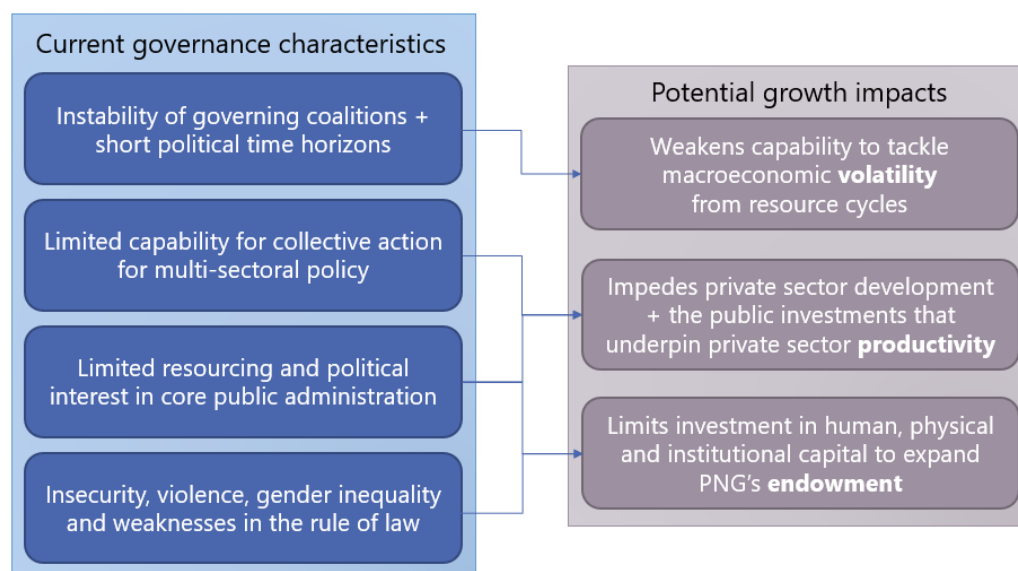
¹² See Haley and Zubrinich (2018), May (2022), and Wood (2022a).

PAPUA NEW GUINEA
Country Economic Memorandum

what they do to the underlying state tends not to be.¹³ This is because the state is not regarded primarily as something to invest in to serve a wider public good. Instead, it is treated primarily as a source of resources that can be extracted to serve client bases.

11. **Four aspects of this governance and institutional context for PNG’s growth challenges need to be highlighted.** First, the instability of governing coalitions in competitive clientelist states like PNG tends to shorten the time horizons over which political and policy commitments are made. This is especially important to macroeconomic volatility, the focus of the second chapter. Second, the limited capability for collective action among the members of the governing coalitions tends to make it challenging for policy commitments that require cooperation between parts of the state controlled by different members of governing coalitions. Third, the extent of resources available for—and political interest in—the delivery of policy programs through the public administration is limited by the resources required for political provisioning. This applies to both off-budget resources and on-budget resources that flow through mechanisms governed by clientelist interests. These two aspects are important to policy and expenditure to facilitate private sector productivity and expand endowments, the focus of the third and fourth chapters. Fourth, like other countries characterized by fragility, conflict, and violence (FCV), private sector development, human capital development, and thereby growth in PNG are impeded by the costs and risks associated with insecurity; violence; gender inequality; weaknesses in the rule of law; and, in some areas, persistent civil conflict.¹⁴

Figure 11: Potential growth impacts of governance characteristics



12. **Resource riches like PNG’s add another dimension to these challenges in competitive clientelist states.** First, they induce volatility in public revenues, which short-term political time horizons tend to amplify. Mitigating this volatility requires strengthening longer-term time horizons in political dynamics. Second, they tend to diminish the impetus for states to gather revenue from the distributed economic activity of their populations through taxation. That requires institutional capabilities for widespread taxation and widespread provision of public goods in return for the taxation, to facilitate compliance at reasonable cost.¹⁵ In contrast, some share of resource revenues can be secured without a state investing in that kind of revenue and service delivery reach. Third, the way extractives corporations structure their investments depends, in part, on the extent to which the

¹³ Slater (2010) suggests transition to powerfully entrenched and deepening kleptocracy or transition to military dictatorship as the two most likely trajectories, but these are not the only possibilities.

¹⁴ See World Bank Group (2020, 9–12).

¹⁵ On the developmental significance of taxation and tax systems, see Moore (2004) and Besley and Persson (2011).

PAPUA NEW GUINEA Country Economic Memorandum

state can make credible commitments over time and those commitments can be enforced. In competitive clientelist states, where the credibility of commitments over time is relatively limited, extractives corporations are more likely to structure their investments to frontload their returns so they can recoup their investments in the shortest possible time.¹⁶ They are also more likely to retain larger shares of the returns, to provide infrastructure, services, and other benefits directly to local powerholders and communities to retain their social license to operate, particularly when the reach of state law and order and other public goods is limited. Both of these propensities reduce the resource revenues available to the state, limiting fiscal space.

3. Growth is not only about extractives

13. **Over the medium term, economic growth in PNG will depend to a large extent on the implementation of major new extractive sector projects.** Table 2 provides details of the pipeline of potential projects. Taken together, they potentially imply billions of US dollars in new investments and would result in periodic spikes in GDP growth that for some projects could exceed those experienced during the construction phase of the PNG-LNG project.

Table 2: Pipeline of potential extractive sector projects in PNG

Project name	Initial investment		Additional output per annum		Tentative timing	
	US\$, billions	% of GDP	Volume	% increase on existing output	Construction	Production
Papua LNG	13	55.8	5.4 million tons	62	2024–2027	2027
P'nyang LNG	3	12.9	2.7 million tons	31	2028–2032	2033
Wafi-Golpu	2.8	12.0	14 tons gold; 180,000 tons copper	19; 162	2023–2027	2027
Frieda River	6	25.8	11 tons gold; 190,000 tons copper	15; 171	2025–2035	2036
Ramu NiCo expansion	1.5	6.4	34,000 tons nickel; 3,300 tons cobalt	100; 100	2024–2027	2028
Pasca A	2.4	10.3	0.2 million tons LPG	No existing production	2024–2025	2026
Woodlark Island Gold	0.1	0.4	2.4 tons gold	4	2023–2026	2026

Source: World Bank staff based on authorities and media reporting.

14. **However, as this report argues, economic growth in PNG is not only about extractives projects.** Global experience from resource-rich countries demonstrates that resource riches only yield sustainable improvements in livelihoods when a significant share of the rents from resource extraction are reinvested in physical and human capital. While the endowment of natural capital is depleted, the endowment of physical and human capital is expanded, in turn expanding the country's growth potential. Under PNG's current policy settings, this conversion of natural capital to physical and human capital is not occurring to a sufficient degree. If that does not change, then once the construction booms from new projects are over, PNG will return to a trajectory of meagre per capita growth. Policy change is difficult in any context, with the previous section explaining the particular challenges PNG faces in strengthening governance and institutions. However, it is vital that PNG, with support from development partners, rises to this challenge. The remainder of this report focuses on the changes that are needed so that PNG can make the transition to a higher, more stable, and more inclusive

¹⁶ For more detail on these dynamics, see Barma et al. (2012, 102).

PAPUA NEW GUINEA

Country Economic Memorandum

growth path. This requires a different approach to reduce volatility, boost productivity, and expand and make better use of PNG's endowment.

Box 1: Data availability and quality

The analysis in this report is constrained by data availability and quality, both on some economic indicators and household-level data. There are no official GDP data disaggregated by expenditure since 2007, and firm-level data are scarce, which limits the scope of analysis on productivity. The available macroeconomic indicators are usually released with long delays. Significant unexplained discrepancies over the years potentially stem from inconsistencies in definition or classification over time. Household-level data collection is infrequent and sparse. There has not been a National Census of Population and Housing since 2011, and the 2011 census is considered to be unreliable by some (Bourke and Allen 2021); there has not been a Household Income and Expenditure Survey (HIES) since 2009–2010 (World Bank 2023a); and there is limited official price collection in the country (www.nso.gov.pg). The latest Demographic and Health Survey (DHS) is from 2016–2018; PNG is one of the few middle-income countries in the world where the United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys have never been carried out. This potential lack of reliability of macroeconomic and household data highlights the need for improvements in the national statistical system across the board.

▶ CHAPTER II

Seeking Stability



Chapter II. Seeking Stability

15. **This chapter focuses on macroeconomic stability, both on how to reduce excessive economic volatility and how to safeguard macroeconomic sustainability.** PNG’s economy faces challenges on both aspects: economic growth in PNG has been volatile and among the highest globally, and the risk of debt distress is high. A combination of ‘natural’ and policy factors contributed to volatility in PNG. The extractive sector gained share in the overall economic output and triggered greater volatility. Macroeconomic policies have not been conducive to reducing volatility. Despite an intensified economic volatility in the last decade, fiscal and monetary policies were not effectively designed to stabilize the economy. Therefore, more needs to be done to reduce volatility and address macroeconomic sustainability concerns. To strengthen the macroeconomic policy framework further, the policies could be centred on (a) alleviating fiscal sustainability concerns and (b) improving countercyclicality of macroeconomic policies.

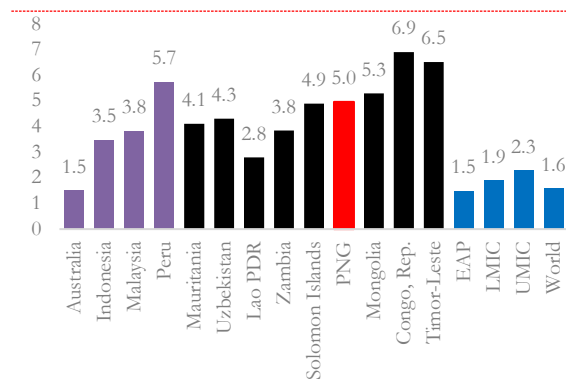
4. Excessive macroeconomic volatility and risks to macroeconomic stability

4.1. PNG’s economy has been volatile

16. **Economic growth in PNG has been volatile.** Except for a few structural peers characterized by heavy dependence on natural resources, PNG displayed the greatest economic growth volatility since the 1980s (Figure 12). The standard deviation of growth over the four decades was 5 percent. In particular, the staggering economic growth observed in the early 1990s was followed by intermittent recessions and, therefore, underscores the economic volatility of PNG in the 1990s relative to its peers (Figure 13). In the following decade, however, economic volatility declined significantly: except for the global financial crisis of 2008, PNG enjoyed years of robust economic growth. Volatility rose again in the most recent decade as the economy was hit hard by the impacts of the earthquake in 2018 and the COVID-19 pandemic.

Figure 12: Economic volatility in PNG has been significant during 1981–2021 ...

(Standard deviation of annual growth, 1980–2021)

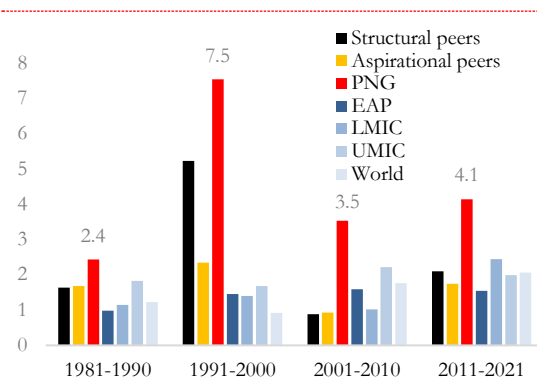


Source: WDI.

Note: Aspirational peers are depicted in yellow, structural peers in black, and other global groups in blue.

Figure 13: ... however the 1990s were the most turbulent years for PNG.

(Standard deviation of annual growth, by decades)



Source: WDI.

17. **The extractive sector has been the most volatile.** Value added in extraction of resources has been subject to the project development cycle of several key projects and exhibited the highest volatility compared to

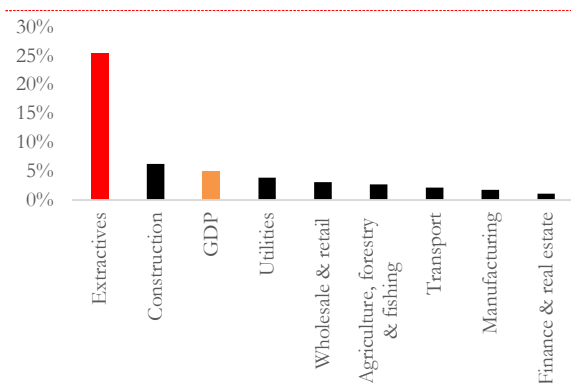
PAPUA NEW GUINEA
Country Economic Memorandum

other sectors. Over 1983–2020,¹⁷ the standard deviation of the extractive sector was 25 percent—far exceeding the volatility of other sectors (Figure 14). It was followed by construction, which was in turn heavily linked to the development of resource projects’ infrastructure. On the contrary, agriculture, a very volatile sector in other countries, demonstrated a lower level of volatility in PNG. This is likely linked to the diverse production bundle of agriculture and its geographic diversity.

18. **Heightened macroeconomic volatility has been accompanied by government budget expenditure volatility.** High volatility makes the task of government budget planning and execution more challenging. Together with other weaknesses in public financial management (PFM), this contributes to the high level of variance between approved and actual spending in the composition of expenditure. As a result, public spending is excessively volatile. For some expenditure categories, such as use of goods and services and public investments (net acquisition of nonfinancial assets), the interannual swings are even more pronounced, with double-digit changes becoming more the rule than the exception (Figure 15). This heightened volatility of budget spending is negatively affecting service delivery.

Figure 14: Value added in the extractive sector drove GDP volatility in PNG

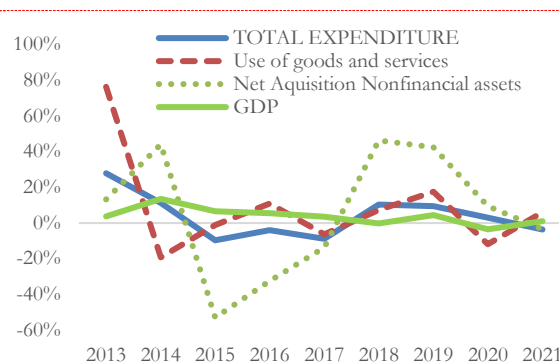
(Standard deviation of growth in 1983–2020, percent)



Source: National Statistical Office (NSO), Bank of Papua New Guinea (BPNG), and World Bank staff calculations.

Figure 15: Budget expenditure has also been volatile

(Percent real change)



Source: BPNG and World Bank staff calculations.

19. **Employment has been highly volatile in the extractive sector while declining steadily in the non-extractive sector.** Despite a rising share of the extractive sector in GDP, the non-extractive sector is the major hub of economic activities and offers most of the employment in PNG. However, employment in the non-extractive sector has been on a declining trend since the beginning of the last decade (Figure 16). Employment slowed down in almost all non-extractive sectors, particularly in the construction sector which is highly linked to the development of the extractive sector. Conversely, extractive sector employment rose sharply during the period of resource boom and exhibited higher volatility than the non-extractive sector (Figure 17).

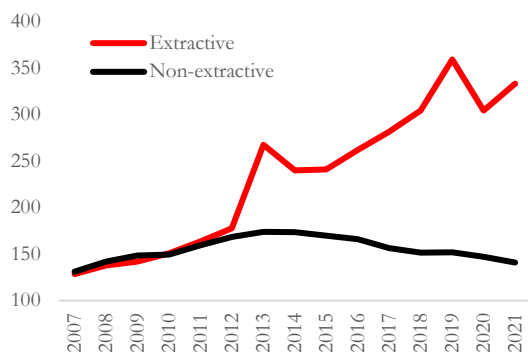
¹⁷ The first year of available data with GDP disaggregation by value added is 1983.

PAPUA NEW GUINEA

Country Economic Memorandum

Figure 16: Formal employment in the non-extractive sector has been on a steady decline since 2014

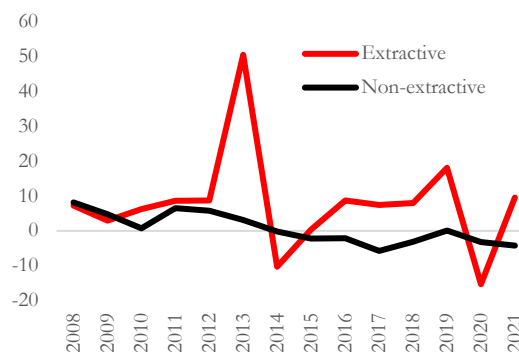
(Employment index, Q1 2002 = 100)



Source: BPNG.

Figure 17: While the extractive sector employment displayed higher volatility

(Employment growth, percent)



Source: BPNG.

4.2. High risk of debt distress

20. **A high risk of debt distress increases the challenges for macroeconomic stability.** Public debt in PNG had been increasing over the last decade, well before the COVID-19 pandemic began, and reached 50 percent of GDP in 2021 (Figure 18). Since June 2020, the Joint IMF-World Bank Debt Sustainability Analysis (DSA) has assessed PNG's risk of debt distress as high¹⁸ (IMF 2022). The debt remains sustainable if authorities continue to implement plans for further fiscal consolidation. The DSA suggests that PNG is susceptible to exports and other shocks, signalling downside risks to the debt outlook in a global environment of high uncertainty. While PNG's debt-to-GDP ratio is not the highest among its structural peers (Figure 19), many of these comparators face serious debt challenges. In mid-2022, Congo was in debt distress, while Lao PDR, the Solomon Islands, Mongolia, and Zambia were at high risk of debt distress.¹⁹ High risk of debt distress could negatively affect capital accumulation and economic growth in the country via elevated long-term interest rates and lower investor confidence.

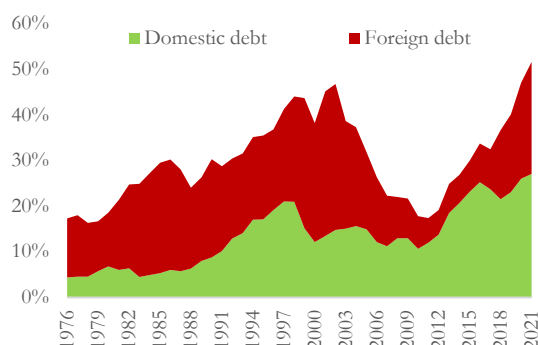
¹⁸ Conditional on the implementation of the authorities' plans for further fiscal consolidation and conservative financing strategies, PNG's external and overall debt is judged as sustainable.

¹⁹ <https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf>

PAPUA NEW GUINEA

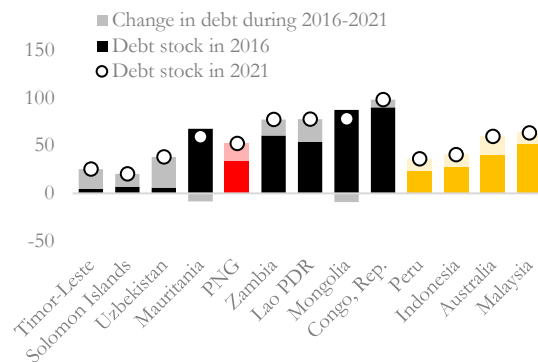
Country Economic Memorandum

Figure 18: Government debt in PNG has been increasing sharply over the last decade
(Percent of GDP)



Source: NSO, BPNG, and World Bank staff calculations.

Figure 19: Government debt in PNG and peer countries
(General government debt-to-GDP ratio)



Source: World Bank 2022.

5. Explaining high volatility and challenges for macroeconomic stability

21. **A combination of ‘natural’ and policy factors contributed to the economic volatility in PNG.** The economy became exposed even more to the extractive sector with commencement of a major resource project in 2010. External shocks from the dwindling commodity markets and a lower-than-expected revenue from resource exports led to a large revenue shortfall. Declining revenue led to sustainability concerns as the fiscal deficits and public debt stock kept rising. The fiscal response to economic instability was acyclic while the monetary policy aimed at controlling exchange rate to limit the inflationary pressure.

5.1. Economic structure and exposure to commodity markets

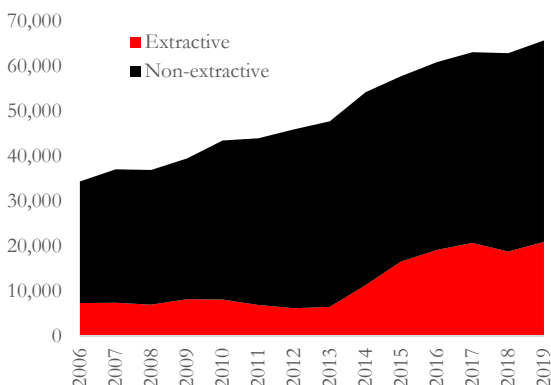
22. **The extractive sector gained share in the overall economic output and triggered greater volatility.** PNG is highly prone to natural disasters and exposed to external shocks, particularly to those arising from the global commodity markets (Nakatani 2017). With commencement of the largest extractive sector project (PNG-LNG) in 2010, PNG’s economic growth became more reliant on the extractive sector’s performance. For example, PNG recorded double-digit real GDP growth in the commencing years of LNG construction (10.1 percent in 2010) and LNG exports (13.5 percent in 2014). Likewise, a post-earthquake temporary shutdown (for approximately two months) of the project in 2018 led to a negative growth of 0.3 percent. High sensitivity of the economic growth to the extractive sector resulted from the sector’s growing share in GDP. For example, the average share of the extractive sector in total GDP was 29.2 percent during 2014–2019 compared to 17.8 percent in 2007–2013 (Figure 20). Notably, volatility was substantially higher in the latter period and was mostly driven by the extractive sector (Figure 21).

PAPUA NEW GUINEA

Country Economic Memorandum

Figure 20: Extractive sector gained dominance in the overall GDP in the last decade...

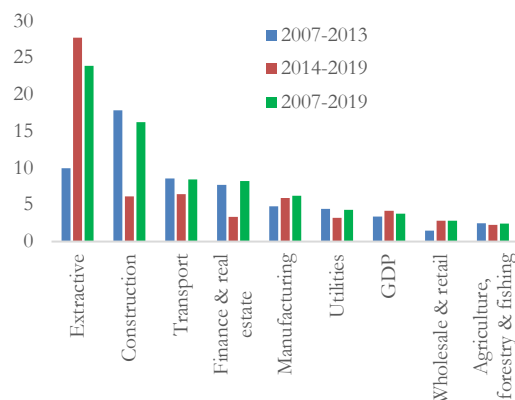
(Real GDP, million kina, 2013 price)



Source: NSO.

Figure 21: ... and was highly volatile relative to the other sectors.

(Volatility in GDP growth and across sectors, percent)

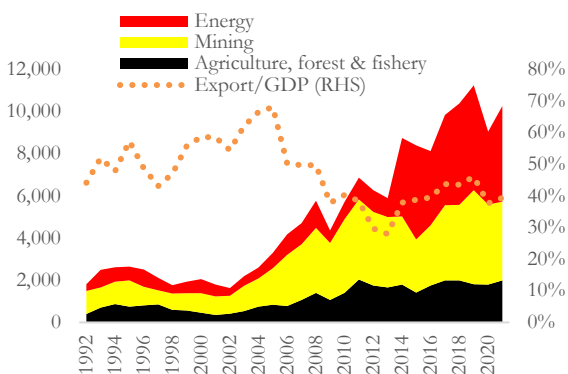


Source: NSO.

23. **Economic growth became highly correlated with the energy-led extractive exports.** Commodity price volatility generally leads to a higher economic volatility in resource-rich developing countries (Frankel 2012; Moradbeigi and Law 2016). For a panel of 35 resource-rich economies, Shahbaz et al. (2019) finds that while the resource abundance adds to economic growth, resource dependence drags economic activities and hence leads to a higher economic volatility. Traditionally, the extractive sector of PNG has dominated the export basket; however, its share has increased substantially in the last decade led by the natural gas exports (Figure 22). Accordingly, the output growth became more reliant on the performance of the extractive sector. There was more than twofold increase in the correlation between real GDP and export²⁰ growth in the last decade, which was driven by the extractive exports (Figure 23). Notably, the correlation with the non-extractive exports declined over time and was negative in the last decade.

Figure 22: Energy exports led by natural gas boost up overall exports in recent years.

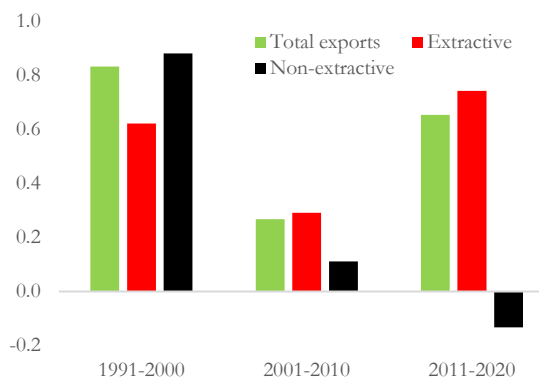
(Export, US\$, millions and percent of GDP)



Source: BPNG.

Figure 23: ... and made economic performance highly dependent on the extractive exports.

(Correlation, real GDP and real export growth, percent)



Source: NSO, BPNG, and World Bank staff calculations.

²⁰ Export value (in US\$) deflated by the US consumer price index.

PAPUA NEW GUINEA Country Economic Memorandum

24. **Commodity markets exhibited significant price volatility in the last decade.** Commodity prices tend to be more volatile than other prices as it takes time for the global supply and demand to respond to price changes (Dwyer, Gardner, and Williams 2011). The commodity markets were highly volatile in the last decade, driven by the economic turmoil and the subsequent recoveries brought by the 2008 global financial crisis. PNG specializes in the export of a few commodities, particularly in the mining and energy sector. Consequently, it is highly exposed to the commodity price volatility and experiences macroeconomic instability. The prices of PNG’s two major mining commodities—gold and copper—were on a sustained fall during 2012–2015. While the LNG exports began in 2014, the natural gas price declined substantially during 2015–2016. A less diversified export basket along with a structural shift in the export composition led the export price index²¹ to follow price movements of the extractive exports (Figure 24). Notably, non-extractive commodity prices (mainly agriculture) were relatively less volatile in the last decade while a larger volatility in the extractive commodity prices was led by natural gas prices (Figure 25).

Figure 24: Commodity prices of the extractive exports were more volatile in the last decade
(PNG’s real export price index, 2010 = 100)

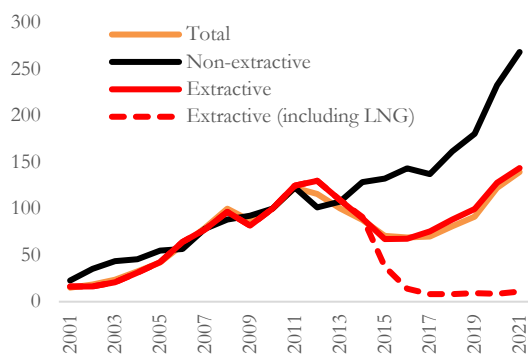
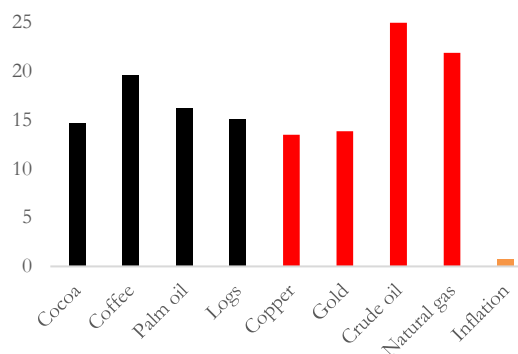


Figure 25. Greater volatility was led by natural gas
(Commodity price and inflation volatility, 2011–2020 average, percent)



Source: World Bank “Pink Sheet” (October 2022) and World Bank staff calculations.

5.2. Macroeconomic policies

25. **Macroeconomic policies in PNG have not been conducive to reducing volatility.** Despite an intensified economic volatility in the last decade, fiscal and monetary policies were not effectively designed to stabilize the economy. In the absence of an adequate revenue buffer from large resource projects, the government had to stretch fiscal deficit and eventually ended up with large debt stock. The central bank moved away from a floating exchange rate regime to limit currency depreciation and exchange rate pass-through on inflation, although at a cost of market restrictions and foreign exchange rationing. While the policies pursued some of these objectives, they were not efficient in reducing the overall economic volatility.

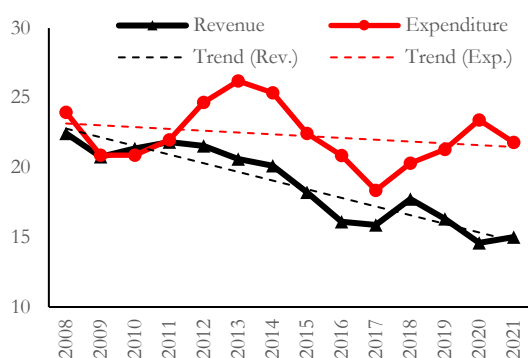
26. **Fiscal revenue and expenditure have both been under pressure in the last decade while revenue dropped more sharply than expenditure.** The fiscal expenditure in PNG tends to be higher during the periods

²¹ Following Gruss and Kebhaj (2019), the real commodity price index was calculated as $p_t = \exp [w_{j,t} \sum_{j=1}^N (p_{j,t-1} + \Delta p_{j,t})]$, where $p_{j,t} = \ln \left(\frac{P_{j,t,US\$}}{CPI_{US,t}} \right)$ is the real commodity price of commodity- j , $P_{j,t}$ is the nominal price (in US\$), CPI_{US} is the US consumer price index, and $w_{j,t}$ is the rolling export weight for commodity j in the year t . The average of current and past two years’ commodity-specific rolling weights was used to calculate the indexes. The indexes were calculated using an 8-commodity basket comprising non-extractive (cocoa, coffee, palm oil, fish, and logs) and extractive commodities (gold, copper, and crude oil). LNG was not included in the construction of overall price index as the LNG exports began in 2014.

PAPUA NEW GUINEA Country Economic Memorandum

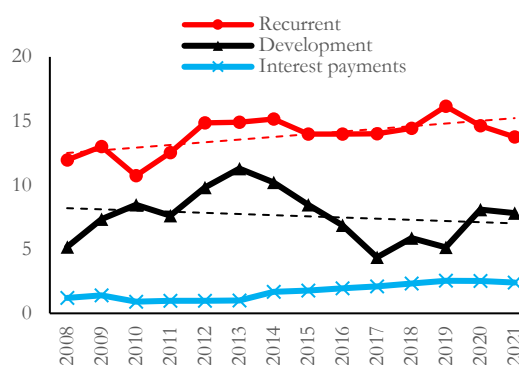
of resource boom. For example, on the assumption of a higher revenue from the PNG-LNG project, the government increased spending in 2012, two years ahead of the LNG exports (Figure 26). However, a lower-than-expected revenue from the resource project forced the government to reduce spending from 2014. Nevertheless, the expenditure drop over time was not in proportion to the revenue fall and resulted in a persistent fiscal deficit and a higher public debt stock. Notably, fiscal spending was brought down by a significant reduction in capital spending while the non-development expenditure, particularly the wage bills, remained relatively stable (Figure 27). Declining revenue led to sustainability concerns as the public debt stock kept growing from 19 percent of GDP in 2012 to 50 percent in 2021 and resulted in a high risk of debt distress (IMF 2022).

Figure 26: Fiscal revenue dropped sharper than the expenditure
(Percent of GDP)



Source: NSO.

Figure 27: Development expenditure has not received as much attention as recurrent expenditure
(Percent of GDP)

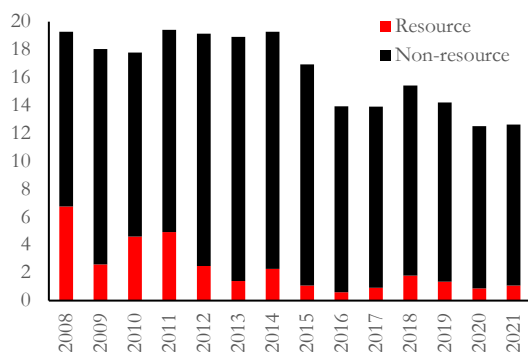


Source: NSO.

27. **Both resource and non-resource revenue fell over the last decade.** Despite a large investment in the extractive sector, the resource revenue did not grow proportionate to the resource GDP and had a low contribution to the total revenue (Figure 28). Given its share in GDP, PNG receives relatively less revenue from the resource sector compared to the other commodity exporters (IMF 2022). In contrast, non-resource revenue, which is PNG's most significant source of revenue, has been on a declining trend since 2015. Tax revenue, which accounts for more than 80 percent of the total revenue, also declined sharply in the last decade, from 18.5 percent of GDP in 2011 to 11.5 percent in 2020 while the non-tax revenue stabilized at around 2 percent of GDP. A general economic slowdown following the end of the PNG-LNG project and a weakening tax compliance contributed to lower tax collection.

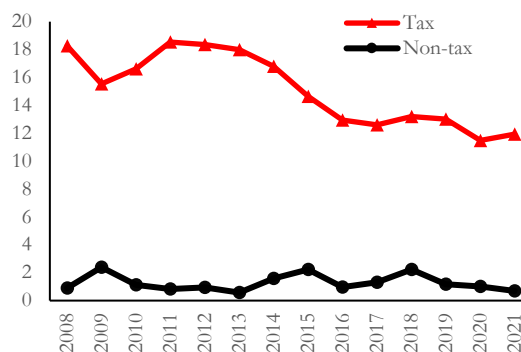
PAPUA NEW GUINEA
Country Economic Memorandum

Figure 28: Revenue from extractive sector was flat while non-extractive revenue dropped
 (Fiscal revenue, percent of GDP)



Source: NSO.

Figure 29: Tax revenue also fell sharply following a slowdown in economic growth
 (Fiscal revenue, percent of GDP)



Source: NSO.

28. **The fiscal response to economic cycles has been acyclic and not effective in reducing volatility.** Ideally, the government is expected to pursue a countercyclical fiscal policy by saving more during economic expansion and spending more during contraction. Yet, the spending decisions in resource-rich countries tend to be highly dependent on the current and prospective revenue flows from resource projects (Bjørnland and Thorsrud 2019). One would expect the same for PNG given its economic volatility to resource projects and appetite for higher spending during resource booms. However, an empirical test finds no significant relationship between government expenditure and economic growth, suggesting that the fiscal reaction to business cycles has been random in PNG (see Box 2).

Box 2: The cyclicity of fiscal policy in Papua New Guinea

Cyclicity of fiscal policy refers to the change in government expenditure and taxes relative to business cycle movements. Fiscal policy is called procyclical when the government increases spending during an economic expansion and reduces it during a recession. Conversely, an expansionary policy during the recessions and a contractionary policy during booms are considered as countercyclical fiscal policy. Ideally, fiscal policy is expected to be countercyclical, that is, to restrain from higher spending during the periods of economic expansion and save for downturns so that a sustainable economic growth is achieved over time. However, fiscal policy in developing countries, particularly in resource-rich economies, tends to be procyclical where spending decisions are closely related to revenue flows from resource exports. As PNG is both a developing and a resource-dependent country, one would expect the fiscal reaction to closely follow the business cycle.

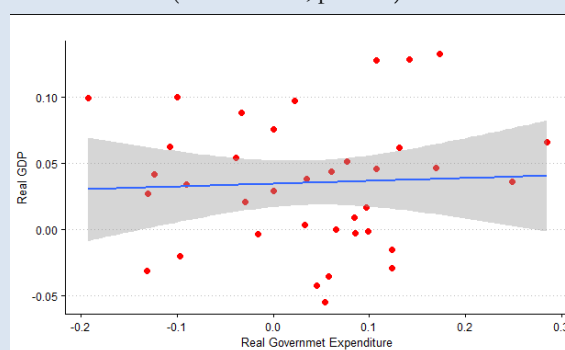
The most straightforward way to test this hypothesis is to look at the relationship between real government expenditure and real output (Hamilton 2018). Figure 30 shows no cyclicity of fiscal policy for PNG. However, a simple inspection of such linear relationship through data plots may not reveal the true causality of fiscal decision to business cycle movements. Therefore, the empirical relationship was tested with annual data for the period 1990-2020 and using three regression models drawing on the literature (Gavin and Perotti 1997; Ilzetzki and Vegh 2008; Lane 2003; Mcgranahan and Mattoon 2012).

$$\Delta G_t = \alpha + \beta \Delta \log \text{RGDP}_t + \gamma \log G_{t-1} + \varphi T_t + \delta D_t + \varepsilon_t \quad (1)$$

$$\text{FB}_t = \alpha_0 + \alpha_1 T_t + \beta \log \text{RGDP}_t + \delta D_t + \varepsilon_t \quad (2)$$

$$\Delta \text{FS}_t = \alpha + \beta \text{Outputgap}_t + \delta D_t + \varepsilon_t \quad (3)$$

Figure 30: Real GDP and real government expenditure
 (Growth rate, percent)



Source: World Economic Outlook and staff calculations.

Where ΔG_t is the growth rate of government expenditure, $\Delta \log \text{RGDP}_t$ reflects real GDP growth, T_t is the time trend and D_t captures the structural break for the post-LNG export periods (2014–2020), FB_t is the fiscal balance, ΔFS_t is the change in structurally adjusted fiscal balance, calculated as the difference between cyclically adjusted revenues and expenditure, and Outputgap_t is the output gap defined as the deviation of GDP from its trend. In all specifications, the coefficient β is the measure of cyclicity where a positive β indicates fiscal procyclicality.

The estimated results do not suggest significant evidence of the cyclicity of fiscal policy in PNG. The main results are presented in Table 3. The inclusion of structural breaks reveals that the commencement of the major resource project has not altered this outcome. However, the number of observations in the regression models is very small, which may affect the robustness of the parameter estimates. The absence of high-frequency fiscal and real sector data is a major constraint in obtaining robust estimates for PNG.

PAPUA NEW GUINEA
Country Economic Memorandum

Table 3: Estimation of fiscal cyclicality with three different specifications

	Dependent variable		
	(1)	(2)	(3)
	ΔG_t	FB_t	ΔFS_t
$\Delta \log RGDP_t$	0.613 (0.411)		
$\log G_{t-1}$	-0.460** (0.208)		
$\log RGDP_t$		-0.774 (3.416)	
T_t	0.017** (0.007)	0.032 (0.113)	
D_t	0.035 (0.092)	-2.895*** (0.995)	
Outputgap _t			0.109 (0.091)
Constant	0.647** (0.310)	2.257 (10.475)	-0.184 (0.236)

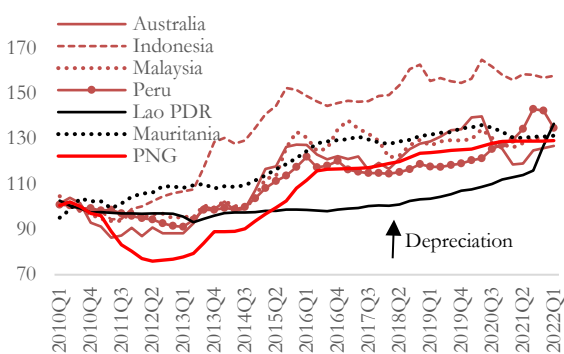
Source: World Bank staff calculations.

Note: Figures in parentheses indicate standard errors. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

29. **Monetary policy has been relatively successful in reducing and stabilizing inflation.** The BPNG opted for a highly managed exchange rate regime in the last decade to limit the exchange rate pass-through on inflation. Following some depreciation over 2012–2015 (due to a fall in the commodity prices and the end of PNG-LNG investments), the exchange rate of the Papua New Guinea kina remained relatively stable against the US dollar from 2016 till present. Compared to the currencies of its peers, the movement of the kina against the US dollar was relatively flat during this period (Figure 31). Consequently, the BPNG was able to significantly bring down volatility in inflation in the last decade from the period of high price volatility (2001–2010, characterized by a floating exchange rate regime). Further, PNG’s success in reducing inflation volatility was more pronounced than its peers (Figure 32).

Figure 31: Compared to the peer currencies, kina moved slowly against the US dollar

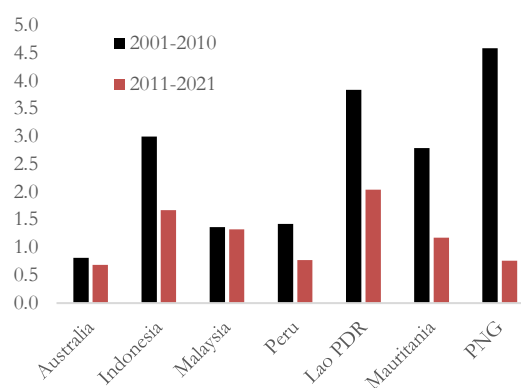
(Currency per US\$, period average, 2010 = 100)



Source: IMF.

Figure 32: A slower depreciation was able to reduce inflation volatility

(Inflation volatility, average over the decade, percent)



Source: IMF and World Bank staff calculations.

30. **Nevertheless, price and exchange rate stability were achieved at the cost of an overvalued commodity currency.** The shortage of foreign exchange and currency overvaluation was one of the most debated issues in the last decade (still ongoing). In the wake of a severe forex crisis in 2014, the BPNG persistently

PAPUA NEW GUINEA

Country Economic Memorandum

infused liquidity in the interbank foreign exchange market.²² However, as the central bank's forex supply could only partially met the excess demand,²³ the BPNG embraced several capital control measures,²⁴ which kept currency depreciation in check but distorted the fundamentals of a commodity currency. The IMF assessment is that the kina is overvalued (IMF 2022). The overvaluation has been persistent due to restrictions on access to foreign exchange, leading to various distortions. The BPNG has been defending its current exchange rate practices, arguing that a large depreciation would only lead to a higher inflation without encouraging a significant supply-side response from the non-extractive sector (BPNG 2021). However, some empirical studies counter this argument and show that the exchange rate can play an effective role in inducing an improvement to the trade balance for PNG (see Box 3).

Box 3: The macroeconomic effects of commodity price and exchange rate shocks in PNG

The currency of a commodity exporter is expected to follow the price developments in the international markets, that is, it should appreciate when the market is booming and depreciate when prices are falling (Clements and Fry 2008). PNG is a net exporter of primary commodities (UNCTAD 2021), and the kina is empirically viewed as a commodity currency. For example, Kauzi and Sampson (2009) examine the commodity price-exchange rate relationship for 1995–2005 and find that a 10 percent increase in commodity prices is associated with a nominal kina appreciation (against US dollar) of 4–6 percent. However, a relatively stable kina for half a decade is in sharp contrast to this empirical belief. The correlation was found insignificant for 2011–2020, pointing to a distorted commodity currency. An overvalued currency undermines the role of the exchange rate as a 'shock absorber'. That is, a currency depreciation could offset a negative terms-of-trade shock by promoting exports and discouraging imports. Nevertheless, authorities often believe that depreciation would only be inflationary and would not bring any significant improvement to the trade balance (BPNG 2021).

The hypothesis was tested for PNG by evaluating the macroeconomic responses to shocks generated by a structural vector autoregression (SVAR) model (Chowdhury 2022). A quarterly 6-variable SVAR was estimated for the sample period 1997–2019 with the short-run restriction $(pc_t, yw_t, yd_t, pd_t, q_t, tb_t)'$, where the variables are real commodity price index (pc_t), foreign output (yw_t), domestic output (yd_t), inflation (pd_t), real exchange rate (q_t), and real trade balance (tb_t). The key results are presented in Figure 33. The variables in the model are in natural logs and linearly detrended (except inflation). Therefore, the impulse response functions (IRFs) indicate percentage deviation from the variable-specific trend following a shock (solid lines) where the trend is given on the horizontal axis. The IRFs are plotted for 20 quarters with one standard error confidence bands (dotted lines). Inflation enters the model as quarter-on-quarter percentage change and therefore, the responses are in terms of percentage point changes from the baseline.

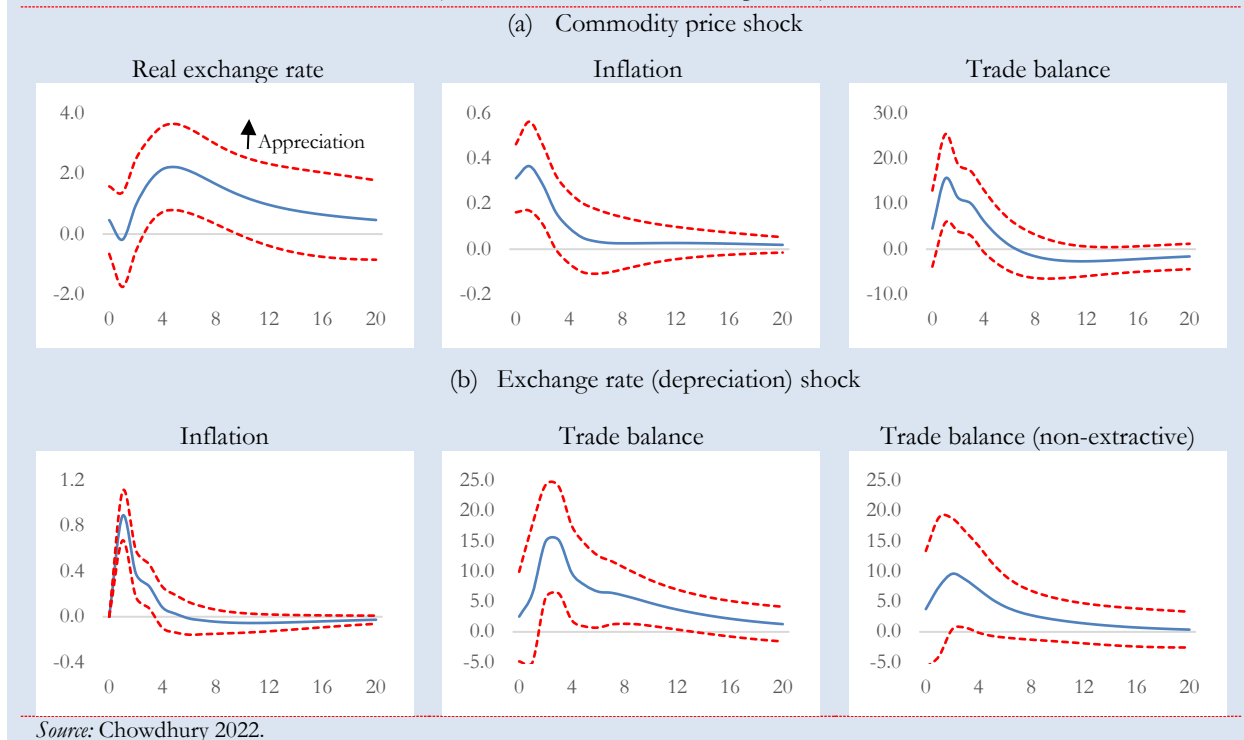
The results indicate that the positive trade balance effect outweighs the negative inflation effect, implying a net gain from currency depreciation. Panel (a) shows that a 10 percent positive shock to commodity prices leads to a 2.2 percent real kina appreciation four quarters after the shock (a delayed response is perhaps the reflection of an exchange rate control). A higher commodity price improves the trade balance while it elevates inflation. Panel (b) shows that a 10 percent real kina depreciation can improve the trade balance by 10 (non-extractive balance) to 15 (overall trade balance) percent but at the cost of a 1 percentage point higher inflation.

²² Over 2016–2021, the BPNG's net sale of forex in the interbank foreign exchange market amounted to US\$3.24 billion.

²³ On average, the central bank's forex sale during that period was equivalent to 17.3 percent of the total imports.

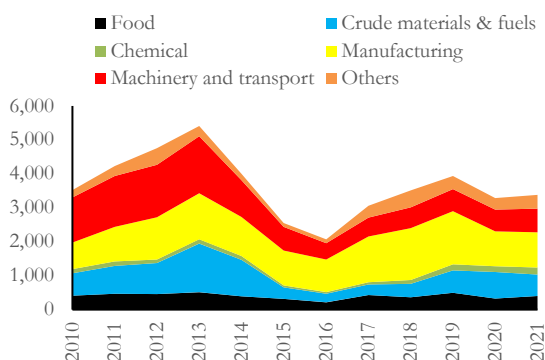
²⁴ For example, forex rationing, exchange rate trading band, multiple currency practices, requirement of a tax clearing certificate, and repatriation and surrender of export proceeds.

Figure 33: Response to a 10 percent positive shock to commodity prices and exchange rate
 (Deviation from the baseline, percent)



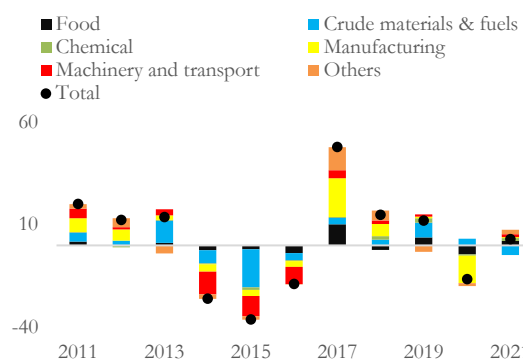
31. **The exchange rate control and forex rationing hurt imports, decrease transparency, and have negative consequences for the long-run economic growth.** A controlled exchange rate regime is empirically viewed as a drag on economic growth (Rodrik 2008). Large resource projects may not always bring in the desired capital due to the nature of project agreements and external shocks. However, policy instruments should be kept flexible to withstand those unexpected shocks. For example, when a demand-supply mismatch emerged in the forex market in the beginning of the last decade and resulted in a forex shortage, it also led to a sharp import contraction. In a flexible exchange rate regime, the excess demand for forex could have been reduced by a currency depreciation. Without a flexible exchange rate, forex rationing played a similar, although more distortive role, so imports fell sharply in 2014 and recovered very slowly thereafter (Figure 34). Notably, the import contraction in the first few years was led by lower capital machinery, transport, and raw material imports (Figure 35), which had a negative consequence for the non-extractive sector growth in the following years.

Figure 34: Import recovery was slow following a sharp contraction in 2014
 (US\$, millions)



Source: BPNG.

Figure 35: Import growth and sectoral contributions
 (Percent)



Source: BPNG.

6. Reducing volatility and safeguarding macroeconomic sustainability

32. **The authorities have made important strides in reducing volatility and addressing macroeconomic sustainability concerns.** The government has adopted and started implementing a fiscal consolidation (“budget repair”) program as a pre-condition for safeguarding debt sustainability. The fiscal deficit narrowed from 8.8 percent of GDP in 2020 to 6.8 percent of GDP in 2021 (outperforming the budgeted 7.1 percent of GDP). In 2022 the fiscal deficit is estimated to have been further reduced to 5.4 percent of GDP. Meanwhile, the BPNG focus on exchange rate stability managed to reduce inflation and contain its volatility.

33. **However, more needs to be done to strengthen the macroeconomic policy framework further.** The policies could be centred on (a) alleviating fiscal sustainability concerns and (b) improving countercyclicality of macroeconomic policies.

6.1. Fiscal sustainability

34. To alleviate fiscal sustainability concerns, the authorities should continue fiscal consolidation and focus on increasing domestic revenue mobilization, reducing inefficient spending, and enhancing the Fiscal Responsibility Act:

- **Increase domestic revenue mobilization, including revenue from the extractive sectors.** First, the authorities can boost revenue substantially and rapidly by regularizing the transfer of PNG-LNG revenues. Since 2014, the controlling state-owned enterprise (SOE), Kumul Petroleum Holdings Limited (KPHL), has retained more than two-thirds (70 percent) of revenue from the government’s 16.8 percent shareholding in the project (see also Box 4). Greater transparency and oversight of these revenues (presently, almost no details are published) will help support the implementation of the government’s dividend policy and the transfer of these revenues to the central government. Second, it would be reasonable to limit (or not allow) special status tax provisions for new resource sector projects, avoiding the problems with fiscal intake from the PNG-LNG experience. Third, as the World Bank’s Public Finance Review (2021) argues, revenue reforms will require further tax policy improvements and continued efforts to enhance tax administration. Key recommendations are the following: (a) implement a comprehensive goods and services tax (GST) compliance improvement plan; (b) eliminate corporate income tax (CIT)

PAPUA NEW GUINEA Country Economic Memorandum

holidays and reduced tax rates, replacing them with more efficient tax incentives, and strengthen transfer pricing rules to better protect the CIT base; (c) consider changes in the personal income tax (PIT) regime to lower the tax burden (effective tax rates) for salary and wage earners, especially those in the lower and middle PIT brackets; and (d) strengthen tax administration for better compliance and improved revenue collection.

- **Reduce inefficient spending, including in the public sector wage bill.** Public sector wages account for almost half of government revenues. To improve the quality of public service provision while restraining wage bill growth, authorities could redirect staffing from lower to higher priority areas, audit the payroll routinely, ensure no duplication of posts as decentralization continues, and analyze payroll data to identify grade inflation that pushes up costs. In addition, the authorities could increase the efficiency of capital spending by rationalizing the Public Investment Program (PIP) and improving Public Investment Management (PIM) practices. With 30 percent of projects dropped each year before any spending occurs, significant effort is wasted in identifying and planning projects.
- **Enhance the Fiscal Responsibility Act.** The debt-to-GDP limit was introduced in the Fiscal Responsibility Act of 2006 but has not effectively acted as a ceiling on government deficits or debt levels. The debt ceiling limit has been raised four times over its 15-year lifespan, most recently in the 2020 supplementary budget, where it was increased to 60 percent of GDP. The Act needs to be strengthened and put in the center of the fiscal planning and implementation, with appropriate operational fiscal rules to help achieve the fiscal anchor (debt limit).

Box 4: Potential fiscal revenue from soaring LNG prices

LNG prices were at record highs in 2022, but only little additional revenue might reach the government budget. Realized LNG prices were above US\$14.00 per mmBtu (millions of metric British thermal units) in Q2 2022—their highest ever level—which surpasses the US\$11.00 per mmBtu achieved at the end of 2018. Spot prices are even higher, reaching US\$16.44 per mmBtu in July 2022. KPHL is a commercial enterprise that holds the government’s 16.8 percent share of the PNG-LNG project. KPHL shares are held for and on behalf of the state by the Kumul Petroleum Trustee, who is the person who holds the office of Prime Minister. KPHL received around US\$339 million from PNG-LNG in 2021 and is estimated to receive over US\$890 million in 2022 (Table 4). These funds come via GloCo (PNG-LNG Global Company LLC) operated on behalf of all PNG-LNG partners by ExxonMobil PNG Ltd. The dividend that the government received from Kumul Petroleum in 2021, however, amounted to only US\$85 million, and Kumul Petroleum is budgeted to transfer only US\$113 million in 2022. The funds retained by Kumul Petroleum would be equivalent to 1.0 percent of GDP in 2021 and 2.7 percent of GDP in 2022. Neither GloCo nor KPHL publish its annual reports or financial statements, and the absence of this information is the largest gap in understanding the finances of the PNG-LNG project.

Table 4: PNG-LNG revenues to Kumul Petroleum and subsequent dividend payments to the government

US\$, millions	2014	2015	2016	2017	2018	2019	2020	2021	2022*
Total PNG-LNG revenues minus costs	3,192	2,134	927	1,849	2,164	1,793	485	2,018	5,326
Kumul Share (16.8% shareholding)	536	358	156	311	364	301	81	339	895
Kumul dividend paid to Government of PNG (US\$ millions, kina millions)	168 (414)	103 (286)	64 (200)	94 (300)	137 (452)	74 (250)	87 (300)	85 (300)	113 (400)
Difference	-368	-255	-92	-217	-226	-227	5	-254	-782
Difference (% GDP)	-1.6	-1.2	-0.4	-1.0	-0.9	-0.9	0.0	-1.0	-2.7

* Estimated based on six-month performance

6.2. Countercyclicality of macroeconomic policies

35. To improve countercyclicality of macroeconomic policies, the government and BPNG should aim at developing high-frequency macro statistics and reduce delays in data releases, operationalize the SWF, reintroduce kina convertibility and allow greater exchange rate flexibility, and plan phase-in of new resource projects asynchronously:

- **Develop high-frequency macroeconomic statistics and reduce delays in data releases.** Timely macroeconomic statistics are a crucial ingredient in decision-making on the countercyclical policies. With the current long delays in PNG with the statistical releases and unavailability of most indicators on monthly and quarterly basis, the analytical basis for decisions is thin and mistakes are more likely.
- **Operationalize the SWF, with all flows via the government budget.** The law establishing the SWF was enacted in 2016. As of 2022, the Fund has a zero balance. The SWF has the ambition to receive all the government's resource revenues, that in turn will provide a steady noncyclical flow of financing to the annual budget. This mechanism, if implemented, could remove much of the boom-and-bust nature of PNG's fiscal policy. However, the SWF was introduced just as the previous resource boom was ending, and the money from that boom had already been spent. As the fiscal consolidation progresses, the government should start implementing the SWF stabilization mechanism, using good international practice (see Box 5).
- **Reintroduce kina convertibility and allow greater exchange rate flexibility.** The BPNG switch to a de facto 'stabilized' exchange rate regime in the last decade helped limit the exchange rate pass-through on inflation. However, the price and exchange rate stability were achieved at the cost of an overvalued currency and the exchange rate control and forex rationing have consequences for the long-run economic growth. A pegged exchange rate limits the effectiveness of monetary policy, particularly to reduce the economic volatility. BPNG should consider, with technical assistance from the IMF, gradually allowing greater exchange rate flexibility and reintroducing kina convertibility.
- **Plan phasing-in of new resource projects asynchronously.** The pipeline of resource projects would involve significant investments and may trigger substantial economic fluctuations that would be difficult to fully compensate by macroeconomic policies. However, if these projects are phased in asynchronously, mutually compensating the individual projects' 'booms and busts', the resulting dynamics would smoothen, making the task for countercyclical policies more feasible.

Box 5: Sovereign Wealth Funds

Sovereign Wealth Funds are now a widespread policy instrument among resource-rich countries. They are typically established from income received from sovereign rents such as natural resource revenues or licensing fees; owned by governments on behalf of the nation; and invested in bonds, equity, infrastructure, property and other assets abroad. More than 55 SWFs have been established from the proceeds of natural resources, in over 40 countries, with more than 30 established since 2000. Their size ranges from Norway's at US\$1.2 trillion or around three times GDP, to PNG's, with a balance of US\$0.

To establish a natural resource SWF, governments must first collect resource revenues through royalties, profit taxes, joint ventures, or full ownership of extraction firms. The major issues to consider are how much profit is being declared in the country, and who bears the risk if profits disappoint (United Nations 2017). Many extraction firms avoid declaring profits in the country through 'transfer pricing', which involves heavily charging the local subsidiary for services

PAPUA NEW GUINEA

Country Economic Memorandum

provided by foreign offices of the same business (Guj, Martin, and Readhead 2017). Many firms also try to shift commodity price risk onto the government, by recouping their costs before paying any taxes. Royalties help the firms get around these problems as they are levied based on the volume or value of resources produced. However, royalties can distort firms' incentives and dissuade them from exploration. Profit taxes and joint ventures can be used to share risk, but governments must agree to a cost structure beforehand to avoid transfer pricing. Full ownership of the extraction firm allows the nation to capture much more of the resource's value, as seen in the contrasting fortunes of Norway and the UK from North Sea Oil (James et al. 2022). But this happens at a slower pace as the country must develop skills domestically. Full ownership is popular among oil exporters: 78 percent of global oil reserves are controlled by national oil companies but currently less common in mining (United Nations 2017).

Once the government starts collecting resource revenues, the first priority for many developing countries is often to repay expensive non-concessional loans. Many governments in developing countries pay a risk premium for borrowing at market rates. It is often preferable to repay this debt before investing in global equity and bond markets with lower risk-adjusted rates of return (James et al. 2022). It can still make sense to maintain a reasonable level of debt to develop local capital markets, maintain a presence in international markets, or sterilize the monetization of government revenues. However, any debt should be subject to a formal ceiling and not fund current spending at the cost of future spending.

Saving revenues in an SWF can provide many benefits, including stabilizing the exchange rate and inflation and smoothing income across generations. SWFs act like a buffer between volatile commodity markets and the local economy. Commodities are typically sold in a foreign currency like the US dollar. Depositing these revenues directly into an SWF's global investments will insulate the local economy from commodity fluctuations. The SWF can then pay a stable dividend that is converted into local currency. This stability is helpful for development. It avoids boom-bust cycles; helps governments budget more reliably; and helps businesses plan, hire workers at stable wages, and export their goods at stable exchange rates. Without an SWF, countries are much more susceptible to bouts of 'Dutch disease', where an influx of resource income lifts wages and the real exchange rate appreciates. This makes non-resource exporters less competitive globally and may cause many of them to close (James et al. 2022).

To fully realize the benefits of an SWF, it must clearly state its objectives, supported by a sound legal framework that insulates the Funds from the political cycle. There is strong empirical evidence that natural resources, especially fossil fuels and minerals, cause corruption and degrade institutions (James et al. 2022). Establishing an SWF is associated with higher levels of institutional quality. This is particularly true if the fund has a high Truman score, which is a measure of how transparent and accountable it is. SWFs are also effective at reducing procyclical government spending—but only if they have good institutions. This is clearly illustrated by the diverging successes of Chile's Economic and Social Stabilization Fund (ESSF), worth over US\$8 billion in 2021, and Venezuela's Macroeconomic Stabilization Fund (FEM), which has fallen from US\$7 billion in 2001 to around US\$3 million in 2022. Governance explains much of this, as seen clearly in Chile's Truman score which rose from 70 to 90 from 2009 to 2019, while Venezuela's fell from 23 to 0 over the same period (James et al. 2022). Good governance hinges on transparency, accountability, and clear rules as laid out in the Extractive Industries Transparency Initiative (EITI) standards, which 50 countries voluntarily adhere to, and the International Forum on SWFs' Santiago Principles.

SWF investments should be managed according to a transparent strategy by an entity with suitable financial skills, with the risks clearly disclosed to the public. Investing abroad has many advantages, as it insulates the economy from volatile commodity prices and mitigates Dutch disease, described above. Some SWFs also invest locally in financially viable projects, but this must be subject to a publicly disclosed policy with clear limits and performance benchmarks. Independent oversight is needed to ensure the fund avoids politicization as much as possible. Responsibilities should be separated between the entity setting the broad investment policy parameters (for example, the Board, Investment Committee, or Advisory Committee) and the one managing day-to-day investments (for example, central bank or independent government agency). The managing entity must have the financial skills to invest the funds internally or oversee external managers, in a way that efficiently meets the investment objectives. Disclosing the SWF's objectives, investment strategy, and risks is key to managing public expectations of performance.

The amount spent from the SWF each year should follow a clear, stable, and easily understood rule. The theoretically optimal spending rule is to spend a small, fixed share of total assets each year: both those above the ground in the SWF and those below the ground in the form of unexploited resources (van den Bremer, van der Ploeg, and Wills 2016). This is equivalent to spending a larger share of the fund's assets in the early years and a smaller share as the fund grows. In practice, many countries find it easier to simply adopt a 'bird-in-hand' rule that spends a constant share of the fund's assets each year (for example, Norway's handlingsregelen allows for 3 percent of the fund's assets to be spent each year). This approach prudently accounts for the uncertain size of below-ground reserves and the amount of income they

PAPUA NEW GUINEA
Country Economic Memorandum

may generate, by only spending resources that are ‘in-the-hand’. In developed economies, it makes sense to set the spending rule below the expected long-term real rate of interest so that the fund grows over time. In developing economies, the spending rule may be slightly more than that, to fund investments in physical and human capital at home. The rule should not be too high or otherwise it will not allow time to build local capacity and ‘invest-in-investing’ (Collier et al. 2010). In this way, SWFs in developing countries should act as ‘parking funds’: temporarily holding volatile resource revenues and converting them into a predictable stream of income for the budget, that can be gradually invested toward development needs.

SWF dividends should be spent advancing the nation’s development goals. Some SWFs invest directly in local projects. Such SWFs must be shielded from political interference and coordinate with fiscal and monetary policy. Directing spending through the budget typically subjects it to more transparency and democratic oversight and can provide a clear separation of purpose. The SWF focuses on generating the best return possible for a given level of risk, without regard to specific development goals. The government can then invest the dividends to best meet its development priorities. In developed economies, with ready access to global capital markets, dividends have been directed to recurrent spending, as in New Mexico, or even distributed directly to citizens, as in Alaska (James et al. 2022). However, in developing countries, dividends should be instead invested in physical and human capital, as they are a much cheaper source of funding than going directly to capital markets. By doing this the government transforms assets below the ground into assets above the ground: the sovereign wealth fund, the physical infrastructure of the country, and the human capital of its people.

Table 5: Selected SWFs in East Asia and the Pacific

Country	SWF Size		Source
	% GDP	US\$, millions	
Palau	107	276	Bilateral grants
Nauru	135	250	Bilateral grants, fishing, Regional Processing Centre (RPC) revenues
Marshall Islands	205	480	Bilateral grants
Federated States of Micronesia	264	1,074	Fishing and bilateral grants
Tuvalu	379	239	Fishing and bilateral grants
Kiribati	490	12,189	Phosphate and fishing
Timor-Leste	979	19,180	Petroleum

Source: World Bank, www.swfinstitute.org.



▶ CHAPTER III

Boosting Productivity

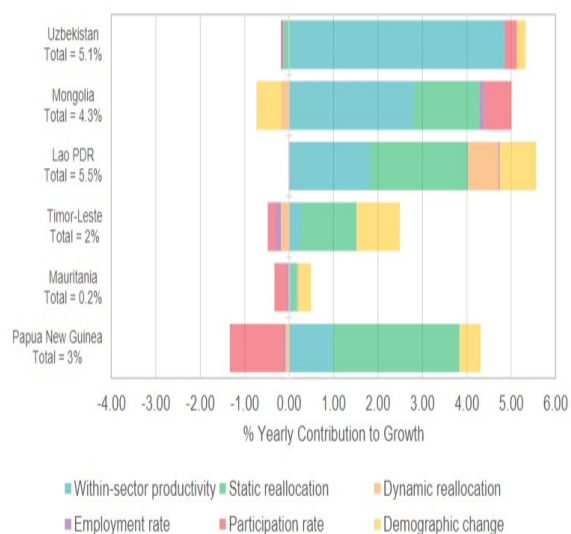
Chapter III. Boosting Productivity

36. **PNG has struggled to channel its considerable natural resources into delivering broad-based and sustained productivity-driven growth.** PNG's growth has relied largely on factor accumulation with high volatility reflecting periods of capital investment in the extractive sector. Productivity growth is largely because of demographic changes and some shift in labor from agriculture to services and industry, with the latter mostly associated with extractive projects. Broader productivity growth from structural transformation and firm upgrading is limited. Despite a considerable increase in the investment and exports arising from these extractive industries, there have been limited spillovers into broad-based growth. This path dependency is further exacerbated by several constraining factors, including a business environment that deters domestic and foreign investment, institutions and policies that weaken productivity and competitiveness, gaps in the availability and quality of productivity-enhancing infrastructure, and underinvestment in human capital and skills. To embark on a path that is less subject to the current resource dependency, PNG will need to enact a set of policies which enhance investment, improve governance, encourage effective competition in domestic markets, and improve access to (and the quality of) infrastructure and markets. There are also significant opportunities to improve the productivity of PNG's economy by increasing access to better forms of employment, particularly among women. While these binding constraints are considerable, addressing them will be essential for sustaining productivity-driven growth.

7. Symptoms of lagging productivity growth

37. **While labor has been the most consistent factor contributing to growth, labor productivity—defined as value added per worker—is not driven by structural changes.** The impact of structural change on productivity that is associated with dynamic reallocation, where labor moves from sectors of lower productivity to sectors of higher productivity, is largely missing in PNG. This structural transformation plays an important role in the growth trajectory for middle-income countries, particularly those transitioning from resource-driven to productivity-driven growth models. Instead, in PNG, increased labor productivity is driven mainly by positive static reallocation of labor among sectors with comparable levels of productivity. This is consistent with employment data that show PNG slowly moving away from agriculture into services. In fact, agricultural employment has dropped from 73 percent in 2000 to about 56 percent in 2019, while services and industry have grown to 30 percent and 13 percent, respectively, over the same timeline. Further, in PNG, these gains in labor productivity are muted by the highest loss of labor force participation (LFP) among peer countries. During 2000–2008, the LFP rate was on average 63 percent, but the rate has dropped to 48 percent on average in 2009–2019. Such factors prevent PNG from reaching the labor productivity benchmarks of structural comparators such as Mongolia or Lao PDR.

Figure 36: Aggregate decomposition of per capita value addition, 2008–2019



Source: World Bank staff analysis based on the PNG CEM Country Scan.

38. **Data constraints limit the scope of analysis on productivity and subsequently the evidence base for policy makers.** Official data on growth accounting have not been released since 2007, and firm-level data are scarce, which complicates any broad-based productivity analysis. Given these data limitations, our analysis begins with the aggregate decomposition of per capita value addition which shows what factors are driving productivity growth in PNG relative to some structural peers. The analysis shows that PNG stands out in several ways. First, the productivity boost that is associated with capital and labor moving from sectors of lower productivity to higher productivity is weak. Second, the declining LFP is sharply reducing productivity growth in PNG. Finally, productivity improvement within firms in the same sector is contributing to overall productivity growth but not at the same level as structural peers such as Uzbekistan and Mongolia. The following section looks at these three dimensions in more detail: sectoral reallocation, labor force and participation in paid employment, and within-sector upgrading.

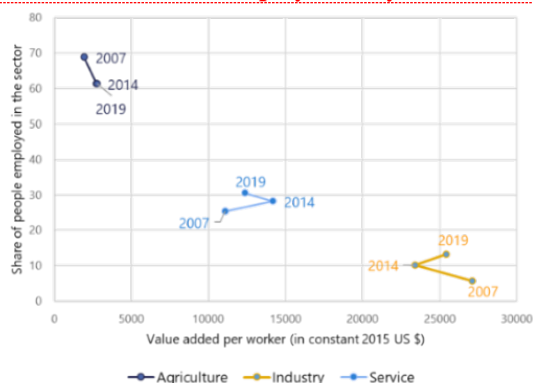
7.1. Sectoral reallocation is mainly driven by extractive projects

39. **PNG has seen a slow but steady shift in the labor force away from agriculture and toward the higher value-added sectors in services and industry.** From 2007 to 2019, the share of people employed in agriculture fell almost 10 percentage points, which was observed in tandem with a slight rise in per capita value addition, even though absolute values remained relatively low (Figure 37). Conversely, the industrial sector (including manufacturing and extractives) had the highest value added per worker during this period and, like services, accounted for an increased share of employment. Notably, however, value added per worker declined in industry between 2007 and 2014 but increased during 2014 to 2019, while the opposite trend was observed in services during these same periods. While labor had been transitioning steadily into both services (1.81 percent compounded annual growth rate [CAGR]) and industry (6.6 percent CAGR) over 2007–2019, output was more variable across years due to the investment cycle of large LNG projects.²⁵

²⁵ Between 2007 and 2014, output in services was growing faster than employment, due to the ongoing capital-intensive construction of LNG plants during this period. Once these projects came online in 2014, service sector labor productivity had hit its peak. At this point, however, capital-intensive investments ceased to flow through the local services economy and so, by 2019, labor productivity had fallen again to eliminate about one-half of the productivity gains it had realized since 2007. Similarly, while output in industry was muted up until 2014 (as a result of the investment cycle), by 2019 labor productivity had increased when the LNG plants were at full capacity.

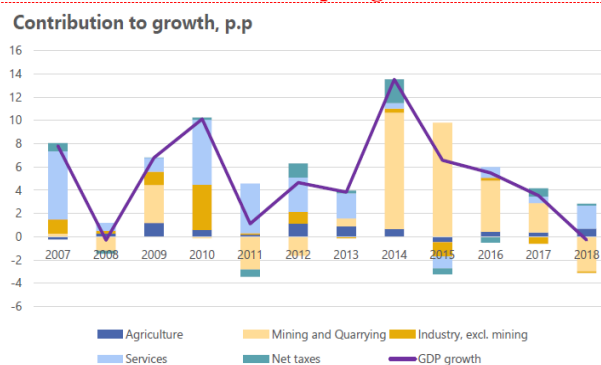
PAPUA NEW GUINEA
Country Economic Memorandum

Figure 37: Labor productivity and employment by sector



Source: WDI.

Figure 38: Sectoral contribution to per capita growth



Source: PNG National Statistic Office. Note: GDP and value added are measured in constant LCU.

Source: PNG NSO.

Note: GDP and value added are measured in constant local currency unit.

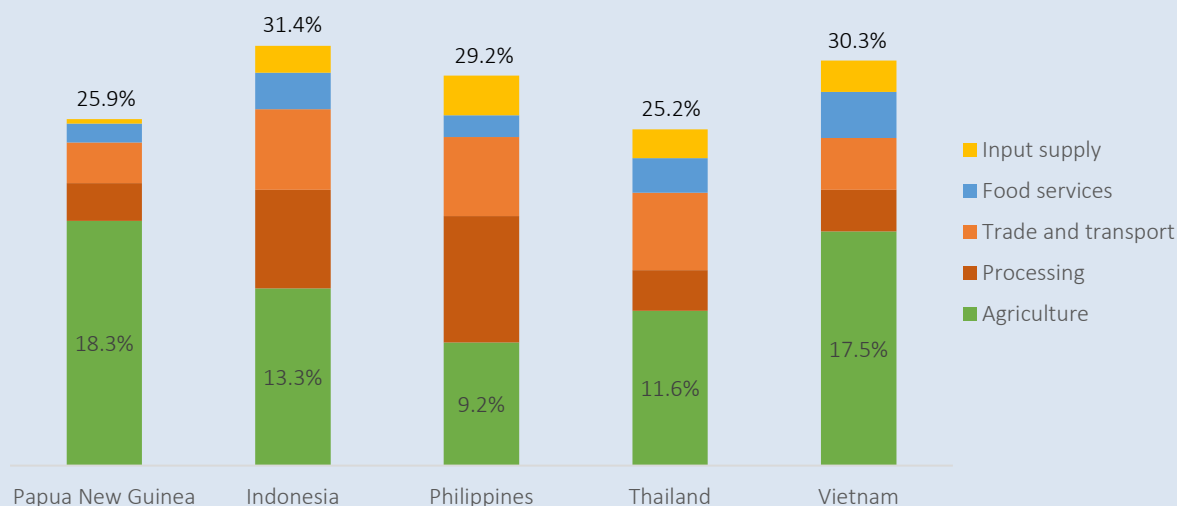
40. **Cycles of foreign direct investment (FDI) into large LNG plants played an important role in driving growth starting from 2010.** These investments initiated a rapid rise in demand for services—especially in certain construction and real estate—which lasted until 2014 when the LNG production facilities came online and investment levelled off. This economic structure is similar to that of other resource-driven economies where high-earning extractives companies and their employees drive local demand for non-tradable services. However, as Figure 38 demonstrates, FDI-linked growth in services tends to be cyclical: following the completion of large investments into LNG plants in 2014, growth in these services slowed and productivity across the sector decreased.

41. **The end of this investment cycle in 2014 is marked by a rising share of natural resource commodities (minerals) in exports, which are not durable channels of growth for the broader economy.** Extractive sector exports have almost doubled since 2010, and now account for 78 percent of all merchandise exports from PNG. However, most of the rents from these exports have been offshored, which ultimately explains the more moderate effects on the domestic economy. This channel of demand has only had a weak effect on GDP growth. Meanwhile, non-extractive exports have remained relatively flat over the past decade. In fact, despite this maintenance, the competitive performance of these industries has suffered. This is reflected in an aggregate 0.8 percentage point decline of PNG’s export market shares from 2010 to 2019 (as a comparison, the rest of East Asia grew its market share at 2.5 percent over the same period). To enhance PNG’s competitive performance, the country will need to further improve the productivity of its non-extractive exports, such as agricultural products (see Box 6).

Box 6: PNG’s agriculture sector characterized by low value addition and high potential for increasing yields

Agriculture—defined as the raising of crops or livestock, forestry, and fishing—accounted for 18.3 percent of PNG’s GDP in 2018 but is still mostly geared toward subsistence demands. At present, crop-based agricultural production is focused on roots and tubers, largely for own consumption. However, while commercial agricultural production employs a smaller share of total output, it nonetheless produces significant foreign exchange earnings, including approximately US\$680 million in cash crop exports, US\$500 million in forestry exports, and about US\$500 million in fishery exports and access fees. However, beyond these primary production activities, the sector can be considered to include the contributions of different economic activities within the broader agricultural food system (including processing, trade and transport, food services, and input supply): doing so presents a fuller picture of the sector’s contribution to the economy of PNG (Figure 39). Moreover, it is these services which enable primary agriculture to become more productive, more commercial, and more export competitive. In PNG, these ancillary services and activities amount to 7.6 percent of GDP, showing some room for improvement. Except for Thailand, the sector total of 25.9 percent is still below that of lower- and middle-income regional peers.

Figure 39: PNG’s agri-food system is driven by primary agriculture
(Share of the agri-food system in GDP - selected countries in 2018²⁶)



Source: World Bank staff analysis.

The use of such productivity-enhancing services in the agriculture sector lags global averages, as evidenced by the ratio of value added in the total agri-food system. Globally, the GDP share of agriculture (traditionally defined) in 2020 was 26.4 percent for low-income countries and 16.9 percent for lower-middle-income countries like PNG. Among both income groups, the ratio of the value added by the total agri-food system to the value added by agriculture is significantly higher than in PNG (1.63 and 1.75, respectively, compared to 1.42 in PNG). This highlights the role that these ancillary services play in generating value from primary agricultural production and how that is missing in PNG. Within Southeast Asia, Indonesia and the Philippines have agri-food systems that are 2.9 and 3.2 times the size of their agriculture sectors. PNG’s low concentration of nonagricultural activities in the overall agri-food system reflects broader constraints to trade and investment in non-primary activities.

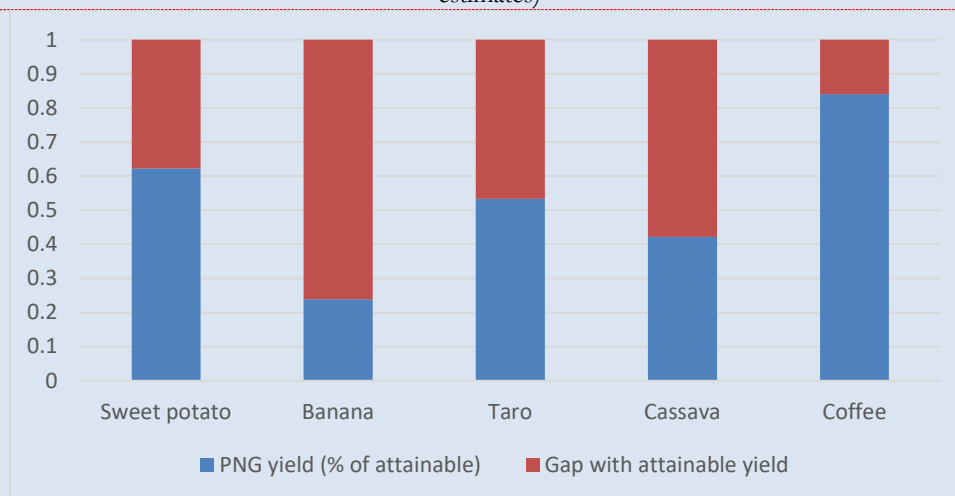
Higher agricultural productivity levels are indeed achievable if improved crop practices are introduced. Figure 40 shows the gap between the yields farmers commonly obtain in PNG and what they might obtain with optimal crop management and the use of high-yielding crop varieties. Sweet potato yields in PNG are between one-quarter to one-third less than the attainable yield. Yields for taro, Chinese taro, cassava, and yam are 40 to 60 percent less than what they might attain with improved planting materials and excellent crop management practices. The data on actual versus attainable yields for banana show the largest yield gap: PNG growers are obtaining only about one-quarter of the productivity levels they might achieve with more intensive cultivation of the crop. Coffee producers are generally harvesting about one-half of what they

²⁶ This figure uses regional comparators, where data are available and soil and climatic conditions are similar.

PAPUA NEW GUINEA
Country Economic Memorandum

might harvest if they used improved coffee production practices. These low yields in staple and current cash crops are indicative of underperformance; however, diversification into higher value-added crops and the development of services and downstream processing are also needed.

Figure 40: Productivity levels of major staple food and cash crops in PNG
 (Average actual yield as a percentage of yields attainable on farm with optimal management, most recent estimates)



Source: Benny et al. (2022)

Moreover, while PNG is a net exporter of agri-food products, the revealed comparative advantage (RCA) of key agricultural products has been declining over the past decade. From 2015 to 2019, exports amounted to US\$1.35 billion, while imports totaled US\$830 million.²⁷ Palm oil is the country’s highest-value export crop: in 2019, it represented 32 percent of agri-food exports by value and 3.5 percent of total export earnings. Other major export crops are coffee (18 percent total value), frozen and preserved fish (12 percent), coconut/copra (6 percent), and cocoa (5 percent). While the RCA for these products still indicates a comparative advantage for production of those goods in PNG, the RCA values of the crop-based exports have been declining over the past decade, signifying a gradual erosion of the country’s competitive position in the sector.²⁸ Moreover, while growth in the international agri-food trade will continue to be important for PNG, both in terms of incomes and overall food security, it is worth noting that its benefits do not necessarily accrue in a broad-based manner. Palm oil production, for instance, is largely controlled by plantations and out-grower schemes; increasing crop productivity is therefore likely to be less broadly beneficial than equivalent yield improvements in other crops that are produced by smallholders.

Table 6: RCA Values for Select PNG agricultural products

	2000	2005	2010	2015	2020
Palm oil	75.2	55	40.8	27	30.6
Coffee	39.4	40.4	29.3	9.8	8.57
Fish, frozen, excluding fish fillets	4.82	9.17	11.0	18.3	16.4
Prepared or preserved fish	2.87	20.2	20.3	16	28
Coconut and palm kernel oil	25.7	71.6	45.0	28.3	35.9
Copra	601	667	528	575	404
Cocoa beans	20.3	77.5	69.8	30.3	25.4

Source: Atlas of Economic Complexity.

²⁷ Real values at 2019 prices, which are adjusted using FAOSTAT food consumer prices indices.

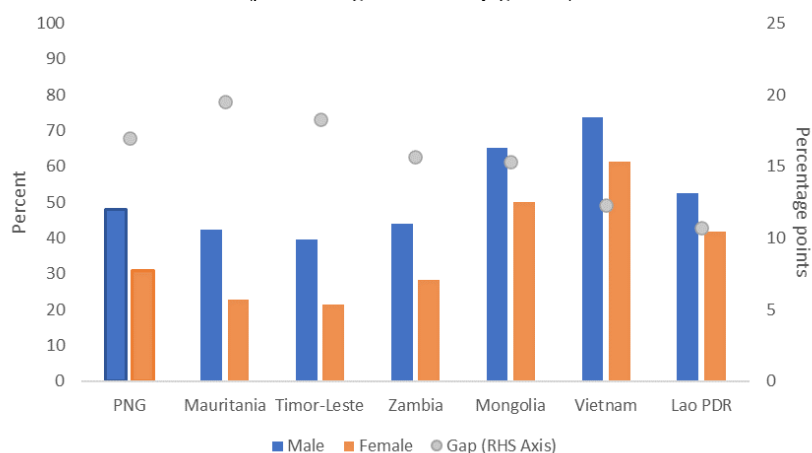
²⁸ Some minor improvements have been observed in the RCA value of PNG’s fish exports.

7.2. Declining labor force with significant gender gap

42. While demographic changes in PNG have contributed positively to growth, the labor participation rate has declined. PNG’s population is estimated to have grown by an average of 2 percent annually over the past decade, growing from 7.3 million in 2010 to 9.1 million in 2021, with nearly 35 percent of the population ages 0 to 14. During the same period, the overall LFP declined to less than 50 percent in 2019. This drop mainly stems from low participation in the labor market of the working-age population with basic and intermediate education levels. Consistent with the declining labor force and growing young population, a modelled International Labour Organization (ILO) estimate shows that the country’s employment-to-population declined from 70.0 percent in 2000 to 49.8 percent in 2010 and 46.0 percent in 2020. This estimate demonstrates how the decline in LFP has negated the contribution of demographic changes and led to a negative contribution to growth in value added per capita.

43. In a context of low engagement in the labor market for both women and men, in PNG there are significant gender gaps in paid employment.²⁹ Only 31 percent of women (ages 15–49), compared to 48 percent of men in PNG are in the labor force (either working or looking for work—whether formal or informal), based on the latest available data (2016–2018 DHS). Compared to its structural peers, PNG displays a lower-than-average LFP rate and a higher-than-average gender gap. A large segment of the population, especially women, are engaged in a range of agricultural and/or subsistence economic activities not captured in this measure.³⁰ However, all surveys confirm that a large share of women in PNG do not engage in paid work. In 2016–2018, only 45 percent of employed women and 51 percent of employed men worked mainly for pay.³¹

Figure 41: Labor force participation rate
(percent, ages 15–49, by gender)



Source: For PNG, World Bank calculations—for those older than 15, summing employed (currently working) and unemployed (looking for work), divided by total population—using DHS data from NSO (2019). Other countries from ILOSTAT, latest available year using the updated 19th International Conference of Labour Statisticians (ICLS) definition of employment, which excludes purely subsistence activities.

44. Women are not only less likely to work for pay, but when they do work they are overwhelmingly in less secure and informal employment. In PNG, 84 percent of working women are engaged in vulnerable

²⁹ Paragraphs 43 to 45 replicate the content of World Bank (2023b).

³⁰ Estimates using the 2010 HIES indicate a very similar LFP rate for men but a higher female LFP of 48 percent. This is due to different definitions of employment. The DHS is less likely to count subsistence activities as employment. It is better aligned with ILOSTAT’s updated definition and estimates across countries.

³¹ Working for pay is defined as working solely for cash earnings, as opposed to in kind, cash, or work without pay.

PAPUA NEW GUINEA
Country Economic Memorandum

forms of employment, meaning they are working either as own-account workers or as contributing family workers, compared to 64 percent of working men (World Bank 2022). This type of work is considered more vulnerable than waged employment, where pay is more predictable and secure. This phenomenon is not at all unique to PNG—women are more likely to be in vulnerable employment than men in nearly all structural peer countries; however, the extent of this disadvantage in PNG exceeds only that of the Republic of Congo. The rate of waged and salaried employment out of total employment for men in PNG is also significantly lower than for most structural peers and less than one-half the rate observed in aspirational peers like Vietnam.

45. **Progress toward gender equality in accessing economic opportunity is not only a development objective in itself, but it could also result in 20.8 percent higher GDP in the long term.** Increasing women’s employment so that it equals men’s, both in terms of quantity and quality of employment, can spur economic growth. Using the DHS data and adopting a methodology similar to that of Pennings (2022), PNG’s GDP per capita could be 18.4 percent higher in the long run if women’s employment rate was to match men’s. Once accounting also for the gender employment gap in terms of better-quality jobs, gains to long-term GDP per capita of closing the gender employment gap (captured by the full Gender Employment Gap Index [GEGI]) could be as high as 20.8 percent (Table 7). This measure involves weighting the employment gaps of what is termed “better employment” such as jobs that pay in cash rather than in kind, managerial roles, and “other employment”.³²

Table 7: Gender Employment Gap Index

Employment-Population Ratio		Basic GEGI (%)	Better Employment Ratio		Better Employment Gap	Other Employment Ratio		Other Employment Gap	Full GEGI (%)
Male	Female		Male	Female		Male	Female		
0.45	0.31	18.39	0.23	0.14	25.33	0.22	0.18	0.12	20.81

Source: Data from NSO (2019) with calculations based on Pennings (2022).³³

7.3. Underdeveloped within-firm productivity

46. **In terms of within-firm productivity, international and domestic-owned firms exhibit diverging performance.** The former are typically larger and are concentrated in resource-based industries, particularly extractives. While there are relatively few of these firms, they are inherently formal and exhibit high levels of output per person employed. Domestic firms, by contrast, are generally characterized by lower productivity, a higher probability of operating informally and lower export activity (World Bank Investment Climate Action Plan 2020).

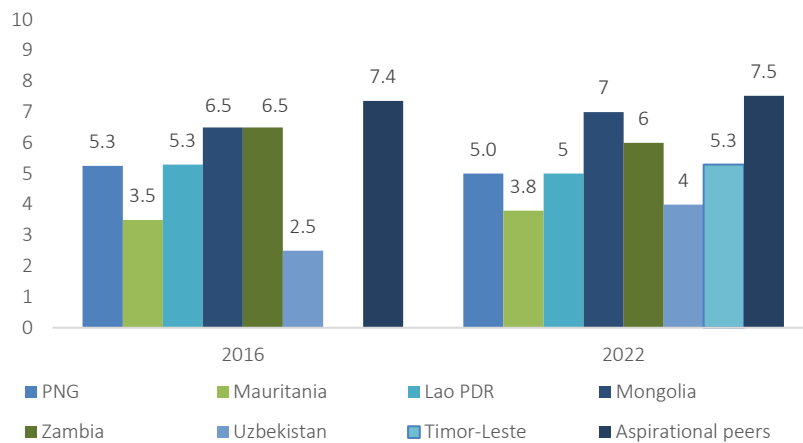
47. **Informality and unequal competition in several markets discourage productive investments by firms.** While new firm registration has increased since 2015, estimates suggest that 90 percent of firms (employing 2.5 million workers) are informal and characterized by low productivity. PNG’s business registrations are mostly in non-tradable service sectors, many of which are protected from foreign competition by PNG’s FDI regulations. These factors are reflected in PNG’s relatively low Market Organization score—a measure of institutions and policies that support free markets—compared to its more aspirational peers (Figure 42). These challenges ultimately end up reducing productivity and growth.

³² This paragraph is taken from the World Bank’s Economic Update of March 2023.

³³ Penning’s (2022) GEGI methodology gives a useful insight into economic gains from reducing gender gaps in economic opportunities, and it is particularly well-suited for countries where more sophisticated measures are limited by data paucity. His paper describes the advantages and limitations of the approach and compares it to other approaches for countries where data are available.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure 42: PNG's markets can improve on competition, trade, and financial inclusion
 (Bertelsmann Transformation Index, Market Organization Score)



Source: Bertelsmann Transformation Index.

Note: Market Organization is a measure of institutions and policies that support free markets including competition, trade, and financial sector indicators.

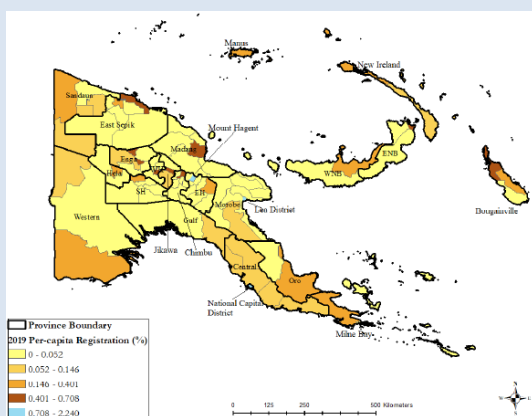
Box 7: Spatial regressions show impact of greater business entry but with few spillover benefits

The World Bank Entrepreneurship Ecosystem Assessment (World Bank 2021a) included spatial regression of nighttime lights in PNG on the number of new business registrations at the district level between 2013 and 2018. Such analysis can serve as a proxy for local economic output in the absence of more robust data (Addison et al. 2015).

The analysis found that entry of small businesses is strongly correlated with nighttime lights. The effect appears sizable: on average, each new business registration is associated with a 1.6 percent increase in nighttime lights in the same year and a 7.6 percent increase in nighttime lights in the next year. Interestingly, entry of small businesses—sole proprietors as opposed to corporations—appear to have a stronger correlation with nighttime lights.

The analysis also found that spillover effects from increased business entry appear limited outside of the district level. The results suggest a negligible but negative spillover effect in the same year and an even smaller effect in subsequent years. On average, increasing entry by 10 percent in Port Moresby, Lae, and Mount Hagen is only associated with a –0.36 to –0.003 percent change in the average nighttime lights in other districts in the same year and subsequent years. These results suggest limited economic links across different regions in PNG and are consistent with the country’s fragmented landscape and low connectivity.

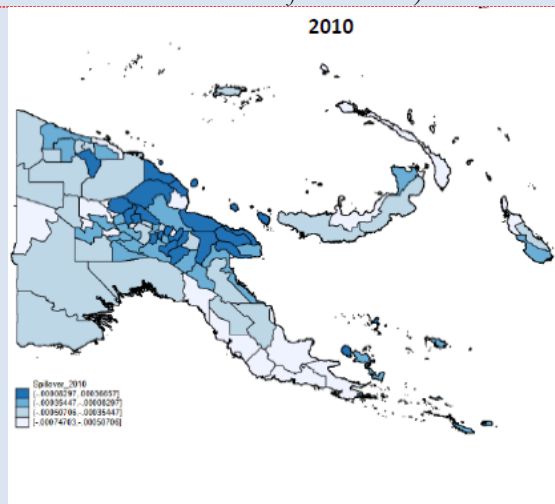
Figure 43: New business entry
(per 1,000 population - 2019)



Source: World Bank Group 2021.

Figure 44: Simulated spillover effects of increasing new firms

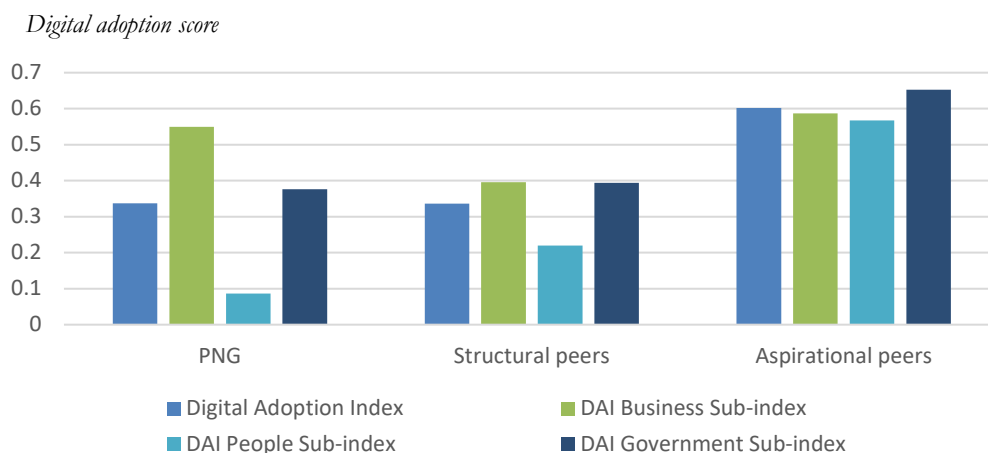
(Increase in economic output in 2010 following a simulated increase in new firms in 2008)



Source: World Bank Group 2021.

48. **Low levels of digital technology adoption reflect weak firm capacity and can constrain productivity.** Mobile telecommunications have improved since the introduction of competition reforms and the entry of Digicel in 2005–2006 and PNG performs on par with its structural peers in the World Bank Digital Adoption Index (DAI) (see Figure 45). This figure may, however, overrepresent digital performance in the economy because of the high levels of informality and self-employment in PNG. The digital capacity of the 90 percent of informal firms/employees may instead be better reflected in the very low DAI People subindex. An estimated 89 percent of the population is covered by a mobile-cellular network, though internet penetration remains low at 15.2 percent of the population.

Figure 45: Digital adoption lags among people relative to businesses and government



Source: 2016 World Development Report.

Note: DAI is the mean of the three subindex groups assigned an equal weight. Each subindex is the simple average of several normalized indicators measuring the adoption rate for the relevant groups.

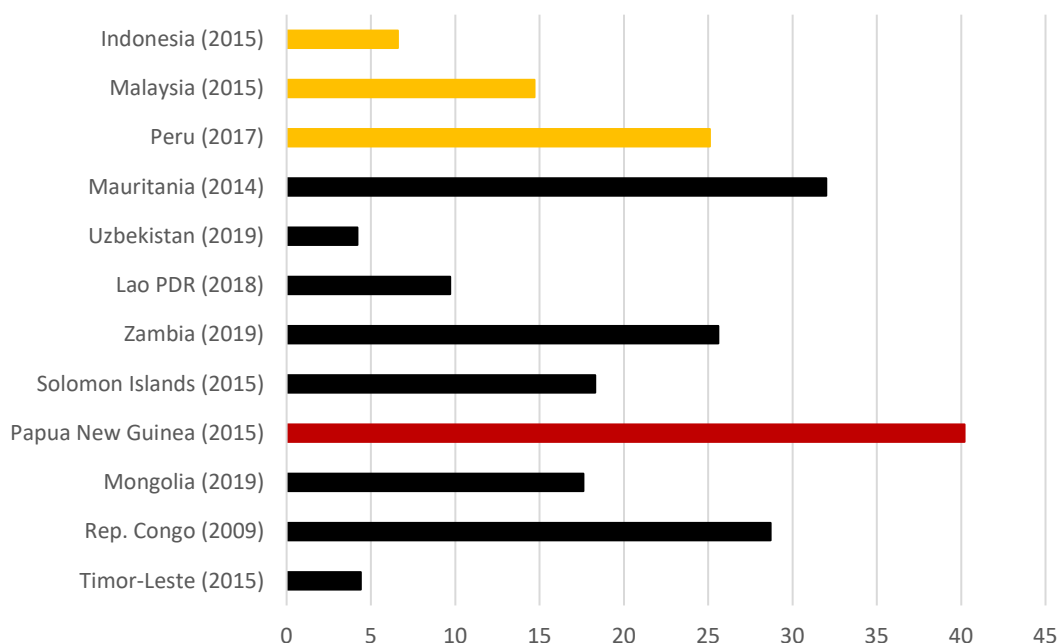
8. Constraints to Productivity Growth

49. **There are several constraints that prevent non-extractive sectors from developing, which further limits the positive economic spillovers from the country’s natural capital.** Chief among these are weaknesses in the business environment that deter investment and increase trade costs; political economy and security challenges that weaken institutional contributions to productivity; and significant gaps in access to—and the reliability of—key infrastructure for production and trade including transportation, ICT, logistics, and energy. Taken together these constraints limit domestic and foreign finance and reduce the incentives for firms to enter the market, innovate, grow, and trade.

8.1. Business environment constraints deter investment and increase trade costs

50. **PNG is home to several policy frameworks that implicitly limit competition in key sectors of the real economy.** One way that competition is limited is through use of an overly restrictive licensing and permitting regime. According to the PNG World Bank Enterprise Survey from 2015, over 40 percent of firms identified business licensing and permits as a major constraint. This is a much larger share than those businesses identifying the same issue in structural peers (15 percent), aspirational peers (17 percent) or the EAP regional average (13.9 percent). Such barriers to licensing are particularly high in certain service markets, such as logistics, limiting aggregate investment and preventing the entry of newer and more productive firms.

Figure 46: Business licensing and permits are a greater constraint than among peers
 (Percentage of firms identifying business licensing and permits as a major constraint)



Source: World Bank Enterprise Survey.

Note: Australia not covered by Enterprise Survey dataset.

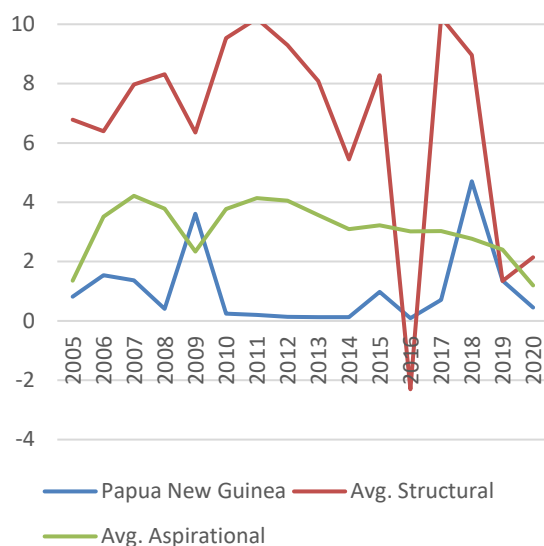
51. **Competition in PNG is also negatively affected by the presence of SOEs in commercial and contestable markets.**³⁴ The country has seen an increase in the number of SOEs over the past decade. Today, there are 12 majority-owned SOEs, including those operating as utilities (such as electricity, water, and sanitation) and as service providers (such as in ports, aviation, telecommunications, banking, and insurance). In addition to these majority-owned SOEs, the state has a primary or secondary ownership stake in more than 200 additional enterprises, most of which operate with fewer safeguards and transparency than the 12 majority-owned SOEs. These enterprises operate in contestable markets and commercial markets—such as construction, banking, animal agriculture, transport, and logistics—the presence of which may crowd out more productive privately owned firms. For example, certain domestic shipping routes are granted on a non-competitive basis, a factor which increases shipping costs, limits service quality, and inhibits export competitiveness (especially for perishable agricultural goods). Some progress has been recorded in opening these sectors to competition, but reforms are still needed to strengthen accountability and clarify mandates. Recent reforms, aided by an Asian Development Bank (ADB) development policy loan, are intended to improve SOE governance (Asian Development Bank 2012; Doré 2021).

³⁴ Commercial markets are competitive sectors characterized by small entry barriers, commercially viable for the private sector (for example, manufacturing of food, real estate). Contestable markets involve sectors characterized by moderate entry barriers, public goods, or externalities. Often, they are operated under oligopolistic structures (for example, aviation, banking). Markets with natural monopolies are sectors that exhibit high entry barriers, economies of scale, or sub-additivity cost structures such as water utilities. In such natural monopolies, SOEs are often justified, whereas there is less justification in contestable markets and no justification in commercial markets.

PAPUA NEW GUINEA Country Economic Memorandum

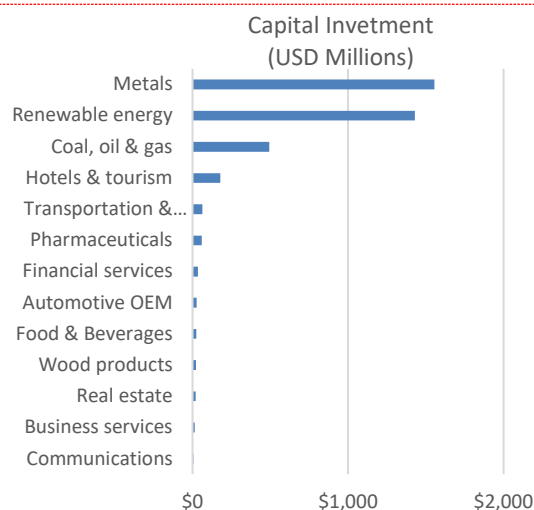
52. **The government has also restricted FDI by imposing an extensive list of economic activities reserved for PNG citizens and national entities.**³⁵ In 2016, it launched the Small and Medium Enterprise (SME) Policy which significantly expanded the set of activities that are subject to limitations on foreign ownership. In some industries, foreign ownership is entirely disallowed; in many more, it is capped at 49 percent (World Bank 2020). While the extractive sector is also subject to local ownership requirements, foreign investors have been able to negotiate this point—albeit with varying degrees of success.³⁶ In addition, regulations and processes for FDI are complex with a high degree of discretion for regulators. For example, PNG’s Investment Promotion Agency (IPA) has a significant degree of discretion in its ability to screen FDI proposals to ensure that investors are of ‘good standing’, which can create opportunities for subjective determination. Such policies effectively limit FDI inflows, preventing both associated economic growth as well as accumulation of capital. As a result, PNG’s FDI flows are uneven with spikes from extractives projects, but little substantive investment in other sectors compared to peers (Figure 47).

Figure 47: FDI flows are low...
(FDI - net inflows, % of GDP)



Source: World Bank.

Figure 48: ... and skewed toward extractives
Average size of project investments by sector (2003–2021)



Source: World Bank, FDI Markets
(<https://www.fdimarkets.com/>).

53. **Restrictions on land purchases and rental by foreign entities disincentivizes foreign investment in land development.** Around 97 percent of land in PNG falls under customary land administration, which lack formally defined property rights and rules-based due process. While certain legal mechanisms—called incorporated land groups (ILGs)—have been utilized in some instances to facilitate leasing contracts for such land, such customary systems have not largely been successful in facilitating investment of commercial interests

³⁵ Foreign investment in PNG is facilitated, regulated, and monitored by the Investment Promotion Act of 1992. The Act provides the guiding framework for investment in PNG. This is complemented by specific sectoral legislation governing foreign investments, including the Forestry Act 1991, Mining Act 1992, Fisheries Act 1994, PNG Companies Act 1997, Oil and Gas Act 1998, Free Trade Zone Act 2000, Banks and Financial Institutions Act 2000, and National Information Communication Technology Authority Act 2009 (World Bank 2020).

³⁶ The government has a right to take equity of up to 30 percent in mining development projects and 22.5 percent in petroleum projects. If it elects not to, and there is 100 percent foreign equity, 2 percent will be negotiated for the landowners’ benefit (negotiated at 7 percent for the PNG-LNG project) (World Bank 2020).

PAPUA NEW GUINEA Country Economic Memorandum

(ATIBT 2022; World Bank 2020).³⁷ This system of land administration and registration is complicated, requiring 17 steps and the involvement of seven government agencies, which can sometimes take up to four years. Disputes around land acquisition and use are also common and can be time consuming and complex to resolve.³⁸

54. **Limited competition in financial services translates to high interest rates and low access to finance, limiting private investment and growth in domestic industries.** Currently, the financial sector consists of four commercial banks (two locally owned, two international), 22 savings and loan societies, 12 other financial institutions (four licensed microfinance institutions [MFIs] and eight financing companies), and a range of other financial sector operators.³⁹ Further market concentration may occur if the remaining foreign banks—Maybank, ANZ, and Westpac—sell their operations in PNG. The remaining market for commercial loans is being consolidated under the two locally owned commercial banks, Bank of South Pacific (BSP) and Kina Bank. BSP is now the largest commercial bank in PNG and accounts for 65 percent of the banking sector market share.⁴⁰ Kina Bank was established through acquisitions of Maybank PNG’s operations and ANZ’s SMEs and retail portfolio.⁴¹ While the cause of the foreign banks’ exit is exogenous to policy environment in PNG (Maybank and Westpac decided to scale back their global footprint as a whole), the resulting competition failure in the domestic market can limit businesses’ access to finance and make borrowing more expensive.

55. **Domestic credit to the private sector as a percentage of GDP in PNG is among the lowest of developing countries.** PNG is a high-saving economy, as reflected by a relatively high level of net private sector savings, evident from the balance sheets of PNG’s financial institutions. However, lending to the private sector accounts for only about half of these institutions’ total funding, the balance being held mostly, and passively, as either PNG government securities or as claims on the BPNG. This suggests that private investment in PNG is not being constrained by a low level of private saving. While it is theoretically possible that private investment is being crowded out by government borrowing, anecdotal evidence is that the banks’ high levels of investment in government securities are more the result of a lack of sound lending opportunities. This suggests limits in firm capacity and markets are the binding constraint.

³⁷ A parallel system of land rights has allowed customary landowners to voluntarily form special incorporated entities—called incorporated land groups (ILGs)—that can enter into legally binding contracts with those who wish to lease their lands. This has the potential to assuage fears by outside parties regarding the legal recognition of land agreements and potential forfeiture of land-use rights. However, limited administrative capacity and public recognition of such customary systems has not been successful in facilitating investment of commercial interests (World Bank 2020).

³⁸ The Special Economic Zones Authority Act was passed by PNG’s Parliament in late 2019 with the expectation of helping to address land use issues for investors.

³⁹ MFIs are improving their operations and service coverage in PNG. There are four licensed MFIs in PNG providing savings, microloans, and microinsurance to microbusiness and individuals in both urban and rural areas of PNG. Their operations are usually constrained by the capital and costs of doing business in PNG, especially in rural areas. MFIs have been negatively affected by the COVID-19 pandemic due to increasing late payments on loans which they had actively restructured in the last two years with the liquidity support from BPNG. MiBank is the largest MFI in PNG with a network of 16 branches across the country. The Women’s Micro Bank is another MFI that was set up specifically to target women, who face significant barriers to financial inclusion across PNG. These include one mobile banking operator, two money remittance operators, nine money changers, four superannuation funds, five investment managers, three fund administrators, five life insurance companies, four life insurance brokers, one stock exchange, and two stockbrokers.

⁴⁰ BSP is a financial conglomerate in the Pacific region with operations in PNG, Fiji, Samoa, Tonga, the Solomon Islands, and Vanuatu. BSP PNG alone has approximately 65 percent of the market share in PNG now and is the largest retail bank in PNG. BSP has strong national branch and agent network across the country with 40 branches, 38 sub-branches, and 50 agents. BSP has developed a wide mix of products for retail customers in both urban and rural areas in PNG, including the most remote regions in PNG. BSP is listed on both the Port Moresby Stock Exchange and Australia Stock Exchange. The Financial Analysis and Supervision Unit investigation on anti-money laundering/counter-terrorist financing issued a warning to BSP in 2021.

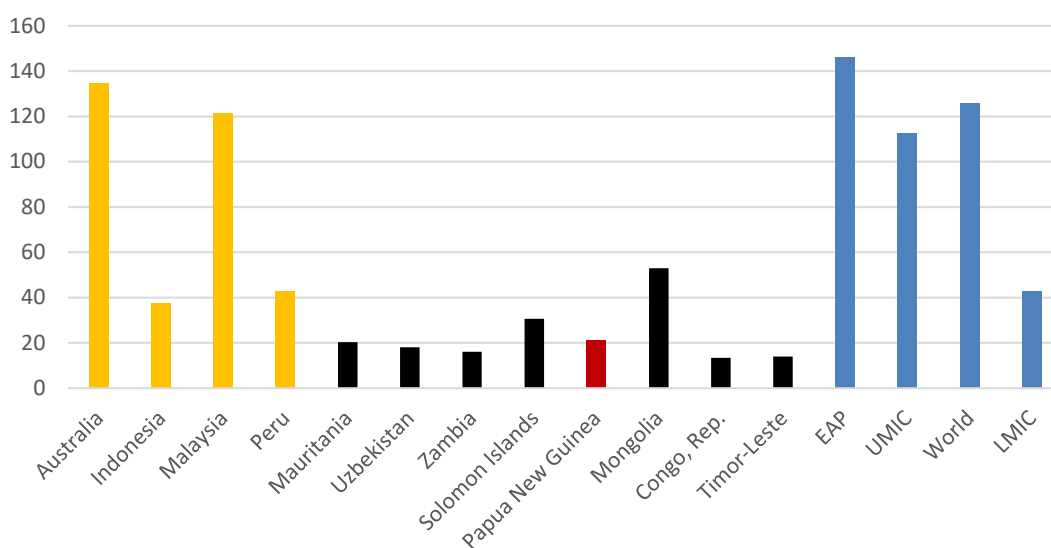
⁴¹ Kina Bank maintains a network of 17 branches in major urban centers across the country, with its head office in Port Moresby. As a part of its regional expansion plan, Kina Bank announced in April 2021 to acquire Westpac assets in PNG and Fiji subject to local regulatory approval. It is the second largest licensed commercial bank in PNG, focusing on corporate lending and has been expanding its presence in the SME market. Westpac attempted to sell its portfolio to Kina Bank in September 2021 but was prevented by the PNG regulator (Westpac 2021).

PAPUA NEW GUINEA Country Economic Memorandum

56. **Capital markets are underdeveloped, restricting finance for growth.** Although the government’s bond portfolio is large, other parts of the capital markets in PNG are relatively undeveloped. At present, there is also no active corporate bond market.⁴² As a result, the banking sector dominates the financial sector and accounted for 60 percent of total financial sector assets in 2020. While the banking sector in PNG is generally liquid, well-capitalized, and somewhat stable, there are some important vulnerabilities and risks for financial sector stability.⁴³ Equity market capitalization is also low. In 2011, companies listed on the Papua New Guinea Stock Exchange (PNGX) had a combined market capitalization equal to 70 percent of GDP—a figure that had fallen to just 7.4 percent in 2017. There are currently 12 listed companies (PNGX 2022), many of which are only compliance-related listings.⁴⁴ While the Securities Law was amended in 2016, the Securities Commission (under the Ministry of Commerce) has a weak governance structure with recent leadership disputes and limited qualified staff. Enabling regulations are needed to enhance the corporate governance and to diversify the issuers and investors. With respect to financial infrastructure, BPNG has been upgrading its securities clearing and settlement system to accommodate more transactions and secondary market trading and create a pathway for foreign investment in government securities.

Figure 49: PNG is roughly in line with structural peers but far behind income group average in providing credit to the private sector

(Domestic credit to the private sector, percent of GDP, average 2012–2020)



Source: World Bank.

⁴² The IFC is currently assisting the PNGX and the Securities Commission to develop a simplified wholesale corporate bond market structure to create long-term financing alternatives to bank lending or money markets.

⁴³ The most recent Financial Soundness Indicators show a Tier 1 to Risk Weighted Assets ratio of 30.7 percent and a total capital ratio amounting to 37.5 percent. Non-performing loans (NPLs) stand at 5 percent and the provisions cover more than 100 percent of the NPLs. That said, there are some important vulnerabilities and risks. The most recent IMF Article IV raises concerns about the vulnerability of the banking system to SOEs. The largest SOEs are borrowers of the banks and several SOEs are essentially bankrupt. Banks will also need to be adequately provisioned to deal with insolvencies. BPNG has also moved toward greater exchange rate flexibility and recent stress testing confirms that banks’ balance sheet can manage significant exchange rate adjustment.

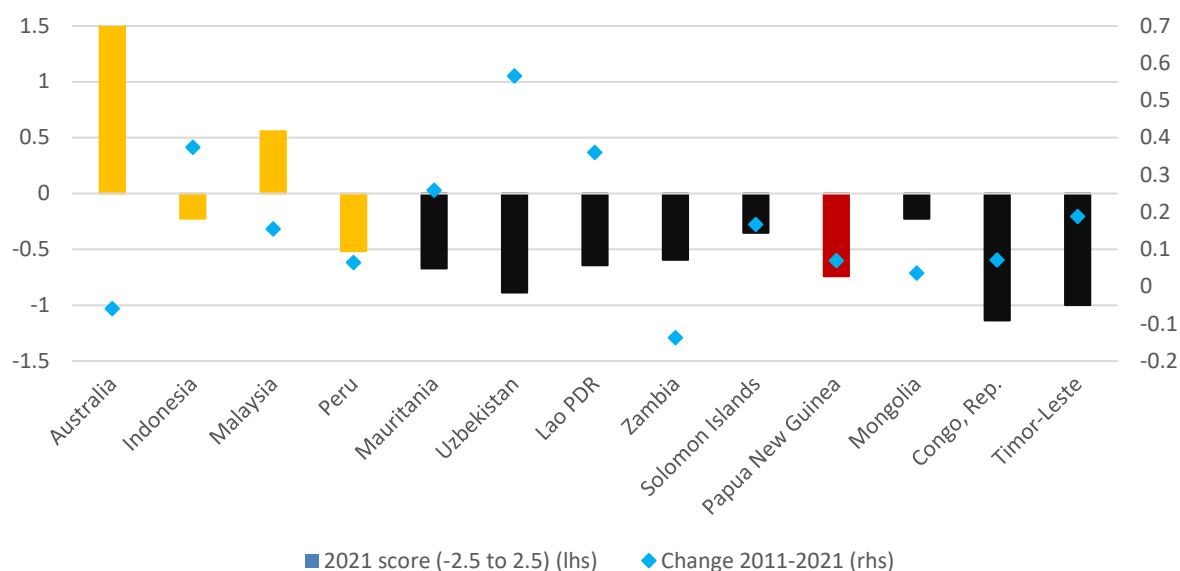
⁴⁴ Many of the listed companies are SOEs and financial institutions with several dual listings in other exchanges (for example, ASX [Australia] and Singapore Exchange).

8.2. Political economy and security challenges weaken institutional contributions to productivity

57. **PNG’s credibility of intertemporal commitment—identified as a key dimension of governance in resource-rich countries by Barma et al. (2012)—is generally low.** The operation of the country’s political system, in the context of both its highly segmented society and its resource rents, is at the heart of this weakness.⁴⁵ In national elections, incumbent members of Parliament (MPs) are re-elected less than 50 percent of the time (Laveil and Wood 2022). The broad coalitions of multiple small parties and independents that are required to form government are unstable and vulnerable to votes of no confidence to shore them up, there is frequent reshuffling of cabinet portfolios, reallocating control over government agencies, and reassigning public resources to investment projects or other entities controlled by MPs. This is a major hindrance to physical infrastructure development and other areas of reform which require long-term commitment by the government and project developers.

58. **While PNG’s rule of law indicator is on par with those of structural comparators, it lags regional and aspirational comparators.** The Rule of Law estimate indicator (Figure 50) captures perceptions on the extent to which agents have confidence in—and abide by—the rules governing society.⁴⁶ Specifically, this metric attempts to quantify the quality of contract enforcement, property rights, the function of police and the courts, and the likelihood of crime and violence. However, because of the high degree of informality among firms in the economy, enforcement of contracts and property rights is exceptionally difficult. While these factors lead to a poor index rating for PNG, its performance has slightly improved over the past decade, in line with Timor-Leste’s (a structural peer) but has fallen behind other structural and aspirational peers. Moreover, the country still lacks a business environment conducive to attracting investment in high-productivity sectors. As a result, more complex firm-to-firm links are limited and most transactions in PNG are generally simplistic.

Figure 50: Rule of law is in line with most peer countries



Source: World Bank Worldwide Governance Indicators.

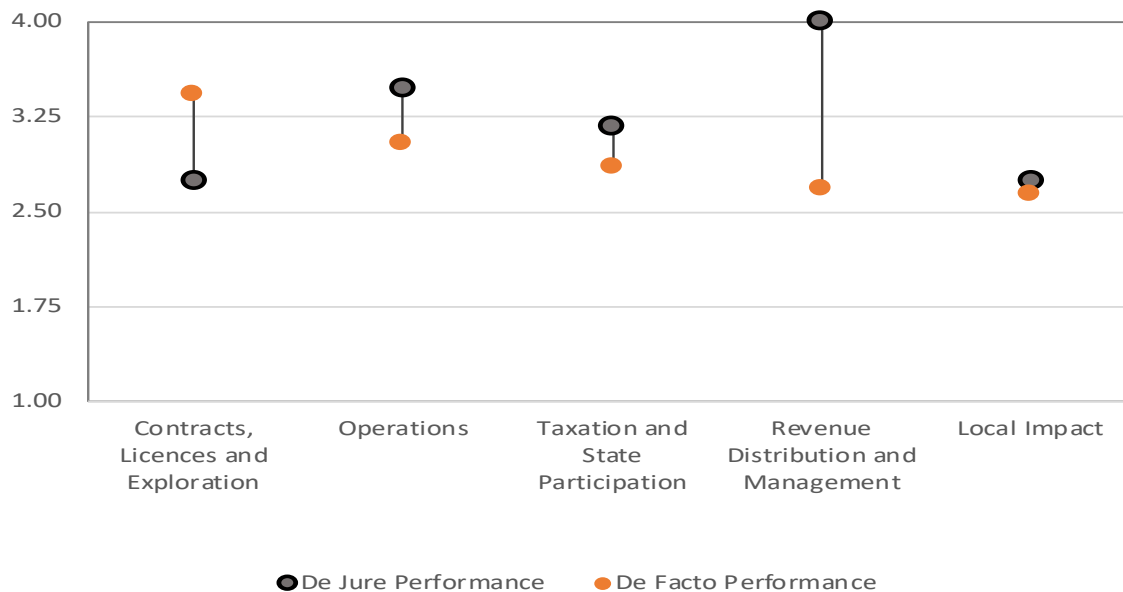
⁴⁵ Political fragmentation is exceptionally high, with very large numbers of candidates contesting elections at all levels, most candidates contesting as independents, elected members returned with small shares of the total vote, governing coalitions formed from large numbers of small parties and independents, and elected members regularly displaced at subsequent elections.

⁴⁶ Estimate gives the country’s score on the aggregate indicator, in units of a standard normal distribution, ranging from approximately -2.5 to 2.5.

PAPUA NEW GUINEA
Country Economic Memorandum

59. **There is a significant implementation gap, indicating systemic issues with putting legislation into practice.** While this limitation can be observed across the economy, it is particularly challenging in sectors with high levels of permitting and regulatory obligations. For example, the ‘implementation gap’ between de jure and de facto performance in the mining sector in PNG is particularly pronounced in areas of sector governance prone to corruption, such as disclosing beneficial ownership information in line with requirements of the EITI. However, there is one category—Contracts and Licences—where PNG’s de facto is higher than its de jure performance, indicating room for improvement in the country’s legal framework. Meanwhile, for the other four policy areas, implementation remains the bigger challenge.

Figure 51: Implementation of laws and regulations is a persistent challenge



Source: PNG Mining Sector Diagnostic, World Bank, 2019.

60. **Laws and social norms act as barriers to women’s contribution to the economy.** PNG scores 60 percent on the Women, Business, and Law (WBL) index in 2023 compared to the 72.6 EAP average. Outdated laws and rigid social norms meant to protect women are in fact barring them from employment opportunities in sectors with higher value added, for example, limiting women from working in jobs that are considered arduous or entail longer night hours. The agriculture sector, where most occupations are low skilled, is an important source of economic activity for both men and women. However, female-headed households operate on smaller plots and are less likely to grow cash crops such as coffee, cocoa, and vanilla. When they do sell cash crops, they earn on average 26 percent less than male-headed households.⁴⁷ Limited access to productive inputs and paid labor, customary laws driving lack of women’s ownership over land and housing, as well as time and mobility constraints—related to childcare and safety, respectively—are all contributing to these gaps. During the World Bank-supported urban youth employment project, women reported numerous obstacles to personal advancement related to childcare and household responsibilities and intra-household power relations (World Bank 2018). Other barriers in access to better employment opportunities include general increases in informality and the cyclic nature of FDI-driven employment.

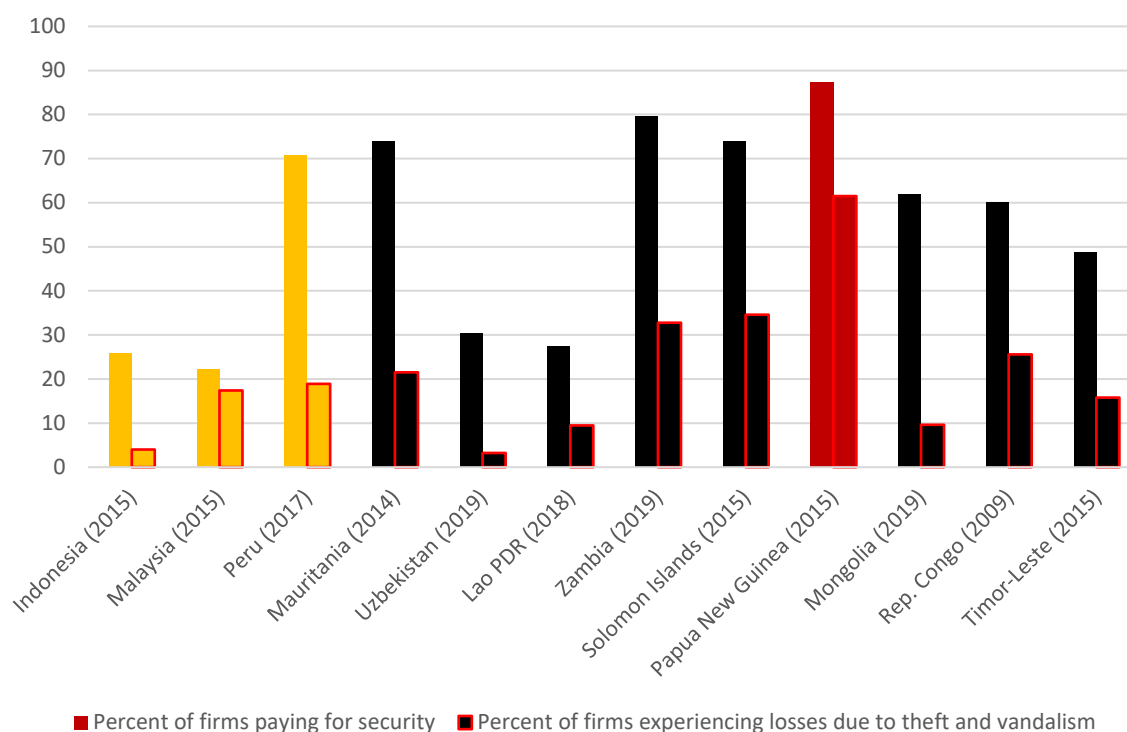
61. **High levels of crime and violence increase uncertainty and costs.** While official crime statistics are not adequately reported, several data points highlight the impact of the lack of security. For example, Enterprise

⁴⁷ World Bank team calculations based on the International Food Policy Research Institute’s 2018 PNG Household Survey on Food Systems.

PAPUA NEW GUINEA Country Economic Memorandum

Survey data show that more than 87.0 percent of firms in PNG pay for private security at an average cost of more than 3 percent of annual sales and 61.5 percent of firms still experience losses due to theft and vandalism (Figure 53). The high demand for security is also evident in the large market for security companies. There were an estimated 566 licensed security companies in PNG in 2018 employing more than 30,000 people, making the sector one of the top five largest employers (Dinnen and Walton 2021). The lack of public security also weighs on education, health, labor mobility, and consumption decisions for families and individuals throughout PNG. A particular form of violence affecting mostly women, gender-based violence (GBV),⁴⁸ also affects women's opportunities and decisions around engaging in paid work outside their home. Violence, and the inequitable norms that enable it, create a vicious cycle in which employed women are at higher risk of experiencing both spousal and non-partner sexual violence, and working women who experience violence are up to three times as likely to be absent from work. The workdays lost due to increased absenteeism cost the PNG economy up to 0.5 percent of GDP annually (World Bank 2022), which is, however, underestimating the extent of short- and long-term losses due to lower worker productivity (presenteeism) and human and physical capital losses (Stenzel and Ouedraogo 2021).

Figure 52: More firms are affected by security in PNG than among any comparators



Source: World Bank Enterprise Survey.

Note: Australia not covered by Enterprise Survey dataset.

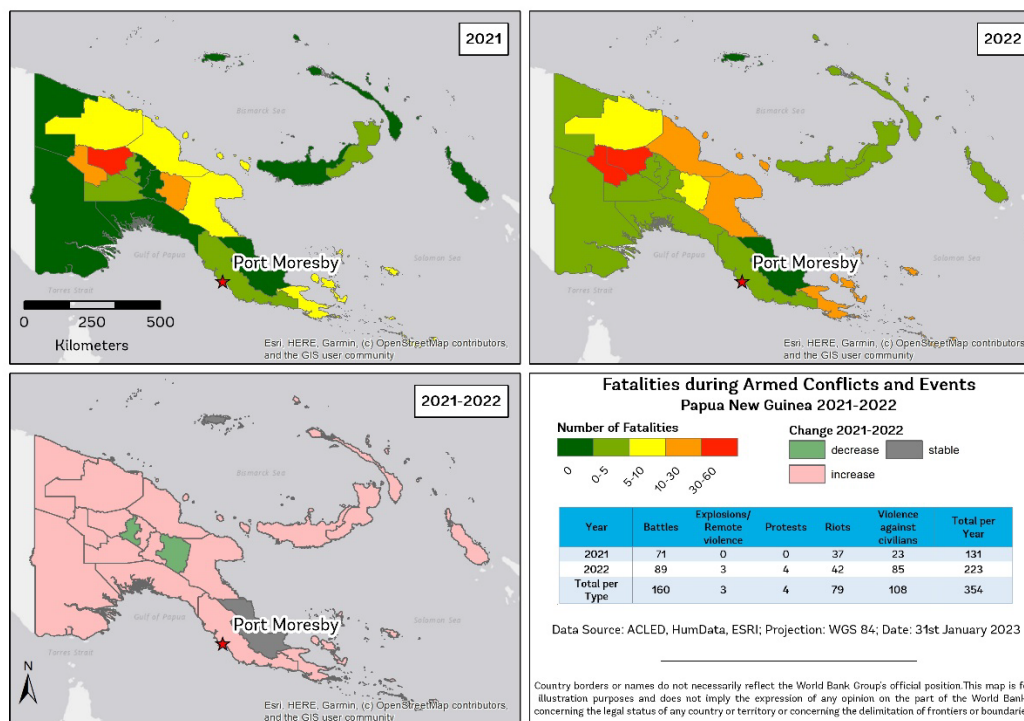
62. **Limited capacity to respond to communal incidents and political violence have significantly affected PNG's resilience to security and violence risks.** In 2021 and 2022, the country witnessed increasing violence, driven by sub-national level communal conflicts and election-related incidents, which resulted in the deaths of 354 people. In 2022, retaliatory violent incidents targeting civilians increased more than three times from the previous year, and communal and clan militias have been responsible for most of these incidents. Both in 2021 and 2022, fatal violent armed clashes have been observed in some of the resource-rich provinces in the

⁴⁸ In PNG, this is most commonly referred to as family and sexual violence.

PAPUA NEW GUINEA Country Economic Memorandum

Highlands region. The impact of the sub-national violence had been particularly pronounced for civilians. In 2021, approximately 30,000 people were displaced by communal violence due to armed clashes in Enga, Hela, and Southern Highlands provinces. In 2022, with election-related violence, 31,481 people were displaced from the Highlands region. These violence-affected provinces—Hela, Enga, and Southern Highlands—have some of the lowest sub-national human development index scores.

Figure 53 : Increased violence in the current years and concentration of incidence in resource-rich provinces



Data source: Armed Conflict Location and Event Data (ACLED), 2022 and International Committee of the Red Cross (ICRC), 2022, <https://www.icrc.org/en/tribal-violence-papua-new-guinea>

8.3. Gaps in access to reliable infrastructure undermine competitiveness

63. **Lack of access to (and the inadequate reliability of) infrastructure services is a constraint for all economic activity and a particular challenge for larger firms.** Surveys of the private sector (see Table 8) consistently rate infrastructure issues as among the greatest constraints for firms, particularly in relation to transport and energy infrastructure.

PAPUA NEW GUINEA
Country Economic Memorandum

Table 8: Top perceived constraints by firm type

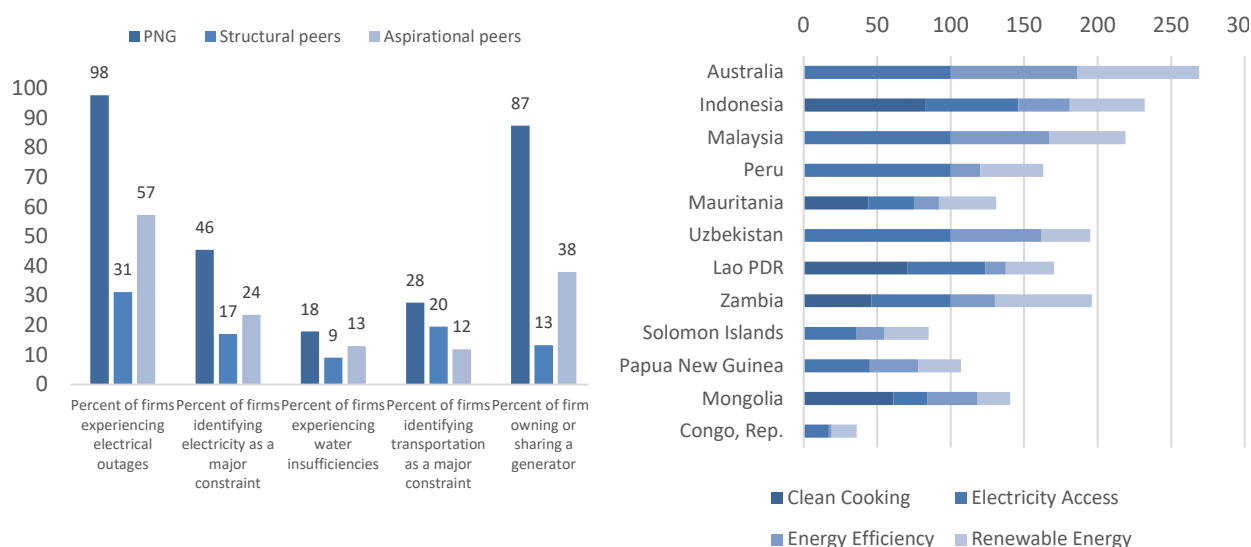
PNG 100 CEO Survey	Business Environment Survey 2012	SME Survey 2014	Informal Sector Survey
Top business constraint	Highest-rated constraints to business and investment	Major obstacles for business operations and growth	Most serious obstacle facing local businesses
Largest formal companies: - Foreign exchange - Unreliable infrastructure - Unreliable utilities - Security, law, and order - Shortage of expertise/skills	Formal firms, all sizes: - Law and order - Corruption - State of transportation infrastructure - State of electricity infrastructure - Skilled labor	Formal SMEs: - Difficulty buying or leasing land - Access to finance, loans, capital - Government corruption - Tax rates - Difficulties dealing with banks	Informal sector firms: - Access to market - Transportation - Access to loans - Crime, theft, disorder - Water availability

Sources: ADB and INA 2008; Business Advantage International 2020; Tebutt Research 2008, 2014; World Bank 2015.

Note: The constraints listed are the three categories selected by the highest share of firms and listed in order of importance

Access to on-grid electricity in PNG remains below 15 percent—among the lowest in the world—with 98 percent of firms experiencing electrical outages. The World Bank’s Regulatory Indicators for Sustainable Energy (RISE), point to deficiencies across energy access, efficiency, and sustainability, even relative to structural peers (Figure 12). Transportation infrastructure is also an issue, particularly for the large rural population of PNG. National estimates suggest that more than half of the country’s 30,000 km of roads are in very poor condition, with just over two-thirds of the country living within 2 kilometers of an all-season road (DFAT 2018).

Figure 54: Infrastructure and electricity constraints are a significant obstacle for economic activity
(share of firms) (policy and regulatory framework from 0 to 100 across pillars)



Source: WDI, Enterprise Surveys.

Note: Most recent year is 2015 for Indonesia, Malaysia, PNG, the Solomon Islands, and Timor-Leste; 2017 for Peru; 2018 for Lao PDR; and 2019 for Mongolia, Uzbekistan, and Zambia.

Source: World Bank RISE database.

PAPUA NEW GUINEA

Country Economic Memorandum

64. **PNG faces a range of physical and institutional constraints to infrastructure development.** The country's high rural population and geographic profile pose challenges to building and maintaining infrastructure networks. In addition, growing climate and natural disaster risks add complexity to new infrastructure deployment and higher costs for maintenance. Institutional constraints span the planning, coordinating, financing, and implementation of investment projects and maintenance and include capacity limitations, intra-governmental coordination and long-term expenditure planning, access to usage data, and the capabilities of contractors in the sector. Another key institutional constraint is the challenge in securing land rights for large infrastructure projects, which, by definition, often span a large number of land parcels. These institutional issues are in turn exacerbated by PNG's fiscal constraints that limit investment in long-term infrastructure needs.

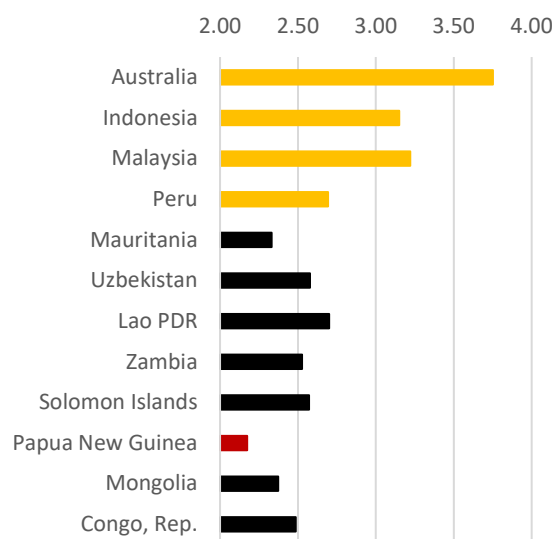
65. **PNG's trade outcomes (and, consequentially, growth trajectory) are negatively affected by the country's trade facilitation regimes and its logistics performance.** The imposition of burdensome trade facilitation regimes by uncoordinated border control agencies adds explicit and implicit costs for PNG's exporting firms. While PNG has maintained a generally open trade policy with relatively low tariff rates, trade facilitation measures are adding to trade friction.⁴⁹ Businesses operating in both import and export often face bureaucratic delays, which increases costs to traders and places undue burdens on the transport and logistics companies who move these goods. Traders operate in a border environment where agency requirements are inconsistent with modern practices. While several export and import procedures in PNG have been simplified with the adoption of the first National Trade Policy in 2017 (World Bank 2020), PNG remains behind its peers on trading across borders.

66. **Poor performance in logistics market efficiency limits cross-regional trade and export competitiveness.** The country's logistics industries are underperforming; PNG scores in the bottom 15 out of 160 surveyed countries in the Logistics Performance Index (LPI), which measures how efficiently countries move goods across and within borders. PNG's performance on these metrics also declined between 2016 and the last survey in 2018, putting it behind structural and aspirational peers. PNG's score for logistics quality is the lowest among the 160 countries surveyed (see Figure 54). While PNG ports generally have low direct cargo processing costs (World Bank 2020; WTO 2019), this also results in low-quality services and delays, which impose indirect costs.

⁴⁹ The Most Favoured-Nation (MFN) effectively applied tariff rate was just 3.5 percent (or 3.22 percent weighted) in PNG, down from 4.66 percent in 2010.

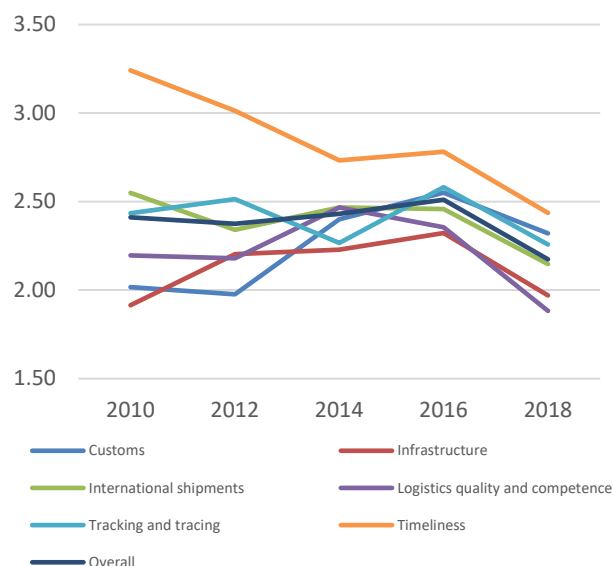
PAPUA NEW GUINEA
Country Economic Memorandum

Figure 55: Logistic performance is the lowest among peers...
 (LPI 2018)



Source: World Bank LPI.
 Note: Timor-Leste is not covered by the LPI.

Figure 56: ...and declining over time
 (PNG LPI component scores - out of 5)



Source: World Bank LPI.

67. **Governance of PNG’s logistics sector has led to poor competition outcomes in port services and among coastal shipping operators.** The quality of logistics is further inhibited by licensing regimes, which prohibit competition from more efficient and professional coastal shipping operators. Since the early 1960s, coastal shipping in PNG has been restricted to domestic-flagged and licensed ships, which has served to protect local operators. For instance, cabotage—transport of goods or passengers between two places in the same country—is not permitted: foreign vessels may unload cargo only in certain ports (for example, Lae and Port Moresby). Local freighter operators—which often hold exclusive licenses for local routes—then distribute this cargo to other feeder ports (World Bank 2020; WTO 2019). These domestic operators are typically less professionalized and cost-efficient than their international counterparts. Higher cost and uncertainty discourage trade activity and weaken the competitiveness of forward and backward links.

68. **Agricultural sector competitiveness is also undermined by limited access to quality infrastructure and logistics.** Domestically, produce is generally transported from farmgate to aggregators or wholesalers by informal commercial transportation (public motorized vehicles). The system by which informal (and at times unreliable) transport agents then move produce from aggregation areas to final markets lacks significant infrastructure and training to ensure quality. Packing facilities for fresh produce are largely absent, as are packaging materials, reusable plastic crates, and cold storage facilities and transport. Training and other extensions services on produce handling is nonexistent. The exception is large-scale agricultural-related enterprises focused on the already existing cash crop subsector. Here, large, vertically integrated firms introduce agri-business technologies, set productivity standards and product quality, and manage all processing and marketing infrastructure through the entire value chain. Even so, exporters of coffee and cocoa have difficulty being globally competitive given the limited availability of shipping and flight routes and unforeseen expenses that reduce profit margins.

Box 8: Exporting profits: An accounting of low productivity in the wood industry

PNG is well endowed with 36.1 million ha of natural forests that produce about 9.5 million m³ of roundwood annually. About 97 percent of forest resources are owned by local populations, which administer land under customary ownership. However, customary landowners do not typically have the capacity to commercially harvest forests themselves and will instead typically sell rights to logging firms through ILGs; however, these have purportedly been misused (ATIBT 2022). About 10 million ha are under active logging concession as designated production forests (ATIBT 2022; Mousseau and Lau 2016).

Legal procedures for accessing timber resources are extremely difficult in PNG. Commercial use of forest resources has traditionally been governed by one of two mechanisms—Timber Permits and Timber Authorities—set by the Papua New Guinea Forest Authority that are intended to protect the environment and the interests of the landowners (ATIBT 2022; Piskaut, Damas, and Daur 2006). Yet, onerous administrative processes for obtaining removal rights makes legal procedures for accessing timber resources extremely difficult (ACTNOW 2016). Many commercial logging companies are now using Special Agriculture and Business Leases (SABLs)—a loophole for land which is converted for agricultural use—to bypass the governance mechanisms intended to protect the environment and landowner rights. Approximately 12 percent of PNG’s land (approximately 5.5 million ha) is now under a SABL contract.

PNG landowners have suffered from both uninformed transfer of resource rights and the below-market pricing of those rights. Due to the nature of the landowning, there are challenges around accurate pricing of the contracts and other principal-agent problems which may inhibit the customary landowners from pricing the resource rights accurately. ILGs lack the capacity to effectively negotiate the contracts and in many cases this has led to the widespread lack of informed consent of the local population and the transfer of underpriced leasing rights for periods frequently in excess of 90 years (Mousseau and Lau 2016). In one notorious 90-year SABL lease in Pomio District (East New Britain Province), landowner royalties were set at only US\$0.40 per ha per year compared to a global benchmark of US\$28 per ha. However, there is effectively no market for timber in the country that can be utilized to discover appropriate pricing.

Downstream processing of industrial roundwood into sawn wood or other wood products is absent in PNG. More than 95 percent of wood is exported in primary form. Traditionally, wood industry practices dictated that sawmilling activities would occur near the point of removal, to reduce transportation costs associated with moving bulky logs. However, the lack of downstream processing activities in PNG is not surprising since domestic road connectivity is limited and sawmilling activities are capital and energy intensive. For a country with significant constraints in access to finance and in securing a stable supply of electricity, a commercial operation in sawmilling would likely not be viable. A downstream processing industry would require improved domestic road connectivity, enhanced capital markets and investment policy frameworks, and expanded access to electricity utilities.

Transfer pricing results in underreporting fiscal losses. At PNG’s ports of exit, progressive export taxes of roundwood products are levied from 35 percent to 59 percent according to the log value (which is dependent on species, size, and so on). At export, the logging companies must also show the sales price for the logs so that the tax levy can be applied. Yet, it is unlikely that the reported sales price for the logs reflects a true and accurate free on board market price, since there is no mechanism to verify market prices (ODI 2007). Without this, exporters will utilize transfer pricing to minimize taxable duties. A recent report suggests that transfer pricing results in underreporting of nearly US\$679 million in logging company revenue (roughly 2.5 percent of GDP) and a loss of tax revenue that may exceed US\$100 million per year (roughly equivalent to 4 percent of tax revenue) (Mousseau and Lau 2016). While the intent of the export tariff is to ensure some public appropriation of timber resources, the design of the policy has not effectively maximized government revenues.

Improved governance is needed to ensure that resources are appropriately priced and that contracts distribute those benefits to asset owners. Creating timber markets in PNG would help in pricing wood and could better assist ILGs in negotiating individual logging concessions. Given the environmental externalities of this sector, the scarcity of the resource, and the common good nature of the land systems in PNG, it is important to implement legal and institutional reforms that can develop more productive, sustainable, and inclusive markets.

9. Policy Priorities to Lift Productivity

69. **The government has taken steps to address some of the business environment constraints described in this report.** For instance, a number of activities have been implemented with the goal of helping SMEs formalize and enter the economy, including a national SME credit guarantee program and the drafting of formalization and SME policies. Efforts are also under way to strengthen domestic capital markets through a series of reforms and capacity-building efforts intended to expand access to finance. A financial inclusion strategy has also been adopted and an inclusive green finance policy has been drafted. Beyond financial markets, the government has also prioritized trade facilitation reform as a way of opening markets and driving growth. While these activities will likely prove to be steps in the right direction, more work will be needed to expand the productive potential of the economy. As noted previously, one of the greatest opportunities is in increasing PNG's human capital and providing access to better forms of employment, particularly among women. This topic is covered in more detail in Chapter IV. Expanding the supply of good jobs in PNG will depend on reforms and structural changes to open more of the economy to business entry and competition. These include policies aimed at improving the business environment by facilitating greater domestic and foreign investment, improving the predictability and efficiency of governance and public goods, and expanding access to infrastructure and markets.

9.1. Strengthening PNG's business environment and facilitating competition and investment in non-traditional sectors

70. **To enhance growth and competition in key sectors of the real economy, policy makers need to design and implement FDI policies that are better aligned with this objective.** In formulating such policies, a useful framework would be one that differentiates between (a) natural resource investors, (b) efficiency-seeking investors, and (c) market-seeking investors. For natural-resource investors, policy makers should prioritize the accrual value of projects over time to the citizens of PNG. To do so, policy should define property rights for such natural resources, specify through which markets/mechanisms these rights can be competitively sold, and—most importantly—ensure that such rights are priced in a manner that maximizes public value.⁵⁰ Efficiency-seeking investors, who make investments based on input costs and labor endowments, can be actively engaged by the Investment Promotion Authority. Most critically, investment policy should be revised to attract—rather than deter—market-seeking investors. Such firms can create productive competition—driving down consumer prices—as well as enhance the efficiency of certain enabling services such as logistics.⁵¹

71. **Policy makers can also do more to enable competition in domestic markets.** Many of PNG's licensing/permitting regimes have the effect of limiting the market entry of new firms. To enhance competition, these processes and procedures should be simplified and streamlined. At the same time, some of the barriers to licensing and permits limit competition by design: they stem from protectionist policies intended to limit competition—especially from foreign firms. In such cases, more concerted efforts and political capital will be required to bring about change. Such measures include (a) identifying sectors that are most adversely affected by

⁵⁰ There are inherent difficulties in accurately pricing extractive assets since there is often imperfect information on the resource value in the absence of accurate exploration data and volatile commodity markets. Such property rights should be competitively priced (to maximize national value capture) and structured so as not to de-incentivize foreign investment, especially when it is unlikely that domestic investors would have the capability to substitute for foreign investment (such as when the scale of capital or the technological requirements to operate the extraction efforts could be difficult with existing domestic capacity).

Sustained growth stemming from the extractive sector will require that resource rents are recycled into productive investments (such as public goods for the judiciary, police, or roads), which firms can leverage into more productive business models.

⁵¹ When such restricted activities are for market-seeking investors, this may often result in higher prices and/or limits on the set of goods and services that are available to PNG households and businesses. The intent here is to protect inefficient domestic firms and local special interests at the expense of domestic consumers; however, in effect it limits competition and would affect the country's Total Factor Productivity (TFP).

PAPUA NEW GUINEA Country Economic Memorandum

licensing/permitting restrictions and (b) conducting research into the political economy of such reforms to identify likely areas of resistance.

72. **Encouraging domestic competition will also require reining in distortionary support for SOEs operating in commercial or contestable markets.** Uncompetitive SOEs have implicitly and explicitly benefited from government policies. To better enable market efficiency, it will be important for the government to implement a policy of competitive neutrality through state aid, public procurements (especially for concession operators), and the design of key regulations. By implementing a policy of competitive neutrality, the government can promote a level playing field for all firms, independent of their nationality or form of ownership. Ultimately, such markets should be made contestable, and chronically unprofitable SOEs should be restructured and privatized or liquidated. In addition to the ADB's work on SOE reform targeting a limited set of firms, improved corporate governance practices and competitive neutrality policies need to be expanded to cover the entire portfolio.

Box 9: The untapped potential of the fisheries sector

With an extended reef system, numerous islands and an extensive coastline, PNG's Exclusive Economic Zone (EEZ) is one of the largest in the South Pacific. As of 2019, the country's fisheries industry employed nearly 12,500 people and generated roughly US\$290 million in exports. Three-quarters of the country's export trade that year in fish was with the European Union (EU), the result of preferable market access under the EU-Pacific Interim Partnership Agreement (Fiji, Samoa, and the Solomon Islands are also party to the agreement.) Still, shortages of skilled workers and inadequate resource governance have meant that the industry's potential has yet to be realized.

Climate and governance risks will affect the long-term competitiveness of the industry. The Western and Central Pacific Fisheries Commission (WCPFC), the international body governing tuna stocks in the region, assesses PNG's oceanic tuna fisheries as being healthy and not overfished. However, there are challenges on the horizon. Climate change is forecast to have a significant impact on the abundance of tuna in PNG's EEZ, with models suggesting the national tuna catch could decline by as much as 33 percent by 2025, resulting in a revenue loss of up to US\$44.4 million annually. Governance and management of local fisheries—often in the hands of local communities—also present sustainability challenges. (For example, many sea cucumber fisheries in Pacific Island countries are currently closed due to overharvesting—which in some cases has led to the collapse of stocks of consumers' preferred species, due to 'boom and bust' exploitation patterns.)

Investments are necessary to modernize and expand aging infrastructure and expand the marketing capabilities of PNG's fisheries industry. In the past, however, investment has not been purely market based. Instead, industry regulators in PNG have provided foreign firms with such incentives as preferential EEZ access, access fee reductions, and lower taxes to foreign companies in exchange for the establishment of onshore processing facilities. Access conditions are generally a mix of mandated and negotiated conditions (for example, limits on the number of vessels, fishing days, or amount of catch allowed). However, the latter are often linked to the foreign provision of aid and development assistance from a firm's home country, therefore imposing a cost on local fleets in relation to resource availability.

Enhancing the competitiveness of PNG's fisheries requires consideration of scale.

- For small-scale subsistence fisheries, the most important factor to ensure resource availability is access to reliable information regarding local stocks. Growth can therefore be encouraged through surveys on the use and consumption of fish as well as the strengthening of local governance frameworks. Greater skills training and access to finance are also needed.
- Mid-size coastal commercial fisheries require stronger governance. Policy makers and regulators can help coastal fisheries by (a) developing better rules for managing stocks, setting target fishing levels and limits; (b) ensuring compliance; and (c) providing an enabling environment for the development and marketing of tradeable seafood products. Thus, in addition to a stronger licensing regime and greater spending on monitoring, control, surveillance, and enforcement, necessary investments include capacity building and business consulting services focused on fishery value addition. Improving export trade financing and market access opportunities via beneficial trade agreements will also be vital.

- For large-scale oceanic fisheries, increasing industry capacity for value addition is similarly important. So, too, is reducing illegal, unreported, and unregulated fishing and aiding industry to adapt to cyclical and long-term changes in resource abundance driven by climate change. To facilitate this, policy makers can provide industry leaders with access to climate models and stock forecasts. Public investments in both infrastructure and industry links with small-scale fisheries are also likely to prove beneficial.

9.2. Improving the predictability and efficiency of governance and public goods with a focus on implementation

73. **For the economy to work, there is a need for underlying societal institutions that support the process of economic exchange, including property rights, predictability and enforceability in contracting, and governmental effectiveness and transparency.** Strengthening public accountability will therefore be critical in enhancing efficiency. Rule of law in PNG has been greatly compromised by personalized patronage, which affects market governance and institutional effectiveness. In urban areas and around resource enclaves, security functions are privately provided, with benefits visibly limited to political and business elites. At the local level, however, village courts (and equivalent non-state bodies that have emerged in many urban settlements) provide access to justice and a degree of oversight/control of social relations. However, these village courts are often influenced by the patriarchy inherent in the local social structures (World Bank 2021).

74. **Legislation geared toward improving women’s access to less vulnerable and paid employment and addressing workplace sexual harassment will also be critical to enhancing PNG’s productivity.** Specifically, the Employment Act could be amended to provide equal opportunities to women to engage in economic activity, without any discrimination that may perpetuate occupational sex segregation, provides for adequate maternity leave and equal pay for work of equal value, and addresses comprehensively sexual harassment risks at work. Specific recommendations are included in the PNG Economic Update March 2023 edition (World Bank 2023b). Such revisions could support immediate progress toward improving productivity while enhancing equal opportunities for women and men in accessing paid work. A review of the Employment Act and the Industrial Relations Act 1962 has been under way for several years. In 2014, the Employment Relations Bill was read in Parliament; it is yet to be ratified.

75. **Legislation providing for equality in access to economic inputs such as land and credit is also vital for women’s advancement and broad-based economic growth.** While men and women have equal ownership rights to land and spouses have equal administrative authority over assets during marriage according to the Married Women’s Property Act, evidence suggests this does not always happen in practice, due to traditional patriarchal norms and customs. The absence of explicit prohibitions to discrimination in access to credit based on gender further reinforces the disadvantage in access to credit for women. It will be critical to review lessons from implementation of the National Public Service Gender Equity and Social Inclusion (GESI) Policy.

76. **More broadly, equality and transparency in property rights—especially in land markets—will be essential for providing an enabling business environment.** To date, PNG’s judiciary and administrative systems have struggled in efforts to assign formal land rights, and customary practices have hindered attempts by the state to create markets for them. To address these issues, PNG must improve its legislative frameworks to enhance how property rights are assigned, including specifically for women. PNG’s unique system of customary laws are enshrined in the constitution—and therefore opposition to any reform efforts is likely—and so legislators will have to creatively design systems which protect such rights while enabling commerce. This will likely entail strengthening the role of ILGs through formalization requirements and ensuring that they have the corporate governance structures to mitigate principle-agent problems.

9.3. Expanding access to infrastructure and markets

77. **Infrastructure will remain a priority area for both public and private investment in PNG for some time to come.** For key utilities (for example, energy) and other physical connectivity infrastructure (for example, roads), greater investment is needed to improve infrastructure services and thereby improve living standards and foster economic growth. PNG has the potential to expand renewable energy investment to provide affordable, reliable, and sustainable power to both businesses and the broader public. It will be important to introduce good sectoral and corporate governance practices, strengthen planning and coordination among agencies and with development partners, enhance operational and financial performance of the agencies in charge of infrastructure, and prioritize maintenance practices and sustainability of infrastructure assets.

78. **Infrastructure investment will also play a leading role in driving access to markets and adoption of modern technologies that can enhance productivity.** Strong leadership is needed to foster communities' support for network infrastructure projects that cut across various customary landowner jurisdictions but whose benefits extend beyond the areas immediately covered. Success in intermediating these projects can help rural areas better access to markets. Similarly, affordable access to fixed and wireless broadband networks are currently limited. PNG needs to invest in telecommunications infrastructure. Access to these digital technologies will be especially important for enhancing firm productivity and enabling access to international markets.

Box 10: A phased approach to energy sector reform

Energy is an essential factor to power industry, commerce, and economic productivity more broadly. PNG has abundant renewable resource potential, which could help transition the country away from its dependency on costly imported fossil fuels and provide modern energy services to the population whose energy access is among the lowest in the world and per capita consumption much lower than PNG's structural peers. However, investments in energy infrastructure are inhibited by low investment and poor governance of the sector. Regulatory purview for the sector has suffered from an unstable authorizing environment as the portfolio has shifted hands of ministers several times. Energy sector reform has been initiated by different ministers, often without significant coordination. The energy sector needs to be placed under a stable authorizing environment. Regulatory functions are now in the process of being consolidated by the National Energy Authority (NEA) that has been established by the NEA Act of April 2021. Effective implementation of the act will require the strengthening of institutional capabilities.

Embarking on a major sector restructuring is premature in PNG as a host of key success factors that have been identified globally to help make power sector reform successful⁵² are not yet present in PNG (World Bank 2020). The potential net benefit of unbundling a small system would be marginal. Instead, a recommended approach for PNG would be to take a phased approach and initially focus on quick-win reform measures intended to improve the sector performance. As a first step, efforts will need to be directed toward improving PNG Power Limited (PPL)'s operational and financial performance. This would entail PPL's shareholders and its own management collectively prioritizing PPL's strengthening of its system planning capabilities, improving the reliability of electricity supply (rehabilitating some of its obsolete assets), properly collecting and protecting revenues especially from its large customers, and controlling the cost through the implementation of least-cost power development plan and competitive selection of investments. PPL's internal management systems and processes can be modernized in tandem. PPL's performance improvement can be significantly supported by an enabling regulatory environment such as the proper enforcement of cost-recovery tariff methodology, quality-of-service standards, rules on community service obligations, and social safety net to protect low-income consumers. Over time, the system will evolve and some of the key barriers will be addressed, such as power generation needs and transmission bottlenecks and high system losses, thereby paving the way for major sector reforms

⁵² These include (a) increasing the generation capacity so that they can meet benchmarks for a minimum efficient economy of scale (that is, reaching 1 GW); (b) eliminating major bottlenecks in transmission grid or in fuel supply; (c) ensuring a high cost recovery of tariff; (d) ensuring a high revenue collection ratio that is enforced by disconnection; (e) ensuring low system losses; (f) developing a substantial electrification rate; (g) improving regular audited financial accounts that are compliant with International Financial Reporting Standards; (h) developing modern IT systems that have operational data; (i) regularly adjusting tariffs in line with a regulatory methodology (World Bank 2020).

PAPUA NEW GUINEA
Country Economic Memorandum

in the future. When such steps are taken, and electricity supply becomes more widespread and affordable, it could hasten the development of energy intensive industries in value added activities with high associated levels of productivity.

79. **Investment in processing and transport logistics will be vital in supporting greater domestic value-added activities in agriculture.** Private sector players producing higher-value cash crops have begun upgrading plant stock, improving processing procedures, investing in storage and packing facilities, and improving institutional coordination and transparency along the value chain. For these activities, utilities such as power and water are essential—especially for flash freezing and cold storage facilities—and yet they remain unreliable and unaffordable. Improved private investment in cold chain logistics and better trade infrastructure are also vital for the development of export market access. However, enhanced private investment in these functions will require reform of logistics markets, including for trucking and shipping service providers as well as for services provided by public concessions at ports of entry.

80. **Enhancing entry of new logistic service providers—by reforming licensing and permitting procedures for the sector—can enhance productivity of sectors producing tradeable merchandise (such as agricultural commodities, manufactured goods, and so on).** Increasing competition in this way will also incentivize existing service operators to invest or improve the quality of their service. High-value agricultural products are especially susceptible to the quality and cost implications of these market restricting procedures. To improve competition in logistics quality and timeliness, it will be important to liberalize permitting access to any qualified logistic/shipping provider—be it SOE or private, domestic, or foreign—that meets the regulatory requirements and standards for professional conduct.

81. **Moreover, reform of the management practices at ports is needed to ensure that fair competition can drive down prices while improving service quality** (APEC 2017). For instance, it will be essential to better structure concession contracts at the publicly owned ports in Lae and Port Moresby, to ensure more competition between service providers (including those contractors providing wharfage, stevedoring, and other port services). Without effective competition in port services, the high costs to trade will remain a key barrier to improving productivity. More broadly, the current regulatory framework for competition in port services suffers from ambiguity and may need reforms to ensure that the regulation is consistent with the objectives of economic efficiency.⁵³ This will be important for geographies which only have access to a limited number of privately operated ports, which can exercise monopoly control over access to shipping lanes.

⁵³ The existence of two different economic regulation frameworks under the Independent Consumer and Competition Commission (ICCC) Act and the Prices Regulation Act, as well as the definition of what constitutes a ‘regulated industry’ under the Harbors Act, may create uncertainty, conflicting objectives and over-lapping responsibilities.



▶ CHAPTER IV

Expanding Endowment

Chapter IV. Expanding Endowment

82. **This chapter will discuss how PNG can expand and better use its most important asset, namely its human capital.** This discussion aims to examine the third interrelated main challenge that PNG faces: excessive reliance on natural capital and underutilization of its people. Expansion and diversification of endowments would mean pushing the Production Possibility Frontier (PPF) outward and achieving a higher level of factor combination that will eventually produce higher growth. Policies on this front can be seen as areas that may require longer-term commitments.

83. **This chapter will discuss basic education and health outcomes related to childhood development, such as education enrolment, nutrition, and stunting.** To get better access to education and health, access to core services such as electricity and WASH services will be crucial. Hence, this chapter will also look at these infrastructures from the lens of household access, noting that the discussion of these types of infrastructure for production purposes is covered in the previous chapter. It will also discuss the transition of the youth from education to work and how gender exacerbates the challenge in this human capital area.

10. Human capital remains underutilized as a source of growth

10.1. *Limited growth and progress in human capital compared to peers*

84. **PNG has had the lowest rate of growth in per capita wealth of all of its peers since 1995, and limited growth in human capital is an important factor behind this low growth.** Using the framework and data from the 2021 updates of the Wealth Accounts database,⁵⁴ as Figure 57 shows, per capita wealth has been virtually flat since 1995, growing by only 1 percent over this period, the lowest rate of growth among PNG's peers. One explanation behind this poor performance is that—relative to most peers—PNG underutilizes its human capital: in 2018 (the latest data available), only 46 percent of total wealth came from human capital, below virtually all of PNG's peers. Moreover, growth over time (in per capita human capital) has been very limited: as Figure 58 shows, between 1995 and 2018, the growth of human capital per capita in PNG was substantially below that of most of its peers. Some aspirational peers, such as Peru and Malaysia, have increased the proportion of human capital by more than 10 percentage points in the last two decades.

⁵⁴ According to Lange, Wodon, and Carey (2018), total wealth is calculated by summing up estimates of each component of wealth: produced capital, natural capital, human capital, and net foreign asset (NFA). Natural capital includes the valuation of fossil fuel energy (oil, gas, hard and soft coal) and minerals (bauxite, copper, gold, iron ore, lead, nickel, phosphate, silver, tin, and zinc), agricultural land (cropland and pastureland), forests (timber and some nontimber forest products), and protected areas. Human capital is computed as the present value of future earnings for the working population over their lifetimes.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure 57: Growth in per capita wealth and per capita human capital since 1995

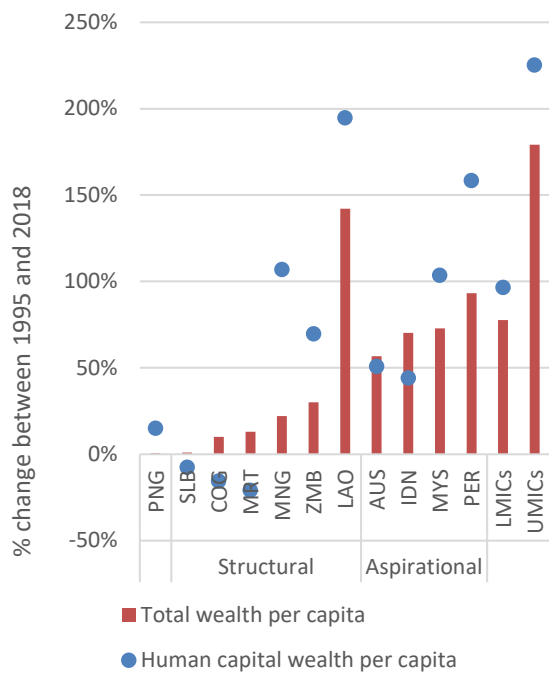
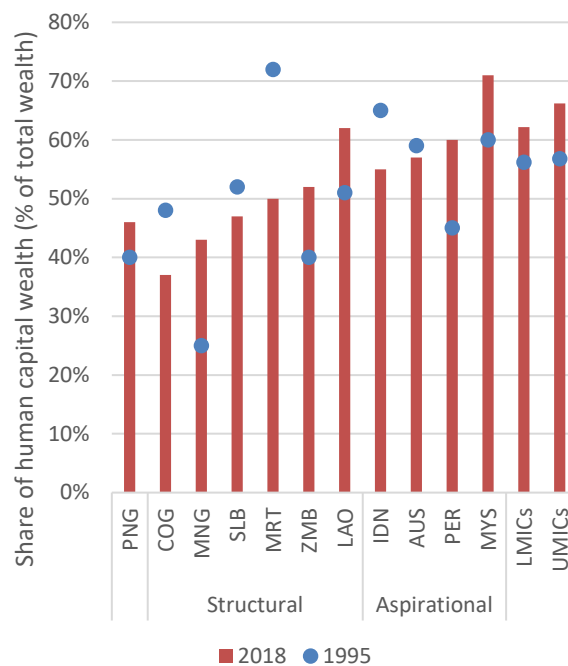


Figure 58: Share of human capital in total wealth in 1995 and 2018 in PNG and its peers



Source: Changing Wealth of Nations database.

Box 11: Overview of PNG’s wealth accounting

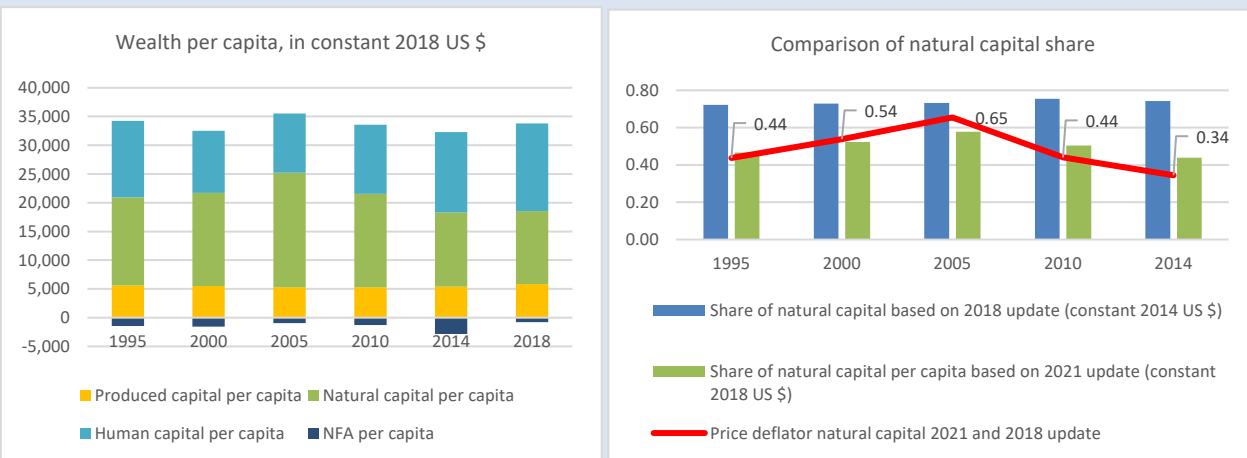
Wealth in PNG has been dominated by natural capital, and total wealth has stagnated compared to its peers.

Using the framework and data from the 2021 updates of the Wealth Accounts database, between 2005 and 2010, natural capital accounts for more than one-half of total wealth (Figure 59, left panel). This figure has gradually decreased in the last decade, as the human capital proportion of total wealth improved; however, the share of human capital to total wealth is still lower compared to some peers. On average, PNG’s total wealth per capita grew only 0.1 percent annually between 1995 and 2018, with the 2018 figure only around 1 percent higher than the 1995 figure. Although continuous population growth might partly explain this stagnated increase, it also indicates that PNG has not been able to utilize the available natural resources to improve investment in other types of capital. For instance, although PNG had the highest share of natural capital in 1995, it has generated only a limited improvement in human capital compared to other peers such as Lao PDR, Zambia, and Mongolia and its aspirational peers.

In addition, as a resource-dependent country, PNG is exposed to the volatility of wealth estimates, mostly reflected in the natural capital account.

The wealth account estimates the valuation of each type of natural capital measured at market exchange rates in a certain base year. The volatility of the world resource price and exchange rate may, therefore, influence not only the size of natural capital and wealth per capita but also the contribution of each component to total wealth. Figure 59 (right panel) also compares the two most recent updates of the wealth account estimates, the 2018 update based on the 2014 prices and the 2021 update based on 2018 prices. The contribution of natural capital in the 2021 update is significantly lower than in the previous version. The price volatility is also shown by the varied price ratio between the two versions across years. For instance, in 2005, the value of natural capital in 2018 prices was 35 percent lower compared to the value in 2014 prices, but in 2014, this ratio dropped to more than 65 percent lower. This variation emphasizes the importance of managing volatility in PNG.

Figure 59: Wealth per capita and contribution of natural capital across time



Source: Changing Wealth of Nations database.

85. **Different measures of human capital support the picture of PNG underutilizing the potential of its people.** First, the World Bank Human Capital Project (2020) estimates the human capital index (HCI) for PNG is only 0.43. This indicates that a child born today in PNG will only be able to achieve less than one-half (43 percent) of the productivity potential s/he could if s/he enjoyed complete education and full health (see Figure 60). This score is significantly below the average of LMICs (0.48) and far below the average of EAP countries (0.59). Second, and consistent with the HCI, the United Nations Development Programme (UNDP) human development index—which, unlike the HCI is available over time—suggests that PNG has one of the lowest scores among its peers (Figure 61). Moreover, looking back, the human development index shows that, while improvements have been made since 1995, PNG had and remains with the lowest score among its peers.

PAPUA NEW GUINEA
Country Economic Memorandum

86. **Advancing human capital will generate considerable economic payoffs, given that a better skilled and knowledgeable workforce could better seize business opportunities and take on better-paid jobs.** For instance, for both men and women, pursuing higher levels of education significantly increases the likelihood of being employed. Around 84 percent of men and 81 percent of women ages 5–49, who have some higher education, are employed—compared to 44 percent of men and 25 percent of women with no education (NSO 2019). On the other hand, limited progress in human capital may have a detrimental impact on the future labor force. For instance, child stunting and malnutrition may cause losses in future productivity due to reduced numbers in the labor force, poor physical status, and reduced cognitive function⁵⁵

Figure 60: Human capital index, 2020

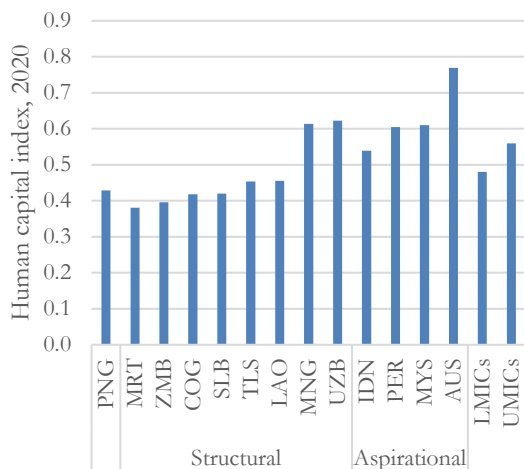
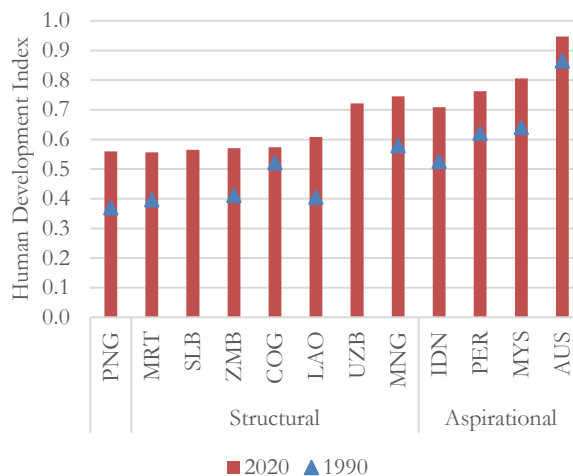


Figure 61: Human development index, 1990 and 2020



Source: World Bank HCI database (left); UNDP: Human Development Index (right).

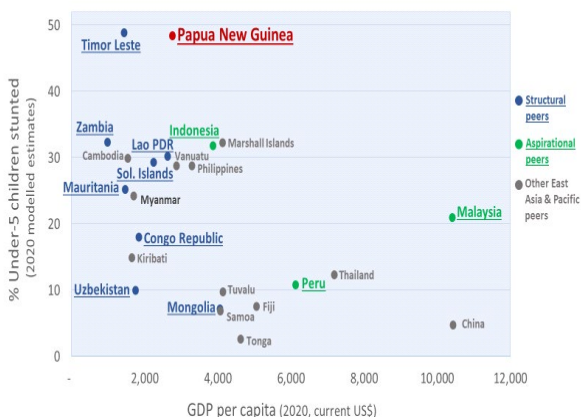
10.2. PNG is lagging in several dimensions in developing its human capital

87. **The stunting rate is at an alarming level, with detrimental implications that might affect children’s ability to learn.** Stunting impairs a child’s cognitive development and is irreversible after age two, which underscores the importance of early intervention during the first 1,000 days of a child’s life (pregnancy to two years old). PNG has the fourth highest child stunting rate in the world and the second highest prevalence of stunting in the EAP region. The rate is double that of countries with comparable levels of income per capita and significantly above its peers (Figure 61). Nearly one-half of the children of PNG are stunted (45 percent) and around 28 percent of the children in the country are underweight. While the majority of countries that are part of the HCI measurement have reduced the fraction of their stunting rate among under-five children between 2010 and 2020, PNG shows no significant improvement (Figure 62). This burden of stunting is highest among the poorest quintile (55 percent), although the level is still persistent in the richest quintile (36 percent). Stunting indicates low nutrition intake which may be related to a later reduction in cognitive and academic achievement and which, therefore, causes children to be poorly prepared learners in school.

⁵⁵ A report by Save the Children (2017) estimates that the cost of child stunting and undernutrition can be more than 2 percent of GDP per year for PNG.

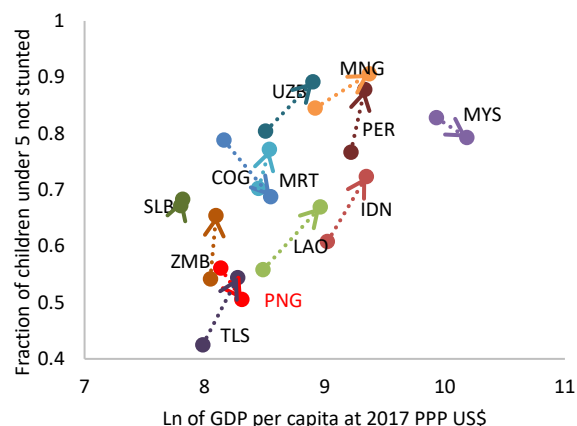
PAPUA NEW GUINEA Country Economic Memorandum

Figure 62: Stunting rate in EAP region and comparator countries
(Most recent estimates)



Source: WDI - based on modelled estimates by World Health Organization (WHO)/UNICEF/World Bank.

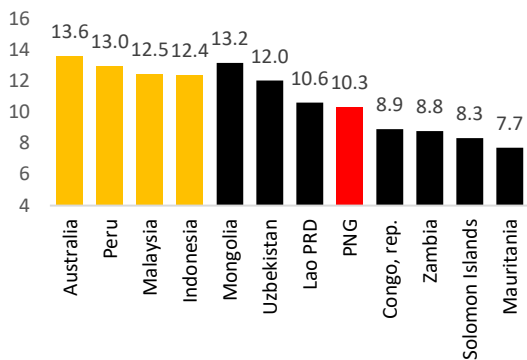
Figure 63: Changes in fraction of under-five children not stunted
(circa 2010 vs. circa 2020)



Source: Adopted from the HCI 2020 updates.

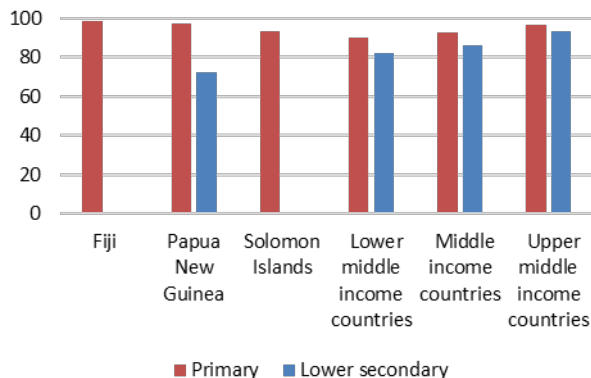
88. **The overall education level of the adult population is low and net enrolment rates at the secondary level are behind PNG's peers.** Based on the PNG DHS in 2016–2018, most males ages 35 and above have either no or only some primary education. The schooling figure is even lower for women, with most women ages 25 and above having either no or only a few years in primary school. This expected number of schooling years has risen in recent years and, while a child born today in PNG can now expect to complete around 10 years of education, this is still well below the expected years of schooling in peer countries (Figure 64). The net primary enrolment rate is above 90 percent, but this enrolment drops significantly at the secondary level, where the rate is below peer countries (Figure 65).

Figure 64: Expected years of schooling
(Years)



Source: World Bank 2020 HCI database.

Figure 65: Net enrolment rates
(percent, 2020 or most recent data)



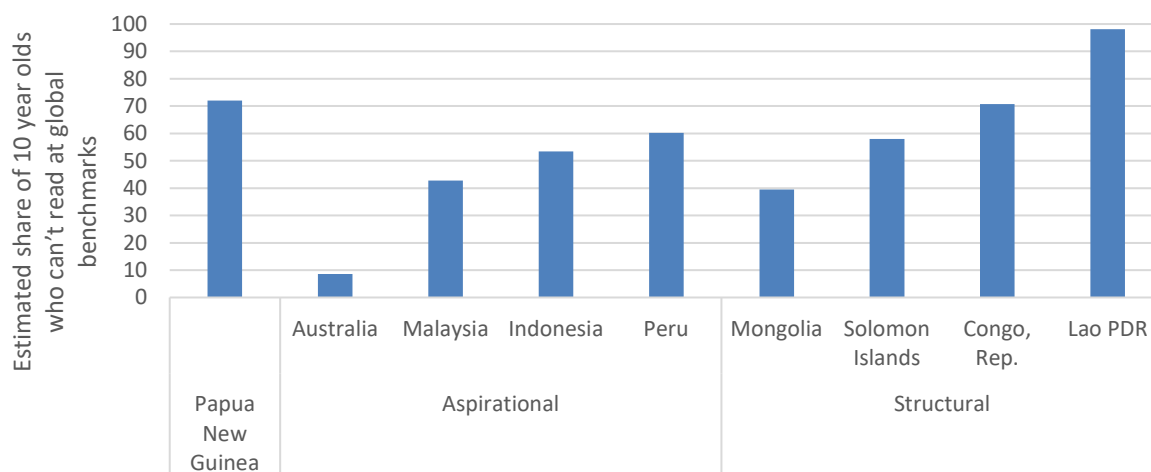
Source: UNESCO Institute for Statistics (UIS) data.

89. **While primary-age children are increasingly in school, too few of them are learning to read, and COVID-related school closures likely worsened the situation.** Results from the Pacific Islands Literacy and Numeracy Assessment (PILNA) in 2018 show that almost one-half of the students (48 percent) struggle to reach PILNA's minimum proficiency level in reading after six years of primary education. However, World Bank estimates suggest that a much larger proportion—possibly as much as 72 percent—are not learning to read

PAPUA NEW GUINEA
Country Economic Memorandum

sufficiently well, when measured against global reading benchmarks (Cahu and Sondergaard 2023). On average across the Pacific Island countries that participated in PILNA, students’ academic performance declined during the pandemic, according to newly released data on learning, based on the results on the 2021 PILNA (Education Quality and Assessment Programme (EQAP) 2022). Average performance in numeracy, reading, and writing had been rising or was stable among year 4 and year 6 students since PILNA’s inception in 2012. Between 2018 and 2021, however, numeracy and reading scores declined. Average numeracy scores declined more than reading scores for both year 4 and year 6 students. The decline in year 4 numeracy scores was particularly striking; having increased from 486 in 2012 to 504 in 2018, average scores declined to 479 in 2021, that is, entirely wiping out the gain over the previous six years.

Figure 66: Estimated proportion of 10-year-olds who cannot read and understand an age-appropriate text (measured against global minimum proficiency levels)

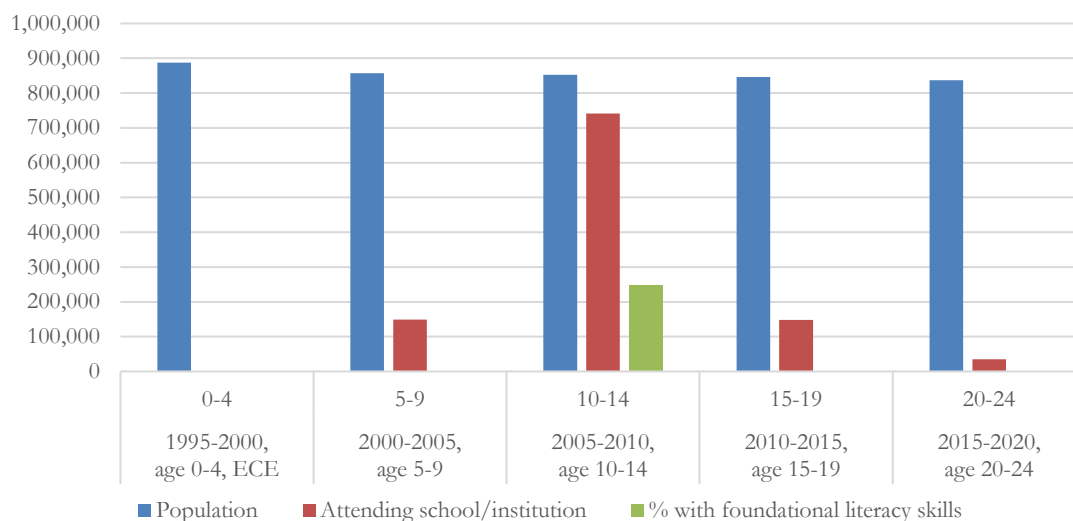


Source: World Bank Learning Poverty database and, for PNG and the Solomon Islands, estimated interim learning poverty based on proportion of students achieving at least ‘level 6’ in PILNA 2018 (see Cahu and Sondergaard 2023).

90. **When children fail to learn to read, further learning becomes challenging, resulting in higher dropout and repetition rates and low completion rates.** A cohort study—focusing on the educational outcomes of the cohort born during 1995–2000—undertaken for this study illustrates this point (see Figure 66). Approximately 900,000 were born during those years. Virtually none of these benefitted from early childhood education (ECE) during their early years (age 0–4 in 1995–2000). As the cohort was reaching school age (age 5–9 in 2000–2005), PNG had yet to ramp up investments in education and, as such, less than 20 percent of the cohort started their school career during those years. By contrast, in line with the big effort to achieve universal basic education, more than 90 percent of the cohort likely attended schools (at various grade levels) during 2005–2010. However, because of the poor quality of schooling offering during this period, less than one-third of the cohort (approximately 250,000) were likely to have acquired foundational literacy skills (PILNA 2012). Thus, not surprisingly, five years later (during 2010–2015), less than 20 percent were still in school; too few of them had acquired the skills needed to master the more challenging curriculum taught in those higher grades. And, indeed, in 2016, less than 2 percent of the cohort graduated from a higher education institution. In short, of the nearly 900,000 born in 1995–2020, approximately 650,000 never acquired any foundational literacy skills and left school with at most a primary education certificate, approximately 35,000 acquired a secondary education, and 12,000 acquired a tertiary education.

PAPUA NEW GUINEA
Country Economic Memorandum

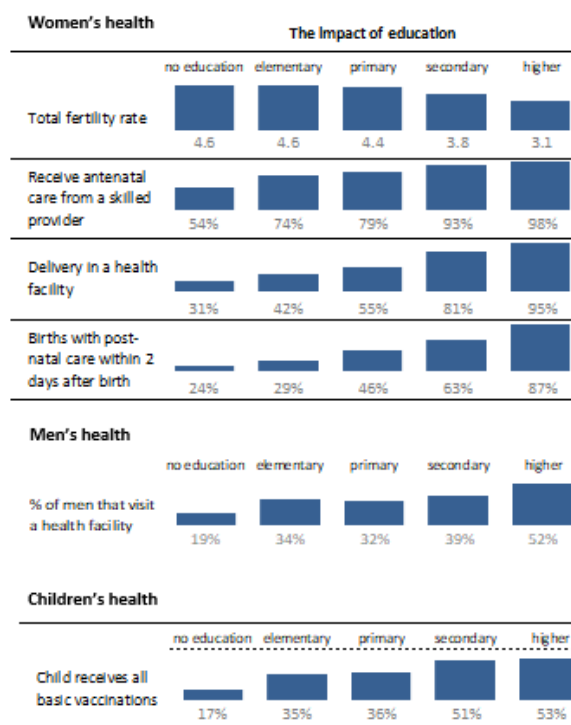
Figure 67: Education outcomes of the cohort born during 1995–2000



Source: Based on population data (UN Population Division), enrolment numbers, and PILNA 2012.

91. **Education, especially girls’ education, plays a key role in predicting the future health and well-being of women and children.** The level of education for a woman in PNG has a positive impact on health coverage indicators. Women who have higher education receive antenatal care from a skilled provider (98 percent), deliver in a facility (95 percent), benefit from postnatal care within 2 days of birth (87 percent), and have less children (3.1 total fertility rate) (Figure 68). In comparison, a woman with no education will bear more children, 4.6 births, and only half will receive antenatal care from a skilled provider and less than one-third of women will deliver in a facility or access postnatal care. Only 17 percent of children born to a woman has had no education will be fully immunized. Educating woman and targeting interventions to reach women who are vulnerable and have limited education is critical to closing the health gap among children.

Figure 68: Impact of education on select health outcomes



Source: DHS 2016–2018.

10.3. Gender gap and low level of completion in education impede transition to work

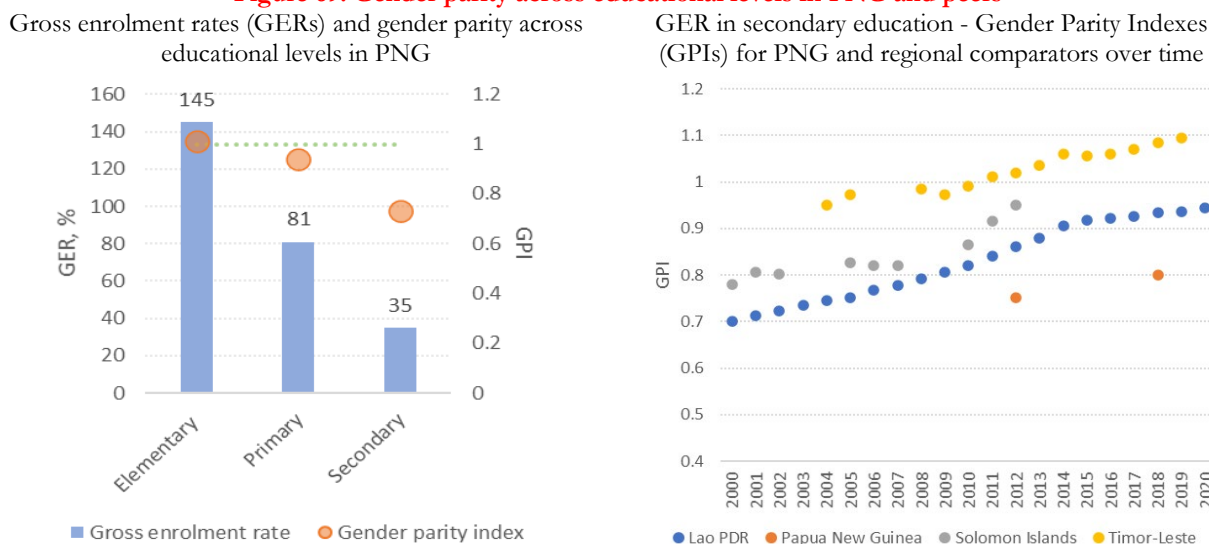
92. **The gender gap in enrolments further exacerbates the challenges in using education as a pathway to better employment.** While PNG has achieved gender parity in elementary enrolments,⁵⁶ gaps increase from primary to secondary level (Figure 69). A sizable gap remains in both net and gross secondary enrolment rates, with girls more likely to drop out of school at key transition points. In 2018, there were seven girls for every 10 boys enrolled in secondary school. Girls are also less likely to reach the end of primary schooling, with only 45 percent of girls who start elementary school staying until the end of primary (compared to 48 percent of boys). Survival rates to the end of secondary school are also strikingly low: about 16 percent of boys and 12 percent of girls who enter elementary school remain until the last year of secondary education. While some progress has, therefore, been made at the primary education level, PNG still lags its regional peers in attaining gender equality in secondary education.

⁵⁶ Elementary education includes grades 1 and 2, primary education includes grades 2 to 8, and secondary education includes grades 9 to 12.

PAPUA NEW GUINEA

Country Economic Memorandum

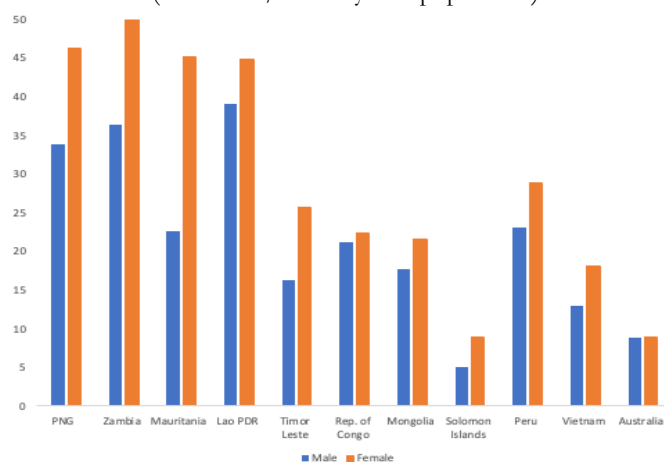
Figure 69: Gender parity across educational levels in PNG and peers



Source: 2018 Educational Management Information System (EMIS) data from Department of Education (on the left), and UIS (on the right).

93. **Transitioning from school to the workforce is difficult for many as they find that they are unprepared or unqualified for jobs.** Low levels of educational completion mean that those entering the labor market are unlikely to have the required certificates that many formal employment opportunities require. In addition, low levels of literacy and numeracy and proficiency in English also serve as further exclusions. Almost 35 percent of male youth (ages 15–24 years) in PNG do not participate in education, employment, or training, while the rate is higher for female youth, with almost 50 percent (Figure 70). This rate is in the higher range compared to the peers. There are signs that firms are struggling to find the skills they need in the industry, as shown by the large number of foreign workers that are employed in the economy. While it is reasonable to rely on foreign labor for highly skilled positions, reliance on foreign workers for semi-skilled and low-skilled jobs reflects the inadequate domestic supply of skilled labor. It also presents an important economic loss for PNG given the country’s large and growing pool of young labor.

Figure 70: Youth not in education, employment, or training
(% of male/female youth population)



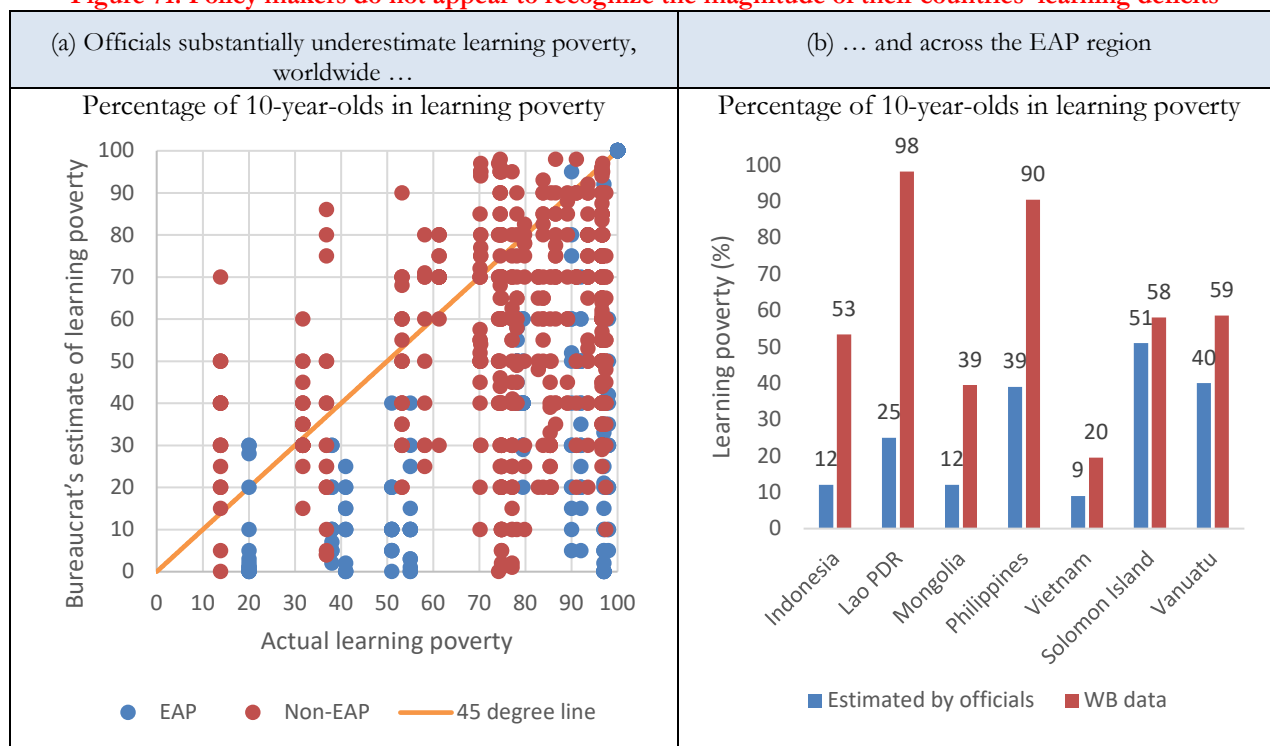
Source: PNG: Own analysis using data from PNG DHS 2016–2018. Other countries: World Bank databank, latest available year.

11. Explaining limited progress in expanding human capital endowments

11.1. The human capital crisis is not sufficiently visible - to society and to policy makers⁵⁷

94. Surveys of government officials around the world suggest they are not always aware of the magnitude of their countries’ foundational learning deficits. Senior policy makers in 35 low- and middle-income countries, both in the region and globally, underestimate the magnitude of their countries’ learning deficits (Figure 71, left panel). In six of the seven countries surveyed in the region—Indonesia, Lao PDR, Mongolia, the Philippines, the Solomon Islands, and Vanuatu—policy makers’ estimates of 10-year-olds’ literacy levels exceeded measured levels by substantial margins (Figure 71, right panel).

Figure 71: Policy makers do not appear to recognize the magnitude of their countries’ learning deficits

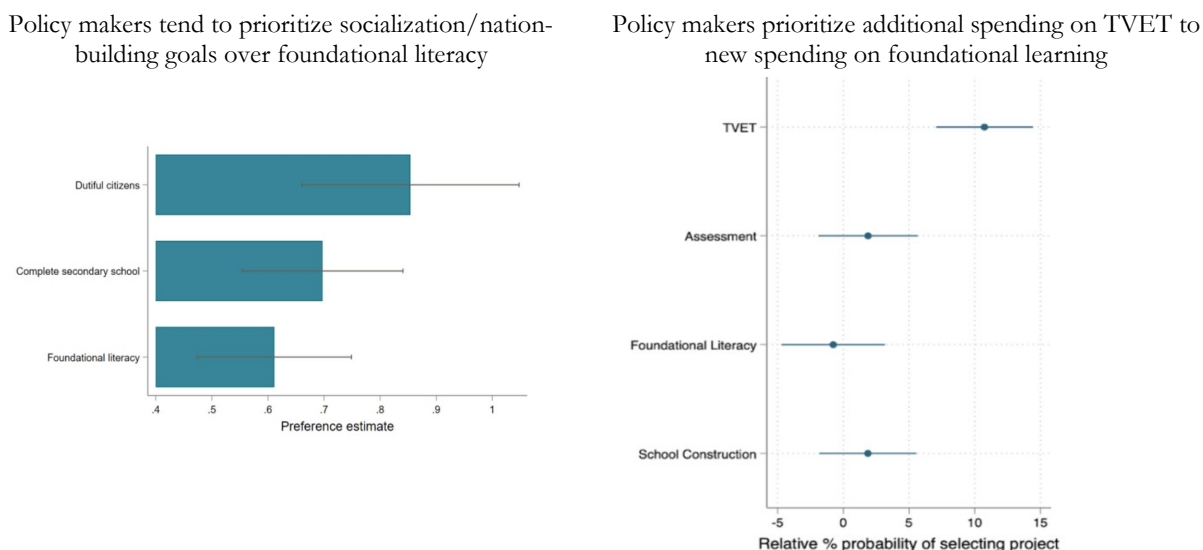


Source: Left panel: (Crawford et al. 2021); right panel: World Bank staff calculations, based on (Afkar, Breeding, and Noah 2022).

95. **Policy makers may also have other education sector priorities.** Crawford et al. (2021) found, for example, that senior officials tend to prioritize socialization and nation-building goals for education over building foundational literacy (Figure 72, left panel). In addition, when faced with a hypothetical choice between different types of education projects, policy makers expressed a preference for investing in technical and vocational education and training (TVET) projects over projects to support increased foundational literacy (Figure 72, right panel). The lack of a sense of ‘crisis’ with respect to basic learning outcomes, combined with a focus on other priorities, have likely served to dilute policy makers’ focus on strengthening basic learning outcomes.

⁵⁷ Material from forthcoming regional report on education in the EAP region.

Figure 72: Policy makers do not appear to prioritize foundational learning



Source: Crawford et al. 2021.

11.2. Challenging structural features make it especially challenging and costly to improve human capital outcomes

96. **In trying to improve human development outcomes, PNG faces some particularly challenging structural features, shared by only a few of its peers.** To begin with, providing quality health and education services for all is particularly challenging when the population is rapidly expanding. Over the past 20 years, PNG’s population age 0–14 has been growing by 1.6 percent, per year, exceeded only by Mauritania, Zambia, Republic of Congo, and the Solomon Islands, among the peers (Figure 73). Similarly, providing a quality education for all is particularly difficult and costly for countries with a high degree of linguistic diversity. Such diversity raises the need for providing textbooks and instruction in different languages and the risks that children show up in school less prepared to be able to absorb teaching in the language of instruction. On this front, PNG is estimated to have the highest degree of linguistic diversity in the world, similar to some of the peers (including the Solomon Islands, Zambia, Congo, Indonesia, and Malaysia) but very different from Mongolia, Mauritania, Peru, and Australia (Figure 74).⁵⁸

97. **The high rates of population growth are reflected in high rates of teenage pregnancies and high rates of unmet family planning needs.** According to the most recent DHS (2016–2018), teenage pregnancy, among women ages 15–19, accounts for 12 percent of total births in PNG. Like other low-middle income countries, there is a strong link between young women who are from low economic status and education and higher adolescent births (Figure 75, Figure 76). Adolescent pregnancies are linked to higher risks for complications during pregnancy and childbirth. Babies born from adolescent mothers also face higher chances of low birth weight and preterm births and are susceptible to severe illnesses during the neonatal period. A child who has a low birth weight is at increased risk of death and illness and predisposed to having slower growth and development. A child who falls ill frequently will miss out on school, suffer poorer learning outcomes, and increase the risks of dropouts. A child who is born into poverty is more likely to become stunted and a stunted child is more likely to remain poor in adult life. To break this intergenerational vicious cycle of poverty, poor

⁵⁸ Greenberg’s Linguistic Diversity Index (LDI) is the probability that two people selected from the population at random will have different mother tongues; it therefore ranges from 0 (everyone has the same mother tongue) to 1 (no two people have the same mother tongue).

PAPUA NEW GUINEA
Country Economic Memorandum

health, and nutrition, providing quality basic health for mothers and children and preventative services like access to sexual reproductive health commodities and counselling for young women is important. In PNG, there is an unmet family planning need among 26 percent of married women and on average women are having one more child than they want—4.2 children instead of 3.0 children.

Figure 73: Growth of population ages 0–14 between 2001 and 2021

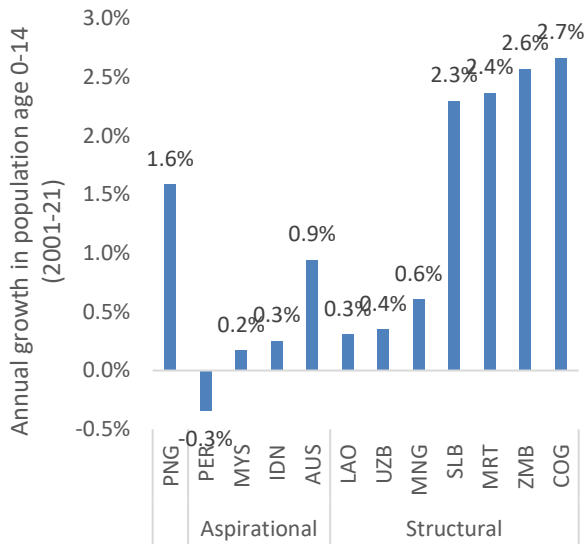
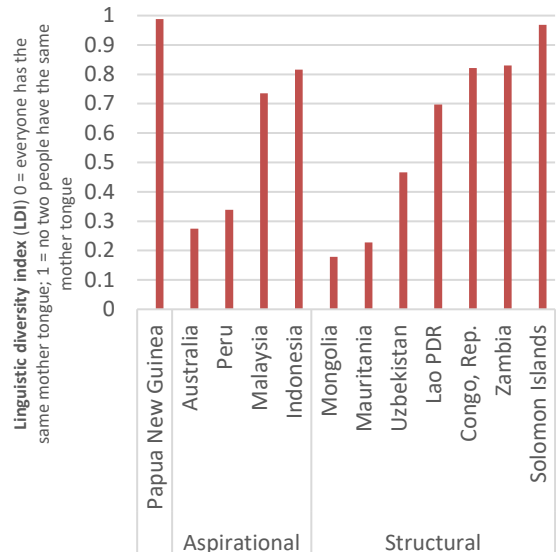


Figure 74: LDI 2017



Source: United Nations Population Division (left); Ethnologue: Languages of the World, Twentieth Edition (right).

Figure 75: Percentage of women ages 15–19 begin childbearing by wealth quintile

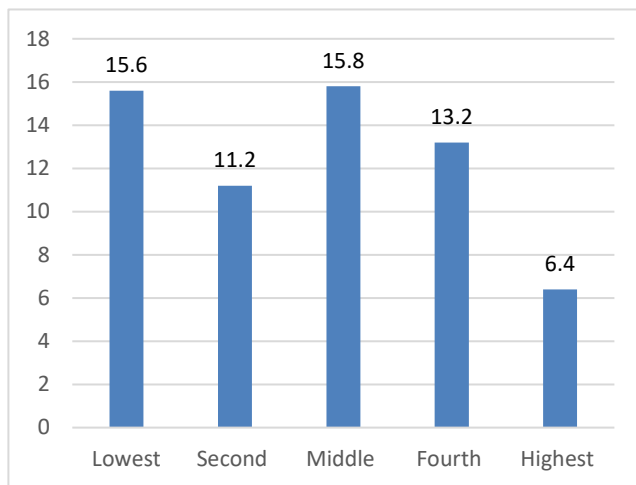
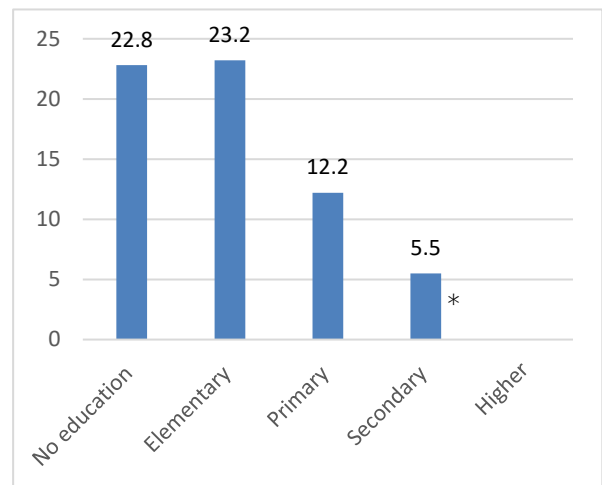


Figure 76: Percentage of women ages 15–19 begin childbearing by level of education

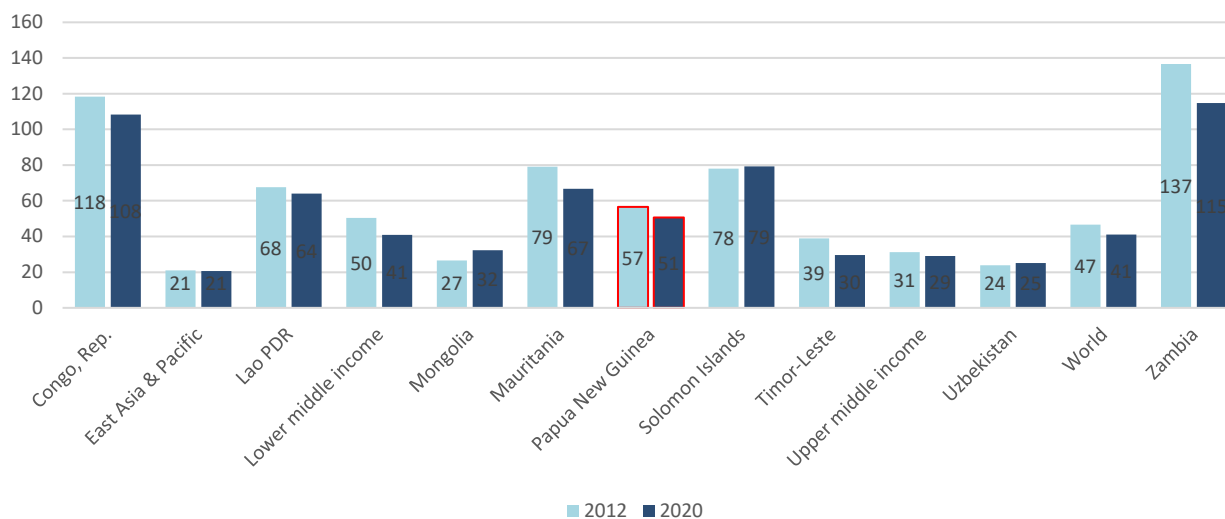


Source: DHS 2016–2018.

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted classes and has been suppressed.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure 77: Adolescent fertility rate (births per 1,000 women ages 15–19)

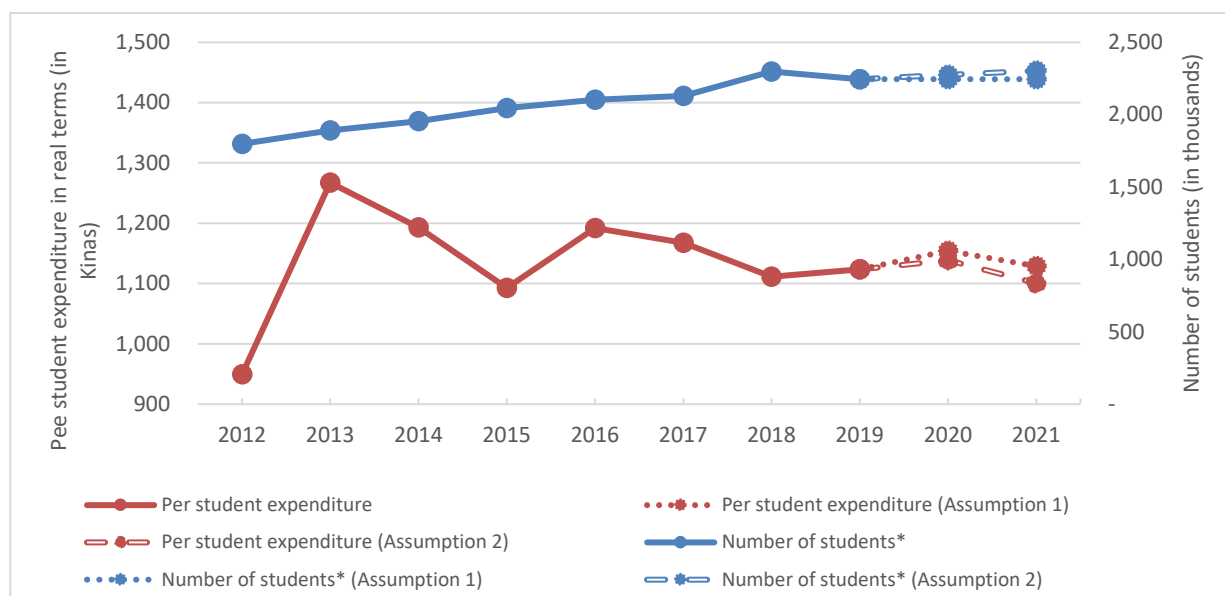


11.3. Limited resource allocation, quality of key inputs, and access to core infrastructure

98. **Financial resources directed to human capital sectors have been unable to keep up with the growing needs, in terms of level and within-sector allocation.** Given the rapidly growing children and young population, the amount of financial resources that are allocated to the sector is simply not enough to keep up with the rapid increase in demand. In the education sector, PNG’s spending per student has remained flat during that period of rapid expansion. When the system is expanding, it must incur large additional, albeit temporary, ‘development costs’, primarily because new facilities need to be built and additional workers and teachers need to be trained. These flat per capita budgets have provided a headwind for efforts to hire an adequate number of teachers and provide improved learning materials. Furthermore, the public financial resources that are spent may not necessarily be spent in a way that would generate the biggest improvement in the outcomes, indicating poor management of allocation within the sector. For instance, in the education sector, on a per student basis, very little is spent at the elementary level and almost no resources at the ECE level. These are crucial education levels since both contribute to ensuring that all children acquire foundational literacy and numeracy skills. It is also evident that countries can get the most significant returns on their investments in elementary and ECE because of the benefits of better-prepared students over their lifetime.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure 78: Total enrolment and per student expenditure (real terms), 2012–2021



Source: World Bank staff estimates using BOOST data for 2012–2018.

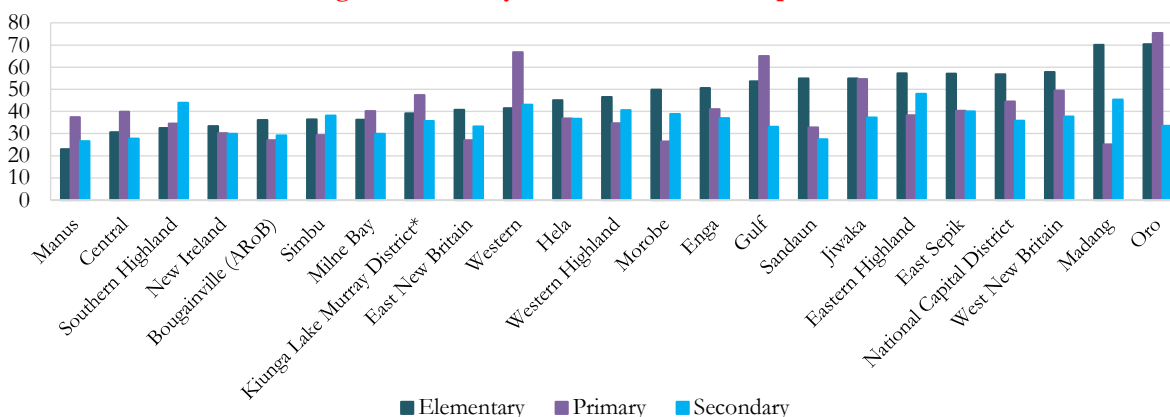
Note: The number of students in 2019 is the latest available data. Number of students is projected for 2020 and 2021 with the following assumptions: Assumption 1: Assumed unchanged number of students since 2019; Assumption 2: Increased number of students based on population growth (UN projection) and assuming unchanged net enrolment rate during 2020 and 2021.

99. **The limited resource allocation has resulted in a critical shortage in essential inputs such as teachers, health workers, and service readiness.** With teacher salaries being one of the major spending items, large variation in per student allocation translates into large differences in student-teacher ratios (STRs). STRs in PNG range from a low of 23 to 70, with the poorest provinces facing the largest STRs. These gaps between the lowest and highest STRs are high for primary education and significantly less at the secondary level. To reduce STR to a level where teachers have a better chance of providing effective instruction (around 30 students per teacher), a significant number of teachers would need to be hired and trained, especially at the elementary level. In total, the system lacks more than 20,000 teachers. This is a massive shortfall considering that the current teacher workforce is around 60,000 and that the teacher college currently only produces around 1,000–1,500 graduates per year.⁵⁹ In the health sector, PNG has one of the lowest health workforce ratios in the world with 1.03 health workers per 1,000 people in 2018. This is well below the required rate WHO estimates to meet the Sustainable Development Goals (SDGs) and achieve universal health coverage, which is 4.45 per 1,000 people. Compared to its peers, PNG has the lowest number of doctors at only 0.07 physicians per 1,000, which highlights the workforce shortage crisis.

⁵⁹ <https://web.dherst.gov.pg/about/secretary-office/statistics-reports/enrolment-and-graduate-analysis>.

PAPUA NEW GUINEA
Country Economic Memorandum

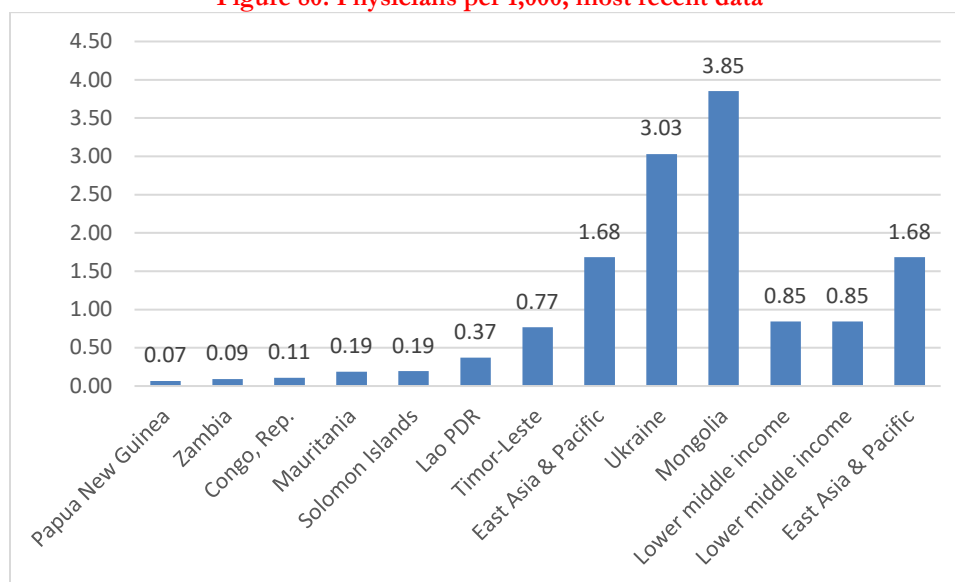
Figure 79: STR by level of education and province, 2017



Source: DoE 2017.

Note: *The Kiunga Lake Murray District is located in the Western Province.

Figure 80: Physicians per 1,000, most recent data



Source: WDI.

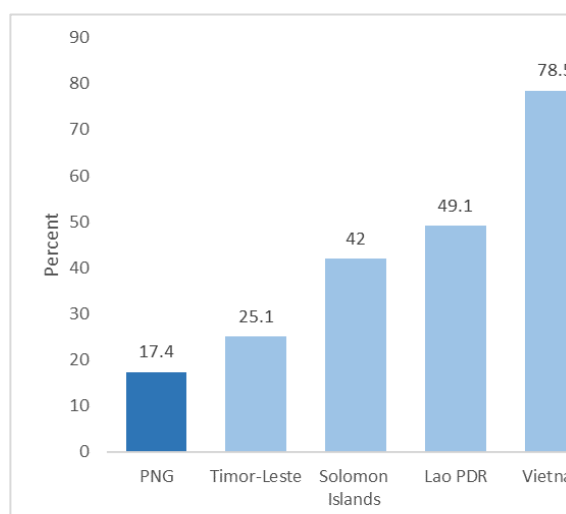
100. **In addition to the shortfall in quantity, the low quality of inputs also contributes to poor learning outcomes.** There are likely key shortcomings in teachers’ content knowledge and the quality of their teaching practices. Only three-quarters of teachers are qualified in primary schools; in secondary school that number is even lower (61 percent) (GPE 2019). The primary language of instruction is English, yet 40 percent of teachers have been assessed to have ‘very limited’ proficiency in English. Although students are allowed to ask questions, role play, and work individually or in small groups, teachers primarily use the traditional ‘chalk and talk’ teaching method. Copying from the blackboard and listening to the teacher takes up most of students’ time in the class. Another aspect of inputs that explains the poor learning outcome is the poorly prepared students to learn by the time they start school due to the lack of access to ECE. Attendance in preschool was found to have a significant positive effect on knowledge of letters of the alphabet, words in English, words in Tok Pisin, knowledge of numbers, skip counting, addition, and subtraction. Unfortunately, the development of ECE is still at an emergent stage in PNG. Aside from preparatory grade, essential ECE programs for four- and five-year-old children are not universally available across the country and are usually not free. Official statistics show that only 17 percent of

PAPUA NEW GUINEA Country Economic Memorandum

children ages 4 to 6 were enrolled in preprimary education, with only around 9 percent of five-year-olds and 25 percent of six-year-olds having actually attended any form of organized learning in 2018 (DHS 2016–2018).

101. **Lack of service readiness and shortfall in the number of health workers also imply low quality for health services.** For instance, while nearly 87 percent of women had received antenatal care, less than half (46 percent) had a urine sample taken as part of that care—a necessary and simple test to diagnose dangerous complications such as gestational diabetes or preeclampsia (DHS 2016–2018). The reason may be the lack of knowledge or deficient practice of the antenatal care provider or, most probably, the lack of access to simple laboratories. Declining service coverage reflects a weak health system that is unable to deliver quality services to a predominantly rural population, as suggested by the dramatic falling of the child immunization rate. The case in point is the immunization coverage rate of Hepatitis B third dose, where PNG is not only lagging but shows a declining trend while other countries are improving. The inability to boost immunizations reflects both capacity and prioritization challenges. Low immunization rates have significant implications for the early years of a child’s life where access to basic health services hinders a child’s ability to learn and be productive. A child who falls ill more frequently will have lower educational outcomes and perform less well in school.

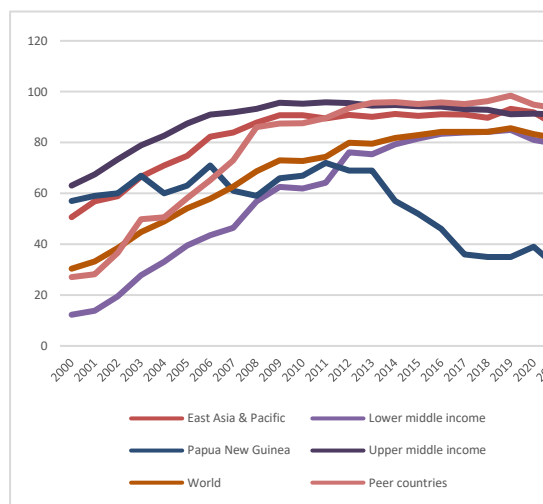
Figure 81: Net enrolment rates (%) in preprimary education in PNG and EAP peers



Source: Latest national data from UIS Country Profiles.

Note: Preprimary education age in PNG is 4 to 6 years, while it is 3 to 5 for the rest of EAP peers presented.

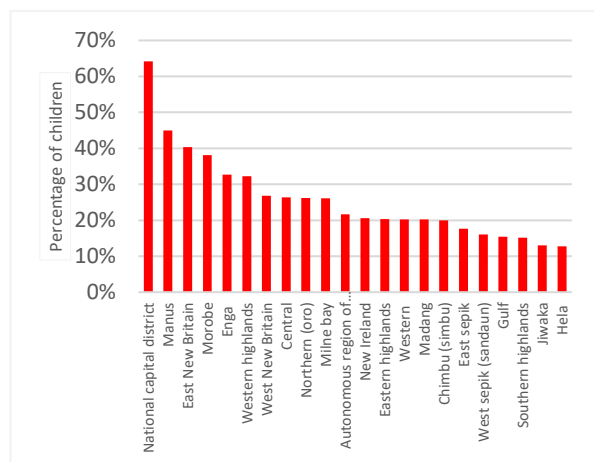
Figure 82: Immunization rates, HepB3



Source: WDI

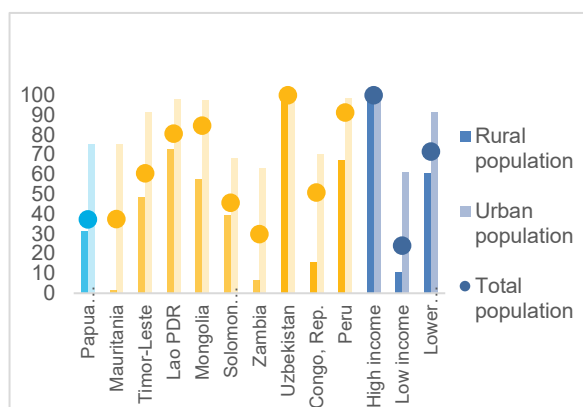
102. **Inadequate access to core infrastructures such as WASH (water, sanitation, and hygiene) facilities and electricity further hamper household access to good nutrition and education.** Illness and malnutrition cause a vicious cycle, with diarrhea and malaria, in particular, associated with higher risk of stunting. In 2015, less than half of the households had access to safe water and only around 13 percent of the rural population had improved sanitation. Access to adequate hygiene and sanitation remains an important public health issue across all provinces. In most provinces, less than one-third of children under two and their families have adequate access to WASH facilities. A similar narrative is found in electricity access, which is considered as basic infrastructure requirements to provide quality education at school and learning activities at home. Overall, only 37 percent of the population in PNG has access to electricity, with a quite striking urban-rural disparity. While the access rate is 75 percent in urban areas, only 31 percent of the population in rural areas has access to electricity. This makes PNG a country with one of the lowest per capita consumptions of electricity in the world.

Figure 83: Children (0–23 months) with access to adequate WASH



Source: PNG DHS 2016–2018 (left) and WDI (right)

Figure 84: Access to electricity (average 2008–2019), % of population



11.4. Insufficient skills development and barriers in accessing employment for women

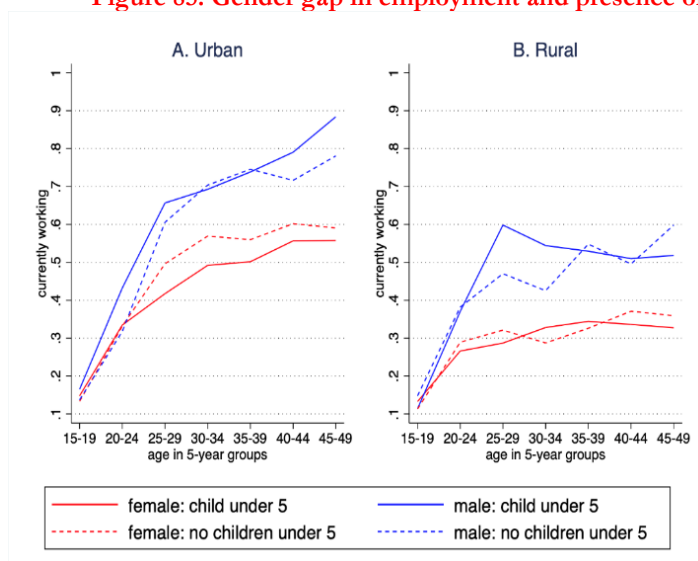
103. **Poor industry-school connection and insufficient opportunities to gain training have resulted in large unmet needs at the workplace.** Earlier studies indicated significant concerns among the employers regarding relevance of the training programs (Hendi 2011). Besides the low levels of numeracy and literacy levels, the main job-relevant skills lacking in youth identified by employer surveys include (a) poor character and behavioral skills that are desired in the workplace and society and (a) a shortage of trade and job-specific skills. Around 80 percent of businesses surveyed consider skill shortages a barrier to expanding headcount, with one in three jobs filled by unqualified persons (Deloitte Touche Tomatsu and UNDP 2017). For those who successfully complete secondary school, there are not enough opportunities to gain the technical training necessary for formal roles. Around 80,000 young people leave secondary school each year in PNG, but there are only around 5,000 places at technical colleges and universities (World Bank 2018a), despite a shortage of such skills in the country cited as the second most important factor that restricts employers hiring (Deloitte and UNDP 2017). There are indications that many of the existing courses do not meet international standards or industry needs, pushing some businesses to establish their own training facilities (ABT 2020). National strategies and plans have also marked TVET as an important pathway outside of the traditional post primary education sector. However, its provision is still limited, with only 16,000 students in 2022 anticipated to enrol in vocational education and Flexible Open and Distance Education programs.

104. **Young women find it more difficult to transition into skilled jobs due to educational disadvantages, safety concerns, and social norms.** Girls’ increasing dropout rates at higher level of education means they are even less likely than boys to have adequate skills or necessary training for formal employment in technical trades that a resource-rich PNG needs. There are twice as many men as women holding any type of qualification at all. Among those who do, women’s qualifications are largely from health, teachers, and business and secretarial colleges whereas men’s are more likely to be from universities as well as vocational and technical colleges (NSO 2011). Young women also face obstacles related to high rate of teen pregnancy and lack of safety. Fear of harassment, theft, and GBV is prevalent for young women accessing public spaces in PNG’s urban centres (Spark 2014). Women who, despite these challenges, still pursue education or training may face additional constraints related to gender norms. During the World Bank-supported urban youth employment project, women reported numerous obstacles, including that they had to tidy their houses before leaving for work, making them late, and husbands turning up at work sites and forcing wives’ withdrawal (World Bank 2018a).

PAPUA NEW GUINEA
Country Economic Memorandum

105. **Lack of paid maternity leave in labour legislation and limited access to childcare restrict women’s ability to balance household roles with employment.** Another dimension related to the supply of labor is the limited participation of women in labor force and employment, as discussed in Section 7.2 and 8.2. PNG is one of the only three economies (with the Solomon Islands and Timor-Leste) among its structural and aspirational peers that do not guarantee paid maternity leave of at least 14 weeks—and one of a handful of countries in the world that do not mandate any paid leave at all (Table 9). While women employees in PNG’s public sector receive six weeks of paid maternity leave after delivery, private sector employees have no such right. The Employment Act 1978 has a provision for six-week maternity leave for pregnant women workers in the private sector, but without pay, unless the employee elects to convert the leave credits into paid maternity leave. Data further show that the presence of children under age 5 in the household is associated with an increase in the gender gap in employment (Figure 85). This association is especially persistent in urban areas, where agriculture plays a limited role and employment opportunities are concentrated further away from home. In urban areas, most ECE centers are privately owned and are rarely affordable, while in rural areas, if they exist, they are run on an ad hoc basis by churches, nongovernmental organizations (NGOs), and community groups (Department of Education 2020).

Figure 85: Gender gap in employment and presence of young children



Source: PNG DHS 2016–2018; National Statistics Office 2019.

Table 9: Women Business and the Law Indicators, PNG and comparators (2022)

	Is paid leave of at least 14 weeks available to mothers?	Does the government pay 100% of maternity leave benefits?	Is paid leave available to fathers?	Is there paid parental leave?	Is dismissal of pregnant workers prohibited?
PNG	No	No	No	No	No
<i>Structural Peers</i>					
Mauritania	Yes	Yes	Yes	No	No
Lao PDR	Yes	Yes	Yes	No	Yes
Mongolia	Yes	Yes	Yes	No	Yes
Zambia	Yes	No	No	No	Yes
Rep. of Congo	Yes	No	No	No	No
Uzbekistan	Yes	No	No	Yes	Yes
Solomon Islands	No	No	No	No	No
Timor-Leste	No	Yes	Yes	No	Yes
<i>Aspirational Peers</i>					
Peru	Yes	Yes	Yes	No	Yes
Australia	Yes	Yes	Yes	Yes	Yes

12. Expanding human capital endowment

12.1. Making the human capital crisis more visible and turning plans into actions

106. **The government has taken promising steps to address the challenges described above.** For instance, the government of PNG has recently taken major steps to reform and transform the TVET and higher education system. PNG envisions the reform on higher education sector to catalyze economic growth and nation building. This reform process took place when the PNG national parliament passed different laws, including the Education (Amendment) Act 2020, Higher and Technical Education Reform Act 2020, and Higher Education General Provisions (Amendment) Act 2020 in August 2020. As an effort of major reforms in the TVET sector, the Department of Higher Education has developed strategic plans such as the National Higher and Technical Education Plan 2021–2030 and National Skills Development 2021–2030. Both plans aim to help students gain entry to universities or colleges and improve education quality. The National Skills Development Plan specifically envisions addressing the skills gaps in employment pathways in PNG. These strategic plans will address key educational challenges such as access, quality, performance, skills, and relevance to PNG’s social and economic needs. The critical focus of TVET reforms is to make tuition fee-free, accessible higher education by providing a national endowment fund that will produce technical human resources contributing to national growth.

107. **Similarly, the government’s stated commitment to reducing undernutrition and stunting is laid out in various policy documents that propose a multisectoral approach to address this issue.**⁶⁰ In July 2020, the National Executive Council endorsed the Fast Track Initiative (FTI) to Reduce stunting. The FTI is a unified, whole-of-government approach to address stunting in PNG by investing in children to build PNG’s human capital and drive economic growth. It seeks to catalyze district-led, multisectoral action to tackle stunting and undernutrition, improve policy coherence and localize the implementation of multisectoral evidence-based nutrition interventions to accelerate reductions in undernutrition and stunting. The Social Law and Order Sector (SLOS) has been assigned institutional responsibility to lead FTI implementation through the Special SLOS Special Working Group on Nutrition (SSLOSWG-N), which was established in October 2020. The Justice sector is responsible for chairing SLOS and the Minister of Justice is the current champion of the FTI.

108. **National and several sector-specific documents state the government’s commitment to pursuing gender equality.** The government’s Vision 2050, the Development Strategic Plan (DSP) 2010–2030, and PNG’s

⁶⁰ Addressing nutrition issues is in government policy and is highlighted in the National Nutrition Policy (2016–2026), Medium-Term Development Plan III (2018–2022), National Strategic Vision (2010–2050), and PNG Development Strategic Plan (2010–2030), new National Health Plan (2021–2030), and the draft National Social Protection Policy has similar commitments.

PAPUA NEW GUINEA Country Economic Memorandum

Medium Term Development Plan (MTDP) III for 2018–2022 outline aspirations for gender equality. The MTDP is focused on women’s economic empowerment, through “increased access to women’s economic opportunities.” It also advocates for coordination across government and mainstreaming of gender across ministries. There are also sector-specific documents that promote gender equity and social inclusion practices. For example, the National Public Service Gender Equity and Social Inclusion (GESI) Policy of 2013 set a framework across the public sector, the largest employer in PNG, including a sexual harassment policy. The Department of Education’s 2020–2029 Plan acknowledges the presence of school-related GBV, gender gaps in enrolments, and leadership within the sector and envisions a review of the Gender Equality and Education Policy and School Behaviour Management Plans. The plan also acknowledges the need to strengthen women’s participation in education sector governance.

109. **An essential condition for achieving significant progress in expanding human capital is a political recognition that the current low human capital outcomes represent a crisis and risk for the country’s future development and that much further faster progress is needed in the years ahead.** What could policy makers do to accelerate progress?

- Reaffirm national commitment to achieving SDG 4.1 (ensuring an inclusive and equitable quality education [...] for all).
- Develop and then launch a costed plan for improving early grade literacy and numeracy skills (and thereby reducing learning poverty), using evidence-informed strategies and interventions. The World Bank and several other partnerships have prepared the RAPID framework to support countries in identifying such strategies and interventions.⁶¹
- Engage all partners involved in education, including parents, in a national movement to achieve SDG 4 benchmarks on foundational learning.

110. **Translating these stated plans and commitments into adequately resourced and coordinated policies and programs, have proven to be more challenging.** While several strategies and mainstreaming efforts across sectors have taken place since the introduction of these commitments, weaknesses remain in implementation. The following sections will discuss what more could be done to expand endowment. Discussion on recommendations will also hint at prioritization (will be further discussed in Chapter V), which in practical terms should consider affordability in the government budget.

12.2. Improving access and quality to services that address deficiencies in the early years

111. **Investing in reducing stunting by promoting primary health care service delivery access and availability of maternal health services including sexual reproductive health services.** Delivering quality health services requires adequate resourcing, removing access barriers so women can easily attend services and make access to reproductive health commodities including modern contraception universal. Money, transport, and safety are reported by women in PNG as significant hinderances to accessing health services. Government could consider making sexual reproductive health education part of the schooling of children as a preventative measure for adolescent teen pregnancy. Making education on sexual reproductive health widely available and catered for men and women at all levels of education through community-level interventions can support in normalizing the use and uptake of family planning. Delivering quality basic antenatal care and postnatal care including knowledge of nutrition will have ripple effects on the child’s health and the ability of a mother to understand how to care and nurture her child.

⁶¹ For more details on RAPID framework, see <https://thedocs.worldbank.org/en/doc/e52f55322528903b27f1b7e61238e416-0200022022/related/Guide-for-Learning-Recovery-and-Acceleration-06-23.pdf>.

PAPUA NEW GUINEA
Country Economic Memorandum

112. **Prioritizing resources and political commitment to ensure every child is fully immunized against childhood illnesses, which are preventable.** Sufficient operational funding needs to be adequately budgeted and released according to a regular schedule to allow health facilities to function and outreach services to the community to happen. Together with regular availability of vaccination services, population-wide education on the importance of immunization and following the immunization schedule is required to reduce the negative trend in immunization coverage. Outreach services are critical for reaching the most vulnerable households and communities. For outreach services by health facility staff to be effective, they require support with detailed planning, logistical supplies, and supportive monitoring to make sure that every village and household with a child is reached.

113. **Government could expand the ECE coverage and improve its quality by allocating appropriate funding, providing technical support, and promoting collaboration among donors and other stakeholders.** Expanding access to quality ECE will contribute to the children's well-being and their future educational achievement, in addition to enabling women to access productive employment. However, despite being a key government priority, ECE is currently given a negligible share of central government spending. Therefore, incentivizing sub-national governments to also invest in ECE could help accelerate the expansion. Government should also consider partnership with relevant stakeholders by building on the foundations that already exists, such as the church agencies. Providing subsidies through established church education agencies may lower transactional costs and keep salary costs in check. The subsidies should also be prioritized to target the most disadvantaged children first, for example, students in provinces with limited ECE provision and students in remote areas or in areas of poverty.

12.3. Improving service delivery management, quality of inputs, and access to core infrastructure

114. **Strengthening PFM systems and providing adequate funding to responsible government structures would improve the effectiveness and efficiency of spending.** Despite the progress in shifting from prioritizing capital spending toward increasing investment that can improve quality of the service delivery, the total investment remains below the amount projected in sector plans. Inconsistencies or disconnectedness in the budget process may contribute to this. For instance, in the education sector, these disconnects exist between the Medium-Term Expenditure Framework, the overall fiscal stance, and the annual budget request submission made by the Department of Education to the Treasury. Therefore, greater scrutiny by central agencies and parliamentary committees could be considered as part of the annual budget process. Further, some of the spending is channelled to the service provider, such as the subsidies that are paid directly to the school. This practice has been found to promote accountability and strong community decision-making, which has made a measurable difference to education performance relative to health. However, there is also a need to complement this subsidy at service-provider level with proportionate spending at levels of the government structure responsible for quality and monitoring. For instance, provincial and district-level governments that are responsible for raising and sustaining quality of schools will need resources for curriculum development, school inspection, and training of teachers.

115. **Strengthening the information system which includes making available key data will help inform policy planning and decision-making.** Information on what is being spent in the sector is necessary to measure the effectiveness and efficiency of the spending. For example, more than 10 percent of the education budget is spent on universities; however, it is not known how these funds translate into educational inputs (enrolment and staffing), outputs (completion rate), and outcomes (employability). With investment in PNG's universities rising (from 13 percent of the education budget in 2020 to 17 percent in 2021), there is a need for better monitoring of inputs, outputs, and outcomes of education services in universities. Another example is PNG's school subsidy

PAPUA NEW GUINEA

Country Economic Memorandum

program which has been implemented since 2012, but there is still no systematic reporting or information on how schools use the funds. Further, by making key datasets publicly available, the sector could benefit from regular scrutiny that could help identify and correct errors which later could improve the quality of information that informs service delivery policies. One way to improve the quality and use of data is to embed reporting of important statistics as a requirement before any payment of subsidies, necessitating school-level data to be updated before disbursement of the school subsidies. However, current gaps in reporting also indicate that more incentives are probably needed, as are changes to lower the administrative burden on schools.

Box 12: Enhancing household-level data to support public policy

Using the World Bank's definition for data deprivation, PNG is currently classified as extremely data deprived.

Though a nationally representative socio-demographic and economic survey was conducted in 2022, there is no certainty as to when another HIES will take place (the last was in 2009). The paucity of data is due to many factors, including a large population dispersed across challenging geography that is not easily accessible and high costs of data collection.

Given the lack of traditional data collection, there is a critical limitation in monitoring human development and well-being, including reliable estimates of poverty and key population and demographic statistics. Policy makers and researchers have proposed a number of ways to try and overcome the lack of traditional data in the country.

- Making better use of the little data that exist—three rounds of the DHS between 1996 and 2016/18 and a new Socio-Demographic and Economic Survey in 2022—to track a limited set of indicators that are both policy relevant in their own right and also potentially related to broader indicators of well-being (Pandey and Howes 2022).
- Making use of the limited administrative data gathered by institutions such as schools and health centers.
- Conducting multiple rounds of high-frequency mobile phone surveys through random digit dialing to track employment, food security, and access to basic services among the population with access to mobile phones.
- Utilizing call detail record data from mobile phone providers and remote sensing data on agriculture, climate, and hazards associated with climate change.
- Developing a combination of qualitative key informant interviews, community surveys, local government surveys, and other vehicles to inquire about populations omitted or underrepresented in other forms of data collection (for example, mobile phone surveys)

Having reliable data is a crucial factor in designing evidence-based policies to reduce poverty and vulnerability.

There are key limitations to each of the individual approaches above. However, developing strategies to address specific limitations, such as supplementing mobile phone surveys with key informant interviews to address underrepresented populations, likely yields the most complete insights on the evolution of how and why well-being is changing in the country available in the short and medium run. In the longer run, it is critical to modernize statistical systems in the country to fill critical data and analytical gaps in the country.

116. **Improving the quality of teachers can be done by improving teacher training and strengthening the recruitment process.** Upgrading the knowledge and skills of existing teachers and ensuring the provision of a high-quality, current in-service curriculum will enhance the qualification and quality of teachers. To be effective, the in-service professional development programs must be tailored, practical, focused, and ongoing; four key principles that embody effective professional development programs. The COVID-19 crisis further highlights the importance of teacher training on using technology and other measures to support distance and accelerated learning. Teacher skills to identify the needs of each student and tailored lesson plans which can help improve student learning and ensure that students reach learning competencies should also be included in the in-service teacher training. New teacher recruitment mechanisms should be established and regulated to ensure high-quality teachers are hired, especially in schools/areas with teacher shortages. Proper distribution of teacher resources across regions will avoid unreasonably high STRs in some areas and reduce the unnecessary cost of hiring more

PAPUA NEW GUINEA

Country Economic Memorandum

temporary teachers. The recruitment process should also be tailored to attract qualified teachers with strong knowledge in their subject matter and pedagogical skills.

117. **Addressing the workforce crisis in health by increasing absorption capacity of the health sector and improving the quality and skill mix of the health workers—not only clinical—to meet the needs of a growing population.** For the health sector to operationalize at full capacity, the health administration functions and capacities need to be developed to be able to execute and deliver the health services efficiently. This requires that specialized roles such as health information, health economics, and other administrative functions required to strengthen PFM are recruited into the health sector to be able to operate effectively. At the same time, there is a strong need to develop a strong pre-service and in-service training to ensure the proper workforce with the right skill mix is planned for and absorbed into the health sector to meet the evolving and growing health needs of the population. There is no formal in-service training for the majority of cadres in health, which is a common practice in other countries to oversee and coach health workers to practice and meet the required standard. No nutritionists are employed in the public health system and there is no school program to develop this specialization even with the growing over- and under-nutrition challenge facing PNG. Early planning and investments that will produce but also allow for absorption of graduates into the health system will support in overcoming the workforce shortage. Furthermore, the continuing education and upskilling of staff, which is poor, is critical to ensure quality of services that meet the updated clinical practices and promote patient safety.

118. **Expanding coverage and reliability of core infrastructures, such as electricity and WASH, can accelerate reduction on stunting and promote learning activities.** This remains a critical issue, especially in rural areas. Investment in these types of infrastructure requires an increase or at least reallocation of resources, together with political commitment from the government. That would require a significant shift in political priorities, to place the resources for investments under the leadership of the sector, manage public investment according to objective criteria, and link capital and recurrent spending plans. Providing affordable service is also another important dimension to expanding coverage, especially on electricity, given the high prevalence of poverty in PNG. The current electricity cost is relatively high by international standards (US\$0.3 per kWh). This high cost reflects the small size of the market, logistical challenges, and inadequate enforcement of sector investment plan that eventually result in high cost of service delivery.

12.4. Facilitating transition from education to work and promoting inclusive employment

119. **PNG can prioritize the development of skills required in low- and semi-skilled occupations through investments in quality education and training.** Focusing on skills development for low- and semi-skilled occupations can be started through providing modest investment in secondary-level education and training for unskilled youth who are already in the labor market. To ensure access and completion of the training, government should support vocational centers and certifiable short courses offered in secondary schools, especially in lagging regions that are in need of training providers. There should also be a focus on ensuring men's and women's equal access to technical and vocational education, especially in science, technology, engineering, and mathematics (STEM), with improved safety for female students being a priority. The issue of relevance also follows after ensuring access to education and training. Many young people attend TVET without acquiring skills demanded by the job market, leaving them unable to find a desirable job or succeed at the workplace. Therefore, it is crucial for PNG's TVET sector to develop feedback loops by which investments in trainings, job placements, and other active labor market policies are informed by labor market needs.

120. **Government should ensure that foreign worker and employment policies meet the government of PNG's objectives and offer potential employment opportunities.** Employment of foreign workers should meet the dual objectives of (a) enabling employers to recruit overseas where skills are not available locally to expand the skill base while (b) providing them with incentives to recruit, train local staff, and working closely

PAPUA NEW GUINEA

Country Economic Memorandum

with local TVET institutions where possible, including over the long term. For instance, the sending arrangements in the temporary guest worker programs can be improved by promoting greater transparency in the job-matching and deployment process. Simultaneously, more can be done to help Papua New Guineans harness job opportunities abroad. The country currently has one of the lowest emigration rates in the world, with just 0.2 percent of Papua New Guineans estimated to reside overseas. This low level of out-migration—lower even when compared to other Melanesian countries—is, in large part, a product of restricted access to external labor markets, which favors the highly skilled.

121. **There are some promising entry points for policy reforms that can foster women’s economic empowerment and expand the pool of available talent for PNG’s economy.** *First*, removing discriminatory clauses in employment legislation that can unleash productivity gains, as noted in Section 9.2. The Employment Act could be amended in a way that provides equal opportunities to women to engage in economic activity, without any discrimination that may perpetuate occupational sex segregation, and that provides for equal pay for work of equal value.⁶² *Second*, addressing trade-offs between work and care responsibilities to enable women to work through paid maternity/paternity leave provisions and access to childcare. The government’s commitments on amendments to the Employment Act in the past had included changes such as provisions for paid maternity leave before and after birth and paid leave for new fathers in the private sector. These legislative changes should be revived, accompanied by policy efforts to strengthen childcare provision and regulation. *Third*, adopting comprehensive legislation and strengthen implementation of commitments on GBV and sexual harassment at the workplace. The PNG government’s report to International Labor Conference 2017 session also reiterated that the Employment Act 1978 and Industrial Relations Bill would be amended to address workplace sexual harassment issue in the private sector. PNG could also reflect the commitments of ratification of the ILO Violence and Harassment Convention (No. 190) in the Employment Act and the Industrial Relations Bill.

⁶² For detailed recommendations on Employment Act amendments, see World Bank. 2023. *Unleashing the Economic Benefits of Gender Equality*.



▶ CHAPTER V

Revisiting Recommendations Using a Governance Lens

Chapter V. Revisiting Recommendations Using a Governance Lens

122. **This chapter brings together the top priority reforms recommended in the three main chapters of the CEM (Chapters II–IV) and considers them through a governance and institutions lens.** The previous three chapters have analyzed in detail the importance of reducing volatility and safeguarding macroeconomic stability, boosting productivity, and expanding and making better use of underutilized human capital for economic growth. Each chapter provides a set of recommendations to address the challenges identified. This chapter brings those together, with a focus on the top priority recommendations in each area. At the end, this chapter provides three recommendations for each area that illustrate points of departure for discussing entry points for change and to reflect on some cross-cutting themes in the discussion.

123. **Many of the recommendations presented in the CEM are not new, making it important to understand why it might be so challenging for them to be adopted and implemented in PNG.** Part of the explanation could of course be that resources and capacity are constrained in PNG. But that acknowledgement still begs the question of why the limited resources and capacity that do exist have not been prioritized to address long-standing challenges. Understanding why it might be so difficult for key reforms to be made in PNG requires an understanding of the underlying political economy dynamics. Thus, the first section of this chapter returns to the introductory governance and institutions discussion of Chapter I and builds on it to provide a more comprehensive understanding of the dynamics of competitive clientelism in PNG and the implications for the adoption and implementation of growth-enhancing policies. The second section of this chapter considers the top priority recommendations emerging from the analysis of the previous three chapters through the lens of governance and institutions. It explores some of the likely challenges reformers will encounter in PNG’s political economy context and suggests some possible opportunities for achieving change. There are no easy solutions, but the analysis offers some possible entry points for reform.

13. Drivers and implications of PNG’s key governance and institutional challenges

13.1. At PNG’s income level, weak governance and institutions are to be expected but declines in them are concerning

124. **Governance and institutional capability in PNG is roughly in line with its income level.** On average, countries with lower income levels have weaker governance and institutional capability. PNG tends to be close to the global trend line for most global indicators of governance and institutional capability, meaning that its capability is weak in absolute terms, but about average for its income level. Figure 86 and Figure 87 show Worldwide Governance Indicators (WGI)⁶³ for government effectiveness and control of corruption for PNG relative to the global trend lines, with structural peers and governance peers highlighted. These indicate that government effectiveness and control of corruption in PNG are both weak (at about -0.8 and -0.6 respectively, on a scale from -2.5 to $+2.5$) but close to the expected level for PNG’s income.

125. **Concerningly, aspects of PNG’s governance and institutional capability appear to be declining over time.** It is difficult to measure these trajectories for PNG, because the global datasets that are suitable for tracking changes in governance and institutional capability over time do not usually contain time series data for PNG. One dataset that is suitable for this and includes PNG is the World Bank’s Country Policy and Institutional Assessment (CPIA). It shows that PNG’s overall policy and institutional strength has been declining over the decade from 2010, after an earlier rise (Figure 88). Importantly, from the perspective of enabling growth, this overall decline has been driven by the decline of scores in Cluster A (quality of economic management). The

⁶³ Worldwide Governance Indicators. 2020. <https://info.worldbank.org/governance/wgi/>.

PAPUA NEW GUINEA Country Economic Memorandum

declines of scores in Cluster D (quality of public sector management and institutions) has also contributed to the overall trajectory.

Figure 86: Government effectiveness

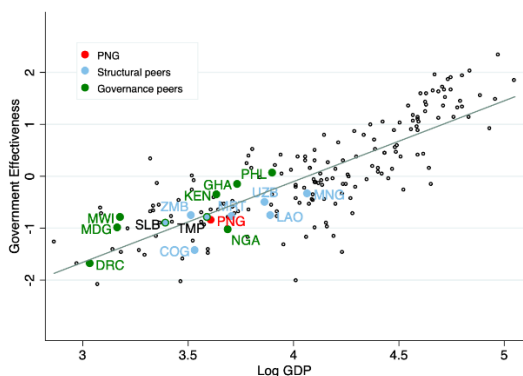
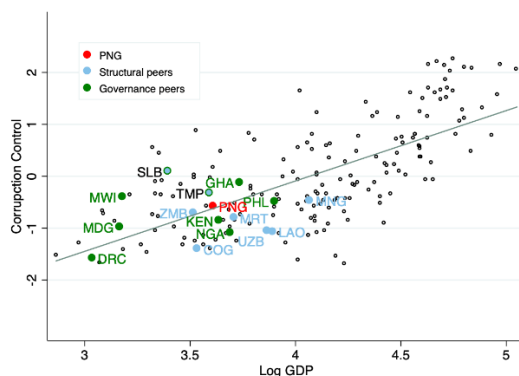


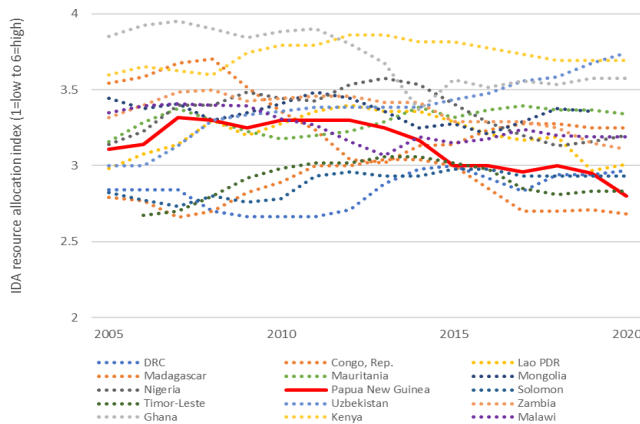
Figure 87: Control of corruption



Source: WGI (2020), WDI (2020).

Note: GDP per capita, purchasing power parity international US\$ 2017. Structural peers: Congo Rep. (COG), Lao PDR (LAO), Mauritania (MRT), Mongolia (MNG), Uzbekistan (UZB), Zambia (ZMB), Solomon Islands (SLB), and Timor-Leste (TMP). Governance peers: Congo, Dem. Rep. (DRC), Ghana (GHA), Kenya (KEN), Madagascar (MDG), Malawi (MWI), Nigeria (NGA), Philippines (PHL), Solomon Islands (SLB), and Timor-Leste (TMP).

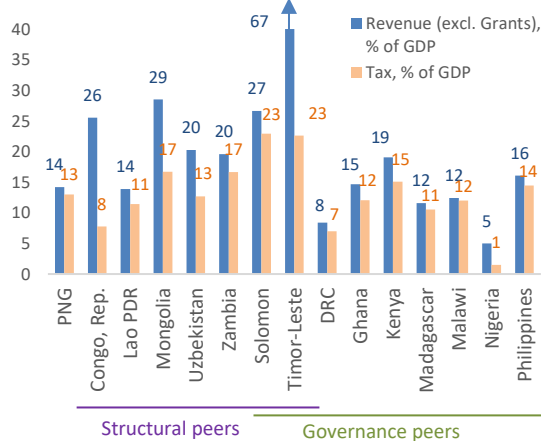
Figure 88: PNG and comparators CPIA (2005–2020)



Source: World Bank 2022e.

Note: No CPIA data for the Philippines.

Figure 89: Gross revenue and tax revenue (% of GDP) (2018–2019)



Source: WDI, IMF, and World Bank staff estimates.

Note: Nigeria 2013 estimate; no data for Mauritania.

126. **PNG’s ability to tax its population and the economic activities in its territory—a critical indicator of state capability—shows a declining trend.** Tax revenue is, of course, vital to fiscal capacity and to the potential of the state to deliver services that expand human and physical capital. But the development of the capability to tax a broad share of the population and economic activity is also critical to state building and is an important indicator of the nature of the relationship between the state and society.⁶⁴ PNG’s tax revenue to GDP ratio is now below 15 percent. This puts PNG in the category of low tax capability countries. Figure 89 shows PNG’s tax and total revenue (excluding grants) as shares of GDP against its structural peers and governance peers. Its tax share of GDP is below the average for its structural peers and its revenue share of GDP is below

⁶⁴ See Moore (2004) and Besley and Persson (2011).

PAPUA NEW GUINEA

Country Economic Memorandum

that of any of its structural peers. PNG's tax and revenue capabilities are more in line with its governance peers. Significantly, as shown earlier in Figure 26 and Figure 29, PNG's ability to raise revenue has been on a declining trend for the last decade. This has been driven by declining receipts of personal and company taxes.

127. **Discretionary budget programs and off-budget resources appear to be increasing in importance over time.** Expenditure through constituency development funds, known as Service Improvement Programs (SIPs) and now accounting for around one-quarter of capital expenditure, are the subject of substantial criticism. For example, in reviewing 2012 and 2013 expenditure through the District Services Improvement Program (DSIP), the Auditor General raised significant concerns about the effectiveness of spending and identified a number of noncompliance issues.⁶⁵ There is little indication that these issues have been addressed since.⁶⁶ While the extractive sector has grown substantially over the last decade, a significant share of the public revenue from PNG's stakes in major petroleum and minerals projects has accrued off-budget in entities controlled by the executive, with dividends coming onto the budget in an ad hoc manner (see Box 3). These entities—KPHL and Kumul Minerals Holdings Limited (KMHL)—do not have to publish their audited financial statements and do not fall within the remit of the Auditor-General's Office (AGO) or Public Accounts Committee (PAC). Any expenditure programs of KPHL and KMHL funded by the public revenues they retain from the state's stakes in petroleum and minerals projects occur off-budget and are not systematically disclosed (for instance, through publication of audited financial statements).

128. **While there are also positive trends, some further negative trends in governance and institutions are particularly concerning.** On the positive side, there is vibrant political debate in social media and some strong civil society organizations able to contribute to political discourse. Some political leaders have also emerged at different levels of government who encourage their constituents to see service delivery as a programmatic state activity for which they should be held accountable.⁶⁷ Against this is the trend over recent decades of fragmentation within the state, as departments are subdivided and separate agencies created, fragmenting control and reducing coherence. In addition, irregularities, fraud, and violence appear to be increasing in PNG's elections. The legitimation of political authority is regularized democratically at all levels of government, and these elections are hard fought, involve large numbers of candidates, and see high levels of voter turnout. But likely associated with the rising importance of discretionary budget programs and off-budget extractives resources, there appears to be declining accuracy of the electoral roll; reports of rising levels of vote-buying and electoral fraud variously involving candidates, police, security forces, and electoral officials; and rising levels of electoral violence.⁶⁸

13.2. PNG's governance and institutional challenges and their trends are consistent with the political economy dynamics of competitive clientelist states

129. **PNG is a competitive clientelist state characterised by weak credibility of intertemporal commitment and a moderate degree of political inclusiveness.** As Chapter 1 explained, 'competitive clientelist' describes states where political rule depends on enrolling the support of multiple, potentially rival powerholders with their own support bases. Governing coalitions among these fairly independent powerholders tend to be unstable and struggle to generate credible commitment. This makes it challenging to extend time horizons beyond the short term and to solve collective action problems.⁶⁹ As in PNG, political mobilization occurs primarily along patronage lines.⁷⁰ The need to forge coalitions among large numbers of powerholders to

⁶⁵ Auditor-General's Office of Papua New Guinea (2014) *District Services Improvement Program*.

⁶⁶ The AGO released a more recent review of SIPs in 2019, but it did not examine the management of funds at provincial, district, or local level; it was instead focused on the central coordinating agencies.

⁶⁷ World Bank 2021a, v–vi.

⁶⁸ Haley and Zubrinich 2018; May 2022; Wood 2022a.

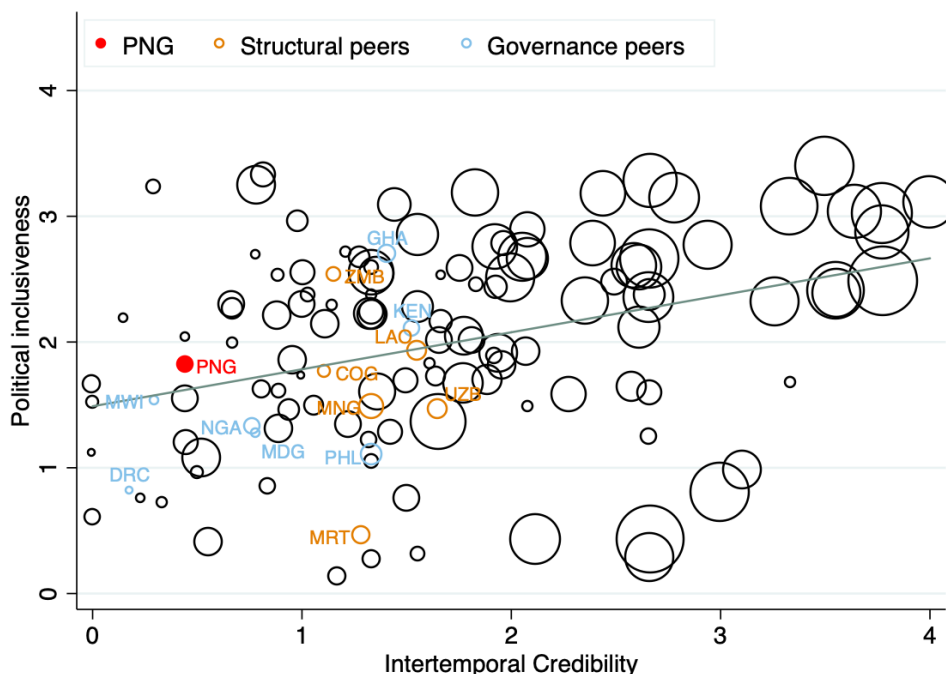
⁶⁹ Khan 2010.

⁷⁰ May 2022; Wood 2018, 2022a, 2022b.

PAPUA NEW GUINEA
Country Economic Memorandum

government, and the patronage provided by these powerholders to their client bases, combine to yield a moderate degree of political inclusiveness. As in PNG, this inclusion can be highly clientelist (refer to Figure 10). In *Rents to Riches? The Political Economy of Natural Resource-led Development*, Barma et al. (2012) develop a typology of resource-rich states using the key dimensions of credibility of intertemporal commitment and degree of political inclusiveness (see Box 13). It provides a useful entry point for understanding different types of resource-rich states. Extending the analysis of *Rents to Riches* to include PNG, Figure 90 illustrates the position of the contemporary PNG state relative to comparators based on indicators of the credibility of intertemporal commitment and degree of political inclusiveness.

Figure 90: Intertemporal Credibility and Political Inclusiveness



Source: Authors’ compilation. Varieties of Democracy (<https://www.v-dem.net/> for “political inclusiveness” – different from the *Rents to Riches* original variable used from the Institutional Profile Database (2009) - and Public Policy Attributes Database (2008) for “intertemporal policy coordination.”

Note: Countries are weighted to the 2017–2020 gross national income (GNI) per capita, purchasing power parity (constant 2017 US\$) from the WDI.

Structural peers: Congo Rep. (COG), Lao PDR (LAO), Mauritania (MRT), Mongolia (MNG), Uzbekistan (UZB), Zambia (ZMB).

Governance peers: Congo Dem. Republic (DRC), Ghana (GHA), Kenya (KEN), Madagascar (MDG), Malawi (MWT), Philippines (PHL), and Nigeria (NGA).

The Solomon Islands and Timor-Leste are not included due to missing data for intertemporal credibility.

130. The capability of the state to make credible commitments over time in PNG tends to be weak.

This refers to the degree to which agreements can be enforced and deviations from them subjected to effective sanction. These agreements and their enforcement may pertain to party and government formation, budgets, policies and programs, and contracts. This dimension reflects the capability for policy stability, including the state’s capacity to give effect to policy and maintain it over time. These capabilities are vital for resource-rich states. They are needed to achieve macroeconomic stability in the context of volatile resource revenues and to reliably generate development gains from those revenues over time and across the population through public expenditure on policies and programs. They are also needed to secure agreements with extractive corporations that maximize public revenues. In a weak intertemporal commitment context, there is a risk that extractives corporations will aim to frontload their returns to recoup investments in the shortest possible time. There is also

PAPUA NEW GUINEA
Country Economic Memorandum

a risk that extractives corporations will seek to retain larger shares of returns to provide benefits directly to local powerholders and communities to maintain their social license to operate.

Box 13: Applying the analytic framework of rents to riches to PNG

In *Rents to Riches*, Barma et al. (2012) provide a framework for analyzing resource-rich states, which helps explain the degree to which they are oriented to providing public goods to support inclusive economic development. Among the many important explanatory factors, Barma et al. found two to be critical in distinguishing different types of resource-rich states: the credibility of intertemporal commitment and degree of political inclusiveness. Based on these two key dimensions, *Rents to Riches* sets out a typology of resource-rich states, summarized in the table below. The *Rents to Riches* typology suggests that natural resource rents are most reliably transformed into sustainable development riches in states characterized by the capacity for credible commitment and political inclusion, where powerholders face strong incentives to use resource rents to provide public goods that enhance collective welfare.

The typology in *Rents to Riches* characterizes states at a point in time, but the authors also offer insights into potential dynamics. For instance, most programmatic pluralist settings have emerged from clientelist pluralism (or competitive clientelism in the terminology adopted here)—it being unusual to go from patrimonial rule or hegemonic government directly to programmatic pluralism. Transitions between types are not common, however. The observed type of state in any country results from the inter-action of the underlying society and the structure of the state, neither of which changes quickly in ordinary circumstances. Thus, the patterns characterizing these different types exhibit long-term path dependencies that heavily shape the way they evolve over time.

As *Rents to Riches* emphasizes, states and societies in resource-rich countries can be powerfully affected by extractives corporations. Extractives corporations are also influenced by the type of state they establish and operate in, in a dynamic interaction over time. These interactions affect the type of extractives operations that are feasible in a country, the trajectory and form of resource revenues, and where or to whom those revenues accrue. These dynamics can intensify existing patterns—for instance, resource revenues accruing in ways that intensify clientelism—or can contribute to change.

Typology of natural resource-dependent settings		
Political inclusiveness	Credibility of intertemporal commitment	
	Less credible/ weaker enforcement	More credible/ stronger enforcement
More inclusive/ more collectively oriented	Clientelist pluralism Political competition based on extensive use of clientelism, provision of particularist goods, low horizontal accountability	Programmatic pluralism Electoral competition based on programs geared toward collective welfare enhancement, provision of public goods, horizontal and vertical democratic accountability
Less inclusive/ less collectively oriented	Patrimonial rule Individualized political authority built on a hierarchy of cronyism, emphasis on private (elite) goods, exploitation of public resources for private gain	Hegemonic government Institutionalized one-party regime, either predatory or benevolent; emphasis on private (elite) goods with some particularist and public goods

Source: Barma et al. 2012.

To extend the *Rents to Riches* analysis to PNG requires proxies to be identified for some of the original indicators whose datasets do not include PNG. PNG is included in the dataset for the original indicator *Rents to Riches* used for credibility of intertemporal commitment, so that indicator is retained here to maximize consistency between this extension and the original analysis. That is an indicator of intertemporal policy coordination from the Public Policy Attributes Database (2008). PNG is not included in the dataset for the original indicator *Rents to Riches* used for political inclusiveness, which came from the Institutional Profile Database (2009). In place of it, this analysis uses an indicator of power distribution by socioeconomic position from the Varieties of Democracy (V-Dem) database. It reflects the extent to which poorer members of society have influence on political power, varying on a scale from 4 (a context where the wealthy have no more political power than those whose economic status is average or poor) to 0 (where the wealthy enjoy a virtual monopoly of power). It seems a fitting substitute, since it reflects the extent to which diverse social, economic, and political interests are incorporated into decision-making and the extent to which a sense of either collectivist or clientelist welfare is privileged over purely elite interests. It is reasonably strongly correlated—60 percent—with *Rents to Riches*' original political inclusiveness variable.

The resulting analysis is shown in Figure 90. It depicts the credibility of intertemporal commitment and degree of political inclusiveness according to the chosen indicators, with the size of the circles in the scatter plot reflecting countries' GNI per capita. This helps illustrate the above observations about the development implications of where countries sit in the typology, with more

inclusive/more credible commitment states at higher income levels, less inclusive/less credible commitment states at lower income levels, and the other two quadrants where countries differ on the two key dimensions showing more of a mix of income levels.

131. **The state's cohesion and capability for collective action tend to be limited.** At present, political parties do not serve as an effective means of collective action in the context of PNG's highly fragmented society. Not only are there a very large number of political parties, they are only weakly associated with policy positions and have a weak influence on the political positions taken by members (refer to Figure 7 and Figure 8). While some candidates adopt more programmatic approaches, patronage is the dominant strategy for mobilizing political support, and elected representatives seek to serve their client bases predominantly through patronage rather than the delivery of programmatic policy through the public administration.⁷¹ The formation of governing coalitions among elected parties and independents is likewise primarily patronage based, with allegiance secured in part through the provision of cabinet positions, investment projects, and other pecuniary interests, placing a premium on the availability of off-budget resources. The instability of these governing coalitions and the need to shore them up over time translates into frequent cabinet reshuffles, budget reallocations, reprioritization of investment projects, and further incentives to keep resources off-budget. The executive represents less a united policy program and more a collection of temporarily allied patrons. Its members face strong incentives to use their control over their segment of the public administration to serve their client bases (through jobs, contracts, resource allocations, and licensing decisions) rather than as part of a collective effort to deliver a programmatic policy platform nationally. The executive has weak incentives to reduce the extent of discretion in SIPs. Strong patronage dynamics in the control of state agencies and a limited focus on programmatic policy delivery through the public administration partially offset the public service ethos and job appeal of the bureaucracy, leaving an uneven degree of autonomy and competence—with many strengths but also crucial weaknesses.

132. **Political inclusiveness in PNG is moderate.** The extent of inclusiveness in PNG varies across the different sub-dimensions of political inclusiveness identified in the *Rents to Riches* framework.⁷² In PNG, the interests incorporated into decision-making tend to be reasonably diverse; there is no regional, ethnic, or tribal power bloc that dominates others, and forming government at the national level requires a broad coalition of MPs. In addition, MPs typically privilege a sense of clientelist welfare over purely elite interests, serving their client bases in their electorates. These are important factors in resource-rich states, given that translating revenues derived from geographically concentrated extractive activity into benefits for a wider share of the population and economic actors is central to conflict avoidance and economic development. In PNG, some of these benefits are provided programmatically (through public education, health, and infrastructure programs, for example). But over time the share of public resources subject to clientelist distribution appears to be increasing. This is evident not only in the rise of SIPs and in aspects of public investment management and public procurement but in the apparent increase in the share of public resources managed off-budget. Not only in SIPs but in the patronage dynamics of electoral mobilization, government formation, and control over state agencies mentioned above, it is evident that boundaries between public and private spheres are blurred.

13.3. Implications of competitive clientelist political economy dynamics for growth-enhancing policies

133. **PNG's political economy dynamics are a crucial influence on the potential for growth-enhancing policies to be adopted and implemented.** As explained in the introductory chapter, the competitive clientelist nature of the contemporary state in PNG is a product of the way PNG's society and state have interacted with and shaped each other over time. The nature of the state changes over time, as both society and the structure of

⁷¹ May 2022; Wood 2018, 2022a, 2022b.

⁷² In *Rents to Riches*, political inclusiveness refers to the extent to which diverse interests are incorporated into decision-making and whether collectivist or clientelist welfare is privileged over purely elite interests in state actions and service provision.

PAPUA NEW GUINEA

Country Economic Memorandum

the state change, including as each influences the other. There is, however, a considerable degree of path dependency in that process, with existing structures and incentives favouring self-reinforcing changes. For instance, where patronage dynamics already play an important role in electoral strategies and government formation, rising resource rents are likely to deepen patronage, as existing incentives for discretionary resources encourage the establishment of institutions to keep resource rents off-budget, in turn yielding higher off-budget resources for patronage-based distribution. Against this, some political actors seek to change existing structures and incentives. Examples include PNG's political party reforms in 2001 attempting to reduce opportunistic party hopping; the introduction of limited preferential voting in 2007 to advantage candidates with wider electoral bases; the establishment of a non-discretionary, formula-based intergovernmental grant system in 2008 to finance basic service delivery by provincial and local governments; and reforms in 2017 and 2022 to tackle fragmented control over non-tax revenues and the expenditures they finance. Box 14 examines the introduction of the formula-based intergovernmental grant system in 2008, as a case study of successful reform in PNG. Whether particular policies are adopted and implemented is influenced in crucial ways by the extent of their alignment with the existing or potential incentives and interests, making attention to political economy dynamics critical.

Box 14: Reforms to introduce a robust system of intergovernmental grants

The reforms emanating from PNG's Review of Intergovernmental Financial Arrangements (RIGFA) are arguably its most successful governance and decentralization reforms. The RIGFA process began in late 2001, when the National Economic and Fiscal Commission (NEFC) was directed by cabinet to investigate the existing system of intergovernmental grants. These were fiscally unsustainable, so the national government repeatedly failed to meet its financing obligations with respect to them. They were also subject to a number of other weaknesses, including inadequate formulation of the distribution amounts leading to horizontal inequities; weak mechanisms to ensure they were spent on the relevant functions; unclear definition of the relevant functions; and poor monitoring, evaluation and accountability of them. A number of changes were implemented based on NEFC's analysis and findings while the review was under way, with key stakeholders generally agreed on the final, major restructuring required by 2007. The legislation was introduced to Parliament in 2008 and passed in March the following year.

The Intergovernmental Financing (Functions and Funding) Act 2009 establishes a constitutionally protected system for making functional assignments to sub-national governments and for financing sub-national governments so that each has a similar financial capacity to meet its mandated service delivery responsibilities. Their formulation accounts for the estimated recurrent cost of delivering a standard set of basic services throughout every province, which varies between provinces and so is specific to each province. It also accounts for the assessed fiscal capacity of each province which, combined with the estimated cost information, establishes the fiscal need of each province. Each province then receives a function grant in proportion to the share that its fiscal need represents of the total fiscal needs of provinces. (A similar methodology applies to local-level governments.) The total amount for distribution in such function grants each year must exceed the minimum percentage share of national revenue specified in the legislation. The system includes regulatory controls that generally ensure that the function grants are spent on their intended purposes. While function grants may not be received on time (which can affect the effectiveness of their use), they are always paid. Though now with a significant delay, the NEFC publishes reports comparing and ranking provinces on the extent to which they spend their function grants and own-source revenue on a more narrowly defined set of minimum priority activities (activities such as undertaking health patrols and funding village courts, which provinces are expected to fund as priorities).

The process and politics of this reform were quite remarkable. The legislation was passed unanimously by Parliament despite the fact it cemented a relatively reliable flow of funds to provinces (Provincial Governors being a small minority in parliament, with the vast majority of members being District MPs). Given the constitutional protection of the function grant system, MPs were thus in effect tying their own hands. Critical to the acceptability of the function grant system was that it did not interfere with the capital budget (it relates only to recurrent costs and funds flows). It also excludes natural resource revenues from the national revenue base that the minimum percentage share for function grants applies to. From its outset, the RIGFA process was PNG led. It involved extensive analysis, consultations, and concerted action to build consensus by the NEFC over an extended period, with the NEFC able to call on resources from Australia's aid program for technical expertise to complement NEFC capacity. The work was spearheaded by the NEFC Commissioner, who worked through two terms of Parliament to convince administrative and political stakeholders to support the reforms.

Sources: Intergovernmental Relations (Functions and Funding) Act 2009, Gouy (2009), and <https://www.nefc.gov.pg/>.

134. **Global analysis provides specific insights into how moves toward broad-based development policies are most likely to be possible in competitive clientelist states.** From global analysis of what they term ‘broad-dispersed’ political settlements, akin to competitive clientelism, Kelsall et al. (2022, 172) observe

“[T]he political elite will probably recognize the importance of delivering broad-based development benefits, especially on the social front, yet the government’s capacity to plan and implement effective long-term development policy is likely to be weak. Developmental initiatives will probably take the form of populist gestures or patronage handouts. Top-down, system-wide reform efforts are unlikely to work well in these contexts, governing elites not having the strength or breathing space to implement them. Our data suggest that the best chance of nurturing progress is by building pockets of effectiveness in the administration and/or nurturing multi-stakeholder coalitions around particular issues or problem areas (even if, sadly, pockets of effectiveness are harder to sustain in dispersed power settings)... Power [in such contexts] is de facto more decentralized, and development partners should build on that, leveraging the nascent developmental coalitions that can sometimes be found in civil society, the private sector, traditional leaders, or religious organizations. Work at sub-national level may be particularly fruitful. Either way, the trick is to build capability and keep up momentum around a set of policy reforms across administrations and above (or below) the melee of patronage politics.”

135. In summary, change is much harder to achieve and sustain in competitive clientelist states. Where it does occur, it will likely emerge from pockets of effectiveness or issue-based coalitions that reflect the distributed nature of power and authority at different levels of government and beyond state structures.

136. **What are the implications of this analysis for the adoption and implementation of growth-enhancing policies in PNG?** Modesty of ambition, particularly regarding top-down, system-wide reform, is clearly one. Instead, reformers could seek to capitalize on existing—or build new—pockets of effectiveness in particular institutions, to pursue specific reforms. This is the role the NEFC played in reforming the intergovernmental grant system in 2008, for instance. Reformers could also seek to build coalitions of stakeholders within and beyond state structures on particular reform issues, to leverage the capability and authority of multiple institutions. Churches, for instance, are institutions in PNG that demonstrate the capability for collective action and credible commitment over time. Partnerships with them enable a reach and quality of public health and education services that would not be possible in their absence.⁷³ They would be a key partner in coalitions for change in human-capital-related areas as well as potentially in wider areas of governance. There may be areas where reformers could work with the grain of patronage interests, in ways that increase political inclusion through widening support bases and potentially also strengthen credibility of commitment. The introduction of fee-free education in 2012 was essentially a populist gesture but one with implications for political inclusion and credibility of commitment over time. In some ways it might serve as an example in other areas, for instance, local road maintenance.⁷⁴ Reformers could also pursue measures with the potential to strengthen actors within and beyond state structures that challenge key drivers of patronage, to alter the relative power of stakeholders in progressive rounds of policy and institutional development.

137. **More broadly, the nature of the state will continue to change over time, with potentially far-reaching implications for the prospects of growth-enhancing policies.** Economic and social change will affect the nature of the state. For instance, transitions from agricultural to manufacturing or services activity and movements of people from rural to urban areas change people’s socioeconomic interests and potentially also their social and political identities. PNG’s mountainous and archipelagic geography and its dispersed and fragmented population certainly present formidable challenges to such transitions, but to the extent they occur these processes

⁷³ The importance of these state/non-state partnerships in the education and health sectors, as well as in village courts, is provided in World Bank (2021c, 33–49, 63–68).

⁷⁴ For a more detailed explanation of this idea, see World Bank (2021c, 49–55, 65–68).

PAPUA NEW GUINEA

Country Economic Memorandum

will offer alternative—potentially wider—platforms for trust, social capital, and collective action.⁷⁵ These can take pro or anti-developmental directions depending on the context and management of these transitions. Changes in the institutionalization of political parties can also affect the nature of the state over time. In other competitive clientelist states, it has been observed that the development and institutionalization of larger political parties can play an important role in formalizing, standardizing, and containing clientelism. Thus, Opalo (2021) argues that clientelism is a critical part of political development and that—similar to the observation in *Rents to Riches*—it is not uncommon for countries with programmatic political parties to emerge from an earlier context of clientelist political parties. While key aspects of PNG’s political party reforms in 2001 to reduce party hopping did not survive constitutional challenge, some aspects that did have effectively led to an advantage in elections to incumbent prime ministers.⁷⁶ It is too early to judge, but as these effects have been worked out over time, they may now be contributing to the emergence of some larger political parties—as in the 2022 elections.⁷⁷ If that trend is maintained, the institutionalization of larger political parties—with potentially significant implications for the nature of the state over the long term—may begin in PNG.

14. Reform priorities

138. **This section brings together the top priority reforms recommended in the three main chapters of the CEM and considers them through a governance and institutions lens.** It takes the overall governance and institutions’ analysis of the previous section and applies it to specific reform challenges. In doing so, the section helps explain why these reforms—many of which have long been recognized as crucial—are so challenging in PNG’s political economy context. For example, they might depend on long-term time horizons, stable policy commitments, or collective action—capabilities that tend to be weak in PNG’s state. The section then considers possible entry points or opportunities for reform, given the political economy context. Again, this takes the overall analysis of the previous section, emphasizing pockets of effectiveness and issue-specific coalitions of actors within and beyond the state at national and sub-national levels, and applies it to specific reform challenges. The section is structured in three parts, to focus on the top priority reforms in the CEM’s three focus areas: seeking stability, boosting productivity, and expanding endowment.

139. **The entry points or opportunities for change identified below are intended to be illustrative rather than definitive.** The analysis presented in this CEM identifies PNG’s key governance and institutional characteristics, which can be compared with those required for a particular reform to check for compatibility. The analysis also identifies the types of places positive change is more likely to come from in political economy contexts like this, which can be applied to particular reform challenges to suggest possibilities. But deep knowledge of the actors involved in each reform area at national and sub-national levels—their perspectives, specific interests, capabilities, resources, and interrelationships—is needed to really gauge the best entry points for change. Many stakeholders in the different sectors covered here would have that knowledge, but it is beyond the scope of this CEM. Thus, the suggestions below should be taken as illustrations of the rationale to apply to identify entry points rather than necessarily as having found the best answers.

14.1. *Seeking Stability*

140. **Despite high economic volatility in PNG, fiscal and monetary policies have not been effectively designed to stabilize the economy.** Therefore, more needs to be done to reduce volatility and address

⁷⁵ Given the magnitude of the challenges to the development of wider bases for collective action in PNG, Fukuyama (2006, 2007) argues for a major effort over a generation to educate a cadre of potential leaders and administrators sharing a strong national identity to lead state transformation.

⁷⁶ Kabuni and Howes 2022.

⁷⁷ Howes et al. 2022; Yangin 2022.

PAPUA NEW GUINEA

Country Economic Memorandum

macroeconomic sustainability concerns. As Chapter II shows, PNG's economy faces challenges on both aspects: economic growth in PNG has been volatile and among the most volatile globally, and the risk of debt distress is high.

141. **Proposed below are three priorities to reduce an excessive economic volatility and safeguard macroeconomic sustainability.** These reforms belong to the essential macroeconomic policy toolkit that the government and BPNG have at their exposure. If implemented effectively, they could safeguard macroeconomic stability and help withstand various external shocks better. A more solid macroeconomic footing would also help, directly and indirectly, advance reforms essential for high productivity and better endowment.

142. **The first of these priorities is to continue fiscal consolidation and focus on increasing domestic revenue mobilization.** The government has adopted and started implementing a fiscal consolidation (budget repair) program as a pre-condition for safeguarding debt sustainability. If implemented consistently, it is likely to reduce the risk of debt distress with positive repercussions for public finances and for the economy in general. However, given the pressing demands for better service delivery critical to boosting the endowment of the country, the fiscal consolidation needs to rely more on increasing revenue. The authorities can boost revenue substantially and rapidly by regularizing the transfer of PNG-LNG revenues. As Chapter II illustrates, the controlling SOE, KPHL, has retained more than two-thirds of revenue from the government's share in the project since 2014. Greater transparency and oversight of these revenues will help support the implementation of the government's dividend policy and the transfer of these revenues to the central government.

143. **Increasing domestic revenue mobilization is especially challenging in the context of PNG's political economy dynamics.** The declining trend in revenue—and tax revenue in particular—over the last decade or more gives an indication that the dominant political interests in PNG do not align strongly with domestic revenue mobilization. As explained in the introductory chapter and in the previous section of this chapter, those interests are most strongly aligned with obtaining shares of resource revenues and keeping significant shares of those off-budget. While dominant, those interests are not uncontested and there are many stakeholders with countervailing interests that could provide a source of change. The PAC continues to press for greater transparency and oversight of KPHL and its equivalent in the minerals sector; the AGO, whose oversight of these entities has been specifically precluded by legislation, could share that interest in removing such oversight restrictions.⁷⁸ In relation to both resource revenues and tax revenue, a number of civil society and private sector organizations are interested in transparency, the quality of governance, and the inclusiveness of public sector programs. Across the public sector, programs being delivered by many professional and committed public servants depend on the adequacy of tax revenue. The Internal Revenue Commission could be considered a pocket of effectiveness to support further, to ensure optimal collection of tax revenues within the existing legislation and provide information about the extent of revenues forgone through PNG's many concessions and exemptions.

144. **The second of the priorities for reducing volatility and improving macroeconomic sustainability is to reintroduce kina convertibility and allow greater exchange rate flexibility.** The price and exchange rate stability of recent years were achieved at the cost of an overvalued currency, the exchange rate controls, and forex rationing that have consequences for the long-run economic growth. The pegged exchange rate limits the effectiveness of monetary policy, particularly to reduce economic volatility. Therefore, BPNG should, with technical assistance from the IMF, gradually allow greater exchange rate flexibility and reintroduce kina convertibility.

145. **The transition from exchange rate controls and forex rationing to a more flexible exchange rate regime is complicated from a political economy as well as a technical point of view.** BPNG can be

⁷⁸ Development partners need to be careful that their financing of gaps in on-budget expenditure does not dull incentives to change these off-budget arrangements.

PAPUA NEW GUINEA

Country Economic Memorandum

considered a pocket of effectiveness in PNG, with a foundation of operational capability that could be built on to implement the regime decided on at the governing level. In some contexts, commitments to multilateral partners can help countries stay the course on reforms, when political economy pressures could otherwise cause them to stall. Greater attention to identifying the specific costs to specific actors of the current regime could help motivate coalition building among them, while the identification of the specific benefits accruing to specific actors from the current regime could help weaken the apparent credibility of platforms for resistance.

146. **The third of the priorities for reducing volatility and improving macroeconomic sustainability is to operationalize the SWF, with all flows via the government budget.** As the fiscal consolidation progresses and the risk of debt distress is reduced, the government should start implementing the SWF stabilization mechanism, using the good international practice outlined in Chapter 2. This mechanism, if implemented, would remove much of the boom-and-bust nature of PNG's fiscal policy.

147. **Like increasing domestic revenue mobilization, smoothing public expenditure across resource cycles is especially challenging in the context of PNG's political economy dynamics.** As explained in the introductory chapter and in the previous section of this chapter, the state in PNG is characterized by weak credibility of intertemporal commitment. The dominance of short-term time horizons and instability of governing coalitions means that political elites do not have strong incentives to defer public expenditure during resource booms, for those funds to be available to maintain public expenditure during busts. This essentially reduces the ability of the current leadership to keep its coalition together and increases the ability of a future leader to do so, making a change of leadership more likely. Many resource-rich countries use legislation to tie the hands of current governments, to achieve longer-term macroeconomic stability. As PNG demonstrates, however, this is more challenging in contexts where legislation is amended or its implementation is continuously deferred whenever it becomes a binding constraint. In the longer term, stronger and broader political parties could play a critical role in changing political incentives and extending political time horizons. In the shorter term, civil society and private sector organizations interested in fiscal transparency and fiscal management might help counter fiscal rules being diluted and the implementation of the SWF deferred when politically inconvenient.

14.2. Boosting Productivity

148. **PNG has struggled to channel its considerable natural resources into delivering broad-based and sustained productivity-driven growth.** PNG's growth has relied largely on factor accumulation with high volatility reflecting periods of capital investment in the extractive sector. Broader productivity growth outside the extractives sector has been limited to demographic changes and some shift in labor from agriculture to services and industry, with the latter mostly associated with extractive projects. There has been little impact from structural transformation and/or firm upgrading, suggesting competition and sectoral policy remain constraints to new firm entry and innovation. At the same time, despite a considerable increase in the investment and exports arising from these extractive industries, there have been limited spillovers into the domestic economy or non-resource export sectors.

149. **To set PNG on a path that is less subject to the current resource dependency, the country will need to enact a set of policies which enhance investment, improve governance, encourage effective competition in domestic markets, and improve access to infrastructure and markets.** There are also significant opportunities to improve the productivity of PNG's economy by increasing access to better forms of employment, particularly among women. The government of PNG, civil society, the private sector, and development partners have supported a number of reforms, projects, and other initiatives responding to these various obstacles with some indicators such as expanding access to finance improving as a result. While these—and other initiatives including the recommendations proposed in this document—have the potential to continue to make incremental improvement, some fundamental reforms will be essential to unlock long-term productivity

PAPUA NEW GUINEA
Country Economic Memorandum

gains. Three such reforms are proposed here, selected for their high potential impact on sustained productivity growth. The reforms are, by definition, economy wide and complex and realizing the benefits will require generational investment in strengthening the institutional, regulatory, and human capital in each area.

150. **The first of these priorities is to improve the delivery of key infrastructure services, particularly in energy.** While this is a long-term objective that will require a wide range of reforms, investments, and institutional upgrading, important steps can be taken in the short term. These include (a) fully establishing the NEA with the staffing, mandate, and regulatory capacities to play its critical role in reform coordination; (b) implementing a Performance Improvement Plan for PNG Power Limited to strengthen management, planning, operational, and financing capabilities; and (c) facilitating private sector participation in energy generation and off-grid power by developing the enabling policy and regulatory environment.

151. **Expanding energy access through investment in energy infrastructure is stated as a top political priority in PNG.** While there are sound technical solutions to the technical problems that will be encountered in achieving this expansion, the political economy challenges are likely to be less easy to address. These center on collective action challenges. Demand for access to reliable electricity is certainly strong, though its translation into pressure for technically sound regulatory frameworks and investments is somewhat weakened by two factors. The first is the extent to which urban private sector organizations have already reduced their dependence on the grid due to its poor reliability. The second is the formidable geographic challenges to expanding energy access in PNG—making access in many rural areas a longer-term rather than a shorter-term proposition—and the extent of resources available to MPs to respond to their supporters’ demand for electricity through independent investments by MPs. That in turn dilutes many MPs’ focus on the performance of the executive in addressing the core sectoral challenges. The ability of the executive to address those challenges is also hampered by a collective action problem, given the multiple institutions that need to act in a coordinated way to achieve change, and the conflict such coordination entails between the individual interests of the executive members that control those different institutions and their shared interest in curtailing their own power and discretion to succeed with their energy expansion agenda. Coalitions of private sector entities that still have strong interests in reform are likely to be key change agents in this process, as might also be development partners who have major stakes in the success of PNG’s energy expansion agenda.

152. **The second of the priorities for boosting productivity is to increase competition from both domestic and foreign firms.** One reform that could help with this goal would be amending the Investment Promotion Act of 1992 to improve transparency and predictability for investors while limiting the extent of activities reserved for domestic businesses. In addition, many of PNG’s licensing/permitting regimes have the effect of limiting the market entry of new firms. To enhance competition, these processes and procedures should be simplified and streamlined. This area of reform touches on a familiar collective action problem where those harmed by the status quo are numerous, relatively weak, and not connected with each other and in many cases unaware of the impact of the lack of competition on their living standards. In contrast, as explored in Chapter III, the beneficiaries of these restrictions and licensing regimes are relatively few in number, relatively powerful, and relatively well connected. Change is unlikely while the impact of these restrictions and regimes remains so opaque. Even in challenging political economy contexts, there are examples where incisive analysis, effectively communicated, has spurred sufficient populist pressures to trigger change.⁷⁹ Local stakeholders would be best placed to identify potential focus issues. To provide an example, however, logistics markets in PNG are distorted by a range of restrictions that result in significantly higher costs. Rural producers, in turn, receive lower prices for their produce than they would do if these restrictions were removed, and market consumers pay higher prices. Quantification of the good prices producers are missing out on and/or the excess prices consumers are paying

⁷⁹ <https://documents1.worldbank.org/curated/en/750671539354775059/pdf/AUS0000133-WP-REVISED-P164185-OUO-9.pdf>

PAPUA NEW GUINEA
Country Economic Memorandum

for specific items of produce of widespread importance in PNG could make this harm identifiable, tangible, and more likely to spur demand for change.

153. **The third of the priorities for boosting productivity is to strengthen the implementation of legislation providing for equality in access to economic inputs such as land and credit.** A step that could encourage more productive labor market engagement of women is amending the Employment Act to provide equal opportunities to women to engage in economic activity and to provide for equal pay for work of equal value.

154. **Inequities in women’s and men’s access to land, access to credit and opportunities in the labour market are in part a reflection of power asymmetries in the underlying society.** These power asymmetries can manifest themselves in inequitable provisions in laws and regulations, as in PNG’s Employment Act. Even in areas where there are no inequities in laws and regulations, however, the underlying power asymmetries can be manifest in discrimination that occurs in practice, without accessible and effective means of recourse. Societal change tends to occur slowly, suggesting that the underlying gender power asymmetries will also change only slowly. Yet some reforms, such as greater utilization of digital technologies to facilitate access to finance or access to markets, are demonstrating that positive change is possible, and these examples can be built upon and highlighted to encourage replication. In this respect, it is particularly important for PNG’s Employment Act to provide for equal opportunities for women, including through appropriate maternity leave protection. Initially, the changes will be of most benefit to women employed in the formal sector, predominantly in urban areas. But the empowerment of that section of the population can potentially increase their agency to press for wider change, affecting a broader array of economic opportunities and a broader set of women and girls.

14.3. Expanding Endowment

155. **PNG’s weak human development outcomes presents missed opportunities for faster economic growth as the country is lagging in several dimensions.** The symptoms of this underutilization are visible across the board: PNG has one of the highest rates of stunting in the world, and while more children are now enrolling and completing a primary education, an estimated 72 percent of 10-year-olds are still not learning to read and understand an age-appropriate text. Without this ability to read, and with low level of secondary enrolment among its peers, PNG has one of the highest rates of young people—nearly 2 million individuals—who are not in training, not in education, and not in employment.

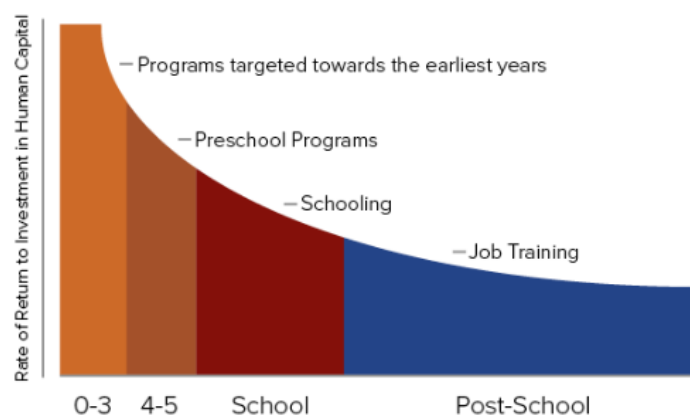
156. **To turn its youthful population from a ticking bomb into an engine of growth, PNG needs more action on several fronts.** In a society with a high degree of violence and crime, having a ‘youth bulge’ population, without the stabilizing anchor of participating in training, education, or employment, would put future development at risk. To defuse this potential bomb and make PNG’s youthful population an engine of growth, three reforms are proposed here, selected for their high potential and long impact, and with an explicit eye on how to get the most out of scarce public resources.

157. **The first of these priorities is to improve access to and the quality of services that address deficiencies in the early years, from age 0 to 10.** The reason for focusing on the early years of life is a simple one: money spent on addressing deficiencies in the early years of life has the biggest returns in terms of the productivity gains they generate for individuals later in life (Heckman and Masterov 2007 and Figure 91). Thus, at the margin, additional efforts and resources should be invested in reducing stunting, immunizing children, and ensuring that all primary students can read and understand an age-appropriate text. Money spent here will have a dramatically better return than money spent on improving secondary education, TVET, or tertiary education or hospital care. Three actions, in particular, could be considered toward this goal: (a) invest more resources in reducing stunting by promoting primary health care service delivery access and availability of maternal health services which promotes healthy children that can thrive as well as sexual reproductive health services; (b)

PAPUA NEW GUINEA Country Economic Memorandum

prioritize resources and political commitment to ensure every child is fully immunized against childhood illnesses, which are preventable; and (c) expand the ECE coverage and improve its quality by allocating appropriate funding, providing technical support, and promoting collaboration among donors and other stakeholders.

Figure 91: Returns to spending are highest in the early years of life



Source: Adapted from Heckman and Masterov (2007).

158. **The second of the priorities for expanding PNG's endowment is to strengthen service delivery management, with a focus on PFM and data.** The challenging toxic combination of rapidly growing needs, widespread scarcity of resources, and concerns about wasteful spending (manifested in teachers and health workers being absent or Government Tuition Fee Subsidy (GFTS) funds not being spent as intended) necessitates a focus on strengthening the management of the health and education sectors. This is needed to identify and tackle bottlenecks and build trust that resources spent are reaching intended beneficiaries and having an impact. This entails identifying and laying out road maps for addressing PFM bottlenecks to improving service delivery. It also entails using better and more data to manage and providing accountability in the sectors. In recent years, the situation has vastly improved in the health sector, with a dashboard providing facility-level information on key performance indicators as well as inputs. By contrast, the education sector still struggles to collect and digitize its annual school census, the most critical source of information on the number of schools, students, and teachers. Moreover, in education, there are no standardized measures of learning in the early grades; there is only an examination administered at grade 10.

159. **The third of the priorities for expanding PNG's endowment is to invest in the human development workforce, with better training, support, and monitoring.** This recommendation is especially important for the education sector. There, the most important—and the most costly—input is the presence of a well-trained and motivated teacher. Yet, as mentioned earlier, a recent survey of a representative sample of schools in four provinces found that, on average, 21 percent of teachers who were supported to be in school teaching, were absent (PIE, forthcoming). Moreover, the same survey showed a large number of teachers have very few years of schooling themselves and have received very little training and support. Given the importance of the workforce (both as the single largest budget item and as the single most important variable to improve outcomes), additional efforts and resources should be invested here. This entails providing more and better training and support and ensuring that the workforce are motivated and showing up for work.

160. **The education and health sectors have long-standing partnerships between state and non-state actors that could offer building blocks for change.** These partnerships include church education and health authorities, which are capable of collective action and credible commitment over time. They represent wide sections of society, aggregating and channelling the interests of families and communities dispersed across PNG

PAPUA NEW GUINEA

Country Economic Memorandum

in political dialogue, and responding to those interests through the services they deliver. Another set of important partnerships in the education sector, in particular, are partnerships with communities at individual facilities. At the school level, parents and citizen groups and school boards are pre-existing institutions that channel parental demand for education to school management and provide community oversight of school management. The workforces in these two sectors also have institutions—in the form of education and health unions—that aggregate and represent the interests of large numbers of sector stakeholders. These unions are also potentially key stakeholders in change processes.

161. **Issue-based coalitions among these stakeholders could help drive change by focusing their respective powers and capabilities on key reform areas.** Take, for instance, the need to complement the focus on education access with increased attention to learning quality. Achieving this would require systemic change, but in PNG's context this is unlikely to come through reforms from the center. Instead, a coalition built from a number of key stakeholders would be required. At the school level, the availability of comparative data on learning quality would make parental demand for better quality learning more effective. National education authorities, in partnership with provincial education authorities and church education authorities, would need to play a key role in generating, distributing, and communicating these data. This could enable a more competitive approach between provinces and between schools within provinces, helping to underpin demand for improved learning quality. National, provincial, and church education authorities would also have a critical role in enabling learning between better and poorer-performing provinces and schools. Combined, the data/communication and the collective action capabilities of some of the key stakeholders could help direct greater political attention to learning quality.

14.4. *Cross-Cutting Themes*

162. **Despite the very different reform areas considered above, several cross-cutting themes emerge from this discussion of possible entry points for reform.**

- ***The availability of relevant and timely data empowers reformers.*** Data do not generate change of course; it is the way the data alter people's perceptions, identification with issues, potential to build coalitions and power in the policy arena that generates change. The absence of data is severely disempowering to those who bear the costs of the status quo. The absence of census data prevents validation of per capita measures of well-being and the associated economic narratives. The absence of timely GDP data makes it impossible to validate whether fiscal policy is stabilizing or exacerbating resource-based volatility, until well after the event. The absence of data on the impact of market restrictions makes it harder for the producers and consumers harmed by these to identify the detriment these cause them and to identify others in the same predicament to forge coalitions for change. The absence of routine data on learning outcomes in the early years makes it harder to build the case for the urgency of addressing the learning crisis. Identifying key data and the actors who need to have the data is a vital enabler for change.
- ***Oversight—in its many and varied forms—is critical to prospects for change.*** Accountability for policies, programs, and performance tends to be weak in competitive clientelist states, with the politically dominant 'accountability' relationships being for clientelist behaviour in patronage relationships. But there are many and varied forms of oversight mechanisms in PNG, within which other forms of accountability are working or could be fostered. These range from oversight mechanisms operated by the PAC and AGO, through those within teams of committed staff in various parts of national and sub-national government and those within church institutions, to the many different oversight mechanisms within communities. Fostering these—and just as importantly, avoiding unintended harm to them—is critical. This point is closely related to the above emphasis on data, which are vital for effective oversight.

PAPUA NEW GUINEA
Country Economic Memorandum

- *Non-state actors are likely to be pivotal to reform.* This is not because non-state actors have the power to achieve change independently. It is because in distributed power settings like in PNG, typically no actor has the power to achieve change independently, whether they appear to have the mandate to do so or not. Attending to the interests and capabilities of civil society, the private sector, church, and clan actors at the national and sub-national level, as well as of actors within the state, becomes a key part of building coalitions for change in such contexts.

Table 10: Summary of reform priorities

Area	Recommendation
Seeking stability	<ul style="list-style-type: none"> • Continue fiscal consolidation and focus on increasing domestic revenue mobilization. • Reintroduce kina convertibility and allow greater exchange rate flexibility. • As the fiscal consolidation progresses and risk of debt distress is reduced, operationalize the SWF, with all flows via the government budget.
Boosting productivity	<ul style="list-style-type: none"> • Improve the delivery of key infrastructure services, particularly in energy. • Increase competition from both domestic and foreign firms. • Strengthen the establishment and implementation of legislation providing for equality in access to employment and economic inputs such as land and credit.
Expanding endowment	<ul style="list-style-type: none"> • Improve access to and the quality of services that address deficiencies in the early years, from age 0 to 10. • Strengthen service delivery management, with a focus on PFM and data. • Invest in the human development of the workforce for boys and girls, with better training, support, and monitoring.
Cross-cutting themes	<ul style="list-style-type: none"> • Empower reformers by increasing the availability of relevant and timely data. • Improve prospects for change by fostering more effective oversight mechanisms. • Capitalize on non-state actors as a key part of building coalitions for change.

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Annexes



Annex 1: Selection of Comparators

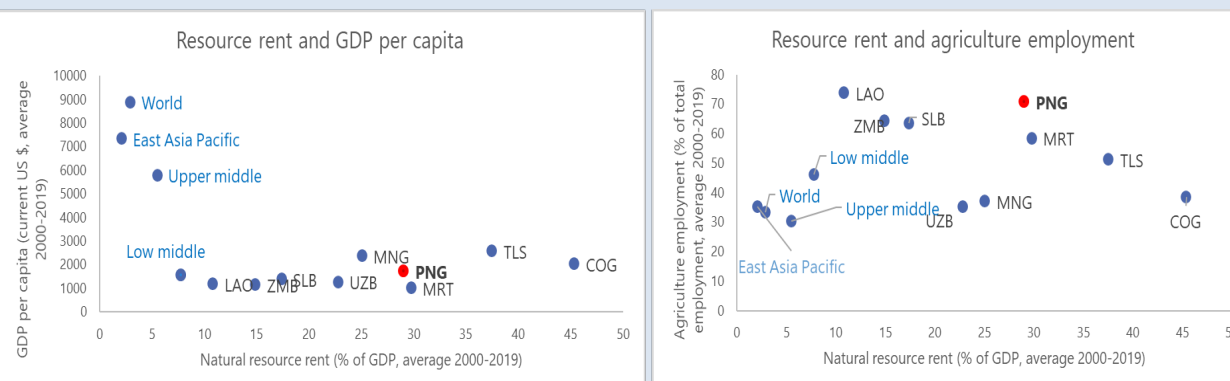
To gain insights into the comparative performance of PNG, it is essential to choose an appropriate set of comparator countries. What constitutes ‘appropriate’ depends on the focus of the comparison. Since this study is focused on growth performance, for most of the study the appropriate comparators are countries with similar structural economic characteristics. This study uses two such groups of countries—termed structural peers and aspirational peers—and some standard aggregates (EAP, lower-middle-income, upper-middle-income, and World).

PNG’s structural peers are those that share the economic characteristics of a high resource rent share of GDP, diversified bundle of resources, high agricultural share of employment, and lower-middle-income level. The group consists of the Republic of Congo, Lao PDR, Mauritania, Mongolia, the Solomon Islands, Timor-Leste, Uzbekistan, and Zambia. More specifically, these countries are

- Resource rich countries, with a ratio of resource rents to GDP equal to or greater than 10 percent on average between 2000 and 2019 (PNG averaged 29 percent);
- Countries with agricultural employment of more than 30 percent of total employment on average between 2000 and 2019 (PNG averaged 70 percent);
- Countries with a bundle of diverse resources; and
- Classified as lower-middle-income with GNI per capita in 2019 between US\$1,026 and US\$3,995.

Figure A1 shows PNG’s income level, resource dependence, and agricultural employment share relative to these structural peers and the standard aggregates.

Figure A1: PNG and structural peers



Note: Data source for peer countries is the Country Scan tool, while aggregate numbers (World, low middle, upper middle, and EAP) are from the WDI database.

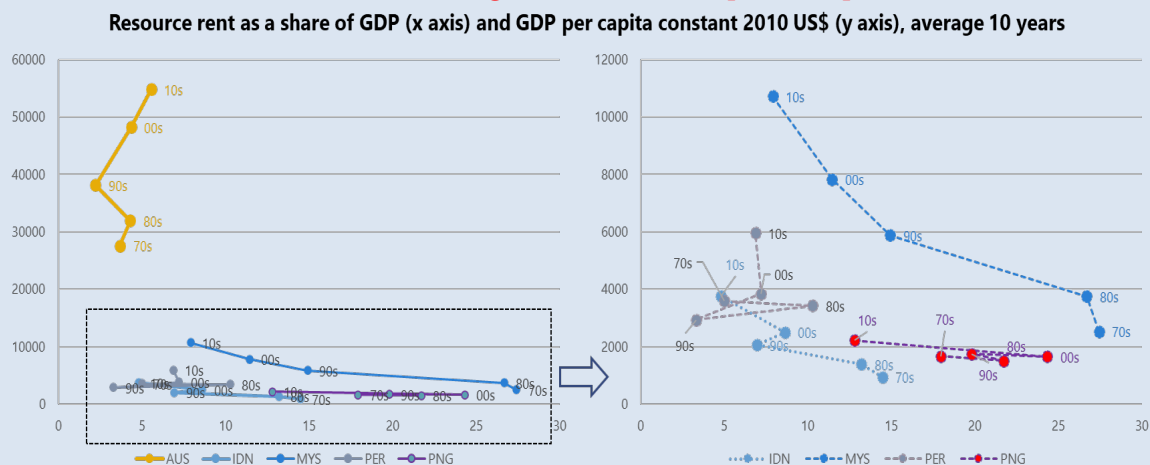
PNG’s aspirational peers are those that previously had a high resource rent share of GDP and are now classified as upper-middle-income. The exception here is Australia, a high-income country, which has been chosen as a long-term aspirational peer given its success in managing a resource-dependent economy and could be considered as a technology frontier. The group consists of Australia, Indonesia, Malaysia, and Peru. More specifically, these countries

- Had resource rents to GDP equal to or greater than 10 percent on average between 1980 and 1990 and
- Were classified as upper-middle-income in 2019 (except Australia).

Figure A2 indicates that each aspirational peer has shown distinct progress on per capita income over the last five decades. Malaysia managed to improve its per capita income level while reducing its dependence on resources, as shown by the declining rent share. Meanwhile, Indonesia started with a lower per capita level than PNG but managed to grow faster than PNG and now has a higher per capita income.

PAPUA NEW GUINEA
Country Economic Memorandum

Figure A2: PNG and aspirational peers



In the parts of this study focused on PNG’s governance and institutional performance, a different set of comparators is appropriate. For those comparisons, the comparators need to be countries with structural governance and institutional characteristics similar to PNG. These are a set of countries that share PNG’s classification as a ‘competitive clientelist’ state (Barma et al. 2012). These comparators are Nigeria, Madagascar, the Solomon Islands, the Philippines, the Democratic Republic of Congo, Kenya, Ghana, Malawi, and Timor-Leste. We refer to these countries as ‘governance peers’. Two of these governance peers—the Solomon Islands and Timor-Leste—are also in the set of structural peers.



