IFPRI
PAPUA NEW GUINEA

PROJECT NOTE #21 AUGUST 2025

Implications of Exchange Rate Overvaluation and World Price Shocks for PNG

Paul Dorosh
Angga Pradesha

Introduction

The large inflow of foreign capital to fund PNG investments in natural gas pipeline and processing infrastructure resulted in a surge in inflation beginning in 2011. Costs of production of tradable goods such as coffee and palm oil rose more (in kina terms) than their output prices, reducing the profitability of these sectors. These price distortions have continued to the present day, as restrictions on access to foreign exchange (mainly through delays in the release of funds) as demand for foreign exchange exceeds supply made available to the public. This policy note reviews PNG's exchange rate policies and uses an economy-wide simulation model[1] to quantify the impacts of these distortions. We conclude with a discussion of policy implications, highlighting the effects of a possible devaluation / depreciation of the kina.

The Evolution of PNG's Real Exchange Rate

Faced with a shortfall in foreign exchange, PNG, like many other governments, has nonetheless attempted to limit the depreciation of its currency, the kina, so as to avoid an increase in the domestic price of imports and the kina value of interest payments and other capital outflows. Because of PNG's policy of restricting timely access to foreign exchange, the depreciation of the nominal exchange rate has been far smaller than the rate of domestic inflation.

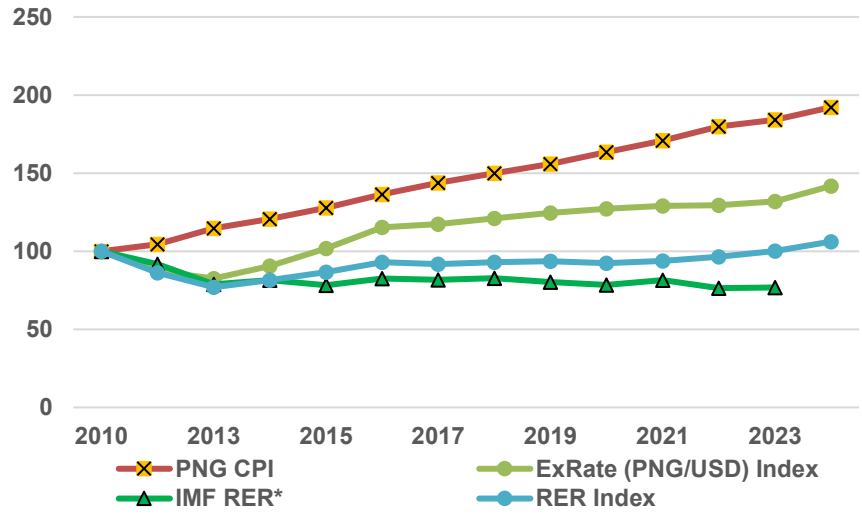
As shown in Figure 1, domestic inflation in PNG resulted in a total increase of 92 percent in the Consumer Price Index between 2010 and 2024. In this same period, the nominal exchange rate (Kina/USD) depreciated by only 42 percent, from 2.72 to 3.86 kina/USD. Using the US CPI as a measure of world prices, a simplified **real exchange rate** (RER = ER * PW / CPI)[2] indicates: 1) a large appreciation of 26.1 percent between 2010 and 2012, followed by 2) a depreciation of 5.9 percent per year until 2018 that restored the RER to approximately the 2006 level, and then 3) little change through 2024 (averaging 1.7 percent depreciation per year).[3] Using the weighted average of a basket of currencies and other adjustments, the IMF calculation of the real exchange rate indicates total appreciation of 23 percent between 2010 and 2024.

[1] Details of the equations in the CGE model are found in Dorosh and Pradesh (2022). The simulations were run using a new 2023 economy wide data base (Social Accounting Matrix).

[2] As in much of the economic literature, this note adopts the definition of the real exchange rate as.the value of the foreign currency measured in domestic currency (i.e. Kina/ USD). Using this definition, a depreciation of the exchange rate (an increase in Kina/USD), implies an increase in the price of tradables relative to the price of non-tradables, i.e. PT/PNT = ER * PW / CPI.

[3] Wangi (2025) discusses recent movements in the nominal exchange rate of the Kina relative to the US dollar, and suggests various policy options to increase the supply of foreign exchange in PNG. This note extends his analysis by focusing on the real exchange rate, foreign exchange rationing and implications for PNG's macro-economy.

Figure 1: PNG: Real Exchange Rates, Balance of Payments, 2010 – 2024



Source: IMF IFS (2025) and authors' calculations

However, this simple measure of the distortion in the real exchange rate captures only the changes in its level. A more exact measure of the overvaluation of the real exchange rate is the difference between the actual real exchange rate and an estimated **equilibrium real exchange rate** (the real exchange rate that would result from the removal of all trade and foreign exchange rate distortions, given world prices and assumed normal foreign capital flows). Using the estimates of the equilibrium real exchange rate from the IMF's simulation model, the average overvaluation of the kina in the years 2019, 2022 and 2023 was 10 percent.[4]

Impacts of the Real Exchange Rate Appreciation and Policy Options

CGE model simulations indicate that a real exchange rate depreciation to restore the real exchange rate to close to its equilibrium level would have significant negative effects on household welfare in PNG. As shown in Simulation 1, a 10 percent depreciation of the nominal exchange rate, holding domestic prices (as measured by the consumer price index) constant, results in a sharp drop in total imports (both consumer goods and intermediate inputs into domestic production).

Given PNG's substantial trade deficit and relatively low responsiveness of export supply and import demand to the exchange rate and price changes, the devaluation reduces consumption by 14.1 percent and total expenditures (including investment expenditures) by 12.8 percent (Figure 2). Improved price incentives spur a 2.6 percent increase in the production of export crops, but production of food crops declines by 1.6 percent, as rural land and labor shift to export crops and other sectors (Figure 3).[5]

[4] Estimates of the overvaluation of the kina were 11 percent in 2019 (IMF, 2020; p. 17), 13 percent in 2022 (IMF, 2023; p. 35) and 5 percent at the end of 2023 (IMF, 2024; p. 34). See Krueger, Schiff and Valdés (1988) for a discussion of calculations of the equilibrium real exchange rate, and Davies and Schroder (2022) for further analysis and estimates of PNG's real exchange rate misalignment.

[5] Here, we use absorption (the sum of consumption, investment and government expenditures) as our measure of total expenditures.

Figure 2: Macro-economic Effects of Exchange Rate and World Price Shocks

Source: PNG CGE model simulations; authors.

Figure 3: Effects of Exchange Rate and World Price Shocks on Agricultural Production and GDP

Source: PNG CGE model simulations; authors.

Simulation 2 shows the impact of a commodity price slump -- a 10 percent decline in the world prices of both imports and exports. Given that PNG has a trade deficit, if there was no adjustment in quantities of imports or exports, the 10 percent reduction in world prices of both imports and exports would tend to reduce the trade deficit by 10 percent, as well. However, given that foreign savings (foreign capital in-flows) are fixed, the real exchange rate appreciates (the kina/USD exchange rate declines) by 3.6 percent to restore equilibrium in the foreign exchange market.

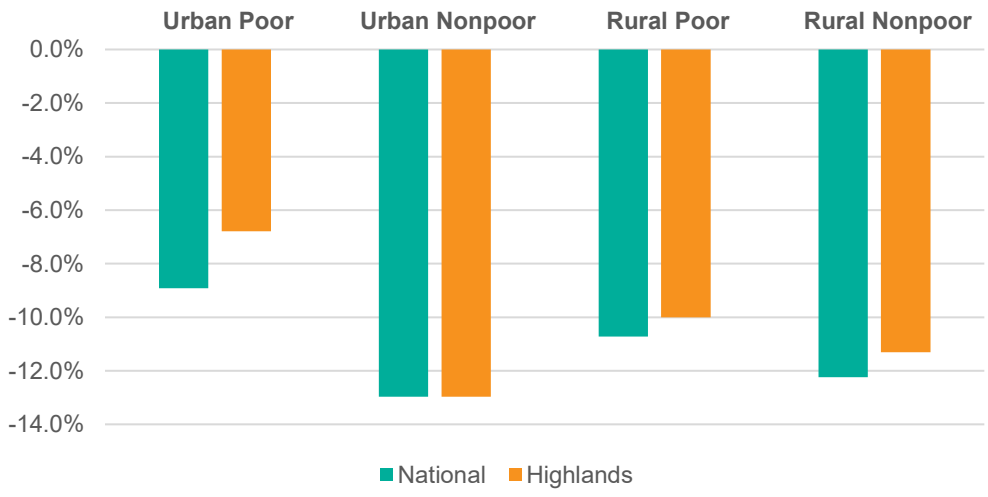
The net effect of the real exchange rate appreciation and the world price declines is sharply lower prices of imported and exported goods in kina terms. Exports, (mainly products of tree crops that have relatively low supply responsiveness), decrease by 3.8 percent. Imports also fall, as production of import goods declines, though the lower price also spurs demand for import goods. The net effect is a decline in the quantity of imports of only 0.6 percent.

Combining the shocks of Simulations 1 and 2, Simulation 3 models a real exchange rate adjustment in a macro-policy environment qualitatively similar to that facing PNG in 2025. In this case, the real exchange rate depreciation is only 12.1 percent, output of export crops increases by 1.1 percent and real GDP falls by 0.9 percent.

Impacts on Households

The changes in the exchange rate and world market prices described above have significant impacts on households. Consumption declines by 10 to 13 percent for most households (Figure 4). The exceptions are urban poor households (those in the bottom 40 percent of the per capita expenditure distribution) who experience a drop in consumption of only 9 percent (in large part because relatively little of their consumption is on the tradable goods for which prices rise sharply). The decline in consumption of the urban poor in the highlands is smaller (only 6.8 percent), however, since the price of non-tradables (which does not decline as much as the price of tradables) are a larger share of consumption of urban poor households in this region than of urban poor households in most of the rest of PNG.

Figure 4: Effects of Exchange Rate and World Price Shocks on Household Consumption



Source: PNG CGE model simulations; authors.

Concluding Observations

PNG's macro-economic policies since 2010 successfully stabilized the nominal and real exchange rates, and to a large degree prevented a major real exchange rate appreciation typically associated with a surge in natural resource production and exports.

Nonetheless, there has been a persistent foreign exchange shortage since the early 2010s, managed through *delays in granting access to foreign exchange to importers*. Other options for reducing the gap between supply and demand for foreign exchange include improving the business environment to attract more foreign investment and promoting tourism (Wangi, 2025).

Model simulations indicate that lowering these price distortions through a moderate exchange rate depreciation would lead to higher production of export crops, but lower production of food crops. Real GDP would also decline. If world prices of PNG's exports and imports also fell due to recession in the world economy or other factors, total consumption of the urban poor could fall by 9 percent and consumption by the other household groups could decline by 10 to 13 percent.

These results highlight the vulnerability of PNG's households to exchange rate and commodity price shocks. They also point to the need for further analysis of the distributional impacts of trade and macro-policy on lower income households in various parts of PNG. Finally, along with the need for additional disaggregated data on household production, there is a need for disaggregation of household incomes and expenditures to provide policymakers insights into the likely effects of external shocks and government policies on households across PNG.

ABOUT THE AUTHORS

Paul Dorosh is a Senior Research Fellow in IFPRI's Foresight and Policy Modeling Unit. He previously served as Director of IFPRI's Development Strategy and Governance Unit and has worked extensively on agricultural markets, food policy, and economy-wide modeling.

Angga Pradesha is a Senior Scientist in IFPRI's Foresight and Policy Modeling Unit.

ACKNOWLEDGMENTS

Funding for this work was provided by the Australia Department of Foreign Affairs and Trade (DFAT) through the Australia High Commission (AHC) in Port Moresby, and the Australian Center for International Agricultural Research (ACIAR). This publication has been prepared as an output of the Papua New Guinea - Agriculture, Food and Nutrition Policy Support Program (PNG-AFNP) and has not been independently peer reviewed. Any opinion expressed here belongs to the author(s) and is not necessarily representative of or endorsed by IFPRI or program funders.

REFERENCES

Davies, Martin and Marcel Schroder. 2022. "The path to kina convertibility: An analysis of Papua New Guinea's foreign exchange market", *Asia & the Pacific Policy Studies*, 9:465-482.
https://doi.org/10.1002/app5.358

Dorosh, Paul A.; and Pradesha, Angga. 2022. Implications of public investments and external shocks on agriculture, economic growth and poverty in Papua New Guinea: An economywide analysis. Papua New Guinea Food Policy Strengthening Working Paper 2. Washington, DC: International Food Policy Research Institute (IFPRI).
https://doi.org/10.2499/p15738coll2.135967

International Monetary Fund. 2020. Papua New Guinea: 2019 Article IV Consultation and Request for Staff Monitored Program-Press Release; Staff Report; and Statement by the Executive Director for Papua New Guinea, Country Report No. 2020/095, April 6, 2020. Washington, D.C.: IMF.
https://www.imf.org/en/Publications/CR/Issues/2020/04/06/Papua-New-Guinea-2019-Article-IV-Consultation-and-Request-for-Staff-Monitored-Program-Press-49307

_____. 2022. "Papua New Guinea, Request for a Staff-Monitored Program; and Staff Report", IMF Country Report No. 22/55, February 2022. Washington, D.C.: IMF.
https://www.imf.org/en/Publications/CR/Issues/2022/09/20/Papua-New-Guinea-2022-Article-IV-and-the-Staff-Monitored-Program-Press-Release-Staff-Report-523626

_____. 2023. "Papua New Guinea: Requests for an Arrangement under the Extended Credit Facility and an Extended Arrangement under the Extended Fund Facility-Press Release; Staff Report", Country Report No. 2023/126, (March 29, 2023), Washington, D.C.: IMF.
https://www.imf.org/en/Publications/CR/Issues/2023/03/29/Papua-New-Guinea-Requests-for-an-Arrangement-under-the-Extended-Credit-Facility-and-an-531582

_____. 2024. "Second Reviews under Extended Arrangement under the Extended Fund Facility and an Arranement under the Extended Credit Facility, and Request for Modification of Quantitative Performance Criteria – Press Release; Staff Report; and Statement by the Executive Director for Papua New Guinea, (July 18, 2024), Washington, D.C.: IMF.
https://www.imf.org/en/Publications/CR/Issues/2024/07/17/Papua-New-Guinea-Second-Reviews-Under-Extended-Arrangement-Under-the-Extended-Fund-Facility-552090

_____ . 2025. International Financial Statistics.
https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b&sid=1409151240976

Krueger, Anne O., Maurice Schiff and Alberto Valdés. 1988. "Agricultural Incentives in Developing Countries: Measuring the Effect of Sectoral and Economywide Policies", *The World Bank Economic Review*, 2 (3): 255–271 (September). https://doi.org/10.1093/wber/2.3.255

Wangi, Thomas. 2025. "What has Happened to the Kina Since the Recent Exchange Rate Reform?", Spotlight 18(5) (May). The National Research Institute (NRI). Boroko, Papua New Guinea.
https://pngnri.org/images/Publications/Spotlight_Vol18_Iss5_What_has_happened_to_the_Kina_since_the_recent_exchange_rate_reform.pdf

The Papua New Guinea (PNG) Agriculture, Food and Nutrition Policy Support Program (PNG-AFNP) is managed by the International Food Policy Research Institute (IFPRI) and is financially supported by the Australia Department of Foreign Affairs and Trade (DFAT) through the Australia High Commission (AHC) in Port Moresby, and the Australian Center for International Agricultural Research (ACIAR). This publication has been prepared as an output of PNG-AFNP and has not been independently peer reviewed. Any opinions expressed here belong to the author(s) and are not necessarily representative of or endorsed by IFPRI or the funding providers.

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

A world free of hunger and malnutrition

IFPRI is a CGIAR Research Center

1201 Eye Street, NW, Washington, DC 20005 USA | T. +1-202-862-5600 | F. +1-202-862-5606 | Email: ifpri@cgiar.org | www.ifpri.org | www.ifpri.info