INTERNATIONAL MONETARY FUND

IMF Country Report No. 24/343

DEMOCRATIC REPUBLIC OF TIMOR-LESTE

SELECTED ISSUES

December 2024

This paper on the Democratic Republic of Timor-Leste was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on November 20, 2024.

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International Monetary Fund
Washington, D.C.

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November 20, 2024

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Asia and Pacific Department

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HOW HAS DOLLARIZATION SERVED TIMOR-LESTE SO FAR?

This paper analyzes Timor-Leste's historical economic performance and structure under dollarization. It considers several dimensions that determine the benefits and costs of the regime: (i) growth and inflation performance; (ii) business and financial cycle synchronization; (iii) adjustment to external shocks; and (iv) competitiveness. Dollarization has helped Timor-Leste achieve relatively low and stable inflation in the context of post conflict fragility, but may be contributing to weakening competitiveness. Improved performance under dollarization requires reduced fiscal imbalances and advancement of reforms that address structural bottlenecks that also undermine competitiveness.

A. Introduction

1. Timor-Leste has exclusively used the US dollar for more than two decades. Following the referendum for its independence, the US dollar was adopted as the official currency in January 2000 by the United Nations Transitional Administration in East Timor (UNTAET). This arrangement has been maintained since Timor-Leste's independence in May 2002 to foster stability amidst limited institutional capacity and volatile oil revenues. US dollar banknotes circulate in the local economy for use in cash transactions, while the Banco Central de Timor-Leste (BCTL)—Timor-Leste's central bank—mints a limited amount of coins for local circulation in denominations of 'centavos'.[1]

2. In general, a dollarized regime presents pros and cons. On one hand, it helps stabilize prices and reduce inflationary pressures by using the nominal anchor of the United States, as well as reduces currency risks (IMF 2022). On the other hand, a dollarized regime means the central bank cannot set domestic monetary policy when the capital account is open, while the effective exchange rate is determined by the global strength of the US dollar. Moreover, it forfeits potential seigniorage revenue that could accrue when there is stable demand for a locally issued currency.[2] How costly a dollarized regime could be for the economy depends on a number of factors that can change over time (Mundell 1961). The meta-analysis in Koráb, Fidrmuc, and Dibooglu (2023)—covering 43 studies that span a wide set of economies and empirical methods—suggests that full dollarization tends to raise output volatility and reduce growth, reflecting, in part, the cost associated with limiting monetary discretion. The study also finds that dollarized economies tend to exhibit lower inflation than non-dollarized.

3. We assess Timor-Leste's use of dollarization by examining its historical economic performance and structure along several dimensions that determine the benefits and costs of the regime:

[1] One centavo equals one US cent, and coins are issued in denominations up to 200 centavos. The total stock of centavo coins in circulation was $31 million (around 2 percent of non-oil GDP) at end-2023.

[2] For a more detailed discussion of the pros and cons of dollarization, see Koráb, Fidrmuc, and Dibooglu (2023) and the references cited therein.

- ***Growth and inflation.*** We evaluate macroeconomic outcomes in terms of the level and volatility of growth and inflation, covering both cyclical and structural aspects. To do this, we benchmark Timor-Leste against different peer groups: emerging and developing economies (EMDE), ASEAN countries. We also compare Timor-Leste's post-independence growth experience with those of other post-conflict economies.

- ***Business and financial cycle synchronization.*** We describe the correlation of Timor-Leste's business cycle with those of the United States and ASEAN, and document the shifting trade linkages between Timor-Leste and its partners. We also document the correlation between monetary conditions in the United States and in the local market.

- ***Adjustment to shocks.*** We study the economy's ability to adjust to external shocks under dollarization. We focus on the experience following two large shocks that have hit the global economy in the past decade: the 2014 fall in global oil prices, and the appreciation of the US dollar in the context of high US interest rates starting in 2022.

- ***Competitiveness.*** Finally, we assess how the REER has evolved in Timor-Leste in tandem with the strength of the US dollar. Here, we distill the implications of dollarization for Timor-Leste's competitiveness.

B. Growth and Inflation

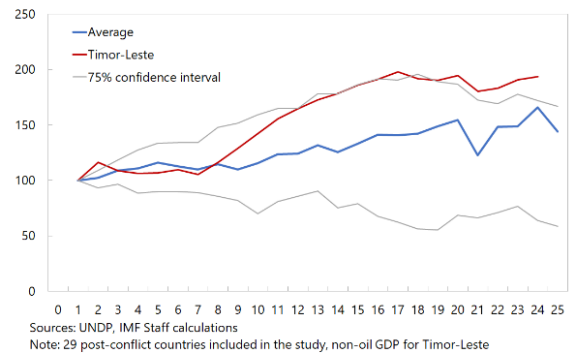
4. We benchmark Timor-Leste's growth and inflation outcomes against peer groups. The use of a dollarized regime potentially matters for macroeconomic outcomes (¶2). The benchmarking exercise provides an assessment of Timor-Leste's relative macroeconomic performance in the last two decades under dollarization.

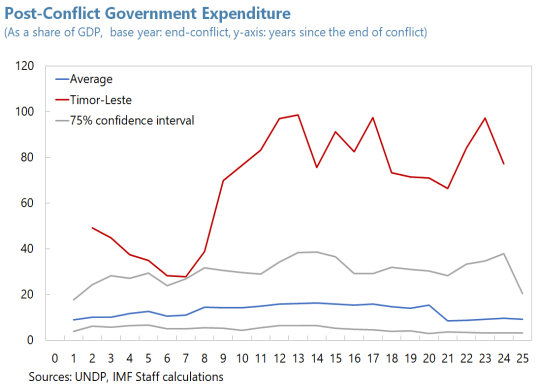
5. Since independence, Timor-Leste's growth has outperformed the experience of other post-conflict nations. We compile the growth trajectories of 29 economies following episodes of conflict and compare them to Timor-Leste's post-independence experience (Annex I). Growth in Timor-Leste was low in the first few years after its independence but subsequently picked up starting in 2007, outperforming the average cumulative growth trajectory of other post-conflict nations by the early 2010s. At the same time, Timor-Leste made progress with improved institutions, incipient political stability, and had access to ample resources from oil and gas revenues. Notably, the growth pickup coincided with a rapid increase in government spending—unlike the experience of other post-conflict countries—with public spending reaching close to 80 percent of non-oil GDP by 2010 (from around 50 percent in early 2000).

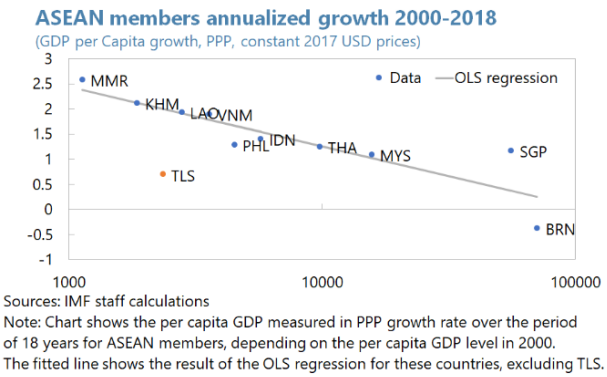
6. However, per-capita growth has been significantly lower than regional economies, and has not delivered the desired improvement in living standards. Timor-Leste's average growth rate in the last two decades is comparable to that of the median economy with a fixed exchange

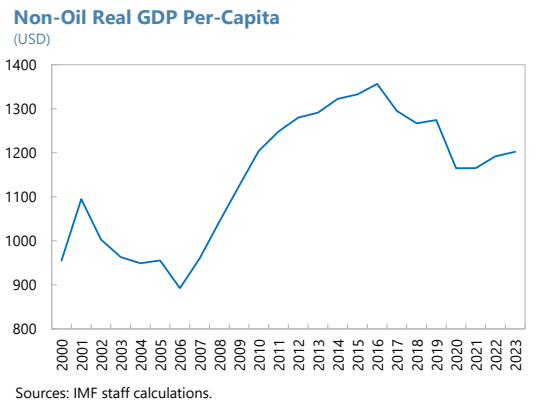
rate among EMDEs.[3] However, Timor-Leste's growth was significantly lower than Asian countries that started the period with similar levels of income per capita. For example, Cambodia, Laos, and Myanmar had similar or lower income per capita in 2000, but grew significantly faster in the last two decades. Economic activity in Timor-Leste has stagnated particularly since 2017 due to a series of challenges and shocks.[4]

7. The non-oil economy has underperformed in the last decade despite a high share of public spending relative to the economy. Non-oil GDP growth—an outturn of 2.3 percent in 2023—is far below the expectations from a decade earlier. For instance, the 2013 Article IV had envisaged non-oil GDP growth to remain above 8 percent in the medium term. This underperformance has materialized despite a high share of public spending relative to the economy. This disconnect reflects a low fiscal multiplier in Timor-Leste (around 0.1 - 0.2) due to low quality and high import content of public expenditure (IMF 2024). Thus, fiscal policy has not catalyzed private sector development, which continues to be severely impeded by structural bottlenecks.





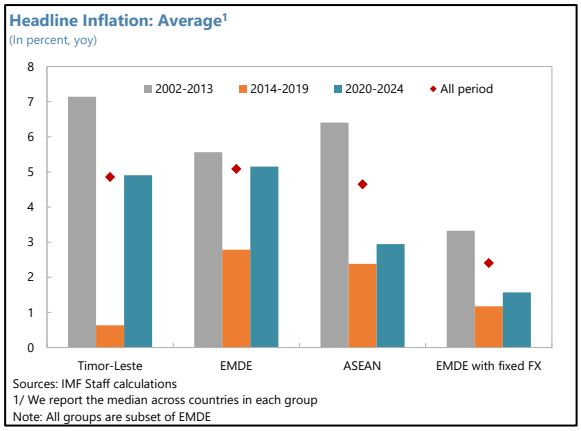




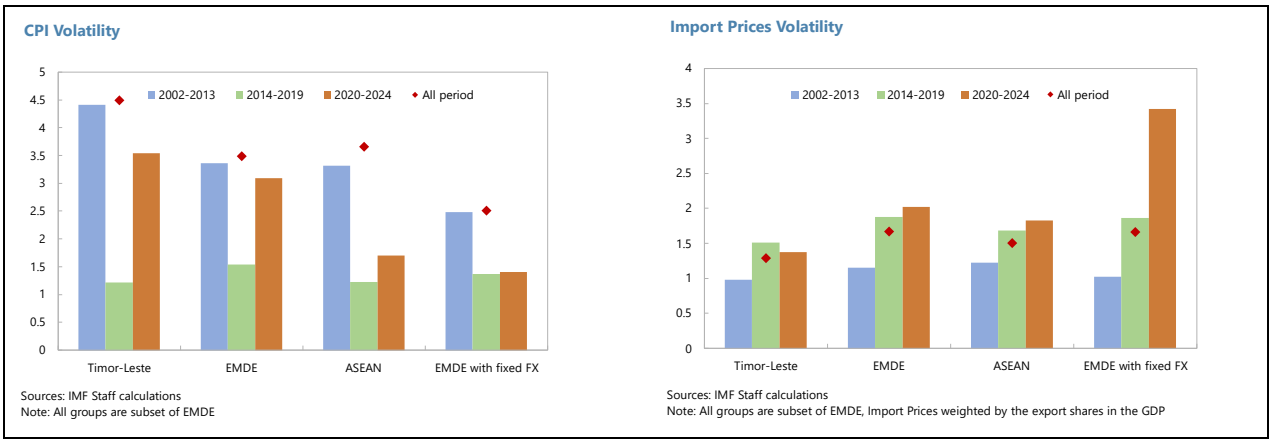
[3] Growth in non-oil GDP per-capita in Timor-Leste averaged 1.2 percent during 2002-23, similar to 1 percent for a medium EMDE with a fixed exchange rate.

[4] The level of non-oil real per-capita income was on a declining trend during 2017-2020. And while the variable stabilized starting in 2021, the level of non-oil per-capita income in 2023 remained well below that in 2017.

8. Average inflation in Timor-Leste has been aligned with peers and closely linked to global commodity price fluctuations. Inflation in Timor-Leste was high until about mid-2010 and was strongly influenced by swings in global food prices, but has been more moderate in the past decade.[5] Taking the average of the past two decades, headline inflation in Timor-Leste, at 4.9 percent, was lower than that of other post-conflict countries (5.5 percent), as many of them did not succeed to avoid episodes of economic turmoil. This performance is comparable with that of other EMDEs (5.1 percent) and ASEAN economies (4.6 percent), though it is higher than EMDEs with fixed exchange rates (2.4 percent).



9. The volatility of headline inflation has been somewhat higher than peers, but fell considerably in the past decade. In the first decade following independence, inflation was highly volatile and exceeded the volatility of import prices.[6] However, in the past decade inflation has been more stable and has tracked more closely the experience of peer countries. In the pre-COVID-19 period, the volatility of inflation was comparable between Timor-Leste and EMDEs with fixed exchange rates. In sum, under dollarization, Timor-Leste has achieved relatively low and stable inflation in the last decade.



C. Business and Financial Cycle Synchronization

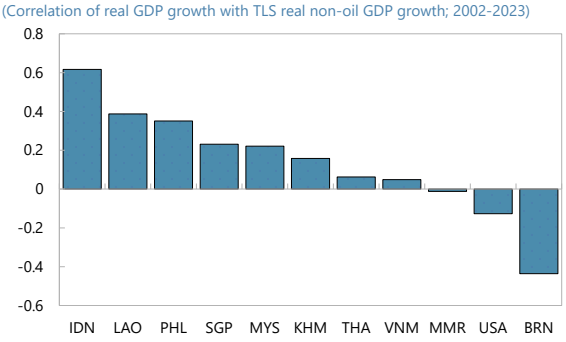
10. We analyze the extent to which business and financial cycles in Timor-Leste are synchronized with the United States and ASEAN countries. Business cycles can be synchronized

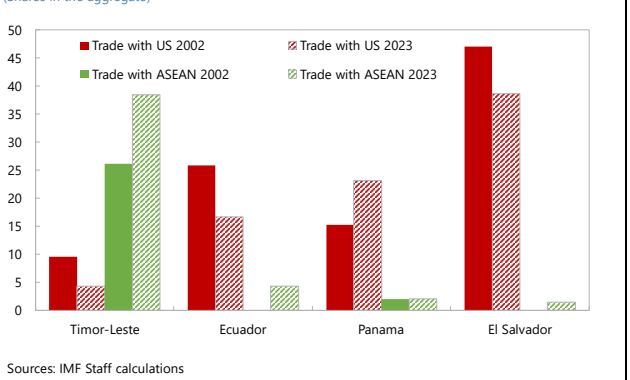
[5] For details, also see Annex II in the 2024 Article IV Staff Report.

[6] The standard deviation of inflation was 4.5 percent, which is 1 percentage point higher than in EMDEs and 2 percentage points higher than in EMDEs with fixed exchange rates.

across economies either because they are hit by common (similar) shocks and/or shocks from one economy are transmitted to others via trade and financial linkages (IMF 2013). To the extent that US business cycles are in sync with Timor-Leste's, US monetary policy—that primarily seeks to stabilize cyclical fluctuations in the US economy—is also appropriate for Timor-Leste from a cyclical perspective. Conversely, if Timor-Leste's business cycles are more synchronized with ASEAN economies instead, a dollarized regime could be costly.

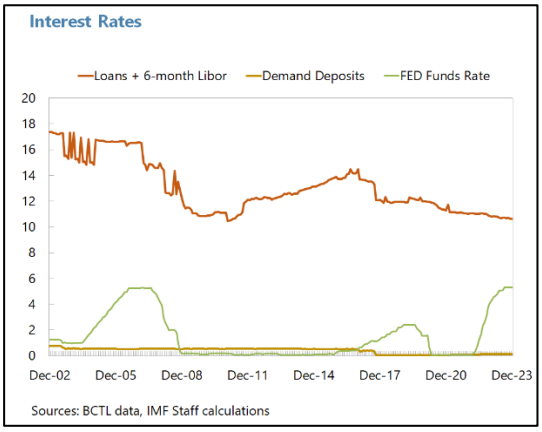
11. Timor-Leste's economic cycle is not synchronized with the US economy and its trade linkages with the United States are small, unlike those of other dollarized economies. Real GDP growth in Timor-Leste during 2002-23 exhibits a weak correlation of -0.1 with that of the United States. This presumably reflects two factors: (i) the Timorese and US economies have very different structures and are thus affected by different shocks, and (ii) there are weak direct linkages between the US and Timorese economies, notably through limited trade. In fact, the United States over time have come to represent a very small share of Timor-Leste's trade, constituting just 4 percent of Timor-Leste's total trade by value in 2023 (down from 10 percent in 2003). By comparison, trade linkages of other dollarized economies—such as Ecuador, El Salvador, and Panama—with the United States are much stronger, reaching between 15 and 40 percent of their total trade value. All in all, this means that US monetary conditions are unlikely to be appropriate for Timor-Leste, particularly compared to other dollarized economies which have much closer linkages to the United States. Conceptually, this raises the costs of dollarization.





12. Timor-Leste's trade linkages with ASEAN countries are stronger and would likely deepen with accession. ASEAN's share of Timorese total trade increased from just 25 percent in 2003 to around 40 percent in 2023. This strong trade linkage likely underpins the higher growth correlations between Timor-Leste and ASEAN countries, which are as high as 0.6 with neighboring Indonesia. With its ASEAN accession roadmap, Timor-Leste's trade linkages with ASEAN will likely deepen, bringing the cyclical drivers of the Timorese economy closer to ASEAN. Since ASEAN currencies are generally flexible with respect to the US dollar, this would likely raise the costs of dollarization for Timor-Leste.

13. The transmission of US monetary policy affects Timor-Leste mainly through the exchange rate channel, rather than the interest rate channel. While Timor-Leste has a relatively open capital account, monetary conditions in Timor-Leste have been weakly correlated with US interest rates despite the dollarization regime. Rates offered by local banks on deposits and loans exhibit very low correlations with US interest rates, especially in the last five years.[7] This is likely due to the structural characteristics of Timor-Leste's financial system, where deposit and lending practices are constrained by domestic structural bottlenecks, and where capital markets are severely underdeveloped.[8] Although Timor-Leste's business cycle is not in sync with that of the United States, the cost of dollarization from a cyclical stabilization standpoint, in practice, seems limited since interest rates are decoupled.



D. Adjustment to External Shocks

14. Adjustment to external shocks—such as fluctuations in commodity prices and global interest rates—depends on the foreign exchange (FX) regime. Flexible exchange rates can act as shock absorbers when domestic prices (including wages) are sticky. To the extent that the exchange rate facilitates adjustment in the relative price of domestic and foreign goods, exchange rate flexibility can mitigate the real effects of external shocks in comparison to pegged exchange rate regimes such as dollarization. In the latter, adjustment to external shocks would need to take place through domestic prices and wages, putting a premium on flexibility of product and labor markets. Empirically, adverse impacts from falling commodity prices have been found to be less severe for commodity exporters with flexible exchange rates, compared to those with pegged exchange rates (Grigoli, Herman, and Swiston 2019; Al-Sadiq, Bejar, and Ötker 2021; Carrière-Swallow, Magud, and Yépez 2021).

15. Despite the constraints on adjustment afforded by the dollarized regime, Timor-Leste's fiscal rule and the sizable buffers in its Petroleum Fund mitigate the impact of commodity price shocks. In Timor-Leste, oil and gas revenues are accumulated into the Petroleum Fund (PF) without being recorded as revenues in the state's budget. The stock of savings in the PF is sizable, with a balance that averaged around 1,000 percent of non-oil GDP in the last ten years. Fluctuations in oil and gas prices affect the flows into the PF, while withdrawals—which are the main financing source for public spending—are governed by Timor-Leste's fiscal rules.[9] This setup works

[7] The correlation of the change in the Fed Funds rate with the change in the domestic loan and deposit rates is 0.05 and 0.04, respectively, over the period of December 2002 to December 2023.

[8] There are no tradable government or private debt securities, and no local stock exchange in Timor-Leste.

[9] According to Timor-Leste's fiscal rule, the annual withdrawal is based on an Estimated Sustainable Income (ESI)—3 percent of total petroleum wealth (sum of the Petroleum Fund balance and the net present value of expected future petroleum revenue). Withdrawals in excess of the ESI can be made only with the approval of Parliament.

to limit the impact of commodity price fluctuations on fiscal financing and, in turn, on activity in Timor-Leste. Swings in commodity prices can induce other spending measures, such as fuel subsidies, and can affect consumer and producer prices, but the small share of fuel in Timor-Leste's CPI basket (a subcomponent of the 'housing' category, which is 6.3 percent) limits the strength of this channel.[10]

16. To illustrate Timor-Leste's adjustment to a commodity price shock, we conduct an event study on the 2014 fall in global oil prices, which was a large common shock to oil exporters. We compare the macroeconomic adjustment mechanism in Timor-Leste with two other commodity exporters: Colombia (flexible exchange rate) and Ecuador (dollarized). For each economy, we track the response of per-capita output and government expenditure, and decompose the response of the REER due to movements in: (i) bilateral nominal exchange rate with respect to the US dollar; (ii) nominal exchange rates of trading partners with respect to the US dollar; and (iii) weighted CPI inflation.

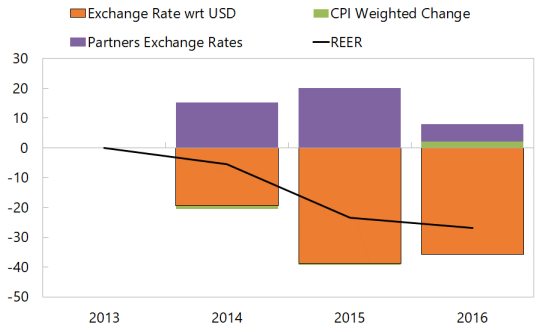
- Ecuador saw a subsequent contraction of domestic demand and per-capita income over the subsequent three years, while Colombia and Timor-Leste were able to deliver rising per-capita income. These outcomes reflect differential responses of the REER and of fiscal policy.

- In response to the shock, the REER in Colombia depreciated driven by a nominal depreciation of the Colombian peso with respect to the US dollar, which supported net exports and domestic demand. In contrast, the REER in Ecuador and Timor-Leste appreciated as their respective trading partners depreciated in nominal terms against the US dollar. This, in turn, limited external adjustment and aggravated the impact on the real economy.

- The response of fiscal policy in Ecuador was pro-cyclical, with expenditure contracting sharply in 2015 due to limited policy buffers and options. In Colombia and Timor-Leste, per-capita income was supported by a countercyclical fiscal response. In Timor-Leste, a very large expansion of fiscal expenditure involved excess withdrawals from the PF's buffers that were well above the fiscal rule's ESI.

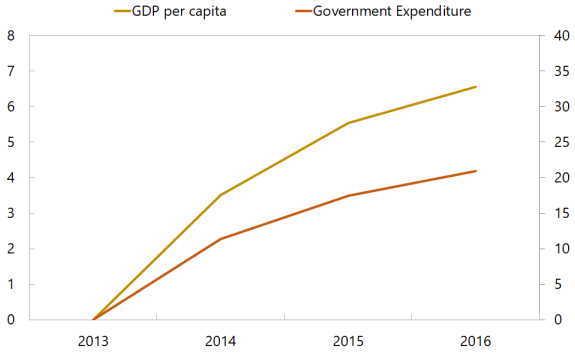
[10] For instance, the authorities introduced fuel subsidies in 2022 to mitigate the impact of the surge in fuel prices.

Colombia
(REER Cumulative Change Decomposition)



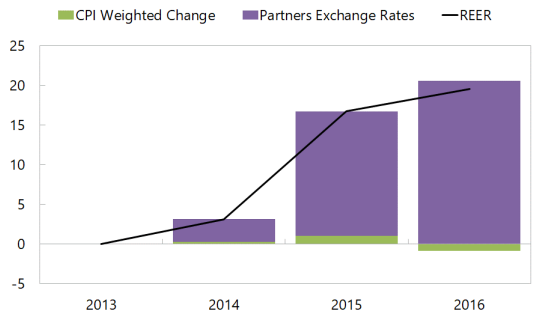
Sources: IMF Staff calculations

Colombia
(LHS: GDP per capita in PPP, cumulative change,
RHS: Government expenditure cumulative change)



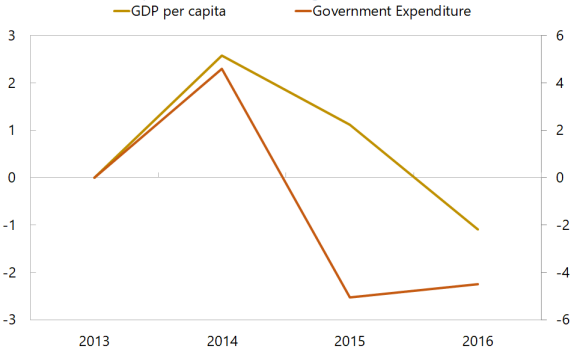
Sources: IMF Staff calculations

Ecuador
(REER Cumulative Change Decomposition)



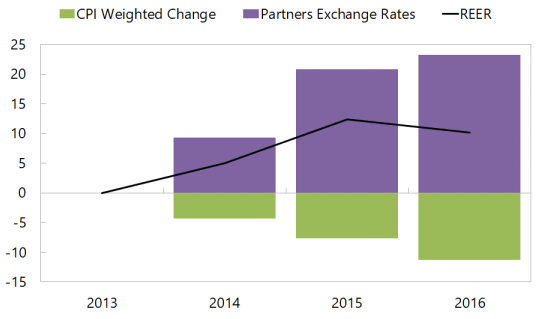
Sources: IMF Staff calculations

Ecuador
(LHS: GDP per capita in PPP, cumulative change,
RHS: Government expenditure cumulative change)



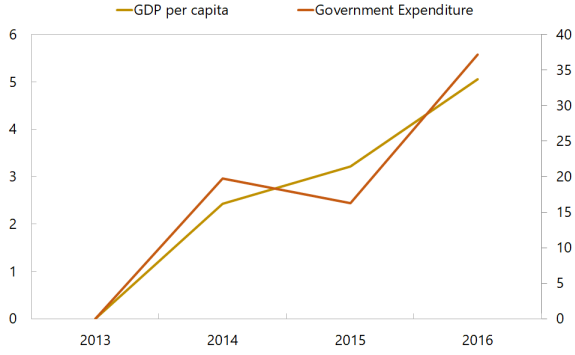
Sources: IMF Staff calculations

Timor-Leste
(REER Cumulative Change Decomposition)



Sources: IMF Staff calculations

Timor-Leste
(LHS: GDP per capita in PPP, cumulative change,
RHS: Government expenditure cumulative change)

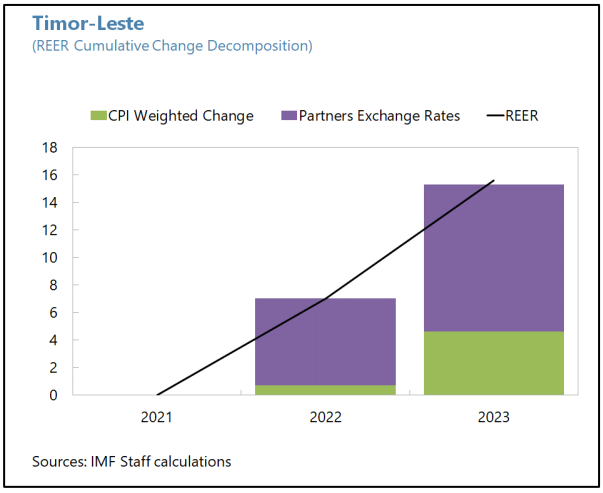


Sources: IMF Staff calculations

17. Besides this episode, Timorese fiscal policy has not systematically reacted procyclically to oil price fluctuations. In many EMDEs and commodity exporters, fiscal policy tends to be procyclical with respect to global commodity prices, exacerbating the impact of these shocks on

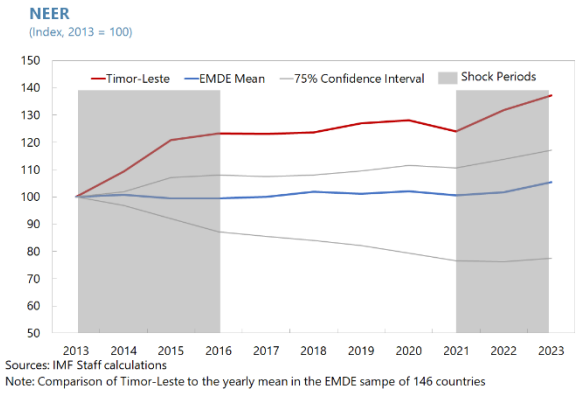
activity (Frankel, Végh, and Vuletin 2013). In Timor-Leste, however, the correlation between the cyclical components of global oil prices (exogenous from Timor-Leste's perspective) and public spending during the last two decades is weak (around 0.2), thus suggesting an acyclical fiscal policy. This is aligned with the design of Timor-Leste's fiscal rules. Withdrawals from the Petroleum Fund that are limited to the ESI, by design, isolate public spending from the commodity cycle. Excess withdrawals—which have been the norm since early 2010s—are inherently more discretionary, but in practice have not exhibited procyclicality with respect to oil prices. So, while excess withdrawals generate large fiscal and external imbalances and have generally not succeeded in delivering strong growth outcomes in view of low-efficiency public spending, we do not find them to have been destabilizing from a cyclical perspective.

18. To further delineate the impact of external shocks on Timor-Leste's exchange rate, we consider the US dollar strength starting in 2022 following the rise in US interest rates. After the Federal Reserve hiked interest rates aggressively by 450 basis points starting in March 2022, the US dollar appreciated substantially against most global currencies. These included the depreciation of currencies of Timor-Leste's main trading partners, including ASEAN neighbors that operate more flexible exchange rate regimes. The recent global dollar strength has been the main factor behind a 15-percent appreciation of Timor-Leste's real effective exchange rate between 2021 and 2023. Thus, a dollarized regime means that Timor-Leste's REER has strengthened in tandem with the strength of the US dollar, with implications for its competitiveness as we discuss in the next section.

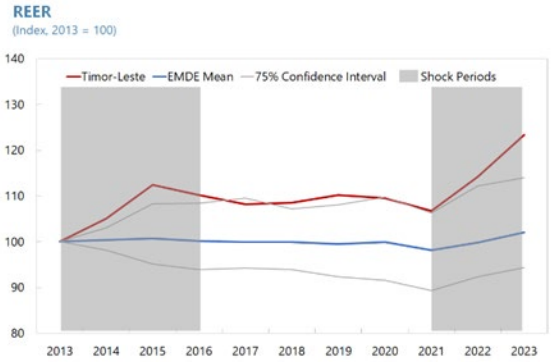


E. Competitiveness

19. With the incidence of the shocks described above, the REER in Timor-Leste has experienced a sustained appreciation of about 30 percent over the past decade. While the oil price shock of 2014 was transitory and prices have since recovered, the large appreciation of the REER in Timor-Leste did not meaningfully subside in subsequent years, indicating a degree of downward nominal rigidity in the economy. From a high level, the REER appreciated further when the currencies of Timor's trading partners depreciated against the dollar amid higher-for-longer US interest rates after 2022.



Sources: IMF Staff calculations
Note: Comparison of Timor-Leste to the yearly mean in the EMDE sampe of 146 countries



Sources: IMF Staff calculations

20. Fund estimates suggest that the REER has become increasingly overvalued, which is likely weighing on diversification and development of the non-oil economy. Like many other countries with fixed exchange rate regimes, the External Sector Assessment (ESA) has consistently indicated that the external position is substantially weaker than warranted by fundamentals (Annex I). The REER overvaluation was likely among the factors that constrained tourism—the main services export for Timor-Leste—with tourism arrivals remaining well below their pre-pandemic levels. It may also be undermining the development of new export products and of the non-oil economy, as it makes imports relatively more affordable than locally-produced goods.

21. Besides the constraints on nominal adjustment imposed by dollarization, several structural bottlenecks also undermine competitiveness. The high costs of goods and services in Timor-Leste also reflect a small market and low economies of scale in production (Freedman 2020). Productivity in the non-oil economy, notably in agriculture, is low. The tourism sector is constrained by poor infrastructure and low business and hospitality skills in the workforce. More broadly, the labor market is constrained by the lack of a skilled work force. Large current account deficits that mirror REER overvaluation reflect large fiscal imbalances and an underdeveloped export sector. Dollarization prevents the nominal exchange rate from depreciating to compensate for these imbalances. As such, improving economic performance and reducing imbalances under dollarization calls for resolving fiscal imbalances and advancing reforms that address these structural bottlenecks. Absent these reforms, moving away from dollarization would not be sufficient to durably overcome deep competitiveness issues and lack of diversification.

F. Conclusion

22. Dollarization has helped Timor-Leste achieve relatively low and stable inflation in the context of post-conflict fragility, but may be contributing to the weakening competitiveness of the private sector. Since independence, Timor-Leste has achieved relatively good performance in terms of growth and price stability compared to other post-conflict states. During this period, Timor-Leste also made progress with improved institutions, incipient political stability, and had

access to ample resources from oil and gas revenues.[11] But the non-oil economy has significantly underperformed versus expectations and has stagnated in recent years. In this regard, the severe overvaluation of the REER following a series of external shocks in the past ten years may be a contributing factor in addition to the structural bottlenecks that constrain the development of the private sector. As trade is increasingly oriented towards ASEAN and with oil production having come to an end, the cyclical drivers of the Timorese economy will be increasingly unrelated to the United States, raising the costs of dollarization.

23. Improving performance under dollarization calls for a reduction of fiscal imbalances and advancement of reforms that address the structural bottlenecks facing the private sector. While the choice of currency regime lies with the authorities, progress at addressing these challenges, as well as building technical capacity at the central bank, and improving the regulatory and legal framework for the financial system, should be seen as both important reforms to strengthen the economy's performance under dollarization as well as pre-requisites before consideration is given to the introduction of a national currency (IMF 2022).

[11] A definitive assessment of the role of institutions and dollarization behind Timor-Leste's post-independence growth experience is limited by difficult-to-quantify benefits from institutional stability and lack of a counterfactual.

Annex I. Data Description and Additional Results

A. Data Description

1. Cross-country data. We compile GDP, per-capita GDP, and government expenditure from the IMF's World Economic Outlook (WEO) Database. The NEER, REER, CPI, and exchange rate data are sourced from the IMF's Information Notice System. Fuel exports come from the World Bank's estimates through the Comtrade database. These data are compiled at the annual frequency and cover the period 2000-2023 for most of the variables. The sample of Emerging and Developing Economies (EMDE)— comprising 146 economies—follows the IMF classification.

2. Post-conflict episodes. The list of post-conflict economies and the related episodes follows UNDP (2008) and are presented in the table below. In the event study described in the main text, the end-of-the-conflict year is taken to be year "0" and then traces the evolution of the macroeconomic variables in Timor-Leste and other post-conflict economies.

List of Post-Conflict Economies

Economy	End of Conflict	Economy	End of Conflict
Angola	2002	Liberia	2003
Azerbaijan	1994	Mozambique	1992
Bosnia and Herzegovina	1995	Namibia	1989
Burundi	2002	Nepal	2006
Cambodia	1991	Nicaragua	1990
Congo, Republic of	1999	Papua New Guinea	1996
Côte d'Ivoire	2004	Rwanda	2001
Croatia	1993	Sierra Leone	2001
El Salvador	1991	Solomon Islands	2003
Eritrea	1991	Somalia	1991
Ethiopia	1991	Sudan	2002
Georgia	1994	Tajikistan	1997
Guatemala	1995	Timor-Leste	1999
Guinea-Bissau	1999	Uganda	1991
Indonesia	2006		

Sources: UNDP (2008); IMF staff.

B. Additional Results

3. External Sector Assessment (ESA). The ESA is part of the IMF's surveillance framework, evaluating member countries' external positions, including current accounts, exchange rates, capital flows, and reserves. The assessment for an economy at a given point in time falls into the following

seven categories: (i) substantially stronger (than implied by fundamentals and desirable policies); (ii) stronger; (iii) moderately stronger; (iv) broadly consistent; (v) moderately weaker; (vi) weaker; and (vii) substantially weaker. For this analysis, we compile the latest available ESA assessments for Timor-Leste and other EMDEs, and group them by their respective exchange rate regime. The exchange rate regimes are based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

4. Timor-Leste's external position is assessed as "substantially weaker than fundamentals and desirable policies," like many other economies with fixed exchange rate regimes. Economies with fixed exchange rate regimes, as classified by AREAER, often fall into the "Weaker" or "Substantially Weaker" categories as shown in the table below.

External Sector Assessment (ESA) and FX Regimes

		ESA						
		Subst. Stronger	Stronger	Mod. Stronger	Broadly Consist.	Mod. Weaker	Weaker	Subst. Weaker
Exchange Regime	Fixed	3	5	2	11	10	6	7
	Managed	0	6	1	16	2	11	9
	Floating	0	3	3	15	7	7	3

Sources: AREAER; IMF staff.

References

Al-Sadiq, A., P. Bejar, and I. Ötker. 2021. "Commodity Shocks and Exchange Rate Regimes: Implications for the Caribbean Commodity Exporters". IMF Working Paper 2021/104.

Carrière-Swallow, Y., N. Magud, and J. Yépez. 2021. "Exchange Rate Flexibility, the Real Exchange Rate, and Adjustment to Terms-of-Trade Shocks". Review of International Economics. 29(2): 439-483.

Frankel, J., C. Végh, and G. Vuletin. 2013. "On Graduation from Fiscal Procyclicality". Journal of Development Economics Volume. 100(1): 32-47.

Freedman., D. 2020. "Increasing Timor-Leste's Global Competitiveness". Development Asia Policy Brief.

Grigoli, F., A. Herman, and A. Swiston. 2019. "A Crude Shock: Explaining the Short-Run Impact of the 2014–16 Oil Price Decline across Exporters". Energy Economics. 78: 481-493.

International Monetary Fund (IMF). 2013. "Dancing Together? Spillovers, Common Shocks, and the Role of Financial and Trade Linkages". World Economic Outlook, October.

_____. 2022. "Assessment of the Exchange Rate Regime". Timor-Leste 2022 Article IV Report, Annex V.

_____. 2024. "The Impact of Fiscal Policy on Growth in Timor-Leste". Timor-Leste Article 2023 IV Report, Box 1.

Koráb, P., J. Fidrmuc, and S. Dibooglu. 2023. "Growth and Inflation Tradeoffs of Dollarization: Meta-Analysis Evidence". Journal of International Money and Finance. 137: 1-20.

Mundell, R. 1961. "A Theory of Optimum Currency Areas". American Economic Review. 51: 657–665.

United Nations Development Program (UNDP). 2008. "Post-Conflict Economic Recovery". Crisis Prevention and Recovery Report.