Currency Devaluation and Export Promotion: Does the IMF Prescription work for Egypt?

تخفيض قيمة العملة وتشجيع الصادرات: هل تُجدي وصفة صندوق النقد الدولي نفعًا في مصر؟

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Abstract:

This paper investigates the impact of currency devaluation on export promotion in Egypt using the Autoregressive Distributed Lag (ARDL) model with annual data from 1990 to 2022. The results reveal that exports are strongly influenced by imports, while GDP and the exchange rate do not exert a statistically significant effect in either the short or long run. Error-correction estimates confirm the absence of a stable cointegrating relationship between exports and the exchange rate. Complementary elasticity analysis of Egypt's leading export and import products shows that exports often respond to global price changes, while essential imports such as energy remain inelastic and crucial for production. These findings point to a structural dependence of exports on imported inputs, which offsets the potential competitiveness gains of currency depreciation. The study concludes that effective export promotion in Egypt may require reducing import dependence, strengthening domestic supply chains, and enhancing productivity, with exchange rate policy playing only a supporting role.

Keywords: Currency Devaluation, Export Promotion, IMF, Exchange Rate

JEL Classification: F14, F31, O55

المستخلص:

تناولت هذه الورقة تأثير تخفيض قيمة العملة على تعزيز الصادرات في مصر وذلك باستخدام نموذج الانحدار الذاتي ذو الفارق الزمني الموزع (ARDL) مع بيانات سنوية من عام ١٩٩٠ إلى عام ٢٠٢٢. واكتشفت النتائج أن الصادرات تتأثر بشدة بحجم الواردات، في حين أن الناتج المحلي الإجمالي وسعر الصرف لا يمارسان تأثيرًا ذا دلالة إحصائية على المدى القصير أو الطويل. وأكدت تقديرات تصحيح الخطأ عدم وجود علاقة تكامل مشتركة مستقرة بين الصادرات وسعر الصرف. بينما أوضح تحليل المرونة التكميلية لأهم منتجات التصدير والاستيراد في مصر أن الصادرات غالبًا ما تستجيب لتغيرات الأسعار العالمية، في حين أن الواردات الأساسية مثل (الطاقة) غير مرنة وضرورية للإنتاج. وأشارت هذه النتائج إلى اعتماد هيكلي للصادرات على المدخلات المستوردة، مما يُعوض مكاسب القدرة التنافسية المحتملة لتخفيض قيمة العملة. خلصت الدراسة إلى أن الترويج الفعال للصادرات في مصر قد يتطلب تقليل الاعتماد على الواردات، وتعزيز سلاسل التوريد المحلية، وتحسين الإنتاجية، مع تقنين دور سياسة سعر الصرف كدورًا داعمًا فقط.

الكلمات الدالة: تخفيض قيمة العملة، تعزيز الصادرات، صندوق النقد الدولي، سعر الصرف

1. Introduction

One of the longstanding core recommendations of the International Monetary Fund (IMF) regarding Egypt and many developing countries has been the devaluation of the national currencies to promote exports. The reason behind this is actually quite simple: devaluation of the currency facilitates exports since goods will be cheaper to purchase and therefore will promote economic recovery. This suggestion has been made and implemented in a large number of developing countries in the context of more comprehensive stabilization programs meant to restore external equilibrium.

There is a great relevance of Egypt's experience in this regard. The country has entered into multiple agreements with the IMF, the most significant of which was the one in the aftermath of the 2016 economic reform program, which gave the central role to the sharp devaluation of the Egyptian pound. These agreements were intended to deal with the persisting fiscal deficits alongside dwindling foreign reserves and the long-term structural

problems of the economy. The expectation was that devaluation would power the export industry, increase foreign direct investment, and economic expansion. The expectation has been partially fulfilled, which raises doubts about the effectiveness of this technique in the Egyptian case.

This paper aims to test the validity of the common hypothesis that currency devaluations can promote the exports of goods and services. That is, the paper analyzes the impact of the IMF's agreement of currency devaluation on promoting Egyptian exports during the period from 1990 to 2022. The paper contributes by checking the extent to which devaluation has translated into sustained export growth and whether certain aspects of Egypt's exports and imports have influenced the effectiveness of this strategy.

2. Currency devaluation in Egypt: A historical context

The recent devaluation of the Egyptian pound was one of the most significant in Egypt's history, the largest since the pound was floated in 2003, and the largest since the 13.3% overnight devaluation on 14 April 2002 (Kiyasseh & Gumino, 2019). And yet the moment the pound was floated in 2003, most analysts saw devaluation as inevitable throughout the loan agreements Egypt signed, alongside a loan worth $2.7 billion, which required conditions that made devaluation a part of a consistent economic policy. Egypt committed to a fiscal deficit-to-GDP ratio capped at 7.5% in FY2016/17, to prioritize fiscal consolidation, limiting subsidies earmarked for the energy sector and creating social safety nets, while the Central Bank of Egypt (CBE) was at the same time dedicated to non-intervention in the foreign exchange market. Identifying the importance of these conditions and the macroeconomic sticking points, the fear of devaluation loomed over expectations of when the pound would drop and by how much. In modern global capitalism, under the decentralized, whimsical process of currency exchange, a depreciation in the value of a currency could just as easily become a positive condition for economic development. The basic thinking on devaluation is that a move to a cheaper

currency makes a country's goods cheaper to foreigners, thereby promoting exports. In the case of Egypt, by the same token, a "weaker" pound would disincentivize imports, ultimately shifting the country's balance of trade in its favor. Observing exports and tourism, as well as the progress of the balance of payments as a whole, a virtuous performance is nowhere to be seen. Egypt's exports and the tourism industry should be observing a healthy comeback if the devaluation is doing its work—a much-needed change for tourism, which has experienced a steady decline since the uprisings of 2011. Instead, non-oil exports as a percentage of total exports have remained reasonably steady compared to historical levels at around 10-20%, while tourism remains substantially the larger portion of service exports, around two-thirds. Amplifying the discrepancy between devaluation's theoretical advantages and Egypt's lethargic performance on the ground is the ripening gulf between the bank's official inflation rate and what could be referred to as its true rate. The official rate issued by the CBE details consumer price inflation month by month. It could be expected, then, that the same institution creates an indicative price index to act as a reference to maintain the appearance of a rate that closely adheres to what is happening in shops and souks across the country. Nonetheless, numerous complexities arise that cause these indices to at best approximate what is occurring regarding price increases. Broadly speaking, this is owing to the vast informal economy, which consists, in accordance with varying estimates, of between two-thirds and three-quarters of all economic activity. It logically follows that the disparity between these two measures of inflation garners several problems. The first and most obvious issue is that this inflation mistake creates inefficiency and confusion in the marketplace. Price stability is necessary for smooth and predictable economic development, but moderation is the key. Rather, an inflation figure that is so sharply out of line with reality, either persistently too low or too high, is dangerous. Given the erratic nature of Egypt's politics and the parlous state of its economy, one significant sop to investor confidence would be the provision of an unambiguous inflation target. This would be much easier if the CBE's stated inflation

were both accurate and credible. Widening the point, officials' strident denials of the obvious mismatch echo throughout a hollowed performance of public administration. If it is true that the party is going to unquestionably decline the pound and a series of related measures are in place to counter the effects of this and provide a foundation for future export-driven growth, then is a "silent" depreciation the more effective policy, in that these agreements provide hard currency and confidence in the favor of the Egyptian economy? Such a reading of events does not account for the abrupt nature of the faltering pound, nor would it be possible to correlate these discrepancies with any published or official data. Nonetheless, it must be admitted that the gulf has been gradually opening since the beginning of 2016, though the stretches in inflation beginning in 2016 have significantly intensified this divergence. Possible explanations for this concerning the phenomenon have been to point to the growing development of the informal economy over this period. This explanation has some intuitive appeal but does not bear up to even cursory rigor: by its very nature, the informal economy would be excluded from washing with the official inflation rate, but it is unlikely that corruption and business would commence at precisely the point of CBE's inflation index.

3. Currency Devaluation: Theoretical Underpinnings

Several economic theories have been propounded to explain the effects of currency devaluation and the promotion of exports. Given the foregoing theoretical models, one can draw a few implications that could provide the basis for rationalizing policy measures regarding exchange rate devaluation and the promotion of exports. However, it is important for a developing country like Egypt not to seize upon these implications as though they were universal, but to consider them alongside Egypt's unique conditions.

Using a modified Ricardian model with a continuum of goods, examines the interplay between the exchange rate, diversification, and distribution. While trade patterns are determined by comparative advantage, the level of the exchange rate can create and hold

production in new sectors. A Ricardian framework is modified by a continuum of goods, represented by a distribution of productivity across sectors. The devaluation of the exchange rate is shown to encourage producers in disadvantaged sectors to diversify. The diversification of the economy during the transition makes the process sustainable. The magnitude and persistence of the devaluation has a non-monotonic effect on the distribution of profits across sectors during the transition. The export growth of a newly discovered sector is greater if the devaluation was found to be excessively large compared to its long-run optimum level. The sensitivity of the model to initial conditions, in the form of export intensity across sectors, is discussed. It is shown that, in the long run, a uniformity of sectoral export intensity would ensure lasting diversification of the economy. Furthermore, in accordance with the learning by doing hypothesis, subsequent to the discovery of a sector, profit redistribution across sectors is augmented, thus further deepening the comparative advantage of the newly discovered sector (Ramzi, 2010).

3.1 Impact on Trade Balance

Exchange rate pass-through to import prices (PPI) increases significantly after currency devaluation at the 20% threshold level. With regard to exchange rate pass-through, significant changes are only observed after the 20% devaluation (M. Badr & F. El-khadrawi, 2018). The exchange rate pass-through gradually decreases over time. The more import value is added to export goods, the higher the odds that the currency will appreciate. Precautions are required to handle endogeneity issues related to currency forecasting, as they forecast the future. Monetary policy credibility of trade partners has a different impact on trade flows and the trade balance. Large exchange rate adjustments are not consistent with macroeconomic stability; high inflation and volatile exchange rates can hurt real sector performance by raising uncertainty, raising risk, and increasing the costs of conducting business. The detrimental effects of exchange rate volatility on the real sector can be avoided in the Egyptian economy by using domestic currency for

Egyptian exports and imports instead of foreign currencies. Developed economies increase productivity and reduce import prices markedly after currency devaluation in line with a substantial J-curve effect. Post-devaluation import prices sensitivity falls, and productive options deteriorate, thereby triggering a significant reduction in import payments. The examined industry is parsed by manufacturing characteristics, including the capital intensity, the input/output ratio between domestically produced inputs and exported goods, and export orientation diversification. The findings so far indicate that exchange rate volatility significantly decreases export flows. However, after the devaluation of local currencies, trade of developing countries using local currency for the bilateral trade in RER is found to fall less after the frequency domain straight.

3.2 Inflationary Pressures

While the devaluation of the EGP would be expected to boost exports, there are other inflationary pressures arising from both trade and domestic non-trade sources. For one thing, most enterprises in the Egyptian manufacturing sector still import a certain percentage of intermediate inputs and a larger one of machinery and equipment. As import prices increase as a result of the pound devaluation, the cost of production of these producers rises. As a result of this, these producers may respond by raising the prices of their output. In addition to that, higher pound import prices will be passed on to domestic processors, especially those in manufacturing and construction sectors, since the effective protection for domestic production is reduced. As a result, the transfer of the world price decline to the domestic price would be weakened, and the domestic price would rise as a result. In addition to these pressures arising from imported costs, inflationary pressures may arise from non-traded goods due to a cost-push effect, provided the pound devaluation results in higher wages. The higher labor cost hike will lead domestic producers, especially highly wage goods sectors with considerable market power, to increase prices further.

These sources of higher prices (both traded and non-traded good inflation) are modeled in the analysis by inflows of positive marginal cost shocks affecting price setting of traded and non-traded goods sectors, and the nominal rigidities, it should be noted here, are present in the sectoral price setting equations. For traded goods, a price-setting curve is assumed to be given, while in the case of non-traded goods, prices are set on the basis of markup pricing over unit wages. Between the two sectors, factor mobility happens only in the labor market. Each sector's wage bill is determined by real wages in the respective sector and the number of workers employed. Due to the symmetry assumption, the wage index in each sector's price-setting equation matters as long as we consider a pair of symmetric equations. For traded goods firms, real wages also depend on the unemployment rate. The macroeconomic relationship under focus is that between inflation and excessive demand. This relationship is usually modeled in the form of the so-called Phillips curve that describes how inflation is set as a function of the output gap. The output gap itself is determined by the difference between an adaptive and a flexible wage rate. Adaptive wage rate, in turn, is modeled as a function of realized wage inflation. Flexible wage rates are determined by the expected future wage inflation. Household expectations of future wage inflation adjust gradually to the gap between realized and expected wage inflation, which is also known as the wage inflation gap equation. Employment is set in the labor market clearing condition of the labor market sector. Unemployment depends on aggregate demand and employment. Aggregate demand, which also determines the output gap, results from the sum of current sales of all firms. In the short term, prices are fixed, and thus employment adjusts to clear the labor market at the wage determined by the macroeconomic conditions (a U-shaped relation between wage inflation and employment).

4. Review of Empirical Literature

The relationship between export performance and devaluation has been the focus of extensive research with inconclusive empirical findings. Early works such as Magee (1973) introduced the J-curve effect, where it was argued that trade balances initially deteriorate following devaluation as import prices rise before ultimately increasing as exports in the adjusting industries increase. Rose (1990) studied 30 developing countries and determined that real depreciation will be beneficial to trade balances in the long run, as predicted by the Marshall-Lerner condition. Similarly, Bahmani-Oskooee and Miteza's (2003) meta-analysis found that devaluation is expansionary in developing countries' economies but also transmitted threats in terms of inflation and dependence on imports. Some other traditional studies, for instance, Goldberg and Knetter (1997), have concluded that exchange rate pass-through to export prices is incomplete, that is, firms prefer to absorb changes in the exchange rate rather than fully pass them through to foreign prices.

More recent empirical evidence (2010–present) provides a more detailed insight. Cheung et al. (2010) accounted for China's gradual devaluation as the cause of its export boom, although the benefits disappeared with an increase in the value chain. Bahmani-Oskooee and Hegerty (2010) pointed out that while depreciation will boost exports, volatility can be adverse to trade flows, particularly of primary commodities. Adewuyi (2016) illustrated that Nigeria's export benefit from devaluation was bound by structural weaknesses, such as reliance on imports. Rodrik (2008) and Eichengreen (2008) opined that undervaluation supports industrialization and development in emerging economies, but cautioned that high inflation and bad supply-side policies may destabilize the benefits. Studies like Amiti et al. (2019) and Bussière et al. (2020) indicated that in today's globalized supply chain world, the impact of devaluation is diluted. Furthermore, Frankel (2005) and Forbes (2019) highlighted the way in which financial imperfections, such as foreign currency debt, can undo projected export gains.

Moreover, A wide array of studies illustrates that movements in exchange rates exert a major influence on export performance, but the strength of the effect is based on the context of each economy. The IMF (2015), for example, looked at 60 economies over the course of three decades and concluded that a 10% depreciation in the currency of a country boosted net exports by about 1.5% of GDP, although the impact was hardly uniform across cases. Freund et al. (2012) also reported that in 92 countries, episodes of persistent "export booms" were strongly associated with currency devaluations, and that a 10-point reduction in the real exchange rate increased export growth by 3–7 percentage points in the developing world. Eichengreen and Gupta (2013) results proposed a different perspective: depreciation raises the exports of both goods and services but particularly impacts modern services, where competitiveness gains seem to pass through into market share more rapidly.

On the other hand, various country-level studies demonstrate the differences in global averages. In India, Bhattacharya and Reet (2018) found that nominal exchange rates did not have a direct impact on exports when volatility was constant, but the exchange rate remained important indirectly through its influence on prices. In Switzerland, Kohler and Ferjani (2019) showed that food and agricultural exports responded to exchange rate shocks, but with a delay, influenced by long-term contracts, inelastic demand, and widespread hedging. These studies indicate that exchange rate effects are not automatic: factors such as traded goods characteristics, firms' investment strategies, and market rigidities all influence how depreciation affects export performance.

Egypt provides a background in which to see both the pros and cons of devaluation. Bahmani-Oskooee and Kandil (2009) illustrated that depreciation was a long-run beneficiary in Egypt, Syria, and Tunisia, consistent with their export-led growth strategies. Similarly, El-Ramly and Abdel-Halim (2008) find that currency depreciation has an initial contractionary effect on Egypt's GDP for four years before the long-run expansionary

effect begins to emerge. On the export front, (Balimani-Oskooee et al., 2015a) find a positive relationship between exchange rate risk and Egypt's exports to the United States, but a negative relationship on Egypt's exports to the European Union across 59 industries (Bahmani-Oskoooee et al., 2015b).

The Egyptian Center for Economic Studies (2020), using disaggregated customs data, clarified that real exchange rate movements had strong effects on export values, mainly through quantities, but differed according to firm size, sectors, and product groups. Nour (2025), using World Bank enterprise surveys, depicted that real depreciation increased both intensive and extensive margins of exports by around 6 percentage points. Foreign and bigger companies, and also companies reliant on imported inputs, were able to turn depreciation into competitiveness gains, as they could absorb or offset higher expenses. Such company-level studies show that while currency depreciation can indeed advance export performance, the benefits are biased. They also stress complementary policy actions—such as input cost pressure reduction, improving sectoral competitiveness, and global market integration facilitation—to make exchange rate adjustments support a lasting export promotion.

Overall, the evidence is that devaluation can complement export promotion in particular conditions but is far from a given policy. Positive impacts depend on the elasticity of trade flows (Marshall-Lerner condition), export sector composition in manufacturing versus primary goods, macroeconomic stability in terms of inflation and stocks of external debt, and structural policies promoting productivity and diversification. Exchange rates in value chains must include input dependence, weakening devaluation gains. Additional work needs to address nonlinearities, such as thresholds over and above which further devaluation can be contractionary, and the new role for electronic trade in reconstituting traditional currency-export dynamics. To this extent, whereas devaluation is a powerful policy tool, it is subject to conditions and needs to be accompanied by other reforms.

5. Methodology:

To investigate the effects of currency devaluation on export promotion, the Autoregressive Distributed Lag (ARDL) model is to be estimated, and can be specified as follows:

$$\textbf{Exports t} = \alpha_0 + \sum_{i=1}^{p} \alpha i \ \textbf{exports t} - 1 + \sum_{j=0}^{q} \beta j \ \textbf{imports t} - j + \sum_{k=0}^{r} \gamma k \ \textbf{GDP t} - k + \sum_{l=0}^{s} \delta l \ \textbf{exchnage rate t} - 1 + \epsilon t \quad \text{.....(1)}$$

Where,

Exports: Exports of goods and services (% of GDP)

Imports: Imports of goods and services (% of GDP)

GDP: GDP (constant 2015 US$)

Exchange Rate: Exchange rate (average), i.e., units of local currency per US dollar.

Data on exports, imports, and GDP, are drawn from *World Development Indicators* of the World Bank, while the exchange rate of the Egyptian pound against the U.S. dollar is drawn from the Central Bank of Egypt.

The ARDL method is well-suited to such a test since the technique can be utilized irrespective of whether the variables are of order zero, I(0), or one, I(1), integration without pre-test identification of common integration orders. The method is particularly convenient for macroeconomic series such as exports, imports, GDP, and the exchange rate, which are often characterized by mixed stationarity properties. Second, the ARDL approach allows joint estimation of short-run relations as well as long-run equilibrium relations in the same model. The twofold advantage of this ability should be taken into account while studying the impact of currency devaluation since it helps in distinguishing the short-run fluctuations in exports following exchange rate movements from the longer-run impacts defining the nation's external sector performance.

5.1 Lag selection

To determine the lag order of the ARDL model, these orders are chosen by minimizing the Akaike Information Criterion (AIC) across candidate models. The AIC balances model fit against complexity, rewarding specifications that explain the data well while penalizing those that add unnecessary parameters. In this way, the procedure ensures that the selected lag structure is both statistically efficient and parsimonious, avoiding problems of overfitting while retaining the essential dynamics of the variables. The AIC can be estimated using the following equation;

$$AIC = -2\ln(L) + 2k \quad \ldots\ldots\ldots\ldots(2)$$

Where:

- L is the maximum likelihood of the estimated model
- K is the number of estimated parameters (intercept + all lag coefficients across Exports, Imports, GDP, EXR).

Table 1: AIC Lag Selection Model

Model (p,q,r,s)	AIC
(1,2,0,0)	**135.4**
(1,1,0,0)	137.8
(2,1,0,0)	138.6
(1,3,0,0)	139.1
(2,2,0,0)	140.0
(1,1,1,0)	141.2
(2,1,1,0)	142.3

Lag length selection was carried out using the classical routine, which evaluates all possible ARDL specifications up to three lags. Based on the AIC, the preferred specification was ARDL(1,2,0,0), with an AIC value of 135. This implies one lag for

Exports and two lags for Imports, while Exchange Rate and GDP were excluded, as their inclusion did not improve the model fit sufficiently to offset the cost of additional parameters. Accordingly, the final model retained Exports lagged once and Imports at contemporaneous, first, and second lags.

6. Results and Discussion

In the process of lag selection, the model considered up to three lags for all variables—Exports, Imports, GDP, and the Exchange Rate. The algorithm then evaluated for each specification using the AIC and identified ARDL(1,2,0,0) as the optimal model, meaning one lag for Exports, two lags for Imports, and zero lags for both GDP and the Exchange Rate. In practice, "zero lags" indicates that although GDP and the Exchange Rate were tested in various forms (contemporaneous and lagged), their inclusion did not improve model fit sufficiently to offset the cost of additional parameters. As a result, they were excluded from the final specification.

Table 2: ARDL (1,2,0,0) Estimation

Variable	Coefficient	Std. Error	z-statistic	p-value
Constant	–0.998	3.466	–0.288	0.776
Exports (t–1)	**+0.777**	0.159	4.878	0.000 ***
Imports (t)	**+0.782**	0.147	5.324	0.000 ***
Imports (t–1)	–0.371	0.195	–1.902	0.068 *
Imports (t–2)	–0.201	0.135	–1.490	0.148

The ARDL(1,2,0,0) estimation results indicate that exports in Egypt are highly persistent, with a strongly significant positive coefficient on the first lag of Exports (0.777, $p<0.01$). Imports also play a central role in explaining export performance: contemporaneous

imports have a large positive and highly significant effect (0.782, $p<0.01$), while the first and second lags of imports exert negative effects (–0.371 and –0.201), suggesting that although imports boost exports immediately, their influence diminishes and partially reverses over time.

Conversely, the exchange rate does not appear in the final model specification. This is due to the AIC lag-selection procedure, which determined that it did not pay to include the exchange rate (either the contemporaneous or lagged values) as it did not increase the explanatory power of the model. That is, nominal exchange rate changes did not have a statistically significant short-run effect on exports in the short run.

6.1 Error-Correction Representation of the ARDL (1,2,0,0) Model

The ARDL(1,2,0,0) specification is re-parameterized into an error-correction form (ECM) that distinguishes between short-run changes (first differences) and the long-run equilibrium adjustment (the levels block). The general ECM form implied by the ARDL(1,2,0,0) is:

$$\Delta Exports_t = c + \phi\, Exports_{t-1} + \theta\, Imports_{t-1} + \psi_0\, \Delta Imports_t + \psi_1\, \Delta Imports_{t-1} + u_t, \quad (3)$$

where:

- c is the intercept,
- ϕ is the error-correction (speed of adjustment) parameter,
- θ captures the long-run effect of imports,
- ψ_0 and ψ_1 capture the short-run impact of changes in imports.

Table 3: ECM Model Estimations

Parameter	Definition	Mapping from ARDL coefficients	Estimate	Interpretation
c	Constant	Intercept	–0.998	Baseline shift term
ϕ	Speed of adjustment (ECT coefficient)	$\alpha_1 - 1$	–0.223	About 22% of disequilibrium corrected per year
θ	Long-run weight on Imports (level term)	$\beta 0+\beta 1+\beta 2$	+0.210	Contribution of imports to long-run exports
ψ_0	Short-run effect of ΔImports $_t$	$\beta 0$	+0.782	Immediate impact of import changes
ψ_1	Short-run effect of ΔImports $_{t-1}$	$-\beta 2$	+0.201	One-period lag effect of import changes

Table 3 above shows that the estimated ECM shows exports change gradually towards their long-run path, with the speed of correction being around 22 percent per annum ($\phi=-0.223$). Imports exert a positive influence both in the short and the long run. The short-run coefficients ($\psi 0=0.782$, $\psi 1=0.201$) indicate that the changes in imports have a direct as well as lagged positive effect on exports. The implied long-run elasticity, $-\theta/\phi \approx 0.94$, indicates that a one-percent increase in imports would boost exports by nearly one percent in the long run, though this result should be interpreted cautiously given that cointegration was not statistically confirmed.

Overall, in the estimated models, the exchange rate does not appear to have an important impact on exports, either in the short or the long term. In the AIC-selected ARDL (1,2,0,0), the exchange rate variable was dropped entirely, indicating that contemporaneous or lagged exchange rate changes did not improve the fit of the model. This suggests that export performance in the short run is not directly responsive to changes in currency, a finding which is in line with the structure of Egypt's trade sector where

exports embody a large share of imported intermediate inputs. Any competitive advantage of currency devaluation is then offset by the higher cost of imported inputs, and hence the short-run relationship is statistically insignificant. Even in the long run, the unrestricted ECM that included the exchange rate also failed to show any proof of cointegration between exports and exchange rate, imports, and GDP. The level term of the exchange rate was statistically insignificant, and the bounds test statistic also failed to cross the upper critical value, reconfirming the absence of a stable equilibrium relationship. Taken together, these results imply that nominal exchange rate changes, whether permanent or temporary, are not a significant determinant of Egypt's export performance. Instead, exports are more strongly determined by the volume of imports, pointing to the structural dependence of Egypt's export potential on imported inputs and raw materials instead of exchange rate policy.

Briefly, the short-run changes of Egypt's exports are not explained directly by GDP growth or nominal exchange rate movements. Instead, the dynamics are imported to a great extent by imports, echoing the strong reliance of Egyptian exports on imported inputs and global supply chain linkages. The result is consistent with the structure of Egypt's trade sector, in which exports are import-dependent to a large degree and relatively price-inelastic. Consequently, depreciation of the exchange rate is unlikely to increase exports in the short run as higher import prices of intermediate and capital goods nullify potential competitive gains.

The results are opposite to the conventional expectation of the elasticity approach and the Marshall–Lerner condition, that depreciation of the currency should boost exports by lowering the foreign price of domestically produced goods. Empirical evidence in the majority of developing and emerging economies has corroborated this channel, where devaluation improved trade balances and boosted export volumes (Bahmani-Oskooee and Niroomand, 1998; Bahmani-Oskooee and Ratha, 2004). Similarly, the IMF has repeatedly

advocated for exchange rate flexibility as a method of enhancing external competitiveness in economies that have chronic current account deficits (IMF, 2016; IMF, 2020).

Yet the Egyptian experience diverges from this theoretical expectation. Movements in the exchange rate, both in the short and the long term, do not exert a statistically significant impact on exports. Exports respond more elastically to imports, which reflects the structural reality that Egypt's export sector is heavily dependent on imported raw materials, intermediate goods, and capital goods.

6.2 Export and Import Elasticities.

The results of the model gain greater clarity when interpreted alongside the behavior of Egypt's leading export and import categories. Examining the price elasticities of the country's top traded goods allows us to connect the aggregate findings with the structural realities of the trade sector. For instance, identifying which export categories are most price-sensitive and which imports most significantly impact export potential provides a more concrete understanding of the dynamics as estimated by the ARDL–ECM methodology. Not only does this product-level perspective indicate how specific industries are driving the aggregate results, but also where policy initiatives can most usefully be directed. To illustrate, if it is discovered that certain export items such as steel or aluminum, have positive elasticities. In that case, this reflects supply-driven expansion during global price booms, whereas agricultural exports, such as wheat or fruits, may display inelastic demand characteristics. In the same way, identifying the most import-dependent categories helps explain why the exchange rate has a limited impact on exports, since imported inputs form the backbone of export production.

To estimate price elasticities, the analysis focuses on Egypt's leading export and import categories. Data were obtained from the UN Comtrade database (uncomtrade.com), which provides trade values but does not consistently report net weight at the aggregated chapter

level. Since net weight is necessary to construct unit prices, this poses a limitation for elasticity estimation at the broader category level. To overcome this challenge, the study adopts a proxy approach by using selected subchapters for which both trade value and net weight are available. These subchapters are carefully chosen to be representative of their parent categories and to preserve consistency in measurement. Moreover, because these subchapters account for a substantial share of trade within their respective chapters, they provide a reliable approximation of the broader category's behavior. The selected proxies, which form the basis of the elasticity calculations, are reported in the following table.[1]

Table 4: Leading Egyptian Exports Chapters and Subchapters

HS Chapter	Sector	Largest Subchapter
27	Mineral fuels & oils	**HS 2711** (Liquefied natural gas & petroleum gases)
39	Plastics	**HS 3901** (Polymers of ethylene)
85	Electrical machinery	**HS 8544** (Insulated wires & cables)
72	Iron & steel	**HS 7208** (Hot-rolled flat products of iron/steel)
08	Fruit & nuts	**HS 0805** (Citrus fruits, esp. oranges)
31	Fertilizers	**HS 3102** (Nitrogen fertilizers, esp. urea)
62	Apparel, non-knit	**HS 6203** (Men's/boys' suits & ensembles)

[1] This proxy approach is widely applied in trade elasticity research when aggregated data are incomplete, since subchapters often capture the dominant share of a category's trade and thus serve as a practical and reliable substitute.

HS Chapter	Sector	Largest Subchapter
07	Vegetables	**HS 0709** (Other fresh vegetables – tomatoes, etc.)
76	Aluminum	**HS 7601** (Unwrought aluminum)

Source: UNComtrade.com

Table 5: Leading Egyptian Imports Chapters and Subchapters

HS Chapter	Sector	Largest Subchapter
27	Mineral fuels & oils	HS 2710, 2709
84	Industrial machinery	Not detailed
87	Motor vehicles & parts	HS 8703 (cars)
10	Cereals	HS 1001 (wheat & meslin)
85	Electrical machinery & equipment	Not detailed
39	Plastics & articles	Not detailed

Source: UNComtrade.com

To estimate the responsiveness of exports and imports to price changes, elasticities are calculated for the dominant subchapters of the leading exports and imports of Egypt using the log–log specification:

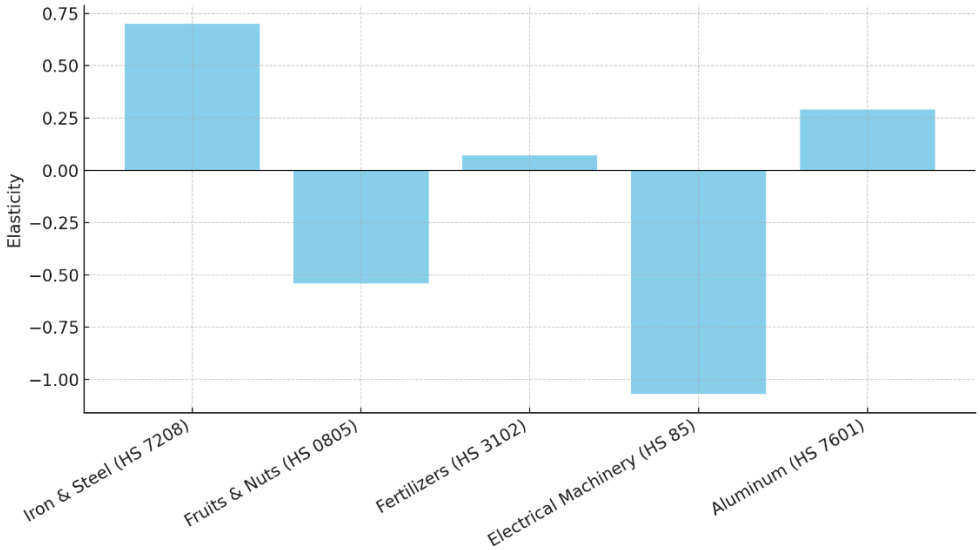
$$\ln(Qt) = \alpha + \beta \ln(Pt) + \varepsilon t \quad \text{.....(4)}$$

where Qt denotes the trade quantity (exports or imports in net weight), Pt is the unit price (measured as trade value divided by quantity), and β is the estimated price elasticity. An elasticity of $\beta<0$ indicates that quantities fall as prices rise (demand-type behavior), while

β>0 suggests that quantities expand with higher prices (supply-driven or contract-dominated behavior).

Table 6: Export Price Elasticities by Product (2013–2024)

Product (HS Code)	Elasticity	R^2	Obs.	Interpretation
Iron & Steel (HS 7208)	+0.70	0.16	12	Positive, supply-driven exports linked to global steel prices.
Fruits & Nuts (HS 0805)	–0.54	0.61	6	Inelastic; exports fall modestly as prices rise, reflecting stable external demand.
Fertilizers (HS 3102)	+0.07	0.00	11	Price-neutral; long-term contracts and stable global demand dominate.
Electrical Machinery (HS 85)	–1.07	0.10	4	Elastic; higher prices sharply reduce demand due to global competition.
Aluminum (HS 7601)	+0.29	0.03	12	Mildly positive; capacity-driven expansion in unwrought aluminum.
Vegetables (various HS)	—	—	—	Insufficient data for estimation.



Graph 1: Export Price Elasticities for five leading exports (2013 – 2024)

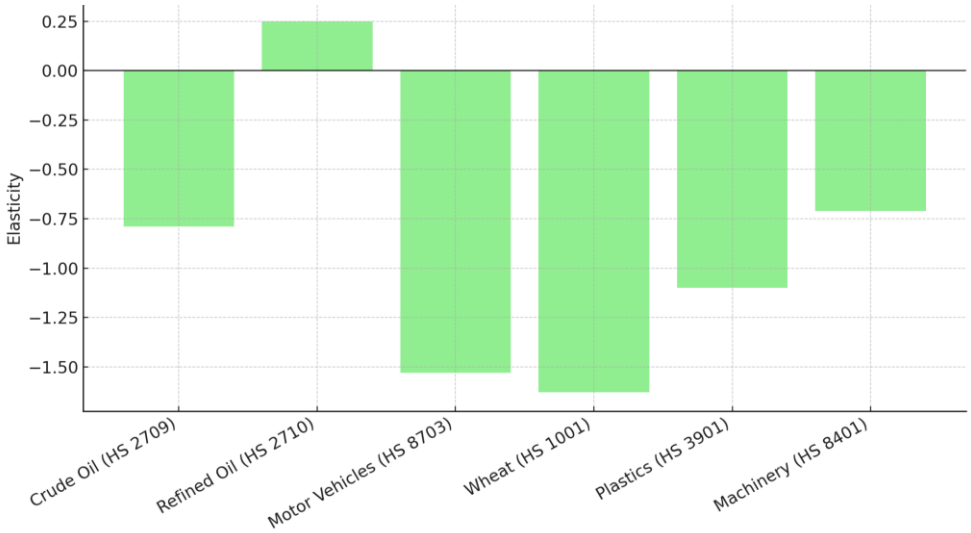
The product-level elasticity results provide important context for understanding the findings of the ARDL and ECM models. On the export side, commodities such as iron and steel and aluminum show positive elasticities, meaning that export volumes expand with higher prices. This pattern reflects supply-driven behavior, where Egypt increases output when global prices rise, rather than responding directly to competitiveness gained through exchange rate depreciation. Agricultural products such as fruits and nuts exhibit inelastic demand, suggesting stable markets abroad, while manufactured exports like electrical machinery are highly elastic, contracting sharply as prices rise. Taken together, these patterns indicate that Egypt's export sector is not uniformly price-sensitive in the conventional sense, and this helps explain why the ARDL model did not find a significant role for the exchange rate in the short or long run.

Table 6: Import Price Elasticities by Product (2013–2024)

HS Code	Product Category	Elasticity	R^2	Obs.	Interpretation
2709	Crude petroleum oils	–0.79	0.19	12	Inelastic; imports decline with higher prices but less than proportionally, reflecting essential demand.
2710	Refined petroleum oils/products	+0.25	0.04	6	Weak positive; imports continue despite price increases, driven by energy security needs.
8703	Motor vehicles	–1.53	0.90	8	Highly elastic; demand for cars falls sharply as prices rise.
1001	Wheat & meslin	–1.63	0.95	3	Very elastic; wheat imports adjust strongly to global price movements, though results rely on limited observations.
3901	Plastics (polymers of ethylene)	–1.10	0.28	8	Elastic; demand contracts as prices rise.

HS Code	Product Category	Elasticity	R^2	Obs.	Interpretation
8401	Nuclear reactors/boilers/machinery	–0.71	0.86	3	Moderately inelastic; essential capital goods are still imported even at higher costs.

On the import side, elasticities underscore the structural dependence of exports on imported inputs. Essential imports such as crude petroleum are inelastic, while refined petroleum even shows a weakly positive elasticity, reflecting the necessity of energy imports regardless of cost. Highly elastic categories such as wheat, vehicles, and plastics demonstrate that some imports respond strongly to price changes, but these adjustments do not alter the fundamental reliance on imports as a driver of export capacity. In the ARDL specification, imports emerged as the most important explanatory variable for exports, dominating exchange rate and GDP. This outcome aligns with the elasticity evidence: since many of Egypt's key exports rely on imported raw materials and energy, the link between imports and exports is both strong and immediate in the short run, while the absence of a stable long-run relationship with the exchange rate reflects the fact that competitiveness gains from devaluation are offset by the rising costs of these essential imports.



Graph 2: Import Price Elasticities for five leading imports (2013 – 2024)

In short, this structural import dependence on intermediate and capital good imports lessens the devaluation to export growth transmission channel: while depreciation decreases the price of exports on the foreign market, it also raises the price of imported inputs required for consumption, thus negating any competitiveness gain. The absence of cointegration between the exchange rate and exports shows that currency policy alone is not sufficient to generate export-led growth in Egypt.

This follows more recent research into Middle Eastern and North African economies, which stresses that where an economy's production patterns are import-intensive, the effectiveness of exchange rate devaluation is limited (Sekkat and Varoudakis, 2000; El-Sakka and McNabb, 1999). Egypt's policy is therefore that export growth must overcome more fundamental structural constraints—e.g., reducing reliance on imports, raising domestic productivity, and widening the export base—above and beyond exchange rate devaluation.

7. Conclusion:

This paper tries to investigate the relationship between exports of Egypt and the value of the Egyptian pound over the period from 1990 to 2022. The evidence provided by the results from the ARDL and ECM estimations, together with the product-level elasticity analysis, suggests that the traditional channel through which currency devaluation is expected to stimulate exports does not hold strongly in the Egyptian case. The ARDL results showed that exports are driven primarily by imports, while the exchange rate and GDP play no statistically significant role in either the short or long run. The elasticity calculations support this finding, revealing that many of Egypt’s key exports expand in response to global price booms rather than exchange rate movements, while essential imports such as energy and raw materials remain largely inelastic and indispensable for

production. Overall, such findings highlight Egypt's structural import dependence as the main export performance determiner. Export expansion in Egypt must shift from seeking exchange rate devaluation as a tool for competitiveness and instead minimize import dependence, diversify production, and strengthen domestic supply chains.

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