



Exchange Rates and SME Exports in South Korea

Evidence from Monthly Data, 2010-2019

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Introduction

South Korea's economy and its growth model rely heavily on merchandise exports, but these exports are dominated by large conglomerates, while small and medium enterprises (SMEs) remain under-represented in foreign markets. Even if aggregate exports responded weakly to exchange rate changes, the composition of exports across firm sizes could still shift in important ways.

This paper asks how movements in the Korean won's exchange rate affects both the growth and the composition of South Korea's merchandise exports, focusing on firm-size composition rather than aggregates. Using monthly data on SME and total exports, the real effective exchange rate (REER), and the bilateral USD/KRW rate. This paper combines descriptive charts with simple time-series regressions for export growth and the SME export share.

The analysis found that the exchange rate movements had little explanatory power for monthly SME or total export growth, but they are systematically related to the composition of exports: periods of the won depreciating were associated with a higher SME share in total merchandise exports. These results suggest that, in normal times, the exchange rate matters more for those who export than for the aggregate volume of exports.

LITERATURE AND BACKGROUND

A large empirical literature examines how exchange rate movements affect aggregate trade flows. Some studies, such as the IMF's 'Exchange Rates and Trade Flows: Disconnected?' chapter, argue that global value chains may have weakened the traditional relationship, although they still find statistically significant effects on total exports and imports. Other works stress that exchange rates continue to matter for trade, but that elasticities vary widely across countries and sectors.

For Korea, recent research from Ewha University found that export elasticities with respect to the exchange rate and global demand could vary across regimes, but the focus remained on total export rather than on the composition across firm sizes.

DATA AND METHODS

This study uses monthly data on South Korea's merchandise exports and exchange rates from January 2010 to December 2019. The export data distinguishes between SMEs, high-potential enterprises (HPEs), and large enterprises (LEs), along with total merchandise exports, which were drawn from KOSIS, Korea's national online portal for national statistics. Exchange rate variables include the REER, which summarizes the won's value against a broad basket of trading-partner currencies and the bilateral USD/KRW rate, which captures movements against the US dollar that feature prominently in policy debates.

The analysis constructs several key variables from these series. Export composition is measured by the shares of SME, HPE, and LE exports in total merchandise exports, while export dynamics are captured by month-on-month growth rates for SME, HPE, LE, and total exports. To summarize the stability of these flows, the paper computes a rolling 12-month standard deviation of the growth rates and of the export shares, which serve as a simple measure of time-varying volatility in both export quantities and export composition.

The empirical strategy relies on a set of one-equation ordinary least squares regressions estimated on monthly data from 2010 to 2019, deliberately excluding the COVID and post-COVID period to avoid pandemic-related distortions. In the composition regressions, the dependent variables are the SME, HPE, or LE export shares, and the sole regressor is either the REER or the USD/KRW rate, with each exchange rate measure entered in separate specifications. In the growth regressions, the dependent variables are the corresponding MoM export growth rates (for SMEs, HPEs, LEs, or total exports), again regressed separately on the REER or USD/KRW, allowing a direct comparison between how exchange rate movements relate to export levels, composition, and short-run growth.

DESCRIPTIVE STATISTICS

Table 1 reports average export shares by firm size over 2010-2019, together with their standard deviations. SMEs account for about 18.6% of Korea's merchandise exports on average, compared with 15.9% for HPEs and 65.4% for LEs, confirming that the export base remains heavily skewed toward large firms despite the policy emphasis on SMEs.

	SME	HPE	LE
Average Export Shares	18.6%	15.9%	65.4%
σ	1.4%	1.6%	2.0%

Table 1

The standard deviations of these shares are 1.4 percentage points for SMEs, 1.6 points for HPEs, and 2.0 points for LEs, indicating that while composition is stable overall, there is meaningful month-to-month variation, particularly for larger firms.

Over the same period, the REER of the won fluctuates around an average level of 100.40 with a standard deviation of 5.1741, while the bilateral USD/KRW rate averages 1,121.34 with volatility 46.4137. These values suggest that the sample includes several episodes of meaningful appreciation and depreciation, providing enough variation to study how changes in the won's value relate to export outcomes.

Monthly export growth rates are substantially more volatile than export shares, and the volatility is not evenly distributed across firm types. The 12-month rolling standard deviation of SME export growth is higher than that of total and LE export growth, and the rolling SD of the SME export share exceeding that of the LE share, consistent with SMEs acting as a more adjustable margin in Korea's export sector.

Results

FOREIGN EXCHANGE RATES AND EXPORT SHARE

The regression results indicated that movements in the exchange rate are systematically related to the composition of Korea's merchandise exports by firm size. The SME export share is negatively associated with the REER ($\beta \approx -0.0008$, $p < 0.001$) and positively associated with USD/KRW ($\beta \approx 0.00013$, $p < 0.001$), implying a weaker won is accompanied by a higher SME share in total exports, with the USD/KRW regressions explaining around 17 percent of SME-share variation. In contrast, the LE export share had coefficients of the opposite sign (REER $\beta \approx -0.0013$, USD/KRW $\beta \approx -0.00018$, both highly significant), so depreciations that raise SMEs' share tend to reduce the share of LEs. HPEs showed a particularly strong positive relationship with the REER ($\beta \approx 0.0022$, $R^2 \approx 0.47$), while their link to USD/KRW is weak and statistically insignificant, suggesting that REER movements mattered more for their export position than bilateral won-dollar fluctuations.

To gauge economic significance, consider a depreciation of the won against the dollar of about 5%, which is roughly the size of several short-run moves in the sample. With an estimated coefficient of about 0.00013 on USD/KRW, such a depreciation would raise the SME export share by roughly 0.6 percentage points, from an average of 18.6% to around 19.2%. While small in absolute terms, this change is close to half of the standard deviation of the SME share (1.4 percentage points), indicating that typical exchange rate swings can generate non-trivial shifts in which firms account for Korea's exports even when total export volumes hardly move.

FOREIGN EXCHANGE RATES AND EXPORT GROWTH

The growth regressions confirmed that exchange rate movements had little explanatory power for short-run export dynamics. For SMEs, HPEs, LEs, and total exports, the estimated coefficients of both REER and USD/KRW rate on MoM growth were very small and never statistically significant; t-statistics are close to zero, and p-values are all well above conventional thresholds. The associated R^2 values are essentially zero, never exceeding about 0.3 percent, indicating that exchange rate fluctuations account for almost none of the observed variation in monthly export growth. Taken together with the composition regressions, these results suggest that, in normal times, the value of the won is closely linked to who exports, but not to the overall pace of export expansion or contraction from month to month.

GROWTH RATES AND ROLLING STANDARD DEVIATION

The rolling-volatility measures showed that SMEs experienced markedly more unstable export growth than other firm types. Over 2010-2019, the average 12-month rolling standard deviation of SME export growth is about 11.6%, compared with 9.0% for HPEs,

8.5% for LEs, and 8.2% for total merchandise exports. This indicates that SMEs face substantially larger month-to-month swings in foreign sales than the export sector as a whole. This pattern is consistent with the view that SMEs constitute a more flexible but also more vulnerable margin of Korea's export engine, adjusting more sharply to changing domestic and external conditions although large firms continue to dominate overall export volumes.

REGRESSIONS OF ROLLING STANDARD DEVIATION

The regressions of rolling-window volatility on exchange rates suggested that foreign exchange rates explained very little of the time-variation in export volatility. For SMEs, the coefficient of both REER and USD/KRW on the 12-month rolling standard deviation of export growth are tiny, statistically insignificant (p-values above 0.1), and associated with R^2 values effectively at zero, indicating that changes in the won's value do not systematically raise or lower SME growth volatility over time. Similar patterns hold for HPEs and large enterprises: most coefficients are insignificant and the R^2 statistics remain below about 1 percent, with only a modest and borderline significant relationship between the rolling volatility of total export growth and the USD/KRW rate. Overall, these results reinforce the idea that the higher volatility of SME exports is an intrinsic feature of firm size and sectoral composition, rather than a direct consequence of exchange rate fluctuations.

ROBUSTNESS CHECKS

A set of simple robustness exercises suggests that the main findings are not sensitive to particular sample choices or functional-form assumptions. Excluding a small number of months with exceptionally large exchange rate movements leaves the estimated coefficients on REER and USD/KRW for SME and LE export shares virtually unchanged in sign and magnitude, with periods of won depreciation still associated with a higher SME share and a lower LE share in total exports. Using log export shares instead of levels likewise delivers very similar qualitative patterns, and adding a lagged exchange rate term does little to raise the explanatory power of the regressions or to alter the core result that exchange rate movements are closely linked to export composition but explain almost none of the month-to-month variation in export growth.

Discussion

Existing studies often find that exchange rate movements now have relatively modest effects on aggregate trade flows, especially in economies tightly integrated into global value chains, even when statistically significant elasticities can be estimated at the macro level. The results in this paper are consistent with that view for Korea: the regressions show that REER and USD/KRW movements explain almost none of the month-to-month variation in total export growth, yet they are clearly related to how exports are distributed

across firm sizes. In that sense, the exchange rate appears to operate more through compositional margins than through large swings in aggregate quantities.

The main finding is that a weaker won is systematically associated with a higher SME export share and a lower LE share, while leaving overall export growth largely unchanged. At the same time, SMEs exhibit substantially more volatile export growth than large firms or total exports, but additional regressions on rolling standard deviations show that this extra volatility is not tightly linked to exchange rate movements. Together, these patterns suggest that exchange rate changes reallocate export opportunities at the margin - toward SMEs and away from LEs - without generating large or predictable changes in Korea's aggregate export volume.

There are several plausible mechanisms behind these compositional effects. SMEs may benefit more from depreciations as they compete primarily on price in relatively low-margin segments, so a weaker won translates more directly into improving foreign-currency prices and market access, whereas large conglomerates often have stronger brands, more diversified currency exposure, and greater ability to hedge, reducing their sensitivity to short-run foreign exchange changes. At the same time, the dominance of LEs in total exports means that even sizeable percentage changes in SME sales translate into relatively small shifts in aggregate volumes, helping explain why this paper finds strong effects on who exports but only muted on how much Korea exports overall.

Limitations and further research

This paper has several limitations that should be considered when interpreting the results. First, the data are monthly aggregates by firm size, so the paper does not observe firm-level heterogeneity in how individual SMEs or LEs adjust to exchange rate movements. Second, the empirical strategy relies on one-equation OLS regressions with the exchange rate as the regressor, without controlling for other determinants of exports such as global demand or supply chain shocks. Third, the sample ends in 2019 and deliberately excludes the COVID and post-COVID period, so the findings speak to 'normal times' and may not generalize to crisis episodes.

These limitations point naturally to several directions for further research. One avenue would be to extend the regressions by adding controls such as indicators of global industrial production, partner-country GDP, or commodity prices, in order to separate the role of exchange rates from broader external conditions. Another would be to move from aggregate size-class data to firm-level customs records, allowing a richer analysis of how entry, exit, and intensive-margin adjustments differ between SMEs and large firms when the won moves. A third extension would be to explore sector-level patterns, asking whether the compositional effects documented here are concentrated in particular industries, and to examine whether they changed in the aftermath of the COVID shock and the subsequent period of heightened exchange rate volatility.

Policy implications

The results have clear implications for how Korean policymakers should think about exchange rates and SME support. The weak relationship between the won and the aggregate export growth suggests that relying on exchange rate movements alone is not a reliable strategy for boosting total exports in normal times, even though Korea remains a highly open, export-dependent economy, and even a typical 5% depreciation only raises the SME export share by roughly 0.4-0.6 percentage points. At the same time, the significant and opposite-signed effects of REER and USD/KRW on SME and LE export shares indicate that depreciations do change who benefits at the margin, temporarily tilting export opportunities toward smaller firms rather than durably raising overall export volumes.

These findings point to a complementary role for targeted SME policies alongside macro and exchange rate management. If periods of won depreciation systematically raise SMEs' share in merchandise exports, then measures such as export-credit guarantees, trade-finance facilities, support for foreign marketing and distribution, and better access to hedging instruments can help SMEs scale up and sustain new foreign market entries during these windows, instead of letting the gains dissipate once the exchange rate stabilizes again. More broadly, the dominance of large conglomerates in Korea's export base implies that policies aimed at diversifying the exporter pool-by easing fixed costs of exporting and strengthening SME capabilities – are likely to matter more for long-run export growth and resilience than attempts to engineer specific exchange rate levels.

Conclusion

This paper examined how movements in the Korean won are related to both the growth and the composition of South Korea's merchandise exports across firm sizes over 2010-2019. Using monthly data on exports by SMEs, HPEs, and LEs, together with measures of the REER and USD/KRW rate, the analysis combined descriptive statistics, simple time-series regressions, and rolling-volatility measures to compare composition effects with aggregate export responses. The results show that exchange rate fluctuations now have only a modest and statistically weak relationship with month-to-month export growth but remain closely linked to who exports.

Across specifications, periods of won depreciation are systematically associated with a higher SME export share and a lower LE share in total merchandise exports, particularly in the USD/KRW regressions, while aggregate export growth and volatility were largely unaffected. SMEs also exhibited substantially more volatile export growth than LEs or total exports, yet this volatility appears to reflect intrinsic features of firm size and sectoral composition rather than a direct effect of exchange rate movements. Taken together, these findings suggest that the exchange rate in Korea operates primarily through

compositional margins, reallocating export opportunities at the margin toward smaller firms, rather than through large and predictable changes in overall export volumes.

From a policy perspective, the weak link between the won and aggregate export growth implies that exchange rate movements alone are an unreliable instrument for boosting total exports in normal times, even in an economy like Korea. At the same time, the systematic but moderate compositional effects documented here point to a complementary role for targeted SME policies that help smaller firms take advantage of temporary windows created by depreciations. Future work incorporating additional controls, firm-level data, and sectoral detail could further clarify the mechanisms behind these patterns and assess whether they have persisted or changed in the post-COVID period of heightened exchange rate volatility.

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APPENDIX

Variable	Definition	Source
SME Exports	Monthly value of small and medium-sized enterprise merchandise exports	KOSIS, “Exports by Region and Enterprise Size (Monthly)”
High-Potential Enterprise (HPE) Exports	Monthly value of high-potential enterprise merchandise exports	KOSIS, “Exports by Region and Enterprise Size (Monthly)”
Large Enterprise (LE) Exports	Monthly value of large enterprise merchandise exports	KOSIS, “Exports by Region and Enterprise Size (Monthly)”
Total Exports	Total monthly merchandise exports	KOSIS, “Exports by Region and Enterprise Size (Monthly)”
Exchange rates		
Real Effective Exchange Rate (REER)	Real broad effective exchange rate index for Korea (2020=100), monthly	Federal Reserve Bank of St. Louis, FRED, series “Real Broad Effective Exchange Rate for Korea (RBKRBIS)”
USD/KRW	Monthly average bilateral exchange rate, Korean won per US dollar	Trading Economics, “South Korean Won – Quote, Chart, Historical Data, News”
Shares and growth rates		
SME/HPE/LE Export Share	Monthly exports by firm type divided by total exports	Computed from export volumes above

Month-on-Month Growth Rate	Percentage change in exports from month t-1 to month t	Computed from export volumes above
Rolling volatility		
12-Month Rolling Standard Deviation	Standard deviation of month-on-month growth computed over a 12-month backward-looking window	Computed from growth rates above

Table 2

Variable	Mean	SD
SME share	18.6%	1.4%
HPE share	15.9%	1.6%
LE share	65.4%	2.0%
REER	100.4	5.17
USD/KRW	1,121.3	46.4

Table 3

Export Share Regression					
Dependent	Regressor	Beta	t-stat	p-value	R ²
SME Export Share	REER	-0.000823707	-3.465130108	0.000739682	0.09235745
SME Export Share	USD/KRW	0.000126183	4.992642591	2.07955E-06	0.174400713
HPE Export Share	REER	0.002156261	10.18410406	7.329E-18	0.467787562
HPE Export Share	USD/KRW	4.99624E-05	1.560099015	0.12141452	0.020209499
LE Export Share	REER	-0.001342052	-4.119316931	7.08484E-05	0.125723689
LE Export Share	USD/KRW	-0.000180433	-5.138780753	1.10771E-06	0.182865479

Table 4

Growth Rate Regressions					
Dependent	Regressor	Beta	t-stat	p-value	R ²
SME Growth Rate	REER	-0.000476932	-0.236828896	0.813203686	0.000479154
SME Growth Rate	USD/KRW	-5.97536E-05	-0.266482593	0.79033664	0.00060658
HPE Growth Rate	REER	-0.000454604	-0.287347318	0.774354704	0.000705216
HPE Growth Rate	USD/KRW	-8.89354E-05	-0.505205063	0.614365161	0.002176723
LE Growth Rate	REER	-0.000828928	-0.556425746	0.578982522	0.002639252
LE Growth Rate	USD/KRW	-2.91414E-05	-0.175461824	0.861020072	0.000263066
Total Growth Rate	REER	-0.000690292	-0.483989816	0.629297778	0.001998103
Total Growth Rate	USD/KRW	-4.3104E-05	-0.271220604	0.786699308	0.000628328

Table 5

Rolling SD Average			
SME	HPE	LE	Total
11.6%	9.0%	8.5%	8.2%

Table 6

Rolling Export Growth Regression					
Dependent	Regressor	Beta	t-stat	p-value	R ²
Rolling SD SME Growth Rate	REER	6.55782E-05	0.151865319	0.879581832	0.000217529
Rolling SD SME Growth Rate	USD/KRW	7.22865E-05	1.563333342	0.120954876	0.022537078
Rolling SD HPE Growth Rate	REER	-0.0004878	-1.87552493	0.063472288	0.032118983
Rolling SD HPE Growth Rate	USD/KRW	-2.6404E-05	-0.92599433	0.356552389	0.008024386
Rolling SD LE Growth Rate	REER	0.001064769	2.579322169	0.011269875	0.059056648
Rolling SD LE Growth Rate	USD/KRW	4.50133E-05	0.981135435	0.32876002	0.008999655
Rolling SD Total Growth Rate	REER	0.000822109	2.477906489	0.014794157	0.054753161
Rolling SD Total Growth Rate	USD/KRW	6.9024E-05	1.899273619	0.060246924	0.032910602

Table 7