Understanding the Impact of COE Quota Changes on Prices

Price Prediction and Quota Elasticity for Categories A and B

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Executive Summary

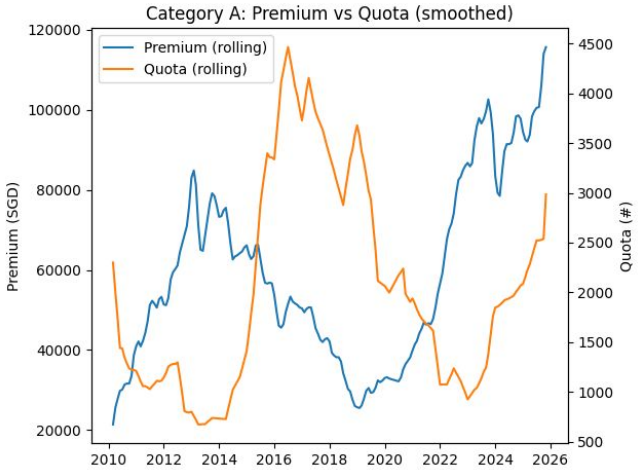
COE prices in Singapore remain volatile and elevated despite periodic quota adjustments. Using historical COE bidding data, we develop predictive models for Categories A and B and quantify how quota changes translate into price movements. The models achieve stable out-of-sample accuracy and indicate that quota increases are associated with price declines in both categories, with **Category B exhibiting substantially higher sensitivity**. Scenario analysis shows that incremental quota additions lead to modest but measurable price reductions, particularly for Category B, providing quantitative guidance for quota-setting decisions.

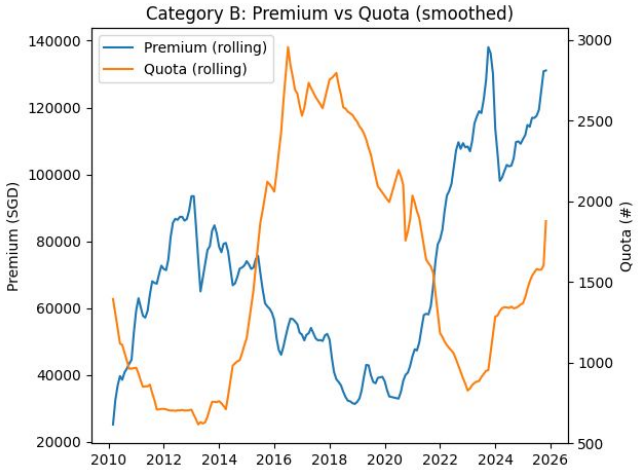
Policy Context and Approach

The Land Transport Authority (LTA) reviews and announces COE quotas on a quarterly basis, directly influencing market supply and bidding behaviour. The objective of this study is (1) to predict COE prices for Categories A and B, and (2) to estimate quota price elasticity, translating quota changes into expected price impacts to support policy decisions.

We use official COE bidding results at a monthly, bidding-round level for Categories A and B. Prices are modelled using a transparent **log-linear regression** framework incorporating quarterly quota totals, demand pressure (bids relative to quota), price momentum, seasonality, and time trends. Models are evaluated using a time-based 12-month holdout to reflect real-world forecasting scenarios.

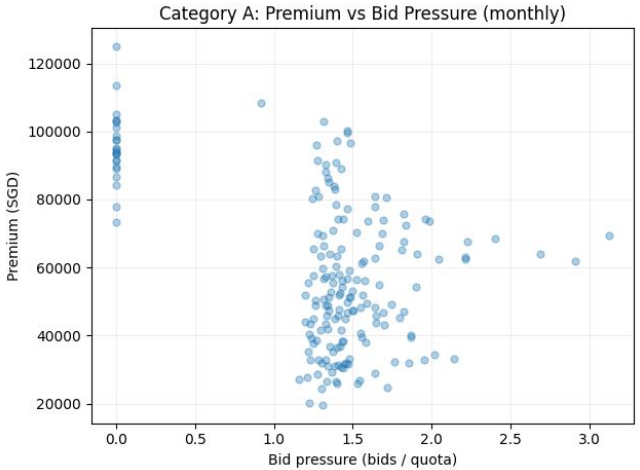
Market Dynamics

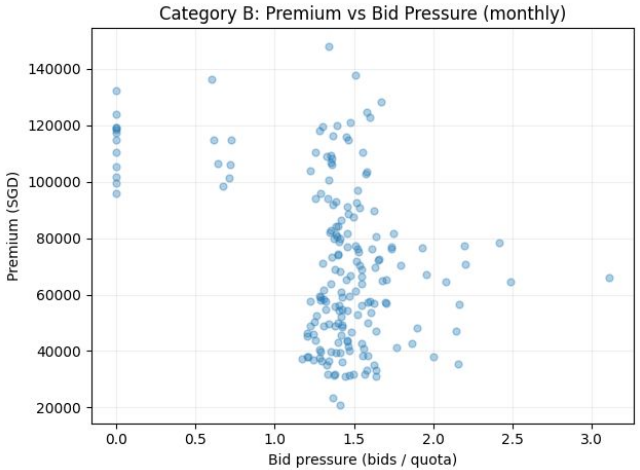




COE prices exhibit strong cyclicality and momentum, while quota adjustment occur more gradually. This mismatch contributes to short-term volatility and delayed price responses, motivating the need for a predictive, elasticity-based approach rather than relying on raw quota changes alone.

Demand Pressure and Bidding Behaviour





Higher bid pressure is consistently associated with higher premiums, with Category B shows greater dispersion and steeper responses than Category A.

Model Performance

The predictive models achieve stable accuracy on 12-month holdout period:

	Category A	Category B
MAPE	5.3%	5.8%
RMSE	SGD 7,795	SGD 8,849

This indicates the models capture the main drivers of price movements sufficiently well for policy scenario analysis.

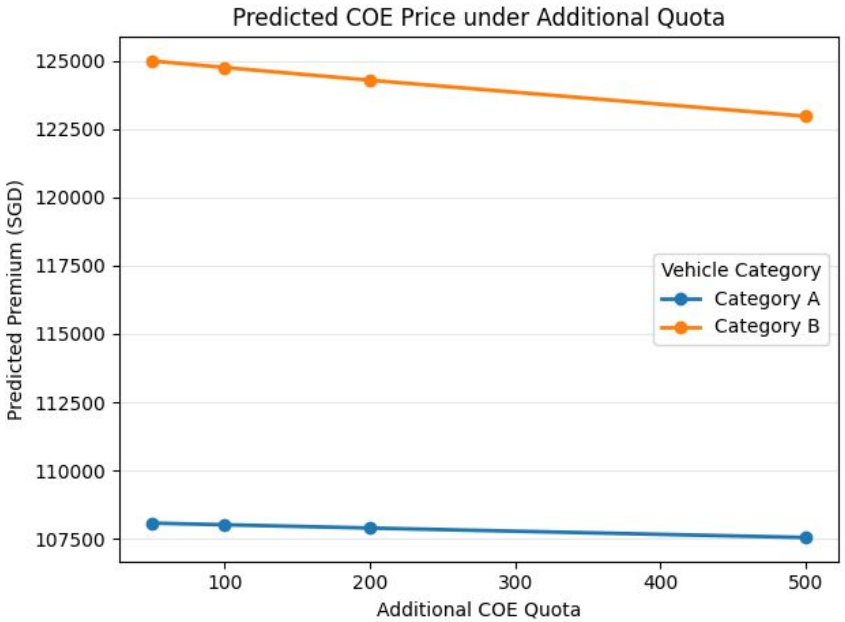
Quota Price Elasticity

Estimated quota elasticities are negative and statistically meaningful:

	Category A	Category B
Elasticity	-0.063	-0.135
95% CI	(-0.098, -0.041)	(-0.225, -0.092)

This implies a 1% increase in quarterly quota is associated with a price reduction of about 0.06% for Category A and 0.14% for Category B, with Category B being roughly twice as sensitive.

Scenario Analysis



Using recent market conditions, adding 100 COEs is associated with an estimated price reduction of about SGD 60 in Category A and SGD 240 in Category B. Larger quota increases lead to progressively larger reductions, but effects remain incremental rather than dramatic. This highlights that **quota increases alone may not rapidly stabilise prices, particularly for Category A**.

Limitations and Policy Implications

Quota adjustments have asymmetric effects across categories. **Category B prices respond more strongly to supply changes, making quota policy a more effective stabilisation tool there**. Category A prices are relatively inelastic, suggesting **demand-side factors and price momentum** play a larger role. Quota policy should therefore be complemented with expectation management and longer-term horizon planning.

Several limitations should be noted. These findings are based on observational data and reflect historical market behaviour rather than causal guarantees. Future work could examine regime-specific elasticities, longer-term adjustment effects, and complementary demand-side interventions to enhance policy effectiveness.