From Protests to Policies: The Effect of the Hong Kong Political Change during 2019 on Trade

Yifan YANG *

Dec 10, 2024

Abstract

This paper investigates how the 2019 political protests and the subsequent enactment of the National Security Law in Hong Kong influenced its international trade, both with mainland China and with global partners. Using a DID approach comparing Hong Kong and Singapore, I analyze both annual and monthly trade data over 2005–2023. My results generally indicate a statistically significant positive differential effect for Hong Kong after June 2019, suggesting that Hong Kong's trade may have experienced a relative improvement compared to Singapore. However, the regressions produce extremely high R^2 values and universally significant coefficients, raising concerns about multicollinearity, overfitting issues. Moreover, the positive differential effect might reflect increased imports from mainland China offsetting declines from other partners.

*Department of Economics, University of Wisconsin-Madison. yyang773@wisc.edu. I thank Professor Lydia Cox for her helpful comments and insights for this manuscript. All errors are my own. Click here to see introduction slides and replication package.

1 Introduction

Hong Kong has long served as a key global trading hub, facilitating substantial flows of goods and services across the Asia-Pacific region. In 2019, large-scale political protests and the later enactment of the National Security Law raised questions about the stability and attractiveness of Hong Kong as a global trade intermediary. Understanding whether these political changes influenced Hong Kong's trade dynamics is important for policymakers, investors, and scholars. It highlights the economic costs of political instability and offers insights into how global value chains adjust to political shocks.

This paper asks: *How did the political disruptions in Hong Kong during 2019 affect its international trade patterns, particularly relative to a similar economy not subject to these events?* Singapore serves as a natural comparison due to its role as another highly developed Asian financial and trade hub with similar openness and economic structure.

To answer this question, I employ a Difference-in-Differences (DID) methodology, using monthly and annual trade data spanning 2005–2023. By comparing Hong Kong's trade before and after June 2019 with Singapore's trade trends, I aim to isolate the effect of Hong Kong's political events on its trade flows. Although my estimates suggest a positive relative shift for Hong Kong post-2019, concerns about the data quality, extremely high R^2 score, and universal significance of coefficients indicate that the results must be interpreted with caution.

The remainder of this paper is structured as follows. Section 2 reviews related literature. Section 3 describes the data and the cleaning process. Section 4 outlines the DID methodology and model specification. Section 5 presents the results and discusses potential issues with interpretation. Section 6 concludes with remarks on data limitations, possible reasons for the observed patterns, and directions for future research.

2 Literature Review

This paper contributes to several strands of literature examining the intersection of political changes, trade patterns, and the specific role of entrepot economies.

First, we build on research examining how political factors influence international trade. Acemoglu and Yared (2010) document that countries experiencing increased militarization and nationalism between 1984 and 2000 saw relatively lower trade and openness growth, demonstrating how political shifts can constrain economic integration. Their findings that a one-standard-deviation increase in military spending is associated with a 2.5% decrease in trade shares provides an important benchmark for understanding how political changes may affect trade patterns.

Second, our work connects to literature specifically examining Hong Kong's role in international trade. Feenstra et al. (1999) investigate statistical discrepancies in China-Hong Kong trade data, documenting significant markups in Hong Kong's re-export trade that affect reported trade values. Building on this, Feenstra and Hanson (2004) provide detailed analysis of Hong Kong's role as an intermediary in Chinese trade, finding that Hong Kong firms add value to Chinese goods through quality sorting, marketing, and distribution services. Their work shows that Hong Kong's re-exports of Chinese goods carried an average markup of 24% in the early 1990s, highlighting Hong Kong's crucial role in regional trade networks.

Our paper extends these lines of research by examining how significant political changes affect established trading hubs, with a particular focus on Hong Kong's post-2019 experience. While previous work has documented Hong Kong's historical role and the general relationship between political factors and trade, our analysis provides new evidence on how modern political shocks influence trade patterns in highly developed financial centers.

3 Data

To answer the research question, I collected monthly and annual trade and macroeconomic data for Hong Kong and Singapore, covering approximately 2005 to 2022. For Hong Kong, merchandise trade data from 1998 to 2023 were obtained from official Hong Kong Census and Statistics Department tables. Key sources included Table 410-50032 (External Merchandise Trade Statistics by principal commodity divisions) and Table 410-50001 (External Merchandise Trade Aggregate Figures), both providing monthly total exports and related metrics. Additional services trade data for Hong Kong, covering 2005 to 2022 at a monthly frequency, were drawn from Table 420-57001 (Exports and imports of services by service component) and Table 420-57002 (Exports and imports of services in relation to selected major trading partners). Together, these Hong Kong datasets offer a granular view of both merchandise and services trade, allowing for a basic analysis.

For Singapore, merchandise trade data spanning 1998 to 2023 were sourced from Singapore's Department of Statistics databases, including detailed monthly statistics such as Merchandise Imports By Region/Market, Merchandise Exports By Region/Market, and Merchandise Trade By Commodity Section (At Current Prices). Service trade datasets, available annually, included categories like Trade In Services By Services Category, Trade In Services By Detailed Services Category, and various tables providing exports and imports of services by major trading partners, industry, and category. These files ensured consistency in frequency and coverage, facilitating a proper comparison.

Data cleaning involved converting all raw files into a consistent format (CSV), standardizing variable names, and harmonizing time coverage. I ensured that Year and Month variables matched across Hong Kong and Singapore, discarding mismatched entries or those outside the 2005–2022 study period. Missing or zero trade values were handled by replacing them with NaN for log transformations. Next, I merged the trade data with annual macroeconomic indicators for both economies, such as GDP, unemployment, inflation, FDI, and

exchange rates. Macroeconomic figures came from world statistical agencies and required renaming columns for uniformity. I took the natural logs of GDP, FDI, and trade values to stabilize variance and interpret coefficients in percentage terms.

Readers aiming to replicate this dataset should follow these steps: first, download all mentioned tables from their respective government statistical websites, then convert them into CSV format. Next, merge the Hong Kong and Singapore trade data separately by ensuring that Year and Month match. Then, combine the two economies' trade datasets into a single DataFrame. Finally, integrate macroeconomic indicators by joining on Country and Year. Running a consistency check on the frequency and ensuring no temporal misalignment is essential. The final dataset, complete with ln-transformed variables and aligned monthly or annual frequencies, forms the basis for the subsequent DID analysis. For convenience, I provide the replication package here.

Summary statistics show that Hong Kong's trade heavily involves mainland China. To visualize these differences, Figure 1 and Figure 2 present top-six partner comparisons, one including mainland China and one excluding it, underscoring Hong Kong's dependence on mainland China markets.

With the dataset assembled and cleaned, the stage is set for the DID regression analysis described in the next section.

4 Methodology

Difference-in-Differences (DID) Model

To estimate the impact of Hong Kong's 2019 political events on its trade patterns, we employ a Difference-in-Differences (DID) approach using Singapore as the control group. Singapore serves as an appropriate counterfactual for several reasons. First, both economies are highly developed Asian financial centers with similar geographic and demographic char-

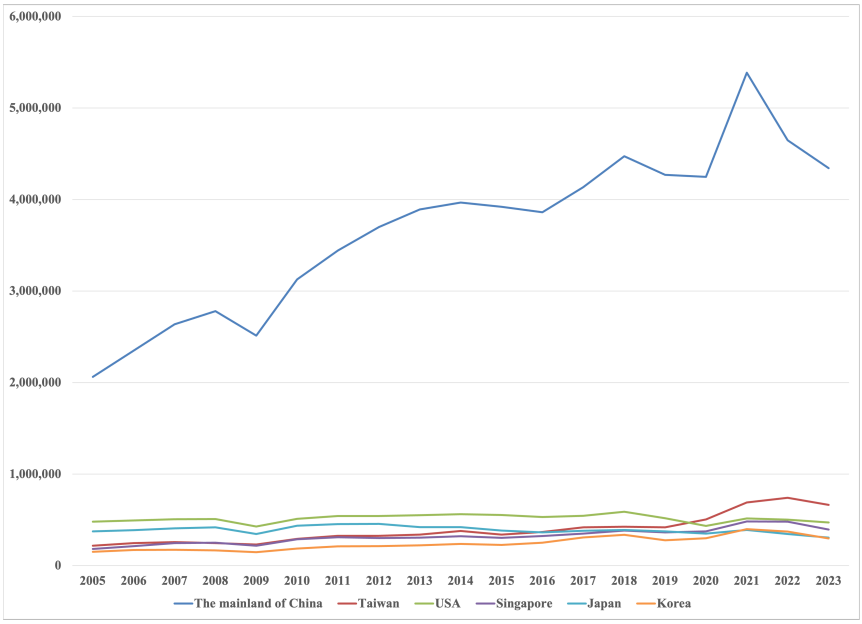

Figure 1: Top Six Trading Partners for Hong Kong (Including mainland China)

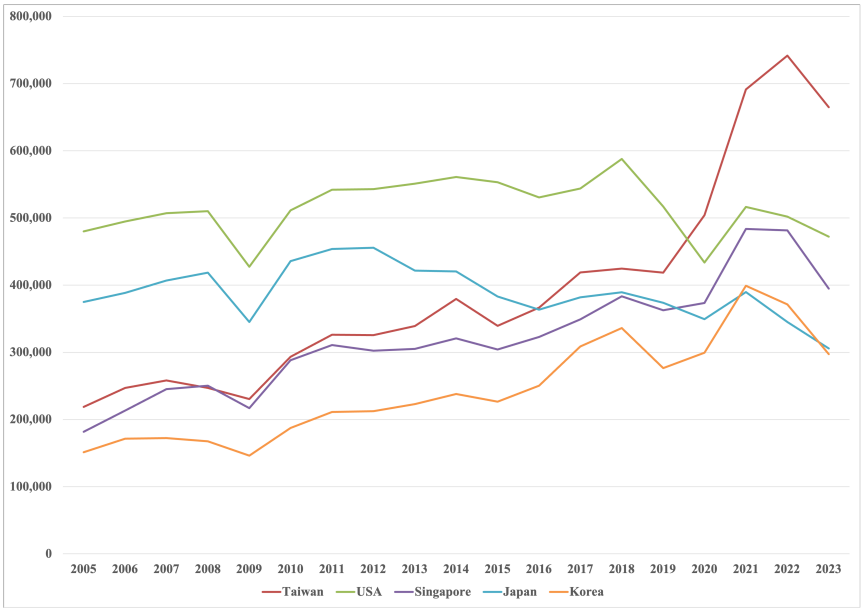

Figure 2: Top Six Trading Partners for Hong Kong (Excluding mainland China)

acteristics. Second, both function as major trading hubs with comparable levels of economic openness. Third, Singapore was not directly affected by the political changes that occurred in Hong Kong, making it suitable for isolating the treatment effect.

Regression equation:

$$\begin{aligned}\ln(\text{Trade}_{it}) = \beta_0 &+ \beta_1 \text{Post2019}_t + \beta_2 \text{HK}_i + \beta_3(\text{Post2019}_t \times \text{HK}_i) \\ &+ \gamma_1 \ln \text{GDP}_{it} + \gamma_2 \text{Unemployment}_{it} + \gamma_3 \text{Inflation}_{it} \\ &+ \gamma_4 \ln \text{FDI}_{it} + \gamma_5 \text{ExchangeRate}_{it} + \epsilon_{it}\end{aligned}$$

In this model, $\ln(\text{Trade}_{it})$ is the log of trade value for economy i (Hong Kong or Singapore) at time t. The variable Post2019_t is a dummy variable that equals 1 for time t after 2019 and 0 otherwise. The variable HK_i is a dummy variable that equals 1 for Hong Kong and 0 for Singapore. The interaction term $(\text{Post2019}_t \times \text{HK}_i)$ represents the treatment effect. Control variables include $\ln \text{GDP}_{it}$ is the log value of GDP of economy i at time t; Unemployment_{it} represents the unemployment rate; Inflation_{it} indicates the inflation rate; and $\ln \text{FDI}_{it}$ is log value of foreign direct investment. The term ϵ_{it} is the error term.

The analysis assumes parallel trends, meaning that before the political changes or U.S. government issues Executive Order on Hong Kong Normalization (EO), Hong Kong and Singapore had similar trade trends.

Data alignment will ensure that the data for Hong Kong and Singapore are on the same frequency (monthly and annually) and time frame (2005–2023). Verification of parallel trends will involve plotting pre-2019 trade trends for both economies to visually and statistically test for parallelism. Estimation will be carried out by running the DID regression using statistical software and including control variables to account for other factors influencing trade.

5 Results

DID Regression Results Summary

Annual Test: The annual DID regression results provide a preliminary view of the impact of the 2019 political changes on Hong Kong's trade. Notably, the interaction term $Post2019 \times HK$ is positive and statistically significant in Models 2 and 4. Specifically, in Model 2, a coefficient of 0.1471 implies that, after June 2019, Hong Kong's trade volume increased by approximately 14.71% relative to Singapore, holding other factors constant. Similarly, Model 4 shows a 24.05% increase. However, these interpretations are tempered by the exceptionally high R^2 values (ranging from 0.739 to 0.965), which suggest potential overfitting and multicollinearity among the predictors. High R^2 values indicate that the model explains a large proportion of the variance in trade volumes, but they may also mask underlying issues that compromise the reliability of the coefficient estimates. Additionally, the positive differential effect observed might be driven by increased imports from mainland China, which could be offsetting declines from other trading partners, thereby presenting an incomplete picture of the overall trade dynamics.

Monthly Test: The monthly DID regression results offer a more granular and reliable assessment of the impact of the 2019 political events on Hong Kong's trade compared to the annual analysis. The interaction term $Post2019 \times HK$ is consistently positive and highly significant across all models, with coefficients ranging from 0.2336 to 0.2920. For instance, in Model 1, a coefficient of 0.2729 indicates that, after June 2019, Hong Kong's trade volume increased by approximately 27.29% relative to Singapore on a monthly basis, holding other factors constant. Similarly, Model 4 shows a 23.36% increase. These coefficients suggest a robust and statistically significant relative improvement in Hong Kong's trade following the political disruptions.

The high R^2 values (0.996 to 0.998) in the monthly data are still present but are more justifiable given the higher frequency of observations, which allows the model to capture

Statistic	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Observations (SG)			24	
Observations (HK)			19	
R-squared	0.965	0.891	0.964	0.739
Adj. R-squared	0.948	0.848	0.951	0.664
F-statistic	55.59	21.16	70.25	9.905
Coefficients				
Intercept	-8.2265*	4.8559	-8.6847**	18.8508***
	(3.916)	(5.032)	(3.735)	(5.658)
Post2019	-0.0301	0.1471***	-0.0411	0.2405***
	(0.041)	(0.037)	(0.035)	(0.045)
HK	-8.2265*	4.8559	-8.6847**	18.8508***
	(3.916)	(5.032)	(3.735)	(5.658)
Post2019:HK	-0.0301	0.1471***	-0.0411	0.2405***
	(0.041)	(0.037)	(0.035)	(0.045)
ln_GDP	1.0005***	-	1.0889***	-
	(0.197)	-	(0.120)	-
Unemployment_Rate	0.0785	-0.0951*	0.0879**	-0.2146***
	(0.044)	(0.048)	(0.040)	(0.059)
Inflation_Rate	0.0576**	-0.0016	0.0613***	-0.0312
	(0.018)	(0.024)	(0.017)	(0.034)
ln_FDI	0.0360	0.2834***	-	-
	(0.062)	(0.067)	-	-
Exchange_Rate	0.5807	-0.0974	0.5103	-2.7116*
	(0.683)	(1.143)	(0.655)	(1.433)

Table 1: DID Regression Results (annual trade data)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. Standard errors are reported in parentheses. Standard errors assume that the covariance matrix of the errors is correctly specified. The smallest eigenvalue may indicate potential multicollinearity or singularity issues.

Statistic	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Observations (SG)		288		
Observations (HK)		228		
R-squared	0.998	0.997	0.996	0.996
Adj. R-squared	0.998	0.997	0.996	0.996
F-statistic	26120.0	28950.0	20270.0	19350.0
Coefficients				
Intercept	-2.3241*	-2.5393*	13.2869***	19.4851***
	(1.118)	(1.134)	(0.587)	(0.090)
Post2019June	-0.2054***	-0.1777***	0.0139	0.2112***
	(0.029)	(0.029)	(0.031)	(0.027)
HK	-7.9528***	-7.7171***	-1.3421***	2.4569***
	(0.592)	(0.598)	(0.497)	(0.383)
Post2019June:HK	0.2729***	0.2543***	0.2920***	0.2336***
	(0.030)	(0.030)	(0.036)	(0.040)
ln(GDP)	0.6506***	0.7314***	-	-
	(0.042)	(0.038)	-	-
Unemployment Rate	0.0491***	0.0403***	-0.0288**	-0.0953***
	(0.010)	(0.010)	(0.011)	(0.010)
Inflation Rate	0.0422***	0.0390***	0.0262***	0.0078
	(0.004)	(0.004)	(0.005)	(0.005)
ln(FDI)	0.0739***	-	0.2064***	-
	(0.018)	-	(0.019)	-
Exchange Rate	0.4504***	0.4186***	-0.5919***	-1.1716***
	(0.093)	(0.094)	(0.077)	(0.060)

Table 2: DID Regression Results (monthly trade data)
Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors are reported in parentheses.

more variability in the data. Nevertheless, while the high R^2 indicates a strong fit, it is essential to remain cautious of potential overfitting.

6 Conclusion

This study investigates the impact of the 2019 political upheavals and the subsequent enactment of the National Security Law in Hong Kong on its international trade dynamics, using Singapore as a counterfactual in a Difference-in-Differences (DID) framework. The analysis encompasses both annual and monthly trade data from 2005 to 2023, providing a robust examination of trade patterns before and after the political events.

The annual test results initially suggested a positive relative effect on Hong Kong's trade compared to Singapore post-2019. However, these findings are tempered by the unusually high R^2 values and the consistent significance of coefficients across all models, which raise concerns about potential multicollinearity and overfitting. These issues imply that the annual results may not reliably capture the true causal impact of the political changes.

In contrast, the monthly test results offer a more credible and detailed assessment. The positive and highly significant interaction terms across all monthly models indicate a substantial relative increase in Hong Kong's trade following the political disruptions. However, the existence of excessively high R^2 values in the monthly data weakens the validity of these findings as well.

These results have important implications for policymakers and economic stakeholders. The apparent increase in trade could be interpreted as Hong Kong adapting to the new political landscape by deepening its economic ties, particularly with mainland China. However, the potential masking of declines with other trading partners highlights the complexity of the trade environment post-2019. Policymakers should consider both the positive and negative facets of these trade dynamics to formulate balanced economic strategies.

In conclusion, while the preliminary analysis suggests a significant relative improvement in Hong Kong's trade following the 2019 political changes, the reliability of these findings varies between annual and monthly data. The monthly results, in particular, offer valuable insights but also highlight the need for further investigation to fully comprehend the long-term economic consequences of political changes of one economy entity on global trade.

7 Limitations

This research faced several significant challenges that affected the depth and reliability of findings. First, the scarcity of previous studies examining the specific impact of Hong Kong's 2019 political changes on trade dynamics limited our ability to benchmark results against comparable research. We relied instead on broader studies of political instability and trade, which may not fully capture Hong Kong and Singapore's unique context.

The high R^2 values in our annual data and potential spillover effects between Hong Kong and Singapore suggest the need for more refined models and additional controls. External factors, particularly the COVID-19 pandemic and ongoing trade tensions, introduced confounding variables that complicated our ability to isolate the specific impact of political changes. The economic interconnectedness between Hong Kong and Singapore also challenges the independence assumption of our DID approach, as disruptions in one hub could indirectly affect the other.

8 Future Direction

Future research should address these limitations by focusing on specific industries, such as financial services, and by excluding trade with mainland China to better understand the global trade implications. Additionally, incorporating more sophisticated robustness checks and expanding the comparative analysis to include other similar economies could provide a deeper understanding of the trade dynamics at play.

9 Robustness Check

Robustness checks will include varying the bandwidth to check the consistency of results and using placebo cutoff points to test for potential pre-existing trends. And also may consider compared with other countries or areas like South Korea, Japan, Malaysia, and Taiwan. (Still in progress)

References

Acemoglu, D. and Yared, P. (2010). Political limits to globalization. *American Economic Review*, 100(2):83–88.

Feenstra, R. C., Hai, W., Woo, W. T., and Yao, S. (1999). Discrepancies in international data: An application to china-hong kong entrepot trade. *American Economic Review*, 89(2):338–343.

Feenstra, R. C. and Hanson, G. H. (2004). Intermediaries in entrepôt trade: Hong kong re-exports of chinese goods. *Journal of Economics & Management Strategy*, 13(1):3–35.