



## The impact of the belt and road initiative on China's international air transport: Evidence from a difference-in-differences approach

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### Abstract

This study examines the impact of the Belt and Road Initiative (BRI) on international air transport supply in China. Using panel data from 69 Chinese cities over the period 2007–2019, a multi-period difference-in-differences (DID) model is employed to identify the causal effects of the policy. The results show that the BRI significantly increases international air transport capacity, as measured by available seat kilometers (ASK) and seat capacity. The findings remain robust after a series of tests, including parallel trend analysis, placebo tests, and propensity score matching (PSM-DID). Further heterogeneity analysis reveals that the policy effects are more pronounced in non-hub cities and western regions, indicating stronger marginal impacts in areas with relatively weaker aviation foundations. These results suggest that the BRI plays an important role in enhancing international connectivity and promoting more balanced development of China's aviation network. The study provides empirical evidence for policymakers to optimize aviation resource allocation and improve regional integration under the BRI framework.

**Keywords:** Aviation network, Belt and road initiative, China, Difference-in-differences, International air transport, Policy impact, Regional heterogeneity.

**JEL Classification:** L93; R48; F15; O18.

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### Contents

|                                 |    |
|---------------------------------|----|
| 1. Introduction .....           | 68 |
| 2. Literature Review .....      | 68 |
| 3. Methodology .....            | 68 |
| 4. Results and Discussion ..... | 69 |
| 5. Conclusion .....             | 73 |
| References .....                | 73 |

### Contribution of this paper to the literature

This study contributes to the empirical policy evaluation literature by applying a multi-period DID framework to assess the impact of the BRI on international air transport at the city level. It provides new evidence on heterogeneous effects across airport hierarchy and regions, highlighting the role of policy in promoting balanced aviation network development.

## 1. Introduction

Since the launch of the Belt and Road Initiative (BRI) in 2013, China's pattern of opening-up has been continuously reshaped through a series of institutional arrangements, notably the *Vision and Actions on Jointly Building the Silk Road Economic Belt and the 21st-Century Maritime Silk Road* (National Development and Reform Commission Ministry of Foreign Affairs & Ministry of Commerce, 2015). These policies emphasize infrastructure connectivity and international cooperation as key drivers of economic integration.

In the aviation sector, the strategic importance of air transport has been reinforced by national development plans, including the *13th Five-Year Plan for Civil Aviation Development* (Civil Aviation Administration of China, 2016) and the *14th Five-Year Plan for Civil Aviation Development* (Civil Aviation Administration of China, 2021). Additionally, the *BRI Civil Aviation Cooperation Consensus* (Civil Aviation Administration of China, 2017) promotes policy coordination, air traffic liberalization, and network expansion, providing institutional support for international aviation development.

As a critical infrastructure for cross-border activities, air transport facilitates the flow of goods, capital, and people, thereby enhancing urban accessibility and generating spillover effects on regional economic growth. However, existing studies have paid limited attention to the causal impact of the BRI on international air transport at the city level, particularly regarding heterogeneous effects across different types of cities.

To address this gap, this study employs a two-way fixed effects model using panel data of Chinese cities from 2007 to 2019 to identify the causal impact of the BRI on international air transport supply.

This study contributes to the literature in three respects. First, it applies a causal inference framework to evaluate the aviation effects of the BRI. Second, it examines heterogeneous impacts across airport types, focusing on non-hub cities. Third, multiple robustness checks, including parallel trend tests, propensity score matching, and placebo tests, are conducted to ensure the reliability of the results.

## 2. Literature Review

Existing studies have extensively examined the economic effects of the Belt and Road Initiative (BRI). At the macro level, the BRI has been shown to significantly promote international trade, investment, and regional economic development (Qiu, 2020; Zhao & Wang, 2023). Additionally, the initiative has facilitated improvements in international transport connectivity and trade facilitation, further enhancing cross-border economic integration (Cui, 2017).

In the field of air transport, a growing body of literature has explored the relationship between the BRI and aviation network development. Most studies suggest that the BRI has contributed to the expansion and restructuring of China's aviation network, including improvements in route accessibility and network stability (Wang, Wang, & Jiao, 2015; Zhuo & Yao, 2018). From the perspective of network evolution, China's aviation system is gradually shifting from a single-hub structure toward a more multi-centered configuration, where cities with higher centrality tend to exhibit stronger international air transport capacity (Kong, 2023; Yang, Huang, & Zhang, 2023). Meanwhile, the international air cargo network has evolved from a concentrated structure to a more decentralized and multi-polar system under globalization and regionalization processes (Xu, Liu, Jiang, Lin, & Li, 2025).

From a broader perspective, the BRI promotes international aviation cooperation through both institutional and market mechanisms. Policy coordination, infrastructure development, and air traffic rights liberalization have strengthened cross-border aviation connectivity and helped alleviate geopolitical and institutional constraints (Abeyratne, 2024; Chen & Zreik, 2025). In regional contexts, studies based on aviation network models suggest that increased network embeddedness of node cities facilitates the redistribution of aviation resources and promotes more balanced regional development (Yao & Xiao, 2023). Empirical evidence from Central Asia further supports this mechanism, indicating that the BRI has significantly enhanced regional air transport connectivity (Kamnde & Wu, 2024). In addition, the broader literature highlights the important role of air transport in promoting economic growth and regional integration. Aviation networks enhance accessibility, facilitate business travel, and generate significant spillover effects on local economies (Zhang, Wan, & Yang, 2019; Zhang & Graham, 2020). These findings provide an important theoretical foundation for analyzing the relationship between the BRI and aviation development.

Despite these contributions, several limitations remain in the existing literature. First, most studies focus on the overall evolution of aviation networks and lack micro-level causal identification at the city level. Second, insufficient attention has been paid to heterogeneity across regions and airport types, particularly for non-hub and less-developed cities. Third, the application of rigorous policy evaluation methods, such as multi-period difference-in-differences and matching techniques, remains limited (Abadie, 2005; Heckman, Ichimura, & Todd, 1997).

To address these gaps, this study applies a multi-period difference-in-differences framework to examine the impact of the BRI on international air transport supply at the city level. By incorporating heterogeneity analysis and robustness checks, this paper provides new evidence on the role of the BRI in promoting balanced, high-quality development of China's aviation network.

## 3. Methodology

### 3.1. Model Specification

This study adopts a multi-period difference-in-differences (DID) framework to examine the impact of the Belt and Road Initiative (BRI) on international air transport supply at the city level.

The empirical strategy proceeds as follows. First, a panel dataset at the city level is constructed, covering the period from 2007 to 2019. The year 2014 is defined as the policy intervention point. Cities identified as BRI node cities are assigned to the treatment group, while other cities with international air connections but not explicitly included in the BRI framework serve as the control group. Second, a set of macroeconomic and city-level characteristics is controlled for to isolate the marginal effect of the policy. Finally, robustness checks, including placebo tests, heterogeneity analysis, and parallel trend tests, are conducted to validate the estimation results. The baseline econometric model is specified as follows:

$$Y_{it} = \alpha + \beta(BRI_i \times Post_t) + \gamma X_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Where  $Y_{it}$  denotes the international air transport supply of city  $i$  in year  $t$ , measured by available seat kilometers (ASK) or the number of international flight seats. For cities with multiple airports (Beijing, Shanghai, and Chengdu), the total international flight capacity is aggregated across all airports within the same city to ensure consistency.

The key explanatory variable is the interaction term  $BRI_i \times Post_t$ .  $BRI_i$  is a dummy variable equal to 1 if the city  $i$  is designated as a BRI node city, and 0 otherwise.  $Post_t$  is a time dummy that equals 1 for years after 2014 and 0 otherwise. The coefficient  $\beta$  captures the net policy effect of the BRI. A significantly positive  $\beta$  indicates that the BRI has promoted the expansion of international air transport supply.

$\mu_i$  and  $\lambda_t$  present city fixed effects and year fixed effects, respectively, controlling for unobserved time-invariant heterogeneity and common macroeconomic shocks. Standard errors are clustered at the city level to account for potential serial correlation.

### 3.2. Sample Selection and Data Sources

This study examines a sample of 69 Chinese cities that operated at least one international scheduled flight connecting to BRI countries during 2007–2019. Based on official policy documents and actual aviation connectivity, 24 cities explicitly included in the BRI framework are classified as the treatment group, while the remaining cities serve as the control group.

Furthermore, drawing on national aviation development plans and cities' roles within the aviation network, the sample is divided into hub and non-hub cities based on criteria such as passenger throughput, airline hub presence, and route coverage.

Air transport data are obtained from the Official Airline Guide (OAG) database, which provides detailed information on international flight capacity, including available seat kilometers (ASK) and total seat capacity. Socioeconomic variables, including GDP, population, foreign direct investment (FDI), and fiscal expenditure, are sourced from the China City Statistical Yearbook.

### 3.3. Variable Definitions

The definitions and measurements of the main variables used in this study are reported in Table 1.

**Table 1.** Definition of variables.

| Variables         | Definition                         | Measurement   |
|-------------------|------------------------------------|---|
| ASK               | International air transport supply | Available seat kilometers of international flights  |
| Seats             | International air transport supply | Total number of international flight seats          |
| $BRI \times Post$ | Policy variable                    | Interaction term: BRI city $\times$ post-2014 dummy |
| GDP               | Economic development               | Logarithm of real GDP                               |
| Population        | Population size                    | Logarithm of total population                       |
| Open              | Openness                           | Ratio of foreign direct investment to GDP           |
| Gov               | Government intervention            | Ratio of fiscal expenditure to GDP                  |

### 3.4. Descriptive Statistics

Table 2 presents the descriptive statistics of the main variables. There is substantial variation in international air transport supply across cities, as reflected by the wide range of ASK and seat capacity. Economic and demographic variables also exhibit considerable dispersion, supporting the suitability of the dataset for empirical analysis.

**Table 2.** Descriptive statistics.

| Variables  | Mean               | Std. Dev.          | Min.               | Max.                  |
|------------|--------------------|--------------------|--------------------|-----------------------|
| ASK        | $2.09 \times 10^9$ | $5.22 \times 10^9$ | 0                  | $3.06 \times 10^{10}$ |
| Seats      | 722258.9           | 1478968            | 0                  | 9074455               |
| GDP        | $6.28 \times 10^7$ | $5.87 \times 10^7$ | $1.22 \times 10^6$ | $3.82 \times 10^8$    |
| Population | 722.52             | 521.98             | 53.52              | 3416.00               |
| Open       | 0.0319             | 0.0223             | 0                  | 0.1316                |
| Gov        | 0.1433             | 0.0497             | 0.0606             | 0.5346                |

**Note:** ASK is measured in available seat kilometers; Seats refer to the total number of international flight seats; GDP is measured in RMB; Population is measured in 10,000 persons; Open is the ratio of FDI to GDP; Gov is the ratio of fiscal expenditure to GDP.

## 4. Results and Discussion

### 4.1. Baseline Results

Table 3 presents the baseline regression results.

Column (1) reports the basic DID estimation without control variables. The coefficient of the interaction term ( $BRI \times Post$ ) is 2.393 and statistically significant at the 1% level, indicating that BRI significantly promotes international air transport supply.

Column (2) adds control variables. The estimated coefficient decreases slightly to 2.007 but remains significant at the 1% level, suggesting that the result is robust to the inclusion of economic and demographic factors.

Column (3) further controls for city and year fixed effects. The coefficient increases to 2.631 and remains statistically significant at the 5% level, indicating that the policy effect persists after accounting for unobserved heterogeneity and time trends.

Among the control variables, GDP shows a positive and significant effect in column (2), while openness and government intervention also exhibit positive impacts. However, these effects become statistically insignificant after including fixed effects, suggesting they may be captured by city-specific characteristics.

Overall, the results consistently indicate that the BRI has a significant positive impact on international air transport supply.

**Table 3.** Baseline regression results.

| Variables    | (1) Basic DID        | (2) DID + Controls    | (3) Two-way FE DID |
|--------------|----------------------|-----------------------|--------------------|
| BRI × Post   | 2.393***<br>(0.308)  | 2.007***<br>(0.334)   | 2.631**<br>(1.260) |
| GDP          |                      | 2.868***<br>(0.308)   | -0.532<br>(2.821)  |
| Population   |                      | -2.520***<br>(0.392)  | 4.418<br>(4.496)   |
| Open         |                      | 19.405**<br>(7.915)   | 13.949<br>(12.827) |
| Gov          |                      | 23.122***<br>(3.237)  | 4.998<br>(12.715)  |
| Constant     | 18.031***<br>(0.291) | -22.137***<br>(4.062) | -1.966<br>(57.716) |
| R-squared    | 0.044                | 0.377                 | 0.635              |
| City FE      | No                   | No                    | Yes                |
| Year FE      | No                   | No                    | Yes                |
| Observations | 533                  | 533                   | 533                |

**Note:** Standard errors are reported in parentheses. \*\*\* p<0.01, \*\* p<0.05.

#### 4.2. Robustness Checks

To ensure the reliability of the baseline findings, this study conducts several robustness checks, including a parallel trend test, placebo test, propensity score matching (PSM-DID), and alternative dependent variable specifications.

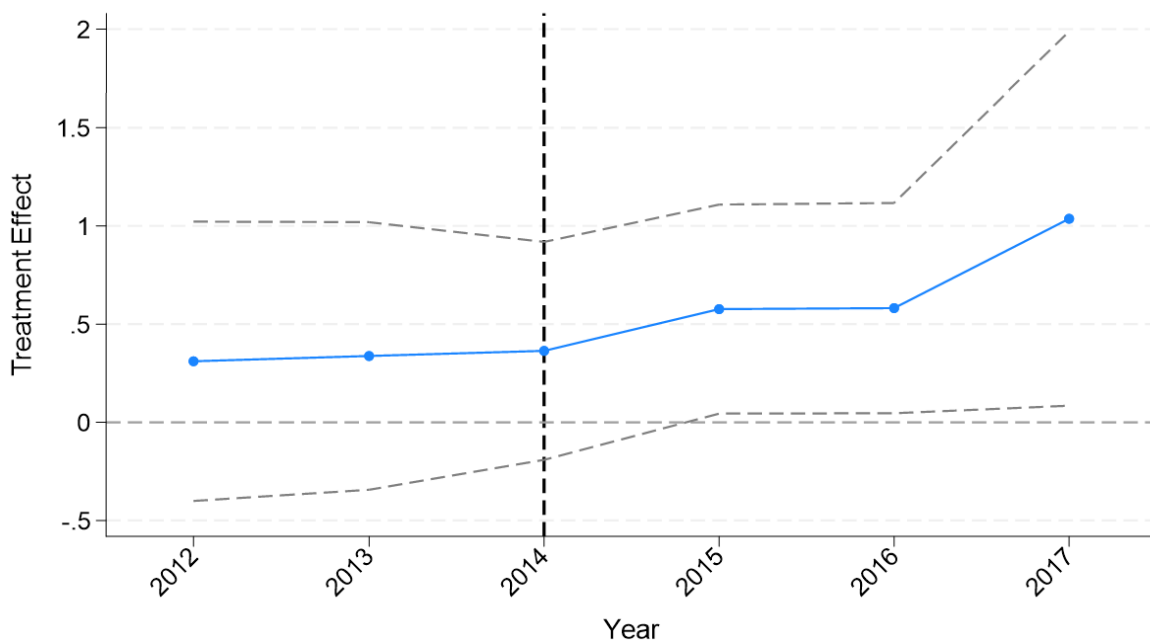
##### 4.2.1. Parallel Trend Test

The validity of the DID approach relies on the parallel trend assumption, which requires that the treatment and control groups follow similar trends prior to the policy intervention.

To test this assumption, this study adopts an event study approach by constructing interaction terms between the treatment dummy and a series of year dummies relative to the policy implementation. This specification allows for a dynamic assessment of the treatment effects before and after the policy.

The results show that all coefficients in the pre-treatment period (before 2014) are statistically insignificant and fluctuate around zero, indicating no systematic differences in trends between the treatment and control groups prior to the policy intervention.

As illustrated in Figure 1, the estimated coefficients become significant only after the implementation of the Belt and Road Initiative (BRI), providing strong support for the parallel trend assumption and confirming the validity of the DID identification strategy.



**Figure 1.** Parallel trends test.

##### 4.2.2. Placebo Test

A placebo test is conducted by randomly assigning the treatment variable and repeating the estimation 500 times.

The distribution of the estimated coefficients is centered around zero, while the actual DID estimate lies far outside this distribution. The corresponding two-sided p-value is close to zero, indicating that the estimated policy effect is unlikely to be driven by random factors.

As shown in Figure 2, the results confirm that the baseline findings are not spurious.

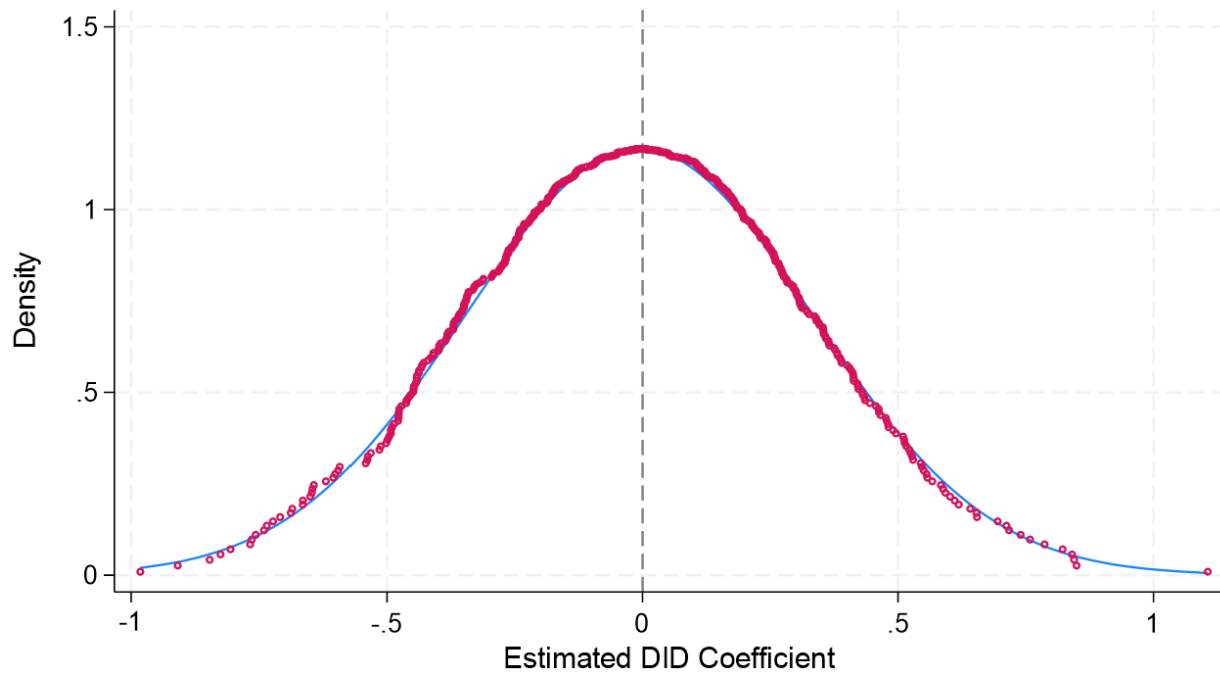


Figure 2. Placebo test.

#### 4.2.3. Propensity Score Matching (PSM-DID)

To further address potential selection bias, this study employs propensity score matching (PSM) to construct a more comparable sample.

The matching variables include GDP, population, openness, and government intervention. After matching, the covariates between the treatment and control groups become more balanced, enhancing the sample's comparability.

The regression results are reported in Table 4. The coefficient of the policy variable remains positive (2.028), although it is no longer statistically significant. This reduction in significance may be attributed to the smaller sample size after matching and the resulting loss of estimation efficiency.

Nevertheless, the consistency in the direction of the coefficient suggests that the baseline results are robust. Additionally, this finding may indicate that the policy effect is partly concentrated in cities with stronger initial conditions, which is further explored in the heterogeneity analysis.

Table 4. PSM-DID regression results.

| Variables    | (1) FE-DID         | (2) PSM-DID         |
|--------------|--------------------|---------------------|
| BRI × Post   | 2.631**<br>(1.260) | 2.028<br>(1.391)    |
| GDP          | -0.532<br>(2.821)  | 10.655*<br>(5.570)  |
| Population   | 4.418<br>(4.496)   |                     |
| Open         | 13.949<br>(12.827) |                     |
| Gov          | 4.998<br>(12.715)  |                     |
| Constant     | -1.966<br>(57.716) | -51.068<br>(35.935) |
| R-squared    | 0.635              | 0.683               |
| City FE      | Yes                | Yes                 |
| Year FE      | Yes                | Yes                 |
| Observations | 533                | 433                 |

Note: Standard errors are reported in parentheses. \*\* p<0.05, \* p<0.1.

#### 4.2.4. Alternative Dependent Variable

To further verify the robustness of the results, the dependent variable is replaced with the number of international flight seats.

As reported in Table 5, the estimated coefficients of the policy variable remain positive and statistically significant across different model specifications. In the two-way fixed effects model, the coefficient is 1.787 and remains significant at the 5% level, indicating that the positive impact of the BRI on air transport supply is not sensitive to the choice of dependent variable.

Regarding the control variables, GDP, openness, and government intervention generally exhibit positive effects on seat capacity, while population shows a negative coefficient in some specifications. Overall, the results are consistent with the baseline findings, further confirming the robustness of the conclusions.

**Table 5.** Regression results using alternative dependent variable (Seats).

| Variables    | (1) Basic DID        | (2) DID + Controls    | (3) Two-way FE DID  |
|--------------|----------------------|-----------------------|---------------------|
| BRI × Post   | 1.653***<br>(0.220)  | 1.357***<br>(0.238)   | 1.787**<br>(0.739)  |
| GDP          |                      | 2.136***<br>(0.200)   | 0.287<br>(1.698)    |
| Population   |                      | -1.610***<br>(0.263)  | 2.880<br>(2.633)    |
| Open         |                      | 16.398***<br>(5.223)  | 12.309<br>(7.912)   |
| Gov          |                      | 14.599***<br>(2.205)  | 4.406<br>(7.775)    |
| Constant     | 11.072***<br>(0.198) | -19.902***<br>(2.568) | -13.359<br>(34.186) |
| R-squared    | 0.045                | 0.400                 | 0.686               |
| City FE      | No                   | No                    | Yes                 |
| Year FE      | No                   | No                    | Yes                 |
| Observations | 533                  | 533                   | 533                 |

**Note:** Standard errors are reported in parentheses. \*\*\* p<0.01, \*\* p<0.05.

### 4.3. Heterogeneity Analysis

To further explore whether the impact of the Belt and Road Initiative (BRI) varies across different types of cities, this study conducts heterogeneity analysis along two dimensions: airport hierarchy and regional distribution.

#### 4.3.1. Airport Hierarchy

To examine differences across city types, the sample is divided into hub and non-hub cities based on their roles in the national aviation network.

The regression results are reported in Table 6. The coefficient of the policy variable (BRI × Post) for hub cities is positive (0.412) but not statistically significant. In contrast, the coefficient for non-hub cities is 0.871 and statistically significant at the 1% level.

This finding indicates that the BRI has a stronger impact on non-hub cities. One possible explanation is that hub cities already possess relatively well-developed aviation infrastructure and dense route networks, leaving limited room for further expansion. As a result, the marginal effect of policy intervention is relatively small.

In contrast, non-hub cities typically face constraints in international connectivity and aviation resources. The implementation of the BRI may alleviate these constraints by promoting route expansion, improving accessibility, and enhancing integration into the international aviation network. Consequently, the policy effect is more pronounced in these cities.

Regarding the control variables, GDP and openness are not statistically significant in either group, suggesting that the policy effect may dominate traditional demand-side factors in this context.

Overall, the results suggest that the BRI contributes to enhancing international air transport capacity, particularly in cities with relatively weaker aviation foundations, thereby promoting a more balanced development of the aviation network.

**Table 6.** Heterogeneity analysis by airport hierarchy.

| Variables    | (1) Hub cities      | (2) Non-hub cities  |
|--------------|---------------------|---------------------|
| BRI × Post   | 0.412<br>(3.142)    | 0.871***<br>(0.238) |
| GDP          | -0.207<br>(4.204)   | -0.762<br>(0.906)   |
| Population   | 9.563<br>(5.729)    | -0.139<br>(0.464)   |
| Open         | 23.474<br>(26.622)  | 3.992<br>(2.896)    |
| Gov          | 13.561<br>(24.330)  | -4.554<br>(2.735)   |
| Constant     | -41.709<br>(87.211) | 35.762<br>(16.659)  |
| R-squared    | 0.614               | 0.931               |
| City FE      | Yes                 | Yes                 |
| Year FE      | Yes                 | Yes                 |
| Observations | 325                 | 208                 |

**Note:** Standard errors are reported in parentheses. \*\*\* p<0.01.

#### 4.3.2. Regional Heterogeneity

To further investigate spatial differences, the sample is divided into eastern, central, and western regions according to the classification of the National Bureau of Statistics.

The results are presented in Table 7. The estimated coefficient of the policy variable is largest in the western region (3.791) and statistically significant at the 10% level, while the coefficients for the eastern (3.412) and central (0.287) regions are not statistically significant.

These results indicate that the BRI has a stronger impact on international air transport development in western China. This may be attributed to the region's strategic position within the BRI framework and its relatively low baseline level of international connectivity. Consequently, policy support results in a more substantial improvement in aviation capacity.

In contrast, eastern regions already have relatively mature aviation networks and higher levels of openness, which may reduce the marginal impact of the policy. The central region, while benefiting from geographical advantages, may experience more moderate policy effects due to transitional economic characteristics.

With respect to control variables, GDP is not statistically significant across regions, while openness shows a positive and significant effect only in the central region, suggesting that the role of openness varies across regional contexts.

Overall, the findings reveal a clear spatial pattern in the policy effects, with stronger impacts observed in less-developed regions, highlighting the role of the BRI in promoting more balanced regional development in China's aviation sector.

**Table 7. Heterogeneity analysis by region.**

| Variables    | (1) Eastern        | (2) Central           | (3) Western        |
|--------------|--------------------|-----------------------|--------------------|
| BRI × Post   | 3.412<br>(2.582)   | 0.287<br>(1.068)      | 3.791*<br>(2.009)  |
| GDP          | -2.180<br>(3.701)  | 4.255<br>(2.817)      | 0.087<br>(2.005)   |
| Population   | -3.529<br>(2.799)  | 13.646*<br>(4.956)    |                    |
| Open         | 17.143<br>(29.014) | -12.293<br>(17.473)   |                    |
| Gov          | -3.230<br>(16.728) |                       |                    |
| Constant     | 78.984<br>(64.332) | -145.487*<br>(56.658) | 15.336<br>(33.722) |
| R-squared    | 0.691              | 0.649                 | 0.594              |
| City FE      | Yes                | Yes                   | Yes                |
| Year FE      | Yes                | Yes                   | Yes                |
| Observations | 273                | 117                   | 143                |

**Note:** Standard errors are reported in parentheses. \* p<0.1.

## 5. Conclusion

This study examines the impact of the Belt and Road Initiative (BRI) on international air transport supply in Chinese cities, employing panel data from 2007 to 2019 and a difference-in-differences (DID) framework.

The empirical results indicate that the BRI exerts a statistically significant and robust positive effect on international air transport supply. Heterogeneity analysis further reveals that the policy effect is more pronounced in non-hub cities and western regions, suggesting that the BRI plays a more substantial role in enhancing air connectivity in relatively underdeveloped areas.

These findings imply that continued policy support for international aviation network expansion under the BRI is warranted, particularly with a focus on non-hub cities and western regions to facilitate more balanced spatial development.

Notwithstanding these contributions, this study is subject to certain limitations. Future research may extend the analysis by incorporating airport-level data and examining the broader economic implications of improved air connectivity.

## References

- Abadie, A. (2005). Semiparametric difference-in-differences estimators. *The Review of Economic Studies*, 72(1), 1–19. <https://doi.org/10.1111/0034-6527.00321>
- Abeyratne, R. (2024). China's Belt and Road Initiative – implications for air transport. *The Estey Journal of International Law and Trade Policy*, 25(1), 12–33. <https://doi.org/10.22004/ag.econ.343522>
- Chen, Y., & Zreik, M. (2025). Geopolitical bottlenecks and air transport connectivity between China and the UAE: Implications for BRICS+ cooperation and sustainable tourism. *Sustainability*, 17(5), 1930. <https://doi.org/10.3390/su17051930>
- Civil Aviation Administration of China. (2016). *Civil aviation development plan during the 13th Five-Year Plan*. Beijing: Civil Aviation Press.
- Civil Aviation Administration of China. (2017). *Consensus on civil aviation cooperation under the Belt and Road Initiative*. Retrieved from <http://www.caac.gov.cn>
- Civil Aviation Administration of China. (2021). *Civil aviation development plan during the 14th Five-Year Plan*. Beijing: Civil Aviation Press.
- Cui, Y. P. (2017). Research on promoting international transport facilitation under the Belt and Road Initiative. *Rail Transport and Economy*, 39(10), 89–93.
- Heckman, J. J., Ichimura, H., & Todd, P. E. (1997). Matching as an econometric evaluation estimator: Evidence from evaluating a job training programme. *The Review of Economic Studies*, 64(4), 605–654. <https://doi.org/10.2307/2971733>
- Kamnde, V. N., & Wu, W. (2024). The impact of the Belt and Road Initiative on the air transport network in Central Asia: A case study of Kazakhstan and Uzbekistan. *Modern Economy*, 15(5), 587–597. <https://doi.org/10.4236/me.2024.155030>
- Kong, T. (2023). Analysis of China's aviation network and the key node. *Applied and Computational Engineering*, 5, 667–677. <https://doi.org/10.54254/2755-2721/5/20230674>
- National Development and Reform Commission Ministry of Foreign Affairs & Ministry of Commerce. (2015). *Vision and actions on jointly building Silk Road Economic Belt and 21st-century Maritime Silk Road*. Beijing: People's Publishing House.
- Qiu, F. H. (2020). Policy effects of the Belt and Road Initiative on China's import and export trade development: A regional comparative analysis. *Business Economics Research*(23), 140–143.
- Wang, J. E., Wang, H., & Jiao, J. J. (2015). The Belt and Road Initiative and China's international air transport connections. *Progress in Geography*, 34(5), 554–562.
- Xu, X., Liu, J., Jiang, J., Lin, B., & Li, L. (2025). Spatial evolution of international air cargo network connectivity in China: 1996–2019. *Scientific Reports*, 15(1), 25330. <https://doi.org/10.1038/s41598-025-11639-x>
- Yang, W. D., Huang, Y. N., & Zhang, S. R. (2023). Analysis of RCEP international flight network characteristics based on multi-layer complex networks. *Complex Systems and Complexity Science*, 20(3), 60–67.
- Yao, H., & Xiao, H. (2023). Research on deep integration of the “Belt and Road” aviation network based on community structure from the perspective of China. *Discrete Dynamics in Nature and Society*, 2023(1), 2377095. <https://doi.org/10.1155/2023/2377095>
- Zhang, A., Wan, Y., & Yang, H. (2019). Impacts of high-speed rail on airlines, airports and regional economies: A survey of recent research. *Transport Policy*, 81, A1–A19. <https://doi.org/10.1016/j.tranpol.2019.06.010>

- Zhang, F., & Graham, D. J. (2020). Air transport and economic growth: A review of the impact mechanism and causal relationships. *Transport Reviews*, 40(4), 506–528. <https://doi.org/10.1080/01441647.2020.1738587>
- Zhao, B. W., & Wang, Y. (2023). How the Belt and Road Initiative affects foreign trade: A city-level panel data difference-in-differences test. *Guoji Maoyi Wenti. International Trade Issues*(10), 53–70.
- Zhuo, Z. Q., & Yao, H. G. (2018). Research on the structure and robustness of the aviation network along the Belt and Road. *Logistics Technology*, 41(5), 78–84.