

The impact of the COVID-19 pandemic on trade facilitation at borders of CAREC countries

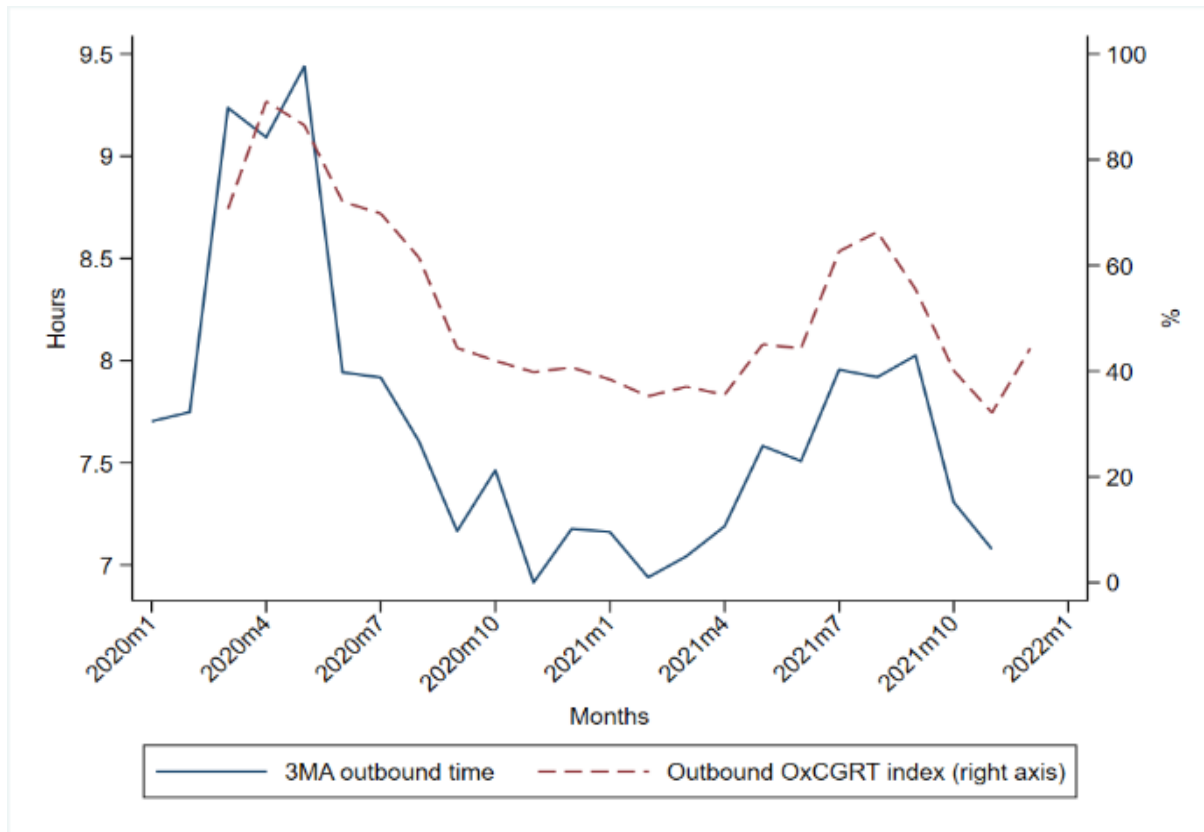
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Motivation

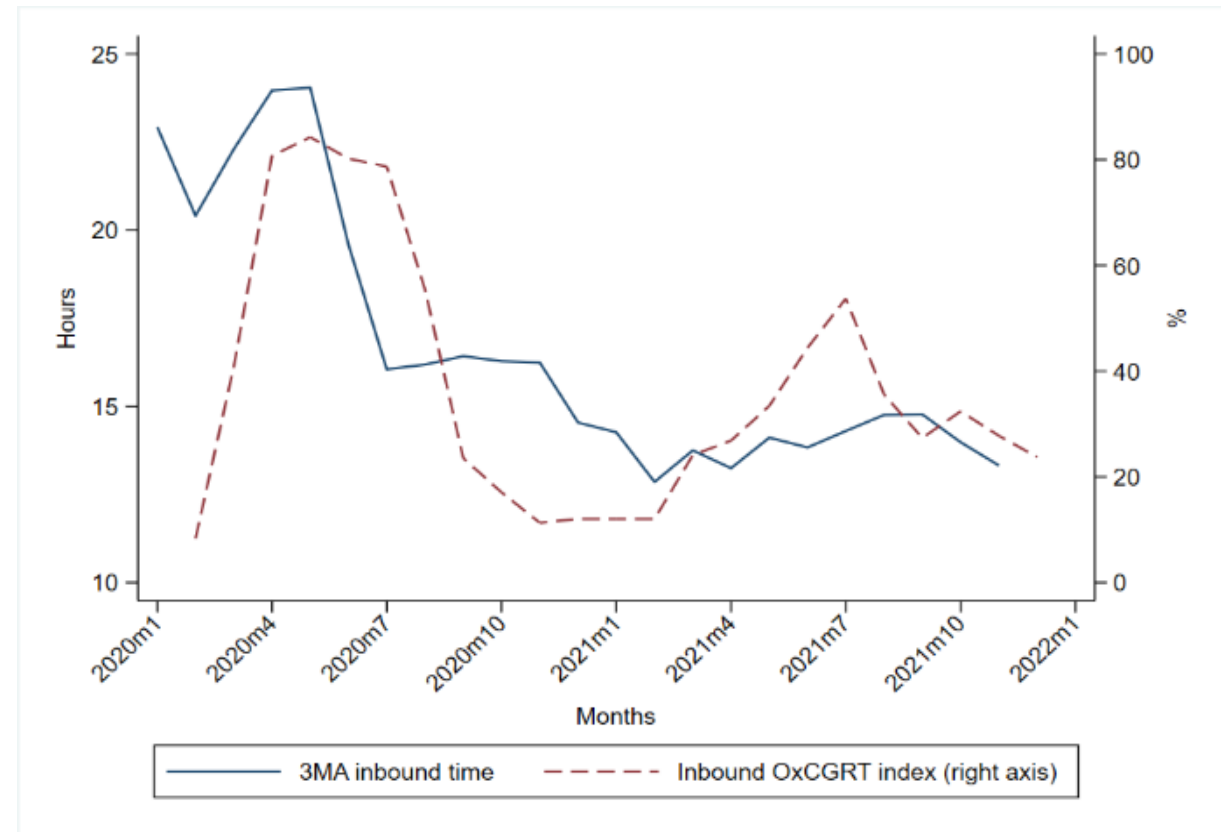
- Landlocked countries, which are reliant on transit countries for its trade activities, were significantly affected by border and mobility restrictions imposed during the pandemic.
- Trade costs and travel time escalated even more, to around 25% with port of entry closures (UNESCAP, 2021).
- CAREC, just like the rest of the world, imposed lockdowns and closed borders in response to the COVID-19 outbreak.
- The average time taken at the BCPs increased by 23.7%, from 12.2 hours in 2019 to 15.1 hours in 2020.
- To keep trade flowing, CAREC implemented various trade facilitation measures (i.e simplify customs procedures, expedited clearance).

Trends of TFI1 and stringency index for select BCP pairs

a. outbound time (Dautota, UZB–Beyneu, KAZ)



b. inbound time (Chama, PAK–Spin Buldak, AFG)

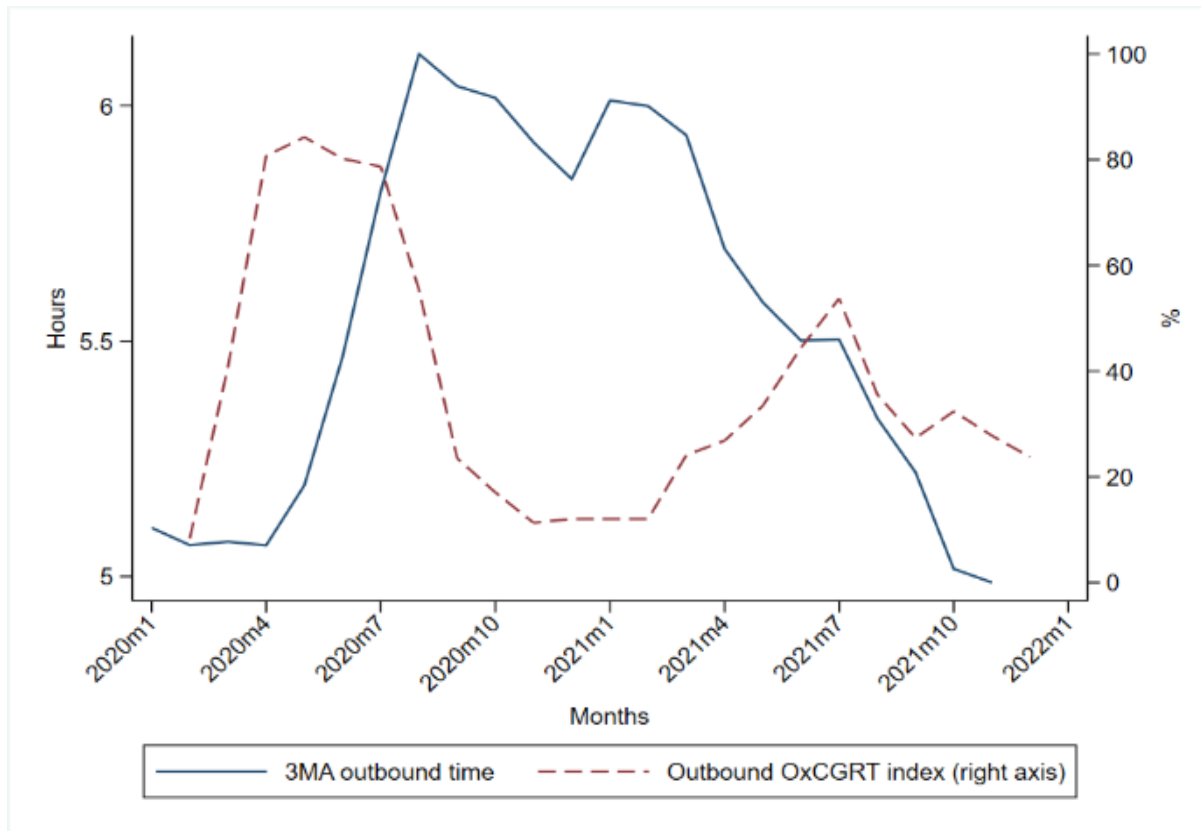


Note: 3MA = 3 month moving average

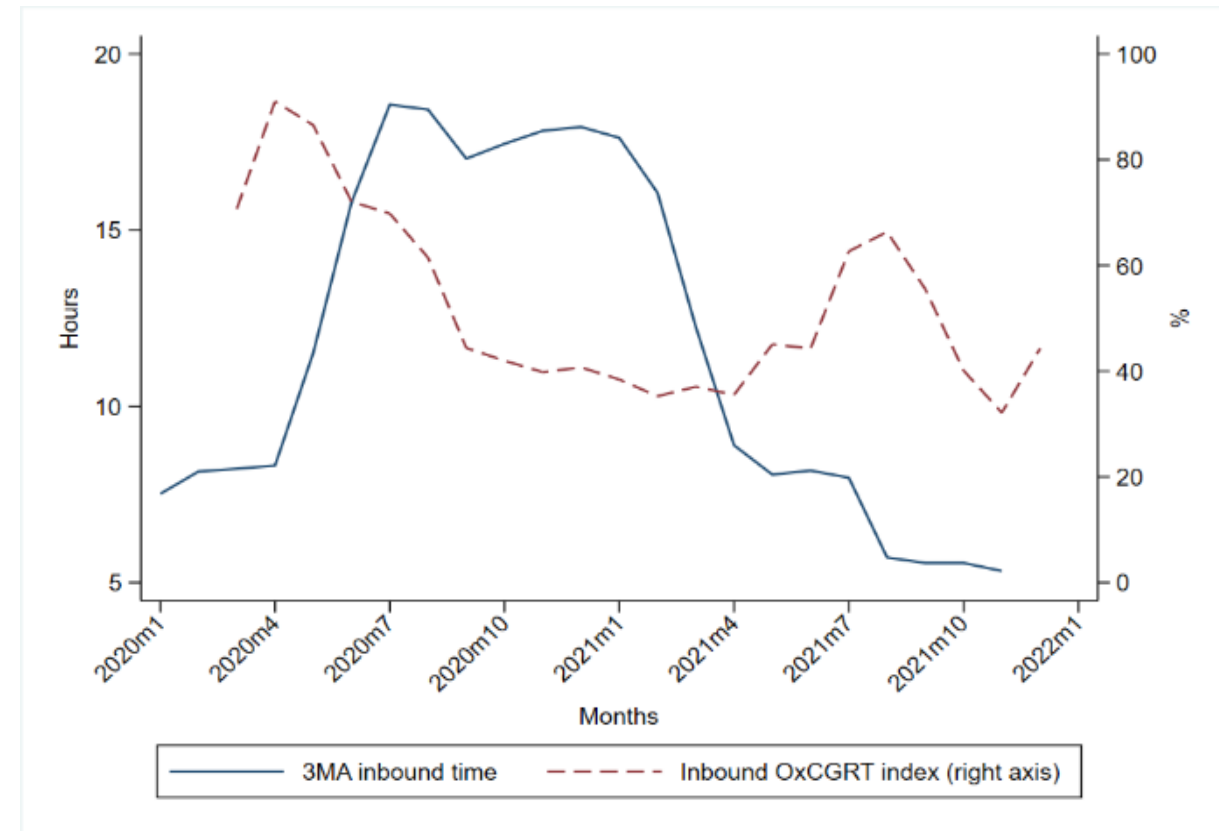
Source: Authors' calculations using CAREC Corridor Performance Measurement and Monitoring trade facilitation indicators data and OxCGRT stringency index.

Trends of TFI1 and stringency index for select BCP pairs

c. outbound time (Hairatan, AFG–Termez, UZB)



d. inbound time (Beyneu, KAZ – Dautota, UZB)



Note: 3MA = 3 month moving average

Source: Authors' calculations using CAREC Corridor Performance Measurement and Monitoring trade facilitation indicators data and OxCGRT stringency index.

Research questions

Using the **BCP-level** data, we

- investigate the impact of COVID-19 stringency measures to the time it takes to cross a border for CAREC member countries
- examine if there are differences in the impact of different measures
- explore whether there are any impact variations by country

*Previously, Kim et al. (2021) focused on the **macro perspective** of the impact of trade facilitation activities on bilateral trade flows.*

Description of Data for Analysis

Variable	Description	Time Period
Clearing time at BCPs—inbound and outbound (TFI1)	Number of hours it takes to move cargoes across a border crossing point—exit from country i and enter country j.	Jan 2020 to Dec 2021
OxCGRT COVID-19 Stringency Index	Calculated mean score of the nine stringency metrics, taking the value between 0 (most lenient) to 100 (most stringent).	Jan 2020 to Dec 2021
Internal restrictions	Measures policies on internal movements from 0 (no measures) to 2 (restrictions movement of citizens).	Jan 2020 to Dec 2021
International restrictions	Measures policies on international travel controls from 0 (no measures) to 4 (total border closure).	Jan 2020 to Dec 2021
Public transportation restrictions	Measures policies on public transport closures from 0 (no measures) to 2 (requires closing or prohibit most citizens from using it).	Jan 2020 to Dec 2021
Workplace closures	Measures policies on workplace closures from 0 (no measures) to 3 (require closing or work from home of all but essential workplaces).	Jan 2020 to Dec 2021
COVID-19 cases	Real time country level reports on COVID-19 daily cases gathered from official country sources and the World Health Organization with 2 days lag.	Jan 2020 to Dec 2021
Bilateral goods exports	Nominal value (in \$) of goods exports from source country i to destination country j. The export values are in terms of free-on-board.	Jan 2020 to Dec 2021
Google mobility reports	Shows how visits and length of stay at various places change compared to a baseline which is the median value of a corresponding day of the week of Jan 3 to Feb 6, 2020.	Feb 2020 – Dec 2021

To estimate the IRFs using local projection, we use a fixed effects panel regression with the model specification:

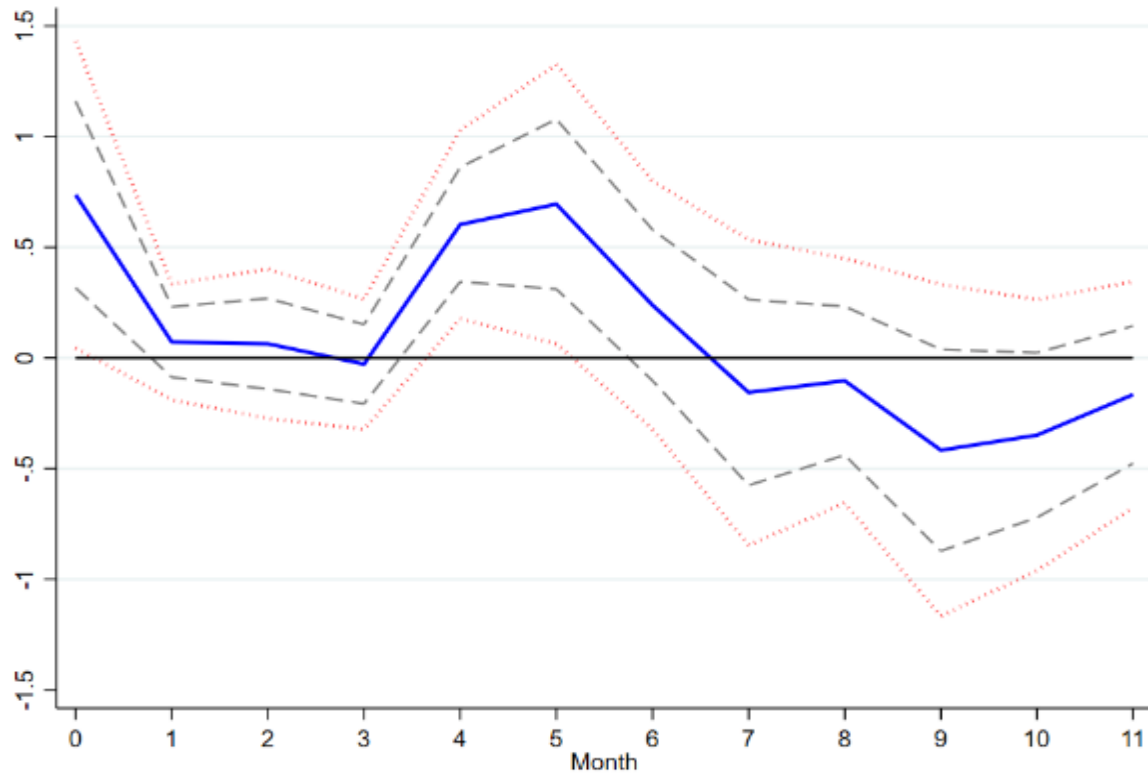
$$TFI_{i,t+h} = \alpha_i + \beta_1 TFI_{i,t-1} + \sum_{z=0}^1 \gamma_z \tau_{i,t-z} + \sum_{z=0}^1 \delta_z X_{i,t-z} + \sum_{z=0}^1 \theta_z C_{i,t-z} + \rho G_{i,t} + \vartheta_t T_t + \varepsilon_{i,t+h}$$

Where,

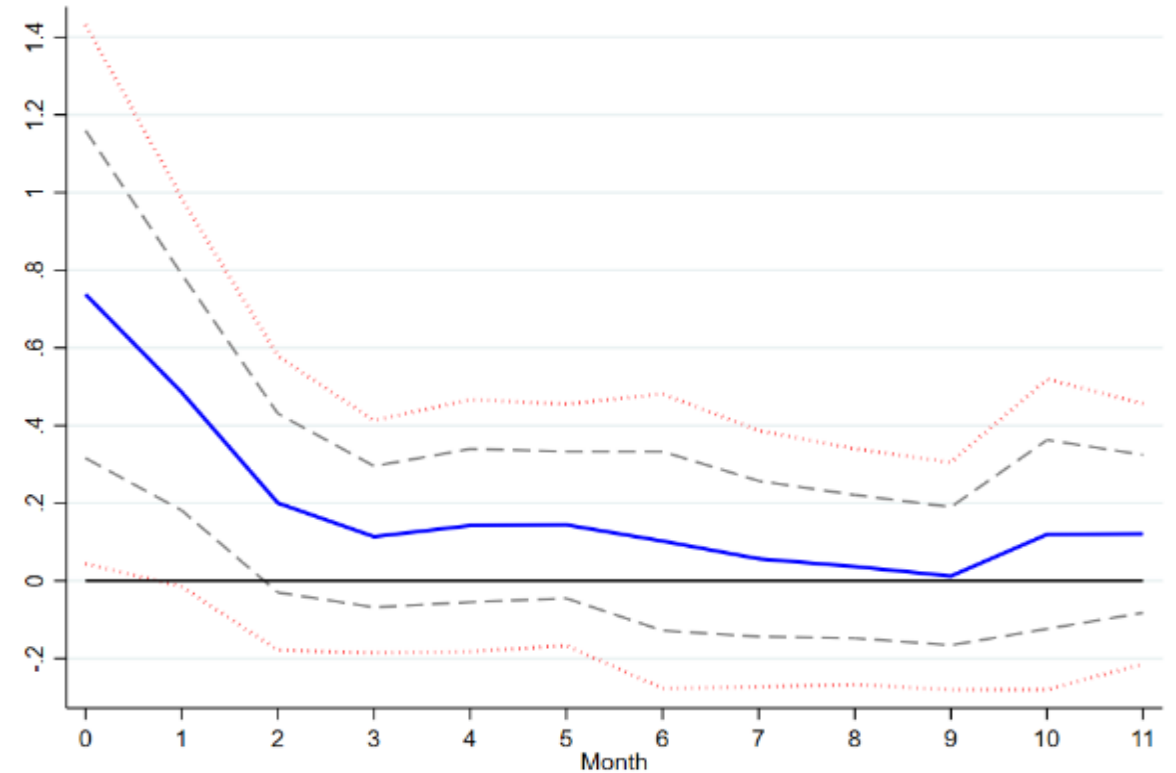
- $TFI_{i,t+h}$ is the logarithm of the average time taken at either inbound or outbound BCP pair i at time t and the forecast horizon $h = \{0, \dots, 11\}$
- $\tau_{i,t-z}$ is the contemporary OxCGRT Stringency Index and its lag
- $X_{i,t-z}$ is the contemporary logarithm of bilateral exports and its lag where $z = \{0, 1\}$
- $C_{i,t-z}$ is the contemporary logarithm of new covid cases per million and its lag
- $G_{i,t}$ is a vector containing the google mobility indices
- T_t is a vector of time dummy variables for quarter and year

Effects of a change in COVID-19 stringency index on average outbound time in CAREC

a. Average outbound time



b. Cumulative average outbound time

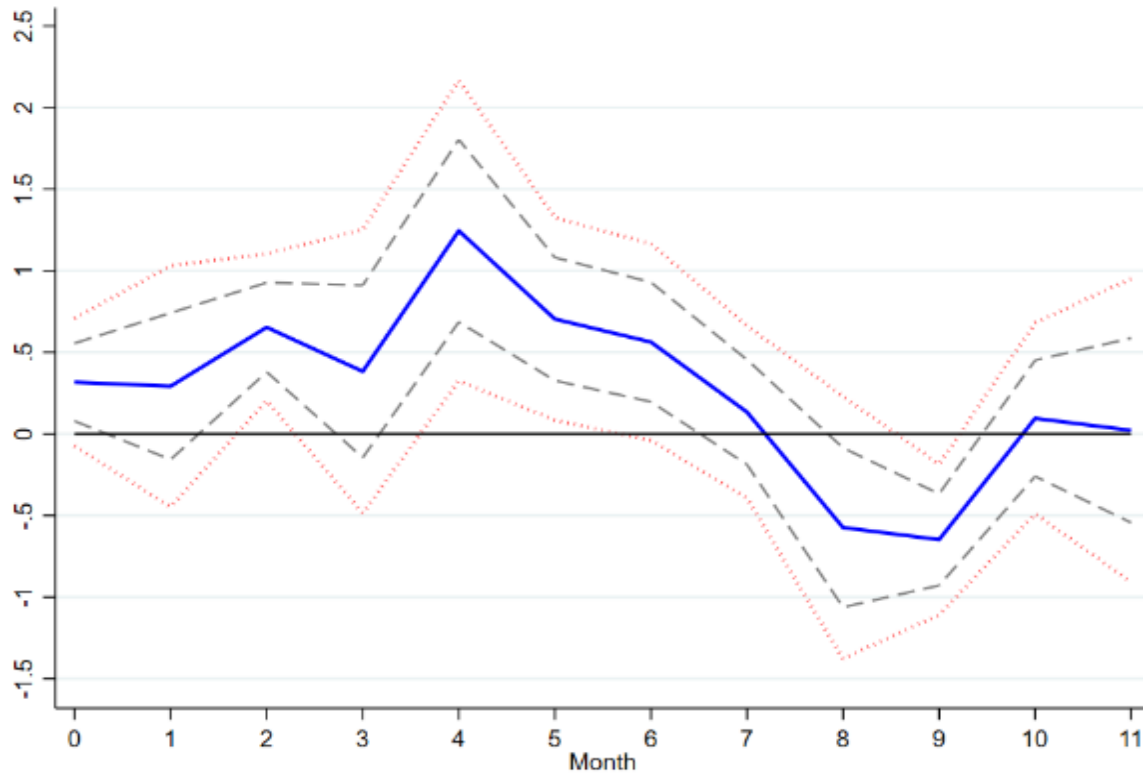


— IRF of average outbound time - - - 60% confidence interval 95% confidence interval

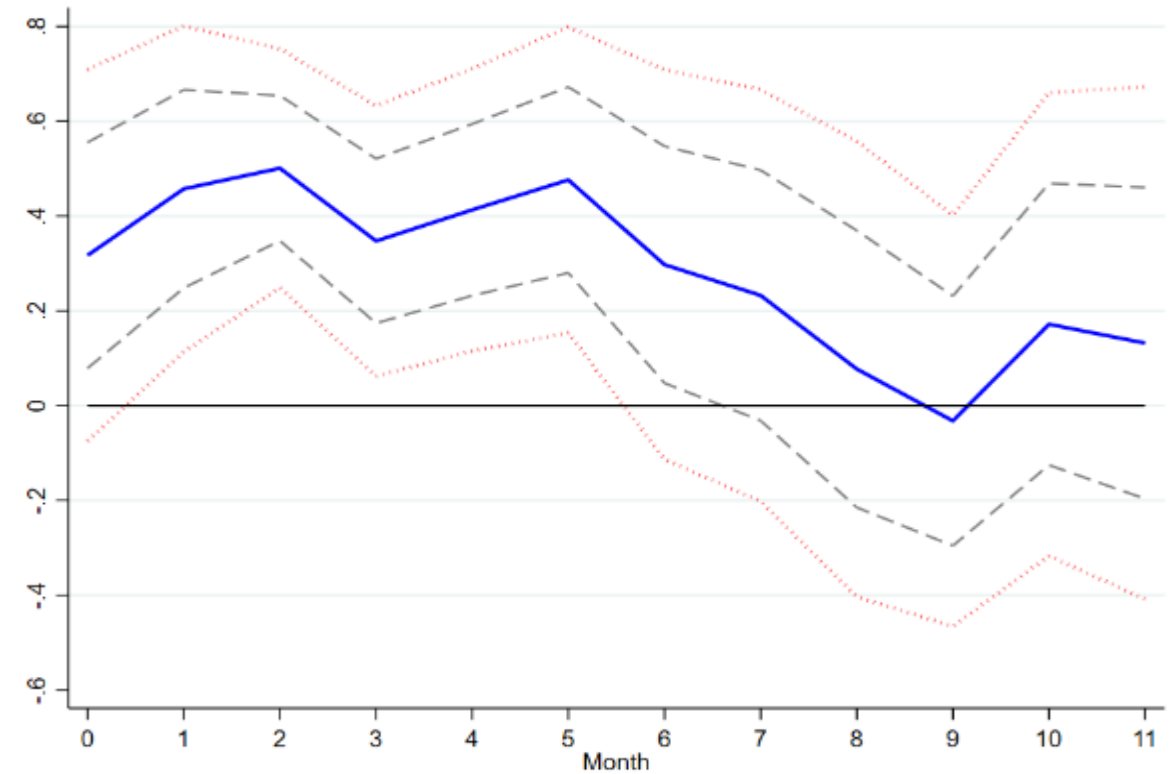
Note: Impulse response functions estimated from the fixed effect panel regression model
Source: Authors' calculations.

Effects of a change in COVID-19 stringency index on average inbound time in CAREC

a. Average inbound time



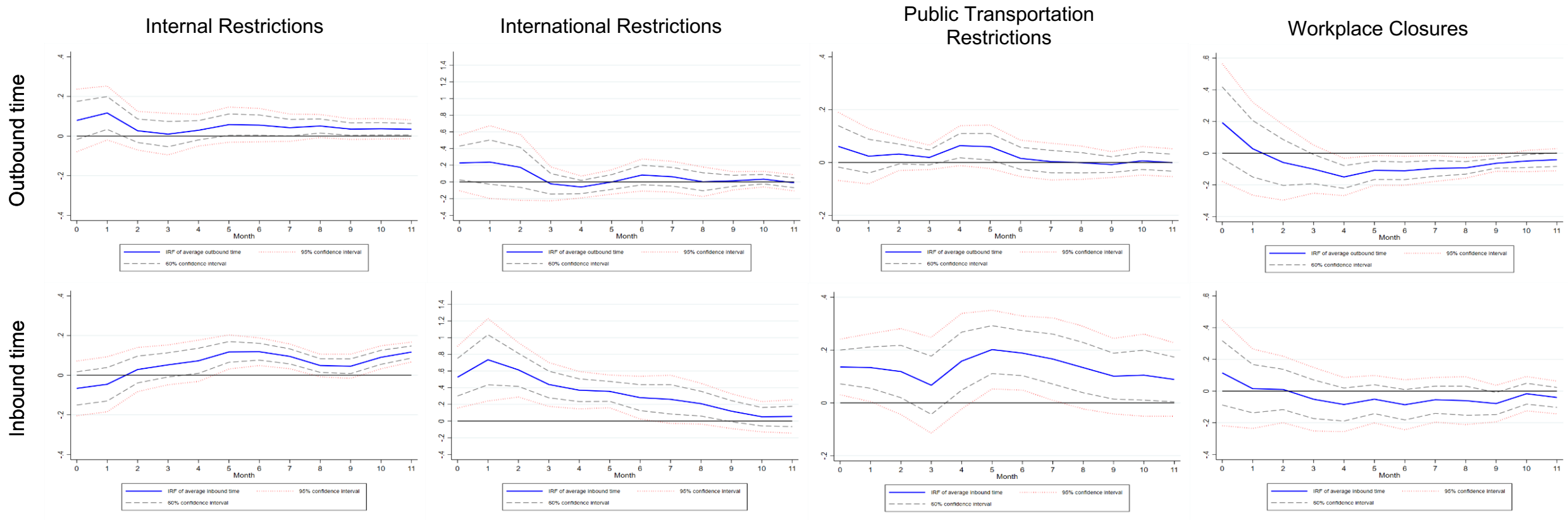
b. Cumulative average inbound time



— IRF of average inbound time - - - 60% confidence interval 95% confidence interval

Note: Impulse response functions estimated from the fixed effect panel regression model
Source: Authors' calculations.

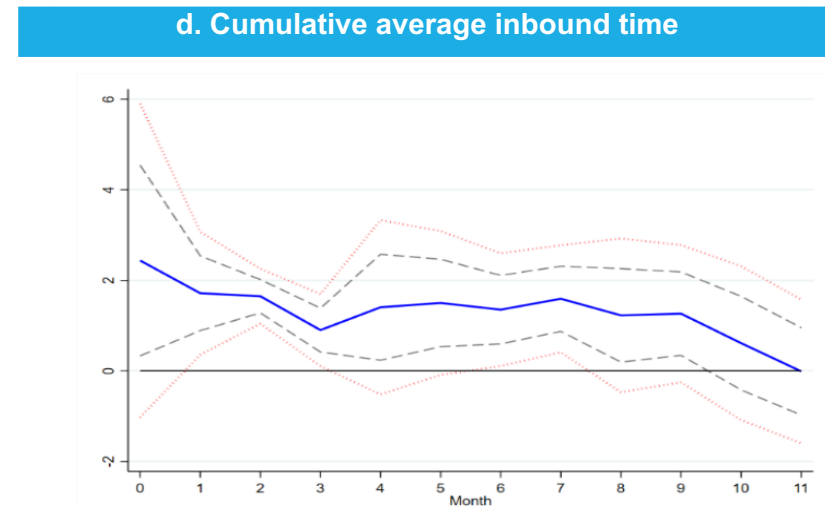
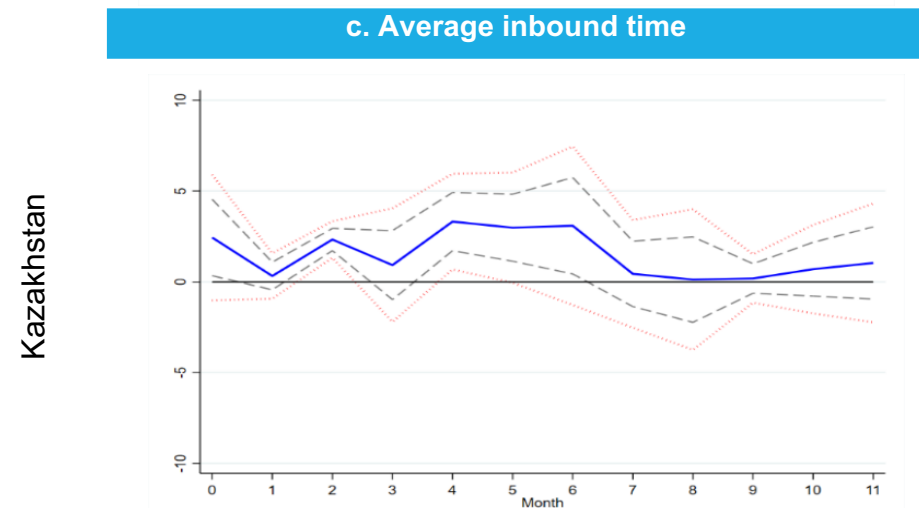
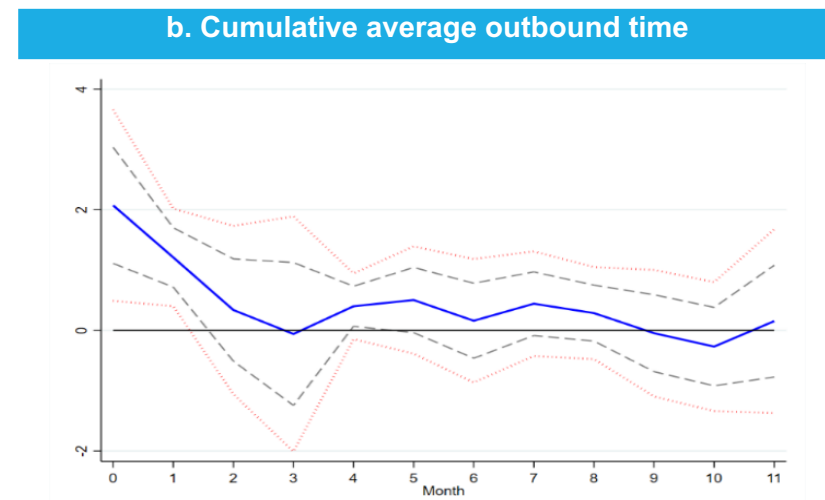
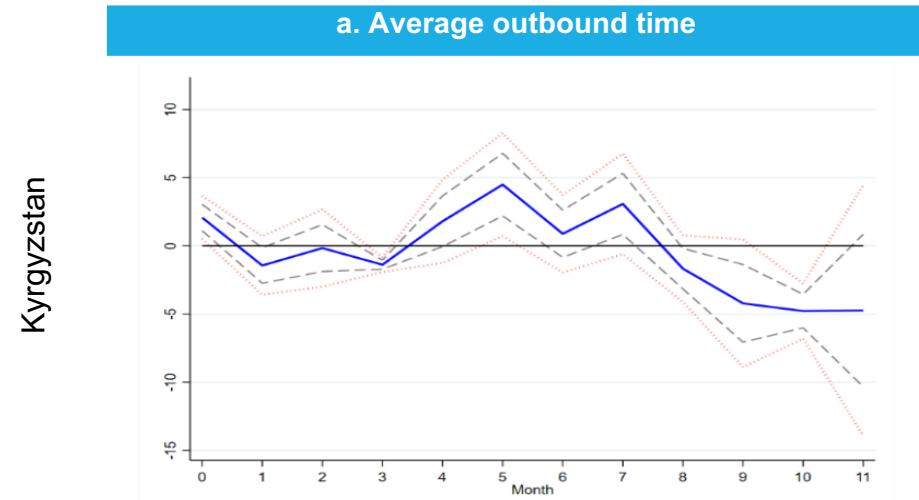
Comparison of different COVID-19 containment measures and its impact to cumulative average outbound/inbound time



Source: Authors' calculations.



Effects of a change in COVID-19 stringency index on average BCP pair time



— IRF of average outbound time — 60% confidence interval 95% confidence interval

Note: Impulse response functions estimated from the fixed effect panel regression model

11 Source: Authors' calculations.



Main findings

- A rise in the stringency index by 1p increases the outbound time by .7 percent by the initial month of implementation and increases the inbound time by .5 percent up to the 5th month after implementation.
- The outbound BCPs are more affected by stringency measures imposed than those in the inbound BCPs. However, the outbound BCPs are more resilient to the changes in the stringency measures as the impact only lasts for a month.
- International restrictions have the highest impact out of the four measures.
- The per country results show that there is heterogeneity in the response of each country in terms of the magnitude and timing of the impact of a change in the stringency measures.
- There is considerable potential growth for trade facilitation in CAREC through regional cooperation, in spite of its remarkable progress, particularly in cross-border paperless trade.

Moving forward: BCP specific information

- Availability of **trade/transit flow** data per BCP is more suited when doing country analysis as it is more disaggregated and can better inform about the impact of trade facilitation per border.
- **Number of employees and level of modernization and automation** can better disentangle the impact of BCP heterogeneity when doing analysis in terms of the time it takes to cross a border.
- Being close to **SPS inspection facilities** can contribute to faster processing of the release of goods at the border, therefore the information can contribute in explaining time variations at the border.