Corridor Developments for Transforming Central Asia:

Spatial Computable General Equilibrium Model

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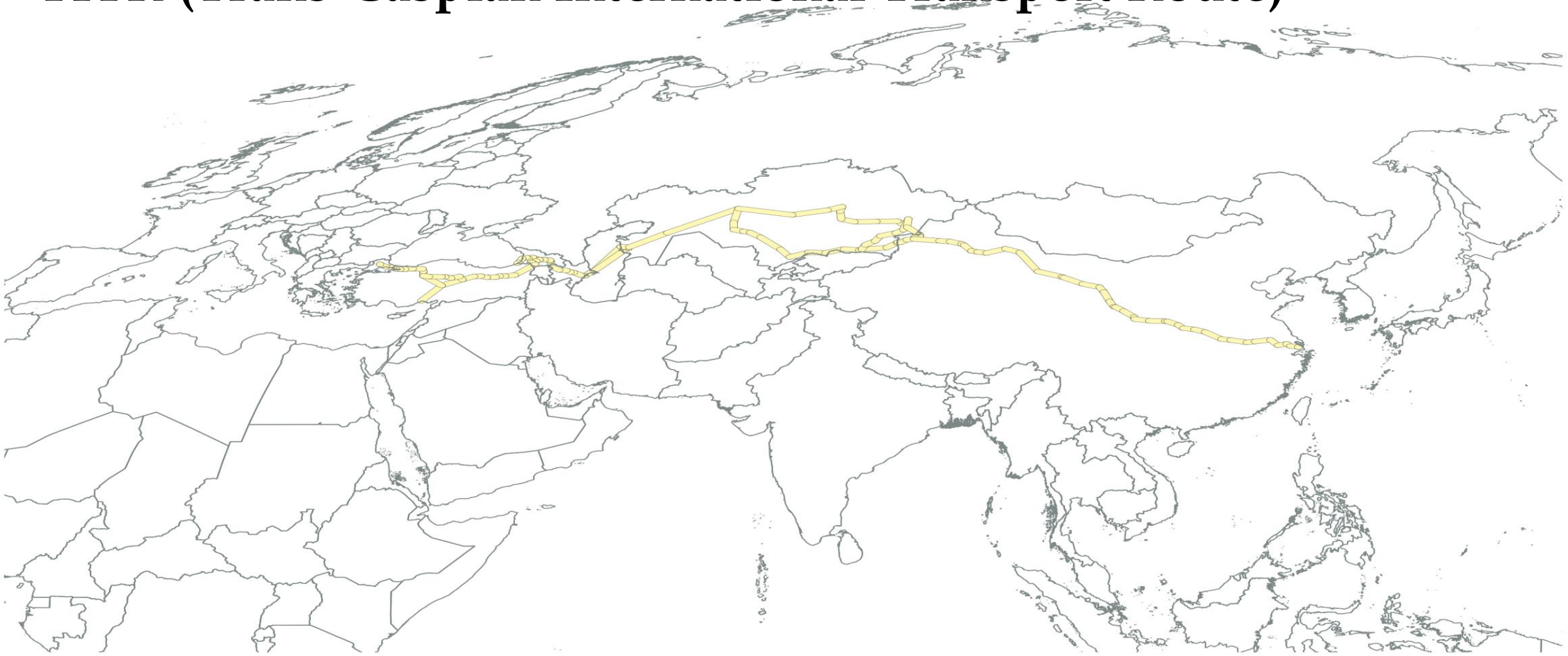
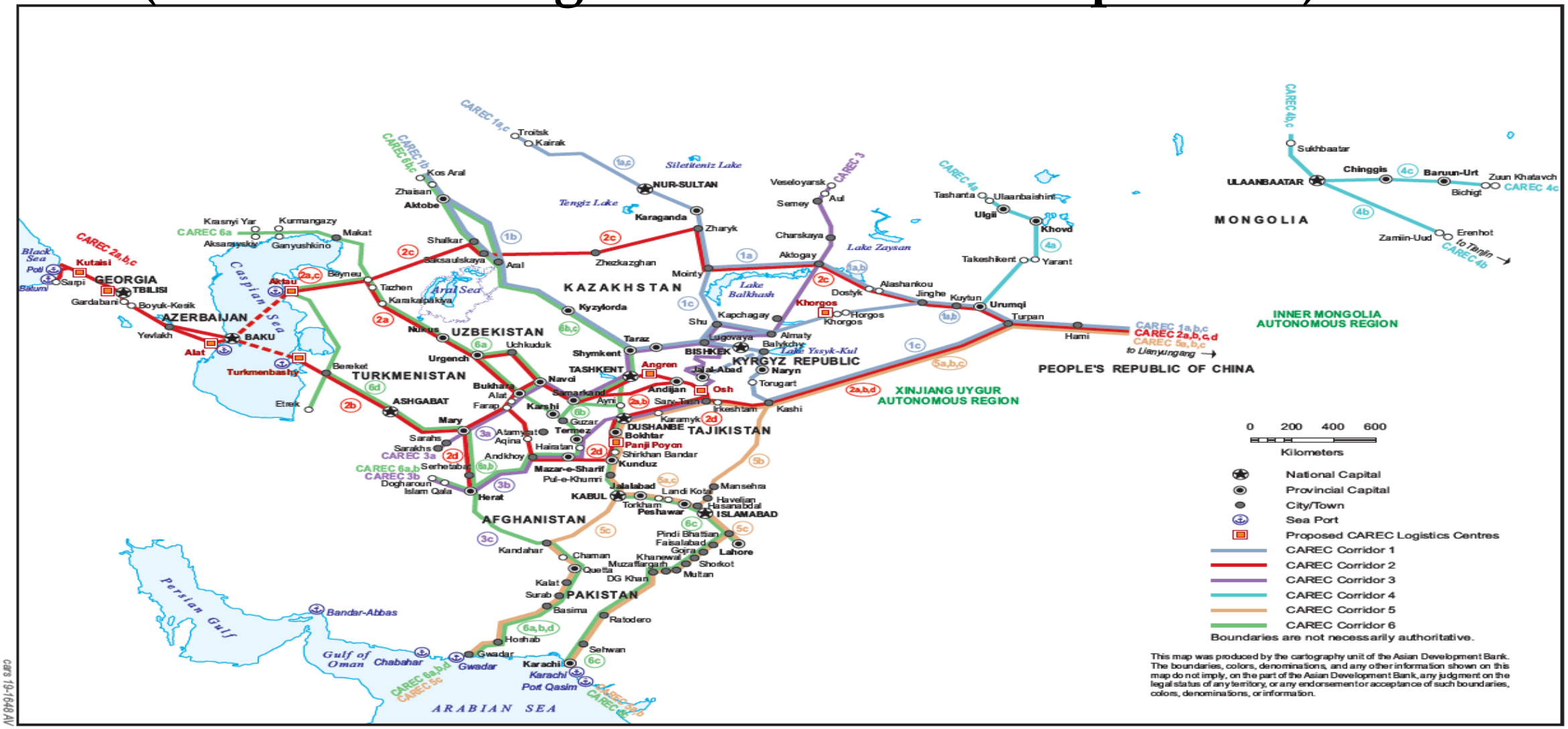
Scenario:
TITR (Trans-Caspian International Transport Route)



Scenario:
CAREC(Central Asia Regional Economic Cooperation) corridors



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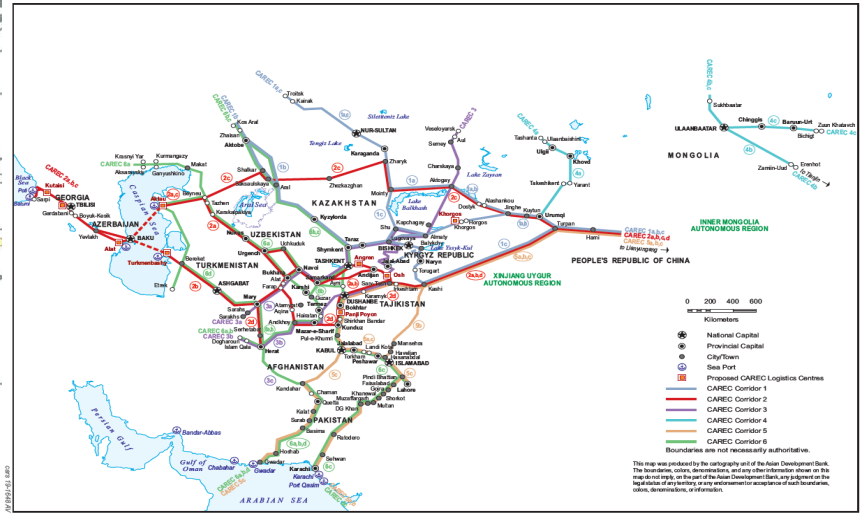


Questions for corridor projects

- **How can we observe the economic impacts?**
- **How large are they?**
- **By sector? Or by region?**

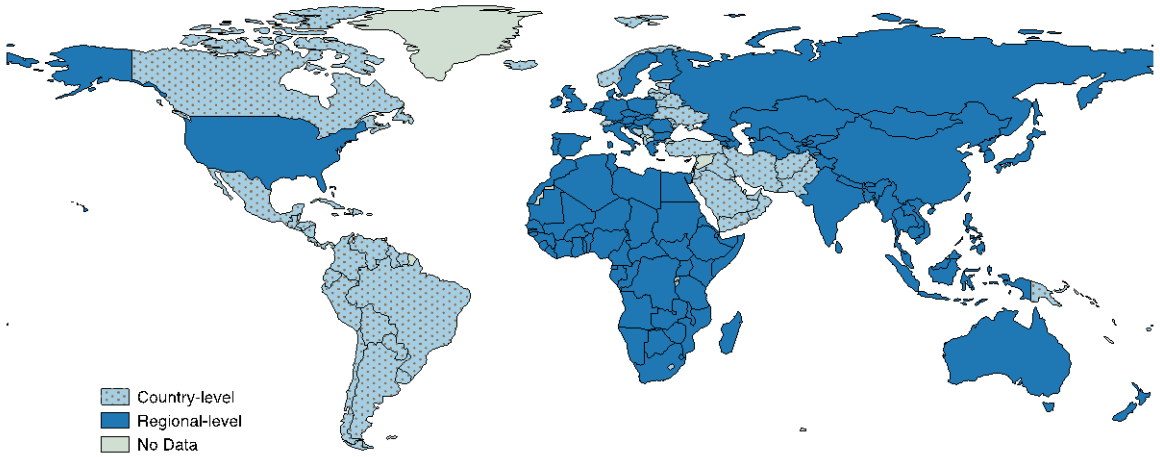
- **How can we expand the impacts?**
- **Is it really a good idea to make the corridor?**
- **What can we learn from the results?**

Uniqueness of IDE-GSM

Institute of Developing Economies- Geographical Simulation Model

- The model incorporate **agglomeration of population and clustering of industries**, which is called *Spatial Economics*.
- The unit of our study is **not nation, but region.**
  - Country studies fit to FTAs but not possible to work for regional infrastructures.
- **Difference in sectors matters.** 
- **Multimodal transport networks** connect regions.
  - ➔Our networks are multimodal, including  ,  ,  **and**  .
  - ➔IDE-GSM can estimate **the economic impacts of "soft (institutions) and hard (physical)" *transport infrastructure projects* at sub-national region**.

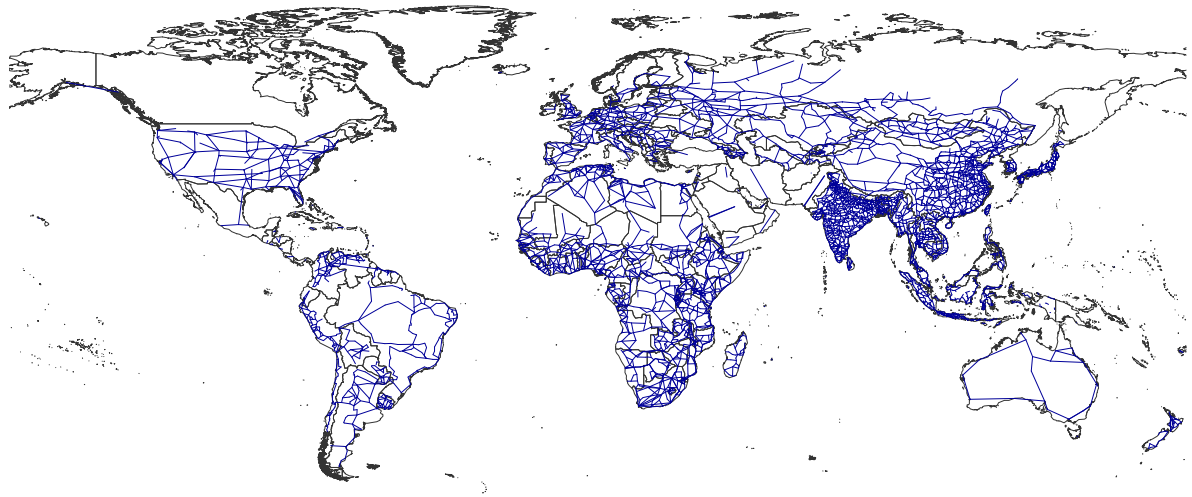
Data coverage:



Spatial coverage is mostly regional.

Our focus is developing countries.

3,017 regions of 98 economies



Multimodal transport networks

(An example of our road networks)

Over 14,000 routes

-Road, Sea, Air, Rail, high Speed Rail

-Quality of the infrastructures are described by the difference in average speed.

Scenarios

- **Connecting the missing links.**
- **Increasing the average speed.**
  - For specific highways from 19.25km/h to 38.5km/h.
  - For specific railways from 19.1km/h to 40.0km/h.

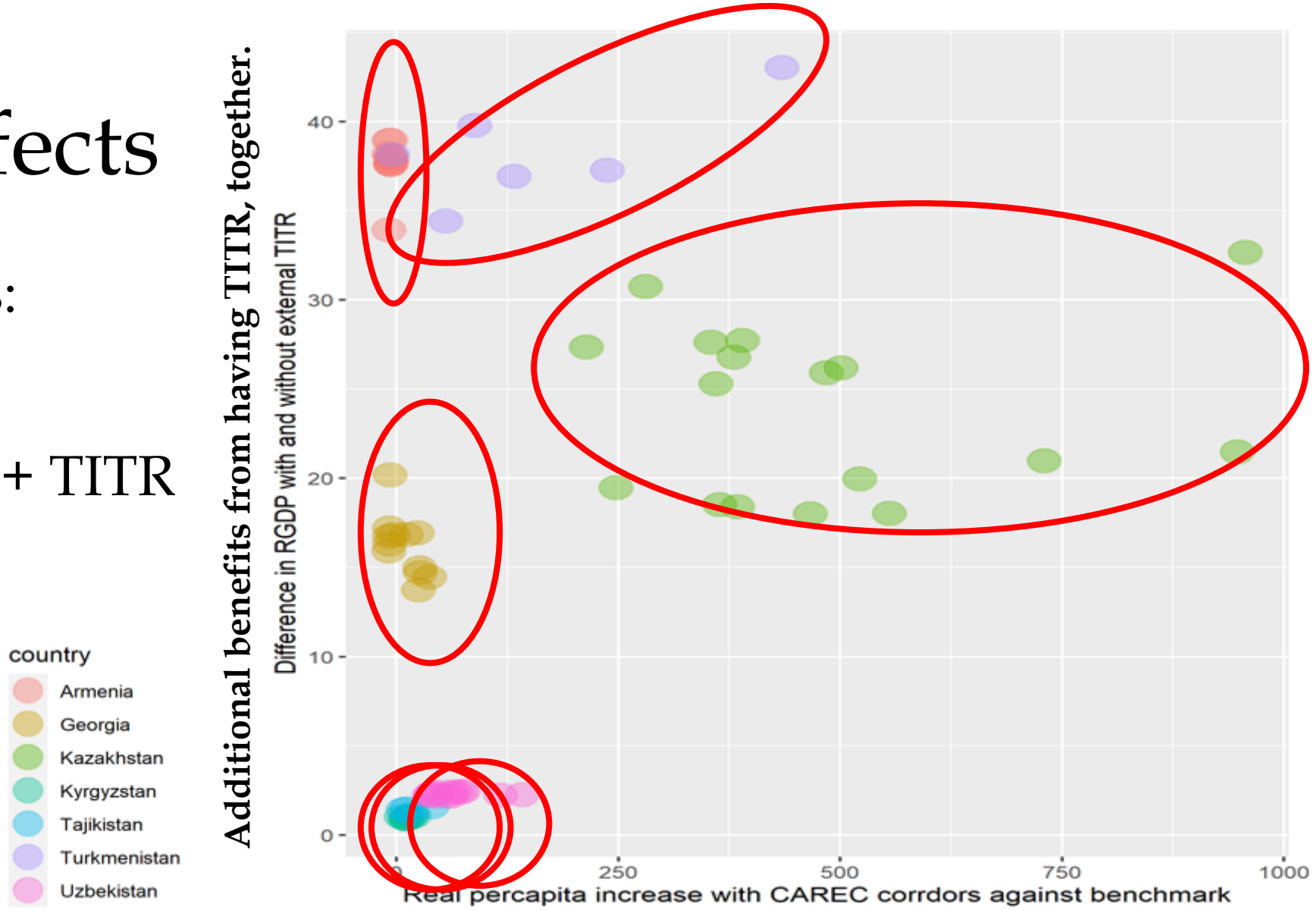
- **Simulations are performed for**
  1. Baseline scenario
  2. Individual CAREC corridor (1, 2, 3, 5, and 6)
  3. All CAREC Corridors
  4. All CAREC Corridors + TITR

Two notable effects in our results

- **Spillover effects**
  - There are two regions;
    1) regions with the project and 2) regions without the project.
  - We could largely and widely observe the spatially spreading impacts into the neighboring regions from the regions with projects. We call such spreads of economic impacts as ***spillover effects***.
  - In this geographical setting, all of the non-CAREC countries are potentially indirectly affected by CAREC corridors.
- **Synergy effects**
  - When combining several projects can bring larger impacts, we call these as ***synergy effects***. We find synergy effects in the combination of CAREC corridors and TITR.

Synergy effects

Economic impacts:
CAREC corridors
vs
CAREC corridors + TITR



The benefits from all CAREC corridors

Results on spillover and synergy effects

- **Spillover effects of CAREC corridors, only**
  - There are positive and negative effects in China, Turkey, and Russia.
  - The average spillover effects are found to be positive in China and slightly negative in Turkey and Russia.

- **Synergy effects of CAREC + TITR**
  - Highly positive impacts are found in all CAREC countries including neighburing countries.
  - Specifically, the average impacts were lager for Turkey and medium for China.
- **Spillover effects of CAREC + TITR**
  - Some impacts are found in the neighbouring regions in Iran, and Russia.

Conclusions

- **There are spatially extended economic impacts from corridor projects.**
  - This is because the improvements in parts of the transport networks can affect much broader spatial scopes. It is likely that population and industry shift to regions associated with better connectivity, meaning further agglomeration in larger cities.
  - Thus, we need to combine multiple corridor development initiatives with complementary development programs for the regions that are not likely to benefit much from such corridors to ensure balanced regional development.
- **There are spatially large impacts and transformation of regional advantages by the corridor projects.**
  - CAREC and TITR corridors tend to provide higher economic growth.
  - The economic impacts of the projects may be limited only in some sectors.

➔The establishment of special economic zones (SEZs) and other industrial development policies would make it possible to magnify the economic impacts.

➔To spread economic activities further, connecting large cities with railways is important.

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Thank you.

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