Impact of Geography and Natural Resource Abundance on Growth: The CAREC Countries

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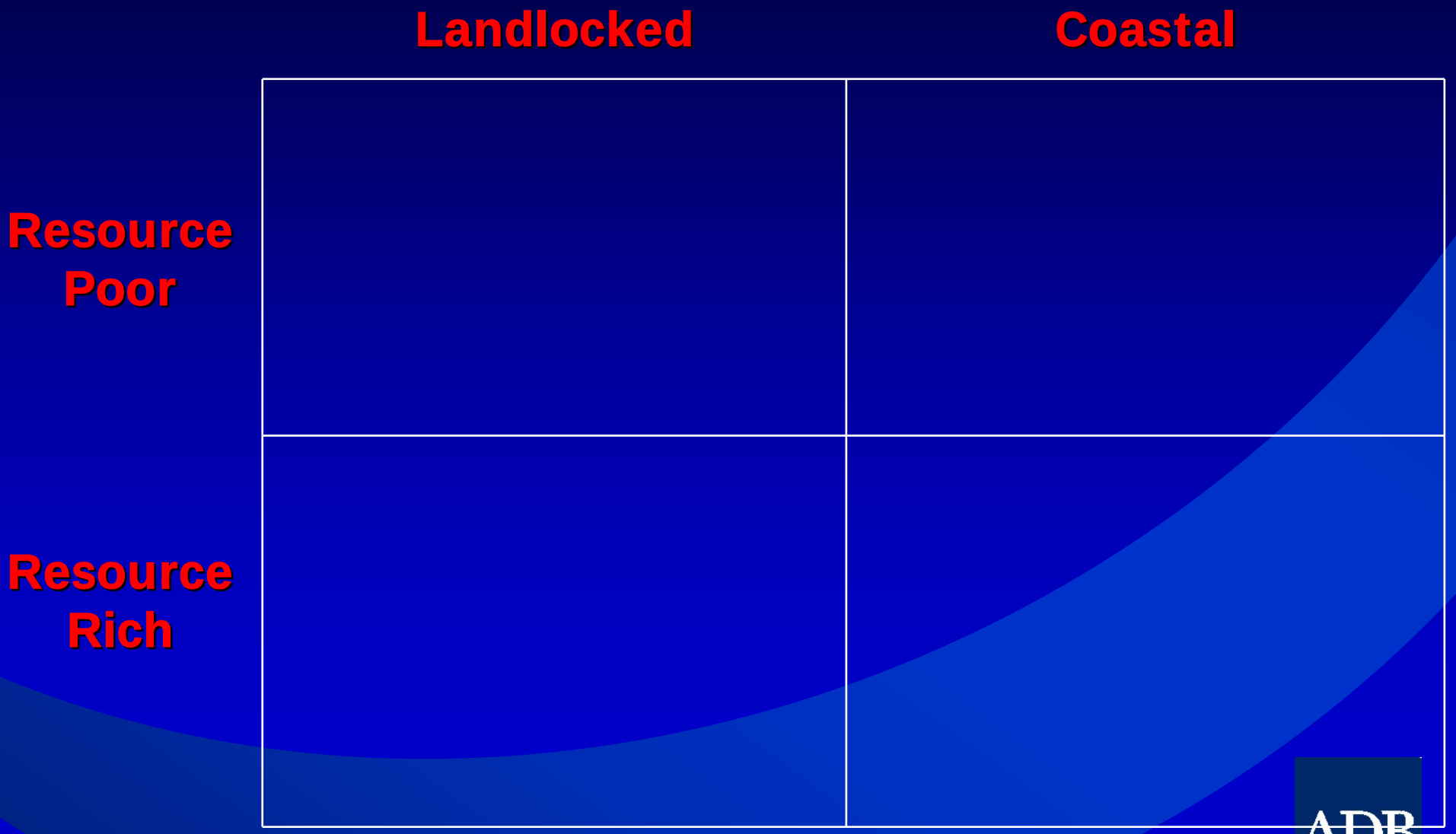
Resource Abundance & Geography



How does geography affect growth?

- Landlocked resource-poor is the slowest growing group (0.67%)
- Coastal economies grow faster than the landlocked economies (by 1.34 pp)
- Resource abundance deprives coastal economies of location advantages.
- But it increases it in landlocked economies
- Growth opportunities for resource-rich economies are the same whether they are landlocked or coastal

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Does growth differ across the three groups?

- Coastal resource-scarce economies grow faster than resource-rich (column 1)
- And both groups grow faster than the Landlocked resource-scarce (column 1)
- Across the three groups, SSA performs below the global average (column 2)

Resource Abundance & Geography

	Landlocked	Coastal
Resource Poor	WORST POSSIBLE CASE	BEST POSSIBLE CASE
Resource Rich	CAREC COUNTRIES	Growth opportunities for resource-rich economies are the same whether they are landlocked or coastal

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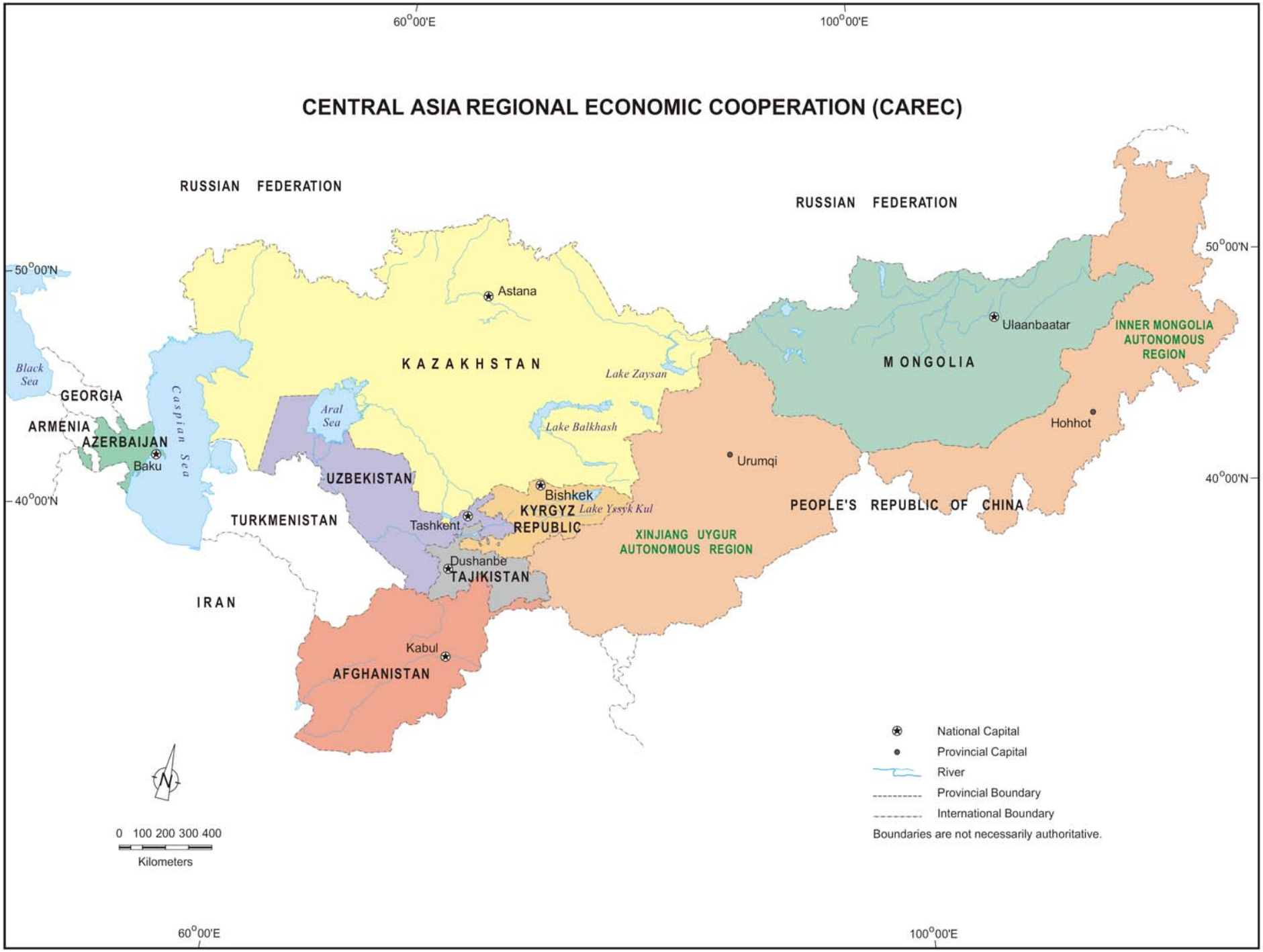
CENTRAL ASIA REGIONAL ECONOMIC COOPERATION (CAREC)
60°00'E
100°00'E
50°00'N
40°00'N
RUSSIAN FEDERATION
RUSSIAN FEDERATION
KAZAKHSTAN
Astana
MONGOLIA
Ulaanbaatar
INNER MONGOLIA AUTONOMOUS REGION
Hohhot
Black Sea
Caspian Sea
Aral Sea
Lake Zaysan
Lake Balkhash
GEORGIA
ARMENIA
AZERBAIJAN
Baku
UZBEKISTAN
Urumqi
Bishkek
KYRGYZ REPUBLIC
Lake Yssyk Kul
Tashkent
TURKMENISTAN
PEOPLE'S REPUBLIC OF CHINA
XINJIANG UYGUR AUTONOMOUS REGION
Dushanbe
TAJIKISTAN
IRAN
Kabul
AFGHANISTAN
N
0 100 200 300 400
Kilometers
National Capital
Provincial Capital
River
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
09-0720 HR

CAREC countries: Landlocked and Resource-rich

- Landlockness (all)
  - Higher transport cost
  - Dependence on neighbors' infrastructure
  - Limited access to international markets
- Resource-rich (AZE, KAZ, UZB)
  - Dutch Disease
  - Volatility
  - Rent seeking
  - Limited opportunities for diversification

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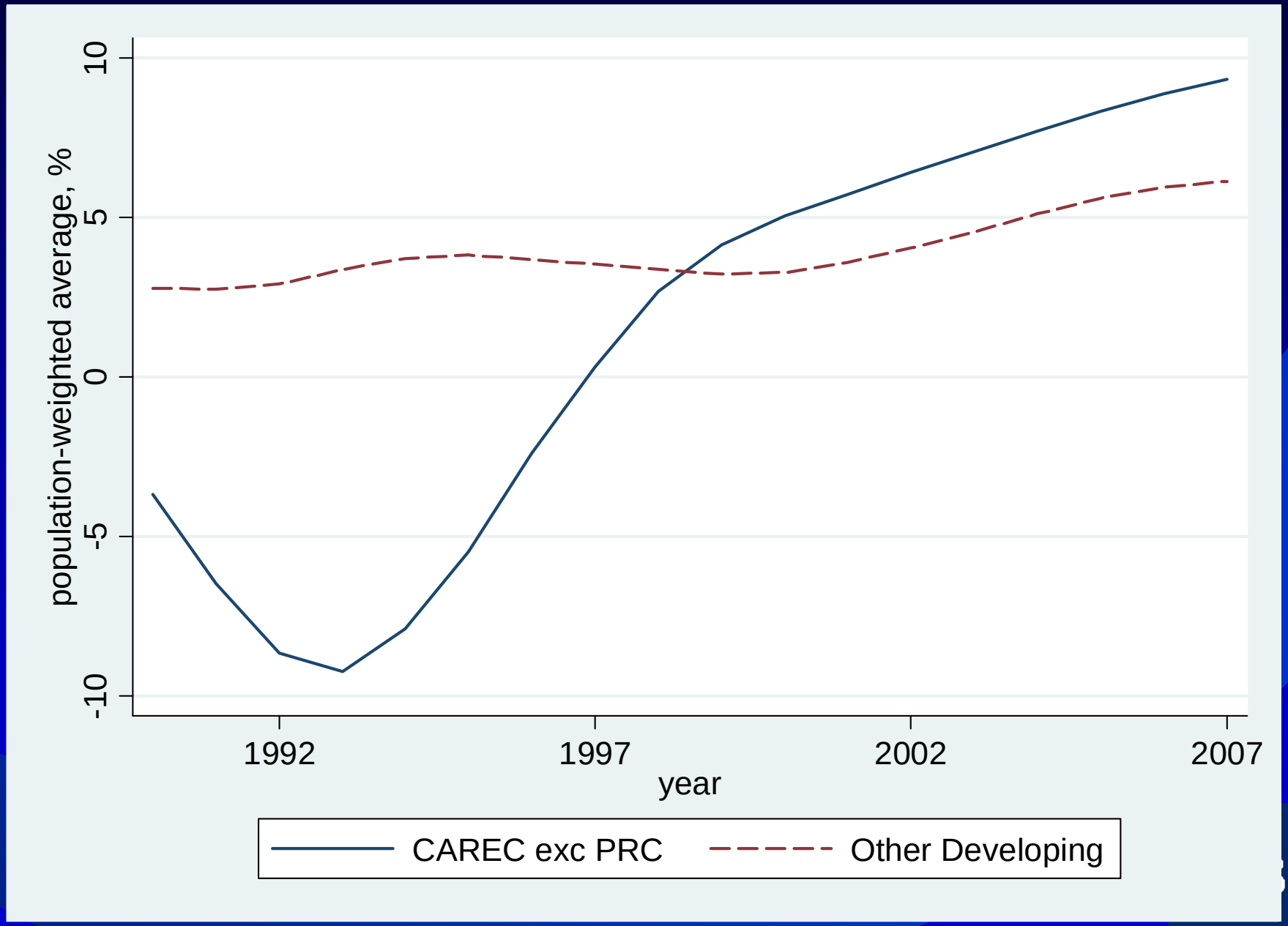
CAREC region outperformed the rest of the developing world after recovering from the initial slump



Questions

- What is the effect of being landlocked and resource-rich on growth for the CAREC region?
- How does growth differ across the CAREC countries?
- What is the effect of neighbors' growth?
- Do countries with a higher share of manufacturing exports in GDP grow faster?
- Does export sophistication affect future growth?

1. What is the effect of being landlocked and resource-rich on growth in the CAREC region?

- Covers 1994-2006
- PC GDP data for 135 developing countries;
- Estimation using OLS

$$\text{Growth } GDPpc_{it} = \beta_0 + \beta_1 CORS_i + \beta_2 RR_i + \beta_3 CORS_i * CAREC +$$
$$\beta_4 RR_i * CAREC + \beta_5 LLRS_i * CAREC + \text{Time FE} + \varepsilon_{it}$$

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Landlocked and resource rich countries in CAREC perform differently

- For 1994-2006, no difference across groups (1)
- Average growth in the CAREC countries is the same as that of the rest of the developing world (2)
- Landlocked resource-scarce CAREC countries grew 2 percentage points (pp) below the average of the other developing countries (4)
- Resource-rich CAREC countries (AZ, KAZ, UZB) grew 2.4 pp above the average of other developing countries (4)

2. How does growth differ across the CAREC countries?

$$\text{Growth } GDPpc_{it} = \beta_0 + \beta_1 CORS_i + \beta_2 RR_i + \beta_3 AZE + \beta_4 KAZ + \beta_5 KGZ + \beta_6 MON + \beta_7 TAJ + \beta_8 UZB + \text{Time FE} + \varepsilon_{it}$$

Heterogeneity among the CAREC countries

GDP per capita growth above global average

Azerbaijan (4 pp)

Kazakhstan (2 pp)

Mongolia (1 pp)

GDP per capita growth below global average

Kyrgyz Republic (2 pp)

Tajikistan (2 pp)

Uzbekistan (1 pp)

3. What is the effect of neighbors' growth?

$$\text{Growth } GDPpc_{it} = \beta_0 + \beta_1 LLRS_i + \beta_2 RR_i + \beta_3 Ngr_{it} + \beta_4 Ngr_{it} * RR_i$$
$$+ \beta_5 Ngr_{it} * LLRS_i + \beta_6 LLRS_i * CAREC + \beta_7 RR_i * CAREC$$
$$+ \beta_8 LLRS_i * CAREC * Ngr_{it} + \beta_9 RR_{it} * CAREC * Ngr_{it}$$
$$+ \text{Time FE} + \varepsilon_{it}$$

Good neighbors make a difference

- Neighbors' 1% extra growth adds 0.2 percentage points (pp) to your growth (1)
  - Neighbor's 1% extra growth adds 0.7 pp to the growth rate in the CAREC countries
- Both resource-rich (0.9 pp) and landlocked resource-scarce (0.4) countries in the CAREC region benefit from neighbors' growth (2 and 3)
- CAREC countries: AZE (2pp), KAZ(0.7pp), TJK (0.9pp), and UZB (0.3pp) benefit from neighbors' growth. Only negligible gains for KGZ and MNG

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4. Do countries with a higher share of manufacturing exports in GDP grow faster?

$$\text{Growth } GDPpc_i^{94-06} = \beta_0 + \beta_1 \ln(GDPpc_{i1994}) + \beta_2 (prim\exp\_gdp)_{i1994} + \beta_3 (manuf\ \exp\_gdp)_{i1994} + \beta_4 Rule_i + \beta_5 (prim\_enrol)_i + \varepsilon_{it}$$

- Sample: 1994-2006, 109 developing countries
- OLS estimation

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Key Results

- Countries with a higher share of manufacturing exports in GDP grow faster
- A higher share in GDP of exports of primary products has a statistically insignificant effect on growth
- CAREC countries grew faster (by 2pp) than the global average

…But different types of natural resources have different impact

- Oil: positive effect but statistically insignificant
- Food products: Negative effect on GDP growth
- Agriculture raw materials: No effect
- Ores and Metals: Negative effect

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5. Does export sophistication affect future growth?

$$\text{Growth } GDPpc_i^{94-06} = \beta_0 + \beta_1 \ln(GDPpc_{i1994}) + \beta_2 \ln(EXPY)_{i1994} + \beta_3 Rule_i + \beta_4 (tert\_enrol)_i + \beta_3 \ln(OF)_i + \varepsilon_{it}$$

- Sample: 1994-2006, 79 countries
- OLS estimation

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Countries with higher initial level of sophistication grow faster

	1994-06	1994-00	2000-06	Panel	Panel
Initial GDP pc	-1.63***	-1.35***	-1.87***	-1.69***	-9.53***
Initial Log EXPY	2.31**	1.92*	4.59**	3.56***	3.07
Rule of Law	0.52	1.1***	-0.2	0.49	
Tertiary Enrol	0.02	0.02	0.03	0.02*	
Log Initial OF	0.12	0.48*	-0.85	-0.3	
Time FE				Yes	Yes
Country FE				No	Yes
Observations	81	81	79	158	158

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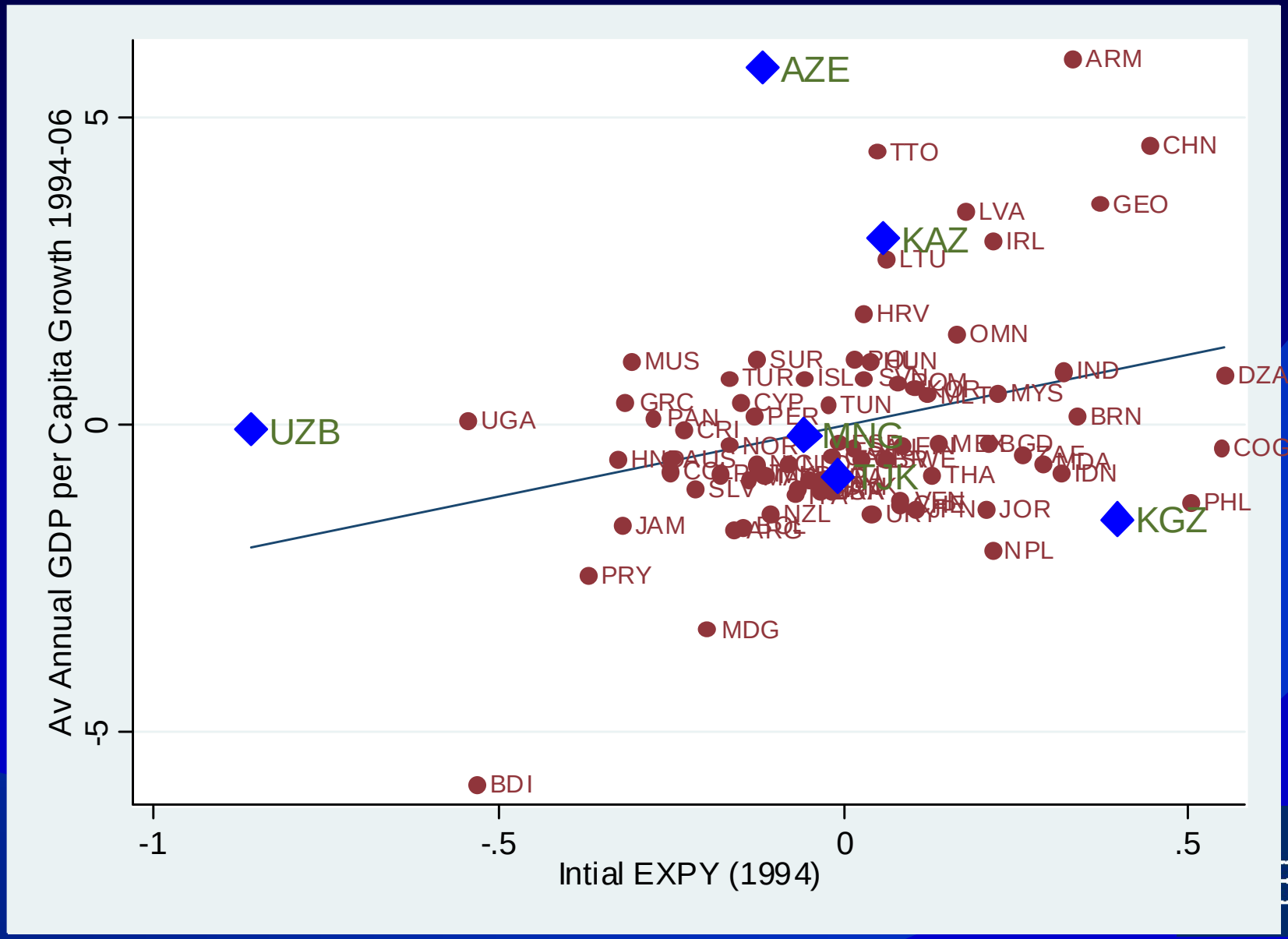
Countries with higher initial level of sophistication grow faster



Conclusions and Policy Implications

- Resource-rich countries in the CAREC region have grown faster than other resource-rich developing countries (ex SSA) by 2.37pp
  - There is heterogeneity among the CAREC countries
- Spillovers from neighbors' growth in the CAREC region add 0.7pp of extra growth. It pays off to be a "good" neighbor. Regional Cooperation:
  - Increase neighborhood growth spillovers
    - Transport infrastructure
    - Trade policy (including trade facilitation)
  - Improve neighbors' economic policies
    - They are regional public goods

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Conclusions and Policy Implications

- Countries with a higher share of manufacturing exports in GDP have grown faster, highlighting the importance of the sector (structural transformation) as a growth driver
- Countries that export goods also exported by rich countries grow faster (structural transformation)
  - Given the impact of export sophistication on future growth, CAREC countries should take a more aggressive stance in supporting export diversification and export upgrading

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Resource Abundance & Geography Policy Matters: Opportunities and Choices

	Landlocked	Coastal
Resource Poor	Challenge: high transport cost; limited access to global market Key: link with good neighbors to use their infrastructure Uganda vs. Switzerland	Challenge: identify correct policies to harness trade potential Key: capitalize on your access to global markets through labor-intensive manufacture exports Ivory Coast vs. Singapore
Resource Rich	Challenge: avoid "Dutch Disease"; move out of the periphery of the product space Key: optimize use of resource revenue to finance infrastructure investment Most CW Asia vs. Botswana	Challenge: avoid "Dutch Disease"; move out of periphery of the product space Key: optimize use of resource revenue to finance expansion into high value-added activities Indonesia vs. Malaysia

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Thank you