Balancing Natural Resources and Human and Social Capital

Pathways to Economic Diversification in Mongolia

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Overview I

Economic diversification matters for sustainable development

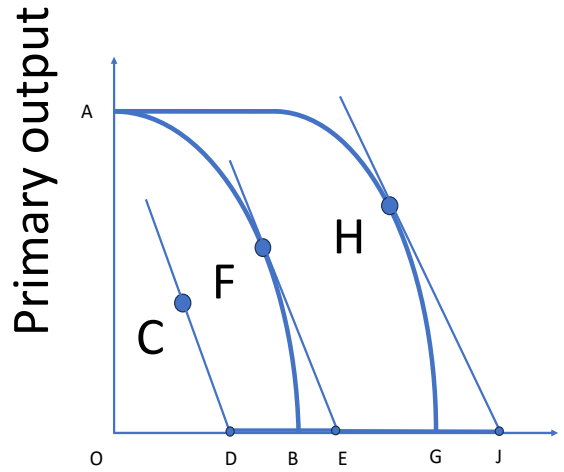
- We explore potential benefits of diversification for Mongolia
- Compare Mongolia with its structural and aspirational peers to shed light on strategies to foster economic and societal diversification
- Examine the implications of declining demand for Mongolia's key minerals, primarily coal, resulting from climate change concerns
- Discuss pathways for Mongolia to diversify its economy by striking a balance of natural resources vs. human and social capital

Overview II

- We view diversification as a source of increased efficiency and growth and apply our argument to Mongolia after 1990
- Study cross-country patterns of diversification and growth, comparing Mongolia with two groups of peers to identify and illustrate channels through which diversification can support growth, based on a simple model of production possibilities
- Present nontechnical narrative, eschewing mathematics and econometrics, leaving room for technical testing of our findings in future work

Background: Diversification and growth

Diversification shifts production frontier outward

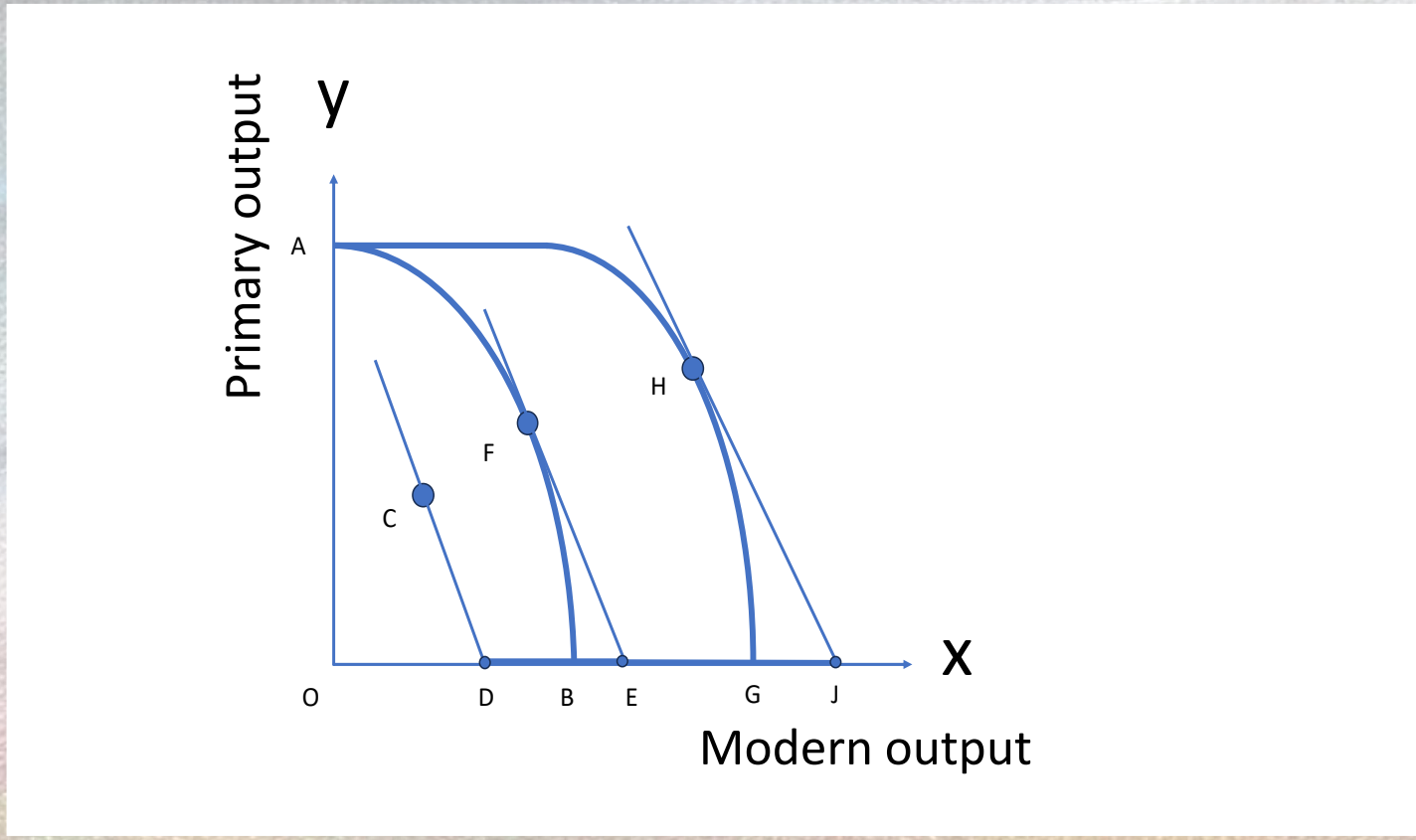


From unemployment to full efficiency through diversification

- **C** : Underutilized resources, with booms and busts, need stabilization
- From **C** to **F** : Full employment of all resources, entailing choice between primary output and modern output
- From **F** to **H** : Diversification, more efficiency, higher GDP per person

Diversification of production possibilities

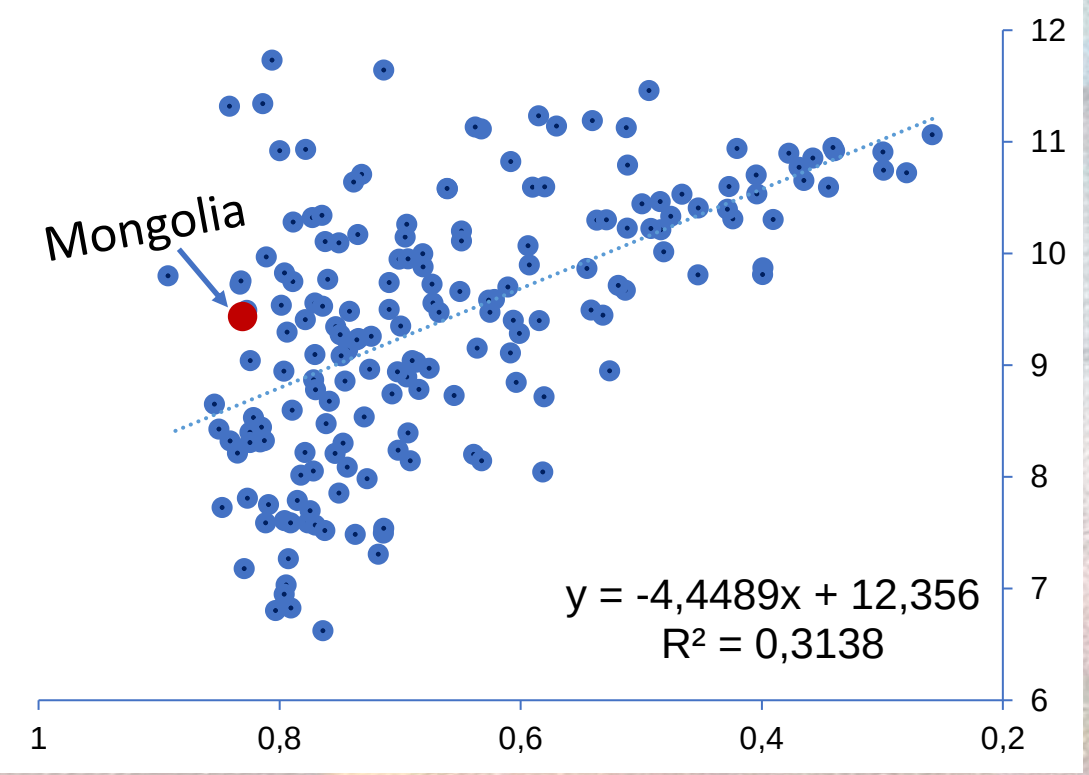
- $y = a - \left(\frac{1}{2b}\right)x^2$
- $\frac{dy}{dx} = -\frac{1}{b}x = -1$
- $x = b$
- $y = a - \frac{b}{2}$
- $GDP = a + \frac{b}{2}$



Export diversification, concentration, and growth

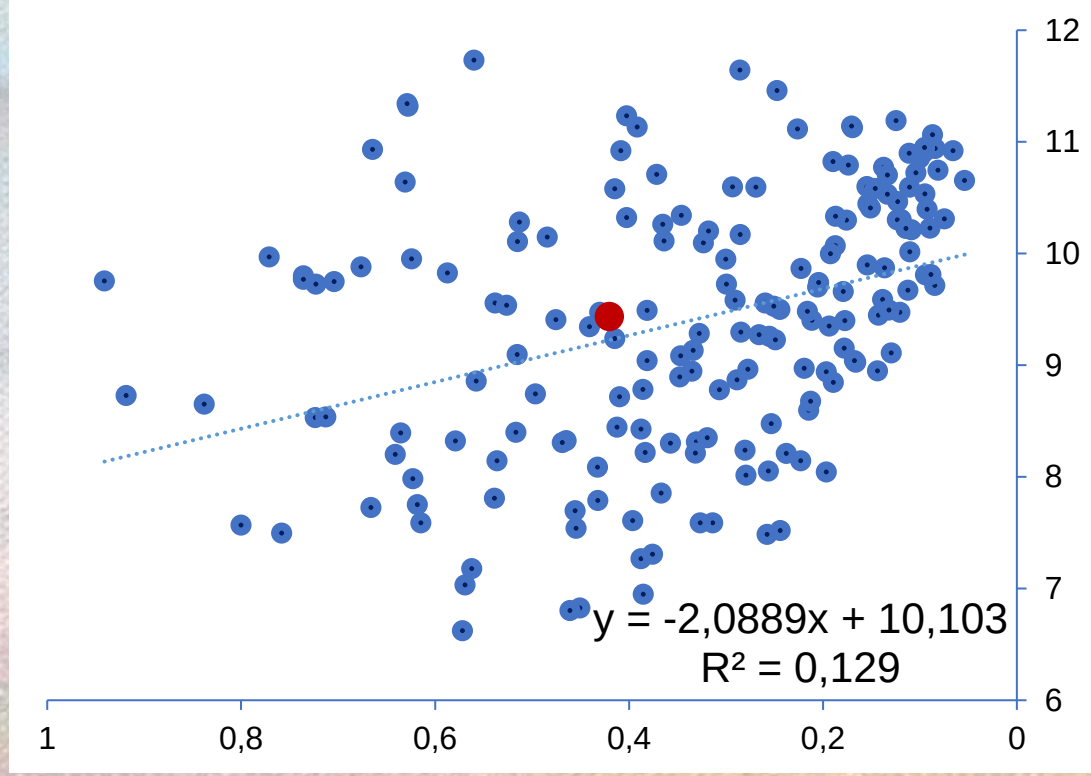
Finger-Kreinin index of diversification and per capita GNI 1995-2018

(USD, ppp, 2018 prices, 181 countries)



Herfindahl-Hirschman index of concentration and per capita GNI 1995-2018

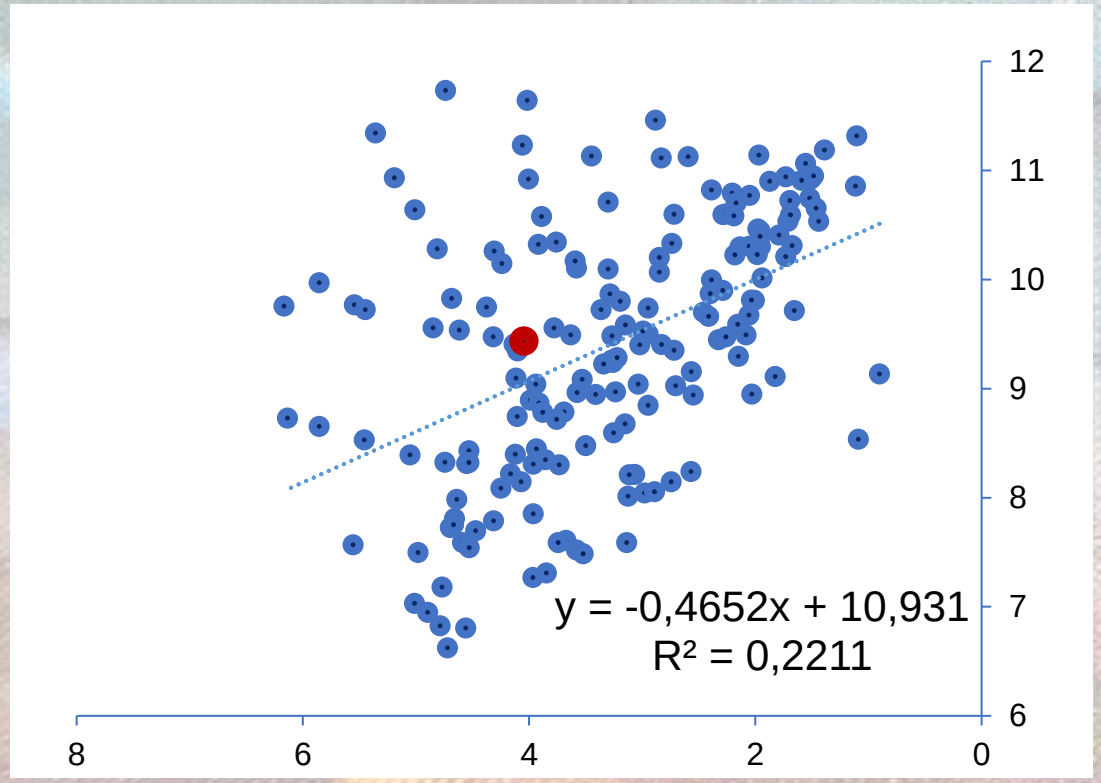
(USD, ppp, 2018 prices, 181 countries)



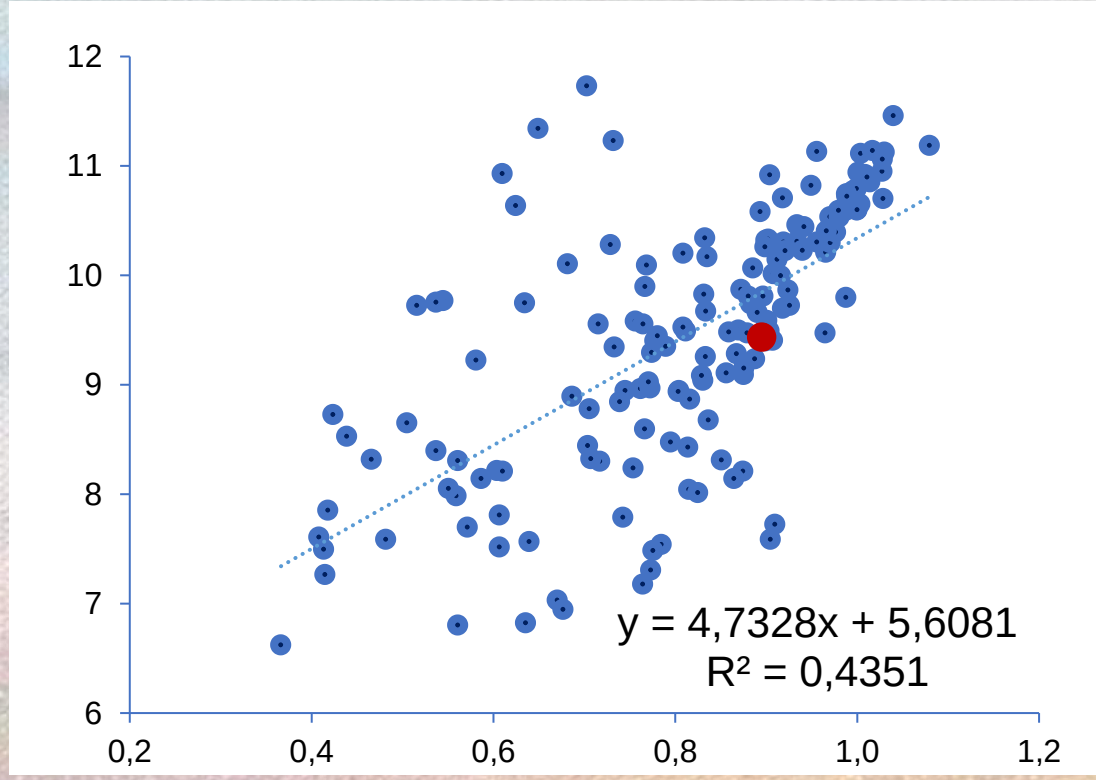
Sources: Authors' computations, based on UNCTAD and World Bank, *World Development Indicators.*

Export diversification, export quality, and growth

Theil index of diversification 1990-2014
and per capita GNI 1995-2018
(USD, ppp, 2018 prices, 174 countries)



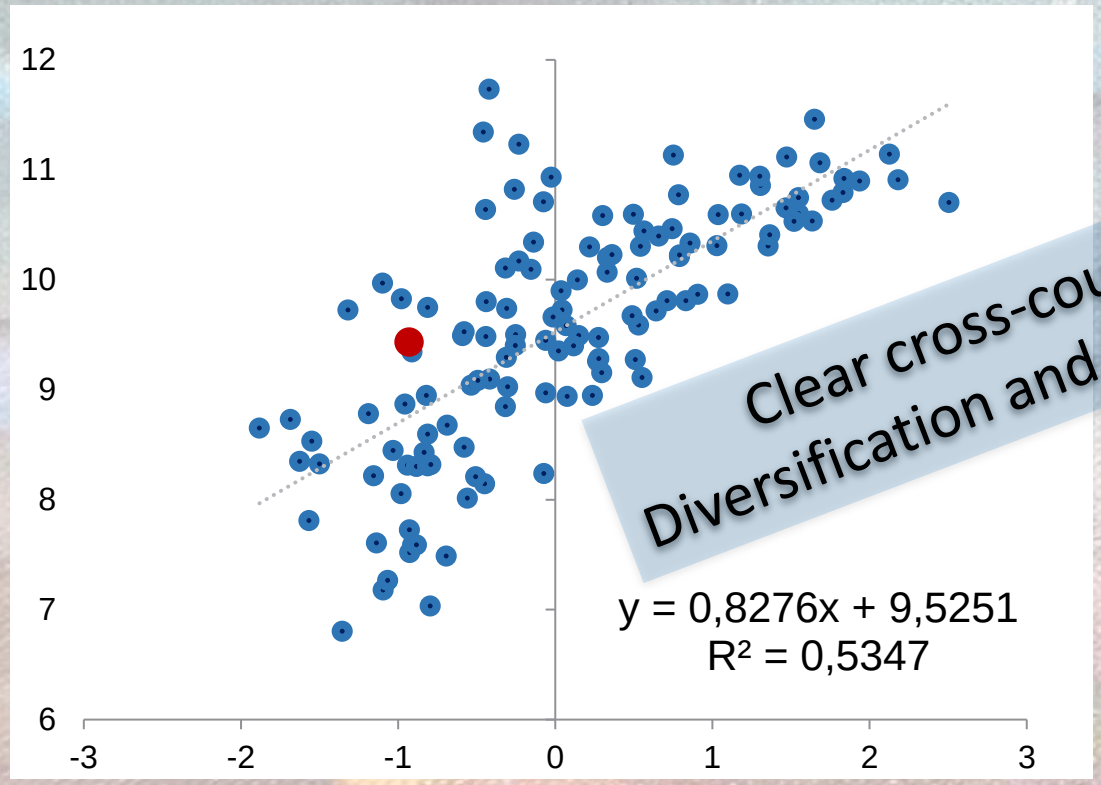
IMF index of product quality 1990-2014
and per capita GNI 1995-2018
(USD, ppp, 2018 prices, 159 countries)



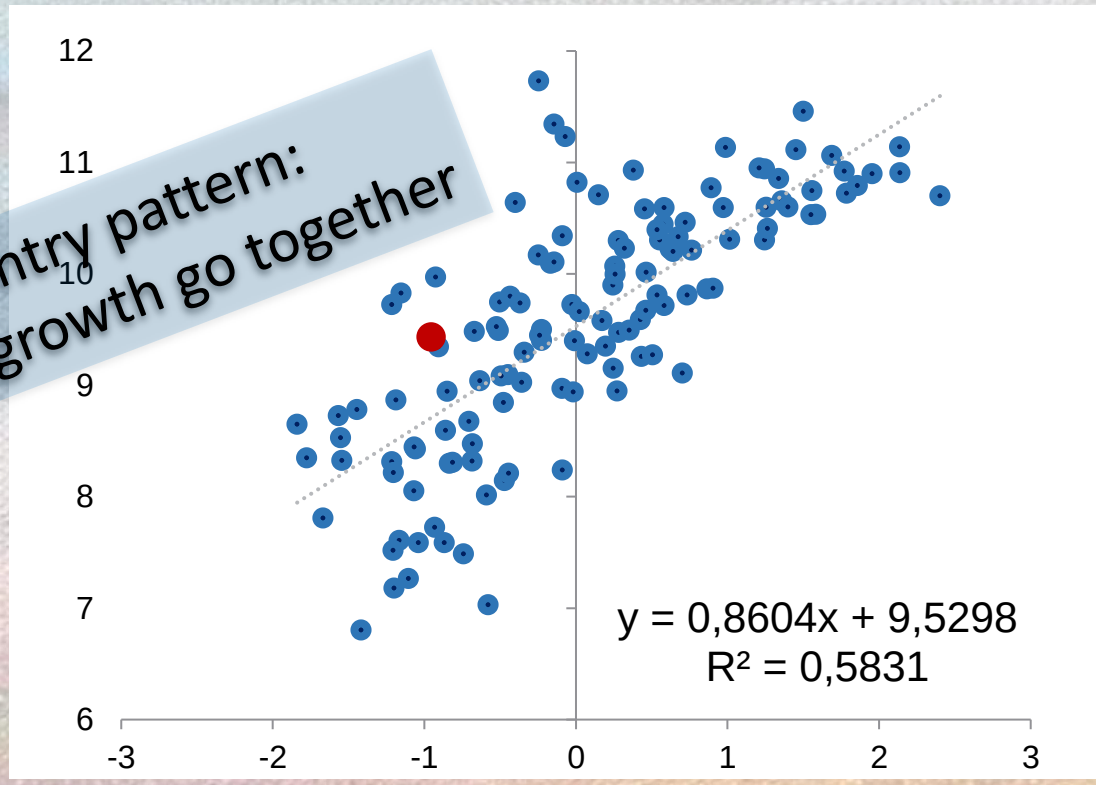
Sources: Authors' computations, based on IMF and World Bank, *World Development Indicators.*

Economic complexity and growth

Economic complexity (SITC)
and per capita GNI 1995-2018
(USD, ppp, 2018 prices, 174 countries)



Economic complexity (HS)
and per capita GNI 1995-2018
(USD, ppp, 2018 prices, 159 countries)



Clear cross-country pattern:
Diversification and growth go together

Sources: Authors' computations, based on Atlas of Economic Complexity and World Bank, *World Development Indicators.*

Aspects of diversification

Specialization boosts economic efficiency via gains from trade …

… but there can be too much of a good thing

Three types of diversification, two economic, one political

1) Away from heavy dependence on a single sector or a few typically natural resource-based commodities (also, destinations)
2) Change toward increased complexity, quality, and variety of output
3) Away from dependence on political elites toward more democracy

Benefits of economic diversification for growth

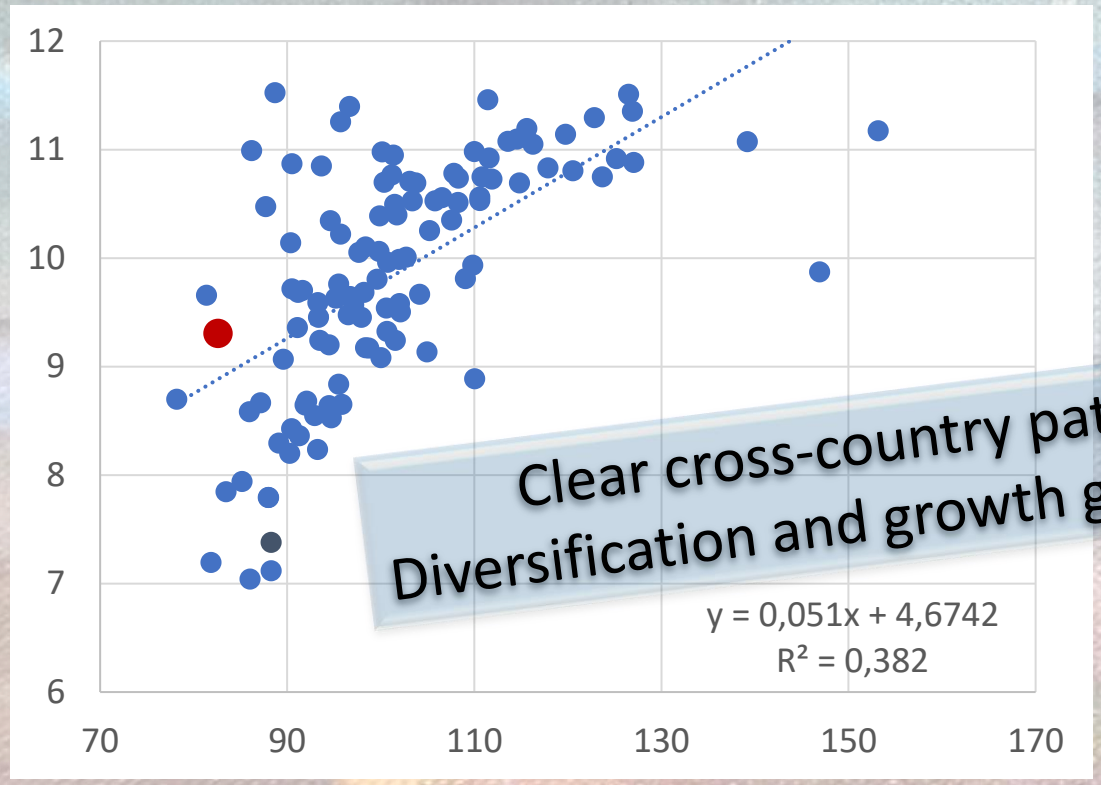
Exemplified by widely observed inverse relationship between heavy natural resource dependence and long-run economic growth

Economic diversification, natural capital, and growth, 1995-2021

New data

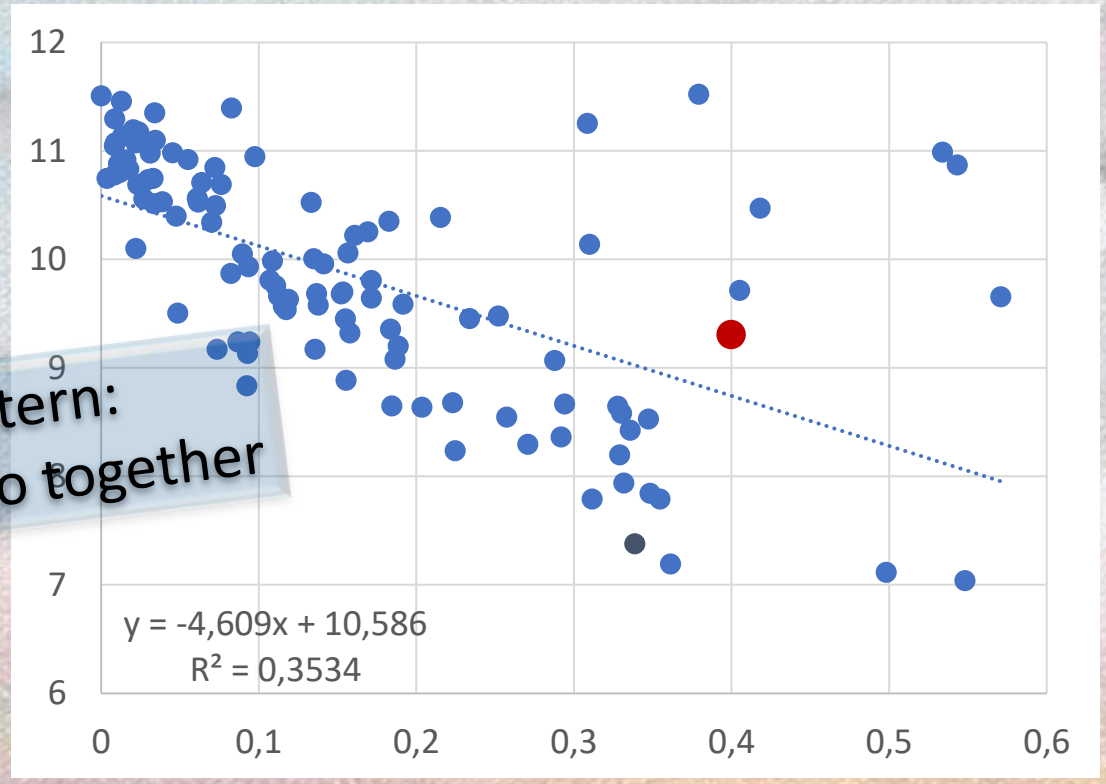
Log of per capita GNI 2021 and EDI 2000-2021

(USD, ppp, 112 countries)



Log of per capita GNI 2021 and share of natural capital in total wealth 1995-2018

(USD, ppp, 108 countries)



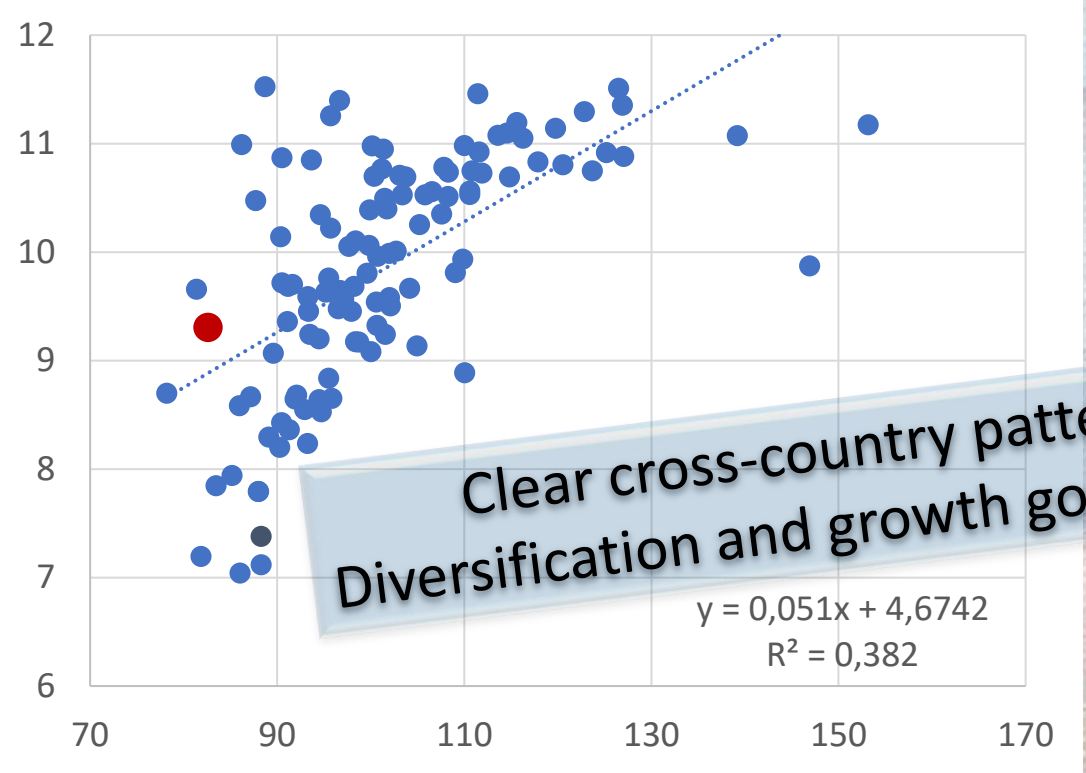
Clear cross-country pattern:
Diversification and growth go together

Source: Authors' computations, based on Global Economic Diversification Index and World Bank, *World Development Indicators*.

Economic and political diversification and growth, 1995-2021

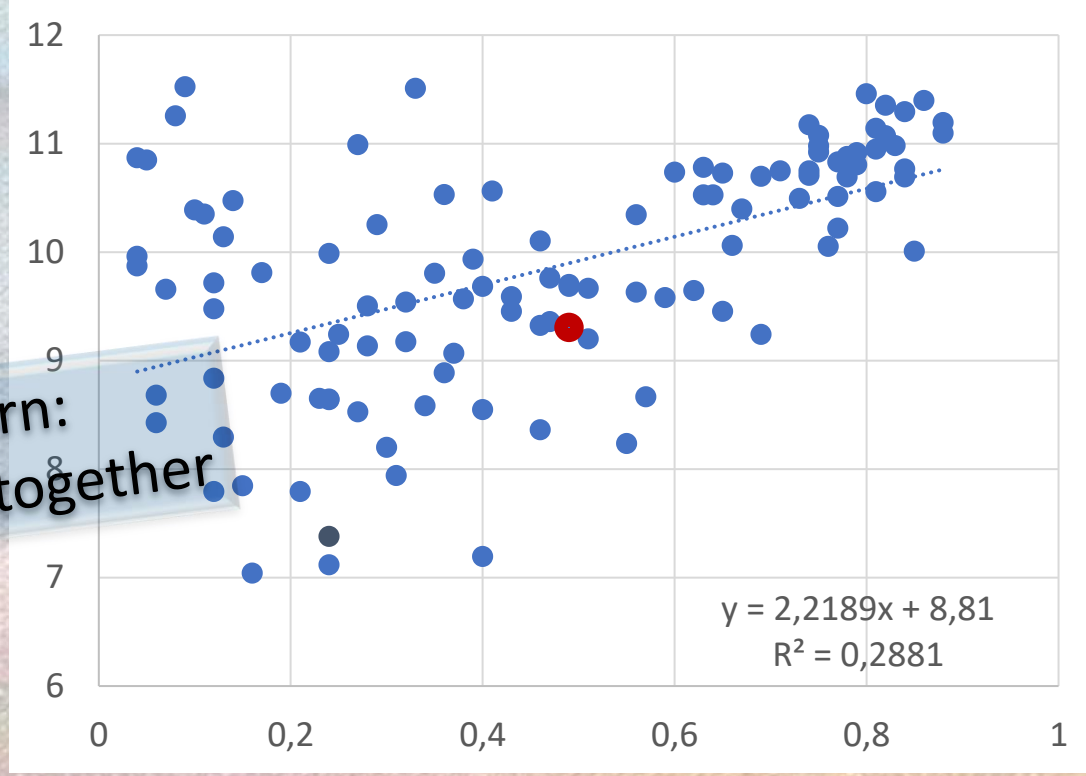
Log of per capita GNI 2021 and EDI 2000-2021

(USD, ppp, 112 countries)



Log of per capita GNI 2021 and democracy 2021

(USD, ppp, 112 countries)



Clear cross-country pattern:
Diversification and growth go together

Source: Authors' computations, based on Global Economic Diversification Index, *Democracy Report 2023*, and *World Development Indicators*.

Multiple regression analysis

$$GNI = a_0 + a_1 EDI + a_2 DEM$$
$$HDI = b_0 + b_1 EDI + b_2 DEM$$

	CONST	EDI	DEM	R^2
GNI	5.346 (8.6)	0.039 (5.7)	0.013 (3.8)	0.45
HDI	0.188 (2.4)	0.005 (6.0)	0.002 (4.4)	0.49

Note: 112 countries, t-values within parentheses.

Selected determinants of economic growth

GNI per person, life expectancy, and human development

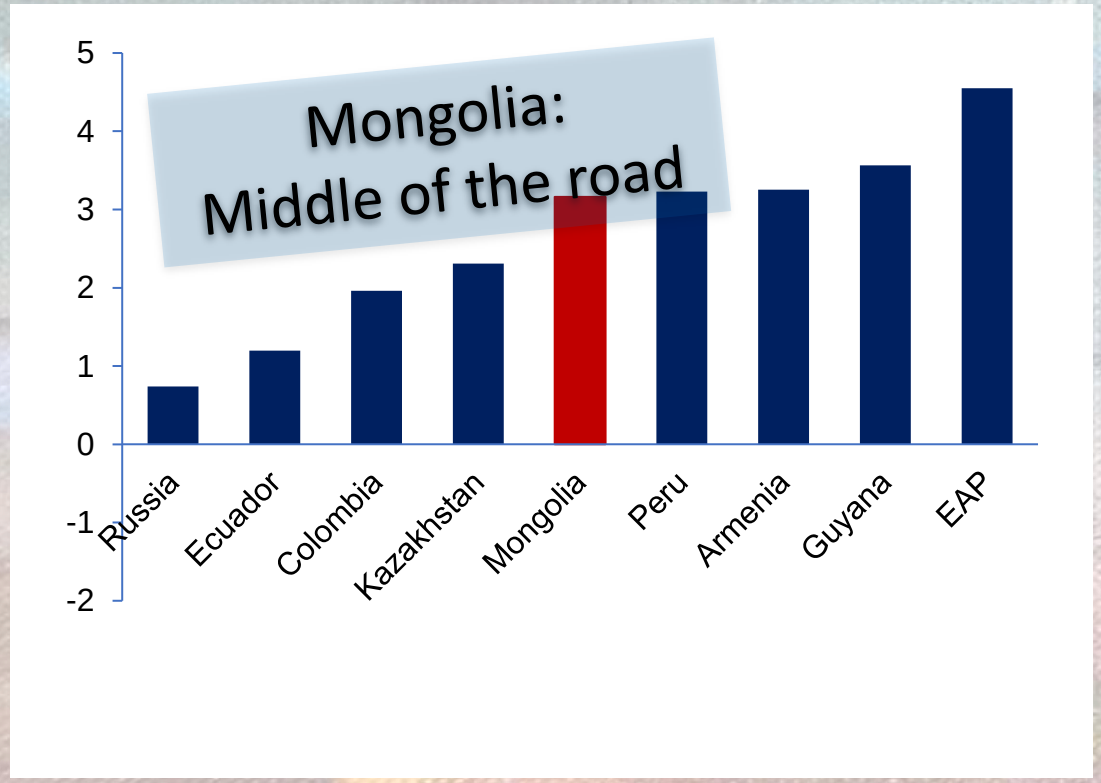
Three sides a triangle (or a thick coin)

- ✓ Education
  - Leave out investment and trade (except trade diversification)
- ✓ Economic organization and industrial structure
  - Human vs. natural capital
- ✓ Democracy and governance
  - Social capital: Equality, transparency, trust, etc.

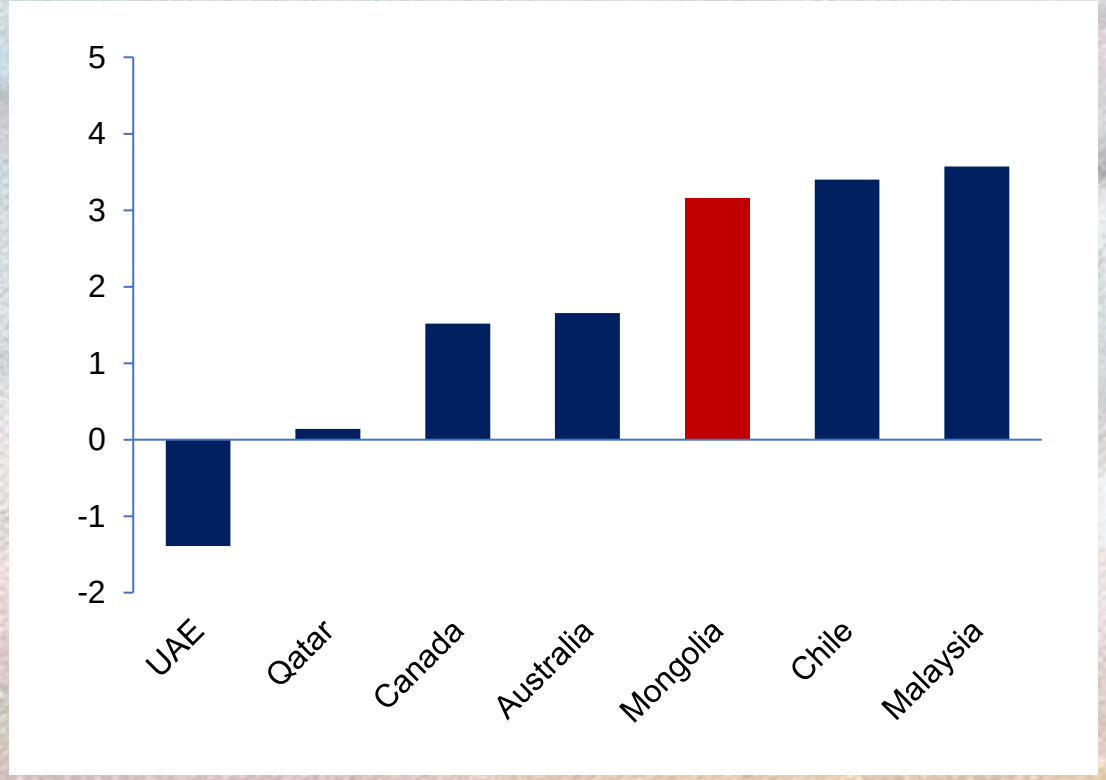
Let us walk you through the charts

Growth of per capita GDP (% per year), 1990-2018

Structural peers
(countries similar to Mongolia)



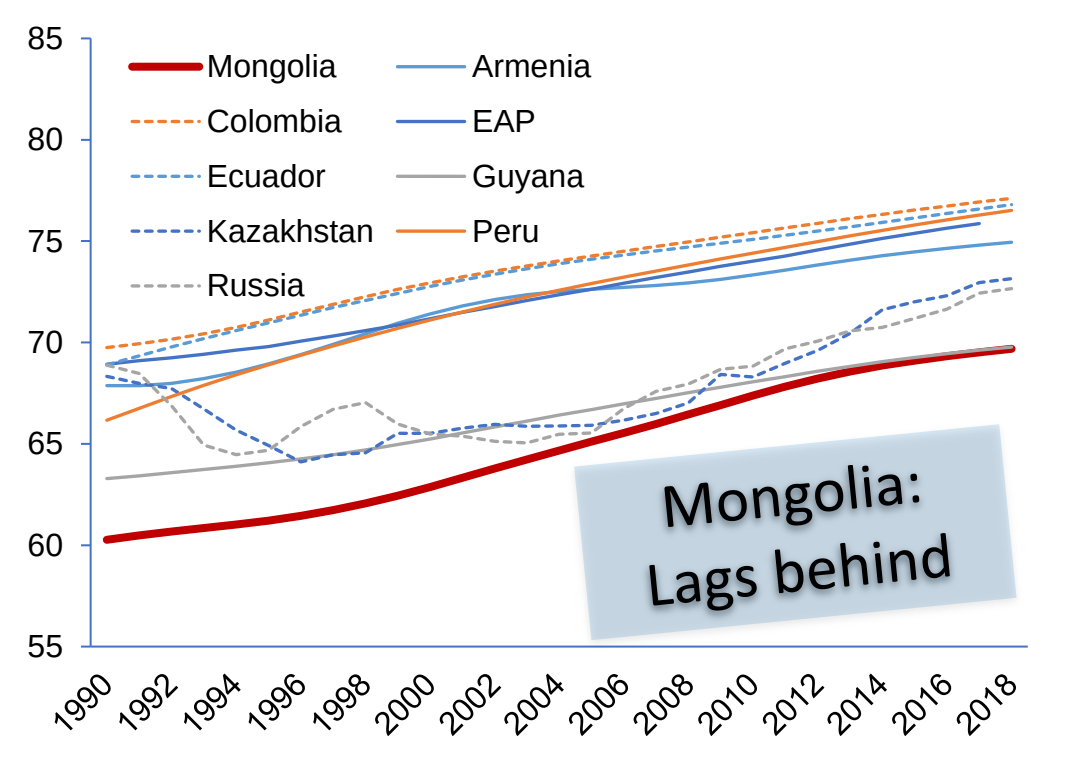
Aspirational peers
(countries Mongolia aspires to resemble)



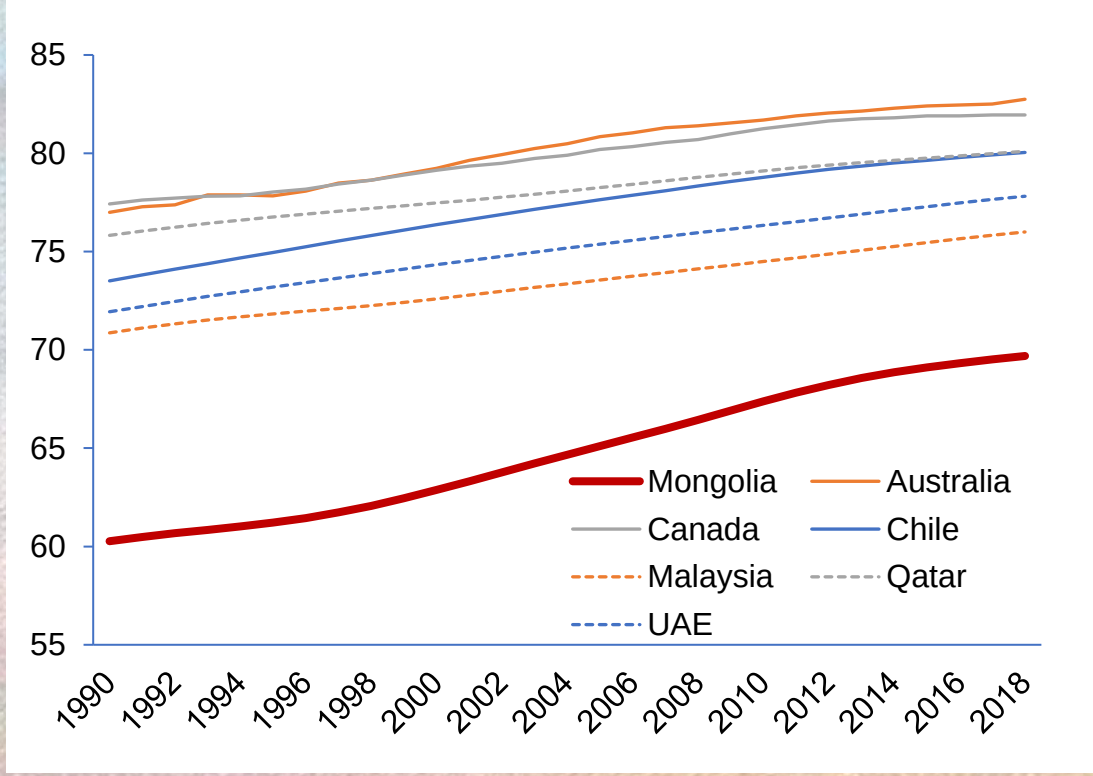
Source: World Bank, *World Development Indicators.*

Life expectancy at birth (years), 1990-2018

Structural peers



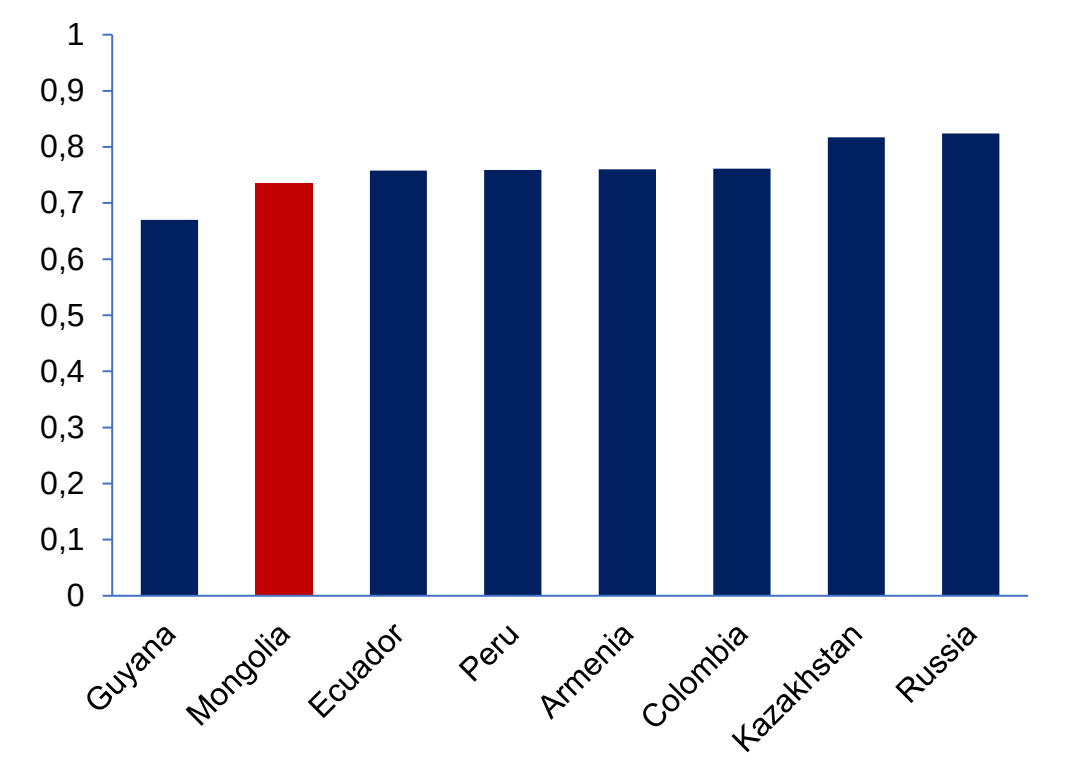
Aspirational peers



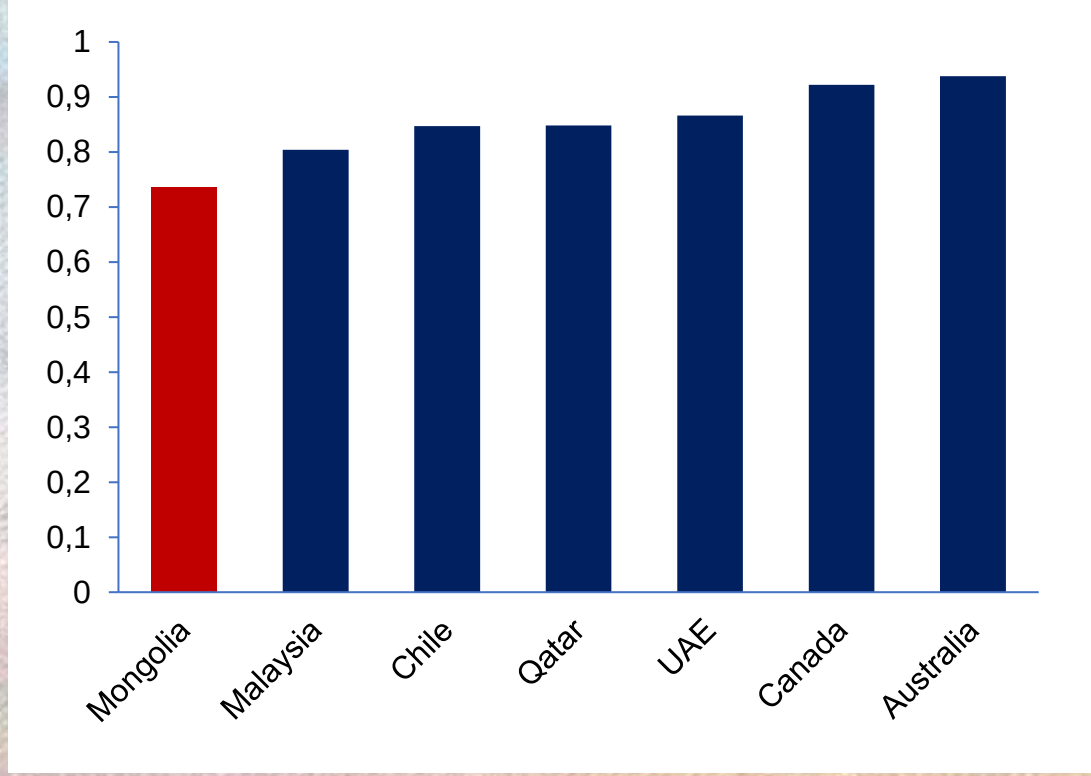
Source: World Bank, *World Development Indicators.*

Human Development Index, 2018

Structural peers



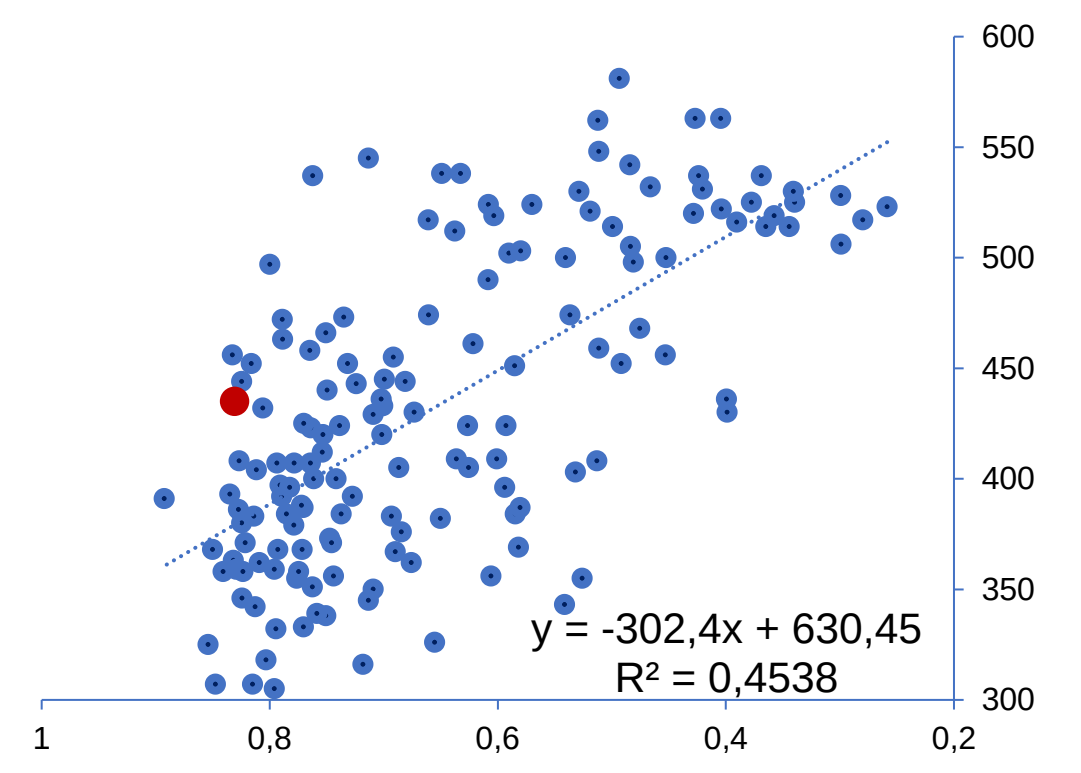
Aspirational peers



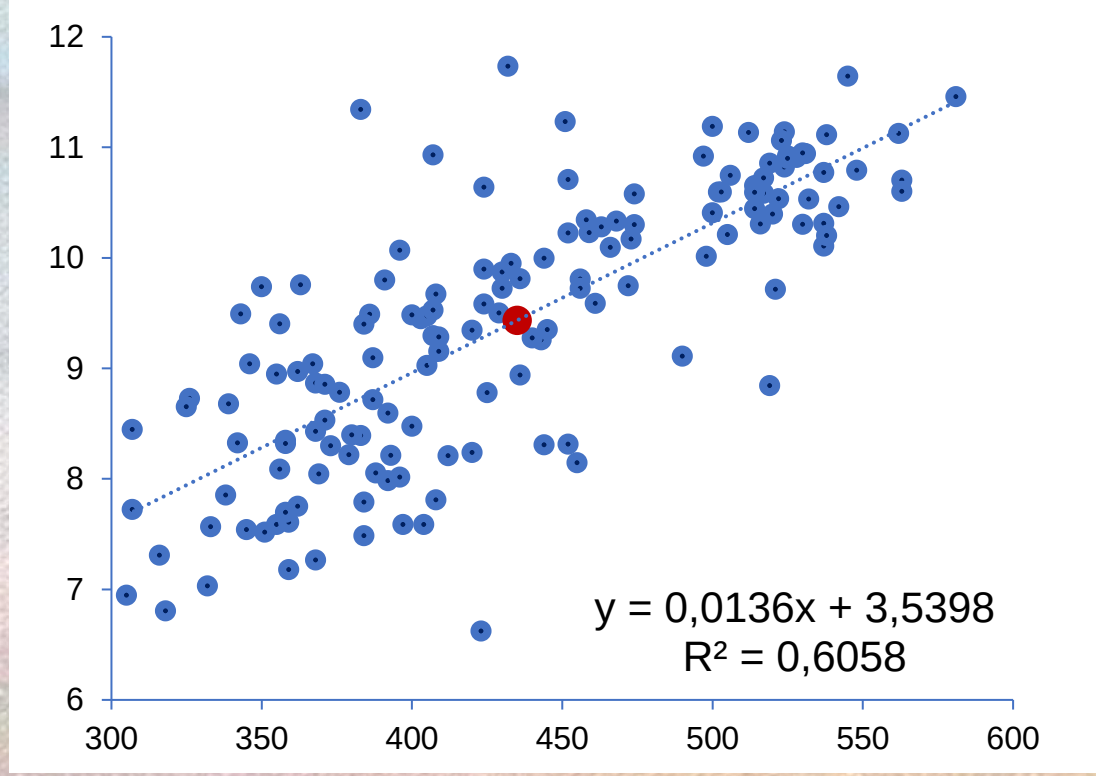
Source: UNDP.

Test scores, diversification, and growth, 1995-2018

Diversification and test scores in 151 countries



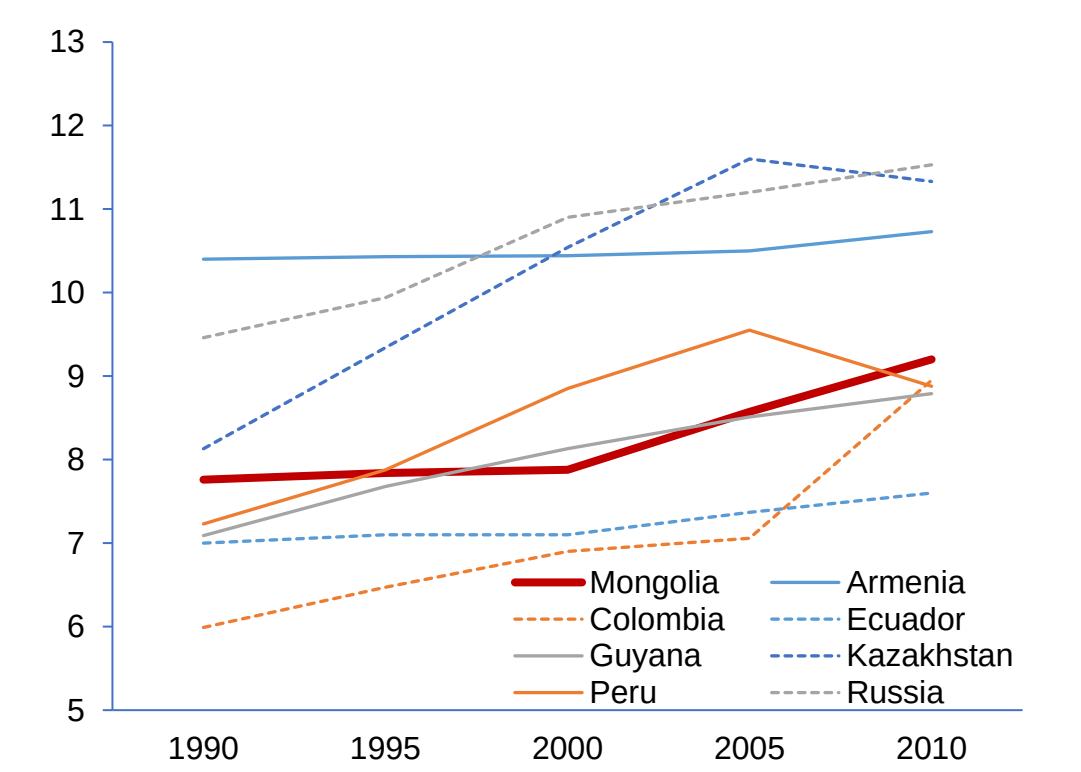
Test scores and per capita GNI in 150 countries



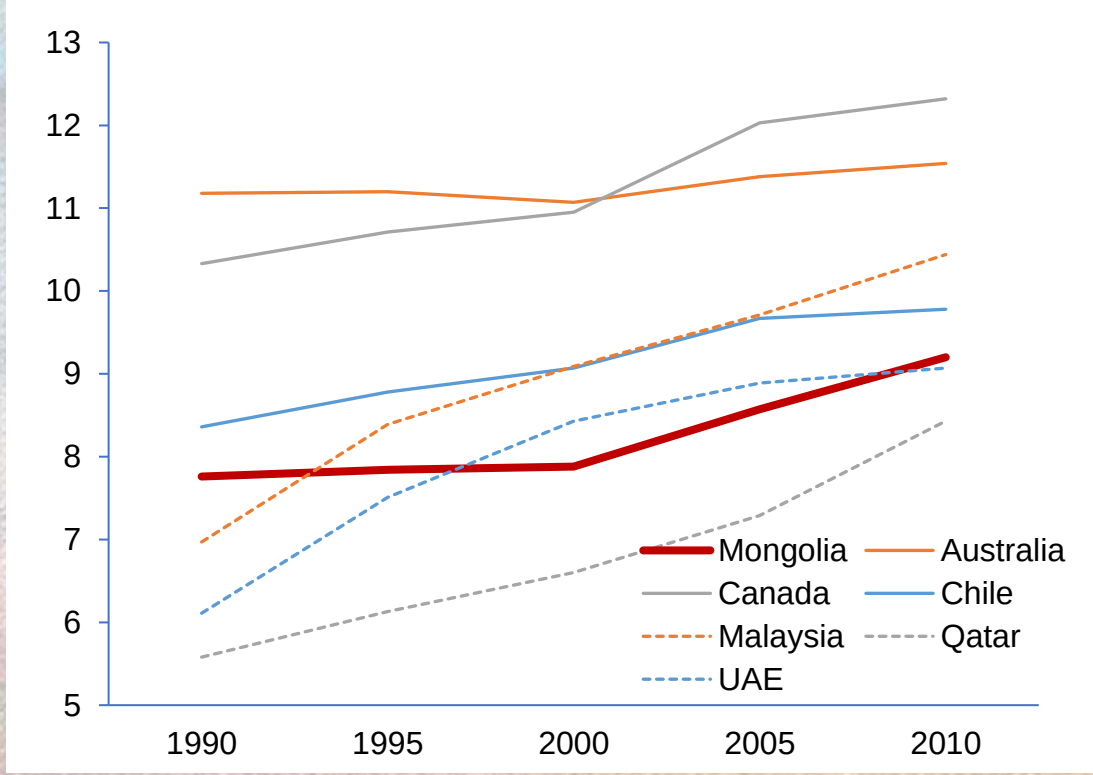
Sources: World Bank, *World Development Indicators* and Human Capital Index, and UNDP.

Educational attainment (years at school), 1990-2010

Structural peers



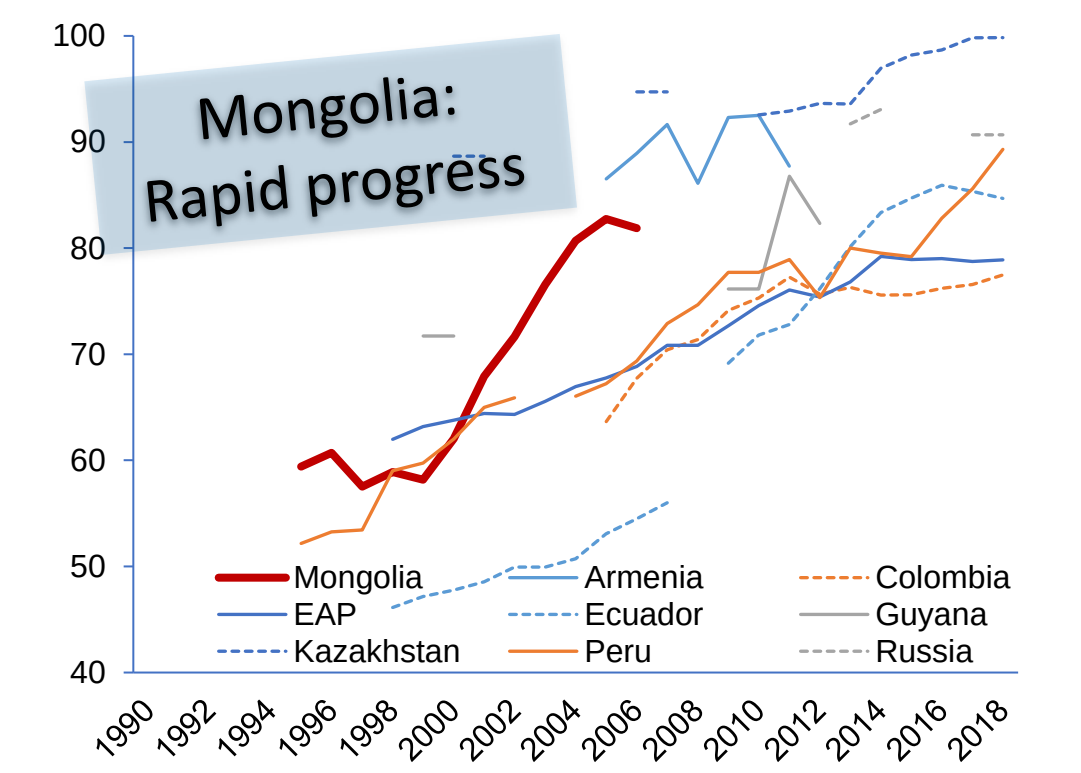
Aspirational peers



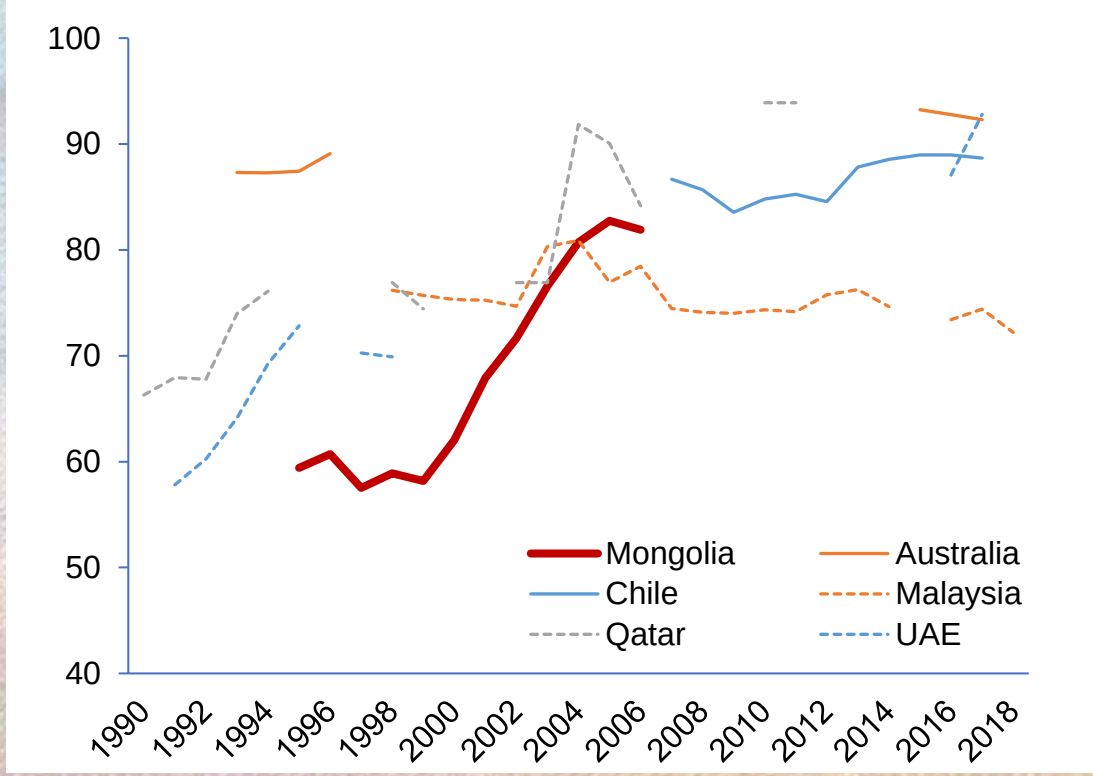
Sources: Barro and Lee (2013), 'A New Data Set of Educational Attainment in the World, 1950 2010', *Journal of Development Economics*.

Secondary school enrolment (% of school-age cohort), 1990-2017

Structural peers



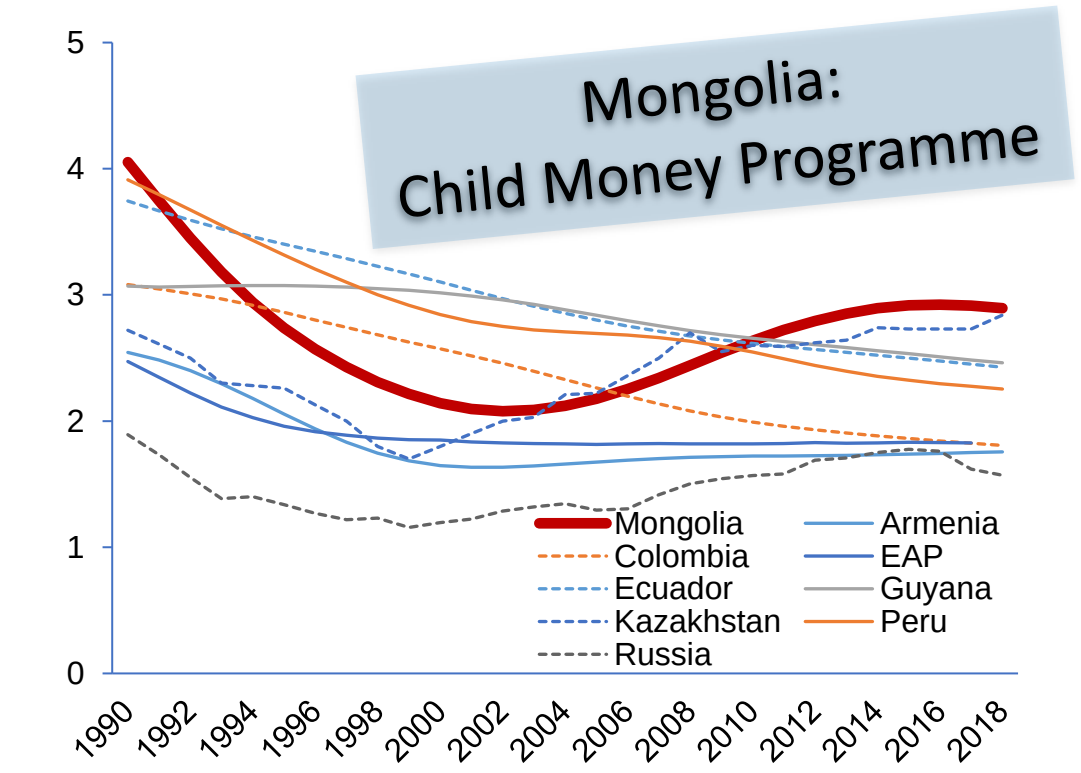
Aspirational peers



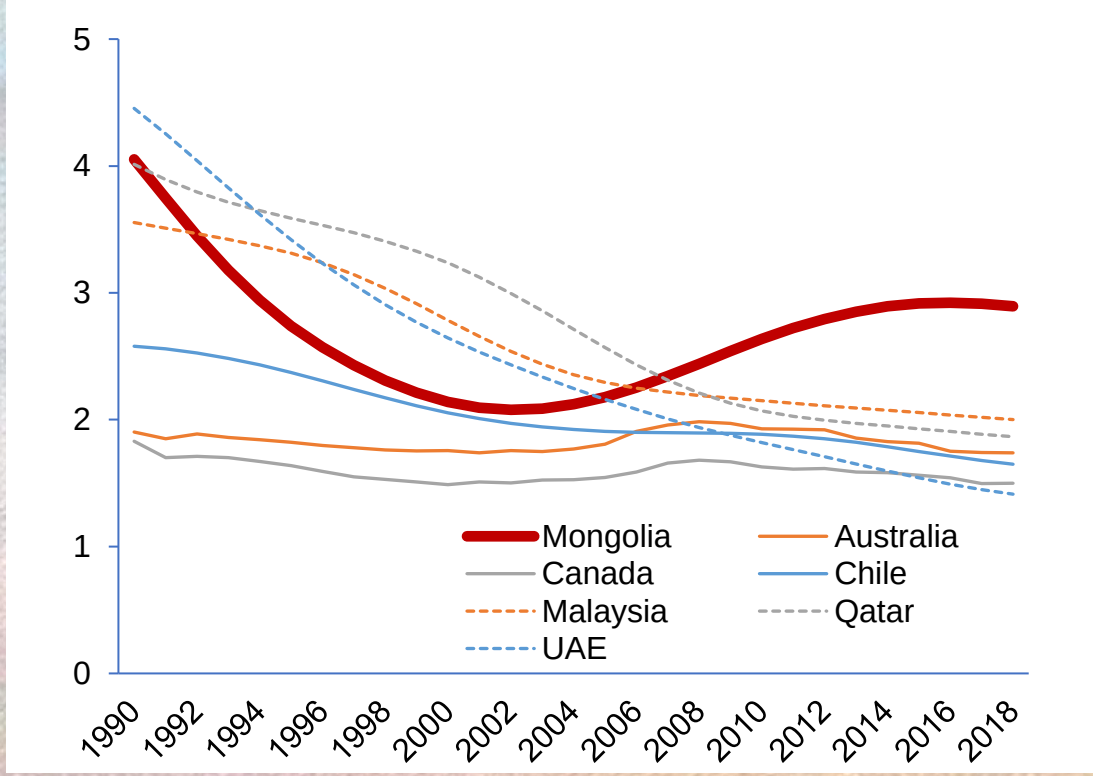
Sources: World Bank, *World Development Indicators.*

Fertility rate (births per woman), 1990-2018

Structural peers



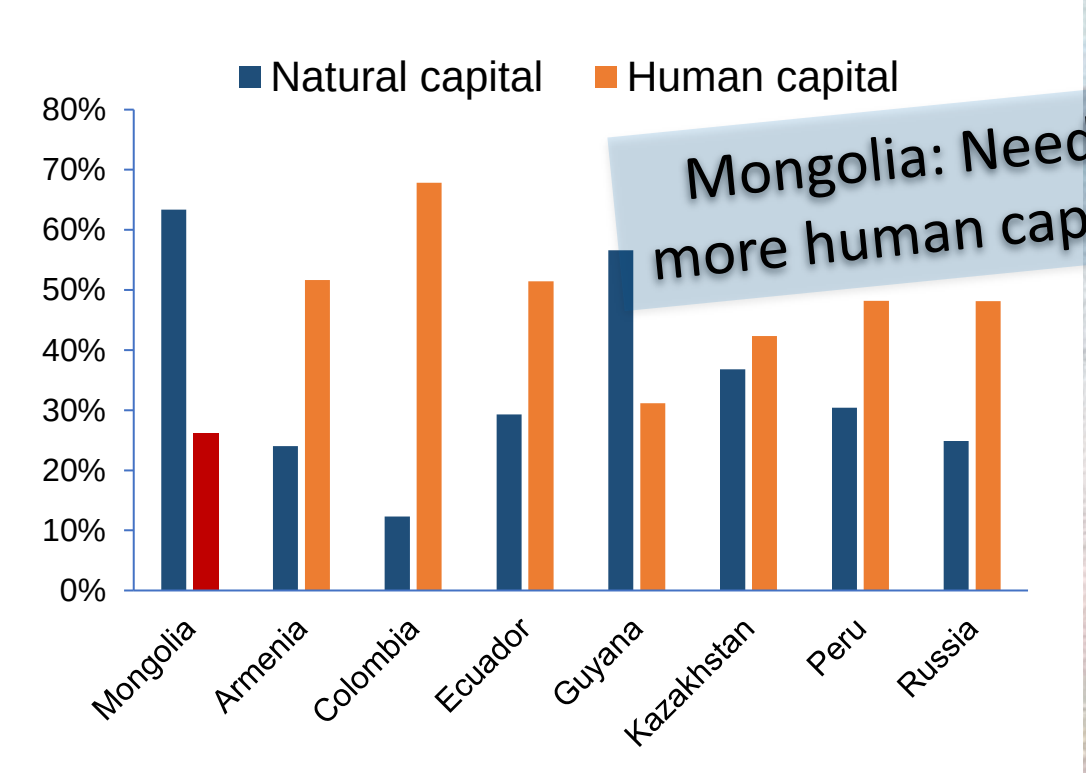
Aspirational peers



Sources: World Bank, *World Development Indicators.*

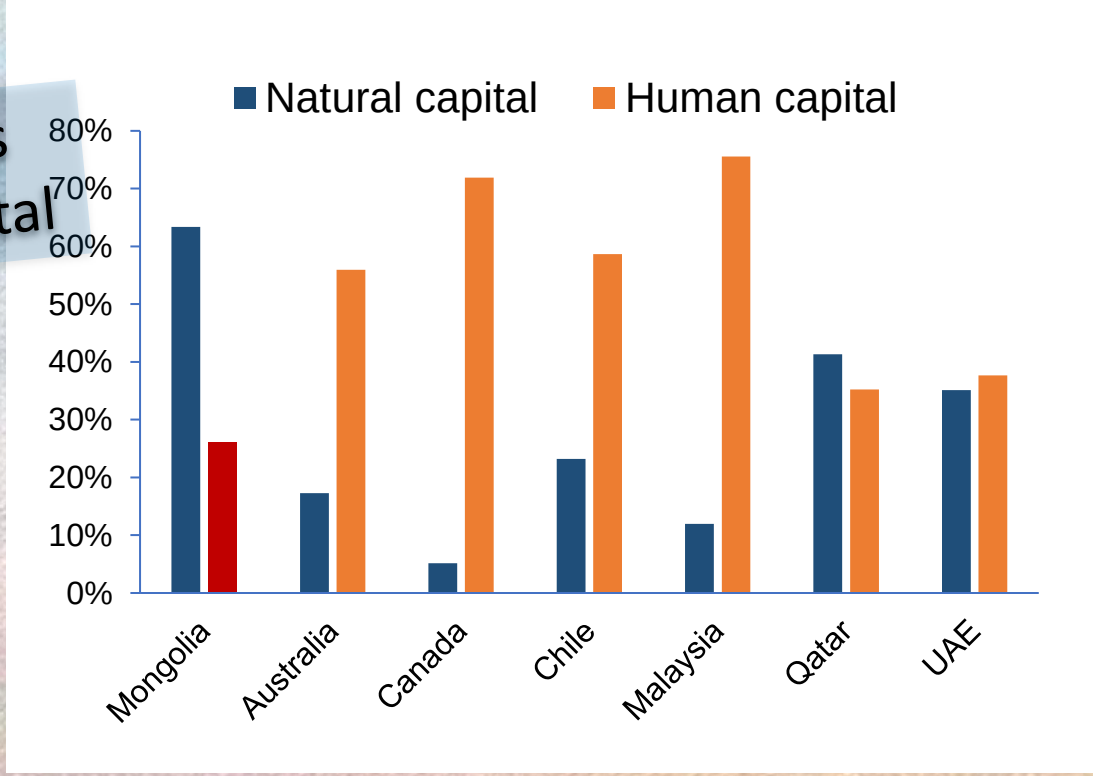
Natural capital and human capital (% of total wealth), 2014

Structural peers



Mongolia: Needs more human capital

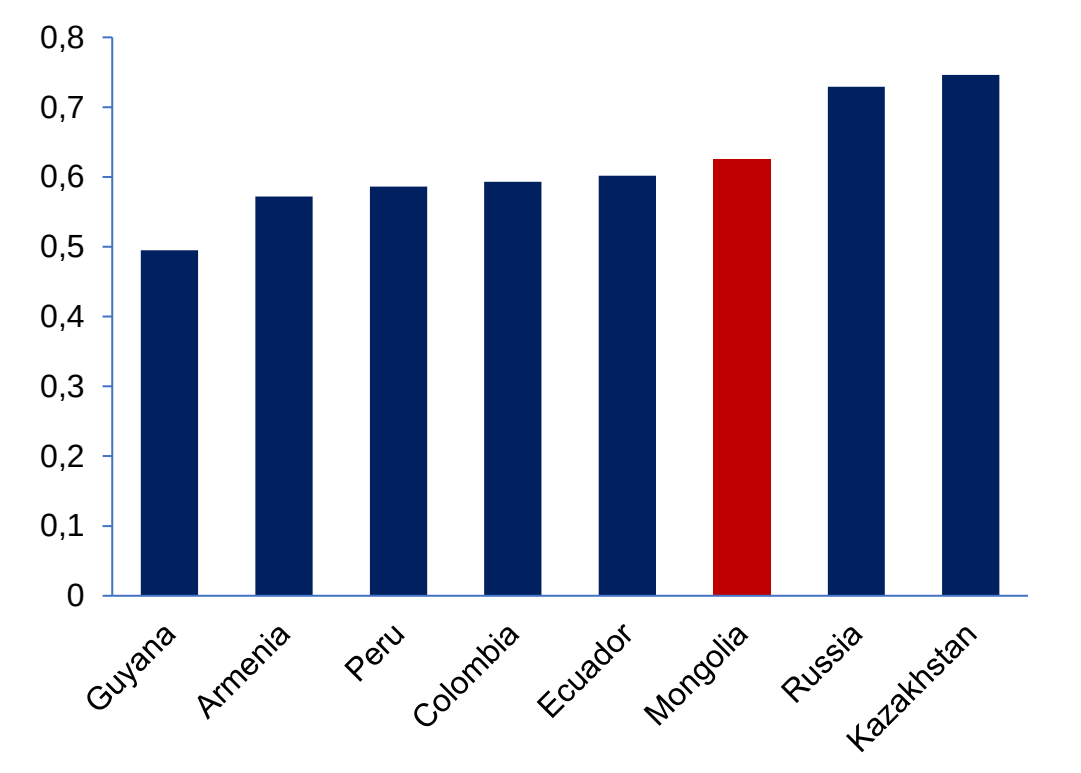
Aspirational peers



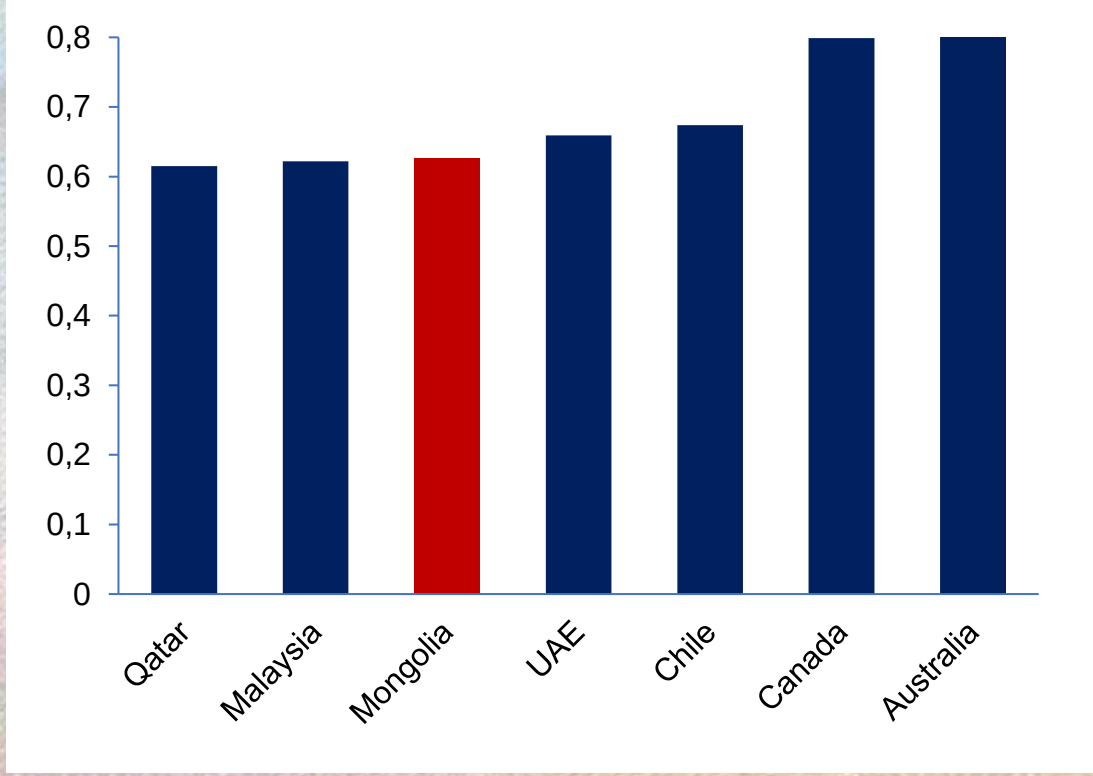
Sources: World Bank, The Human Capital Project.

Human capital index, 2017

Structural peers



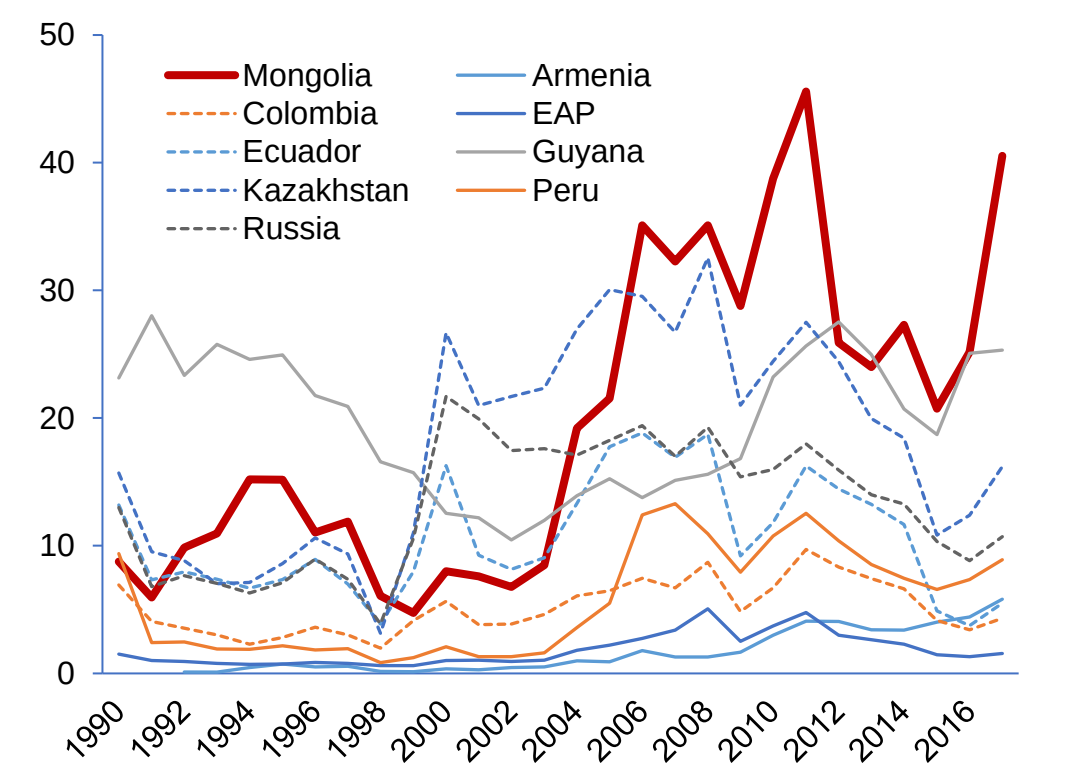
Aspirational peers



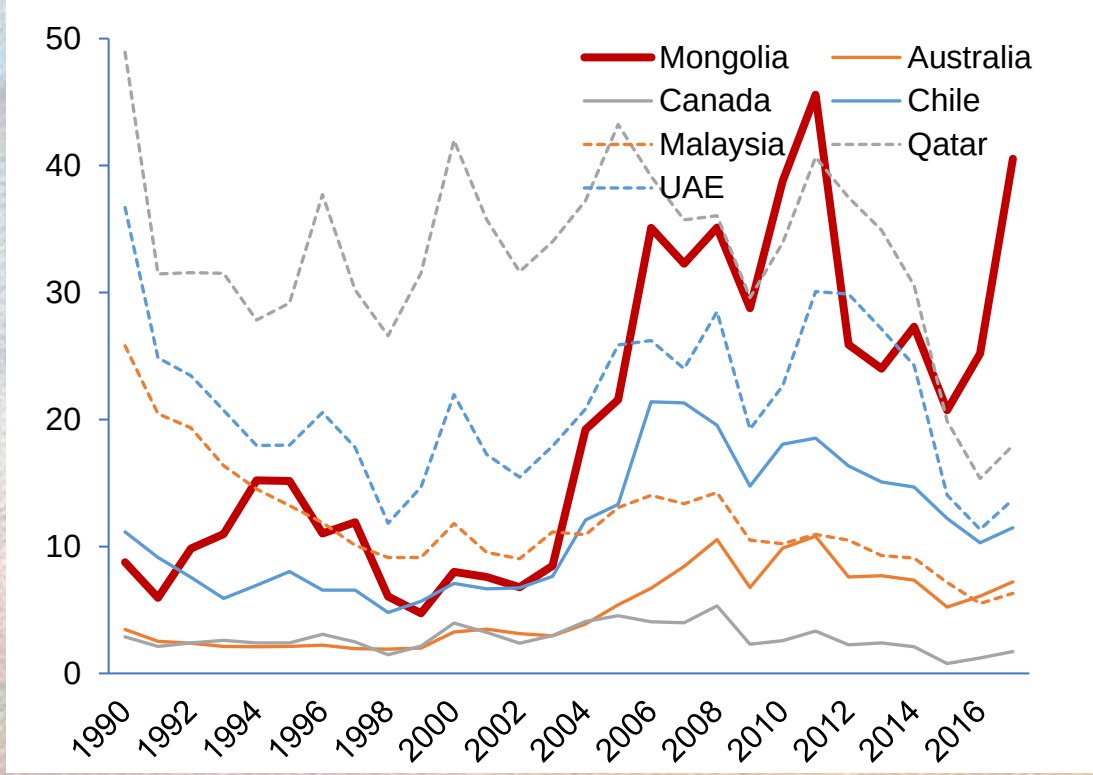
Sources: World Bank, The Human Capital Project.

Total natural resource rents (% of GDP), 1990-2017

Structural peers



Aspirational peers

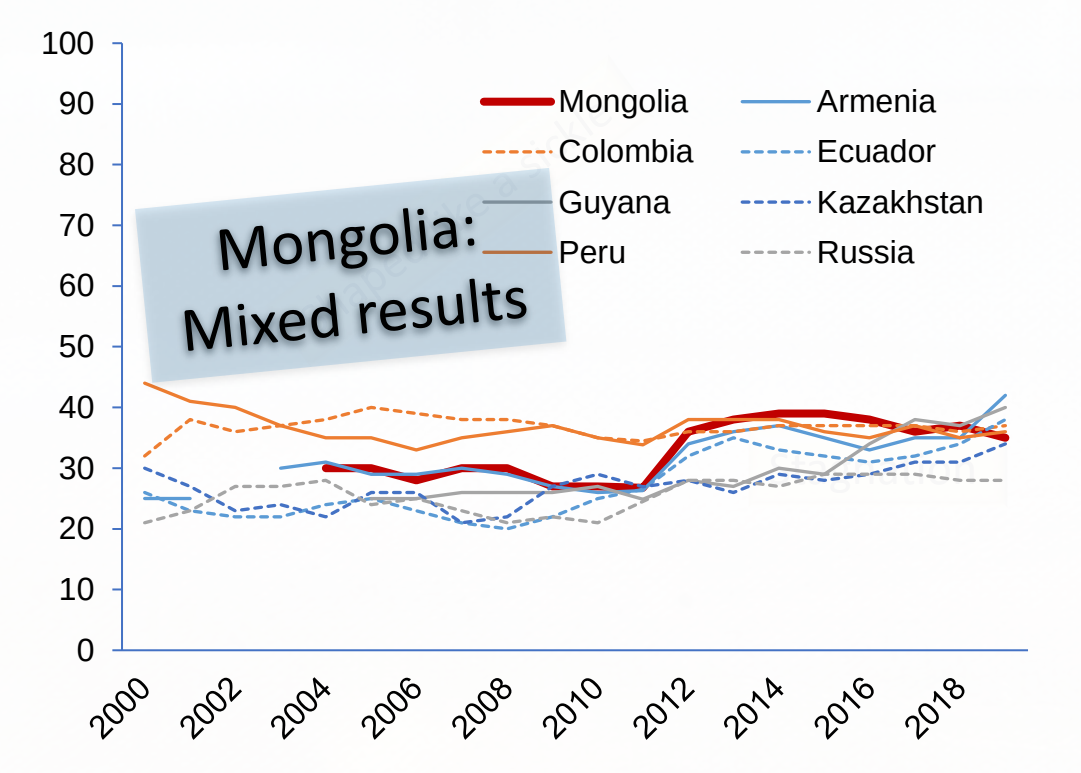


Sources: World Bank, *World Development Indicators*.

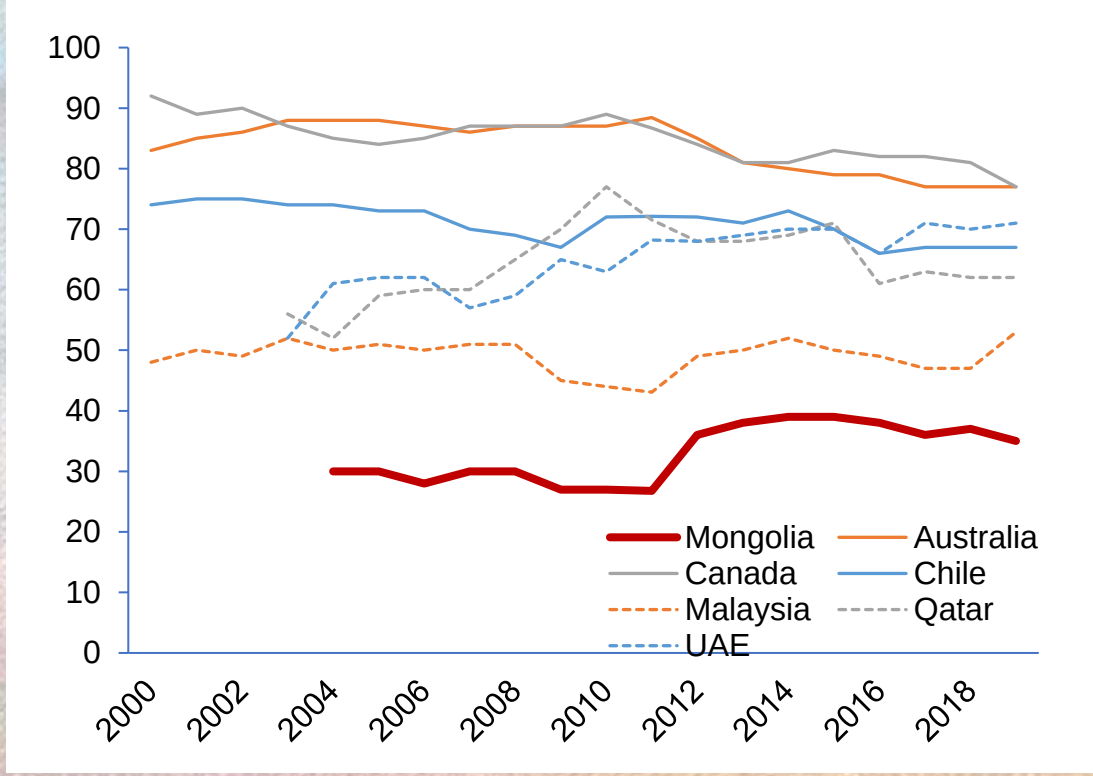
Social indicators

Corruption perceptions index, 2000-2019

Structural peers



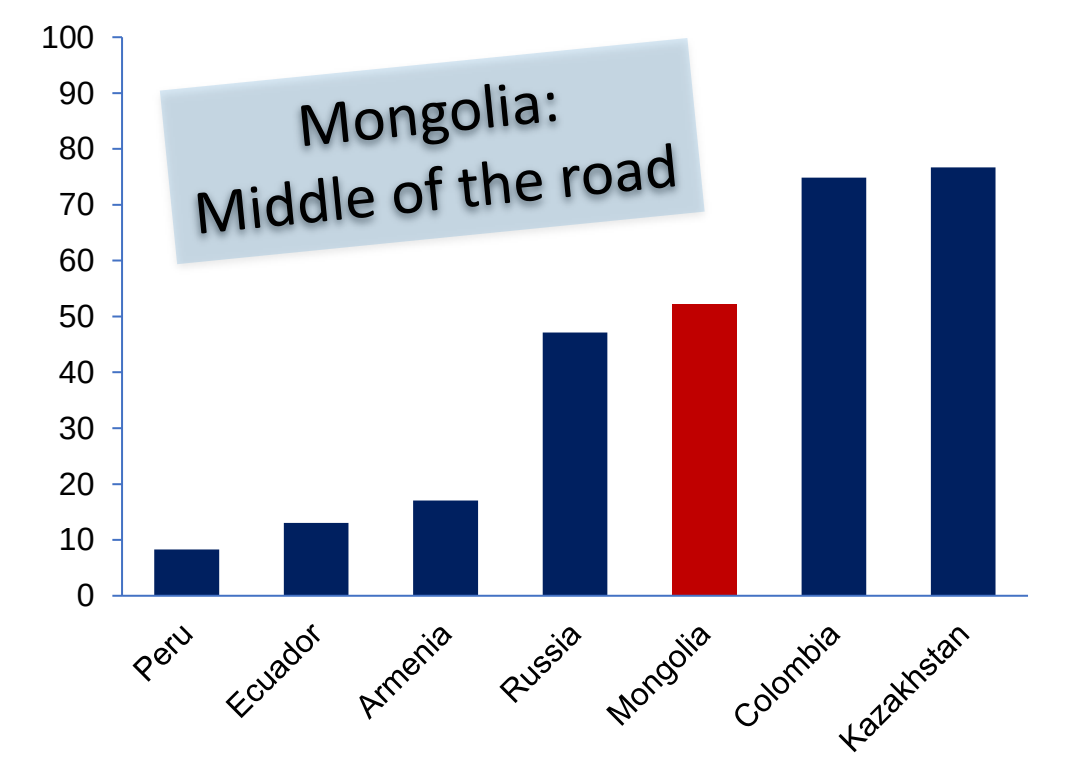
Aspirational peers



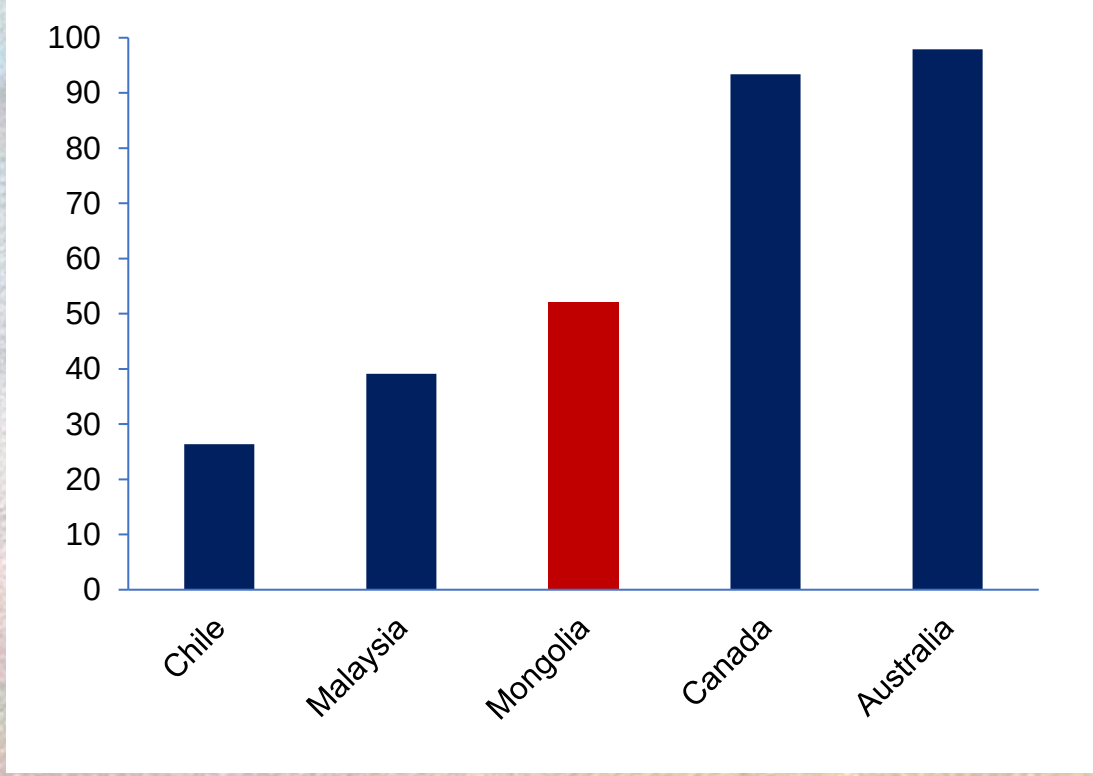
Source: Transparency International.

Trust index, 2017-2020

Structural peers



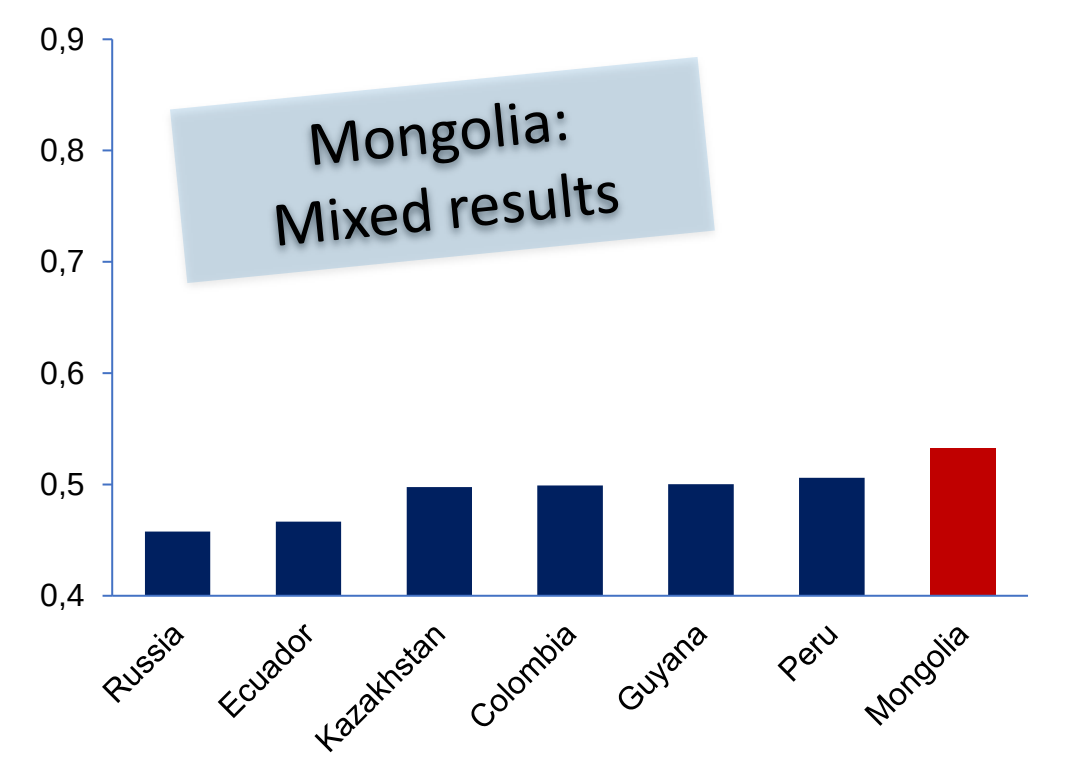
Aspirational peers



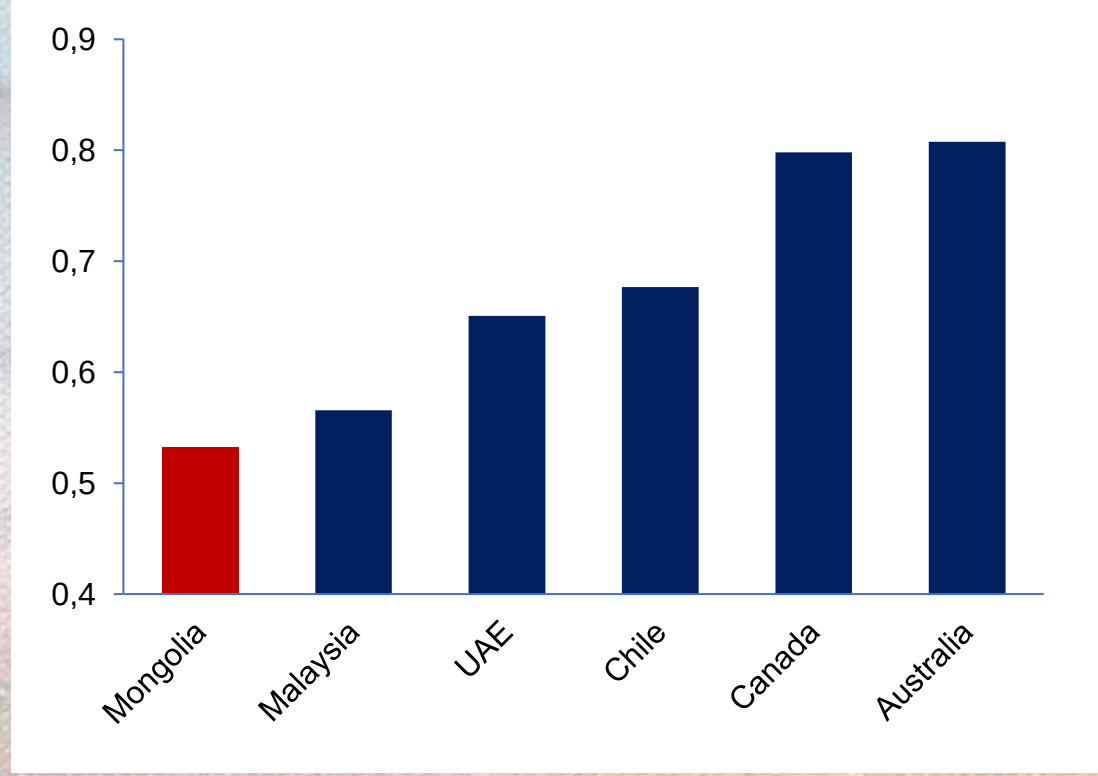
Source: World Values Survey.

Rule of law (average index from 0 to 1), 2012-2020

Structural peers



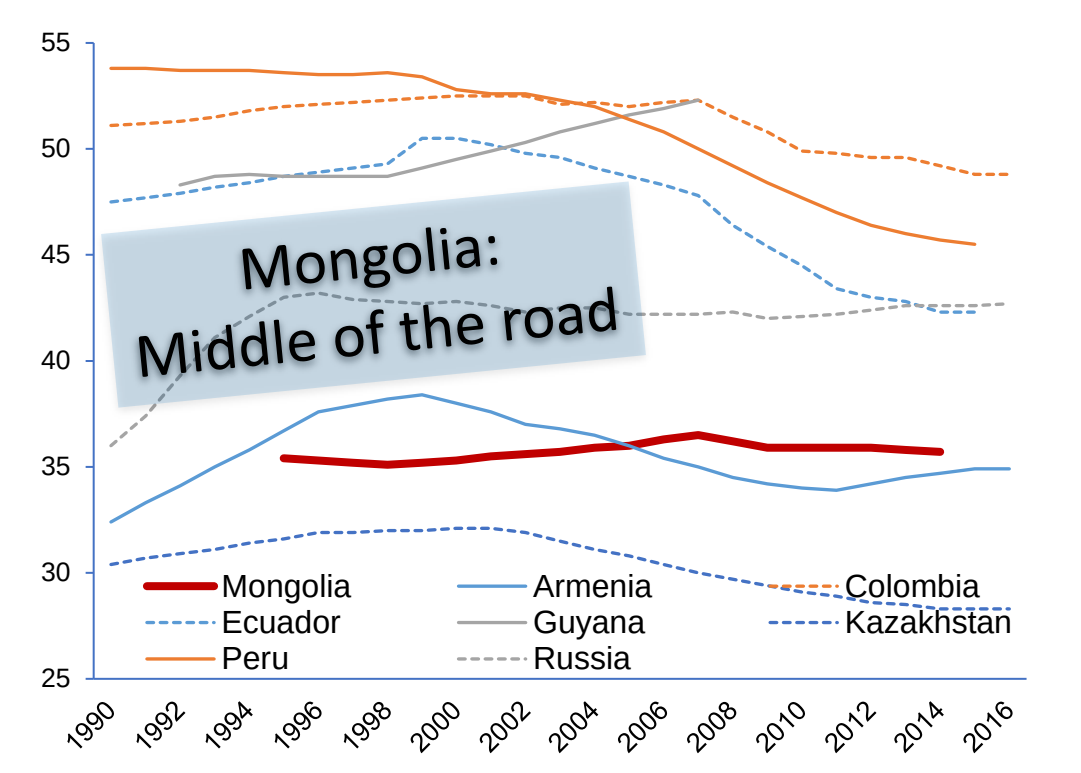
Aspirational peers



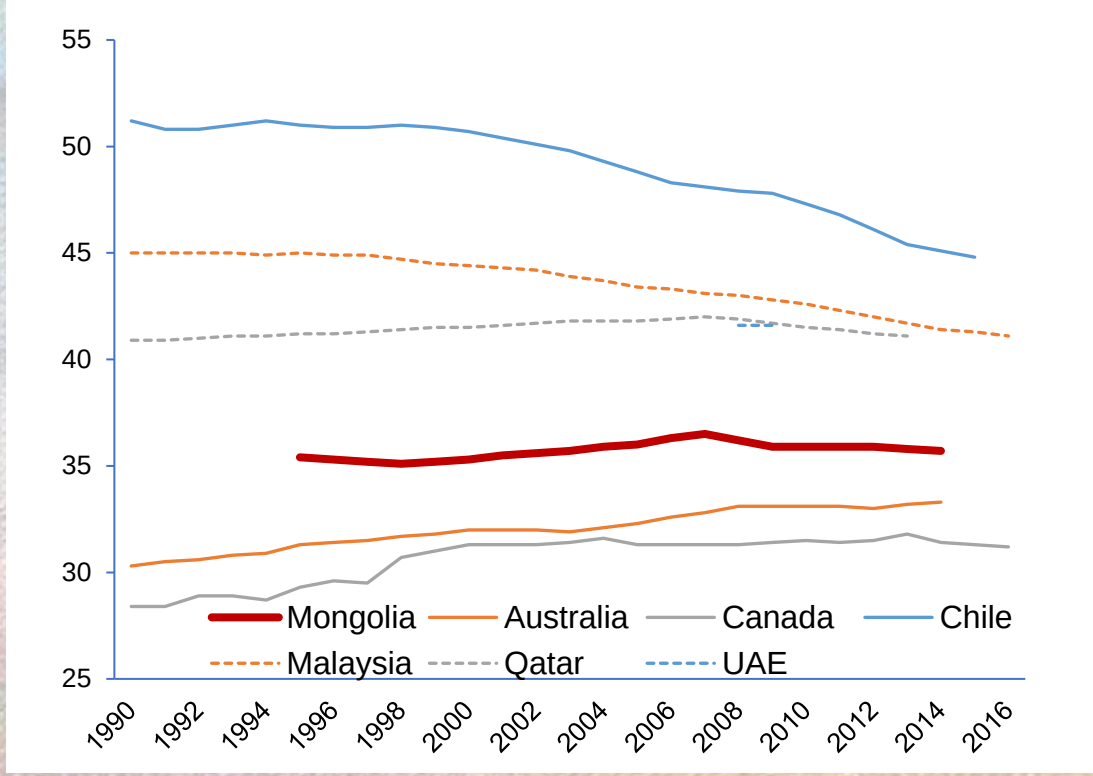
Source: World Justice Project.

Gini index of inequality, 1990-2016

Structural peers



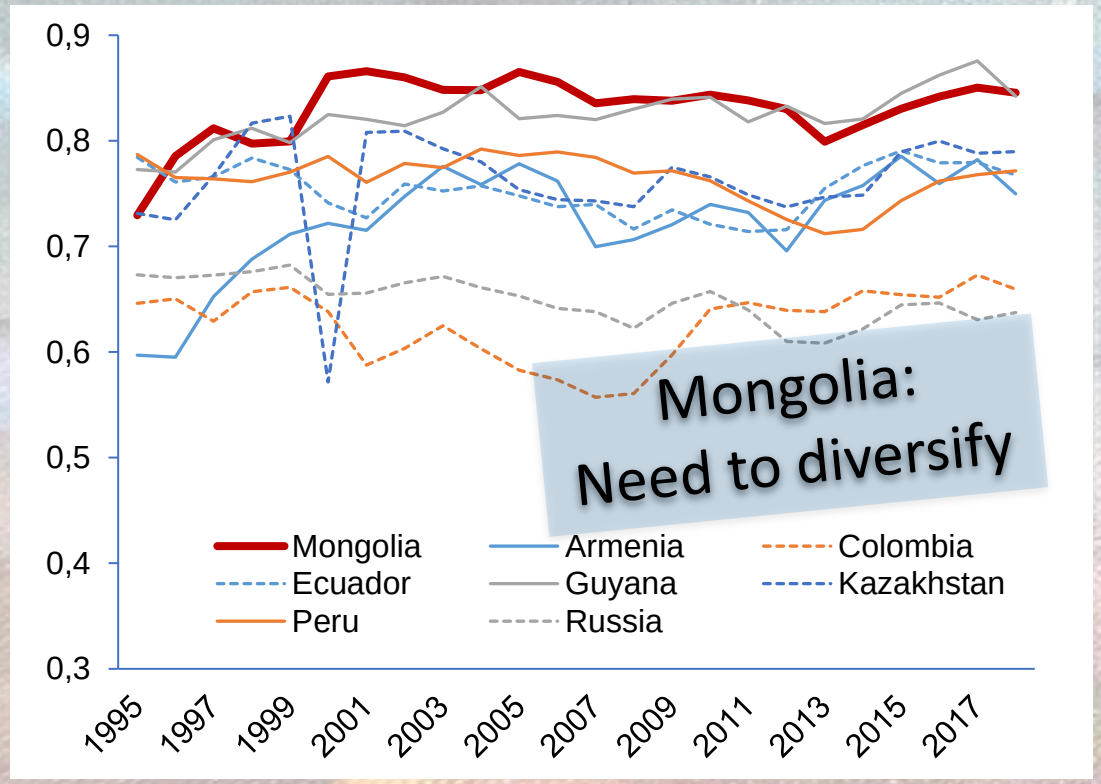
Aspirational peers



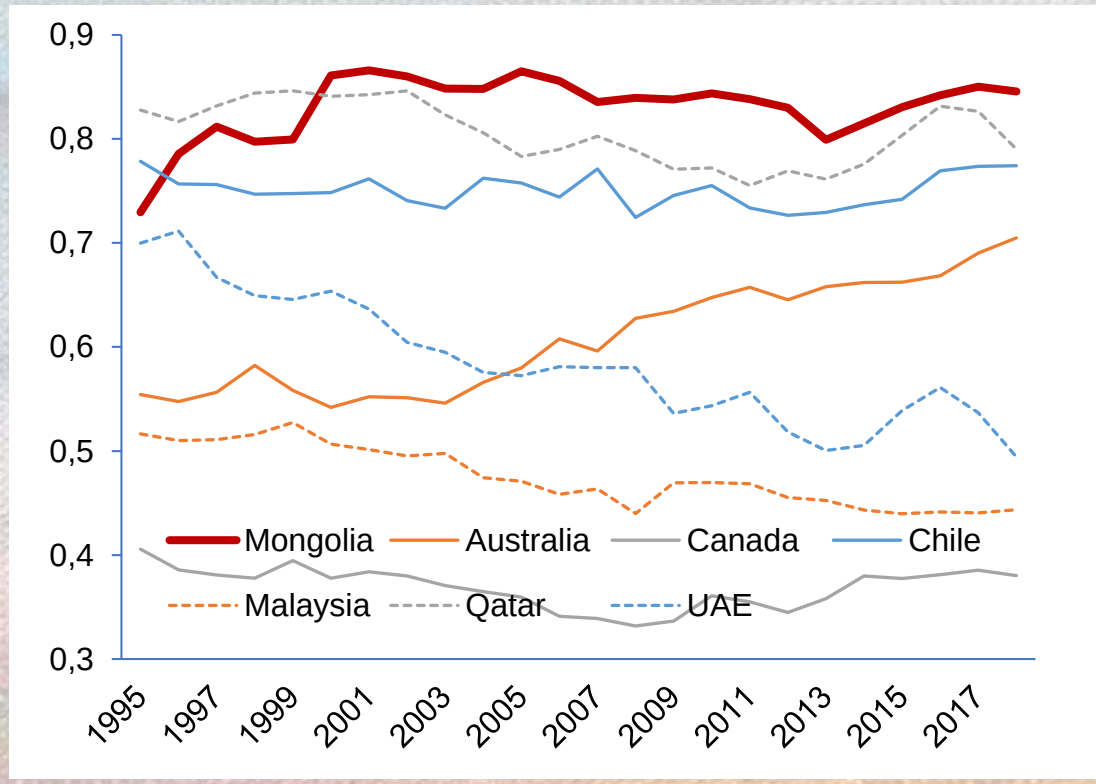
Sources: World Bank, *World Development Indicators.*

Finger-Kreinin index of export diversification, 1995-2018

Structural peers



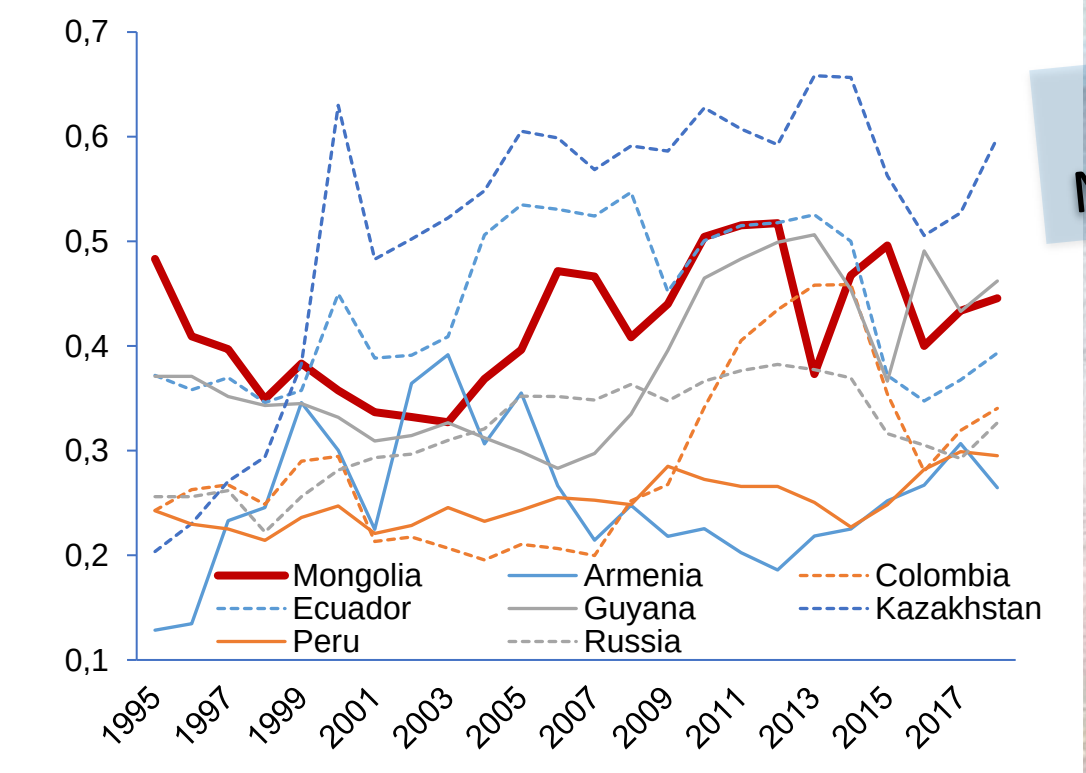
Aspirational peers



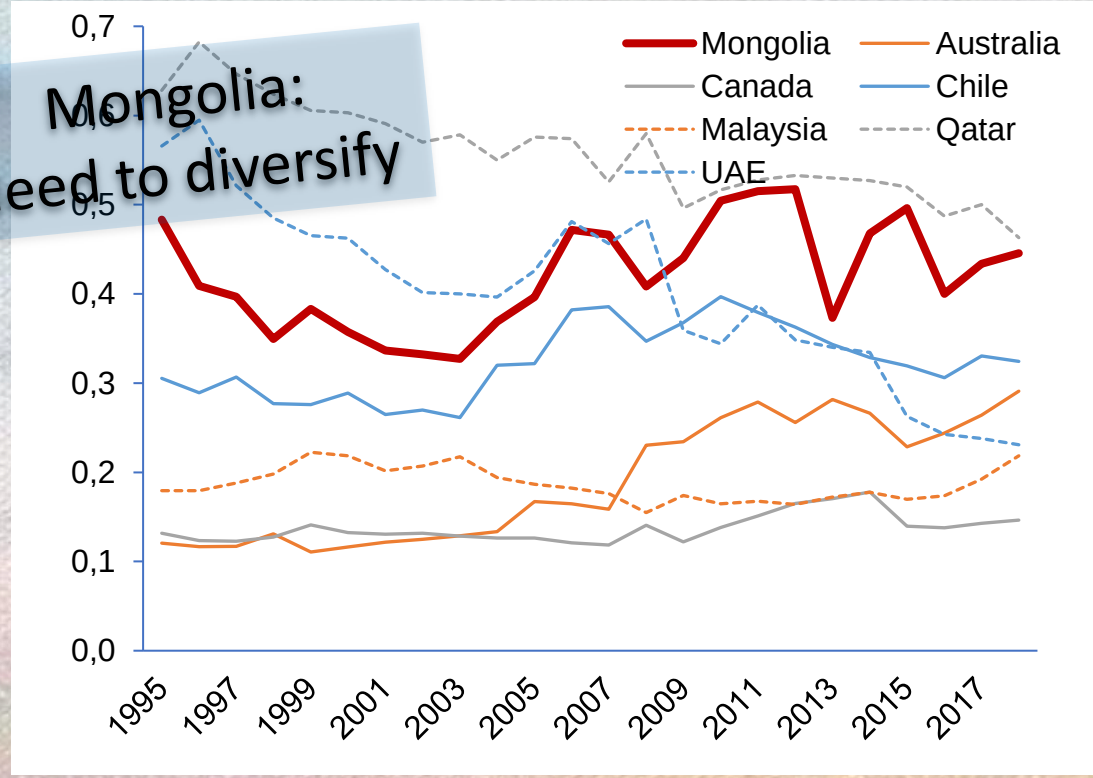
Source: UNCTAD.

Herfindahl-Hirschman index of export concentration, 1995-2018

Structural peers



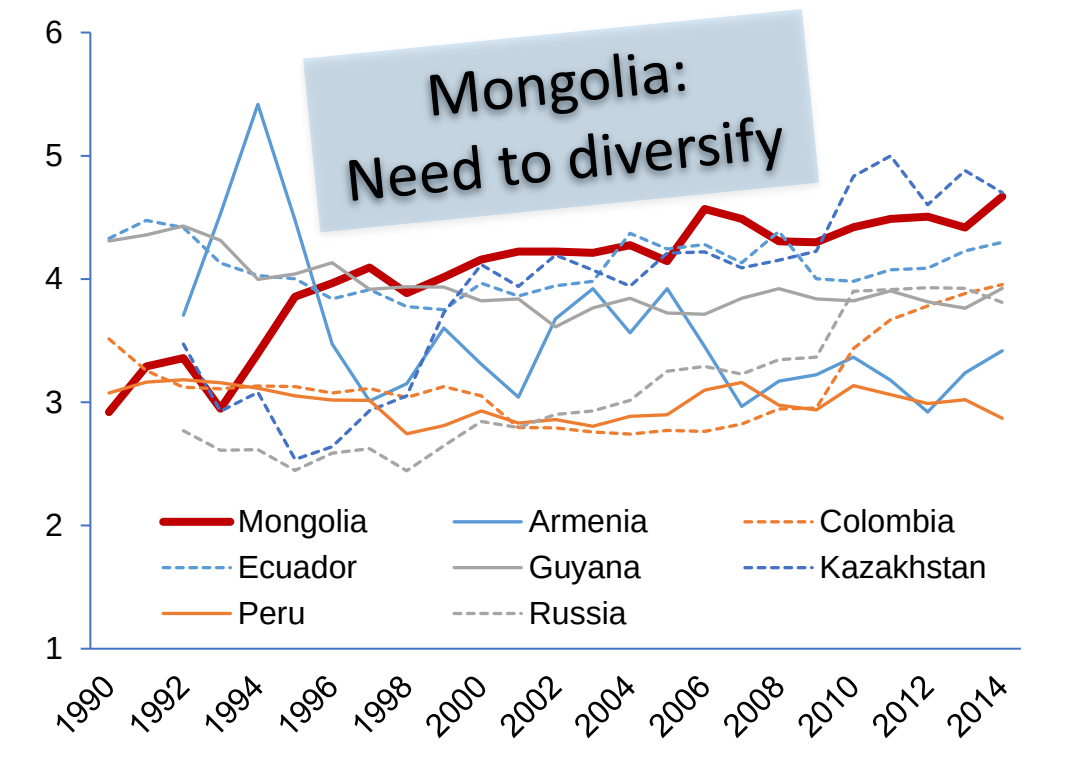
Aspirational peers



Source: UNCTAD.

Theil index of export diversification, 1990-2014

Structural peers



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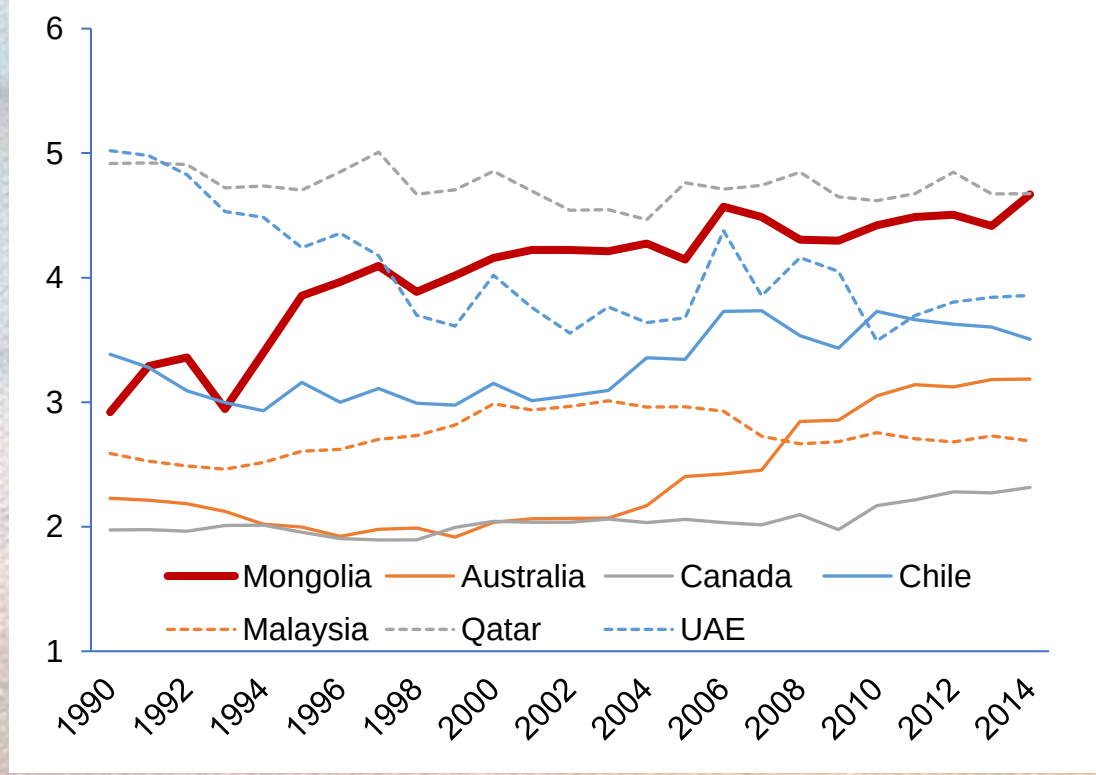
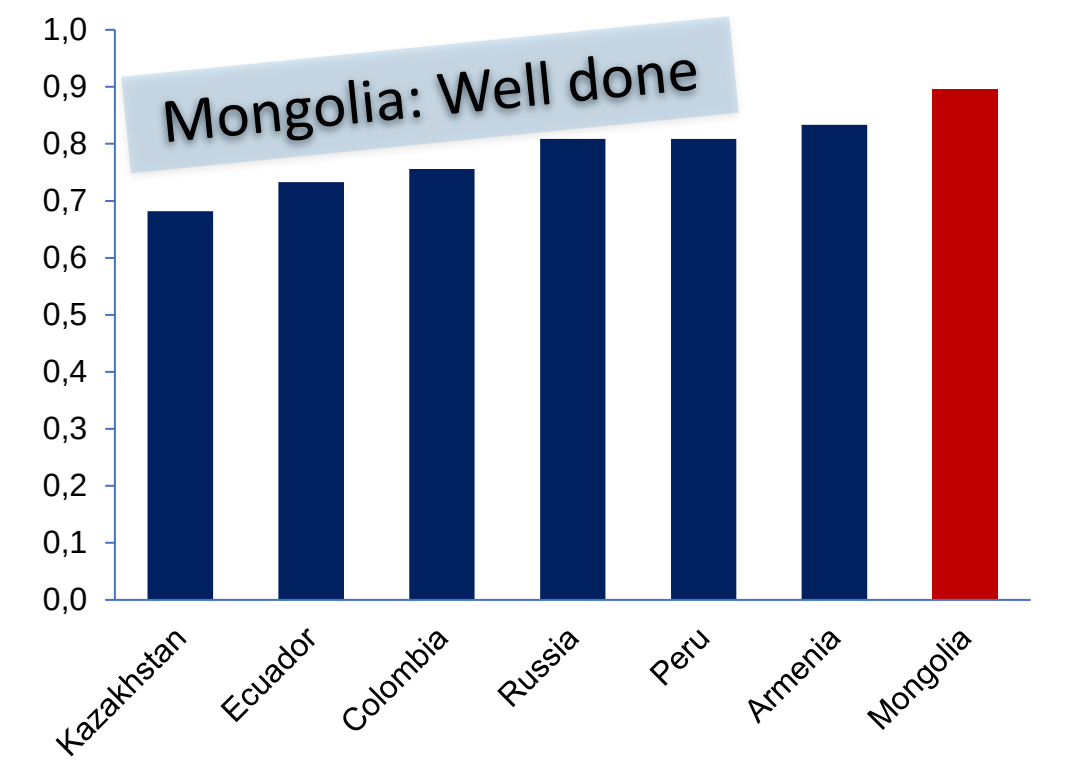


Source: IMF.

IMF index of product quality (average), 1990-2014

Structural peers



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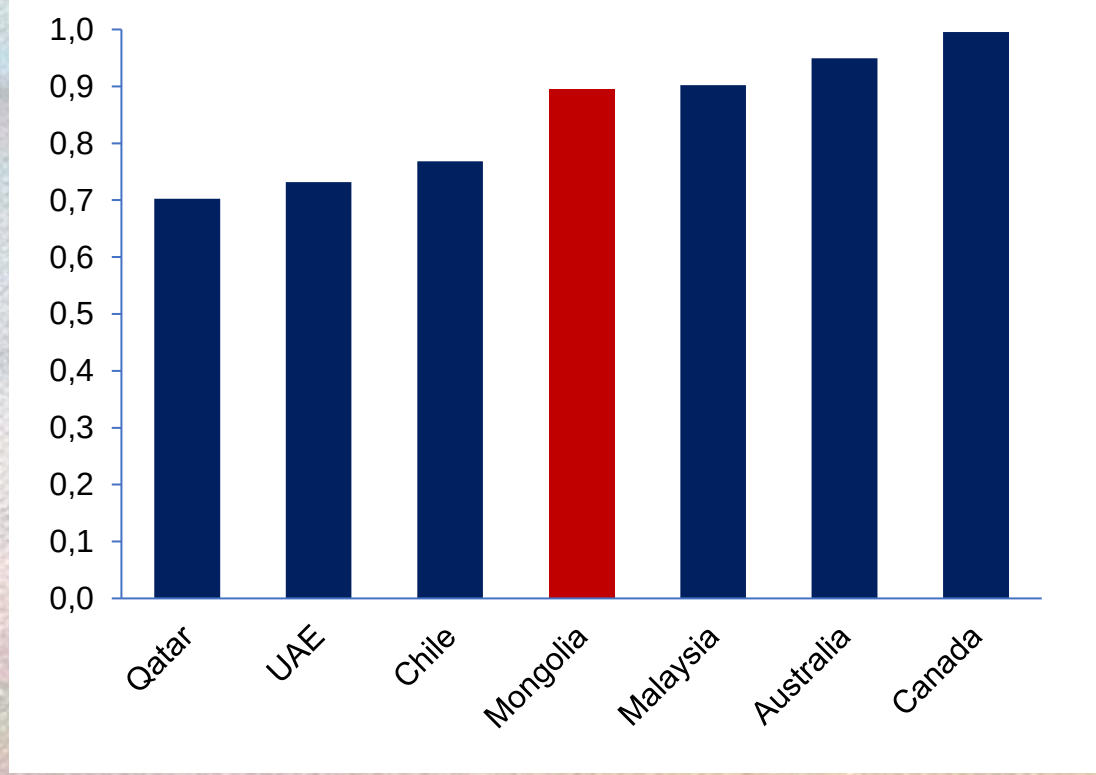
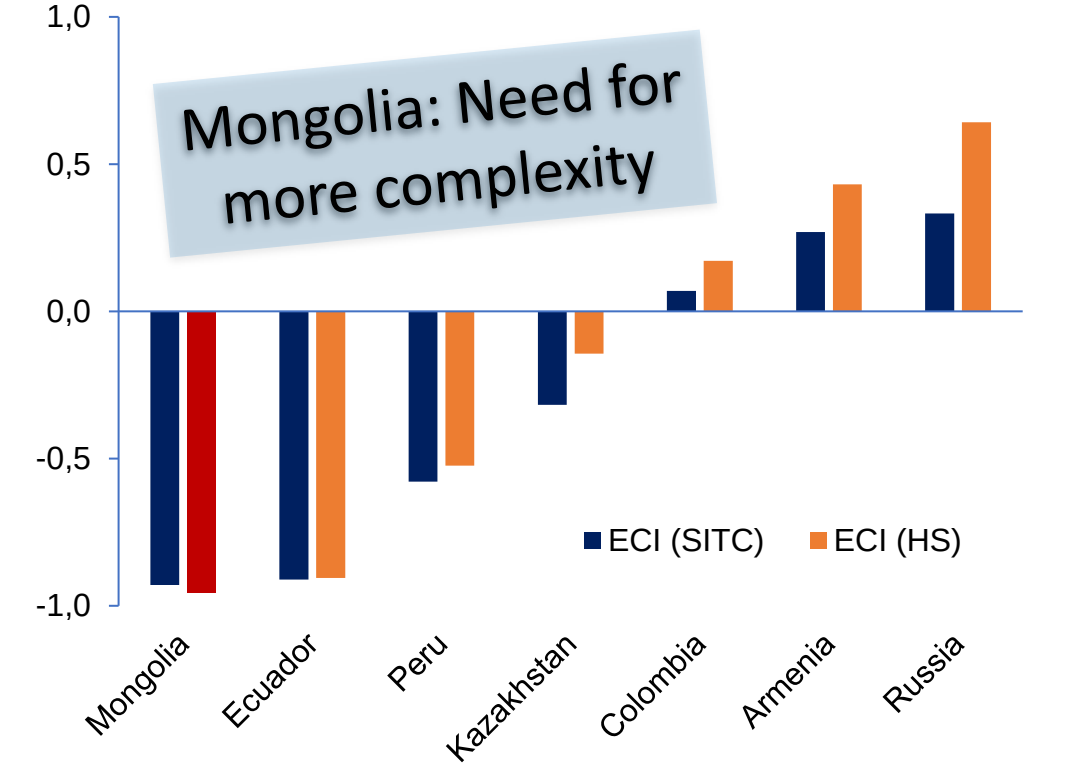


Source: IMF.

Economic complexity (average index from -1 to +1), 1995-2017

Structural peers



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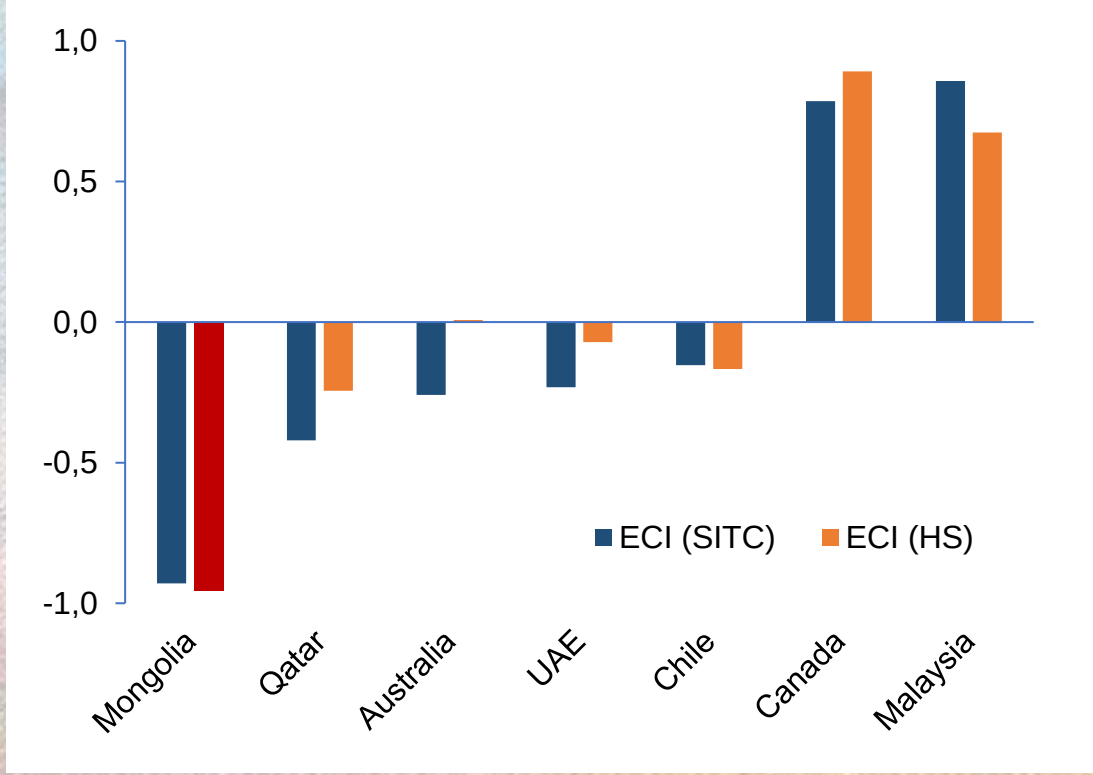
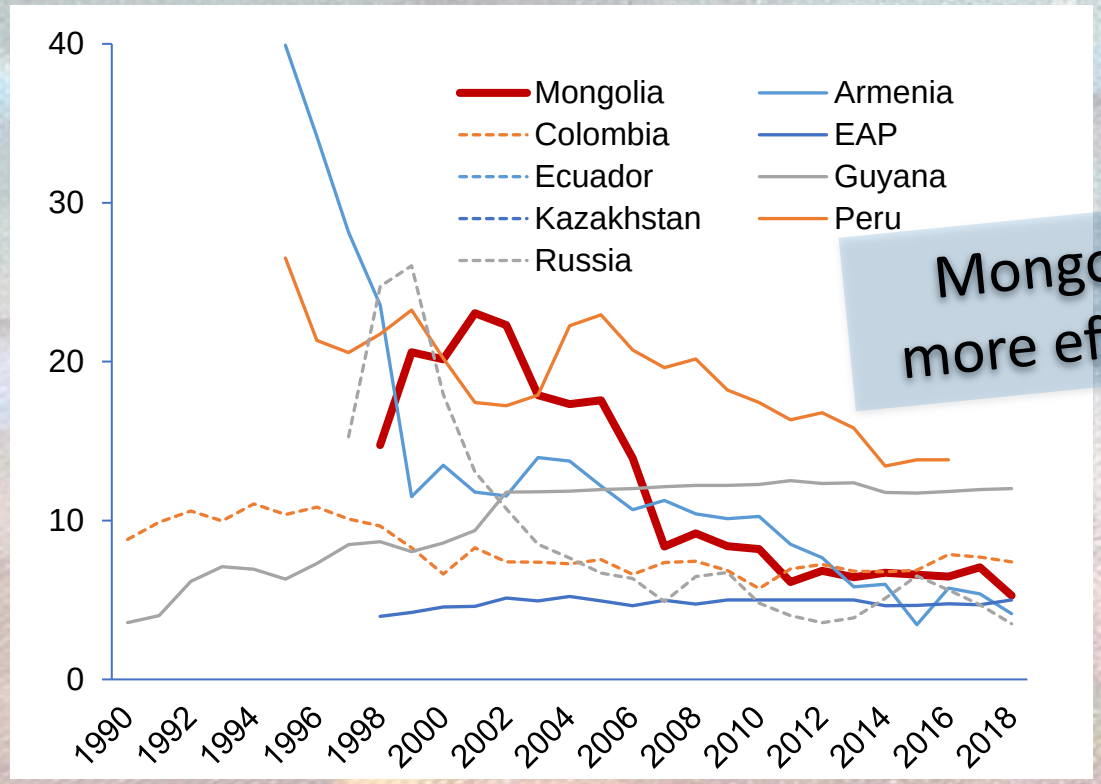


Source: Atlas of Economic Complexity.

Interest rate spread (lending rate minus deposit rate in %), 1990-2018

Structural peers



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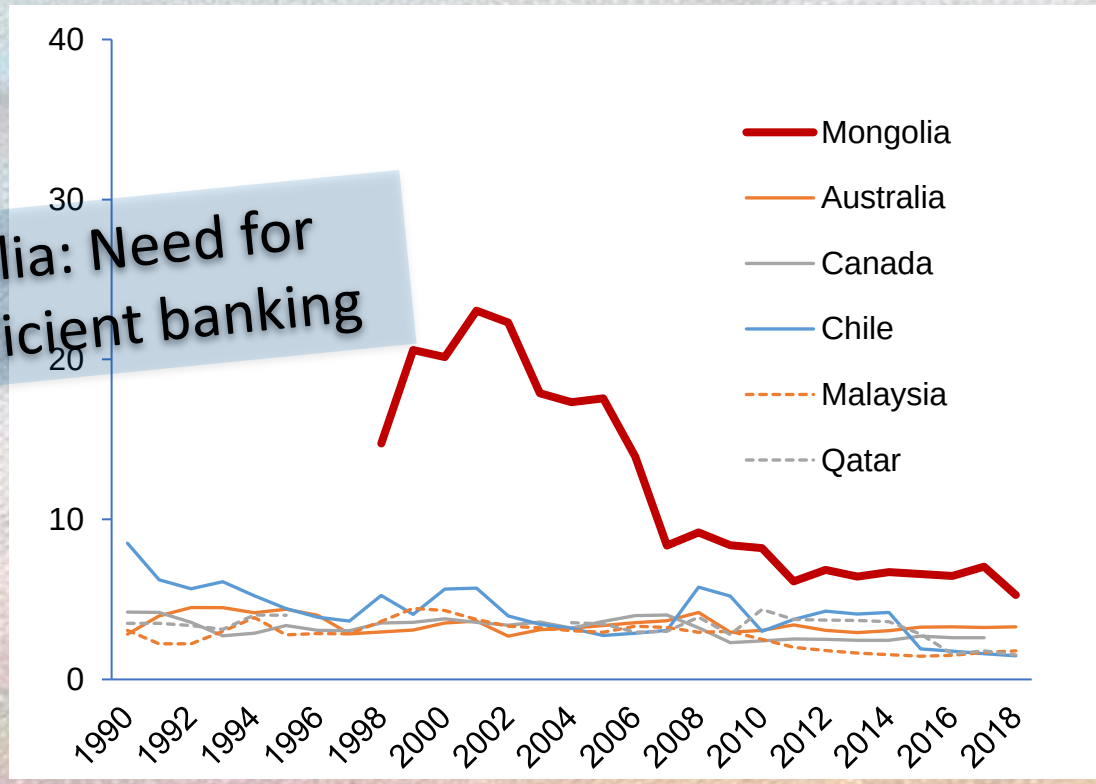
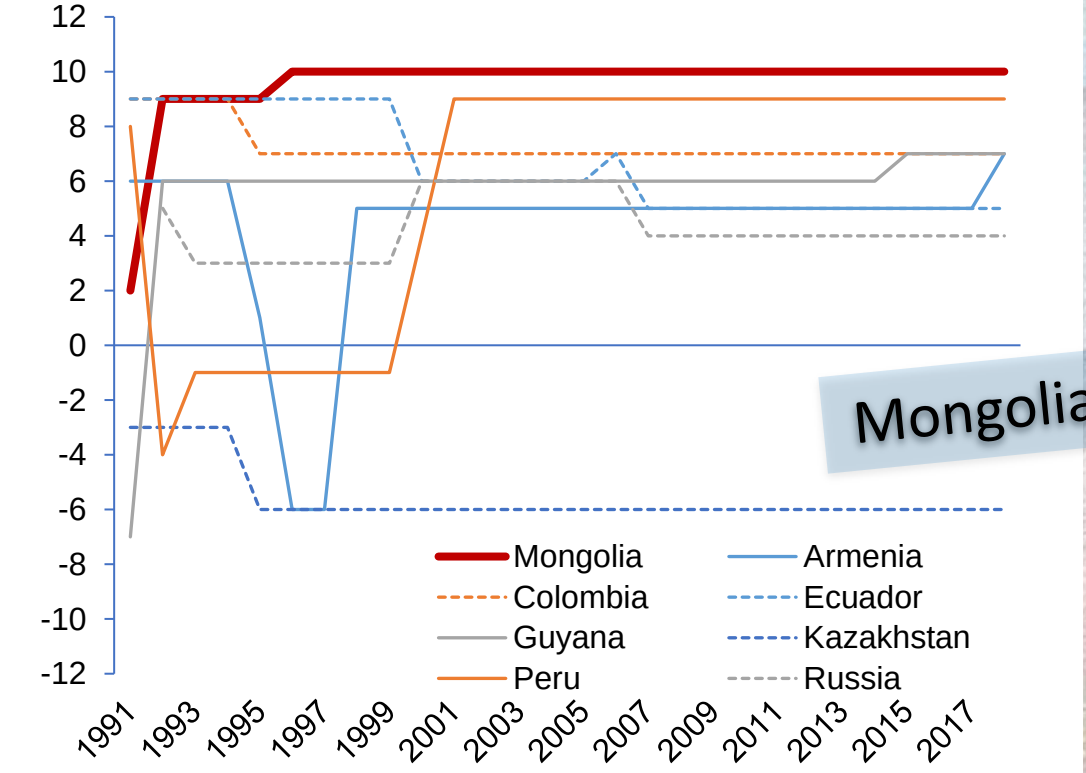


Mongolia: Need for more efficient banking

Source: World Bank, *World Development Indicators.*

Democracy (index from -10 to +10), 1990-2018

Structural peers



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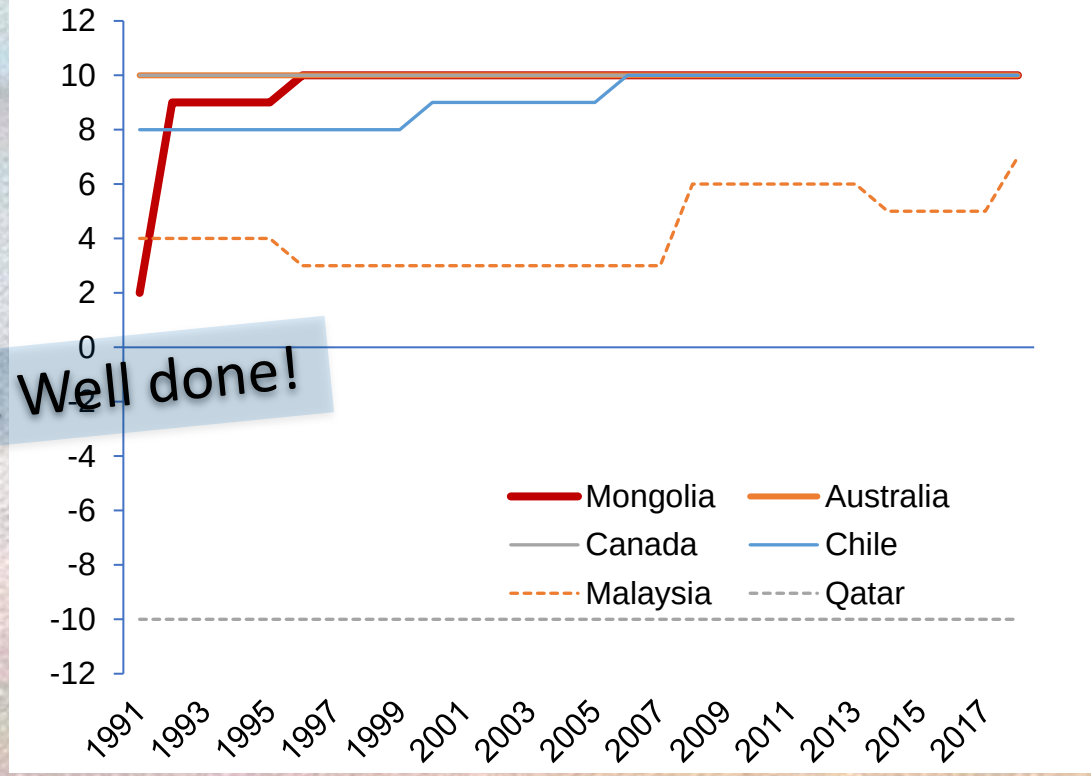
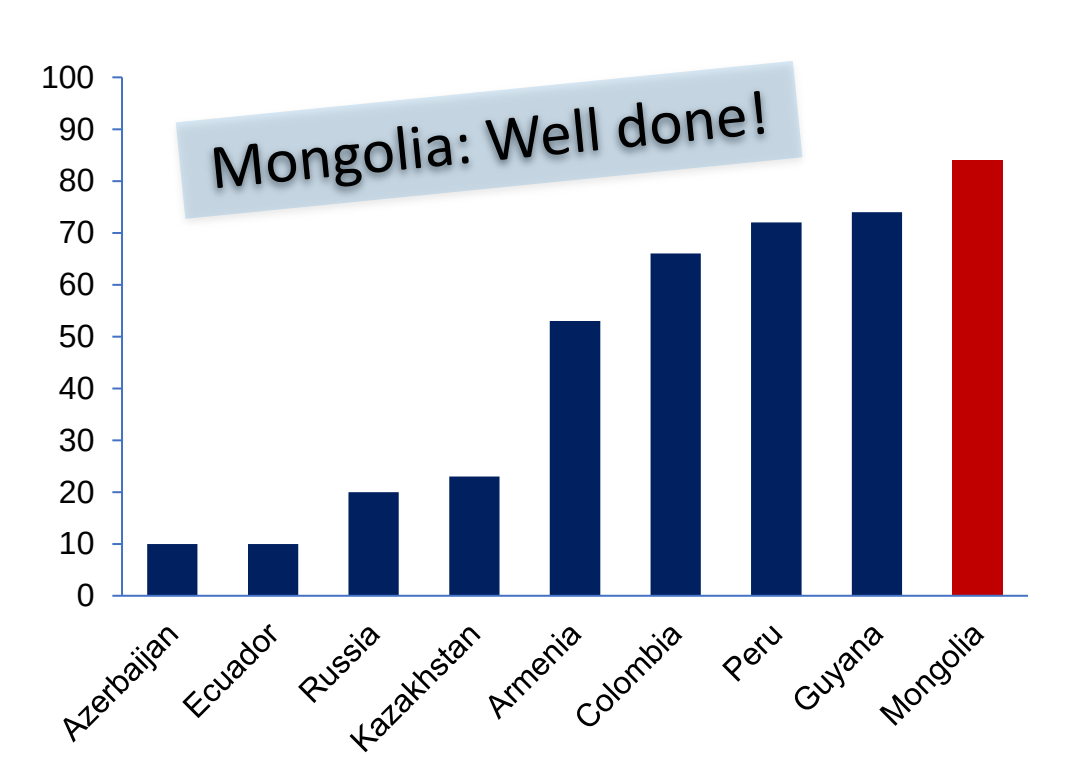


Mongolia: Well done!

Source: Polity IV Project.

Global freedom status (index from 0 to 100), 2019

Structural peers



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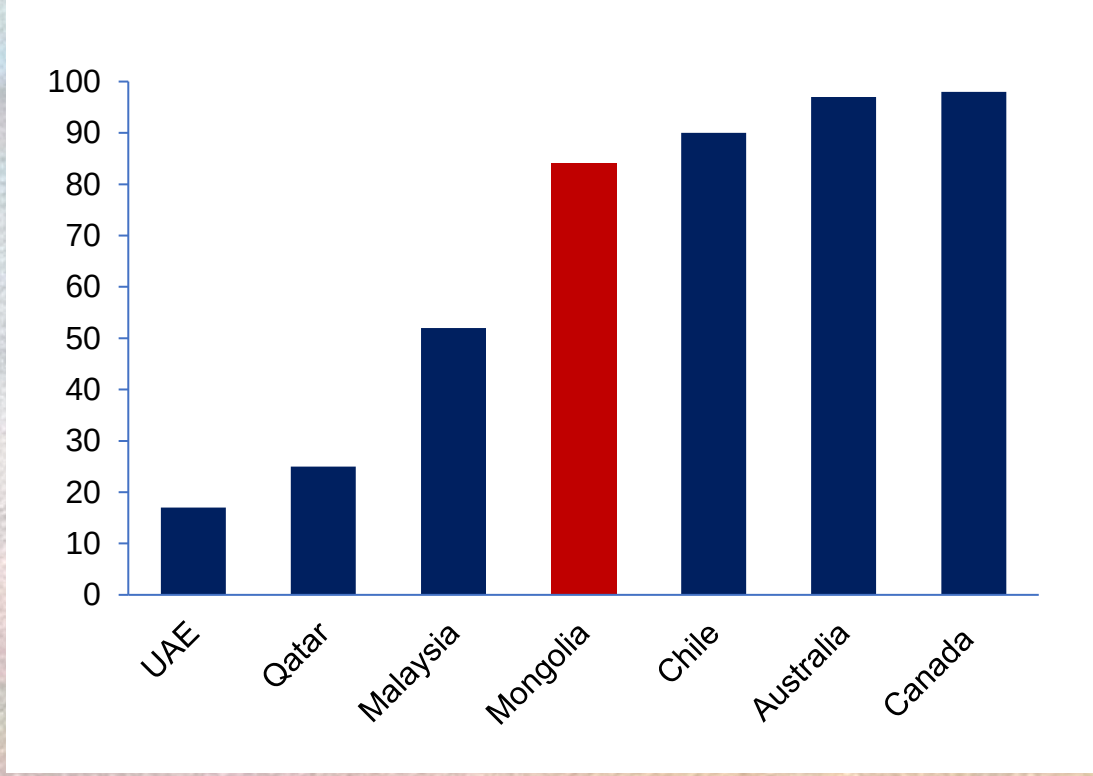
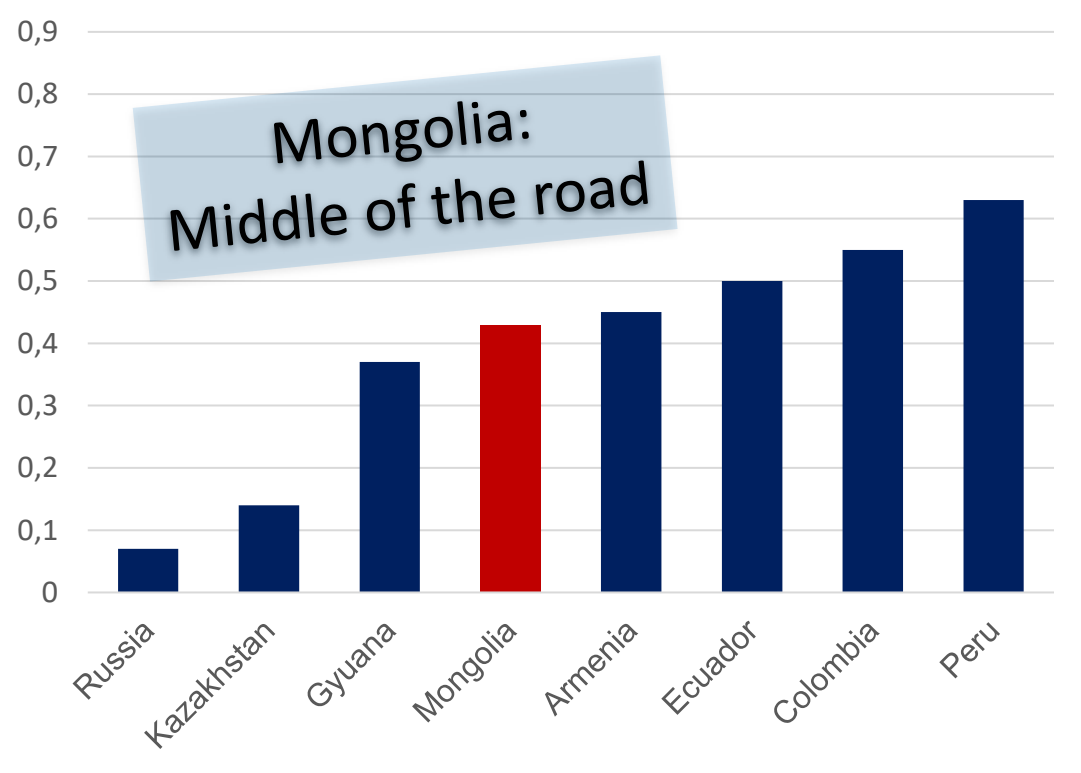


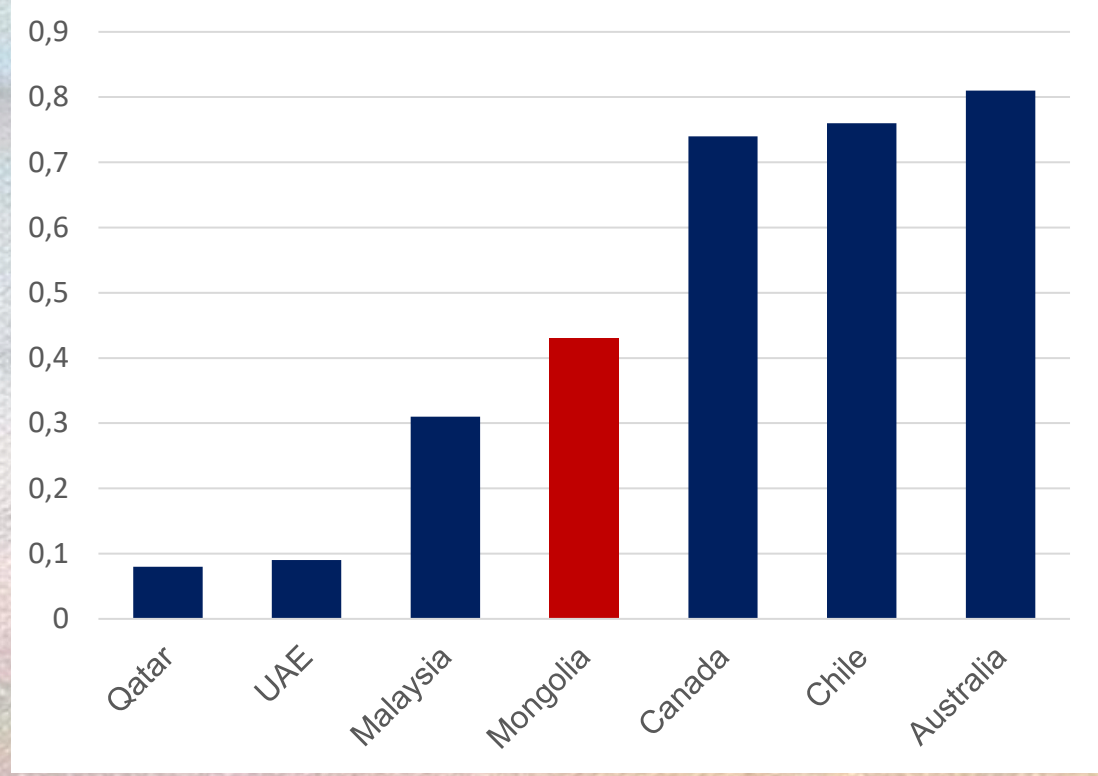
Source: Freedom House.

Liberal democracy (index from 0 to 1), 2022

Structural peers



Aspirational peers



Source: V-Dem Institute.

Highlights I

Benign entanglement

- Good things tend to go together

Human vs. natural capital

- Mongolia is middle-of-the-road despite its relatively large stock of natural capital, with human capital on par with several peers
- Mongolia's resource rents are the largest among its peers

Realignment of fiscal policy

- Resource depletion fees can be used to generate revenue to reduce less efficient taxation or to mobilise outlays on education, health care, etc.
- Revenue from fees can be used to build up a sovereign wealth fund

  Think Alaska, Norway, and more

Highlights II

Need for diversification to strengthen social capital

- Corruption has declined and resembles structural peers
- In terms of trust, Mongolia is broadly comparable with structural peers
- The rule of law in Mongolia surpasses its structural peers, but lags all of its aspirational peers
- Income distribution is not an issue for Mongolia
- Mongolian exports are less diversified than among most of its peers, but comparatively high-quality in terms of trading partners.
- The lack of foreign competition – i.e., lack of diversity – in Mongolian banking accords with general pattern of insufficient diversity

Highlights III

Mongolia has excelled in terms of political diversification

- By establishing a solid liberal democratic reputation in a challenging geographical neighbourhood

The strong state of Mongolian democracy should make it easier to pursue benign entanglement with popular support by

- Strengthening education and health care
- Reinforcing the rule of law
- Reducing corruption
- Reallocating resources along the lines of desirable economic diversification …

As, e.g., Alaska (pop. 734,000), has managed to do

The End