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Republic of Kazakhstan –
The National Path Towards the Future of R&D

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Empowering Knowledge

“The development of a knowledge-based economy is, above all, the increase of the capacity of science in Kazakhstan.”

~President Nursultan Nazarbayev
Address of the President to the Nation
17 January, 2014

Kazakhstan Economic Overview

GDP per Capita (PPP) – $US 25,876 (2015 est.)

Global GDP Rank – 47

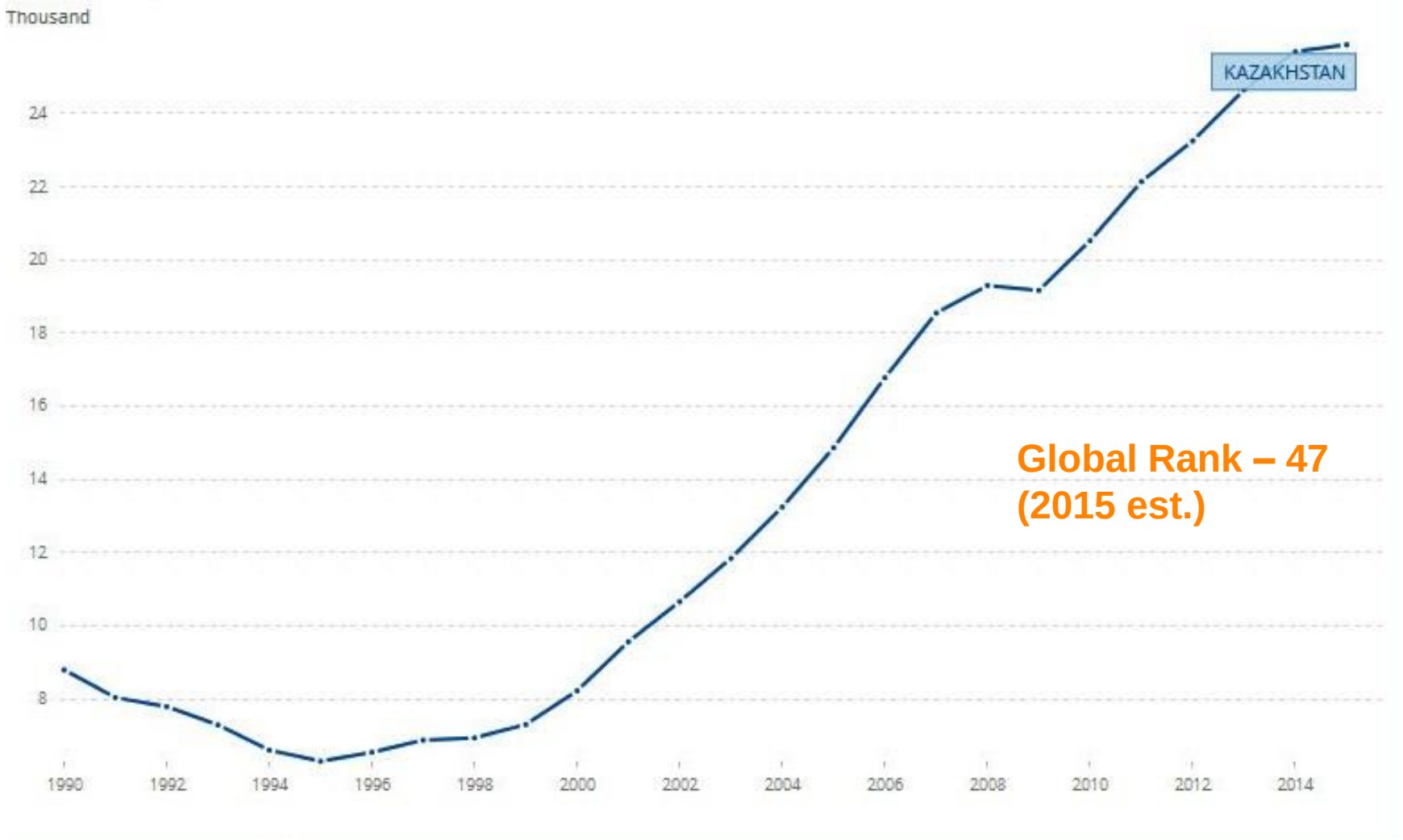
GERD (PPP) – $US 691 Million (2013)

GERD – 0.17% of GDP (2013)

GERD Global Rank – 78

Source: World Bank & UNESCO

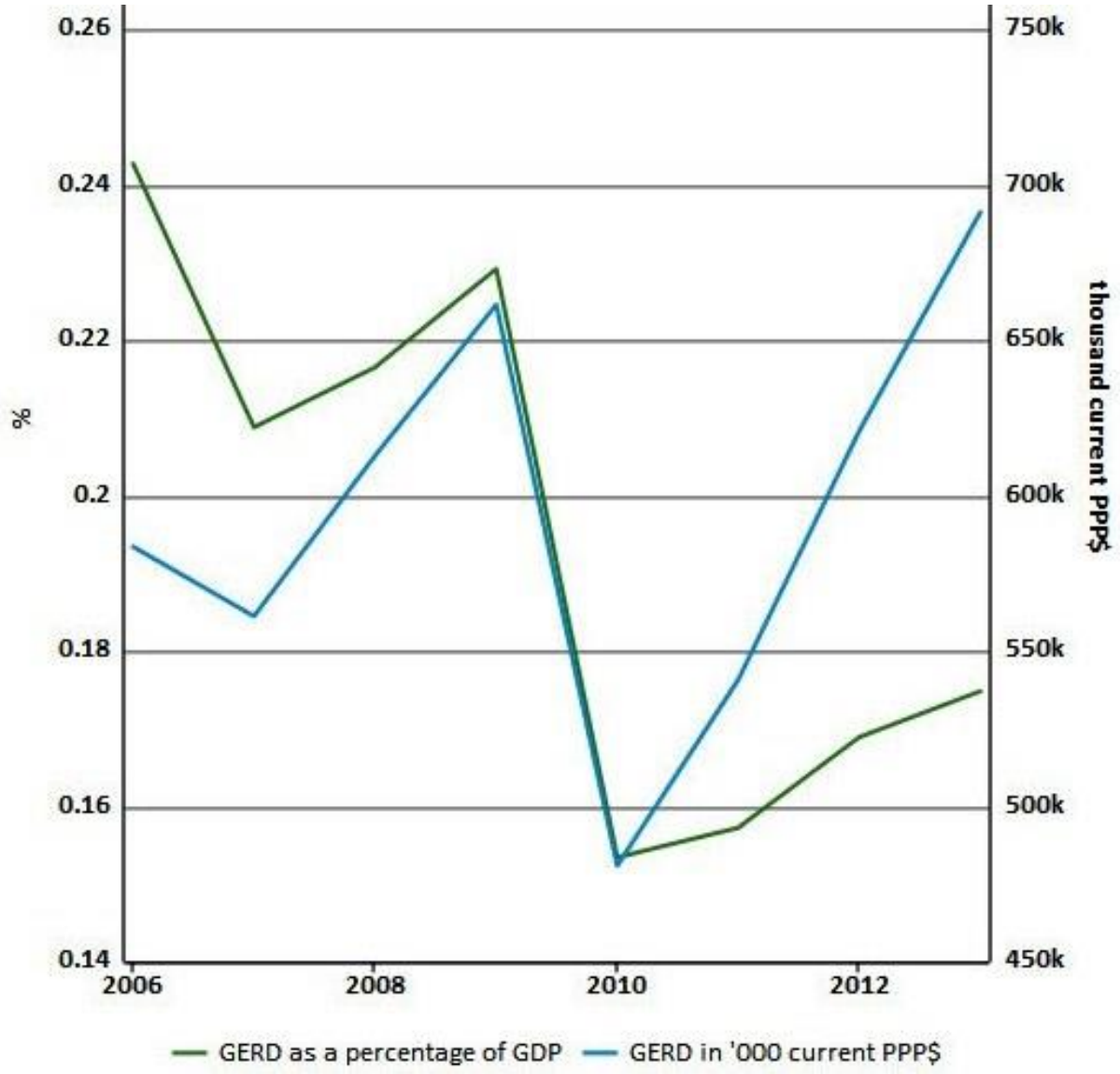
GDP Growth (USD)



Source: World Bank

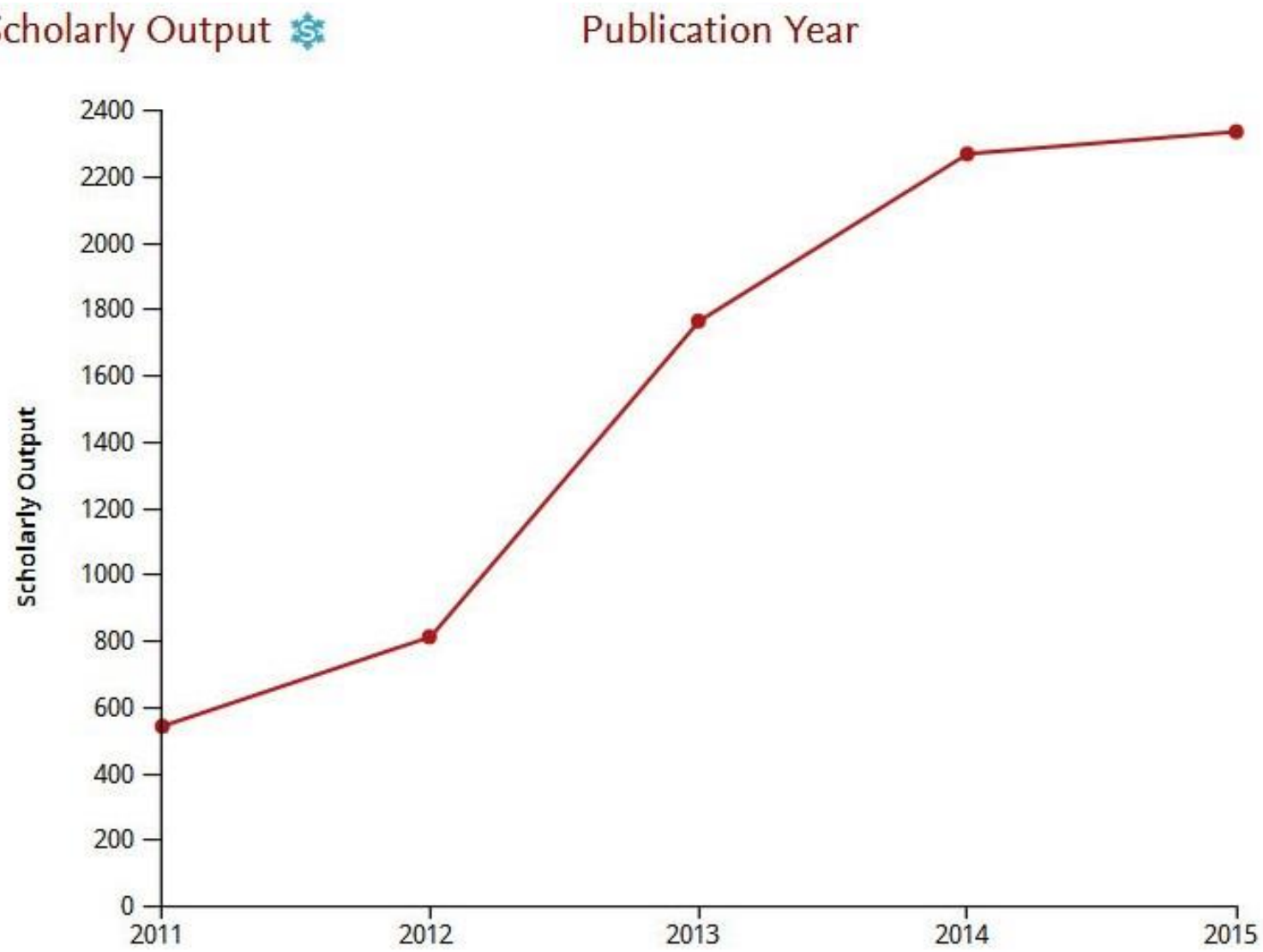
GERD Expenditures

Global Average – 1.70% of GDP (2013)



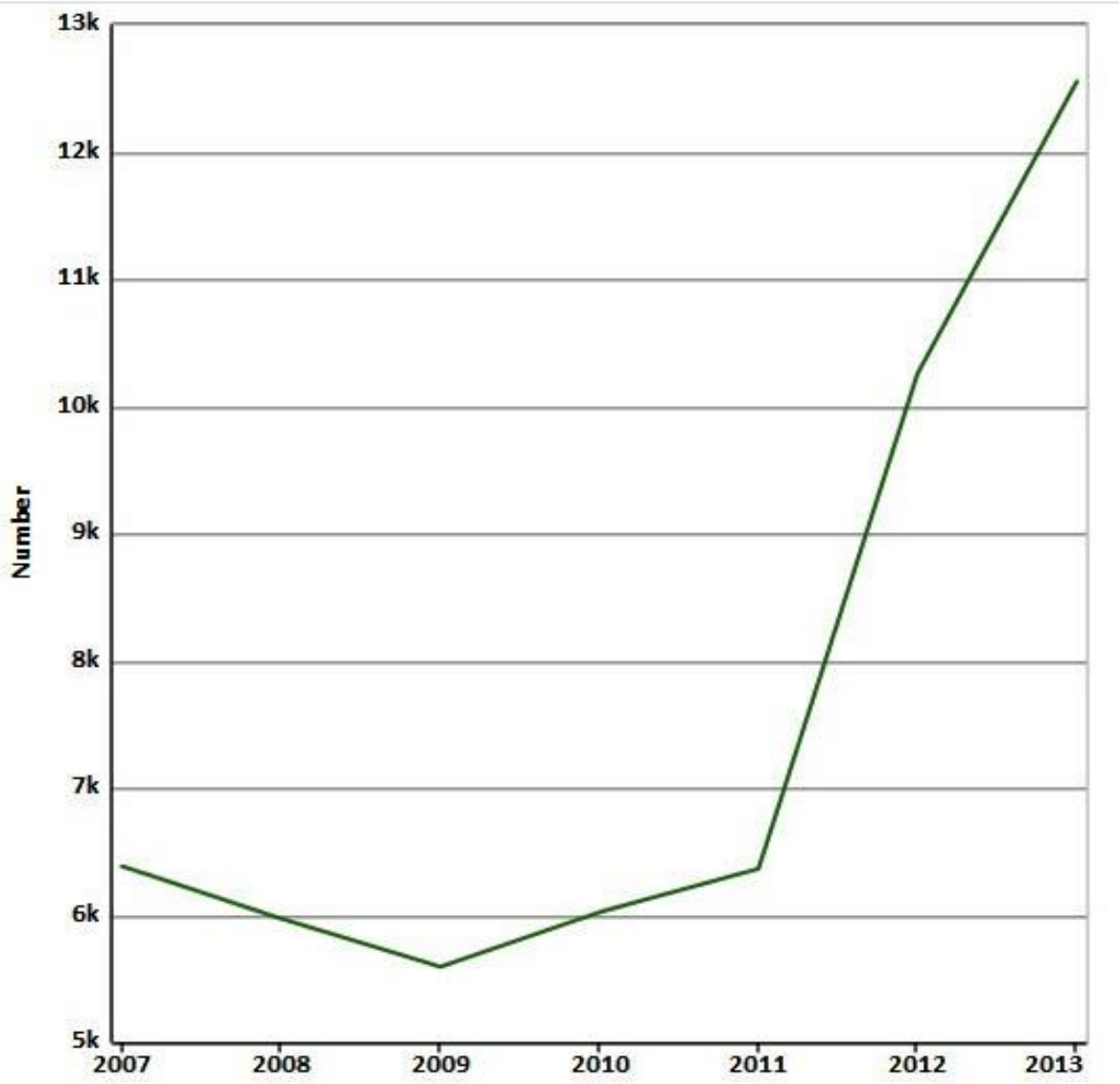
Source: UNESCO

Kazakhstan Scientific Research – 2011-2015



Source: SciVal

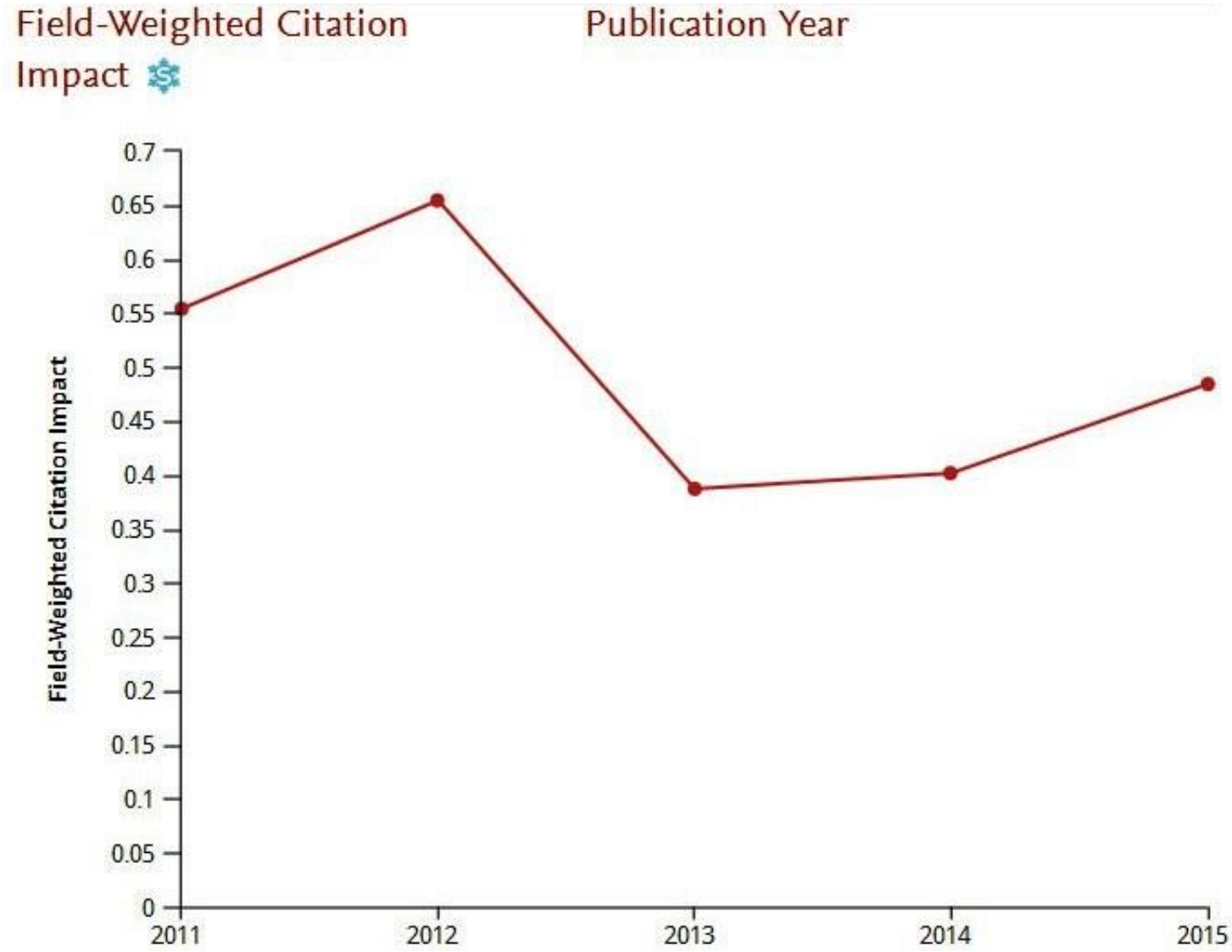
Researcher FTE Growth



Source: UNESCO

Field-Weighted Citation Impact

FWCI – The ratio of citations received relative to the expected world average normalized per specific subject area.



Source: SciVal

Key Facts on Scientific Research

- Among All 131 Countries Globally with more than 1,000 Publications (Scival, 2011-2015)
  - Highest Rate of Publication Growth Globally (332% - #2 was 229%)
  - Highest Rate of Author Growth Globally (414% - #2 was 238%)
  - Ranked 74 in global output (7,711 Publications)
  - Ranked 131 (Last) in Field-Weighted Citation Impact (0.48)

FOCUS ON QUALITY

National Higher Education and R&D Roadmap – Ministry of Education and Science State Program for Development (Republic of Kazakhstan, 2016-2019)

1. Defining Areas of Strength and Emerging Areas in Research to focus and promote within government funding bodies and attracting corporate R&D
2. Increasing Rankings of Universities (QS Rankings)
3. Increasing Researcher Capacity
4. Providing relevant content to researchers
5. Promoting International Collaboration and Visibility to the Global Community
6. Comparative Research Performance Analysis
7. Internal monitoring and evaluation mechanisms to build reports on individual, institutional and national level

Defining Areas of Strength

Kazakhstan

View data sources | 2011 to 2015 | no subject area filter selected | ASJC

Summary | Awarded Grants | Published | Viewed | Cited | Economic Impact | Authors | Institutions | Competencies

Overall research performance

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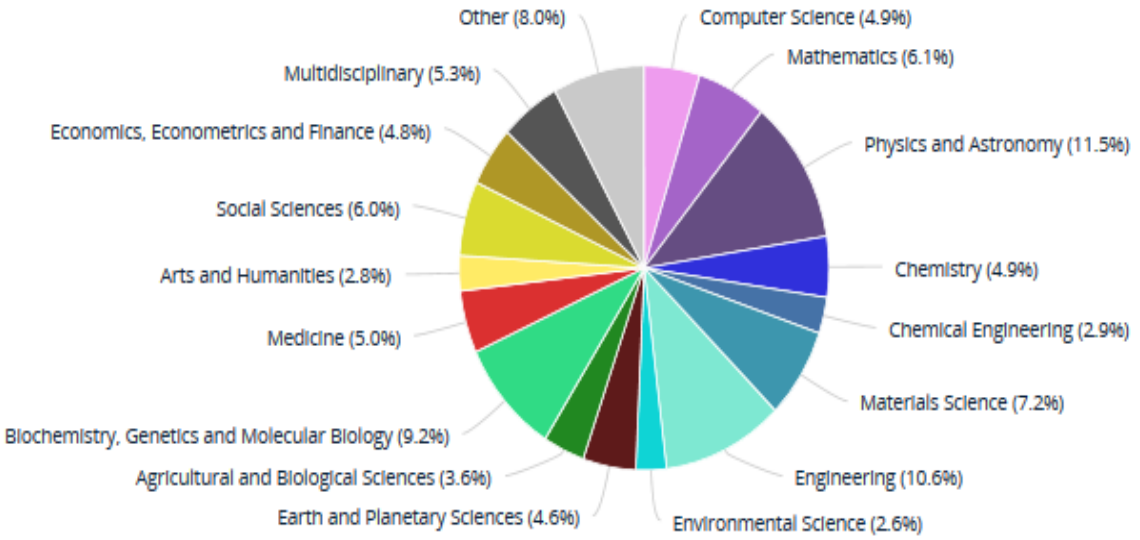
Publications	Citations	Authors	Field-Weighted Citation Impact	Citations per Publication
7,711 ▲	12,460	11,178 ▲	0.46	1.6

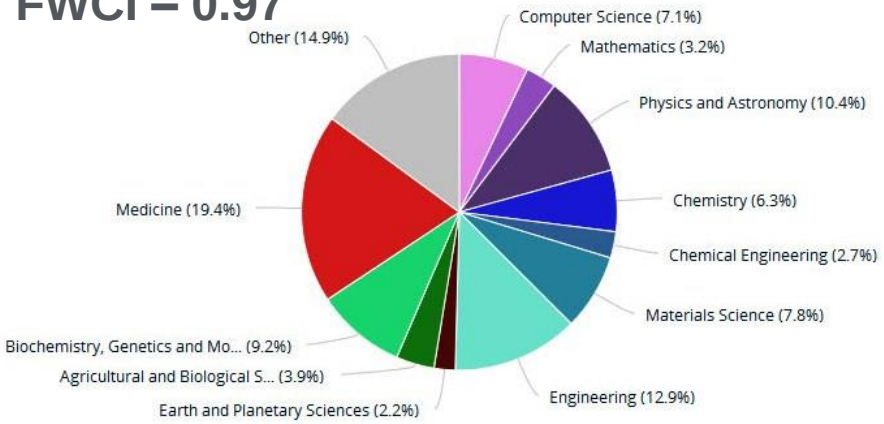
View list of publications



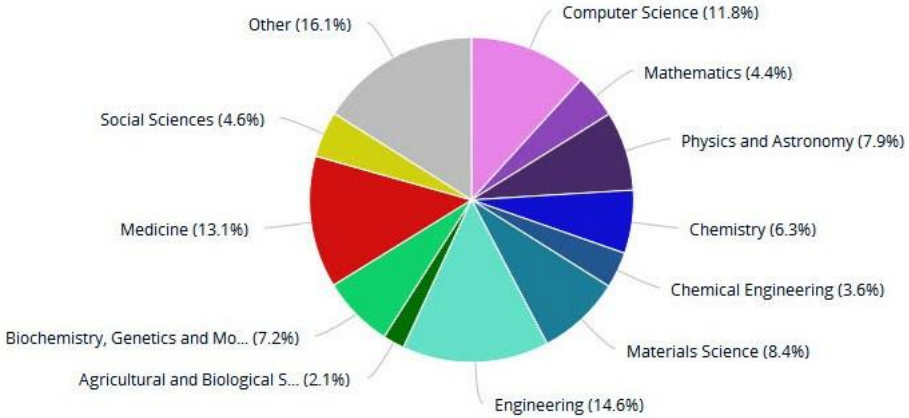
Source: SciVal

Defining Areas of Strength

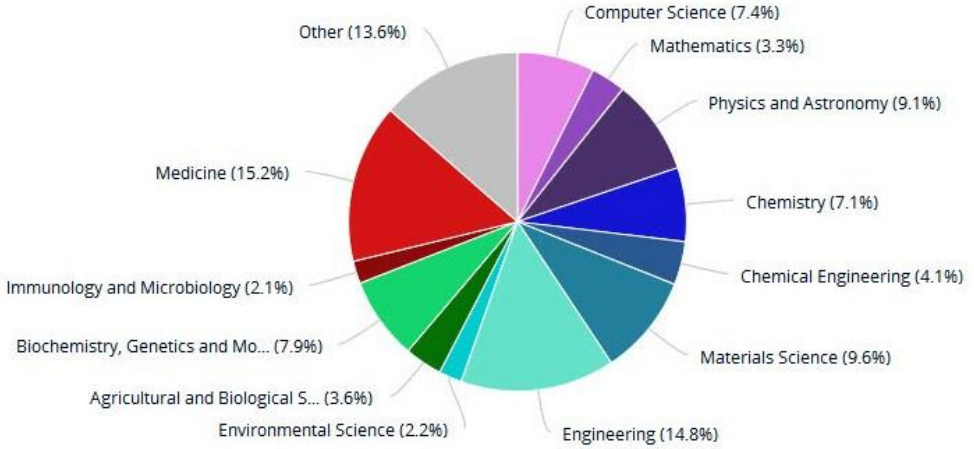
JAPAN
FWCI – 0.97



Singapore
FWCI – 1.76

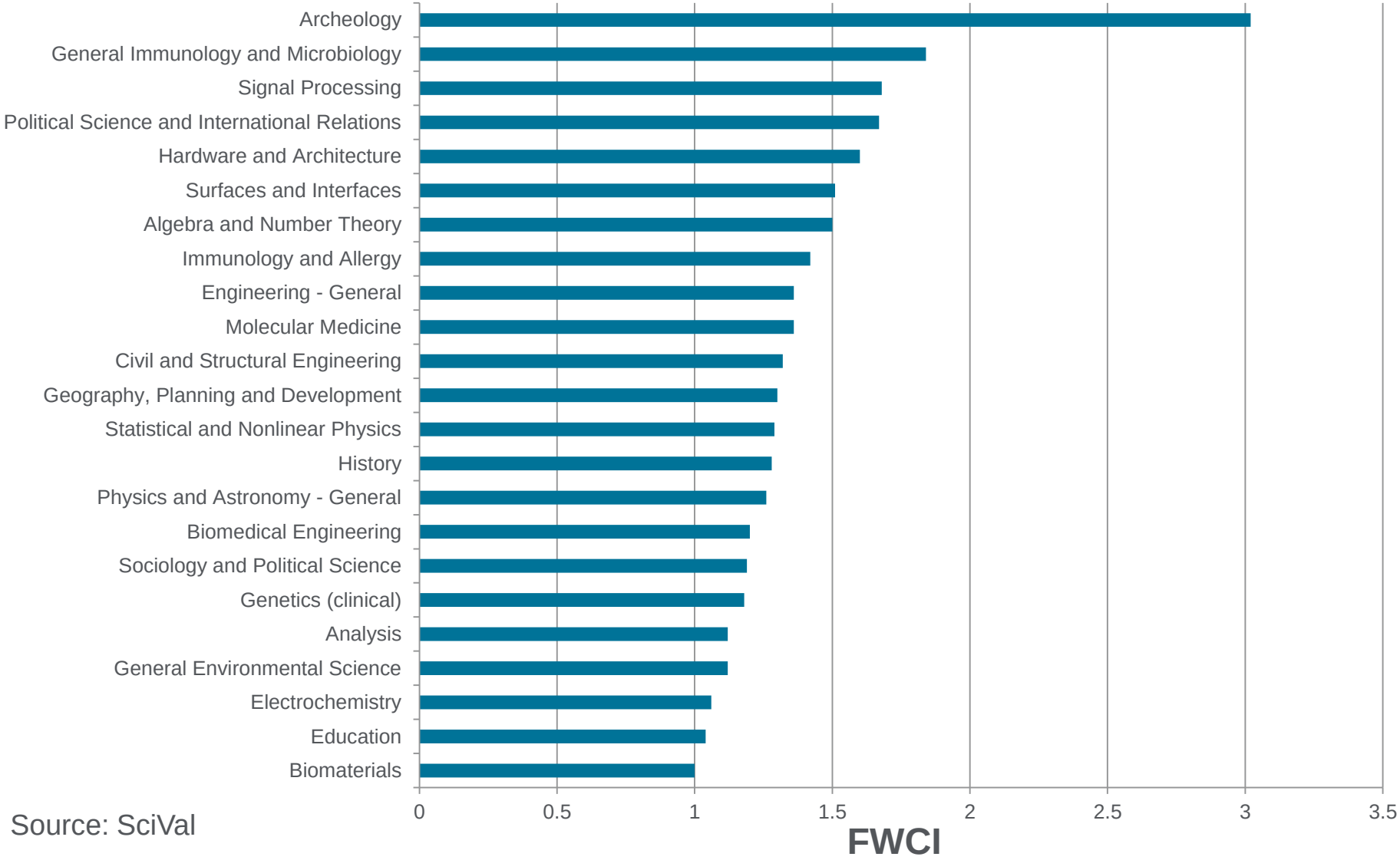


South Korea
FWCI – 1.07



Source: SciVal

Defining Areas of Strength



Source: SciVal

Increasing University Rankings (QS Rankings)

Year	# of Kazakh Universities in QS Rankings
2012	8
2013	9
2014	9
2015	9
2016	8

Only Al-Farabi Kazakh National University has shown consistent growth.

2012 Rank – 390

2016 Rank – 236

Source: QS

Increasing Researcher Capacity & Providing Relevant Content

- Providing access to world-class scientific research databases and tools to enhance their effectiveness and efficiency as researchers.

- Providing continuous training on best practices in research

  - Effective and Efficient Content Search
  - Best Publishing Practices –
    - Publishing Consistently
    - Finding the Right Journal to Publish In

Kazakhstan Scientific Research Publishing

Scopus Source	Publications	Citations	Authors	SNIP
Life Science Journal	622	245	1,917	0.828
World Applied Sciences Journal	331 ▼	158	724 ▼	1.390
Actual Problems of Economics	323 ▲	20	456 ▲	0.123
Middle East Journal of Scientific Research	210	135	433	0.945
Izvestiya Vysshikh Uchebnykh Zavedenii, Seriya Teknologiya Tekstil'noi Promyshlennosti	112 ▲	1	187 ▲	0.032
Eurasian Chemico-Technological Journal	111 ▼	26	291 ▲	0.045
AIP Conference Proceedings	105 ▲	45	150 ▲	0.149
Advanced Materials Research	103 ▼	56	255 ▼	0.096
Mediterranean Journal of Social Sciences	90 ▲	15	270 ▲	0.439
Asian Social Science	77 ▲	17	211 ▲	0.789

Scopus data can help in making decisions about the right journals to publish in. This feeds into the process of increasing quality, visibility and impact of scientific research.

Source: SciVal

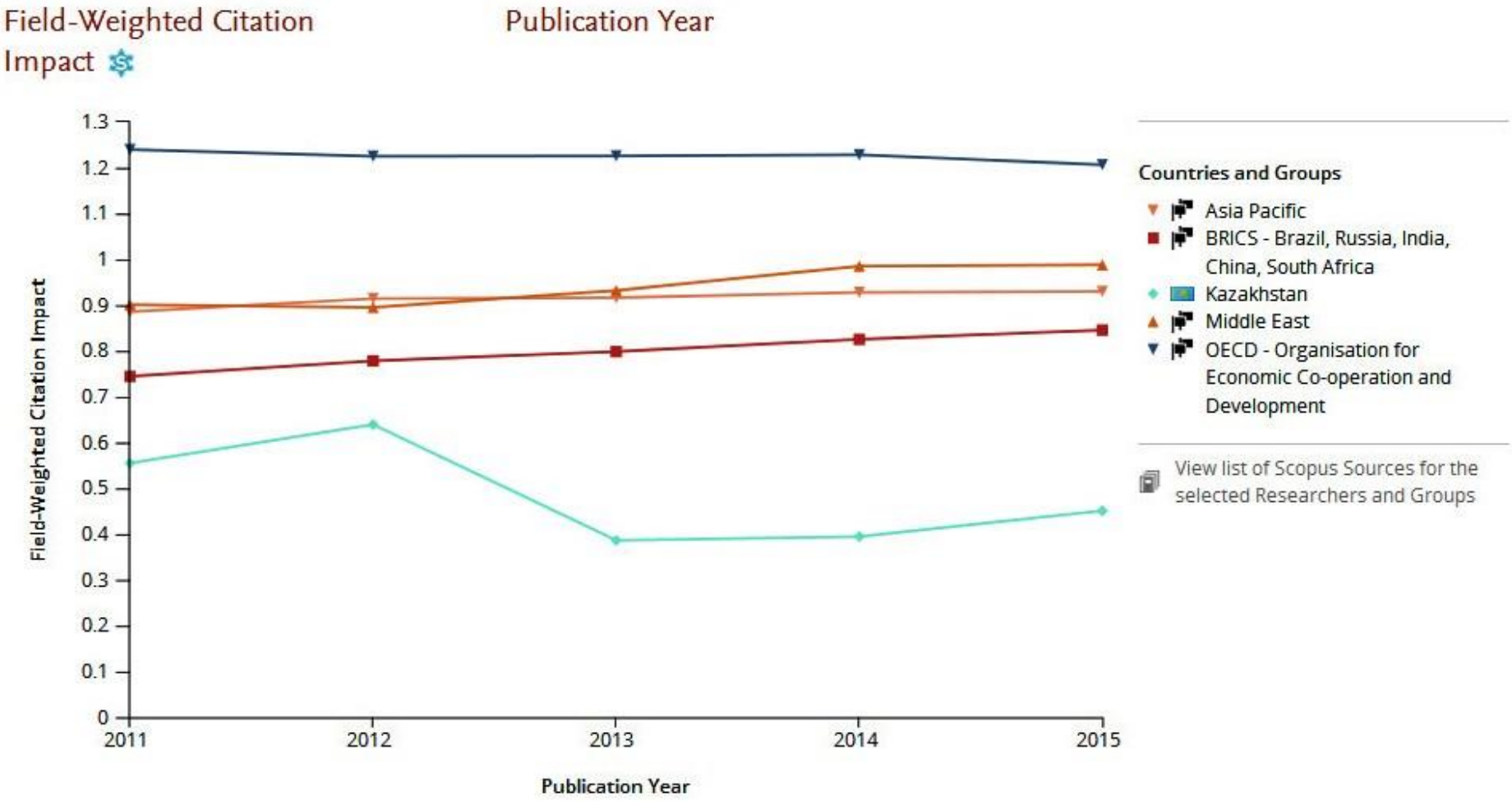
Promoting International Collaboration

Country	Co-authored publications	Co-authors in Kazakhstan	Co-authors in the other Country	Field-Weighted Citation Impact
Russian Federation	973 ▲	1,398 ▲	1,527 ▲	0.63
United States	498 ▲	640 ▲	1,016 ▲	1.14
Germany	321 ▲	350 ▲	702 ▲	1.36
United Kingdom	261 ▲	282 ▲	459 ▲	1.19
Poland	231 ▲	215 ▲	264 ▲	0.52
Ukraine	210 ▲	213 ▲	358 ▲	0.59
Italy	158 ▲	123 ▲	352 ▲	1.74
Japan	156 ▲	217 ▲	253 ▲	1.01
China	148 ▲	166 ▲	273 ▲	1.28
Turkey	133 ▲	191 ▲	223 ▲	0.70

Relationships with FWCI >1.00 are a driving force in increasing the countries research impact compared to the world.

Source: SciVal

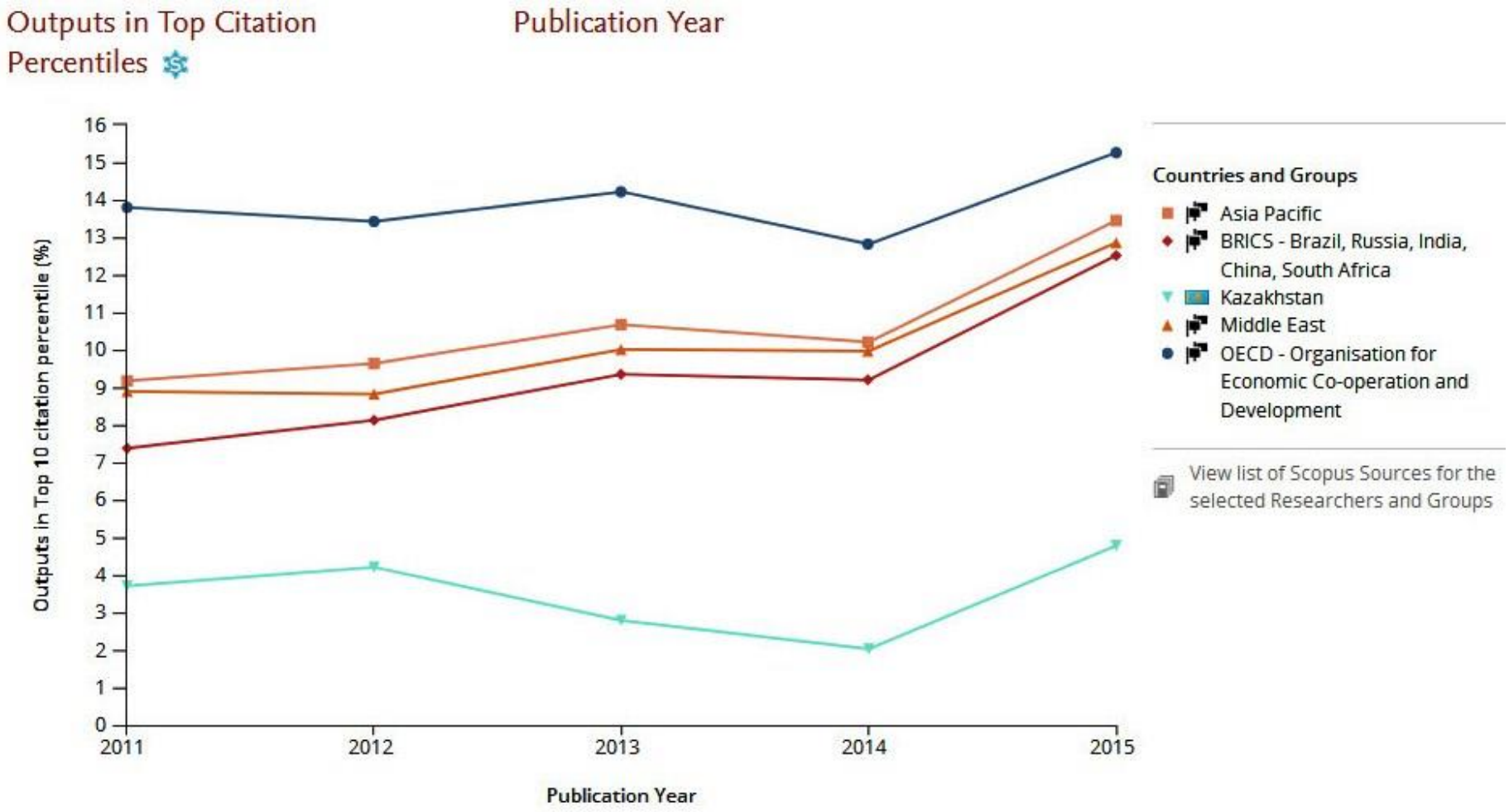
Comparative Analysis vs. Global Regions



Kazakhstan Research Impact is lower than comparative regions. (Field-Weight Citation Impact)

Source: SciVal

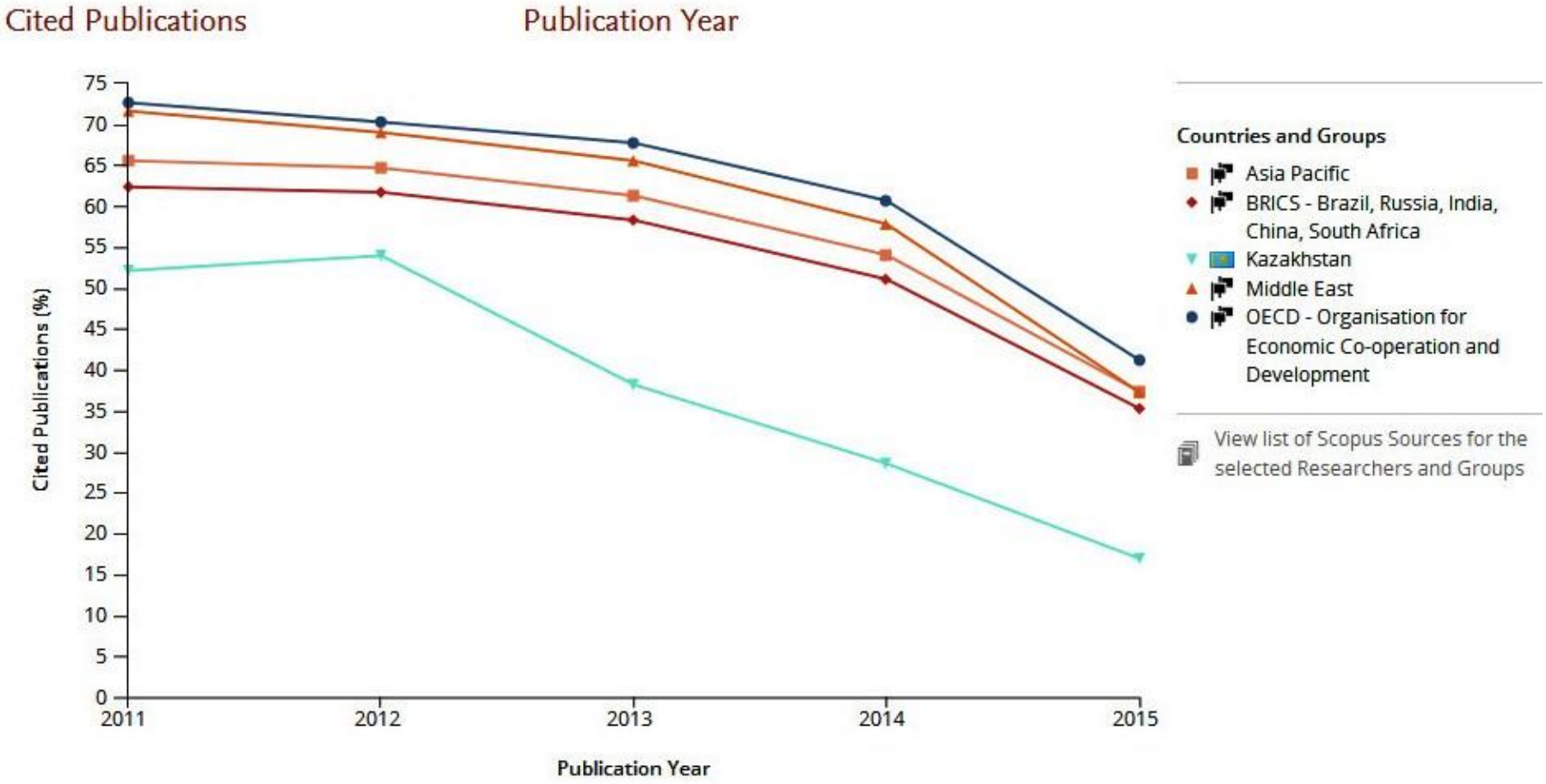
Comparative Analysis vs. Global Regions



Publications in Top 10% Most Cited Journals – compared to other regions

Source: SciVal

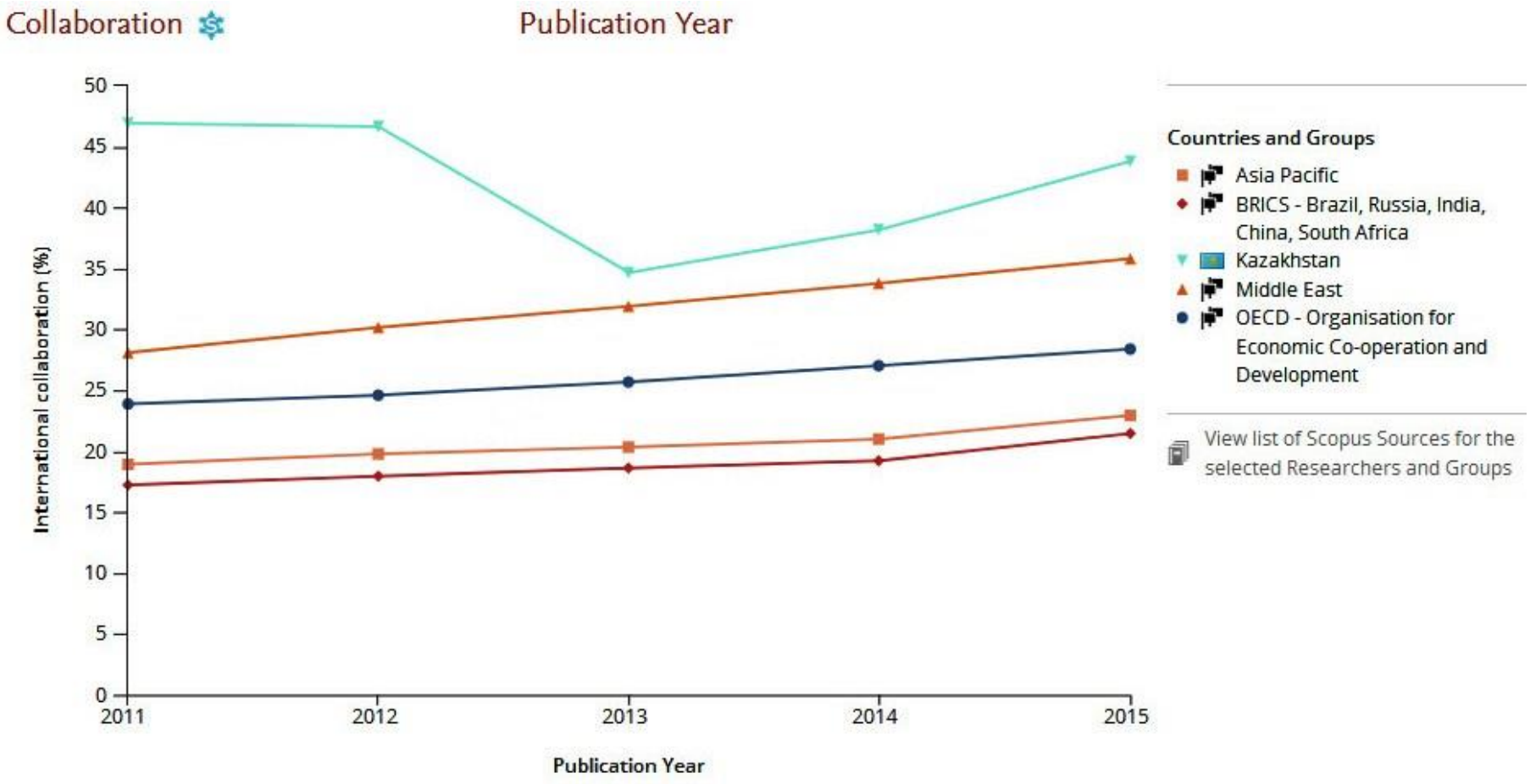
Comparative Analysis vs. Global Regions



Also, the % of Articles being cited in Kazakhstan is well below the average % of publications that are cited in other regions.

Source: SciVal

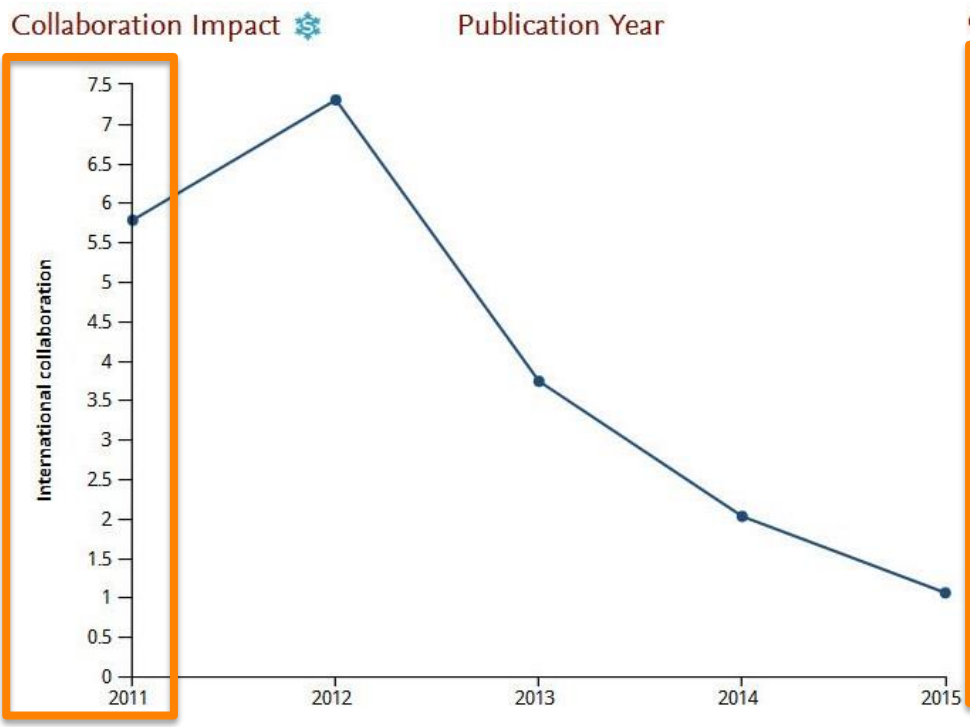
International Collaboration

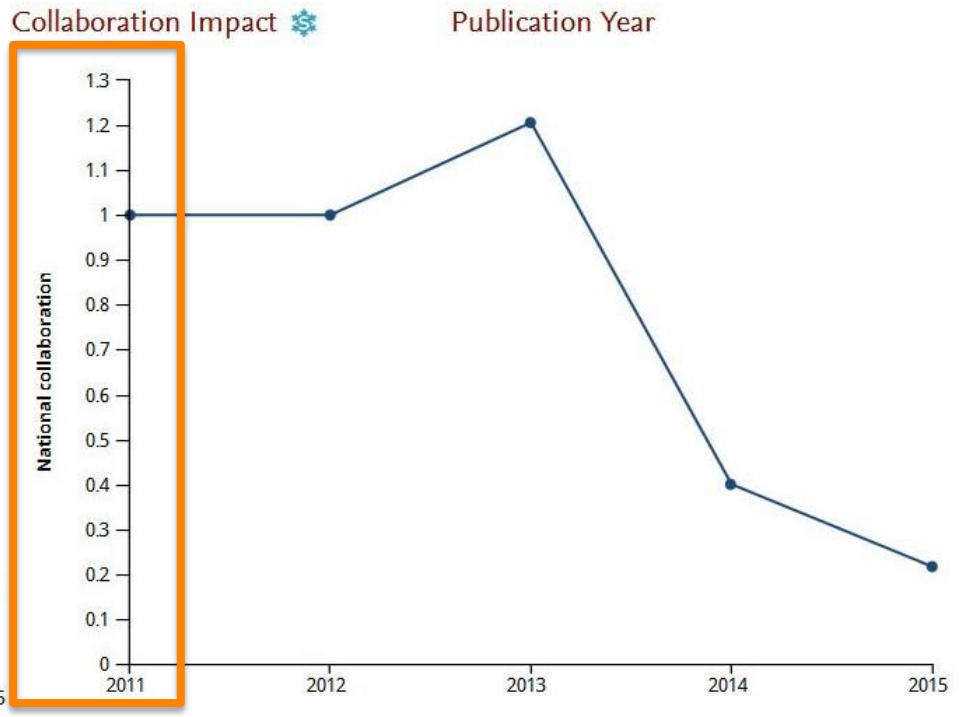


However, Kazakhstan has a relatively high rate of International Collaboration compared to other regions.

Source: SciVal

International Collaboration vs. National Collaboration





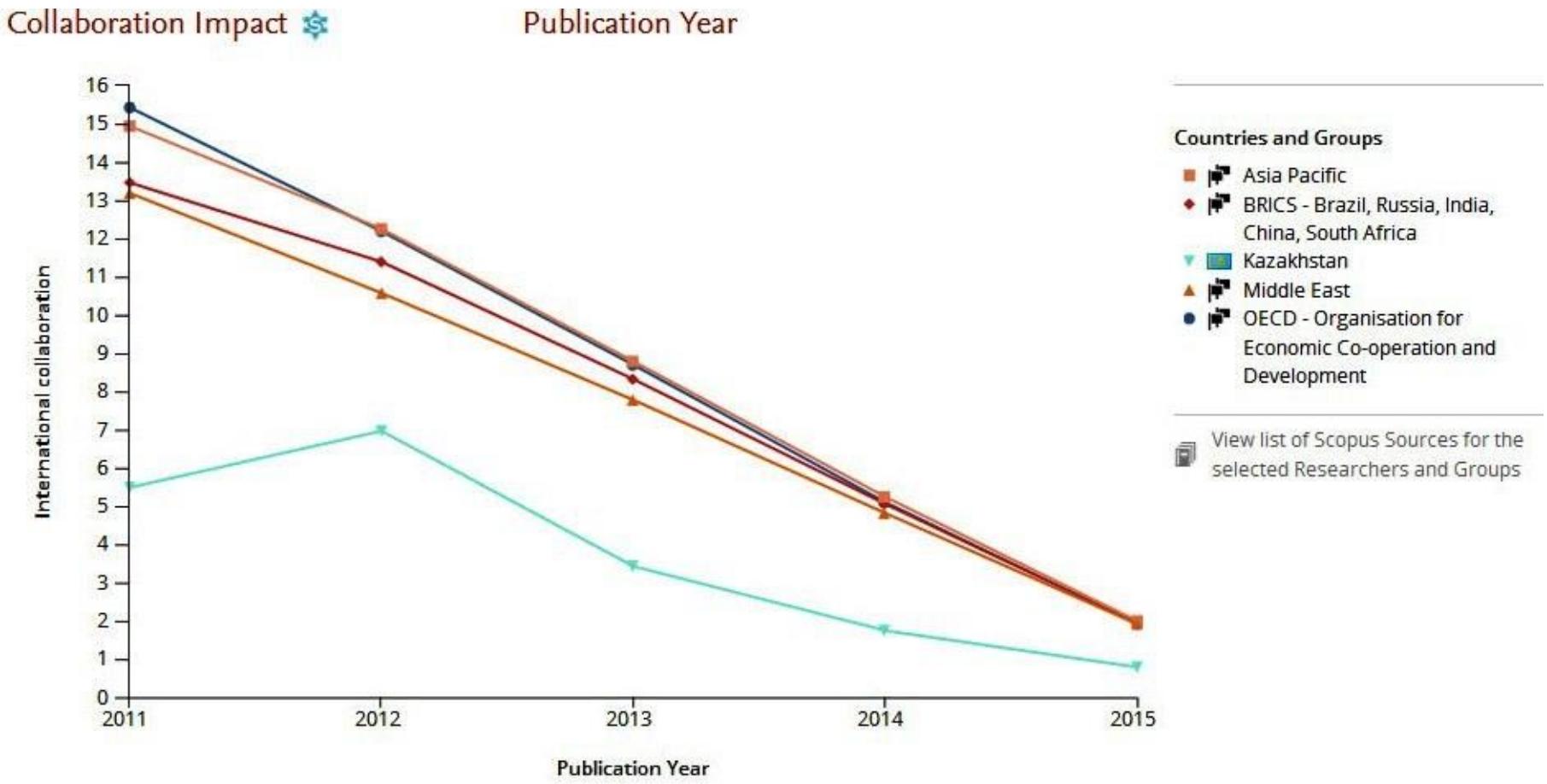
Positive Effect of International Collaboration in Kazakhstan

International Collaboration – Average of **3.0** Citations per Publication (2011-2015)

National Collaboration – Average of **0.6** Citations per Publication (2011-2015)

Source: SciVal

International Collaboration



However, when compared to other regions around the world, the Impact of International Collaboration is lower on average.

Source: SciVal

Final Thoughts

Kazakhstan has established a strong quantitative foundation to build upon:

- **Increased Resources Towards Scientific Research** (GERD growth, Researcher Growth)
- **Publication Growth**
- **Relatively High Rate of International Collaboration**

However, there needs to be a concerted effort to build a strong qualitative foundation:

- **Increase Quality of Research**
  - Focusing on national strategies to drive specific research areas
  - Increasing Researcher Capacity
  - Increasing Quality of International Collaboration
  - Establishing research performance analysis processes and follow up to track the development of Scientific Research in the country

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Thank You

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