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FROM SILK ROAD TO SILICON ROAD

HOW THE BELT AND ROAD INITIATIVE WILL TRANSFORM THE GLOBAL ECONOMY

Foreword

I am delighted that the Chartered Institute of Building is sponsoring this report examining the impact of the Chinese Belt and Road Initiative on the world economy. It is a timely reminder of how the infrastructure needed to secure international trade can contribute to a more prosperous future for many nations and help to build important relations globally.

The Belt and Road Initiative is the most ambitious and largest infrastructure project arguably in history and will eventually touch more than two-thirds of the world's population across some 65 or more countries. Its impact and effect will be felt for generations.

The Chinese Belt and Road project includes a raft of investments beyond traditional transport links - it will, of course, include road, rail and port infrastructure but also energy, special development zones and urban transport systems. In the longer term, it will almost certainly become more electronic than physical as roads are upgraded for autonomous vehicles and as digital infrastructure becomes part of the system.

A key finding from this report is that Belt and Road will boost world GDP by US $7.1 trillion per annum by 2040. This raises world GDP by 4.2% of likely GDP in 2040 or by 8.3% from 2019 world GDP.

The construction sector will also be boosted significantly over the next 15 years by spending on Belt and Road projects - from US $11.5 trillion today to US $29.4 trillion or 16.6% of world GDP by 2033.

Some countries and regions will be boosted economically more than others. China and the US will benefit from the impact felt on world trade from Belt and Road because of their sheer size. Other countries that will be boosted include Russia, Japan, Indonesia, Korea, the UK, India and the Netherlands.

Successfully building such a vast network of interconnected infrastructure requires the experience, skills and in-depth understanding of the management of construction that are held by members of the Chartered Institute of Building. I hope that among the many other outcomes from this enormous undertaking that the 45,000+ members of the CIOB, based in more than 100 countries around the world, can contribute their professionalism and knowledge towards the management of Belt and Road projects.

Chris Soffe
President
The Chartered Institute of Building

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Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them. The report has been prepared by Cebr's Macroeconomics team with support from Cebr's Trade, Transport and Energy teams. Economists who have worked on the project include Douglas McWilliams, Pablo Shah, Kay Neufeld, Michael McWilliams, Ian Birch and Cristian Niculescu-Marcu. Many thanks to others in the Cebr team and to Graham Robinson of Global Construction Perspectives for all their help.

The report does not necessarily reflect the views of the Chartered Institute of Building. London, May 2019

Contents

Summary **5**

The World's Largest Infrastructure Project **6**

Introduction 6

What we have compared 7

BRI and geopolitics 8

Who is impacted? 9

The global construction market 11

The risks 11

Conclusions 12

Regional Forecasts **13**

Country Forecasts **14**

2.1 Australia 14

2.2 Azerbaijan 15

2.3 Brazil 16

2.4 China 17

2.5 Denmark 18

2.6 India 19

2.7 Indonesia 20

2.8 Japan 21

2.9 Kazakhstan 22

2.10 Korea 23

2.11 Kyrgyzstan 24

2.12 Malaysia 25

2.13 Mongolia 26

2.14 Netherlands 27

2.15 Pakistan 28

2.16 Russia 30

2.17 Sweden 31

2.18 Tajikistan 32

2.19 Turkey 33

2.20 Turkmenistan 34

2.21 United Kingdom 35

2.22 United States 36

2.23 Uzbekistan 37

Risk Case **38**

Appendix: notes on method **39**

Summary

The study looks at the impact of the Belt and Road Initiative (BRI). The study uses Cebr's economic impact of transport and infrastructure analysis and Cebr's trade frictions analysis.

Although currently the BRI has about $2 trillions of projects already on the drawing board, we believe that as it succeeds it will expand to encompass many other projects. Ultimately over the next quarter century we expect it to involve as much as $8 trillion of spend.

We estimate that the Belt and Road Initiative is likely to boost world GDP by 2040 by $7.1 trillions per annum. This raises world GDP by 4.2% of likely GDP in 2040 (or 8.3% of GDP in 2019).

The benefits of the BRI are widespread. **As many as 56 different countries are forecast to have their annual GDP in 2040 boosted by more than $10 billion as a result of the project**.

Other than China, which by 2040 will be by far the world's largest economy and which will therefore benefit from any boost to the world economy, **the biggest single potential beneficiary of the BRI is (surprisingly) likely to be the US,** even though it isn't participating directly in the project. This is because of the sheer size of the US economy which means that it gains from the indirect effects of world GDP being boosted. Even though the boost to US GDP is only 1.4% (much smaller than most other major economies) the absolute size of the US economy is still such that this is more than the absolute boost to any other economy except China. **The next largest impact is in Russia, followed by Japan, Indonesia, Korea, UK, India and the Netherlands**.

The region of the world that will most be transformed by the BRI is likely to be Central Asia and Russia where we predict that GDP in 2040 will be 18% higher. GDP is also likely to be boosted in Central Europe (6%) Western Europe (5%) and East Asia (5%).

The largest proportional impacts are in **Mongolia, the Kyrghiz Republic and Russia**.

Through the Belt and Road Initiative China will be continuing to drive world economic growth but in a different way from in the past. **In the 10 years since the financial crisis in the West, China (now 15% of the world economy) has driven world demand by accounting for 40% of world GDP growth. Now looking forward China will be driving world GDP growth though helping the building of infrastructure throughout the world and** through reducing both transport and other frictions that hold back world trade.

The study also considers the impact that might emerge if the BRI is delayed for any reason such as a world economic slowdown or because of technical difficulties. **If the spend is reduced by $1 trillion for example, world GDP (compared with the $2 trillion spend base case) will be reduced by $0.9 trillion or 0.5%.** The region most affected will be Central Asia where GDP would be reduced by 5.9%.

A key conclusion of the report is that **as the BRI develops, it is likely to attract in further countries**. Indeed it is highly likely that Western Europe, which has largely stayed aloof so far, will join in as the project develops momentum. It is even possible, though clearly unlikely under the current administration, that the US will also get involved in the BRI. But this is a longer term aspiration.

The World's Largest Infrastructure Project

Introduction

A vital part of the Roman Empire was its transport links. Over the period 450 BC to 150 AD the Romans built 382 great roads over their Empire[1]. The length of the road network built by the Romans is estimated to have stretched to 400,000 km of which 80,000 km were paved[2].

There has been no systematic attempt to build a complete network of interconnected infrastructures covering ranges of countries since then until now although of course there have been plans linking small numbers of countries.

The earliest Roman road was the Via Appia which was started (and finished) in 312 BCE. The first part joined Rome with Capua and was considered critical in enabling the Romans to subdue the Etruscans and the Samnites. The road was extended to Brindisium (modern day Brindisi) in 264 BCE.

Eventually the network of 382 major roads was completed connecting Britain to Africa and the Middle East and connected with the Persian Royal Road. The network is estimated to make up 400,000 km of roads although only 80,000 km were paved.

The Roman road network was largely completed before the Christian era, though some more were built in the 1st century AD. We have not made an estimate to cost the Roman road network but at today's prices a km of non-motorway road costs at least $5 - $10 million so the network of 80,000 km of paved roads might have cost up to $800 billion were it built today.

The Chinese Belt and Road project extends far beyond road infrastructure. It includes rail, energy, special development zones and urban transport systems. Eventually it will almost certainly become more electronic than purely physical as roads are upgraded for autonomous vehicles and as digital infrastructure becomes part of the system. The projects identified so far will cost about $2 trillion but many more will follow.

The road parts of the project have been estimated to comprise 60,000 km of new or upgraded roads by the Mercator Institute for China Studies in Berlin. So the road part is actually smaller than the Roman road system.

But the most impressive aspect of the BRI is the combination of global reach and the speed with which it will come into effect. Most of the BRI system will be in place by 2040, implying a speed of building more than ten times faster than the Romans.

More interesting than the differences between the two systems are the similarities. The key point of the BRI is not just the physical and electronic infrastructure but the extent to which it makes trade around the world easier. The Roman roads were initially built for military reasons but eventually mainly existed to support and enhance trade.

Because the BRI is so critical to the world economy, it is important to understand how is likely to affect this economy and where.

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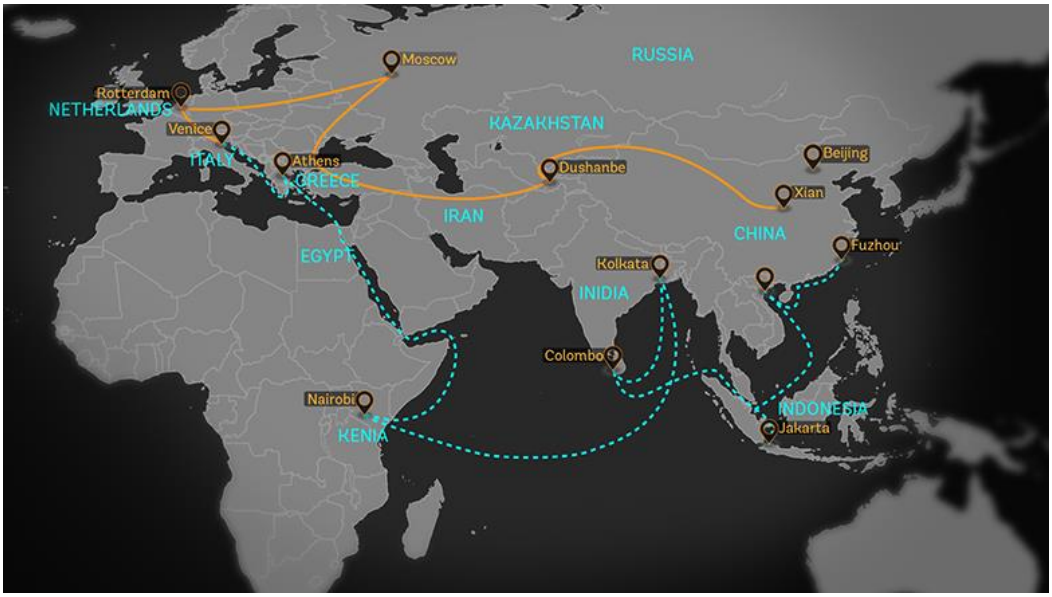
[1] Duducu, Jem (2015). *The Romans in 100 Facts*. GL5 4EP UK: Amberley Publishing.
[2] Michael Grant, History of Rome (New York: Charles Scribner, 1978), 264

We have used two techniques to estimate this impact. The first is to use Cebr's techniques for estimating how improved infrastructure boosts productivity[3]. The second is work developed using agent based modelling by Cebr to show how trade frictions affect trade and how reducing them can lead to substantial benefits to the world economy[4]. We have then fed the microeconomic results into Cebr's World Economic League Table Macroeconomic Model to derive the results for the global impact of the BRI on the world economy.

What we have compared

The Belt and Road Initiative (BRI) involves infrastructure development and investments and other potential changes including special economic zones and reduced customs formalities in 152 countries and international organizations in Asia, Europe, Africa, the Middle East, and the Americas[5]. "Belt" refers to the routes for road and rail transportation, called "the *Silk Road Economic Belt*"; whereas "road" refers to the sea routes, or the 21st Century Maritime Silk Road[6].

Map of some of the currently planned parts of the Belt and Road Initiative. Image © World Bank



[3] These techniques are best described in the project reports of two European Commission Funded studies ASTRA and UPTUN. The ASTRA project is written up in http://www.astra-model.eu/doc/ASTRA-model.pdf. The key data is on pages 28-41. The UPTUN project is written up in the Proceedings of the Institution of Civil Engineers - Structures and Buildings ISSN 0965-0911 | E-ISSN 1751-7702 These techniques are best described in the project reports of two European Commission Funded studies ASTRA and UPTUN. The ASTRA project is written up in http://www.astra-model.eu/doc/ASTRA-model.pdf. The key data is on pages 28-41. The evaluation module of the UPTUN project is written up in the Proceedings of the Institution of Civil Engineers - Structures and Buildings ISSN 0965-0911 | E-ISSN 1751-7702 Volume 162 Issue 3, June 2009, pp. 183-197 'New methods for road tunnel fire safety evaluation and upgrading' G. A. Khoury, MSc, PhD, DIC, EurIng, CEng, FIStructE, MINucE, MIFireE, FRAeS, D. Walley, MA, and D. McWilliams, MPhil, MA

[4] This work is described in a report by Shanker Singham and Cristian Niculsescu-Marcu of Cebr https://cebr.com/reports/us-china-brexit-its-all-about-international-trade-but-we-have-to-oil-the-wheels-at-home-too-domestic-and-export-markets-should-not-be-seen-as-separate/

[5] Belt and Road Initiative". World Bank.

6 Kuo, Lily; Kommenda, Niko. "What is China's Belt and Road Initiative?". the Guardian. 2018-09-05

We have carried out a rigorous investigation of those BRI projects that have reached drawing board stage and identified 215 projects so far of varying size and importance. Our Energy and Transport teams have made a rough costing of these and they amount to a potential spending of about $2 trillion.

Clearly this is just the tip of the iceberg.

Our engineers have also looked at the discussions surrounding the BRI and have identified a wide range of additional projects that seem likely to link with the BRI:

Additional BRI areas are likely to include:

- A 5G global fibre network with global satellite cover
- A global energy interconnector. See Geidco.org for many more details
- Development of the Arctic Belt and Road where the Russian and Chinese initiatives will probably merge. Nordic and other countries will become involved.
- The Western European end of the Belt and Road - at present, other than Greece and the recent accession of Italy, Western Europe has stayed aloof. This is likely to change as the success of the Belt and Road initiative becomes more apparent - we believe it is highly likely that much of the rest of Europe will get involved including the UK, the Netherlands, Germany and France in particular. Also some more central European countries like Poland.
- The autonomous vehicle Belt and Road - upgrading of the highways links to cater for autonomous vehicles
- The hyperloop Belt and Road - a worldwide network of hyperloop links
- The green belt and road - a worldwide network of renewable energy sources and (most importantly) storage
- The Pacific and Latin American Belts and Roads which will be improved transport and ports facilities including the tunnel through the Andes
- An academic Belt and Road initiative that links universities and scientific research with potential long term impacts on technology and productivity.

We have provisionally allocated $8 trillions of spend by 2040 on this for our evaluation. We have compared this with the base case which is the $2 trillions of spend already on the drawing board.

We have also looked at the implications if for various reasons the Belt and Road Initiative has to be scaled back or slowed down. This might happen if, for example, a global economic crisis reduced the appetite for taking on debt or if the technological difficulties of such an extensive and path breaking set of projects turn out to be greater than anticipated. Our risk case assumes that the base case $2 trillion spend by 2040 is cut back to a spend of only $1 trillion. It is worth noting that even that level of spending would be greater than our estimate of the cost of building the 80,000 km of paved Roman Roads at today's costs.

BRI and geopolitics

The Belt and Road initiative has emerged at an interesting time for the world economy. Since 1890 the US has been the world's largest economy and indeed in the middle of the 20th century, with much of the rest of the developed world ravaged by war, US GDP reached an astonishing 50% of world GDP on some measures.

But, according to the latest Cebr World Economic League Table, in 2032 China will overtake the US to become the world's largest economy again. History tells us that such shifts in economic power do not occur without tensions. Moreover, as the Western world gradually diminishes in relative economic power, it is likely that a third mega power, India, with a population 50% larger than China's by then will also be amongst the leaders by the end of the 21st century.

Some critics see the BRI as an attempt by China to extend its influence and soft power. Cebr's view is that it is not surprising that a major world economy should wish to help encourage the rest of the world to develop. Since our calculations suggest that the impact is positive for world GDP we see it as a win win for the other world economies. We also see the BRI as a welcome antidote to the impact of the trade tensions currently surrounding the world economy.

We expect those parts of the world that are currently less enthusiastic about the BRI to become more so as it starts to show its benefits. We attach a high probability to Western Europe joining in much more closely than hitherto and it seems possible (though clearly not under the current Trump administration) that if some rapprochement between the US and China takes place that the US will also eventually join in with the initiative.

Who is impacted?

We have estimated the impact on World GDP in 2040.

The Full Belt and Road is likely to boost world GDP by 2040 by $7.1 trillions per annum. This raises world GDP by 4.2% of likely GDP in 2040 (or 8.3% of GDP in 2019). In other words world GDP growth between now and 2040 is predicted to be boosted by 0.2% per annum. This is a massive increase and reflects not only the scale of the infrastructure but its particularly significant impact in boosting trade and leveraging the potential gains from trade around the world. We are assuming that the effects of the improved infrastructure are matched proportionately by other measures to facilitate trade including improved border procedures in addition to the Special Economic Development Zones that are already part of the BRI Project.

The key results of the study are set out in Table 1. It isn't surprising that China, sponsor of the project, is the biggest beneficiary. What is much more surprising, given the opposition to BRI from the current US administration, is that the second largest beneficiary in absolute terms is the US! This is because the US is such an important part of the world economy that it is impossible to boost the world economy without it impacting on the US through its impact on US exports and through its multiplier effects.

Table 1 Top 50 countries gaining most in absolute terms from the BRI

Gains by country from the BRI in 2040 $ billions annual rate

China	East Asia	1,777
United States	North America	402
Russia	Central Asia	377
Japan	East Asia	282
Indonesia	East Asia	267
Korea	East Asia	219
United Kingdom	Western Europe and Scandinavia	178
India	South Asia	173
Netherlands	Western Europe and Scandinavia	132
Pakistan	South Asia	117
Australia	Pacific	93
Turkey	Central and Eastern Europe	91
Germany	Western Europe and Scandinavia	80
Thailand	East Asia	78
Brazil	Latin America and the Caribbean	73
Italy	Western Europe and Scandinavia	69
Denmark	Western Europe and Scandinavia	67
Malaysia	East Asia	66
Spain	Western Europe and Scandinavia	66
Chile	Latin America and the Caribbean	63
Sweden	Western Europe and Scandinavia	62
Singapore	East Asia	55
France	Western Europe and Scandinavia	54
Poland	Central and Eastern Europe	48
Argentina	Latin America and the Caribbean	43
Islamic Republic of Iran	Middle East and North Africa	43
Canada	North America	35
New Zealand	Pacific	34
Myanmar	East Asia	33
Vietnam	East Asia	32
Nigeria	Sub-Saharan Africa	30
Ukraine	Central and Eastern Europe	28
Bangladesh	South Asia	24
Colombia	Latin America and the Caribbean	23
Romania	Central and Eastern Europe	22
Peru	Latin America and the Caribbean	22
Kazakhstan	Central Asia	20
Mongolia	East Asia	19
Cambodia	East Asia	18
Serbia	Central and Eastern Europe	18
Taiwan	East Asia	17
Czech Republic	Central and Eastern Europe	16
Papua New Guinea	Pacific	16
Kenya	Sub-Saharan Africa	15
Saudi Arabia	Middle East and North Africa	15
Philippines	East Asia	15
Norway	Western Europe and Scandinavia	13
Hungary	Central and Eastern Europe	13
Switzerland	Western Europe and Scandinavia	12
United Arab Emirates	Middle East and North Africa	12

Other major beneficiaries are Russia, Japan, Indonesia, Korea, the UK, India and the Netherlands. But we have calculated that 56 countries will have their GDP boosted by more than $10 billion by 2040 as a result of the initiative.

Table 2 Countries with biggest percentage impact on economy from BRI

	BRI Impact on GDP in 2040 %
Mongolia	26.8%
Kyrgyz Republic	18.1%
Russia	18.0%
Cambodia	15.1%
Fiji	13.0%
Myanmar	12.5%
Ecuador	12.1%
Pakistan	11.4%
United Arab Emirates	10.8%
Denmark	10.6%
Zimbabwe	10.5%

In some ways more interesting are the countries that are set to be transformed in percentage terms by the Belt and Road Initiative. This is shown in Table 2.

These are particularly Mongolia where opportunities for minerals extraction are opened up, the Kyrgyz Republic which is affected in a similar way to Mongolia and Russia which is potentially massively affected by the new infrastructure, much of which in actual terms will be located there and which will become the major conduit between East and West. Pakistan, which is one of the largest direct beneficiaries in terms of actual Belt and Road projects is also disproportionately affected.

The global construction market

We have estimated that global construction spending in 2018 was $11,448 billions which represented 13.5% of global GDP. We have previously forecast that this share, which is already one of the highest on record other than at times of post-war recovery, is likely to edge upwards for a range of reasons.

First, there is a wide range of mega projects underway starting with the Chinese Belt and Road initiative. These mega projects account for an increasing proportion of world GDP.

Second, in many economies there is an infrastructure backlog. In the coming years this will need to be made up so that planned GDP growth can take place.

Third, new technologies will require new investment in a wide range of construction activities.

Finally, with growth tailing off in the short term we are expecting governments around the world to boost growth with additional infrastructural spending.

But with the additional Belt and Road spending that is likely to be necessary to achieve the $8 trillion BRI plan envisaged, there will be even more construction spending than we had previously envisaged.

As a result we now project that construction spending will rise from $11.5 trillion to $29.4 trillion or 16.6% of world GDP by 2033. Beyond that, it is likely that the electronics content of the BRI will rise disproportionately and so the construction share of World GDP is likely to stabilise or edge down.

The risks

There are of course risks to this. There are the normal economic, political and military risks which always have to be taken into account.

But there are also risks that relate specifically to the projects themselves. They are at the cutting edge of technology and as a result who can tell what technological obstacles might emerge. Obviously there is an allowance for contingencies but who knows whether this will be sufficient.

There are also economic obstacles. If the world economy develops more slowly than expected, there is a risk that either lenders or borrows might face debt obstacles which would constrain the pace of spending.

We have therefore evaluated a risk case where we have evaluated the impact of reducing the BRI spend by $1 trillion. The estimated impact of this is to reduce world GDP in 2040 by 0.5% or $0.9 trillion. The region most affected is Central Asia, where GDP is reduced by 5.9%.

Conclusions

These estimates are very tentative and of course are based on many assumptions. But what they show is that the Belt and Road Initiative is of worldwide importance and its impact, if successful, will be widespread.

Regional Forecasts

It is interesting to see which regions of the world benefit most from the Belt and Road initiative. This is shown in Table 3.

It is not surprising that the biggest single impact is in Central Asia. Until now this part of the world has been hindered by its isolation and relative lack of population. But it seems clear that this is about to change as the BRI infrastructure makes it much easier for the region to realise its potential. Some of this is likely to involve minerals extraction, though this will clearly need to managed carefully from an environmental perspective.

Central and Eastern Europe will also benefit, particularly Russia as is shown in the country forecasts.

Table 3 Percentage Impact on GDP by region from BRI 2040

South Asia	4.1%
Central and Eastern Europe	6.2%
Middle East and North Africa	1.5%
Sub-Saharan Africa	2.3%
Latin America and the Caribbean	3.5%
Central Asia	17.8%
Pacific	5.8%
Western Europe and Scandinavia	5.3%
East Asia	5.3%
North America	1.6%

Much of the Maritime Silk Road is projected to link with Sub Saharan Africa. Ultimately Africa could be a major beneficiary as the BRI develops. But our analysis suggests that it would be premature to expect the major benefits in the near future because the constraints on Africa's development are likely to be in other areas. We do expect Africa to become a major beneficiary in the second half of this century.

Country Forecasts

2.1 Australia

With a GDP per capita of $52,360 in international dollars, Australia is a high income country, ranked 20th in the world when measured by GDP per capita based in Oceania.

Of the current 215 BRI projects, the only project currently directly involving Australia is the proposed upgrading of Darwin Port (see Table 4). But Australia is likely to benefit from a range of new links through Papua New Guinea and Indonesia that are likely to be developed. Australia's Parliament has reported that 'One Belt One Road provides a global context for China's growing economic links with Australia'. At this stage the Australian Federal Government has not formally signed up to the Initiative but the State of Victoria signed up in 2018.

Table 4 Australian BRI Projects Currently Announced

Project	Type	Spend	Completion
Darwin port	Transport	$10bn	2025

Because a third of Australia's exports go to China, we think it inconceivable that the current policy of standing aloof from the BRI can persist and we expect that over the next 20 years Australia's links with the project will expand rapidly.

The Australian economy is forecast to have the 11th largest boost from BRI by 2040. We estimate the net impact will by $93 billion or 3.7% of GDP

2.2 Azerbaijan

Azerbaijan is a former Soviet republic in the South Caucasus. It borders the Caspian Sea to the east, Russia and Georgia to the north, Armenia to the west and Iran to the south. Azerbaijan is an oil rich country with a per capita GDP of $17,950 in international dollars.

Azerbaijan is close to many of the areas where the Belt and Road initiative is likely to develop and although is currently only part of two major BRI projects we think it highly likely that this number will grow. The Azeri government is a full participant in the BRI and President Aliev's visit to Beijing in April 2019 yielded 10 agreements to develop projects in conjunction with China. The BRI projects that currently involve Azerbaijan are set out in Table 5.

Table 5 Azeri BRI Projects Currently Announced

Project	Type	Cost	Completion
Baku Tbilisi rail	Transport	$5 bn	Open
Trans Anatolian Natural Gas Pipeline	Energy	$5 bn	2035

We estimate that the BRI will boost Azeri GRP in 2040 by $4.6 billion or 6.8% of GDP.

2.3 Brazil

Brazil is a country in South America with a GDP per capita of $16,110 in international dollars. Despite the severe recession which saw Brazil's economy contract by nearly 8% over 2015 and 2016, the country remains the largest economy in South America. However, a weakening of the Brazilian real against the US dollar has pushed Brazil down from 8th in the World Economic League Table in 2017 to 9th in 2018, as Italy overtook. The service sector accounts for 73% of Brazil's GDP. Brazil is also one of the most competitive agricultural exporters in the world as well as being heavily industrialised.

Despite Brazil being one of the largest economies in the world, it has not so far had any projects that are entirely part of the BRI. Nevertheless, two projects, the ultra extra high voltage system to transport energy from the Belo Monte Dam to Southeast Brazil, and the São Luís Port, in the northeast region are already linked to the BRI.

China is Brazil's largest trading partner – Brazilian exports to China rose to over $100 billion in 2018. It is likely that as the BRI develops a Latin American component including the tunnel through the Andes and other projects, Brazil will be a major beneficiary of BRI related investment.

Meanwhile, Brazil as a major exporter will also be boosted by the impact of BRI on world GDP and trade.

Xia Huasheng, Professor of finance at the Sao Paulo School of Business Administration under the prestigious Getulio Vargas Foundation (FGV) has come to the same conclusion as Cebr and argues that the Belt and Road cooperation with China helps boost Brazil's agricultural exports and attracts investment for infrastructure construction from Chinese multinationals, which brings resources, experience and technology[7].

We estimate that the impact of BRI on Brazil by 2040 will be to boost GDP by $73 billions.

[7] https://eng.yidaiyilu.gov.cn/ghsl/wksl/84120.htm

2.4 China

China is (and will remain so until sometime into the 2020s, probably 2024) the world's most populous country. It has had a spectacular pace of growth in recent years, raising GDP per capita from $2,278 twenty years ago to $16,624 capita in 2017 International dollars. This means that China has now caught up with the world's average GDP per capita of $16,779. Rising GDP per capita and a huge population have also pushed up GDP meaning that China now is the world's second largest economy and will become the largest in 2032 on our forecasts.

China is the sponsor of the BRI and has developed the concept. Most of the major projects affect China directly or indirectly. China is also likely to be involved substantially in the construction of many of the BRI projects. Even were it not involved, China would still be a major beneficiary because of its important role in the world economy. But with the scale of its involvement and with many of the projects linking China in some way with other countries, the impact on China is proportionately greater. Table 6 shows some of the projects already announced but they are clearly just the tip of the iceberg.

Table 6 Chinese BRI Projects Currently Announced

Project	Type	Cost	Completion
Central Rail Corridor+FB18:F36	Transport	$30bn	by 2030
Northern Rail Corridor	Transport	$2bn	
Seaside corridor 1	Transport	$10bn	
Seaside corridor 2	Transport	$5bn	2020
Seaside corridor 2	Transport	$5bn	2020
Highway AH3	Transport	$100bn	2019
Highway AH4	Transport	$6bn0	2021
Southern Coal Railway	Transport	$5bn	
Khorgos Aktau Railway	Transport	$3.3bn	
Urumqi Khorgos Rail	Transport	$3bn	open
Urumqi Khorgos Road	Transport	$2bn	open
Kashgar Tashkent rail	Transport	$2bn	
Kashgar Dushambe rail	Transport	$5bn	2030
Yarkant Road	Transport	$5bn	2030
Karakoram Highway	Transport	$10bn	2030
China Pakistan Rail	Transport	$10bn	
Kumming Calcutta HSR	Transport	$25bn	2035
Dali Lashio rail	Transport	$10bn	2025
Kunming Vientiane Rail	Transport	$6bn	2025

It is not surprising that the estimated impact on Chinese GDP in 2040 is, at $1.8 trillion, larger than the impact on any other individual economy. What might be more surprising is that this boost to Chinese GDP as a percentage at 4.2% is more or less in line with the percentage boost to world GDP, also 4.2%. In other words, despite China's major role in the BRI, its share of the benefits is proportional to its share of world GDP.

2.5 Denmark

Denmark is a country in northern Europe which borders Germany to the south and Sweden and Norway to the north. The country is a member of the European Union but has negotiated an opt-out of Eurozone participation. In 2018, GDP per capita stood at $51,480, making Denmark one of the richest countries in the world. The country is known for its strong welfare state and high unionisation rates, which have led to very low income inequality and high wage floors.

Denmark like many Scandinavian countries is likely to benefit as BRI develops its Arctic routes and may well benefit from land links as well. Denmark was one of the first European countries to develop links with China in the 1950s and is the only country in the Nordic region to have a Comprehensive Strategic Partnership with China. As such it is likely that Denmark may benefit disproportionately from the BRI.

Danish companies have particular strengths in green technologies and so our projected Green Belt and Road will probably promote Danish involvement.

We estimate that the impact of the BRI on Denmark will boost Danish GDP in 2040 by $67bn or 10.6% of GDP. This is very high but reflects Denmark's huge competitive advantage in various environmental technologies.

2.6 India

India is currently the world's 7th largest economy and the second largest economy in the world by population. In 2024 it will have the world's largest population which by 2100 is expected to be 50% higher than the Chinese population.

The latest data suggests that India in fact overtook France in 2017 into 6th place but fell back again in 2018. Whereas we had expected India to reach 5th place in the World Economic League Table in 2018, it now looks as though this will happen in 2019. We expect further movement up the league table with India overtaking Germany in 2025 and Japan in 2030 to become the world's third largest economy.

By 2040, India, though still the world's 3rd largest economy will be starting to catch up with China and the US and for much of the second half of the 21st century will be emerging as a rival superpower, though in many ways India's role in the world economy is complementary to that of China.

Because of this mix of rivalry and complementarity, India has viewed the BRI with mixed feelings. There is a list of Indian BRI projects but the list is very much shorter than that of Pakistan. And there is a specific dispute between India and the BRI projects because one of the BRI corridors passes through part of Pakistan controlled Kashmir which India does not recognise.

Table 7 Indian BRI Projects Currently Announced

Project	Type	Cost	Completion
Kalay Jiriban rail	Transport	$2bn	
Dhaka Bongaon rail	Transport	$2bn	
Gujarat Rural Roads (MMGSY) Project	Transport	$5bn	2035
Amaravati Sustainable Capital City	Urban	$30bn	2035
Madhya Pradesh Rural Connectivity Project	Transport	$20bn	2035
Mumbai Metro Line 4	Transport	$20bn	2035

Logic, which is not always a good guide in these circumstances, suggests that at some point India and China will increase their cooperation which would clearly change the role of the BRI. Nevertheless our calculations suggest that the impact of the BRI on the Indian economy will only be an increase of 1.1% of GDP by 2040. Because of the likely scale of the Indian economy, this will still amount to $173 bn.

2.7 Indonesia

Indonesia is a populous and diverse country with over 300 ethnic groups and has a GDP per capita of $12,378 in 2017 international dollars. Although Indonesia remains below the world's average income, poverty reduction has been a major policy success and the proportion of the population estimated to be in poverty has fallen from 25% in 1998 to an estimated 9.8% in March 2018.

Indonesia has been at the heart of the BRI since the 21st Century Maritime Silk Road concept was first launched by President Xi in Indonesia in 2013. And Indonesia is very much see as the maritime hub for this part of the Silk Road. Identified projects are shown in Table 8 and include the Jakarta Bandung High Speed Railway which would be South East Asia's first.

Table 8 Indonesian BRI Projects Currently Announced

Project	Type	Cost	Completion
Jakarta-Bandung Railway	Transport	$5bn	2035
MNC Lido City	Tourism	$5bn	2035
Kuala Tanjung Port	Transport	$5bn	2035
Kayan River Hydropower Plant	Energy	$18bn	2035
Lake Toba Tourism District	Urban	$10bn	2035
International Airport Lembeh	Transport	$5bn	2035

But there are tensions between China and Indonesia which might inhibit the growth of their relationship. Historically, the indigenous people of Malay origin in both Malaysia and Indonesia have been suspicious of the large Chinese minorities in both countries (a suspicion that has often turned over into violence) and they are very unwilling to grant long term visas to Chinese workers to work on infrastructure projects.

Despite this we see Indonesia as one of the countries that will benefit most from the BRI, calculating a boost to GDP in 2040 of 8.1% or $267bn.

2.8 Japan

For many years Japan was the wealthiest country in Asia measured by GDP per capita but in recent years as it has stagnated it has been overtaken by Singapore, Hong Kong and Taiwan, with Korea (which used to be a Japanese colony) poised to overtake in the coming years. In 2017 it ranked 28th in the world with GDP per capita of $42,659 in International dollars.

As the second largest economy in Asia, Japan is a natural rival to China and indeed has developed a rival concept to the BRI, the so-called 'Free and Open Indo-Pacific'. In past years Japan has also invested relatively heavily in Asian infrastructure, partly under the aegis of post war 'reparations'.

But with Japan growing relatively slowly and likely to be increasingly overshadowed by China, it seems likely that over time these concepts will be merged into the BRI.

We predict that although there may be relatively few Japanese BRI Projects, despite this Japanese GDP in 2040 will be 2.6% higher as a result of BRI in 2040. But because of the size of the Japanese economy this is likely to amount to $280bn.

2.9 Kazakhstan

Kazakhstan is located in Central Asia and is the world's largest landlocked country with a land area similar to that of Western Europe. With a population of just 17.8 million, its population density is among the lowest worldwide. The country had a GDP per capita of $27,490 in 2018 international dollars making it one of the richest countries in the region.

Table 9 Kazakh BRI Projects Currently Announced

Project	Type	Cost	Completed
Khorgos Gateway Dry Port	Transport	$10bn	2035
Khorgos Aktau Railway	Transport	$4bn	
Urumqi Khorgos Rail	Transport	$2bn	
Urumqi Khorgos Highway	Transport	$1bn	
Khorgos Almaty Road	Transport	$2n	open
Highway P4 A17	Transport	$2bn	
Highway M36	Transport	$2bn	2020
Highway A2	Transport	$3bn	2020
Highway N32	Transport	$3bn	open
Baku Port	Transport	$2bn	Open
Gulshat 40 MW PV Solar Power Plant	Energy	$1bn	2035
Port Aktau	Transport	$5bn	2035
"Khorgos – Eastern Gate"	SEZ	$2bn	2035

Kazakhstan's economy has benefitted from one of the world's largest oil reserves and the hydrocarbon sector accounts for large proportions of GDP and exports.

The country has been able to reduce its poverty rate significantly and the share of the population below the international poverty line stands at just 2.8%, well below those of other countries in the region. Longer-term challenges include the transition away from a reliance on oil and other natural resources towards a more diversified economy. The country depends on external demand, especially from China and Russia and is therefore vulnerable to oil price volatility and economic and political conditions in its key trading partners.

Kazakhstan is in a central position between China and Europe and as a result there is a wide range of Silk Road infrastructural projects.

Many of these are being built well ahead of the demand emerging and so a test will be of how well the momentum can be kept up as other parts of the infrastructure emerge. But there is no doubt that this infrastructure has the capability to reduce logistical costs once all the links emerge.

Because so much of the Kazakh economy is based on oil exports, which are largely unaffected by the BRI, the percentage impact on the economy is relatively low at 3.6% of GDP by 2040. But the absolute boost to GDP from the BRI is the second largest in central Asia at $20.2 billion.

2.10 Korea

Korea is a fast growing and wealthy economy in Asia which in GDP per capita terms is rapidly catching up with its neighbour Japan. In 2017 it was the 30th richest country in GDP per capita terms at $39,387 in International dollars. In 1960 its GDP per capita on the same basis was $79, lower than many parts of Sub Saharan Africa, so the pace of development has been spectacular even by Asian standards.

Korea has its own Belt and Road Initiative called the Eurasia Initiative and is not currently participating in the BRI. While North Korea participated in the April 2019 Belt and Road Summit.

It is likely at some point that China will move to try to encourage Korean unification in which case there will be substantial Korean infrastructure that will need to be built.

We therefore estimate that by 2040 the BRI will be an important component for Korea, boosting the economy by $219 billion, by 6.4% which is the highest percentage for a developed economy.

Ultimately a unified Korea at South Korean living standards would have a GDP that would be the sixth largest in the world overtaking both the UK and France.

2.11 Kyrgyzstan

Kyrgyzstan is a landlocked country in Central Asia, sharing borders with China, Kazakhstan, Tajikistan and Uzbekistan. It has a GDP per capita of $3,810 in international dollars. Kyrgyzstan is a mineral rich nation, exporting large quantities of gold and mercury. Indeed, the Kumtor gold mine alone accounts for roughly 10% of GDP. Agriculture employs nearly half of the workforce and makes up 15% of GDP. Kyrgyzstan also receives large flows of remittances – predominantly from workers in Russia and Kazakhstan. The value of these remittances amounts to nearly a third of GDP.

Table 10 Kyrgyz BRI Projects Currently Announced

Project	Type	Cost	Completed
Kashgar Tashkent rail	Transport	$3 bn	
North South Alternate Road	Transport	$5 bn	2030
Kashgar Dushambe rail	Transport	$2 bn	2025

Kyrgyzstan lies in a strategic position along the land part of the BRI since alternative routes would involve crossing major mountain ranges. The country has become highly dependent on China since the closure of the US Manas air base and the scale of the BRI investment in the country is close to 100% of GDP.

We estimate that the BRI will be transformative for Kyrgyzstan and will boost annual GDP by 2040 by 18.1% or $4 billion.

2.12 Malaysia

In the period since independence Malaysia successfully transformed itself from a major commodity producer to an industrial hub with specialities in areas such as electronics. GDP per capital at $28,871 in 2017 International dollars is 46th in the world and has overtaken some of the EU member states.

Malaysia was initially an enthusiastic participant in the BRI and a wide range of projects were announced. But after a change in government many of these projects have been put on hold amid worries about overcharging and debt. Nevertheless it is likely that the projects will eventually resume. For example, the East Coast Rail Link was under renegotiation for 9 months after the change in government but agreement has now been announced that construction will resume with a reduction in cost of about a third.

Table 11 Malaysian BRI Projects Currently Announced

Project	Type	Cost	Completed
East Coast Rail Link	Transport	20	2030
Gemas Johore rail upgrade	Transport	10	2025
Bangkok KL HSR	Transport	25	
KL Singapore HSR	Transport	25	2030
Melaka Gateway	Transport	10	2030
Kuala Linggi Port	Transport	10	2030
Penang port expansion	Transport	5	Open
Forest City	Urban	10	2035
Melaka Gateway	Urban	10	2035

We estimate that Malaysia will be one of the major gainers from the BRI with a boost to GDP in 2040 of $64.8 billion or 5.9% of GDP.

2.13 Mongolia

Mongolia is a large, landlocked country in East Asia, bordering China to the south and Russia to the north. It is a middle income country with a GDP per capita of $13,900 in international dollars. Vast reserves of mineral deposits and the foreign direct investment that these attracted were what underpinned Mongolia's transition from an agriculture based economy to one based on the extraction and export of commodities.

Table 12 Mongolian BRI Projects Currently Announced

Project	Type	Cost
China St Petersburg Rail Corridor	Transport	$10 bn
Highway AH3	Transport	$20 bn
Highway AH4	Transport	$10 bn
Southern Coal Railway	Transport	$5 bn

Mongolia's strategic position at the heart of the Silk Road means that it was always bound to be the major beneficiary from the BRI. Our calculations show that this is indeed the case and the boost to 2040 GDP at 27.8% is the highest in the world. This amounts to $73 billion

2.14 Netherlands

Other than Luxembourg, the Netherlands has the highest GDP per capita in the EU of $53,582 in International dollar in 2017. The inhabitants of the country enjoy an enviable quality of life, working 1,433 hours a year on average in 2017, amongst the lowest in the world and with low unemployment at 3.7%.

The service sector (81.6% of employment, 70.2% of GDP) is dominant. But very high productivity agriculture and industry are also important. The country crucially provides two critical transport hubs: Schiphol airport with its 6 runways (a seventh is planned) is Europe's third busiest; while the port of Rotterdam is the largest in Europe and until overtaken by Singapore and subsequently Shanghai was from 1962-2004 the largest in the world.

The Netherlands is currently not a formal participant in the BRI. But the Dutch government has expressed considerable interest and we believe that eventually the country will become not only a major participant but that Rotterdam will become an important BRI hub linking both the land and sea routes.

On this assumption, we estimate that GDP in the Netherlands will be boosted by 9.1% in 2040, which amounts to $132 bn.

2.15 Pakistan

Pakistan is a middle-income country situated in South Asia with a GDP per capita of $5,710 in international dollars. In recent years, it has not grown at the pace of bordering China and India as security issues and political instability have slowed the country's development

Table 13 Pakistan BRI Projects Currently Announced

Project	Type	Cost	Completion
Yarkant Road	Transport	$5 bn	
Karakoram Highway	Transport	$10 bn	2030
China Pakistan Rail	Transport	$10 bn	
Havelian Larkana	Transport	$10 bn	2030
Karachi Peshawar rail	Transport	$15 bn	2030
Gwadar rail	Transport	$10 bn	2027
Alternative Gwadar Rail	Transport	$10 bn	2030
Besima Jacobabad rail	Transport	$10 bn	2030
M3/M4 highway	Transport	$10 bn	Open
Lahore Abdul Hakeem highway	Transport	$10 bn	Open
Multan Sukkur road	Transport	$5 bn	2020
GwadarSurab road	Transport	$5 bn	Open
Surab Di Khan road	Transport	$5 bn	Open
M8 Sukkur Besima road	Transport	$5 bn	2020
Shahdadkot Di Khan road	Transport	$5 bn	2030
Gwadar Port	Transport	$20 bn	2025
Diamer-Bhasha Dam	Energy	$15 bn	2035
Engro Thar Block II Power Plant	Energy	$2 bn	2035
Tarbela 5 Hydropower Extension Project	Energy	$2 bn	2035
Sahiwal 2x660MW Coal-fired Power Plant	Energy	$2 bn	2035
Hydro China Dawood 50MW Wind Farm	Energy	$1 bn	2035
UEP 100MW Wind Farm	Energy	$1 bn	2035
Sachal 50MW Wind Farm	Energy	$1 bn	2035
Thar Mine Mouth Oracle Power Plant	Energy	$1 bn	2035
Peshawar-Karachi Motorway	Transport	$5 bn	2035
Havelian Dry Port	Transport	$5 bn	2035
Gwadar International Airport	Transport	$5 bn	2035
Balloki Power Plant	Energy	$1 bn	2035
Gadani Power Project	Energy	$15 bn	2035
Hakla–Dera Ismail Khan Motorway	Transport	$5 bn	2035
Khunjerab Railway	Transport	$5 bn	2035
M5 Motorway	Transport	$5 bn	2035
M8 Motorway	Transport	$5 bn	2035
Matiari–Lahore Transmission Line	Energy	$2 bn	2035
Orange Line Lahore Metro	Transport	$4 bn	2035
Pak-China Technical and Vocational Institute	Education	$5 bn	2035
Pakistan Port Qasim Power Project	Energy	$2 bn	2035
Quaid-e-Azam Solar Park	Energy	$1 bn	2035
Sahiwal Coal Power Project	Energy	$2 bn	2035
Suki Kinari Hydropower Project	Energy	$2 bn	2035
Gilgit KIU Hydropower	Energy	$1 bn	2035
Cacho 50MW Wind Power Project	Energy	$1 bn	2035
Rahimyar Khan Power Plant	Energy	$2 bn	2035
Kohala Hydel Project	Energy	$3 bn	2035
Phandar Hydropower Station	Energy	$1 bn	2035
Karachi Circular Railway	Transport	$3 bn	2035
Greater Peshawar Mass Transit	Transport	$3 bn	2035
Quetta Mass Transit	Transport	$3 bn	2035
Keti BUnder Sea Port Project	Transport	$2 bn	2035
Rashakai Economic Zone	SEZ	$2 bn	2035
China Special Economic Zone Dhabeji	SEZ	$2 bn	2035
Bostan Industrial Zone	SEZ	$2 bn	2035
Allama Iqbal Industrial City	SEZ	$2 bn	2035
ICT Model Industrial Zone	SEZ	$2 bn	2035
Mirpur Special Economic Zone	SEZ	$2 bn	2035
Mohmand Marble City	SEZ	$2 bn	2035
Moqpondass Special Economic Zone	SEZ	$2 bn	2035
Greater Peshawar Region Mass Transit	Transport	$5 bn	2035

Pakistan is one of the world's largest textiles exporters. Its agricultural sector is also a key part of the economy, accounting for nearly a quarter of GDP and employing around 42% of the workforce.

As can be seen from Table 13 Pakistan has by far the longest list of BRI projects already announced. This has created some tensions both with China and India which disputes some of the territory through which one of these projects passes. In February the new Pakistan government diverted 24 billion rupees of expenditure from BRI projects to other projects.Table *1*

The economics context is important. Pakistan entered a balance of payments crisis in 2018, with foreign currency reserves dropping below US$8 billion and the current account deficit surging to 6% of GDP. This is the latest in a string of similar crises that have caused the country to require IMF assistance 12 times since the 1980s. The latest crisis was caused by a myriad of factors, including the sharp uptick in oil prices through much of 2018 and most fundamentally the inability of Pakistani exports to keep up with the demand for imports. The country received a US$3 billion loan from Saudi Arabia in addition to US$3 billion in deferred payments for oil in October, while China has also pledged assistance. These developments have abated the crisis for now, but avoiding a repeat will require significant economic reforms.

The balance of payments crisis together with the continued tightening of monetary policy by the US Federal Reserve have caused the Pakistani rupee to depreciate by over 30% against the dollar. This has forced the central bank to hike interest rates several times in order to stabilise the currency. The tightening of monetary conditions has weighed on growth this year, particularly in the manufacturing sector. Meanwhile, cotton production is expected to come in below target in 2018, which will have negatively impacted growth in the agricultural sector.

A major part of China's One Belt One Road Initiative is the China-Pakistan Economic Corridor (CPEC), which comprises around $60 billion of investment in energy and transport infrastructure. While these developments have the potential to deliver a much-needed boost to Pakistan's exports and domestic productivity, there are concerns about the affordability of the loans from China, considering Pakistan's already large fiscal deficit of 6.5% of GDP. Furthermore, the boost that these projects deliver to the economy can also lead to real exchange rate appreciation via higher domestic inflation, which in turn makes Pakistan's exports less competitive.

The new government led by former Cricketer Imran Khan took several steps to address the country’s excessive twin deficits. These include increases in income tax, scaling back of tax breaks for high earners and reduced spending on domestic infrastructure projects. Meanwhile, tariffs have been raised on 5,000 goods in an effort to stabilise the currency and rein in the current account deficit. While necessary, these measures will weigh on growth in the short term.

Despite the uncertain economic background we continue to see the BRI as transformative for Pakistan with GDP in 2040 boosted by $117bn which is as much as 11.4%.

2.16 Russia

Russia is an upper-middle income country with GDP per capita of $27,890 at 2017 GearyKhamis dollars. It is the third largest oil producer in the world after the US and Saudi Arabia and the second largest gas producer after the US. It also has substantial endowments of other natural resources. As the largest country in the world geographically it also has a large forestry and agricultural sector.

Table 14 Russian BRI Projects Currently Announced

Project	Type	Cost	Completed
China St Petersburg Rail Corridor	Transport	$35 bn	
Amur river bridge	Transport	$3 bn	2023
Seaside Corridor 1	Transport	$5 bn	2020
Seaside Corridor 2	Transport	$5 bn	
Seaside Corridor 3	Transport	$5 bn	
Highway AH3	Transport	$80 bn	
Highway AH 4	Transport	$30 bn	
Moscow Kazan HSR	Transport	$35 bn	2030
Northern sea route	Transport	$50 bn	2035
New Dvina port	Transport	$10 bn	2035
Yamal LNG Project	Energy	$5 bn	2035

Because of its strategic position, Russia is central to the BRI and many of the largest projects involve Russia from the two major highways AH3 and AH4 and the China St Petersburg Rail Corridor. The Northern Sea Route will also transform Russia.

We estimate that, other than China and the US, the Russian economy will be the most affected by the BRI and proportionately the most of any G-20 economy. By 2040 we forecast that Russian GDP will be boosted by $377 bn or 18.0%.

2.17 Sweden

Sweden is a Scandinavian country in northern Europe which shares borders with Norway and Finland. It is a high income country with PPP GDP per capita in 2017 at $51,264. It also has an egalitarian culture and has very low income inequality according to the Gini coefficient. Sweden ranks 9th in the World Economic Forum's Global Competitiveness Index 2018 and is 7th in the UN's Human Development index ranking for 2017.

Sweden is not yet formally part of the BRI initiative but there are already links and it is likely that the Northern Arctic Sea Route will necessarily link with Sweden.

We estimate that in 2040 Swedish GDP will be boosted by $62 billion or 5.9%.

2.18 Tajikistan

Tajikistan is a country in Central Asia with a GDP per capita of $3,350 in international dollars. It is a mineral rich nation and exports large amounts of aluminium, zinc ore and lead ore. Due to the mountainous and rugged terrain, only around 7% of the land is arable, and cotton is the main agricultural product. There are over one million Tajikistanis working abroad – often in Russia – and remittances amount to around 32% of GDP.

Table 15 Tajikistan BRI Projects Currently Announced

Project	Type	Cost	Completion
Kashgar Dushambe rail	Transport	$2 bn	
Nurek Hydropower Rehabilitation Project, Phase I	Energy	$1 bn	2035
Dushanbe-Uzbekistan Border Road Improvement	Transport	$5 bn	2035
Dushambe-Afghan Rail	Transport	$3 bn	2030

Because of its strategic location, Tajikistan is very connected to the BRI. We estimate that the impact on the economy by 2040 will be a boost to GDP of $1.4 billion, 10.0% of GDP.

2.19 Turkey

Turkey lies at the edge of Eastern Europe and Western Asia and has access to both the Black Sea and the Mediterranean Sea. Its economy has sizeable automotive, banking, construction, electronics, and petrochemical industries. Since 2000, Turkey urbanised dramatically, opened up to foreign trade and harmonised laws and regulations with the European Union, helping it become an upper-middle-income country with PPP GDP per capita of $26,453 in 2017.

Table 16 Turkey BRI Projects Currently Announced

Project	Type	Cost	Completion
Tbilisi Kars rail and port	Transport	$3 bn	
Anaklia port	Transport	$3 bn	
Ambarli port	Transport	$5 bn	2025
Kumport Terminal	Transport	$5 bn	2035

Turkey is at the cross roads of both East and West and North and South. It will undoubtedly play a part in the BRI. However its current economic crisis means that full participation might be delayed. Turkey has its own 'Middle Corridor' set of infrastructure schemes which can be linked to the BRI.

Because of the scale of the Turkish economic crisis we expect that it will develop its plans slowly. Nevertheless we see the Turkish economy by 2040 being boosted by $91.4 billions, 5.5% of GDP.

2.20 Turkmenistan

Turkmenistan is a country in Central Asia on the Caspian Sea, with a GDP per capita of $19,530 in international dollars. The petroleum sector forms the backbone of the economy, accounting for the bulk of Turkmenistan's exports and government revenues. A large share of the population is also employed in agriculture, with major crops including cotton – which is primarily exported – and wheat, which is mostly produced for the domestic market.

Table 17 Turkmenistan BRI Projects Currently Announced

Project	Type	Cost	Completed
Samarkand Mashhad Rail	Transport	$1 bn	Open
Baku Port	Transport	$1 bn	

The Turkmen economy has seen double-digit growth rates throughout most of the 21st century, supported by the fast expansion of the gas sector. The decline in commodity prices since 2014 together with disputes with Russia and Iran – two of Turkmenistan's largest customers for natural gas – has caused growth to moderate. However, the economy remains strong, with GDP growth of 6.2% forecast for 2018. The recent pickup in hydrocarbon prices together with some restrictions on imports have lowered the current account deficit from nearly 20% of GDP in 2016 to 8% of GDP in 2018.

Because of its pivotal position on the Silk Road, we see the Turkmenistan economy being boosted by $9 billion in 2040, 3.5% of GDP. The proportion is relatively low because the BRI schemes tend to have lower proportionate impacts on oil based economies.

2.21 United Kingdom

The UK is a high income country with a diverse economy consisting of a dominant service sector and relatively sizeable manufacturing and construction sectors. The UK is the world's fifth largest economy with the main financial service sector in the European time zone. London is also the centre of the Flat White Economy, the leading centre for the creative and digital sectors outside the US. The UK's GDP per capita was $43,620 in 2017 international dollars.

Although the UK is not yet formally a BRI member it is likely that it will join at some point. Meanwhile, the UK with its traditional strengths in services and finance is likely to be heavily involved in the project by supplying support services.

As the BRI infrastructure moves across Western Europe it is likely that the European end will link with the UK though its East Coast ports, the Port of London and through the Channel Tunnel. Because of gauge issues, it is quite likely that the rail links will reach East London, possibly Barking.

Because of this and because of the UK's extensive trading links we expect that the BRI will have a substantial impact on the UK economy, boosting GDP in 2040 by $178 billion or 4.0%.

2.22 United States

The USA is the world's largest economy, with US GDP accounting for 24.2% of global output in 2018. It is also one of the world's wealthiest countries, with a PPP GDP per capita of $59,495 in 2017. The service sector accounts for 81.3% of US GDP and 80.2% of employment.

In our evaluation we have assumed no direct involvement of the US in the BRI. Yet despite this, the US gains from the boost to world GDP are such that in absolute terms we estimate that the US is the second largest beneficiary of the BRI.

Our calculations suggest that the BRI will leave US GDP in 2040 $401 billion higher, a boost of 1.4% of GDP.

2.23 Uzbekistan

Uzbekistan is a landlocked country in Central Asia, bordered by Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan. It has a GDP per capita of $7,480 in international dollars. Key sources of foreign exchange earnings are the export of gold, cotton and natural gas.

The economy has grown strongly in recent years, and this momentum looks to have been carried into 2018, driven by the construction and mining sectors. However, energy shortages have constrained growth in some areas, highlighting how infrastructure bottlenecks continue to hold the Uzbek economy back.

It is likely that a range of BRI projects will develop in Uzbekistan and we estimate that, with the economy being held back by lack of infrastructure, this could boost GDP in 2040 by $6.6 billion or 3%.

Risk Case

It is obviously possible that the BRI might develop more slowly than is currently envisaged and we have therefore evaluated a Risk Case where BRI spending is reduced by $1 trillion. This might happen for various reasons though we have identified two possible causes – a weaker world economy or technical problems with building new and high tech infrastructure where this has not been done before.

The details of the estimated impact are set out in Table 18 and show which regions would be most affected.

It is clear that just as Central Asia benefits most if things go well, the same region is most likely to be negatively affected if spending is reduced.

Table 18 Risk Case Impact by Region

Region	Percentage impact on GDP
South Asia	-0.6%
Central and Eastern Europe	-0.9%
Middle East and North Africa	-0.2%
Sub-Saharan Africa	-0.3%
Latin America and the Caribbean	-0.5%
Central Asia	-5.9%
Pacific	-0.8%
Western Europe and Scandinavia	-0.8%
East Asia	-0.8%
North America	-0.2%
World	-0.5%

Appendix: notes on method

Formally the main part of this report uses Cebr's World Economic League Table Model.

We identified a range of BRI projects and allocated them by country. We made (fairly crude) assumptions about what other projects might emerge as the BRI gained traction. We estimated the gains from the infrastructural investment and also the gains to trade and fed these micro results into our macro model to estimate the total effect.

Many of the impacts come from the impact of higher world GDP on overall trade. Hence the US, which is not assume to participate directly, still is estimated to benefit as a result of higher world GDP.

Technically the modelling compares the full BRI spend with our base case as used in our Welt 2019 forecasts. Since the Welt 2019 forecasts contained an element of BRI spend, arguably this understates the total impact.

This publication relies on International Monetary Fund (IMF) sources, particularly the October 2017 World Economic Outlook for historical data and market intelligence. Views are also informed by the Economist Intelligence Unit's country profiles, the African Development Bank, the European Commission, the World Bank, *The Financial Times*, the CIA World Factbook, work by the China–Asean Research Institute, Focus Economics' consensus global forecasts, and a wide-ranging review of many other sources.

Cebr's forecasts come from our in-house macroeconomic models. We use past trends and a range of forecasting techniques including multivariate regression. The most challenging part is the forecasting of exchange rates. These are almost impossible to predict accurately in the short run and little easier in the long run.