FDI Inflow in Mongolia

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Abstract

To a small economy like Mongolia, foreign direct investment (FDI) is a key catalyst in promoting economic growth. Since reaching a peak in 2011, FDI into Mongolia has been declining. This report aims to estimate the impact of FDI on the Mongolian economy, identify the main factors influencing FDI, and how to attract more FDI. In analyzing the impact of FDI on the Mongolian economy, Input-Output table (IOT) of 2010 and 2015 was used. The comparison of the years 2010 and 2015 provides analysis of disparate economic structures. In 2010, FDI trends were upwards whereas in 2015, it was downwards.

Keywords:

Foreign direct investment, business climate, Input-Output analysis

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Report

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“FDI INFLOW IN MONGOLIA”

Final Report

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List of abbreviations

ADB	Asian Development Bank
DBI	Doing Business Index
EDB	Economic Development Board
EFF	Extended Fund Facility
EFI	Economic Freedom Index
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GII	Global Innovation Index
GoM	Government of Mongolia
IAI	Investment Attractiveness Index
IMF	International Monetary Fund
MPI	Mineral Potential Index
NRGI	National Resource Governance Institute
NSO	National Statistics Office
OECD	Organisation for Economic co-operation and Development
OLS	Ordinary Least Squares
PPI	Policy Perception Index
UNCTAD	United Nations Conference on Trade and Development
WB	World Bank
WIPO	World Intellectual Property Organization

EXECUTIVE SUMMARY

To a small economy like Mongolia, foreign direct investment (FDI) is a key catalyst in promoting economic growth. Since reaching a peak in 2011, FDI into Mongolia has been declining. This report aims to estimate the impact of FDI on the Mongolian economy, identify the main factors influencing FDI, and how to attract more FDI.

In analyzing the impact of FDI on the Mongolian economy, Input—Output table (IOT) of 2010 and 2015 was used. The comparison of the years 2010 and 2015 provides analysis of disparate economic structures. In 2010, FDI trends were upwards whereas in 2015, it was downwards. The IOT was used to calculate the impact of additional FDI inflow invested into the mining sector on the economy. The main finding was that as more of the additional FDI was absorbed into the domestic market, the higher the investment multiplier.

As determined by the simulations ran by the research team, FDI positively impacts the Mongolian economy. However, FDI inflows into Mongolia have been in a decline in recent years, which has been negatively affecting economic growth. To understand the fluctuations in FDI inflows, we examine the exogenous and endogenous factor influencing it. NRGI (2015) mentioned the following three factors to explain the sharp decline in FDI into Mongolia: decline in mineral commodity prices, disputes with foreign investors, and ill—conceived policy decision.

Of the reasons given, changes in mineral commodity prices are an exogenous factor. The latter two reasons can be categorized under the investment climate, which is an endogenous factor. Thus, FDI inflows into Mongolia is influenced by mineral commodity prices, the investment environment, or both.

When historical FDI inflows are compared against mineral commodity prices, there is a positive correlation, which indicates that mineral commodity prices are the main enticers of FDI inflows into Mongolia. However, as Mongolia is a small player within the commodity market, it has limited control over price fluctuations.

The Fraser Institute conducts an annual survey among mining and exploration companies around the world to determine what influenced their decisions to invest. The Investment Attractiveness Index (IAI) is constructed from two other indices — the Mineral Potential Index (MPI) and the Policy Perception Index (PPI). The main constraints to

FDI inflow into Mongolia are disputes with foreign investors and ill—conceived policy decisions. Thus, if Mongolia can improve its investment climate, their IAI ranking could rise, making Mongolia an attractive investment destination.

We also examined how to attract FDI, based on the best practices of other nations. For countries without natural resources, foreign investors are incentivized by alluring investment climates. Some examples of countries without natural resources that rank in the top ten for investing and doing business in are Singapore, Switzerland and Hong Kong. These countries are able to attract large amounts of foreign investment due to their favorable investment climates. They tend to be transparent, politically stable, has easy access to well—established financial markets, world class infrastructures and highly skilled and educated workforce.

Mineral commodity price forecasts and the US policy rate is the main determinant of future FDI inflows of resource—rich developing countries, such as Mongolia, and in the case of Mongolia, the investment climate cannot explain or influence FDI inflows in the near future.

The government of Mongolia (GoM) plans to start and implement numerous projects as outlined in their Government Action Program 2016—2020 and the Sustainable Development Vision 2030 with the aim to attract more FDI; however, these plans are not complete as the sources of financing are still unclear. Mongolia's current FDI outlook of supply cannot sustain its demand if these big projects are going to be financed by FDI.

Based on the research conducted during the study, the research team prepared the following recommendations. First, a larger percentage of FDI inflows should be absorbed into the domestic market instead of being exported back out. As more FDI is absorbed into domestic sectors, the greater the benefit for the Mongolian economy but also the greater the investment multiplier. Second, Mongolia should not rely on stable to high mineral commodity prices for FDI inflows as it has limited to no control over price fluctuations. Third, Mongolia has a considerable amount of mineral potential but its low policy perception is hindering its investment attractiveness. Mongolia can immensely improve its policy perception rank by reforming and promoting its investment climate. With more transparency and clearer set of legislation and regulation, Mongolia could become a very attractive destination for foreign investors.

The research team also recognizes the limitations of this report. This report examined the inflow of FDI into the Mongolian economy as a whole in the past, current, and near future term. The report did not examine in detail what influences nor how to increase inflow of FDI into each specific, or key, sectors. As clearly outlined by past trends, the mining sector plays a crucial role in FDI inflows into Mongolia. A more comprehensive study on the factors impacting FDI inflow into the Mongolian mining sector specifically or how to increase FDI in other domestically supported sectors, such as manufacturing, is possible.

INTRODUCTION

The Mongolian economy has experienced several fluctuations in recent years, leading to increased uncertainty. For instance, the economy grew 17.3 percent in 2011 followed by a mere 1.0 percent growth in 2016. Due to these economic ups and downs, some researchers are questioning what factors are driving economic growth and how to influence those factors.

According to studies conducted in the past couple of years, there is a strong correlation between foreign direct investment (FDI) and economic growth. Therefore, to encourage economic stability and growth, Mongolia should focus on attracting additional FDI.

Since 2011, FDI has been rapidly declining in Mongolia. Unfortunately, the few researchers studying the drop in FDI have not been successful in identifying the cause. Although a complete study does not exist yet, most economists have conjectured that the mineral commodity prices and investment climate offer an explanation for the decrease in FDI inflow.

This research will aim to identify the main causes of FDI fluctuations, estimate the impact of FDI on the economy, and how to attract more FDI based on best practices of other nations.

Literature review

In 2016, the annual global FDI inflows fell by about 2 percent, to $1.75 trillion, which was related to observed FDI decreases in developing and emerging countries (UNCTAD, 2017). FDI fosters high−quality jobs and promotes adoption of modern production and management practices in developing and emerging economies, which in turn plays a substantial role in social development (OECD, 2008). However, most research done on FDI focuses on FDI's impact on economic growth rather than on social development.

According to some researchers, FDI is considered crucial to economic growth (Hansen & Rand, 2006). Iqbal & Shaikh (2010) concluded that the two factors accelerating growth in Pakistan were FDI and trade − albeit FDI encourages trade. Almfraji, Almsafir & Uao (2014) mentioned there was a correlation between FDI and economic growth − growth tends to attracts FDI, while at the same time, FDI supports growth (Almfraji, Almsafir, & Uao, 2014).

Despite this, researchers have not reached a consensus on FDI's impact on economic growth. Some studies argue that FDI negatively

influences growth. The argument is that in the short run, FDI encourages growth; however, in the long—run, the dependence on FDI has a negative effect. As infrastructure and institutions encourage foreign investment, it causes unemployment, over—urbanization, and income inequality (Dixon & Boswell, 1996). Cases supporting this argument has been observed in less developed nations such as Nigeria, Honduras, Myanmar, and so forth (Kentor & Boswell, 2003). Kentor & Boswell (2003) generated cross—national panel regression models of 39 less developed nations using FDI concentration and gross national product (GNP). The models illustrated that less developed nations with high FDI concentration were highly dependent upon export duties and susceptible to corruption.

One of the key influencers of FDI is the regulatory and institutional environment. For instance, FDI encourages growth in high income developing countries, but not in low income ones (Blomstrom, Lipsey, & Zejan, 1992) as their environments differs.

The regulatory and institutional environment is also known as the 'investment climate' and the type of environment can greatly impact FDI inflow. Quazi & View (2007) demonstrated that there exists a strong correlation between investment climate and FDI through a study in Latin America. Nnadozia (2011) mentioned that a small African country with little to no mineral resources may be able to increase its chances of attracting FDI if it institutes business regulation reforms. The reforms would promote a business friendly environment, making the investment climate more favorable for investors. However, high trade barriers, repressive taxation and other restrictive policy changes can have a negative impact on FDI.

Out of the limited number of studies about FDI in Mongolia, we will review two studies which examine the relationship between FDI and economic growth in Mongolia.

Anand (2011) used the 'OLS regressions with fixed effect' and concluded that FDI supported economic growth directly and indirectly. In some instances, there was a negative impact on some sectors' output, notably mining. Over 70 percent of the total FDI in Mongolia has been allocated to the mining sector since 1990.

Munkhtsetseg & Gantumur (2015) calculated the FDI impact for 20 sectors using Leontief's inverse matrixes, estimated from the Input—Output tables from 2010—2013. They studied how a hypothetical increase of 1 percent in the mining sector's FDI would influence the whole economy. The impacts of the additional FDI stimulation were

that the economy would grow by 1.5, 2.45, 1.43, and 0.63 percent in 2010, 2011, 2012, and 2013, respectively. The hypothetical additional FDI stimulus strongly supported the mining and trade sectors. However, as the two sectors are highly correlated, it's probable that the shock considerably encouraged the mining sector which in turn caused an increase in the trade sector. Meaning, it is likely that the trade sector was more influenced by increases in the mining sector than FDI inflow (Munkhtsetseg & Gantumur, 2015).

Though these studies, based on Mongolian data, cannot conclude whether FDI positively or negatively influences certain sectors, there is a consensus that FDI does in some way affect the whole economy. This study will aim to provide a more comprehensive understanding of FDI inflow in Mongolia and the means and implications of attracting more.

BACKGROUND

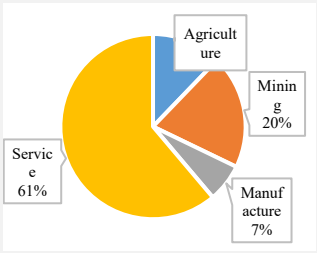
The Mongolian economy is small but rapidly growing. For instance, in 1995, the GDP was $1.4 billion and in 2016, it reached $11.2 billion, approximately an eight−fold increase. As shown in the following table, the growth, on average, was 6.56 percent for 2006−2010 and 8.75 percent for 2011−2015.

In 2009, growth was negative due to the 2008 financial crisis, a winter dzud [1], and summer drought, which significantly affected the agriculture sector. Economic growth rebounded to 6.4 percent in 2010, which was caused by an increase in FDI from $624 million in 2009 to $1.7 billion in 2010.

TABLE 1. BASIC MACROECONOMIC INDICATORS

	2006−2010	2011−2015
Population		
Total (millions)	2.76 (in 2010)	3.06 (in 2015)
Major city−Ulaanbaatar (average %)	42.98%	45.94%
Urban area (average %)	64.94%	67.54%
GDP		
GDP per capita (current international $)	1895.32	4128.58
Annual Average Growth (%)	6.56%	8.75%
Macroeconomic environment		
M2 Annual Average Growth (%)	34.99[2]%	17.38%
Foreign Exchange Reserve (million current $)	1198.28	2359.48
Consumer Price Index (CPI: 2005.XII=100)		
Government Budget deficit (% of GDP)	−0.71%	−4.33%

GDP by sectors (in 2016)



Top economic activities (% of GDP in 2016)

Mining and quarrying	19.96%
Agriculture	12.20%
Wholesale and retail trade	11.32%

[1] A zud or dzud is a Mongolian term for a severe winter in which a large number of livestock is lost due to starvation and cold.
[2] M2 Annual Growth: 2006−34.8 percent; 2007−56.3 percent; 2008−(−0.05) percent; 2009−26.9 percent; 2010−62.5 percent;

Exchange rate (₮/$)	1260.40	1666.32	Real estate activities	6.82%
Trade			Manufacturing	6.67%
Exports and imports (million current $)	4,578.32	10,528.91	Finance and insurance activities	5.29%
Exports of goods and services (% of GDP)	43.54%	40.58%	Transport and storage	5.22%
Imports of goods and services (% of GDP)	47.91%	48.78%	**Main mineral resources (% of exports in 2016)**	
Employment indicators			**Total Exports (million current $)**	**4,917.30**
Economically inactive population (% of total)	38.97%	38.50%	Copper concentrate	32.69%
Labor force participation rate	61.02%	61.50%	Coal	19.79%
Employment rate	54.36%	56.72%	Gold	15.42%
Unemployment rate	10.92%	7.74%	Oil	6.86%
Average Wage (thousand ₮)	264.44	609.72	Iron Ore	5.08%

Source: World Bank, National Statistics Office (NSO), and Bank of Mongolia

Although Mongolia initiated the "Foreign Direct Investment Policy" to encourage FDI in 1993, annual FDI inflow did not reach $1 billion until 2010; after which it reached a peak of $4.6 billion in 2011.

TABLE 2. THE ECONOMIC GROWTH AND FDI INFLOW IN MONGOLIA, 2006−2016, BILLION $

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP growth	8.6%	10.2%	8.9%	−1.3%	6.4%	17.3%	12.3%	11.6%	7.9%	2.4%	3.0%
FDI	0.2	0.4	0.8	0.6	1.7	4.6	4.3	2.1	0.3	0.1	−4.2
Growth	31%	52%	127%	−26%	171%	170%	−7%	−52%	−84%	−72%	−4511%

Source: Bank of Mongolia, and NSO

While FDI began to considerably increase in 2008, it was disrupted by the global financial crisis before experiencing dramatic growths in 2010 and 2011. Economists concluded that the boom is mainly due to growth in the mining sector; which suggests that Mongolia could increase its FDI in the short term by boosting its mineral commodity production.

In 2009, 0.8 percent and 0.2 percent of the world production of copper and coal, respectively, were produced by Mongolia (British Geological Survey, 2011). In 2010, Mongolia produced 0.7 percent of total world coal production, classified as coking and thermal. Since then, Mongolia's production of coal has experienced a slight growth.

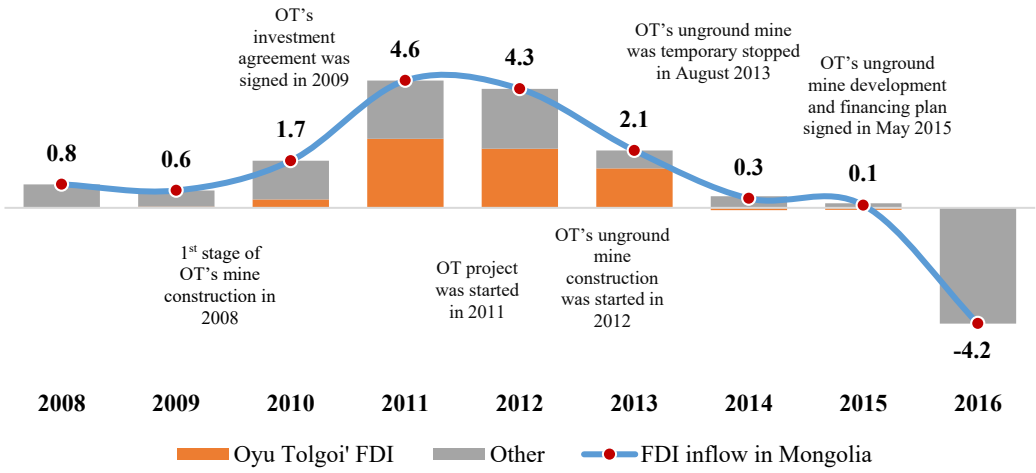
Mongolia supplies around 20−30 percent of Chinese coking coal imports (Economic Research Institute, 2017a).

Since the inception of the Oyu Tolgoi project, one of the largest mining projects funded by FDI, the Mongolian share of world copper production increased to 1.8 percent in 2015, ranking 15th in the world in terms of copper production (Economic Research Institute, 2017b). The Economic Research Institute (2017b) mentions that Mongolian copper production is expected to increase slightly in the near future due to increased expected output from Oyu Tolgoi.

According to

TABLE 2, FDI inflow directly supports economic growth. However, the growth is mainly attributable to the mining sector, specifically to the Oyu Tolgoi project. The following figure illustrates the impact the Oyu Tolgoi project has on FDI inflow.

FIGURE 1. THE MONGOLIAN FDI INFLOW BY OYU TOLGOI AND OTHER, 2008−2016, BILLION $,



Source: Bank of Mongolia, and the research team's calculation

The Oyu Tolgoi project increased FDI inflow in 2011, the peak year for FDI, by $2.5 billion, accounting for around 54 percent of total FDI inflow ($4.6 billion). In 2016, FDI inflow was negative $4.2 billion even though FDI inflow in the finance/insurance and construction sectors grew by $43 million and $39 million, respectively, as shown in the table

below. The negative $4.2 billion was due to the reclassification of the Oyu Tolgoi's investment.[3]

TABLE 3. FDI INFLOW BY SECTORS, 2015 AND 2016

№	Sector	2015	2016	Changes	
1	Construction	43.4	82.5	39.1	▲
2	Education	1.8	0.8	−1.0	▼
3	Manufacturing	18.1	−393.0	−411.1	▼
4	Wholesale & retail trade services	117.6	62.9	−54.7	▼
5	Accommodation & food services	128.9	99.2	−29.7	▼
6	Telecommunication	12.8	6.8	−6.1	▼
7	Professional, scientific & technical, other business	28.4	−10.8	−39.2	▼
8	Financial & insurance services	45.5	89.0	43.5	▲
9	Transport service	25.0	3.6	−5.6	▼
10	Administrative & support service activities	9.3	5.3	−19.7	▼
11	Mining	−369.2	−4164.5	−3795.3	▼
12	Other service activities	−20.3	4.9	25.3	▲
13	Real estate services	35.9	45.0	9.1	▲
14	Agriculture, forestry & fishing	6.6	4.9	−1.7	▼
15	Electricity, gas steam & its distribution	6.2	12.0	5.8	▲
16	Other	4.4	−4.7	−8.8	▼
	Total	**94**	**−4156**	**−4250**	▲

Source: Coordinated Direct Investment Survey (2009−2017Q1), Bank of Mongolia

The following table lists the top ten contributors to Mongolia's FDI. Up until 2011, China was the largest contributor, after which, FDI inflow from Netherlands increased considerably.[4]

[3] At the time of the agreement between Oyu Tolgoi and GoM in 2009, GoM's 34% stake was registered as FDI on the balance of payment. However, in 2016, due to changes in classification, the previously recorded FDI was reclassified as a foreign loan.

[4] The research team determined the top 20 companies contributing to FDI who are operating in Mongolia (please see the list of companies from Table A1 in Appendix) of which 7 operates in the mining sector and 4 in the banking sector.

TABLE 4. TOP 10 INVESTORS BY COUNTRIES, 2010–2016 (ACCUMULATED)

Total FDI (mln $)	4407	9818	13458	15729	16693	16753	12980
Netherlands	385	1344	7637	8308	8649	8385	4406
China	112	4781	1201	1254	2345	2440	2933
Singapore	360	172	1424	1272	1393	1386	1322
United Kingdom	617	773	906	1202	1264	1198	1011
United States	69	604	259	362	521	546	559
Australia	1	143	125	2033	459	442	514
Japan	90	596	115	168	109	403	465
Canada	21	526	94	135	345	403	424
Luxembourg	133	18	122	264	373	351	351

Source: Coordinated Direct Investment Survey (2009–2017Q1), Bank of Mongolia

The most enticing sector for FDI inflow is mining. Change in FDI inflow into the mining sector would greatly affect the Mongolian economy from year to year, causing structural economic shifts. The following section will analyze the impact of additional FDI inflow into the mining sector on the overall economy over the years.

IMPACT OF FDI

In analyzing FDI impact on the Mongolian economy, we used the Input−Output table (IOT) and chose the years 2010 and 2015 for the study as the economic structures in the two years are relatively different.

TABLE 5. SECTOR'S OUTPUT AS A SHARE OF GDP, 2010 AND 2015

	2010	2015	Changes	
Agriculture	11.73%	13.36%	1.62%	▲
Mining and quarrying	21.55%	17.09%	−4.46%	▼
Manufacturing	6.81%	7.64%	0.82%	▲
Electricity, gas, steam and air conditioning supply	1.95%	1.64%	−0.31%	▼
Water supply; sewerage, and waste management	0.32%	0.45%	0.13%	▲
Construction	2.56%	4.22%	1.66%	▲
Wholesale and retail trade; repair of motor vehicles and motorcycles	12.29%	11.53%	−0.75%	▼
Transportation and storage	6.95%	5.23%	−1.72%	▼
Accommodation and food service activities	0.54%	0.93%	0.39%	▲
Information and communication	2.62%	2.15%	−0.48%	▼
Financial and insurance activities	2.46%	5.35%	2.90%	▲
Real estate activities	7.05%	6.85%	−0.20%	▼
Professional, scientific and technical activities	1.36%	2.19%	0.84%	▲
Administrative and support service activities	0.83%	0.94%	0.11%	▲
Public administration and defense; compulsory social security	4.36%	4.58%	0.22%	▲
Education	3.89%	4.38%	0.49%	▲
Human health and social work activities	1.71%	2.04%	0.33%	▲
Arts, entertainment and recreation	0.33%	0.46%	0.13%	▲
Other service activities	0.46%	0.81%	0.36%	▲
Net product taxes	10.23%	8.15%	−2.09%	▼

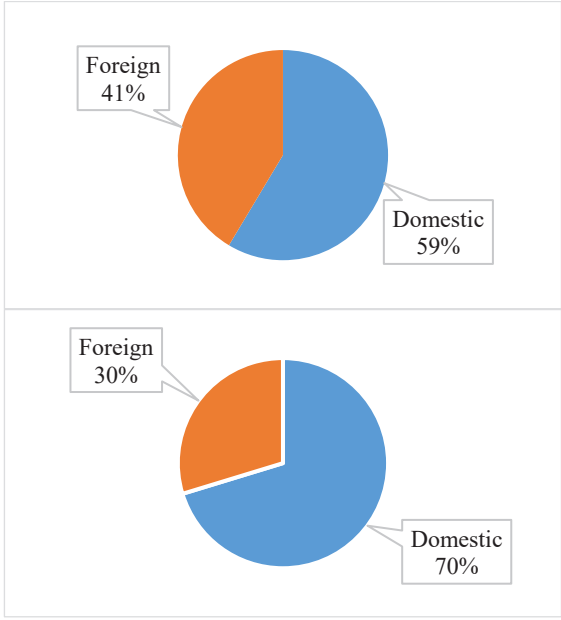
Source: GDP by sectors, NSO

Comparing the economic structures of 2010 and 2015, the mining sector shrunk by 4.5 percent due to declines in FDI inflow and mineral commodity prices. The research team calculates the impact of additional FDI inflow invested into the mining sector on the economy

in this section. The additional FDI inflows are merely stimulated in these calculations to comprehend the potential repercussions upon the economy. The additional FDI inflow in the mining sector will instigate additional spending across all the other sectors, leading to increased economic activity which will be termed as "aftershocks" in this study. In the following calculations, the additional FDI inflows incorporated are equal to one percent of the mining sector's outputs.

FIGURE **2** illustrates how the aftershocks would be divided into the domestic and foreign markets. For example, in 2010, the Mongolian mining sector consumed 59 percent of its intermediate consumption from the domestic market and 70 percent in 2015. Therefore, the additional FDI would have a greater influence in 2015, relative to 2010, as more investment is absorbed in the domestic market, leading to a greater impact on the economy.

FIGURE 2. INTERMEDIATE CONSUMPTION IN 2010 (LEFT) AND 2015 (RIGHT), BY SOURCES



Source: IOT table 2010 and 2015, NSO, and the research team's calculation

The research team then allocated the aftershocks into each sector. In this study, a disaggregated share of domestic intermediate consumption, calculated from the IOT in 2011[5], was used to allocate

[5] FDI inflow reached a historical peak of $4.6 billion; the year 2011 represents the optimal economic structure of how the economy would react to increased FDI inflows.

the aftershocks into the sectors (please see the share of domestic intermediate consumption of mining sector from TABLE A2 in Appendix).

In order to estimate the impact of the additional FDI on the whole economy, the following linear system can be used:

$$A.y + B.x = 0$$

Where **y** is the vector of endogenous variables, **x** is the vector of exogenous variables. **A** and **B** are coefficient matrices: each row corresponds to one equation; each column corresponds to one variable. The following shows how **y** can be found as a function of **x**:

$$y = -A^{-1}B.x$$

Where A^{-1} is the inverse matrix of A, also known as a Leontief's inverse matrix.

According to the calculations, the additional FDI inflow, equal to one percent of the mining sector's outputs in 2010 and 2015, would lead to a growth in the economy of 0.188 percent and 0.207 percent in 2010 and 2015, respectively. The following table enumerates how much growth is expected in each sector due to the aftershocks.

TABLE 6. GROWTH BY SECTORS (RESULT−1)

Sectors	2010		2015	
Agriculture	0.05%	▲	0.08%	▲
Mining and quarrying	0.04%	▲	0.05%	▲
Manufacturing	0.24%	▲	0.20%	▲
Electricity, gas, steam and air conditioning supply	0.71%	▲	0.48%	▲
Water supply; sewerage, and waste management	0.88%	▲	0.38%	▲
Construction	0.57%	▲	0.64%	▲
Wholesale and retail trade; repair of motor vehicles and motorcycles	0.27%	▲	0.27%	▲
Transportation and storage	0.68%	▲	0.73%	▲
Accommodation and food service activities	0.91%	▲	0.44%	▲
Information and communication	0.21%	▲	0.19%	▲
Financial and insurance activities	0.58%	▲	0.25%	▲
Real estate activities	0.05%	▲	0.05%	▲
Professional, scientific and technical activities	0.43%	▲	0.24%	▲
Administrative and support service activities	0.56%	▲	0.47%	▲
Public administration and defense; compulsory social security	0.08%	▲	0.05%	▲
Education	0.03%	▲	0.02%	▲
Human health and social work activities	0.05%	▲	0.03%	▲
Arts, entertainment and recreation	0.07%	▲	0.04%	▲
Other service activities	0.11%	▲	0.06%	▲
Total	**0.188%**	▲	**0.207%**	▲

Source: the research team's calculation

As seen in TABLE 6, the additional FDI greatly influences the service sectors, such as accommodation and food service activities, water supply, electricity, gas, steam and air conditioning supply, and construction in both years. Table 7 illustrates how much additional value the aftershocks create for each sector.

Transportation and storage (8.79 billion tugrugs), wholesale and retail trade (7.25 billion tugrugs), and construction sectors (6.23 billion tugrugs) are the most affected sectors in 2015. Even though the additional FDI is 39.5 billion tugrugs, its economic impact is 41.17 billion tugrugs. The investment multiplier is approximately 1.04 unit.

In 2010, the multiplier is 0.87 unit, and the additional FDI and economic impact are 21.0 billion tugrugs and 18.4 billion tugrugs, respectively.

TABLE 7. VALUE-ADDED BY SECTORS, BILLION TUGRUGS (RESULT-1)

Sectors	2010	2015
Agriculture	0.59	2.55
Mining and quarrying	0.83	1.78
Manufacturing	1.61	3.47
Electricity, gas, steam and air conditioning supply	1.34	1.82
Water supply; sewerage, and waste management	0.27	0.40
Construction	1.42	6.23
Wholesale and retail trade; repair of motor vehicles and motorcycles	3.28	7.25
Transportation and storage	4.63	8.79
Accommodation and food service activities	0.48	0.94
Information and communication	0.55	0.95
Financial and insurance activities	1.39	3.08
Real estate activities	0.37	0.76
Professional, scientific and technical activities	0.57	1.20
Administrative and support service activities	0.45	1.02
Public administration and defense; compulsory social security	0.33	0.48
Education	0.11	0.16
Human health and social work activities	0.08	0.15
Arts, entertainment and recreation	0.02	0.04
Other service activities	0.05	0.11
The total amount of additional GDP	**18.38**	**41.17**
The amount of the additional investment	**21.0**	**39.5**

Source: the research team's calculation

The investment multipliers differ as a result of the 11-unit difference in the domestic market's shares of intermediate consumption. The more investment absorbed by the domestic market, the greater the economic impact. Structural economic shifts can also affect the multipliers. In recent years, shifts have occurred due to a boom in the mining sector. The following table shows by how much each sector grows if the aftershocks are entirely absorbed in the domestic market. In this stimulation result, the dissimilarity between the multipliers are caused only by structural economic shifts.

According to the calculations, the aftershocks create 0.32 and 0.25 percent of economic growth in 2010 and 2015, respectively. Sectors, such as electricity, water supply, transportation and storage, and accommodation and food service activities are positively boosted by the aftershocks in 2010, whereas the transportation and storage sector is the only sector with a significant boost in 2015.

TABLE 8. GROWTH BY SECTORS (RESULT−2)

Sectors	2010	2015
Agriculture	0.09%	0.12%
Mining and quarrying	0.07%	0.06%
Manufacturing	0.41%	0.28%
Electricity, gas, steam and air conditioning supply	1.20%	0.68%
Water supply; sewerage, and waste management	1.50%	0.54%
Construction	0.97%	0.91%
Wholesale and retail trade; repair of motor vehicles and motorcycles	0.47%	0.39%
Transportation and storage	1.16%	1.03%
Accommodation and food service activities	1.56%	0.62%
Information and communication	0.37%	0.27%
Financial and insurance activities	0.99%	0.35%
Real estate activities	0.09%	0.07%
Professional, scientific and technical activities	0.73%	0.34%
Administrative and support service activities	0.95%	0.66%
Public administration and defense; compulsory social security	0.13%	0.06%
Education	0.05%	0.02%
Human health and social work activities	0.08%	0.04%
Arts, entertainment and recreation	0.12%	0.06%
Other service activities	0.18%	0.08%
Economic Growth	**0.321%**	**0.253%**

Source: the research team's calculation

In 2010, the transportation and storage (7.90 billion tugrugs), wholesale and retail trade (5.6 billion tugrugs), and construction sectors (2.75 billion tugrugs) experienced a significant growth, while in 2015, two sectors − transportation and storage, and wholesale and retail trade − were greatly boosted. The aftershocks considerably encouraged the transportation and storage and wholesale and retail trade sectors in both 2010 and 2015.

The figure below shows how the investment multipliers change from result−1 to result−2 when the aftershock is entirely absorbed into the domestic market.

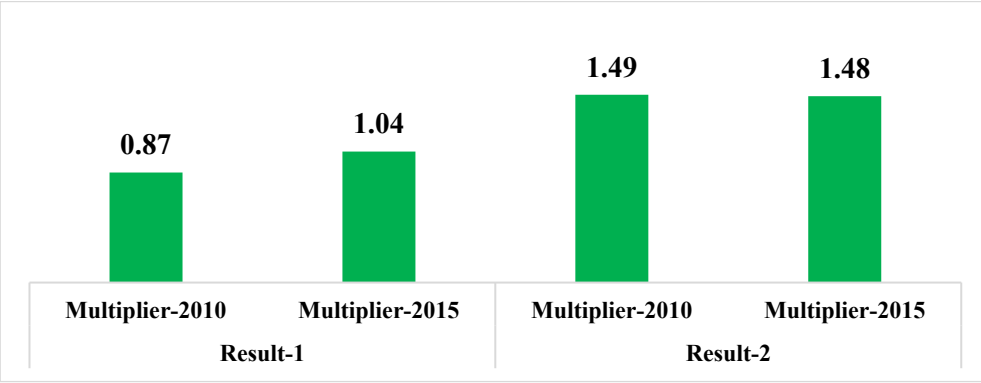
The investment multipliers are relatively higher in result−2 than in result−1 due to how much of the aftershock is absorbed in the domestic market. In simulation−2, where the aftershocks are fully absorbed by the domestic market, the investment multiplier are 1.49 in 2010 and 1.48 in 2015. This negligible difference is caused by the structural economic shifts.

TABLE 9. VALUE-ADDED BY SECTORS, BILLION TUGRUGS (RESULT-2)

Sectors	2010	2015
Agriculture	1.02	3.63
Mining and quarrying	1.41	2.54
Manufacturing	2.75	4.94
Electricity, gas, steam and air conditioning supply	2.29	2.59
Water supply; sewerage, and waste management	0.47	0.56
Construction	2.42	8.86
Wholesale and retail trade; repair of motor vehicles and motorcycles	5.60	10.32
Transportation and storage	7.90	12.51
Accommodation and food service activities	0.82	1.34
Information and communication	0.94	1.35
Financial and insurance activities	2.38	4.38
Real estate activities	0.63	1.08
Professional, scientific and technical activities	0.97	1.71
Administrative and support service activities	0.77	1.45
Public administration and defense; compulsory social security	0.57	0.68
Education	0.19	0.22
Human health and social work activities	0.14	0.21
Arts, entertainment and recreation	0.04	0.06
Other service activities	0.08	0.15
The total amount of additional GDP	**31.37**	**58.58**
The amount of the additional investment	**21.02**	**39.56**

Source: the research team's calculation

FIGURE 3. THE INVESTMENT MULTIPLIER BY YEARS AND RESULTS



Source: the research team's calculation

Whereas the relative gap difference in the multipliers in result－1 is caused by both structural economic shifts and differences in absorption amount of the aftershock in the domestic market.

In conclusion, FDI inflow is essential for Mongolia's economic growth. The direct impact on the sectors depends on how the aftershock is allocated and what percent of it is absorbed by the domestic market.

According to the simulations, as more of the aftershock is absorbed by the domestic market, the higher the impact of the additional FDI inflow. Additionally, as the mining sector is capital intensive, the aftershocks in the mining sector encourage increases in import as the domestic manufacturing sector cannot provide machineries, capital equipment and so forth. This causes the development of the manufacturing sector to continue to be relatively weak. Thus, Mongolia ought to try to develop its manufacturing sector further in the future to increase the investment multipliers.

THE DETERMINANTS OF FDI

The mining sector plays a key role in alluring FDI into Mongolia. The Fraser Institute (2016) conducted a survey [6] among mining and exploration companies around the world to determine what influenced their decisions to invest. The study constructed an overall Investment Attractiveness Index (IAI) using two indexes ——the Mineral Potential Index (MPI) and the Policy Perception Index (PPI) — in relation to mineral endowments and public policy factors. MPI rates geological attractiveness while PPI measures the effects of government policy on attitudes toward exploration investment.

The IAI was calculated for 104 nations in 2016, in which Mongolia ranked 81st. In 2012, Mongolia's rank was 31st out of 96, and since then, its rank has consistently been declining as Mongolia's PPI and MPI rank have been declining simultaneously. For instance, Mongolia's PPI rank went from 78th out of 96 in 2012 to 101st out of 104 in 2016 and its MPI rank went from 1st out of 96 in 2012 to 50th out of 104 in 2016. Overall, Mongolia's index rankings have been lowering.

NRGI (2015) mentioned three main factors which may explain the recent fall in FDI inflow into Mongolia. These factors include lower commodity prices, disputes with foreign investors, and ill—conceived policy decisions. The first factor depends on a multitude of variables, while the latter two factors are highly dependent on the investment climate and Mongolia's IAI ranking.

As the Mongolian share of total world production of major mineral commodities are relatively negligible, the mineral commodity prices are exogenous variables in impacting FDI inflow. In order to compare the mineral commodity prices and FDI inflow in Mongolia, we created a price index comprised of coal, gold, iron and copper.

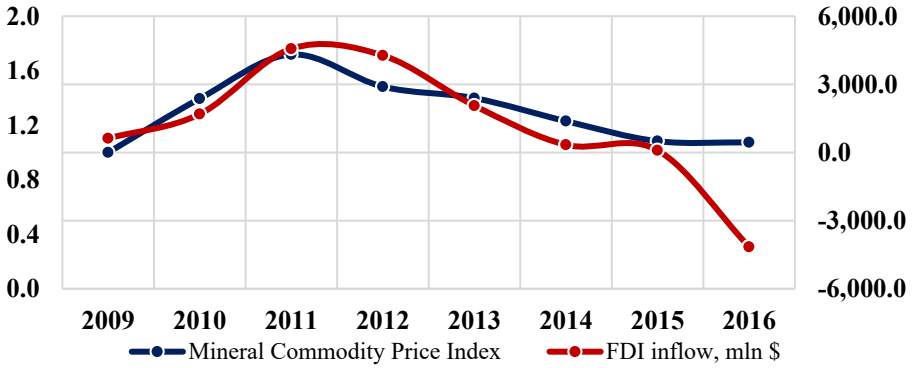
The index is created by weighting the prices of coal, gold, iron, and copper. Historical prices are derived from IMF, and World Bank, while the projected prices are an average of forecasted prices by analysts from World Bank, International Monetary Fund, Morgan Stanley, U.S Energy Information Agency, and so on. All prices are relative to base year price of 2009 of each respective commodity to reflect the movement of prices. The base—year analysis of each commodity price

[6] It asked managers and executive directors about the 15 policy factors.

generated an index, which was then used in the construction of the mineral commodity price index. The weights allocated to each commodity is based upon Mongolia's export data of the corresponding commodity (NSO, 2016). Mongolia's historical coal, gold, iron, and copper exports were aggregated and then admeasured to determine an appropriate weight. The weights of the commodities fluctuated from year−to−year to reflect a more realistic representation of price movements.

The following figure depicts a comparison of the mineral commodity price index and FDI inflow. As seen below, the trend between FDI inflow and commodity prices are similar − as prices decline, FDI inflow also experiences a decline. This trend is also detected by other commodity exporters and various studies, which further proves that commodity price and FDI inflow movements are similar (Kose, 2002; Сйspedes & Velasco, 2012; Fornero, Kirchner, & Yany, 2016).

FIGURE 4. COMMODITY PRICE INDEX AND FDI INFLOW, 2009–2016



Source: Bank of Mongolia, NSO, World Bank, and the research team's calculation

As previously mentioned, Mongolia itself cannot affect the commodity prices. In other words, whether FDI inflow currently increases or decreases does not depend on Mongolia itself. Thus, Mongolia should try to drive its own FDI inflow in order to ensure economic stability and reduce uncertainty. To achieve that, Mongolia needs to focus on improving its investment climate, instead of relying on and hoping that commodity prices will be higher in the future.

The investment climate plays a key role in alluring FDI in other countries since investors seek a predictable and acceptable return on their investment. [7] A country with an abundance of mineral resources can maintain a relatively stable FDI despite declines in mineral commodity prices if they have a favorable investment climate. The following table compares Mongolia and Chile's index ranks related to investment climate and net FDI inflows from 2012 to 2016. Both countries are highly dependent upon the mining sector.

The main reason for the decline in Mongolia's IAI is the worsening perception of its public policy. For instance, in 2016, the Mongolian PPI slipped into the bottom ranks, which is indicative of the deteriorating perceptions of survey respondents caused by uncertainty concerning disputed land claims (+20 points), uncertainty concerning protected areas (+19 points), and the availability of labor and skills (+11 points).

[7] Investors tend to avoid three key obstacles: cost, delay, and risk (OSCE, 2006).

TABLE 10. THE THREE INDEXES AND FDI NET INFLOWS OF MONGOLIA AND CHILE FROM 2012−2016

	FDI, net inflows, bln $	Investment Attractiveness Rank	Policy Perception rank	Mineral Potential Rank
	⋆Mongolia⋆			
2012	**4.27**	**31/96**	78/96	1/96
2013	**2.06**	**80/112**	95/112	51/112
2014	**0.34**	**93/122**	116/122	52/122
2015	**0.09**	**85/109**	94/109	59/109
2016	**−4.20**	**81/104**	101/104	50/104
	⋆Chile⋆			
2012	**30.56**	**11/96**	18/96	8/96
2013	**21.09**	**4/112**	21/112	4/112
2014	**24.01**	**9/122**	22/122	6/122
2015	**20.47**	**11/109**	26/109	11/109
2016	**12.23**	**39/104**	35/104	49/104

Source: (Fraser Institute, 2016), and World Bank

The following table illustrates the investment climate using several well−known indexes − Corruption Perception Index (CPI), Economic Freedom Index (EFI), WB−Doing Business Index (DBI), and Global Innovation Index (GII). Compared to Mongolia, Chile has a more favorable investment climate as illustrated by the higher index ranks.

TABLE 11. SEVERAL WELL−REGARDED INDEXES MEASURING INVESTMENT CLIMATE IN 2016

Measure	Rank	
	Mongolia	Chile
Corruption Perception Index (CPI)[1]	**87/176**	24/176
Economic Freedom Index (EFI)[2]	**129/180**	10/180
WB−Doing Business Index (DBI)[3]	**64/190**	57/190
Global Innovation Index (GII)[4]	**55/128**	44/128

Source: [1] https://www.transparency.org/country/SGP, [2] http://www.heritage.org/index/ranking, [3] http://www.doingbusiness.org/rankings, [4] (Cornell University; INSEAD; WIPO, 2017)

Chile, located in Latin America, is an attractive destination for investors due to its open market economy, well−developed institutions, and a strong rule of law. Their legal framework for attracting and protecting FDI is secure with few restrictions. Chile's conversion and transfer policies are similar to those of developed

nations like the USA due to its well−developed capital market and relatively transparent regulatory system.

The major barriers in alluring FDI are corruption and permit processes. In 2016, Chile ranked 24th out of 176 countries on CPI, higher than most Latin American countries, which indicates there exists a mediocre level of corruption. In order to conduct business in Chile, a company is required to acquire numerous permits pertaining to environmental regulations, municipal policies, and so forth. The lengthy process is one of the major obstacles in attracting FDI, which is why Chile is ranked 57th out of 190 countries on DBI.

Mongolia is an attractive investment destination in the medium and long term due to its tremendous mineral resources, proximity to China, and agricultural endowment. However, in the short term, the low mineral commodity prices in the international market, inadequate infrastructure, policy missteps, and a lack of responsiveness to foreign investors and economic diversification causes Mongolia to be perceived as an unfavorable environment for investment.

On the indexes listed above, Chile is ranked higher than Mongolia in 2016, which indicates Mongolia's investment climate is not as favorable as Chile's. For instance, Chile ranked 24th on CPI whereas Mongolia's ranking was 87 out of 176 nations in 2016. On the DBI, Chile rank was 57th compared to Mongolia's 65th ranking. Although Chile requires a lot of permission to establish a business, its investment climate is considered friendlier for investors compared to Mongolia when investing and conducting business.

Though the investment climate is as important as mineral commodity prices in some nations with mineral resources, it is more so for countries without an abundance of mineral resources. In recent years, nations without large mineral reserves have been attracting FDI through a favorable investment climate[8]. In 2014, the Economist Intelligence Unit (EIU) ranked countries by their environments to invest and do business in. Even though the top three countries − Singapore, Switzerland, and Hong Kong − do not have mineral resources, these nations have attracted a lot of foreign investment.

[8] The top 10 countries with favorable investment climates are Singapore, Switzerland, Hong Kong, Canada, Australia, Sweden, United States, New Zealand, Finland, and Denmark (The Economist Intelligence Unit, 2014).

Singapore, known as one of the Four Asian Tigers, experienced rapid economic growth[9] since 1990 and underwent seven strategic stages, and in each stage, Singapore tried to establish a more open economy in order to attract more FDI. Tan (1999) concluded that the reasons why foreign investors are attracted to Singapore are:

- Political stability,
- Absence of corruption in Government and business,
- Adherence to the rule of law, and
- Government keeps its promises.

These factors create a favorable environment for foreign investors in Singapore. Most experts utilize indexes such as the Doing Business Index, the Economic Freedom Index and so on to represent the investment climate of a country. The table below lists Singapore's 2016 ranks on four common indexes. On the Corruption Perception Index, Singapore ranked 7th out of 176 countries with a score of 84 out of 100.

[9] As World Bank concluded in its 1993 study, the rapid growth in the economy was due to the application of a set of common, market−friendly economic policies, leading to both higher accumulation and better allocation of resources (Skousen, 1996).

TABLE 12. A SEVERAL WELL−REGARDED INDEXES AND RANKINGS IN 2016

Measure	Rank		
	Singapore[10]	Switzerland[11]	Hong Kong[12]
CPI	7 of 176	5 of 176	15 of 176
EFI	2 of 180	4 of 180	1 of 180
DBI	2 of 190	31 of 190	4 of 190
GII	7 of 127	1 of 127	16 of 127

Source: https://www.transparency.org/country/CHE; https://www.transparency.org/country/HKG; http://www.heritage.org/index/ranking, http://www.doingbusiness.org/rankings, (Cornell University; INSEAD; WIPO, 2017);

The common features observed in nations like Singapore, Switzerland, and Hong Kong, are: lack of natural resources, transparency of local institutions, political stability, ease of access to well−established financial markets, world class infrastructures and a highly skilled and educated workforce. This kind of an investment climate greatly differ from Mongolia's, where the investment climate cannot explain the changes in FDI inflow nor how to attract it.

[10] FDI inflow in Singapore was $61.6 billion in 2016, ranking second after China in Asia (UNCTAD, 2017).

[11] Inflow to Switzerland was ranked 3rd in Europe in 2015, with $70.4 billion, followed by a considerable decline to −$26.3 billion in 2016 (UNCTAD, 2017). Switzerland welcomes foreign investment and agrees FDI as a significant part of economic growth. Foreign investment is not hampered by significant barriers. No discriminatory effects on foreign investors or foreign owned investment have been reported (U.S. Department of State, 2014)

[12] Hong Kong is the world's second−largest recipient of FDI after the United States (UNCTAD, 2016), and as a means of introducing new or improved products, processes, designs, and management techniques, Hong Kong encourages FDI inflow. Basically, Hong Kong does not have laws or practices that discriminate against foreign investors by prohibiting, limiting or conditioning foreign investment in a sector of the economy. In Hong Kong, domestic industries don't directly receive subsidies, while foreign investments face no disincentives, such as quotas, bonds, deposits, or other similar regulations. There were 3,731 regional operations of overseas companies, registered in Hong Kong in 2016, and of which, 766 companies are of the U.S; 659, Japan; 347, the United Kingdom.

TABLE 13. A SEVERAL WELL−REGARDED INDEXES AND FDI INFLOW IN MONGOLIA, 2010−2016

	2010	2011	2012	2013	2014	2015	2016
GDP growth	6.4%	17.3%	12.3%	11.6%	7.9%	2.4%	1.0%
FDI, mln $	1691.0	4571.0	4272.0	2060.0	337.0	94.0	−4156.0
CPI[13]	27.0	27.0	36.0	38.0	39.0	39.0	38.0
EFI[14]	60.0	59.5	61.5	61.7	58.9	59.2	59.4
DBI[15]	58.7	58.8	60.0	61.8	63.2	66.6	67.3
GII[16]	27.8	33.4	35.0	35.8	37.5	36.4	35.7
CI[17]	3.8	3.9	3.9	3.8	3.8	3.8	3.8
WGI[18]	−0.213	−0.192	−0.211	−0.194	−0.083	−0.118	−

Source: Heritage Foundation, World Economic Forum, World Bank, Transparency International, and Cornell University, INSEAD and WIPO[19] and Bank of Mongolia

To conclude, the main determinant of FDI inflow in Mongolia, historically and currently, is the mineral commodity prices. This trend has also been observed from data of other mineral−rich, developing countries. However, in developed nations, the investment climate plays

[13] CPI is calculated using data from 13 different surveys or assessments (Transparency International, 2010) produced by 10 independent organizations, and it ranges from 0 to 100. If a country's score is below 50, it means that a country has serious corruption problems and a 100 means that a country is perceived as very clean.

[14] The index measures economic freedom of 186 countries based on 12 quantitative and qualitative factors, grouped into four broad pillars (trade freedom, business freedom, investment freedom, and property rights). Global average economic freedom in 2017 increased by 0.2 point to a record level of 60.9 on a 0−100 scale.

[15] Doing Business presents quantitative indicators on business regulations and protection of property rights that can be compared across 190 economies. It measures regulations affecting 11 areas: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and labor market. In the cases of other countries, DBI can explain disparencies in FDI. Anderson & Gonzalez, (2012) concluded higher Doing Business rankings is associated with more foreign investment, which is believed to create jobs, bring in new technologies and processes and have other beneficial effects on the real economy.

[16] GII is an annual ranking of countries by their capacity, and success in, innovation on a scale of 0−100, a score of 100 indicates the best innovation performer.

[17] CI, based on 138 economies (sometimes 140), provides insight into the drivers of their productivity and prosperity. According to the Global Competitiveness Report, as a country's economic openness declines, the chances of growth and prosperity also lessen.

[18] The World Governance Index (WGI) covers over 200 countries and territories, measuring six dimensions of governance starting in 1996: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption (Kraay, Kaufmann, & Mastruzzi, 2010). These sub−dimensions are scored from −2.5 to 2.5. As a country's score approaches 2.5, it implies good governance.

[19] World Intellectual Property Organization

a key role in attracting FDI since most have little to no mineral resources. In Mongolia, the investment climate is unattractive, which is why Mongolia needs to improve its environment to entice FDI inflow rather than relying on mineral commodity prices, and hoping they will be stable or moderately higher in the future. If Mongolia can create a more favorable investment climate for foreign investors, the amount of FDI might grow considerably in the near future.

FDI OUTLOOK

The research team based FDI inflow predictions on the demand and supply forecasts in Mongolia. Demand is related to big projects planned by the government of Mongolia (GoM) as these projects will require funding. Supply is dependent on determinants such as the mineral commodity prices and so on.

There are several projects planned on the GoM's Action Program for 2016−2020[20]. According to the Action Program, there are a couple of projects related to mining, such as: [21]

- Establishing oil refinery factory
- Supporting establishment of copper concentrate smelting and refining
- Supporting establishment of LPG fuel and lubricants plants with state policies [22]
- Developing metal used in construction and its installation factory

The GoM also plans to implement a couple of projects in the energy and road and transportation sectors for 2016−2020.

In the energy sector:

- Upgrading capacity of current power plants
- Creating new energy sources to provide growing demand
- Build Tavan Tolgoi coal power plant
- Initiating the construction of large capacity of power station with export purpose relying on Shivee Ovoo, Tevshiin Govi, and other coal deposits

[20] It consists of the five chapters: I. Special policy to overcome economic difficulties, II. Policy to ensure sustainable economic growth, III. Social policy, IV. Policy on environment and green growth, V. Policy on Governance (Parliament of Mongolia, 2016a).

[21] The objectives of the projects in the mining sector is to create a favorable investment climate, provide a sustainable development, and improve the Mongolian competitiveness in the world mineral market.

[22] These projects are on the GoM's agenda; however, financing, project timeline, and so on are not yet clear.

- Implementing construction of new thermal stations, cable networks, expansion of current power supplies in provincial centers, major cities and urban areas

In the road and transportation sector:

- To complete expansion of paved road networks and finish connection of paved road of city center and provinces
- To build railway routes: Oyu Tolgoi → Gashuunsukhait, Hoot → Bichigt, Tavan Tolgoi → Gashuunsukhait, Shivee khuren → Sekhe, Zuunbayan → Khangi, Erdenet → Ovoot
- To establish new transport and logistics center in Khushigtiin Khundii
- To establish new transport and logistics center in China's Tianjin port city, Dunsany free trade zone
- To build new highways in following areas: Bayanzurkh, Yaarmag, Sonsgolon bridge, and Ulaanbaatar → Nalaikh

In addition to the Action Program for 2016－2020, the Parliament of Mongolia approved the Mongolian Sustainable Development Vision－2030.[23] According to this long－term plan, Mongolia will achieve the following implementations by 2030 (please see detailed implementations from TABLE A4 in Appendix):

- To increase its Gross National Income (GNI) per capita to USD 17,500 (base level of 2014, USD 4,166) and become an upper middle－income country based on its income per capita.
- To ensure average annual economic growth of at least 6.6 percent through 2016－2030.
- To be ranked among the top 40 countries on the Doing Business Index and among the top 70 countries on the Global Competitiveness Index.

In order to successfully implement these sustainable development goals, the development of the agriculture, manufacturing, copper processing, coal, fuel－chemicals, lead processing plants, mining and extractive industries will be the top priority, and the energy and infrastructure sectors will be developed as the lead sectors. Moreover, the GoM will pursue policies to continuously expand the economy by

[23] The program consists of three different phases: short－term (2016－2020), medium－term (2021－2025) and long－term (2026－2030)

attracting foreign and domestic investments. The GoM's aim is to improve the investment environment by supporting investors in every aspect, including tax holiday and exemption.

As listed below, there are numerous projects planned in the Action Program and the long−term plan; however, how these projects are going to be financed is unclear. These projects[24], in the mining, energy, and road and transportation sectors will require significant levels of funding.

[24] These projects will possibly be financed by private (domestic and foreign) and public sectors (GoM).

TABLE 14. THE MAIN FEATURES OF THE MONGOLIAN SUSTAINABLE DEVELOPMENT VISION 2030

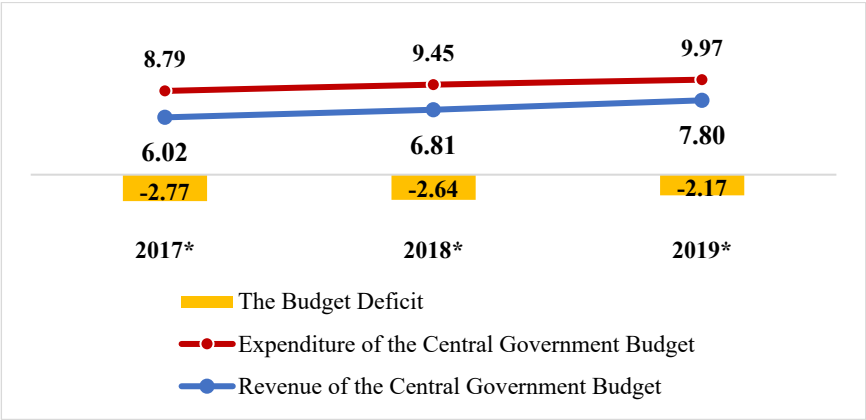
Sector	2016−2020	2021−2025	2026−2030
Mining	To ensure stable investment environment for the mining sector, develop environment friendly infrastructure and transportation network, and establish high−capacity power plant in Gobi region	To implement projects on reliable water supply sources, and ensure full functionality of large mining projects	To start development of large mining projects, and develop the infrastructure
Energy and infrastructure	To meet up to the 85% of the national energy demand from domestic supply	To meet up to the 90% of the national energy demand from domestic supply	To meet 100% of national energy demand from domestic supply, and become an energy exporting country
	To increase the share of renewable energy in the consumption of total energy to 20%, and initiate preparation for a nuclear power plant.	To increase the share of renewable energy in the consumption of total energy to 25%, and complete the preparation for a nuclear power plant.	To increase the share of renewable energy in the consumption of total energy to 30 percent, and begin to use energy from a nuclear power plant.
	To build transportation and logistics centers at Zamiin−Uud, Khushigiin Khundii and Altanbulag	To build and use transportation and logistics centers to serve the agricultural, industrial and mining sectors	To develop new transportation and logistics centers
	To extend asphalt roads by 1600 km	To extend asphalt roads by 800 km	To extend asphalt roads by another 470 Km
	To use the railroad from Ukhaa Khudag to Gashuun Sukhait	To complete the construction of railroads from Erdenet − Ovoot to Bogd khaan,	To complete the construction of railroads in the regions

	To initiate construction of railroads from Erdenet – Ovoot to Bogdkhaan	To initiate the railroad construction work in the regions	To expand national air transportation network
	To complete the construction of Khushig Khundii international airport	To build a national reserve airport. Also, Create a new modern public transportation system in Ulaanbaatar city	To develop a regional air transportation transit center
Macroeconomic policy	To ensure that the state budget deficit is at less than 2% of the Gross Domestic Product.	To plan and implement the state budget with no deficit	–

Source: (Parliament of Mongolia, 2016c)

In order to precisely define the role of GoM in these big projects, we looked into the amendment of the 2017 budget. [25] According to the government budget amendment, the expenditure is 8.7 trillion tugrug and revenue is 6.02 trillion tugrug with an approved deficit of 2.7 trillion tugrug. The budget deficit is expected to be above 2 trillion tugrug over the next 3 years (the budget has historically experienced deficits); however, this will probably be updated annually to improve the budget balance.

FIGURE 5. THE AMENDMENT OF THE 2017 BUDGET



* –*approved budget; Source: (Parliament of Mongolia, 2017)*

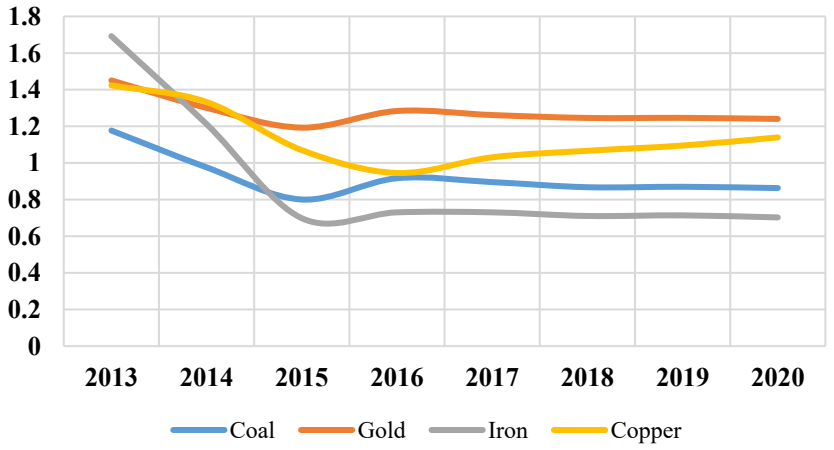
[25] The Parliament of Mongolia approved the 2017 budget in November 2016 (Parliament of Mongolia, 2016b) with its amendment approved 6 months later.

It is more likely that an approved budget with a deficit will decrease the capital expenditure of the budget. More specifically, the Parliament of Mongolia and the GoM will reduce the capital expenditure to ensure a budget balance. In 2017, the capital expenditure as a share of the budget expenditure has been approved at 17 percent, however, the share will mostly likely be reduced by the end of 2017. However, the previously mentioned projects have not been planned into the capital expenditure. This implies that the planned projects will not be funded by the GoM and instead will be financed by the private sector. The GoM is perhaps anticipating that any additional foreign investment leftover will finance the projects outlined in the Action Program and long−term plan.

In Mongolia, the main determinant of FDI inflow is are mineral commodity prices. Therefore, whether FDI will grow entirely depends on price projections. The forecasted price index of the mineral commodities is relatively stable over the next few years which indicates that FDI inflow should also remain stable as described by the trend unless an external factor significantly influences it.

Whether the projects will be implemented successfully is dependent on FDI inflow, particularly, the mineral commodity prices as the investment climate is currently not ideal. Until 2020, the mineral commodity prices will either be stable or moderately high. Mongolia cannot influence the prices, although recoveries in the prices will probably encourage FDI inflow.

FIGURE 6. THE PRICE INDEX PROJECTIONS, 2017−2020



Source: the research team's calculation; forecasts from WB, IMF, Morgan Stanley, CME Group, and Oyu Tolgoi

The Oyu Tolgoi project is expected to bring in a massive amount of FDI through the underground mine development; however, as the purpose of the funding is already determined, little to none of the investment will be used for the planned projects. However, the large FDI inflow into Oyu Tolgoi may entice investors to provide additional investments, which could be used for the planned projects.

In 2017, the IMF approved a three−year extended arrangement for Mongolia in a total amount of SDR $434.3 million to support the country's economic reform program. The total financing bundle is about $5.5 billion with funding from Asian Development Bank (ADB), WB, Korea, Japan, and China. This financing package will play a central role in reducing uncertainty, which might help boost Mongolia's reputation as an investment destination.

As mentioned in the plans and programs approved by the Parliament of Mongolia, the purpose of the programs is to attract more FDI. However, FDI movements are − historically, currently, and most likely into the near future − mainly explained by commodity price movements. These price movements are not influenced by Mongolia as its share of world production is relatively small. However, if Mongolia focused on improving its regulatory and institutional environments, a significant improvement in the investment climate could play a large role in attracting FDI.

CONCLUSION

Although there are many views about the impacts of FDI; there are two main opposing arguments. One argument is that FDI inflow encourages human capital, quality of political environment and economic growth; while on the other hand, FDI inflow in the long term supports unemployment, over—urbanization, and income inequality, which has been observed in developing countries.

There is a significant correlation between FDI inflow and investment climate, which has been observed in most nations. Nevertheless, most research in Mongolia focuses on the relationship between FDI inflow and economic growth. Generally, FDI inflow inspires growth; however, it can also have a negative impact on some sectors. In Mongolia's case, FDI inflow is highly dependent on the mining sector — specifically, large mining projects. Unfortunately, during recent years, FDI inflow in Mongolia has been consistently declining, reaching negative $4.2 billion in 2016. The main reasons were declines in mineral commodity prices and an unfavorable regulatory and institutional environment.

The impacts of FDI inflow differ in 2010 and 2015 depending on how the inflow is allocated to the sectors and what percent of it is absorbed into domestic market. According to the results of the stimulation, the impact of FDI inflow is more significant as more is absorbed by the domestic market. Historically and currently, over 70 percent of FDI inflow has been allocated to the mining sector, which is capital intensive. As the mining sector is the main recipient of FDI and its physical capital demands cannot be satisfied by the domestic market fully, Mongolia should focus on developing the manufacturing sector, to domestically manufacture the machineries required by the mining sector.

Currently and historically, the main determinant of FDI inflow in Mongolia is mineral commodity prices (FIGURE 4), which has also been observed from data of other countries with an abundance of mineral resources. While the investment climate cannot entirely explain the dramatic falls in FDI inflow in Mongolia, in developed nations with little to no mineral resources, the investment climate plays a key role in attracting FDI. As such, in the future, Mongolia needs to attract FDI inflow through facilitating similar environments as developed nations without natural resources instead of relying on mineral commodity prices as prices are exogenous and experience a lot of fluctuation.

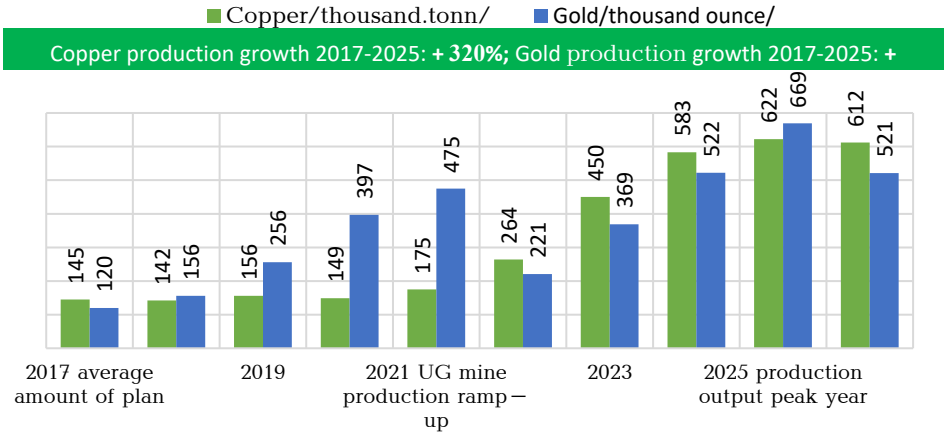
The GoM has planned to start and implement projects in the mining, energy and infrastructure sectors as outlined in official plans and programs. The projects will create an enormous demand for FDI inflow into Mongolia. The aim of the plans and programs is to attract more FDI in the near future to finance the projects and overcome recent economic difficulty. Historically and currently, FDI movements have been explained mostly by commodity prices, and unfortunately, these price movements do not rely on Mongolia itself due to Mongolia's small share of production in the world market. Therefore, as Mongolia cannot do anything to directly attract FDI in the near future, it must try to reduce the dependence of FDI inflow on mineral commodity prices. The GoM aims to improve the investment climate to directly influence FDI inflow in the future.

APPENDIX

Diamond 1. Oyu Tolgoi Outlook

Turquoise Hill Resource informed investors that by the end of 2025, Oyu Tolgoi's copper and gold productions will be increased by 320 percent and 450 percent, respectively (The Mongolian Mining Journal, 2017).

THE EXPECTED COPPER AND GOLD PRODUCTIONS



Note: Gold Phase – 4 grades from 2019 to 2021; Source: (The Mongolian Mining Journal, 2017).

The table below sets forth the indicative development and spending plan[26], including estimates of funds that will be spent within Mongolia for operating costs, Underground Stage construction and payments to the GoM.

[26] In the last years, its performance slightly varied in comparison to the planning because *of* unforeseen factors, especially political instability.

OYU TOLGOI UNDERGROUND MINE INVESTMENT AND SPENDING PLAN, 2016–2022

	2016	2017	2018	2019	2020	2021	2022	Total
Underground Development capital	0.3	1.1	1	1.1	0.7	0.5	0.1	4.8
Total Capital	**0.4**	**1.2**	**1.1**	**1.3**	**1.2**	**1**	**0.6**	**6.8**
Domestic operating cost expenditure	0.6	0.6	0.6	0.6	0.6	0.6	0.7	4.3
Domestic capital cost expenditure	0.2	0.5	0.4	0.5	0.4	0.4	0.2	2.6
Direct payment to GoM	0.3	0.3	0.3	0.3	0.3	0.3	0.4	2.2
Estimated Direct Mongolian spend	**1.1**	**1.4**	**1.3**	**1.4**	**1.3**	**1.3**	**1.3**	**9.1**

Source: Oyu Tolgoi's underground mine development and financing plan, GoM and Rio Tinto, pp.5

Diamond 2. Investment law in Mongolia

One part of the regulatory and institutional environment is a law. The Parliament of Mongolia approved an 'Investment Law' in 2013 (Parliament of Mongolia, 2013). The new law aims to create an attractive environment for investors. Some aspects of the law:

- Both the domestic and foreign investors will be regulated by a common legal framework, and the GoM will protect their rights similarly.
- According to the law, foreign investors do not need to get a permission to establish the company in Mongolia, and are directly registered for Copyright and National Registering Authority.

These changes are fundamental directives to support the inflow of foreign investment and support for the foreign investment will be implemented through-two channels: tax and non−tax.

In the tax relief, the GoM will give a security of sustainability and exemption of tax if commencing the operation in specific sectors such as construction material, oil extraction, agricultural industry, Nano technology, energy, and building railway. Specifically, in this case, the imported techniques and equipment will be free from import duty and value added tax.

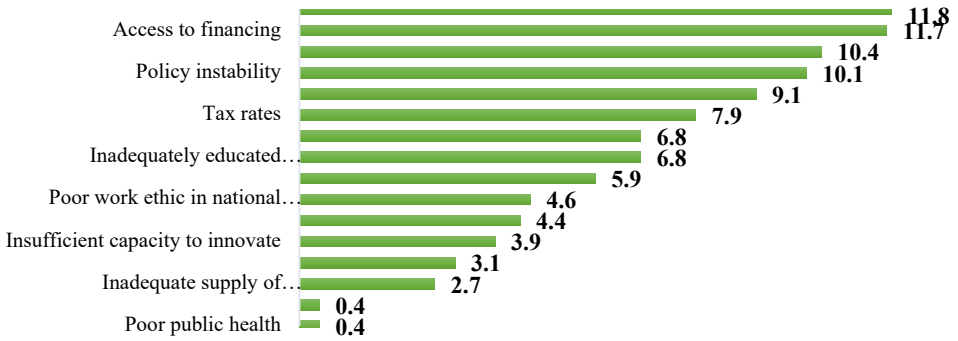
In other incentives excluding the tax relief, the foreign investors will have the right to possess and use the land for up to 60 years and are able to extend up to 40 years. Also, if operating in the infrastructure, manufacturing, science, and education sectors, the GoM will support foreign investors by waiving the fees associated with importing foreign labor.[27] The government will provide a guarantee for funding used to finance the operation in innovative technological production with the purpose to export.

[27] Under the Mongolian labor law, any employer seeking to hire a non−Mongolian laborer must obtain a waiver from the Ministry of Labor; and, if unable to obtain a waiver, the employer must pay a monthly waiver fee per foreign laborer. GoM sets foreign worker quota ranging from 5%−80%: 5% is the default quota for most companies; 10% for companies with mining or exploration licenses; 80% for companies extracting oil or natural gas. The monthly waiver fee differs based on the sector and foreign worker quota of the employer. Generally, the fee is twice the national minimum wage (240,000 tugrug as of January 1, 2017). However, if the foreign worker quota for the sector is over the quota limit, then the company must pay 10 times the minimum wage as the monthly waiver fee.

Diamond 3. Doing Business in Mongolia

Mongolia's Doing Business Index rank was 56th in 2016 and fell down to 64th out of 190 countries in 2017. When a country's index score is below half the potential value, the indication is that the country is risky to invest in. World Economic Forum's Executive Opinion Survey asked respondents what the most problematic factors for doing business in Mongolia were. The 2016 survey derived that the main problems, indicated by over 10 percent of respondents, were government instability, access to financing, foreign currency regulations, and policy instability. If Mongolia can improve and solve these barriers, it could increase FDI inflow.

THE MOST PROBLEMATIC FACTORS FOR DOING BUSINESS IN MONGOLIA, 2016



Source: (World Bank, 2017a)

In other countries, especially in Singapore, Hong Kong, and Switzerland, these barriers have been solved. Mongolia should focus more on the environments as investors are choosing the nations with the most business conducive environments. Since 2011, Mongolia's index scores and environments have been improving, but FDI inflow has been constantly declining. Perhaps, the improving index scores and environments are not sufficient enough to encourage FDI inflow.

FIGURE A1. THE PRICE PROJECTIONS

Source: (Economic Research Institute, 2017a; Economic Research Institute, 2017b; Economic Research Institute, 2017c; Economic Research Institute, 2017d)

TABLE A1. TOP 20 FOREIGN INVESTMENT COMPANIES

#	Company	Incoming year	Total asset (million $)	Share of foreigner (%)	Operation	Countries
1	Oyu Tolgoi	2000	108,5	66	Mining	Netherland, British Virginia islands, Mongolia
2	Peabody Winsway Resources	2007	61,0	100	Mining	Netherland
3	Chinggis Khaan Bank	2006	32,6	100	Bank	British Virginia islands
4	Tethys Mining	2004	26,9	100	Mining	Switzerland
5	Boldtomor Yoroo Gol	2004	18,9	100	Mining	British Virginia islands
6	Goyo	2006	18,0	100	Cashmere	Singapore
7	Khan Bank	2004	20,6	66	Bank	Japan, Mongolia, China, Hong Kong, USA
8	MCS Asia Pacific	2005	23	55	Water and juice	Singapore, Mongolia
9	Areva Mongolia	2005	12,5	100	Mining	France
10	Mobicom Corporation	1995	10,7	79	Telecommunication	Netherland, Mongolia
11	Ulaanbaatar University	1995	6,7	98	Education	Korea, USA, Mongolia
12	Wagner Asia Equipment	1996	6,4	100	Machine, equipment	USA
13	Sky Resort	2008	20,9	26	Travel Agency	British Virginia islands, Mongolia
14	Central Asian Cement	2003	5,5	98	Construction	China, Hong Kong, USA, Mongolia, Belgium, Singapore, Netherland
15	Mongolrostvestment	2007	10,5	49	Mining	Mongolia, Russia
16	Trade and Development Bank	2002	3,8	80	Bank	Luxembourg, Mongolia, USA
17	Qing Hua–MAC–Nariin Sukhait	2002	3,6	50	Mining	China, Mongolia
18	National Investment Bank	2006	3,2	44	Bank	Mongolia, Cayman island, China, Hong Kong
19	Sunjin Group	2006	2,3	100	Travel Agency	Korea
20	Seoul Group	1996	1,1	95	Real estate service	Korea, Mongolia
	Total		**405,5**	**79**		

Source: National Development Agency

TABLE A2. INTERMEDIATE CONSUMPTION OF MINING SECTOR BY SECTORS, 2011

	Share %
Agriculture	0.20%
Mining and quarrying	4.36%
Manufacturing	7.67%
Electricity, gas, steam and air conditioning supply	4.03%
Water supply; sewerage, and waste management	0.92%
Construction	9.83%
Wholesale and retail trade; repair of motor vehicles and motorcycles	20.89%
Transportation and storage	29.15%
Accommodation and food service activities	3.27%
Information and communication	1.96%
Financial and insurance activities	8.60%
Real estate activities	1.13%
Professional, scientific and technical activities	2.91%
Administrative and support service activities	2.29%
Public administration and defense; compulsory social security	1.53%
Education	0.59%
Human health and social work activities	0.40%
Arts, entertainment and recreation	0.10%
Other service activities	0.18%

Source: Input–Output table 2011, NSO and the research team's calculation

TABLE A3. STRATEGIC STAGES OF SINGAPORE, 1959− NOW

Strategic era	The main feature
Self−Government: Pre−Malaysia (1959−63)	The People's Action Party (PAP) firstly launched industrialization program by enacting the Pioneer Industries Ordinance which was the most significant legislation to attract foreign investment because according to it, new companies catering to the home market or to export markets could get tax relief from the prevailing 40 percent company tax. Also, the Economic Development Board of Singapore (EDB) tried to give incentives to private capital for establishing industries in Singapore.
The Malaysians years (1963−65)	Singapore merged with Malaya, Sarawak and Sabah in a new federation called Malaysia. As a result, Singapore could gain independence from Britain, and was secured by a bigger market. Unfortunately, during the period, no new protective tariffs were imposed but the number of quantities restriction (quota) rose to 230 commodities.
The Import−Substitution Phase (1965−67)	Upon independence (August 9, 1965), quotas were reduced to 88 commodities, and after gaining independence again, the government aimed to protect the domestic market. Although quotas were reduced further to 72 in 1967, protective duties were imposed on 183 commodities by end of 1965; by 1969, the number rose to 389.
Towards Export Orientation (1967−69)	The government liberalized tax incentives via the Economic Expansion Incentives Act of 1967, which reduced the tax rate for approved industries to 4 percent (from 40 percent). The incentive could be valid for up to 15 years. Taxes were also reduced on royalties, license fees, R&D costs payable to overseas enterprises. Complete tax exemption was granted to interest on foreign loans extended to enterprises operating in Singapore. Tax on interest earned on deposits held in Singapore by foreigners were reduced to 10 percent. Export incentives were also given by way of duty−free inputs as well as enhanced tax allowances for market development expenditures overseas.
Capital Intensive and Higher−tech Industries (1970−now)	During the 1960s a large number of multinational companies set up manufacturing and distributional facilities in Singapore. These facilities manufactured finished products, intermediate products, capital equipment, parts and components to supply parent companies and subsidiaries, and chemicals for offshore oil exploration and industries using natural resources. In 1971 foreign firms accounted for 26 percent of all firms, 63 percent of employment, 75 percent of total value−added, and almost 75 percent of manufacturing exports excluding re−exports". The success of the EDB's efforts was such that, by about 1970, Singapore had substantially overcome the unemployment problem. Consequently, the earlier strategy of attracting low−tech, labor−intensive industries was changed to emphasize the selective of higher−tech industries. The Economic Expansion Incentives Amendment Act [1970] was passed to raise the amount of capital necessary for acquiring pioneer status to S$1 million for new firms and to S$10 million for the expansion of existing ones. For non−pioneer firms,

	tax exemption of up to 90 percent of the increase in export profits could be given for five years. Pioneer firms could enjoy tax exemption for up to 10 years, provided their exports exceeded S$100,000 and at least 20 percent of their sales.
Towards Knowledge－Based Industries & Services (1980－now)	Singapore found increasing competition from other developing countries, particularly in South and East Asia, in the low－tech industries such as textiles, shoes, furniture, and assembly－type simple electronics. At that time, manufacturing in the industrial countries was graduating into more automation, robotics, computerization, etc. To attract the newer types of industries meant virtually a 'second industrial revolution' in which industries would be based on science, technology, skills and knowledge. "All sectors of the economy have to mechanize, automate, computerize, and improve management; or relocate their factories". The EDB's aim was also to secure industries providing high tech services to the manufacturing sector which would increasingly produce computers, integrated circuits, specialty chemicals and various industrial electronic equipment. The education system was revamped to provide more engineers and supporting technical staff. The new industrial thrust was designed not only to move Singapore away from labor－intensive industries but also to attract industries that were less vulnerable and could pay Singaporeans higher wages. Singapore was moving up the value－added chain.
Growth Triangles, Regionalization (1986－now)	1984－85 saw Singapore's first post－independence recession. The Economic Committee published a report introducing policy changes intended to address Singapore's recession and future economic outlook. Recommended in the report were: a wage cut of 12 percent, a flexi－wage system in which there would be a variable component to wages which would be responsive to market conditions, thus enabling companies to weather crises better, and substantial cuts in government taxes and fees in order to reduce production costs. Countries in Southeast Asia were attracting increasing numbers of MNCs because their costs were lower. Singapore saw this as an opportunity as well as a threat. The opportunity was to position itself as a regional headquarters for MNCs where R&D facilities, purchasing, marketing and other higher－value－added service oriented activities could be located. The threat was a precipitate withdrawal of MNC plants from Singapore before she could move up the value－added chain sufficiently. The Growth Triangle concept was evolved to cope with this threat. Such a concept found willing and eager participation by neighbors such as Malaysia and Indonesia. Of course, they had their own agenda, which was to supplant Singapore's port, airport and manufacturing, if possible. The Senior Minister saw and seized the opportunities to export Singapore's software to the Suzhou Industrial Park, Vietnam, and India. Government also invested public funds and encouraged private sector investment in the region as it saw burgeoning opportunities in the booming regional economy. Another important reason for regionalization was

	the realization that, because of the shortage of land and labor, GDP growth would be constrained.
Strategic Economic Plan (1991—now)	The newly elected Prime Minister published his vision for Singapore in two documents: "The Next Lap" and the Strategic Economic Plan. His aim was to transform Singapore, within 3—4 decades, into a gracious and advanced nation, noted for a high quality of life, a strong national identity, and a truly global city with economic dynamism. The specific economic objective was to reach the Netherlands' GNP per capita by 2020 and the US's by 2030. To accomplish this, eight strategic thrusts were identified: • Enhancing human resources • Promoting national teamwork • Becoming internationally oriented • Creating a conductive climate for innovation • Developing manufacturing and service clusters • Spearheading economic redevelopment • Maintaining international competitiveness • Reducing vulnerability The Plan fully recognized the constraints of a full—employment economy with its own labor force projected to grow at 1.5 percent a year, the physical limits of increasing foreign labor plus the extremely limited supply of land.

Source: (Tan, 1999)

TABLE A4. INDICATORS FOR MONGOLIAN SUSTAINABLE DEVELOPMENT VISION 2030

#	Indicator	Measuring unit	Base level 2014	Target level 2030
1	Annual average economic growth	percent	7.8	6.6[28]
2	Gross national income per capita	USD	4,166	17,500
3	Human development index	rank	90	70
4	Life expectancy	years	69.57	78
5	Poverty rate	percent	21.6	0
6	Global competitiveness index	rank	104	70
7	Doing business index	rank	56	40
8	Environment performance index	rank	111	90
9	Share of the population with social insurance coverage in the total economically active population	percent	21.6	0
10	Gini coefficient of inequality	score	36.5	30
11	Infant mortality ratio per 1000 live births	ratio	15.1	8
12	Maternal mortality ratio per 100,000 live births	ratio	30.6	15
13	Number of students in a class at high school (national average)	number	27.3	20
14	Area of the land with disease free status for international trade certified by World Animal Health Organization	percent	0	60
15	Area of decertified land	percent	78.2	60
16	Area of specially protected land	percent	17.4	30
17	Number of foreign tourists traveling in Mongolia	million people	0.392	2.0
18	Share of the households using reliable electricity	percent	89	100
19	Share of the processing sector exports in total exports	percent	17	50
20	Share of main fuel products supplied from domestic production	percent	0	100

Source: (Parliament of Mongolia, 2016c)

[28] average in 2016—2030

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ECONOMIC RESEARCH INSTITUTE

FDI INFLOW IN MONGOLIA

Update Report

ULAANBAATAR, 2018

FDI INFLOW IN MONGOLIA:

COMPARATIVE ANALYSIS OF INVESTMENT ENVIRONMENT AND TERMS OF TRADE

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ULAANBAATAR, 2018

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List of Abbreviations

CPI	Corruption Perception Index
EFF	Extended Fund Facility
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IAI	Investment Attractiveness Index
MPI	Mineral Potential Index
PPI	Policy Perception Index
IMF	International Monetary Fund
NSO	National Statistical Office
EFF	Extended Fund Facility
ToT	Terms of Trade

EXECUTIVE SUMMARY

This report is an update of the "FDI Inflow into Mongolia" study where investment climates indices are brought up to date as 2017 rankings are published. The update report also compares the terms of trade (ToT) of Mongolia and Chile as FDI inflows in the both nations heavily dependent on their respective mining sectors. When calculating ToT, the research team used the standard method authorized by the International Monetary Fund (IMF).

In order to discern changes in Mongolia's investment climate from 2016 to 2017, we chose common indices, such as the Doing Business Index (DBI), Corruption Perception Index (CPI), and Investment Attractiveness Index (IAI). The main finding is that Mongolia's investment climate improved in 2017 compared to in 2016. However, the slight increase in rankings is not sufficient to significantly increase FDI inflows. Relative to Chile's rankings on the indices, Mongolia still has long ways to go before being categorized as one of the top investment destinations. However, one thing to keep in mind is that Mongolia cannot be compared absolutely to Chile as the two economies differ in numerous aspects.

In 2017, ToT of both nations increased as mineral commodity prices spiked on the world market. Although both nations' exports are mainly comprised of mining sector products, there exists differences within the products as well. Chile's mineral exports tend to be processed commodities, especially refine copper; whereas, Mongolia exports raw commodities, notably copper ore, coking coal, and so on.

Based on our findings, the research team prepared some recommendations. As Mongolia cannot influence the fluctuation of mineral commodity prices on the world market, making the investment climate more favorable is crucial to increasing the inflow of FDI. Chile serves as a good role model for the Mongolian economy as their mineral potential levels are similar but perception of their government policies is considered better. Thus, the policy reforms undertook by Chile over the years to reach its current level could be modified and tailored to Mongolia's economy.

One of the limitations of this update report is that although we calculated ToT in this report, we cannot say for certain that Mongolia's ToT directly affects FDI inflows into Mongolia in a positive manner.

INTRODUCTION

This report is an update of the "FDI Inflow into Mongolia" study where the main investment climate indices are brought up to date as 2017 rankings are published. Additionally, this update report includes a section calculating the terms of trade. Similar to the study, this report will compare Mongolia's economy with Chile's as the mining sector in both countries is one of the key sectors for investment opportunities (Banco Santander, S.A., 2018).

The "FDI Inflow into Mongolia" study's aim was to identify the main causes of FDI fluctuations, estimate the impact of FDI on the economy, and how to attract more FDI, based on best practices of other nations. According to the baseline study of FDI inflow conducted by research team in 2017, the conclusion was that Mongolia cannot directly impact inflow of FDI as FDI inflow is more dependent on commodity prices rather than the investment climate. However, the long-term goal is to decrease the dependence on commodity price fluctuations and instead have FDI inflow be more dependent upon Mongolia's investment climate.

INVESTMENT ENVIRONMENT

During 2017, mineral commodity prices experienced significant increases due to increased demand from China, which in turn also boosted FDI into Mongolia. Amidst high commodity prices and the IMF's EFF agreement, Mongolia's sovereign rating was upgraded, which further increased Mongolia's attractiveness as an investment destination. Despite the recent slight boost in Mongolia's rankings, foreign investors are still hesitant to invest into Mongolia in the short term as some key issues still persist. Chile offers an example of the level Mongolia should strive to reach in order to attract FDI especially since the two countries are resource-rich. However, the problems which obstruct FDI inflows differ among the two countries. The problems which hinder inflow of investment are different for Chile than it is for Mongolia.

According to the U.S. Department of States, Chile is an attractive destination in Latin America for investors who desire an open market economy, well-developed institutions and strong rule of law. However, perception of Chile's investment climate has deteriorated in recent years as numerous large investments face unexpected costs and

delays due to permitting processes which can be opaque, unpredictable, and subject to political pressures. Local communities utilize its court system to obstruct large investment projects and these legal disputes can take several years to resolve.

According to the Doing Business report, the top five problematic factors for doing business in Mongolia were foreign currency regulations, corruption, political instability, inefficient government bureaucracy, and government instability.

TABLE 1. DOING BUSINESS AND CORRUPTION PERCEPTION INDICES 2016 AND 2017

Index	Mongolia		Chile	
	2017	**2016**	**2017**	**2016**
Doing Business Index	69.03	68.15	71.22	69.56
	62/190	64/190	55/190	57/190
Corruption Perception Index	36	38	67	66
	103/180	87/176	26/180	24/176

Source: Transparency International, Doing Business

As identified in the World Economic Forum's Executive Opinion Survey 2017, corruption was a major factor in business deterrence. Mongolia's Corruption Perception Index (CPI) score decreased by 2 points in 2017 from 2016; however, that decrease coupled with increased governance in other countries, caused Mongolia's rank to slip from 87th place to 103rd. Chile's CPI score and rank is significantly higher than that of Mongolia as corruption in Chile is relatively on a smaller scale than most Latin American countries.

The two common problems both economies face are political instability and inefficient government bureaucracy. These problems contribute to the the deterrence in foreign direct investment into these economies.

The Doing Business Index and the Corruption Perception Index are both good indices to gain a general understanding of a country's business environment. However, these indices do not factor in the mining sector, which is the key driver of FDI inflows in both Chile and Mongolia. Thus, an index which considers the business environment of a country with natural resources is needed to gain better insight.

An index which was analyzed in the "FDI Inflow in Mongolia" study was the Investment Attractiveness Index (IAI), which combines two indices: Policy Perception Index (PPI) and Best Practices Mineral

Potential Index. The table below illustrates the Mongolia and Chile's scores and ranks on those indices.

TABLE 2. INVESTMENT ATTRACTIVENESS INDEX 2016 AND 2017, MONGOLIA AND CHILE

Index	Mongolia		Chile	
	2017	**2016**	**2017**	**2016**
Investment Attractiveness Index	60.69	49.42	81.51	69.66
	53/91	81/104	8/91	39/104
Policy Perception Index	54.23	28.08	80.55	78.68
	70/91	101/104	25/91	35/104
Mineral Potential Index	65	63.64	82.14	63.64
	36/91	50/104	7/91	49/104

Source: Fraser Institute

Both Mongolia and Chile's IAI improved significantly from 2016 to 2017. The IAI is determined 40 percent by policy and 60 percent mineral potential.

Mongolia was displaced from the bottom 10 on the PPI and raised their rank from 101st to 70th by increasing their PPI score by more than 20 points. Respondents' ratings showed decreased concern over its geological database (−39 points), availability of labor and skills (−32 points), and uncertainty concerning protected areas (−27 points). The significant increase in Mongolia's PPI score and slight increase in their mineral potential index, greatly affected Mongolia's overall investment attractiveness index rank from 81st to 53rd.

Chile's IAI rank significantly improved and became one of the top 10 economies based on investment attractiveness. A major contribution to the increase was their substantial increase in rank on the mineral potential index, where their ranking went from 49th to 7th when the score increased by over 20 points. The slight increase in Chile's PPI score was decreased concern over Chile's legal system (−16 points), taxation regime (−14 points), and geological database (−13 points).

In the terms of trade section below, Chile is very similar to Mongolia; however, Mongolia tends to score lower and rank lower than Chile. Thus, if the best practices from Chile is observed and adopted by Mongolia, Mongolia could potentially be a serious contender for foreign investment in a resource−rich country.

TERMS OF TRADE

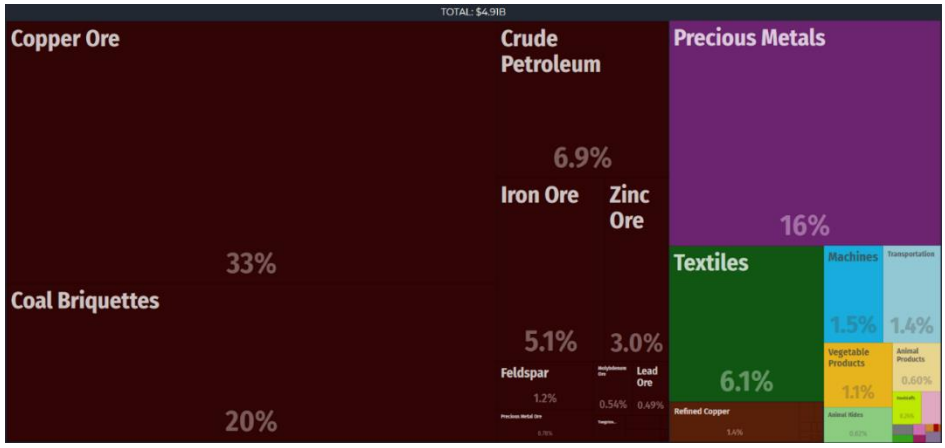
Terms of trade (ToT) indicates the ratio between the export prices of a country and the import prices (Investopedia, 2018). In terms of methodology, global institutes such as Global Economy and Trading Economics calculate countries' terms of trade with base year of 2000 with data provided by United Nation and World Bank, respectively. Meanwhile, the IMF suggested a method in which the terms of trade index for a country is calculated as the ratio of its export price index to its import price index—a simple enough calculation. (IMF, 2009)

Although the calculation of such ratios is straightforward, a question of natural interest to economists is how changes in the terms of trade of an economy affect the real income of the economy. An increase in the terms of trade means that the value of exports is increasing relative to the value of imports. The country can afford to buy more imports with the revenue from its exports. For example, an increase in the price of oil increases/improves the terms of trade for the oil−exporting countries and lowers it for the other countries.

As we mentioned in the previous final report of FDI, Chile was the favorable country for comparison in terms of similar export composition (See the figure below.). A comparison of Mongolia and Chile's export products is shown in the figures below. Around 50 percent of Chile's exports are minerals and mineral products whereas Mongolia's mineral and mineral products constitute over 70 percent of exports. A major difference between the two countries is that Chile mines copper ores and refines it domestically whereas Mongolia's refined copper only makes up around 1 percent of exports.

FIGURE 1. CHILE'S 2016 EXPORTS
Source: Observatory of Economic Complexity

FIGURE 2. MONGOLIA'S 2016 EXPORTS
Source: Observatory of Economic Complexity



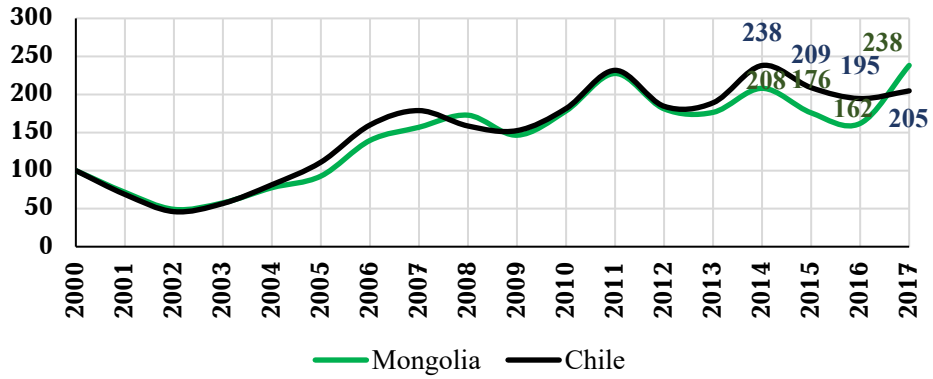
As every country's economy differs greatly, it is difficult to find a perfect comparative country to Mongolia's economy. However, Chile is a good role model for Mongolia as its economy transitioned from the mining sector contributing around 84 percent of exports in 1970 to around only 50 percent in 2016. They also went from exporting raw mineral products to processing and refining them over the years. Now in 2016, 20 percent of their exports are refined copper.

In the estimation, we calculated the terms of trade by using the simple IMF method measured relative to the base year (2000 = 100). The

following figure illustrates Mongolia and Chile's terms of trade from 2000 to 2017.

From the calculation result, Chile's dynamic has quite a similar pattern as Mongolia. However, since 2012 the differences between the two indices increased and Mongolian terms of trade lower from Chile's by 13 percent on average. Fortunately, Mongolia could have ranked over Chile due to the increase of copper and coal exports in 2017.

FIGURE 3. TERMS OF TRADE FOR MONGOLIA AND CHILE



Source: TheGlobalEconomy.com, The United Nations, and ERI estimate

The average value for Mongolia during the period between 2000 and 2017 was 145.3 with a minimum of 50 in 2002 and a maximum of 238.3 in 2017. Until 2011, the index increased gradually, then it jumped to the high value of 227.6 in light of Mongolia's economic development as well as high income from commodity export revenue. However, the index started to become sluggish and observed declining trends. According to the Bank of Mongolia, the decrease in terms of trade in 2015 is mainly attributed to the decrease in export prices of copper concentrate, iron ore and crude oil. (The Bank of Mongolia, 2016) In 2016, the index continued to fall by 7 percent compared to the last year due to the declining pattern of commodity prices.

TABLE 3. THE RECENT CHANGES OF TERMS OF TRADE FOR MONGOLIA, 2016–2017

Indicators	2016				2017		
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**
Export price index	251	245	340	369	478	477	402
Import price index	187	188	186	184	185	181	186
Terms of trade	**134**	**131**	**183**	**200**	**259**	**263**	**216**

Source: NSO, ERI estimate

In Mongolia, terms of trade reached its highest value, mainly derived from the mining sector especially for the first and second quarter of 2017. In fact, the government collected a large amount of tax revenue, which was 20 percent of total revenue, from major commodities such as coal, copper, gold, and zinc. In particular, coal and copper together made up 88.3 percent of the mining sector's revenue, and the coal sector reached an unprecedented level in its export history.

Even though Mongolia's macro−economic indicators namely economic growth and FDI inflows as a percent of GDP are relatively higher and more favorable compared to Chile, some factors related to trade freedom are considerably weak (More compared data is shown in Appendix below). In addition, Mongolian trade openness[1] is twice as high as Chile's, but Mongolia's trade freedom[2] index was relatively lower over the last decade. Moreover, it has shown a dramatical decline since 2014. This indicates that Mongolia is weak in terms of competitiveness on regulatory, customs and investment restrictions, and direct government intervention.

[1] Exports plus imports as percent of GDP.
[2] The Trade freedom index is based on two indicators: the trade-weighted average tariff rate and non-tariff barriers (including quantity, price, regulatory, customs and investment restrictions, and direct government intervention).

CONCLUSION

In 2017, Mongolia's economy experienced unprecedented levels of mineral commodity exports. Increased exports levels were caused by increased demand from China as well as high prices as the Chinese government took measures to combat air pollution.

As noted in the "FDI Inflow into Mongolia" study, increases in FDI tend to correlate to increases in mineral commodity prices which boosts production levels. Based on these observations, increases in FDI inflow into Mongolia is expected and with expected increases in FDI, Mongolia's ranking on various indices also rose.

Mongolia's rankings on some indices may have risen in 2017 compared to 2016; however, foreign investors are still hesitant to invest into Mongolia as the problems from 2016 still persist. Foreign investors are continuing to call for further actions from the GoM to take bolder steps in creating and nurturing a business—enabling environment and to put into place a more transparent, inclusive, and effective rule—making process for drafting and implementing commercial legislation.

This recent slight upward trend can also be observed in Mongolia's terms of trade. After 2011, Mongolia's TOT was steadily declining and in 2014, TOT spiked slightly as copper exports constituted 44 percent of total exports. In 2017, TOT is higher than it ever was, surpassing even Chile's as Mongolia's exports of copper and coal increased significantly. However, it should be noted that the compositions of exports for Mongolia and Chile are different in terms of their specific economic structure.

Mongolia's macroeconomic indicators such as economic growth is higher than Chile; however, compared to Chile, institutional and investment environment is lower. Due to high levels of corruption and political instability, Mongolia's FDI inflows are lower than that of Chile, despite the fact it may be more relative to GDP. It should be noted that Chile's GDP is 22 times that of Mongolia's.

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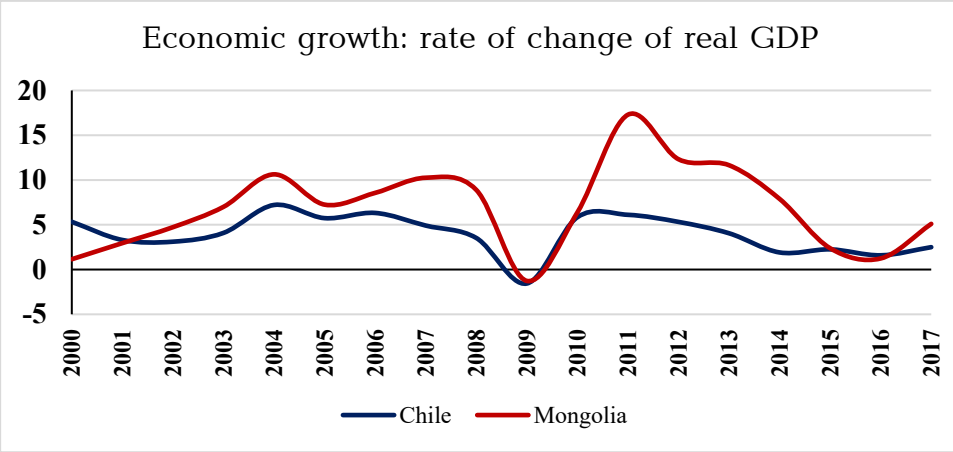
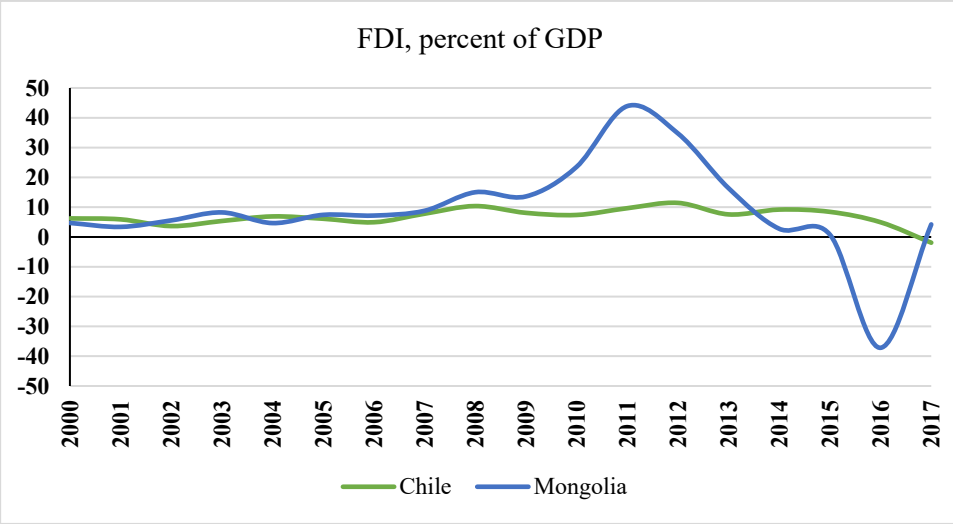
APPENDIX

FIGURE A 1. ECONOMIC GROWTH OF CHILE AND MONGOLIA



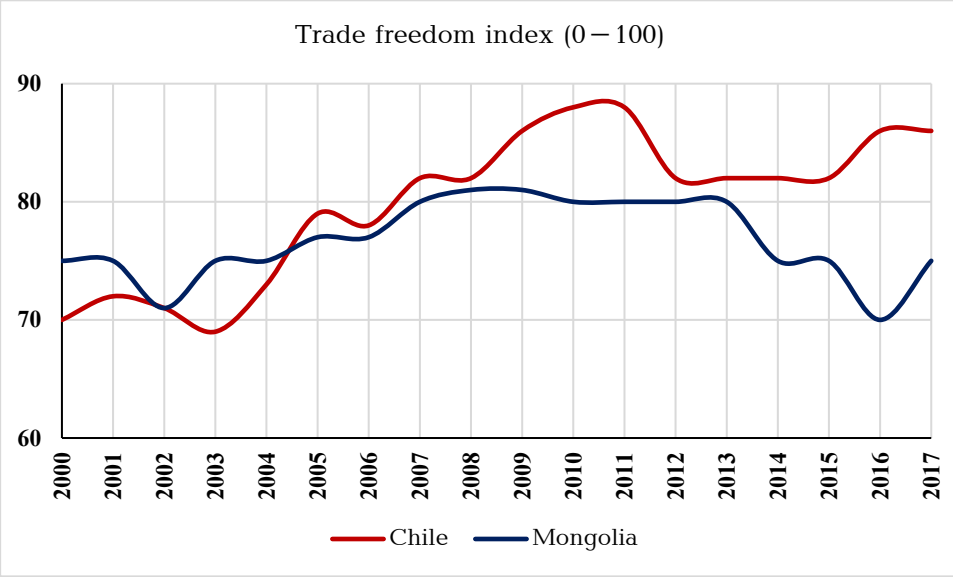
Source: TheGlobalEconomy.com, The World Bank, The Heritage Foundation

FIGURE A 2. FOREIGN DIRECT INVESTMENT IN CHILE AND MONGOLIA



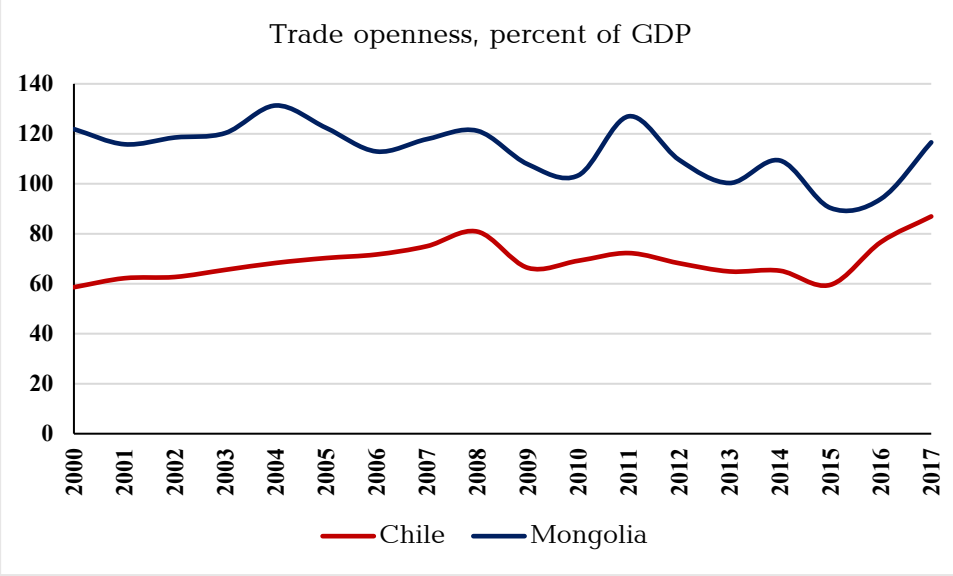
Source: TheGlobalEconomy.com, The World Bank, The Heritage Foundation

FIGURE A 3. TRADE FREEDOM INDEX OF CHILE AND MONGOLIA



Source: TheGlobalEconomy.com, The World Bank, The Heritage Foundation

FIGURE A 4. TRADE OPENNESS OF CHILE AND MONGOLIA



Source: TheGlobalEconomy.com, The World Bank, The Heritage Foundation