

DETERMINANTS OF FOREIGN DIRECT INVESTMENT DURING ECONOMIC TRANSITION IN MONGOLIA

Oyunbadam Davaakhuu

Manager of Economic Policy Program, Open Society Forum of Mongolia, Ulaanbaatar 14250, Mongolia. Email: oyun_dv@yahoo.com

Kishor Sharma

Professor of Economics, School of Accounting & Finance, Charles Sturt University, Wagga Wagga, NSW, 2678, Australia. [Email: ksharma@csu.edu.au](mailto:ksharma@csu.edu.au)

Yapa M. W. Y. Bandara

Lecturer in Economics, School of Accounting & Finance, Charles Sturt University, Wagga Wagga, NSW 2678, Australia. [Email: ybandara@csu.edu.au](mailto:ybandara@csu.edu.au)

ABSTRACT: This paper investigates the trends, patterns and determinants of foreign investment in Mongolia using a panel data set of 17 countries over 21 years. The empirical evidence suggest market growth rate, quality of infrastructure, geographic proximity and the Chinese economic boom are the important determinants of foreign direct investment in Mongolia. In terms of policy implications, our findings suggest that Mongolia can attract much needed technology and capital for ensuring employment-intensive growth, particularly in manufacturing and agriculture, through further reforms with a heavy focus on infrastructure development.

KEY WORDS: Mongolia, foreign direct investment, economic transition policy reforms

1. INTRODUCTION

Mongolia's success in attracting foreign direct investment (FDI) has drawn policy makers' attention in many transitional economies. Its ability to attract huge inflows of FDI, rising from less than 1 per cent of gross domestic product (GDP) in 1991 to 80 per cent by 2010, coincides with the liberalisation reforms embarked on in the early 1990s, following the disintegration of the former Soviet Union (FSU) in the late 1980s. Reform programs included liberalisation in trade and investment policy, privatisation of state-owned enterprises, deregulation of the banking sector and lifting price control, which enabled Mongolia to become a full member of the World Trade Organisation (WTO) in 1997 despite its limited experience with the market economy. It is within this context, that this paper investigates the trends, patterns and determinants of FDI during economic transition in Mongolia.

The examination of Mongolian experience is particularly important given that studies examining the experience of small transition economies are sparse, and the available studies mainly focus on large economies of Central and Eastern Europe, which have limited relevance to small transitional economies, such as Mongolia (Galego *et al.*, 2004). Although there are a few studies on foreign investment in Mongolia, they are mainly qualitative and cover a very short period of time series experience, which is not surprising as disaggregated data are not readily available (Demirbag *et al.*, 2005). Fortunately, we have access to government files and records, enabling us to develop a database to investigate the determinants of foreign investment in Mongolia in an econometric framework, covering a longer period of time series data.

The paper is organised as follows: Following this introduction, section 2 presents a brief profile of the Mongolian economy and discusses the nature of policy regime. Section 3 examines the trends and patterns of FDI, while its determinants are discussed in Section 4 and the empirical results are reported in Section 5. Section 6 presents concluding remarks.

2. PROFILE OF THE ECONOMY AND POLICY REGIME

Profile of the Mongolian Economy

Mongolia is a landlocked country located between the Russian Federation (in the north) and the Republic of China (in the east, south and west). It has a population of 2.7 million and an area of 1.5 million square kilometres. With a population density of 1.5 inhabitants per square kilometre, Mongolia is one of the world's least densely populated countries. Its economy is traditionally based on livestock breeding, which employs about 40 per cent of the workforce. Mongolia largely exports mineral products (84 per cent of the total exports in 2008) and imports machinery and fuel (60 per cent of the total imports in 2008). Being a landlocked country, its exports and imports have to pass through neighbours' territory (either China or Russia) and the nearest seaport is in China, which is 1600 kilometres away from the Mongolian border.

During 1921 to 1990, Mongolia was closely associated with the former Soviet Union (FSU). With the disintegration of the FSU in the early 1990s, it faced severe macroeconomic constraints. As the economy was heavily reliant on the FSU for trade and financial assistance, it faced the twin external shocks of the cessation of capital flows from the FSU and the collapse of the Council for Mutual Economic Assistance (CMEA) (UNESCAP, 2006). For instance, GDP, which was growing at about 4 per cent per annum during the 1980s, became negative during 1990-1993. Similarly, GDP per capita declined by 20 per cent, while inflation soared to more than 300 per cent per annum and the government budget deficit reached about 12 per cent of GDP. Unemployment, which was almost non-existent during the state planned system, grew rapidly due to the collapse of the state-owned enterprises (SOEs). To overcome these macro-economic crises, Mongolia embarked on a reform agenda in 1990, which Section 2.2 discusses in greater detail.

By 1994, these initial reforms had brought the economy back on track. For instance, GDP grew from -9 per cent in 1992 to 2 per cent by 1994, largely due to a recovery in the agriculture, mining, trade and transport sectors. In addition, inflation dropped to about 70 per cent and the government budget deficit fell to 4 per cent of GDP. While GDP growth slowed down between 1996 and 2001 mainly due to internal circumstances, including unfavourable

weather conditions and the closure of many SOEs, it recovered from 2002 and the growth rate reached just below 10 per cent by the mid-2000s. This impressive growth was largely due to improved performance of agriculture, mining and services sectors, leading to an increase in per capita income from US \$526 in 1997 to US \$2 108 by 2008. As the economy recovered, employment opportunities expanded, particularly in urban centres. During the period 1995 to 2001, the unemployment rate averaged 6 per cent. Since then, it declined each year until 2008, when it reached about 3 per cent. As stated earlier, agriculture is the mainstay of Mongolian economy and is one of the largest contributors to GDP (see Table 1). Agriculture, being the largest source of employment, provides employment to over one-third of the workforce. However, as in many developing countries, the performance of Mongolia’s agricultural sector depends on weather conditions. In recent years, however, the contribution of agriculture to GDP has declined largely due to growth in the mining and urban-based services sectors.

Table 1. Composition of GDP by key sectors: 1985-2008 (% share).

Year	Agriculture, hunting, forestry and fishing	Mining & quarrying	Manufacturing	Wholesale & retail trade; repairing service	Transport, storage & communication	Other
1985-1989	15.5	13.5	31.5	13.8	11.5	14.2
1990-1995	26.6	9.3	19.0	19.6	7.9	17.6
1996-2000	36.7	10.6	6.1	20.7	8.8	17.1
2001-2005	21.7	14.6	6.3	24.0	13.3	20.1
2006-2008	19.6	29.2	5.9	14.1	10.1	21.0

Source: Estimated by the authors based on data from the National Statistical Office of Mongolia (1990, 1992, 2004 and 2008) and Milne et.al (1991).

Mongolia is rich in mineral resources (including copper, gold, uranium, iron ore, coal, tungsten, molybdenum and phosphate). With the liberalisation of economic policy and resulting growth in foreign investment, its mining

sector continued to grow, from 13 per cent of GDP during 1985-1989 to 29 per cent for the period 2006-2008. The Mongolian manufacturing sector is relatively small and its economic importance has been shrinking, while that of agriculture, hunting, forestry and fishing has been growing. During the Soviet-style Communist era, several import substitution industries were established in the public sector through import protection and government subsidies. Table 1 indicates that these industries virtually collapsed following liberalisation reforms, leading to a sharp fall in the share of manufacturing in GDP from over 31.5 per cent during 1985-89 to less than 6 per cent for the period 2006-08.

Foreign Investment Policy in the Past and Recent Changes

Mongolia embarked on a Soviet-style Communist policy for almost 70 years, from 1921 to 1990. During this period its economy was relatively closed for foreign trade and investment, except for the members of the FSU. Investment from these countries mainly came to a large number of manufacturing industries, with a view to capture the protected domestic market. However, with the collapse of the socialist system, many foreign investors left the country by the early 1990s. Against this background, the Mongolian government introduced the Foreign Investment Law (FIL) in 1993, with subsequent revisions in 1998, 2002 and 2008, making its foreign investment policy one of the most liberal in the region.

Under the FIL, foreign investors are subject to the same legal framework as domestic firms for matters of incorporation and other corporate activities. Neither foreign nor domestic firms face restrictions in foreign exchange or making transfers of investment funds, profits, and payments. There are no restrictions on the size and content of foreign investment and the nationalisation of foreign investment is prohibited. Firms in the infrastructure and mining sectors, which attract foreign investment, and those exporting more than 50 per cent of their total production, enjoyed income tax exemptions. Until 2006, Mongolia also granted exemption from customs duties and VAT for all businesses and entities that engaged in selected activities in priority sectors. These include agriculture, exploration of mineral resources (coal, oil, gas, uranium, thorium ore and iron ore), some branches of the processing industry (food production, the knitting industry, fur processing, leather processing, timber production, coking, liquid and

radioactive fuel, the production of chemical products, goods made of non-metal minerals, the metallurgic industry and the processing of secondary raw materials) and infrastructure (the production of electricity, water treatment and water supply and the construction industry). While amendments to the Tax Law in 2006 phased out these tax incentives and exemptions, they brought other incentives including a provision for loss-carry-forwards, five-year accelerated depreciation, and more deductions for legitimate business expenses. In addition, since January 1, 2007 the government grants a 10 per cent investment tax credit for depreciable non-current assets for foreign investment in the priority sectors.

Foreign investors are not required to use local goods and services or export a certain percentage of their output. Furthermore, there is no requirement for foreign investors to transfer technology or sell their shares to the locals. The country's Labour Law requires foreign investors to employ Mongolian workers if such skills are locally available. This regulation only applies to unskilled labour categories and not to the areas where a high degree of technical expertise is required, but not available in Mongolia. Although currently there are no free trade zones in the country, the government is working towards their establishment to encourage foreign investment in labour intensive manufacturing. Mongolia's ongoing commitments to open up its economy have led to an improvement in its international ranking in attracting FDI over time. According to the United Nations Conference on Trade and Development (UNCTAD) 2008), its ranking in attracting FDI improved from 76 out of 140 economies in 1991 to 16 by 2007. In 2010 Mongolia was ranked 60 out of 183 economies in terms of ease of doing business, 78 for starting business and 44 for employing workers. In terms of registering property and protecting investors, it performed even better, being ranked 25 and 27, respectively (World Bank, 2009). Accession to WTO further improved its ranking as a credible and reliable nation for foreign investment.

3. TRENDS AND PATTERNS OF FOREIGN DIRECT INVESTMENT IN MONGOLIA

Mongolia has experienced a phenomenal growth in FDI since the early 1990s and over two-third of these investments are in the form of joint venture

(JV). Since most FDI are in mining and oil exploration, which is politically a sensitive sector, foreign investors often seek local partners and operate as a JV rather than wholly owned subsidiary (WOS). As noted earlier, a significant increase in the volume of FDI since the 1990s appears to be mainly due to a favourable business climate brought about by the liberalisation of trade and investment regimes and privatisation of SOEs. The accession to the WTO in 1997 further improved Mongolia's image as a reliable country for foreign investment. This is evident by an increase in annual inflows of FDI from US \$18 million during its transition to the market economy (from 1990 to 1996) to US \$285 million after it became a WTO member (for the period 1997-2010).

While Mongolia is not yet anywhere near Association of Southeast Asian (ASEAN) countries and too far behind China in attracting FDI, it has performed remarkably well in recent years compared with its own performance two decades ago. Even compared to other transitional economies its performance in attracting FDI deserves highlighting. For instance, by 2010 FDI stock as a percentage of GDP reached over 80 percent in Mongolia as against only 33 percent in transitional economies as a whole (Davaakhuu *et al.*, 2014). As shown in Figure 1, steady growth in FDI inflow since the mid 1990s is a clear reflection of government commitment to attract foreign investment to address shortages of technology, managerial expertise and capital.

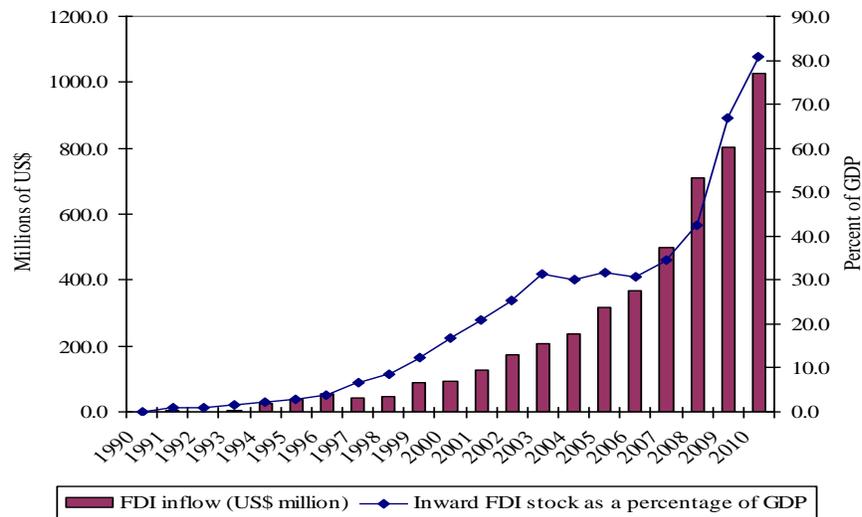


Figure 1. Average Annual FDI Inflow: 1990-2010

Source: Compiled by the authors based on the official records of the Foreign Investment and Foreign Trade Agency (FIFTA, 2009 and 2011) and UNCTAD (2011).

Table 2 shows that a large proportion of FDI (more than 61 per cent) has gone to the mining sector where Mongolia has an intrinsic comparative advantage, followed by services (more than 23 per cent) and light manufacturing such as textiles, beverages, and food processing (5 per cent) which previously operated as SOEs. Like in many least developed countries, FDI in Mongolia largely concentrated in the urban areas, especially in and around the capital city. Out of total realised FDI, more than 90 per cent is registered in the capital city Ulaanbaatar (Ulaanbaatar Region), where about 40 per cent of the nation’s population reside. Lack of rule of law and the poor quality of physical infrastructure in the rural areas appears to have discouraged foreign firms from locating in the rural and remote areas/regions. There is a huge gap in approved and realised FDI flows, which appears to be due to bureaucratic red tape. Only about 45 per cent of approved FDI reaches the operational stage.

Table 2. Sectoral Distribution of FDI, Total Employment and Percentage Share of FDI: 1990-2010 (cumulative value)

Industry	Inward FDI		Total Employment (as of 2010)*	
	FDI (US\$ million)	Share (%)	Total employment (in 000 persons)	Percentage Share of FDI
Mining and oil exploration	2 340.5	61.2	34.8	3.5
Services	897.9	23.5	205.1	20.4
Manufacturing	178.0	4.7	62.7	6.2
Construction and manufacture of construction materials	74.7	2.0	49.6	4.9
IT and Telecommunications	35.9	0.9	10.2	1.0
Transportation	25.2	0.7	68.7	6.8
Food production	18.2	0.5	-	-
Agriculture, crops and livestock breeding	14.8	0.4	348.8	34.7
Culture, education, science and printing	17.1	0.4	92.7	9.2
Energy	5.4	0.1	9.5	0.9
Others	218.9	5.7	124.2	12.3
Total (1990-2010)	3 826.50		1006.3	100.0

Notes:* Total employment created by both foreign and domestic firms; '-' data not available.

Source: Compiled by the authors based on the official records of the Foreign Investment and Foreign Trade Agency (FIFTA, 2009 and 2011) and online database, and National Statistical Office (NSO, 1991-2011), various issues.

Although mining has attracted the largest amount of foreign investment, this sector employs less than 4 per cent of the total labour force primarily due to capital-intensive nature of these investments. The services sector, largely based in urban centres, employs just over 20 per cent of the labour force, while employment in foreign-owned manufacturing industries is about 6 per cent. Agriculture, crops and livestock breeding, which attract less than 1 per

cent of foreign investment, contribute about 35 per cent to the total employment.

As shown in Table 3, resource hungry China—the biggest and closest neighbour—has been a major share of investment in Mongolia (accounting for more than 51 per cent of the total investment). Chinese investment has been mainly attracted towards the mining sector. Canada is the second largest source of foreign investment (with about 8 per cent share) and engaged in mining exploration, followed by South Korea, which is the third largest source of FDI (5 per cent of the total). South Korean investment is mainly seen in telecommunications, services and manufacturing. Investment from Japan and Hong Kong each accounts for about 3 per cent of total investment. Japanese investment is mainly attracted to the telecommunications and banking sectors, although in recent years it has also shown interest in relatively larger projects in cashmere apparel manufacturing. Despite the significant influence of Russia in the past, its investment remains relatively small (accounting for about 2 per cent of total FDI). Russian firms are mainly engaged in geology and mining, construction, banking and financial services and the processed food industry. Like Russian investment, American investment (which is mainly seen in geology, mining and oil exploration), remains modest with 2 per cent of the total FDI inflows.

Table 3. Major Sources of FDI: 1990-2010

Country	Total value (thousand US\$)	Share (% of total)
China	2489928	51.4
Canada	408324	8.4
South Korea	255753	5.3
Japan	138375	2.9
China/Hong Kong	127525	2.6
USA	109107	2.3
Russia	107870	2.2
Singapore	87359	1.8

Source: Compiled by the authors based on FIFTA (2009 and 2011) online database.

It is important to note that while increased FDI inflows has significantly raised Mongolia's GDP and exports, these investments, especially those in mining extraction, have also created severe environmental and health problems. While the Mongolian government has rules and regulations in place for mining extraction, they are not effectively enforced due to the lack of resources to monitor the activities of miners, particularly small and medium size mining companies. It is reported that the Chinese mining firms often practice illegal drainage of polluted water, illegal digging and careless explosions causing severe damage to health and environment (Reeves, 2011). Despite cancellation of thousands of mining licenses in 2010, the behaviour of small and medium size foreign mining firms have not changed. As the World Bank (2013) correctly points out, it is crucial that the Mongolian government improves its governance and the rule of law to ensure that the mining sector is developed in an environmentally and socially sustainable way.

4. THE DETERMINANTS OF FOREIGN DIRECT INVESTMENT

In this section, we develop a model to explain the determinants of foreign direct investment based on theory and empirical evidence. Our model includes variables predicted by the Dunning eclectic paradigm (Dunning, 1993) as well as other plausible factors.

It has been argued that size of the market (measured by GDP) and its growth rate help attract foreign investment (Sharma and Bandara, 2010). This lead us to believe that market size (GDP) and market growth rate (MGR) have a positive impact on inflows of FDI. Further, in a globally integrated production network, foreign investors look for economies that are open and have a lower level of barriers. Empirical studies have demonstrated that countries with lower barriers to trade and investment attract more foreign investment than those that are relatively closed (Ang, 2006). Thus, openness (OPEN) appears to have a positive impact in attracting FDI.

In a vertically integrated production network, multinational corporations tend to locate in different locations to minimise production costs. For this to occur, efficient infrastructure is crucial. Hence, the availability of well-developed infrastructure is important for attracting foreign investment (Urata and Kawai, 2000). Therefore, we expect a positive association between the quality of infrastructure (INFRA) and FDI.

Krugman (2001) argues that FDI, unlike portfolio investment, is not liquid and so once an investment is made, it is not easy to pull out. This is why foreign investors look for countries where economies are stable as business confidence is higher in these countries. As compared to other transitional economies, Mongolia has maintained economic stability over the years largely due to its sound economic policies and improved economic performance. This has led to a rise in FDI inflows into the country. Based on this assertion, we expect a positive association between economic stability (ES) and FDI inflows.

According to Dunning's eclectic paradigm, geographic distance is also an important factor for the location choice of FDI. As transaction costs may vary depending on geographic distance, foreign investors will choose to invest in countries located closer to their home country. In addition, geographic proximity may imply that investors have a better knowledge of the host country's market. Thus, a negative link between geographic distance (DIST) and FDI is expected.

Locational advantage acts as a driving force for foreign investment, especially when it comes to resource-seeking foreign investments (Kaynak *et al.*, 2007). Being close to China, which is the fastest growing economy in the world, and the availability of largely untapped highly sought after mineral resources such as, coal, copper, iron ore and gold, Mongolia may have attracted a significant amount of Chinese investment. On this basis, one might expect that a remarkable growth in the Chinese economy in the recent decades provides at least part of the explanation for a rising trend in FDI inflows into Mongolia. We, therefore, expect a positive association between growth in the Chinese economy (GROCHI) and FDI inflows.

As noted earlier, the Mongolian mining sector hosts more than 60 per cent of the total FDI inflows, which may have coincided with the global commodities hike of the past decade (Batchuluun, 2011). On this basis, it is plausible to argue that favourable trends in global commodity price provide at least part of the explanation for growth in FDI in Mongolia. We, therefore, expect a positive link between the global commodity price boom (COMPRICE) and FDI inflows into Mongolia.

Based on the above discussion, the model of the determinants of foreign direct investment is specified as follows. The expected signs of the coefficients are given below the equation in parentheses.

$$\begin{aligned}
 FDI_{it} = & \delta_0 + \delta_1 GDP_{it} + \delta_2 MGR_{it} + \delta_3 INFRA_{it} + \delta_4 OPEN_{it} + \delta_5 ES_{it} + \delta_6 DIST_{it} + \\
 & \quad (+) \quad (+) \quad (+) \quad (+) \quad (+) \quad (-) \\
 & \delta_7 COMPRICE_{it} + \delta_8 GROCHI_{it} + V_{it} \dots \quad (1) \\
 & \quad (+) \quad (+)
 \end{aligned}$$

where,

FDI_{it} = Foreign direct investment, measured as annual inflow of real FDI by source countries (in US\$);

GDP_{it} = Size of the market, proxied by real GDP per capita;

MGR_{it} = Market growth rate, measured by real GDP growth rate;

$INFRA$ = Quality of infrastructure, proxied by electric power consumption (kWh per capita);

$OPEN_{it}$ = Openness, defined as the ratio of trade to GDP;

ES_{it} = Economic stability, proxied by a budget deficit or surplus as a percentage of GDP;

$DIST_{it}$ = Geographic distance between Mongolia and the source country, measured in kilometres;

$COMPRICE_{it}$ = Global commodity price boom, captured by the world price for coal and copper;

$GROCHI_{it}$ = Growth in the Chinese economy, measured by Chinese GDP growth;

$i = 1, \dots, N$ (Countries)

$t = 1, \dots, T$ (Time periods)

δ_j ($j = 0 \dots 8$) are parameters to be estimated.

V is a standard classical error term.

The measurements of variables and data sources are discussed in Appendix 1.

5. DATA, ECONOMETRIC PROCEDURES AND RESULTS

The database for this study was developed from published sources as well as from government records and files. Our database includes 17 major source countries for the period 1990 to 2010. Countries that are included in our dataset are Australia, Bulgaria, Canada, China, Hong Kong (China), France, Germany, Great Britain, Japan, South Korea, Luxemburg, Netherlands, Russia, Singapore, Switzerland, the USA and Vietnam. The selection of countries and the time period was primarily guided by data availability. These countries altogether account for more than 85 per cent of the total FDI inflows into Mongolia.

The model specified above was estimated using panel data set (pooled cross-section and time-series data), which has several advantages over conventional cross-sectional and time-series data sets. For instance, a panel data set gives a large number of observations, which increases the degrees of freedom and reduces collinearity among explanatory variables, improving the efficiency of the econometric estimates. In this study, we use the random effects model (REM) rather than the fixed effects model, as the specified model includes time-invariant variables (geographical distance). The market growth rate (MGR) variable (which is proxied by GDP growth) might have been overestimated by unobserved (omitted) variables, such as human capital and gross fixed capital formation. We, therefore, performed the Hausman test for endogeneity between growth in GDP and FDI, but it was not detected. Before estimating the model, we also performed the specification tests, including the Ramsey's regression specification error test (RESET), an *F* test, and tests for multicollinearity and heteroskedasticity. Based on the results of multicollinearity and RESET tests, the size of the market (proxied by GDP), economic stability (ES) and openness (OPEN) variables were excluded from the final model, leaving market growth rate (MGR), quality of infrastructure (INFRA), geographical distance (DIST), commodity price boom (COMPRICE) and growth in the Chinese economy (GROCHI) variables in the final estimated model.

Table 4 presents the results for the determinants of FDI. The explanatory power of our model is 0.39 (R-squared), which is reasonable for an analysis relying on panel data. Previous studies based on panel data (for example,

Saripalle, 2008; Sharma *et al.*, 2001; Rasiah and Malakolunthu, 2009) also observed similar explanatory power in their models.

Table 4. Results of the Determinants of Foreign Direct Investment.

Explanatory Variables	Coefficient	P-value
Intercept	-242.51** (-2.130)	0.033
Market growth rate (MGR)	4.47** (1.960)	0.500
Geographic distance (DIST)	-0.25** (-2.080)	0.037
Infrastructure (INFRA)	25.89** (2.350)	0.019
Commodity price boom (COMPRICE)	-0.621 (-0.650)	0.513
Growth in Chinese economy (GROCHI)	49.70*** (12.900)	0.000
Number of Observations	357	
F (5, 351)	45.890***	0.000
R-squared	0.395	
Adjusted R-squared	0.386	
RESET F (3, 348)	1.870	0.025

Note: Standard errors are reported in parentheses. Significance levels are: ***=1%, **=5%, *=10%.
Source: the Authors

In line with theoretical expectations, the coefficient for the market growth rate (MGR) variable is statistically significant and has a positive sign. This suggests that growth in the domestic market has been one of the important factors in attracting foreign investment into Mongolia, particularly in import substitution industries to meet the demand for a growing urban population. This finding is similar to the results of Cuyvers *et al.* (2011) for Cambodia.

The coefficient for geographical distance (DIST) variable, as expected, is statistically significant and has a negative sign suggesting that the greater the distance from source countries, the lower the foreign investment in Mongolia.

Given Mongolia's landlocked position, this finding is not surprising. The strong correlation between geographic proximity and inflows of FDI is particularly unsurprising given the large magnitude of investment from neighbouring China. However, the Pearson correlation coefficient test indicated that the negative correlation between the geographic proximity and FDI remains presents when the Chinese foreign investment into Mongolia is taken out of the dataset, although the relationship is weaker, with a value of -0.19. This finding is similar to the result of Buckley *et al.* (2007) for Chinese outward FDI.

The coefficient for the quality of infrastructure (INFRA) variable is statistically significant and has a positive sign, suggesting that an improvement in physical infrastructure helps attract foreign investment. As expected, in a globally integrated production network, multinational enterprises tend to locate in different countries to minimise cost of production for which efficient physical infrastructure is crucial. Our finding about the link between infrastructure and FDI inflows is similar to the results of Bhavan *et al.* (2011) for South Asian economies. There is no statistical evidence to suggest that the commodity price hike (COMPRICE) of the past decades has had any effect in attracting FDI into Mongolia, particularly in the mining sector. This is perhaps because supply of mineral products can be price inelastic in the short to medium term.

As expected, the coefficient for growth in the Chinese economy (GROCHI) is highly significant and has a positive sign, suggesting that the Chinese economic boom has led to an increase in FDI inflows into Mongolia. This is not surprising given that Mongolia is endowed with numerous mineral resources, including coal and iron ore, which China needs to ensure its economic prosperity.

To sum up, market growth rate, quality of infrastructure, geographic proximity and the Chinese economic boom seem to be important determinants of foreign investment in Mongolia.

6. CONCLUDING REMARKS

This paper investigates the trends, patterns and determinants of foreign direct investment during economic transition in Mongolia. There has been a rapid increase in inflow of foreign investment following its transition to the

market economy, leading to significant increase in output, exports and employment. However, huge inflows of foreign investment, particularly in the mining sector have led to a decline in agriculture and manufacturing, casting serious doubt about the sustainability of a mining-led growth trajectory. Mongolia urgently needs to formulate policy for growth in manufacturing and agriculture to avoid 'resource curse' - a phenomenon that explains the collapse of industrialisation with the booming mining sector in a small economy (Cordon and Neary, 1982). Mongolia may be able to diversify its economy (e.g. reconstruct manufacturing) with a leading sector that is booming, if it pursues policy to effectively promote development of the manufacturing sector. Of course, there is also a need to improve governance. Our results suggest that market growth rate, geographic proximity, quality of infrastructure and the Chinese economic boom are the major determinants of FDI into Mongolia. We found no statistical evidence to suggest that the commodity price boom of the past decades has had any impact in attracting foreign investment into Mongolia. The growth of Chinese FDI in the mining sector is surely partly an effort by China to diversify sources of mineral commodity supply and to combat the market power of large Western mining companies. There is also geo-strategic motives behind growing Chinese investment in Mongolia

The policy implications of our results are that Mongolia can attract much needed technology and capital for ensuring employment-intensive growth, particularly in manufacturing and agriculture through further reforms in infrastructure. Government should also make serious attempts to channel the greater proportion of mining revenue towards improving infrastructure (both soft and hard) and governance, which are crucial to facilitate trade and investment. While these results are interesting, they must be interpreted with some caution. One area of concern is the lack of disaggregated data to examine the determinants of FDI inflows by sectors as they can vary from sector to sector. As data becomes available, future studies may investigate the sectoral determinants of FDI and validate our findings.

REFERENCES

- Ang, J.B. (2006). Determinants of Foreign Direct Investment in Malaysia. *Journal of Policy Modeling*, 30(1), pp. 185-189.
- Bhavan, T., Changsheng, X. and Chunping, Z. (2011). Determinants and Growth Effect of FDI in South Asian Economies: Evidence from a Panel Data Analysis. *International Business Research*, 4(1), pp. 43-50.
- Batchuluun, A. (2011). An Analysis of Mining Sector Economics in Mongolia. *Global Journal of Business Research*, 4(4), pp. 81-93.
- Buckley, P.J., Clegg, L.J., Cross, A.R., Liu, X., Voss, H. and Zheng, P. (2007). The Determinants of Chinese Outward Foreign Direct Investment. *Journal of International Business Studies*, 38, pp. 499-518.
- Corden W.M. and Neary J.P. (1982). Booming Sector and De-industrialisation in a Small Open Economy. *The Economic Journal* 92(December), pp. 825-848.
- Cuyvers, L., Soeng, R., Plasmans, J. and Bulcke, D.V.D. (2011). Determinants of Foreign Direct Investment in Cambodia. *Journal of Asian Economics*, 22, pp. 222-234.
- Davaakhuu, O., Sharma, K. and Bandara, Y. (2014). Foreign Investment in Transitional Economy: Lessons from the Experience of Mongolia. *Global Business Review*, 15(4).
- Demirbag, M., Tatoglu, E. and Oyungerel, A. (2005). Patterns of Foreign Direct Investment in Mongolia, 1990-2003: A Research Note. *Eurasian Geography and Economics*, 46(4), pp. 306-318.
- Dunning, J.H. (1993). *Multinational Enterprises and the Global Economy*. Wokingham: Addison-Wesley.
- FIFTA (2009 and 2011). FIFTA Online Database. <http://www.investmongolia.com/fiftanew/index.php?lang=Eng>
- Galego, A., Vieira, C. and Vieira, I. (2004). The CEEC as FDI Attractors. A Menace to the EU Periphery? *Emerging Markets Finance and Trade*, 40(5), pp. 74-91.
- Kaynak, E., Demirbag, M. and Tatoglu, E. (2007). Determinants of Ownership-based Entry Mode Choice of MNEs: Evidence from Mongolia. *Management International Review*, 47(4), pp. 505-530.
- Krugman, P. (2001). Fire-sale FDI. In S. Edwards (Ed.) *Capital Flows and the Emerging Economies*. Chicago: Chicago University Press.

- Milne, E., Leimone, J., Rozwadowski, F., & Sukachevin, P. (1991). The Mongolian People's Republic: Toward a Market Economy. IMF. Occasional Paper. Washington DC.
- National Statistical Office of Mongolia (NSO) (1992). *Mongolian Economy in 1991*. Statistical Yearbook. Ulaanbaatar.
- National Statistical Office of Mongolia (NSO) (2004). *Mongolia in a Market System*. Statistical Yearbook. Ulaanbaatar.
- National Statistical Office of Mongolia (NSO) (2008). *Mongolian Statistical Yearbook 2008*. Ulaanbaatar.
- National Statistical Office of Mongolia (NSO) (2011). *Mongolian Statistical Yearbook 2011*. Ulaanbaatar.
- Oh, J. and Tumurbaatar, O. (2011). Mongolia's International Trade: Impact of its Geographical Location. Working Paper. International University of Japan. Economic and Management Series. EMS-2011-2.
- Rasiah, R. and Malakolunthu, A. (2009). Technological Intensities and Economic Performance: A Study of Foreign and Local Electronics Firms in Malaysia. *Asia Pacific Business Review*, 15(2), pp. 181-197.
- Reeves, J. (2011). Resources, Sovereignty and Governance: Can Mongolia Avoid the Resource Curse? *Asian Journal of Political Science*, 19(2), pp. 170-185.
- Saripalle, M. (2008). The Indian Auto Component Industry: Competing Through Costs or Capabilities? *IIMB Management Review (Indian Institute of Management Bangalore)*, 20(4), pp. 358-373.
- Sharma, K., Oczkowski, E. and Jayasuriya, S. (2001). Liberalisation, Export Incentives, and Trade Intensity: New Evidence from Nepalese Manufacturing Industries. *Journal of Asian Economics*, 12, pp. 123-135.
- Sharma, K. and Y. Bandara (2010). Trends, Patterns and Determinants of Australian Foreign Direct Investment. *Journal of Economic Issues*, 44(3), pp. 661-676.
- UN Databases (2012) Online database accessed 1 March 2013, <http://www.un.org/en/databases/>.
- UNCTAD (2008). *World Investment Report 2008. Mongolia: Country Fact Sheet*. New York and Geneva: United Nations, United Nations Publication.

- UNCTAD (2011). *World Investment Report 2011. Non-equity Modes of International Production and Development*. New York and Geneva: United Nations.
- UNESCAP (2006). *Traders' Manual for Landlocked Countries: Mongolia*: United Nations.
- Urata, S. and H. Kawai (2000). The Determinants of the Location of Foreign Direct Investment by Japanese Small and Medium-sized Enterprises. *Small Business Economics*, 15, pp. 79-103.
- World Bank (2013). World Development Indicators. Washington, D.C: World Bank. Online version accessed 2 February 2013, <http://data.worldbank.org/country/mongolia>
- World Bank (2009). *Doing Business 2010. Mongolia*. Washington, D.C: World Bank.
- World Bank (2014). World Bank Commodity Price Data (The Pink Sheet). *Prospects-Commodity Markets*. Online version accessed 3 March 2013, <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDEC/PROSPECTS/0,,contentMDK:21574907~menuPK:7859231~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>

Appendix 1. Measurement of Variables and Data Sources.

Variables	Measurement and Data Sources
Foreign Direct Investment (FDI)	Real FDI inflows in US\$. Data Source: FIFT online database.
Size of the market (GDP)	Size of the market is estimated by per capita real GDP. Data Source: UN Databases (available at http://www.un.org/en/databases/).
Market growth rate (MGR)	MGR is proxied by growth rate in real GDP. Data Source: UN Databases (available at http://www.un.org/en/databases/).
Infrastructure (INFRA)	INFRA is proxied by electricity consumption. Data Source: World Bank (2013) (available at http://data.worldbank.org/country/mongolia).
Openness (OPEN)	OPEN is estimated as the ratio of merchandise trade to GDP. Data Source: World Bank (2013) (available at http://data.worldbank.org/country/mongolia).
Economic stability (ES)	ES is measured by budget deficit or surplus as a percentage of GDP. Data Source: NSO 1992, 2004 and 2008.
Geographic distance (DIST)	DIST is proxied by the distance between Mongolia and source country in kilometres. Data Source: Oh and Tumurbaatar (2011).
Growth in Chinese economy (GROCHI)	Growth in the Chinese economy is proxied by GDP growth. Data Source: World Bank (2013) (available at http://data.worldbank.org/country/mongolia).
Global commodity price boom (COMPRICE)	Global commodity price hike is measured by international price data for coal and copper, real 2010 US\$. These two products together account for over 62% shares in Mongolia's total exports by 2012. Data Source: World Bank (2014).