Explaining Mongolian Economic Performance in Transition: The Results of a Capital Investment Analysis

Enkhbayar Shagdar, Ph.D., Associate Senior Researcher

Research Division and External Relations Division, ERINA

1. Introduction

Developing economies place great importance on capital accumulation, emphasizing the need to raise the level of investment in relation to output, and many development economists see investment as the single most important factor in the growth process. The analyses of economic policy and the performance of the Mongolian economy during the first decade and a half of economic transition from the centrally planned command economy to a market-oriented one showed that after experiencing an initial sharp contraction, the Mongolian economy has been on the path of economic recovery since 1994, but this recovery has been a slow one. Despite the persistent stability of the macroeconomic indicators, the overall economy was able to return to its pre-transition level only after 13 years of this course; but in per capita terms, this level still has not been achieved even after 15 years. The country's GDP was able to exceed its 1989 level by just 2% in 2002; but per capita GDP was still 4.9% below the 1989 level in 2004.

Accordingly, it is essential to understand the underlying factors and causes of this stagnant economic performance. In order to elaborate upon this issue, the role of capital investment during the 1990-2004 Mongolian economic transition is examined in this paper. For comparison, the analysis also includes the planned - or pre-transitional - period of 1981-1989.

2. Growth and Investment Before and After the Transition

The Mongolian economy experienced fairly stable and high growth rates in the 1980s, when the country had a centrally planned command economy. Average annual GDP growth was 6.0% during the period 1981-1989. Capital accumulation for this period accounted for 59.1% of GDP on average, whereas final consumption accounted for 81.2%, and gross domestic savings accounted for 18.8% of the country's GDP on average during the period. Due to the large presence of activity by the government and non-profit institutions serving households (NPISH) in the economy, the share of government consumption was comparatively large, accounting for 31.1% of total GDP. Net exports were continuously negative during the period, accounting for 40.3% of total GDP on average (Table 2.2). This means that domestic savings were far too small to finance investment, so Mongolia had to rely heavily on foreign sources to finance its investment. The main sources were the former Soviet Union and other socialist countries. The major historical characteristics of the Mongolian economy prior to the transition period are shown in Box 2.1 and Table 2.1.

There was a much greater acceptance of planning that interfered with the market mechanism in developing

Table 2.1 Mongolia: Selected Indicators, 1940-1989

(at constant 1986 prices)

Indicators	1940	1960	1970	1980	1989
Gross National Product (GNP), million MNT	955.8	3,581.2	5,752.3	10,895.7	18,883.3
GNP Growth[*], annual, period average, %	-	13.7	6.1	8.9	8.1
Gross Industrial Product (GIP), million MNT	116.5	715.4	1,875.6	4,846.3	9,181.9
GIP Growth[*], annual, period average, %	-	25.7	16.2	15.8	9.9
Share of GIP in GNP, %	12.2	20.0	32.6	44.5	48.6
Gross National Income (GNI, million MNT)	554.0	2,097.1	2,726.1	4,939.8	8,461.9
GNI Growth[*], annual, period average, %	-	13.9	3.0	8.1	7.9
Gross Capital, million MNT	1,350.8	2,752.8	6,409.8	15,669.8	33,331.6
Average Capital Output Ratio[*] (K/Y)	2.4	1.3	2.4	3.2	3.9
Employees, thousands	242.8	418.0	387.4	511.2	633.2
Labor Productivity, national, by GNI, thousand MNT	2.4	5.8	8.7	12.7	18.7
Growth[*] of Labor Productivity, national, annual, period average, %	-	7.1	5.0	4.6	5.2
Labor Productivity, industrial, by GNI, thousand MNT	2.8	4.0	8.9	19.3	24.2
Growth[*] of Labor Productivity, industrial, annual, period average, %	-	2.1	12.3	11.7	2.8

Notes: 1. MNT (Mongolian tugrug)- local currency unit;
        2. *Author's estimate based on the data provided.
Source: Namjim, 2000a.

Box 2.1 *The major historical characteristics of the Mongolian economy prior to 1989*

Following the collapse in the mid 17th century of the Mongol Empire, which was established by Chinggis Khan [Genghis Khan] in 1206, Mongolia was under Qing (Manchu) rule for almost 250 years. Mongolia gained its independence in 1911, but was unstable and the resulting instability permitted Chinese military commanders and White Russian soldiers to meddle in the country's affairs from 1915 to 1921. The Mongolian economy during these periods was characterized by the feudal system, which had its origins in the early 13th century. Mongolia became a socially-oriented state from 1924, following the Mongolian People's Revolution of 1921 with the backing of Russian Communists. Between 1921 and 1924, Mongolia was a theocratic state headed by Bogd Khan, in which rights were limited to religious matters only.

Mongolia began to implement a centrally planned economy in 1941. The government passed a decree approving an annual socio-economic development plan, which incorporated all sectors of the economy. Soon after the Second World War, it was decided to introduce a five-year planning period. The First Five-Year Plan was adopted in 1947 for the period 1948-1952; and altogether eight five-year plans were implemented up to 1990. More detailed annual plans were also prepared, based on these five-year plans. Moreover, a long-term development forecast for the subsequent 10-20 year period was also developed under these plans, named the "General Scheme" and "Targeted Program".

The plans consisted of sections relating to the population and labor force; household consumption; measures aimed at expansion and strengthening the socio-economic base, including the investment structure, new construction and technology transfer; the development of the production and service sectors; the improvement of living standards and the development of social infrastructure; science and environmental protection measures; foreign trade and foreign economic relations; and macroeconomic indicators and balancing. Starting from the mid-1980s, the overly centralized character of planning began to weaken, and direct state orders for the production and sale of more than 2,000 items were abolished, except for 20 export items and those considered as necessities for the population. The production and sale of the remaining products began to be regulated by market demand and contracts between producers and suppliers (Namjim, 2000a).

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countries after the Second World War, when Mongolia moved to a policy of central planning for its economic development. However, planning in Mongolia, as in many other countries, fell into disarray in the mid 1980s. Nevertheless, as noted in Thirlwall (2003) "It should never be forgotten, however, that no country in the world ever made such a swift economic advance in such a short space of time as the Soviet Union did after 1918, through a planned allocation of resources that favoured investment at the expense of consumption" (p.7). Similarly, Mongolia also made significant advances in its economic development during the planned-economy period (Table 2.1).

However, after the country's economic transition process began in the early 1990s, GDP growth slowed down and a remarkable change was observed in the expenditure composition of GDP. The annual average GDP growth rate during the period 1990-2004 fell to just 1.3%, a reduction of 4.7 percentage points compared with the pre-transition period 1981-1989. Although the share of final consumption as a percentage of GDP remained relatively the same, the shares of both government and NPISH consumption, investment shrank almost twofold during the transition period.

The average share of government consumption for this period decreased to 16.5% of GDP from the 31.1% of the pre-transition period 1981-1989. At the same time, the share of household consumption increased to 63.1% of total GDP in 1990-2004 from 50.1% in 1981-1989. In other words, the shares of government and NPISH consumption decreased by 14.6 percentage points, while that of household consumption increased by 13.0 percentage points. Accordingly, the total percentage share of final consumption in GDP fell by 1.6 percentage points in the latter period, thereby resulting in a modest increase in

domestic sources financing investment.

However, the share of investment as a percentage of GDP fell markedly for 1990-2004, to 30.7% - almost half of its pre-transition level. At the same time, net exports continued to remain negative, with their share decreasing to 10.2% of GDP, a reduction of three quarters, or 75%, from the pre-transition level. Accordingly, this directly resulted in substantial reductions in investment. This implies that such reductions in investment during this period were primarily associated with the lower levels from foreign sources as compared to the levels of the pre-transition period (Table 2.2).

A. Period of Transitional Shocks: 1990-1993

The Mongolian economy was hardest hit by transitional shocks during the period 1990-1993, when the economy underwent an annual contraction of 6.1%. Although the annual average level of total consumption remained at a similar level to that of the pre-transition period, the share of government and NPISH consumption during these four years fell by almost 60%, accounting for 18.1% of GDP. This was an indication of the rapid pace of the reform and privatization processes. While gross domestic saving increased slightly to 19.4% of GDP, investment as a percentage of GDP almost halved to 29.6%, the lowest level during the period studied. This was associated with the almost complete withdrawal of large financial inflows from Mongolia's former donors: the former Soviet Union and other Comecon countries. Although Mongolia began to receive ODA and other financial assistance from its new donors in 1991, the scale was substantially smaller than the level during the pre-transition period. Net exports continued to be negative, falling to 10.2% of GDP (Table 2.2).

During these years, public sector investment

**Table 2.2   Mongolia: GDP Growth and Composition by Expenditure,
1981-2004 (%)**

Year	GDP Growth	Final Consumption	Final Consumption Breakdown		Gross Capital Formation	Gross Domestic Saving	Net Exports
			Household Consumption	Government & NPISHs Consumption			
1981	6.1	77.2	46.1	31.1	70.0	22.8	47.2
1982	8.3	68.0	38.8	29.2	70.2	32.0	38.2
1983	5.8	77.8	48.9	28.9	58.0	22.2	35.8
1984	5.9	78.1	48.6	29.5	57.8	21.9	35.9
1985	5.7	78.7	48.7	30.0	62.8	21.3	41.5
1986	9.4	87.4	54.6	32.8	63.9	12.6	51.3
1987	3.5	90.6	57.9	32.7	50.8	9.4	41.4
1988	5.1	90.8	57.7	33.1	46.8	9.2	37.6
1989	4.2	82.4	49.8	32.6	51.2	17.6	33.6
Average 81-89 (a)	6.0	81.2	50.1	31.1	59.1	18.8	40.3
1990	2.5	89.7	67.1	22.6	33.4	10.3	23.1
1991	9.2	80.6	63.3	17.3	31.6	19.4	12.2
1992	9.5	74.8	60.4	14.3	28.8	25.2	3.6
1993	3.0	77.4	59.2	18.2	24.6	22.6	2.0
1994	2.3	79.1	59.5	19.6	22.1	20.9	1.2
1995	6.3	71.5	59.2	12.3	29.6	28.5	1.1
1996	2.4	78.7	64.7	13.9	29.0	21.3	7.7
1997	4.0	68.6	55.9	12.6	25.9	31.4	5.5
1998	3.5	79.8	63.0	16.8	32.8	20.2	12.6
1999	3.2	78.7	63.0	15.8	34.1	21.3	12.8
2000	1.1	82.1	65.7	16.5	33.2	17.9	15.3
2001	1.0	84.6	67.1	17.5	32.4	15.4	17.0
2002	4.0	89.8	72.0	17.8	30.1	10.2	19.9
2003	5.6	82.5	66.2	16.4	35.9	17.5	18.4
2004	10.7	75.7	60.5	15.2	36.5	24.3	12.2
Average 90-04 (b)	1.3	79.6	63.1	16.5	30.7	20.4	10.2
Difference in the averages for the two periods (b-a)	4.7	1.6	13.0	14.6	28.4	20.4	30.0
Average 1990-1993	6.1	80.6	62.5	18.1	29.6	19.4	10.2
Average 1994-2004	4.0	79.2	63.3	15.9	31.1	20.8	10.2
Average 1981-2004	3.1	80.2	58.2	21.9	41.3	19.8	21.5

Notes: 1. Negative values are shown in parentheses.
Sources: World Bank, 2005b; Mongolian Statistical Yearbooks.

underwent major changes in terms both of scale and sectoral allocation, and the investment program was seen primarily as supporting private sector investment and production by focusing on the maintenance and development of infrastructure. The scale was determined by the availability of domestic and foreign financing. Accordingly, a comprehensive investment review was initiated in 1991, and budgetary support was subsequently terminated for projects that did not meet efficiency standards and rate-of-return criteria. The investment priorities were updated each year through coordination between key ministries and the central bank, the Bank of Mongolia. The authorities prepared a well-targeted medium-term program, with World Bank help, for a presentation to donor participants in the Mongolia Assistance Group Meeting (it was later renamed the Mongolia Consultative Group Meeting (CG))[1] (IMF, 1996).

B. Period of Recovery from Transitional Shocks; 1994-2004

Following four years of transitional shock, the Mongolian economy began to experience a steady recovery from 1994, with annual average GDP growth amounting to 4.0% during 1994-2004. Final consumption shrank further to 79.2%, which was a fall of 0.6 percentage points from 1990-1993 and 2 percentage points from the pre-transition period. Government and NPISH consumption fell further to 15.9% of GDP. This indicates that the amount of goods and services purchased by the government almost halved compared with the pre-transition level, due to further intensification of structural reforms and the privatization of state-owned assets.

Gross domestic saving as a percentage of GDP increased slightly to 20.8% - an increase of 1.4 percentage points on the transitional shock period - while the share of gross capital formation increased by 1.5%. At the same time, net exports remained at the same negative level, accounting for 10.2% of GDP (Table 2.2).

The World Bank (1994c) noted that public investment programs after 1994 would mostly rest "...on the availability of domestic resources which, in turn, will depend on the trajectory of international prices (especially copper) and the pace of economic recovery. Implementation of the program will need to be cognizant of the possibility of sudden resource shortfalls" (p.30). The inter-sectoral allocation of resources was governed by the need to repair critical physical infrastructure and improve the productivity of existing and future investments. Therefore, the investment program emphasized power rehabilitation, transport improvement and telecommunications, with over 70% of resources being allocated to these sectors (World Bank, 1994b).

3. Comparison with Other Developing and Transition Economies

The Mongolian economy experienced both planned economy and transition to a market-oriented economy during the period 1981-2004[2]. Mongolia practiced a neo-liberal "shock therapy" policy in its economic transition, in contrast to the gradual transitional policies pursued in some other former planned economies, such as China. However, one can argue that the period as a whole was not a discontinuous one, and it would be worth assessing the overall performance of the country's economic development over the last quarter of a century. In order to demonstrate the country's relative performance in comparison with other developing and transition economies over the same period, the development indicators of several countries and regions were selected (Tables 2.3 and 2.4).

Although there were different policies and different environments governing the countries' economic development paths that resulted in different outcomes during the period in question, the following major observations can be made:

○ Mongolia's annual average GDP growth was modest, amounting to 3.1% over the past 24 years, which was the same level of growth reported for the least developed countries (LDC) group as classified by the UN. It was a slightly better performance than those of Latin America and the Caribbean, and Sub-Saharan Africa, but lower than in the low-income countries. However, it was 2.5-3.1 times lower compared to countries in East Asia and the Pacific, and China (Table 2.3);

○ Per capita GDP experienced an annual average reduction of 0.3% over the period, a similar trend to that experienced by the countries of Sub-Saharan Africa (SSA). As a result, the country's per capita GDP in 2003 was 10% lower than its level in 1981. At the same time, the countries of East Asia and the Pacific, in particular China, achieved substantial progress in increasing their per capita incomes almost fourfold and sixfold, respectively. The per capita GDP of the East Asia and the Pacific countries, and China experienced annual increases of 6.3% and 8.3%, respectively, over the period.

Mongolia's 1981 per capita GDP was 1.8 times higher than that of the low-income countries. It was also 1.8 times and 2.7 times higher than that of the East Asian and Pacific countries, and China, respectively. As noted by Kaser (1991), in 1988, "GNP per capita was $658, making Mongolia the wealthiest socialist state in Asia, but the poorest in what was the Comecon group" (p.95). However, the economic turmoil that Mongolia experienced after 1990 undermined the economic advances it attained prior to transition; and

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[1] Initiated by the Japanese government in 1991, there were ten CG meetings until 2004; Japan has hosted seven of these. After the 10th GC meeting held in Tokyo in 2003, the status changed to that of a Technical Meeting, the objective of which is to establish a six-monthly dialogue between the Mongolian government and external partners concerning development results, key government actions, and the alignment of external partner assistance.

[2] Owing to availability of data for other selected countries and regions, data for the comparative analysis are for the period 1981-2003.

Table 2.3 GDP Growth and Per Capita GDP for Selected Countries and Regions;
1981-2003

Countries and Regions	GDP Growth, (annual average %)	GDP Per Capita			
		Constant 2000 US$		Change, as ratio	Average annual growth, %
		1981	2003	2003/1981	
Mongolia	3.1	481.8	423.8	0.9	(0.3)
China	9.6	179.8	1,067.4	5.9	8.3
Russia*	(1.6)	2,693.1	2,138.3	0.8	(1.3)
East Asia & the Pacific	7.7	270.2	1,049.6	3.9	6.3
Europe & Central Asia*	0.2	2,307.0	2,281.1	1.0	0.0
Latin America & the Caribbean	2.0	3,527.6	3,764.6	1.1	0.2
Least developed countries (UN classification)	3.1	254.4	309.2	1.2	0.8
Low-income	4.5	265.3	432.4	1.6	2.2
Sub-Saharan Africa	2.2	577.8	513.7	0.9	(0.5)
World	2.8	3,999.1	5,345.2	1.3	1.3

Notes: 1. *the starting year for the period is 1989; 2. Negative values are shown in parentheses.
Source: World Bank, 2005b.

Table 2.4 Selected Indicators for the Period 1981-2003, (annual averages)

Countries and regions	General Government Final Consumption Expenditure	Gross Capital Formation	Gross Domestic Savings	Net Exports of Goods and Services	Gross FDI	Total Debt Service
	(% of GDP)					(% of GNI)
Mongolia[1]	16.5	40.7	16.6	(24.1)	2.9	6.0
China	12.9	37.5	38.8	1.3	3.2	1.8
Russia[2]	17.7	24.1	32.3	8.2	1.9	3.1
East Asia & the Pacific	12.3	34.4	35.5	1.1	2.9	4.4
Europe & Central Asia[2]	16.8	23.5	23.1	(0.4)	3.1	5.7
Latin America & the Caribbean	12.3	20.4	21.1	0.7	2.2	9.0
Least developed countries (UN classification)	10.1	17.7	8.5	(9.4)	1.5	3.1
Low-income	11.8	21.0	17.7	(3.3)	0.9	3.6
Sub-Saharan Africa[3]	16.6	18.6	17.7	(0.9)	2.0	4.8
World	16.8	22.6	22.5	-	3.1	-

Notes: 1. The starting year for general government final consumption expenditure data is 1990, and 1993 for FDI and debt servicing data; 2. Data are for the period from 1989; 3. Total debt service data are for the period from 1994; 4. Negative values are shown in parentheses.
Source: World Bank, 2005b.

the country returned to the low-income-country group as a result of its income level (Table 2.4);

○ Gross domestic savings accounted for 16.6% of GDP on average during the period, while cross capital formation equalled 40.73%. Therefore, Mongolia was heavily reliant on foreign sources to finance its investment, which were responsible for more than half of its investment funding. It was the highest level in the world and 2.6 times higher than that of the LDC. Accordingly, net exports remained negative during the period as a whole, accounting for 24.1% of GDP. Therefore, it can be said that the reductions in the share of investment as a percentage of GDP during the period of transition were mainly associated with reduced sources of foreign financing, embodied in the smaller-than-previous share of negative net exports (Table 2.4).

○ Government and NPISH consumption accounted for 16.5% on average during 1990-2004, which was around the world average level. Similar levels were observed in the other transition economies in Europe and Central Asia[3], and Sub-Saharan Africa as well. However, this level was 4.7-6.4 percentage points higher than that of the LDC and low-income countries, and 4.2 percentage points higher than those of the East Asian and Pacific countries, and China. It is interesting to note that, in terms of the share of general government and final consumption expenditure as a percentage of GDP, Russia had the highest level, accounting for 17.7%; although similar to Mongolia's, its economy has undergone a speedy transition to a market-oriented one since the beginning of the 1990s (Table 2.4);

○ Gross FDI amounted to 2.9% during the period, which was at the same level as the countries in East Asia and the Pacific and slightly lower than the countries of Europe and Central Asia, i.e., the other economies in transition, where it stood at 3.1% the global average. Nevertheless, this level was 2-3.2 times higher than the levels of the LDC and low-income countries, indicating Mongolia's relative attractiveness for FDI compared with these countries (Table 2.4);

○ Mongolia's total debt servicing during 1993-2003 accounted for 6% of its GNI per annum, which was the second highest level among the selected countries and regions, behind the Latin American and Caribbean countries. It was 5.7% for other transition countries in Europe and Central Asia, while levels in China and Russia were 1.8% and 3.1%, respectively. At the same time, the LDC and low-income countries group, to which Mongolia belonged due to its income level, had levels of debt servicing as a percentage of GNP that were around half of the Mongolian level. This indicates that Mongolia's high level of debt servicing may become a burden on the country's economic development, unless an appropriate policy is implemented without delay, focusing on improved utilization of aid and creating sources for income

generation (Table 2.4);

○ In general, Mongolia was unable to advance economically during the period 1981-2004. Unfortunately, the economic advances attained prior to transition were undermined in the course of the transition towards a market-oriented economy. Therefore, the Mongolian economy has been locked in a development trap over that period, and one can argue that this was "a lost quarter century" for the country's economy.

4. Capital Investment Analysis Results

Economic history and economics teach us that an economy develops when there is an accumulation of capital or sufficient capital investment that allows more efficient production of goods. However, despite its extensive use in economic analyses, the neo-classical (Solow's model or Romer's model) and endogenous growth theories seem to be unproductive as they are based on some propositions not necessarily applicable to the Mongolian economy. For example, the widely used neo-classical production function is "...supply-oriented, supply-driven, closed economy models unsuitable for the analysis of open economies in which foreign exchange is invariably a scarce resource acting to constrain the growth process" (Thirlwall, 2002, p.28). Moreover, the factors of production, capital and labor are restricted to a constant unitary elasticity of substitution between one another and they are, along with technological progress, treated as exogenously determined, and unresponsive to demand. In addition, there is a simply presumed, but unproven, long-term steady-state equilibrium, at which all countries across the world would converge in terms of per capita income, given identical preferences and technology among countries, which is not the case.

Therefore, the Harrod-Domar growth model was used in analyzing the role of capital in Mongolian economic growth during the period being studied. This model has played a major part in the thinking on development issues and it is still widely used as a planning framework in developing countries (Thirlwall, 2002). Harrod's 1939 model was an extension of Keynes's static equilibrium analysis and three different growth concepts were introduced. These are described below.

A) The actual growth rate (ga), which is defined as the ratio between the savings rate and the incremental capital-output ratio. The incremental capital-output ratio is the amount of extra capital accumulation or investment associated with a unit increase in output.

B) The warranted growth rate (gw) keeps capital fully employed, so that there is no overproduction or underproduction, and therefore manufacturers are willing to continue to undertake investment in the future at the same rate as in the past. For dynamic equilibrium, output must grow at this

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[3] The Europe and Central Asia regional aggregate does not include high-income economies; the economies included are all former socialist countries in Eastern Europe, the former Soviet republics and Turkey. Therefore, this group can be used to represent the economies in transition in this region.

Table 2.5 Main Implications of the Harrod-Domar Growth Model for a Developing Economy

Relationship between growth rates	Characteristics of the state	Consequences		Period(s) Observed in Mongolia[*]
g_a g_w g_n	"The Golden Age"	Full employment of both capital and labor		1981-1989
g_a g_w	Dynamic equilibrium	Expenditure on consumption goods equals the production of consumption goods; entrepreneurs are satisfied with what they are doing and have no reason to revise their investment plans		1981-1989
g_a g_n	1.Long-run full employment equilibrium 2.The upper limit of the actual growth rate	Full employment of labor		1981-1989 1994-2004
g_a g_w	Plans to invest exceed plans to save	Actual growth rate is pushed even further above the warranted rate		-
g_a g_w	Plans to invest are less than plans to save	Actual growth rate will fall further below the warranted rate		1990-2004 1994-2004 1981-2004
g_n g_w	1. The effective labor force is growing faster than capital accumulation	With fixed coefficients of production, there will be *unemployment* of the structural variety	Co-existence of unemployment and inflation	-
	2. Plans to invest will exceed plans to save	*Inflationary* pressure		
g_n g_w	Too much capital and too much saving	A chronic tendency towards depression as the actual rate of growth will never be sufficient to stimulate investment demand to match the amount of saving at full-employment equilibrium		1990-2004 1994-2004 1981-2004
Conclusion	*Any departure from equilibrium will be self-aggravating, instead of being self-righting (Thirlwall, 2002).*			

Note: [*]**Evaluated by the author.**
Source: Summarized from Thirlwall, 2002, 2003.

rate; otherwise, the economic system will be cumulatively unstable.

C) <u>The natural rate of growth (gn)</u> is that which result in full employment of labor. This is made up of two exogenous components: (i) growth of the labor force; and (ii) growth of labor productivity. This gives the growth of the labor force in efficiency units. If all labor is to be employed, the actual growth rate must match the natural rate and if the actual growth rate falls below the natural rate, there will be growing unemployment of the structural variety.

"The natural rate of growth plays an important role in Harrod's growth model in two respects. First, it defines the rate of growth of productive capacity or the long-run full employment equilibrium rate. Second, it sets the upper limit to the actual growth rate, which brings cumulative expansion in the Harrod (trade cycle) model to a sticky end" (Thirlwall, 2003, p.139). Therefore, it is argued that the growth rate cannot be greater than the natural rate of growth in the long run, when all available labor has been completely absorbed. Accordingly, the long-term question

for an economy is the relationship between the growth of capital and the growth of the labor force measured in efficiency units. With fixed coefficients of production, the full employment of labor and capital requires that all three rates, the actual growth rate, the warranted growth rate and the natural rate of growth, be equal. This is "a state of affairs that the famous Cambridge economist Joan Robinson once called a 'Golden Age' to emphasise its mythical nature, because there is nothing in the Harrod model that would automatically generate this happy coincidence" (Thirlwall, 2003, p.140).

In most developing countries, the natural growth rate exceeds the warranted rate, implying that the effective labor force is growing faster than capital accumulation, which is part of the explanation for growing unemployment in developing countries. On the other hand, it implies greater plans to invest than plans to save, leading to inflationary pressure. Accordingly, the simultaneous existence of inflation and high unemployment in developing countries is not a paradox. There are four ways, in which the natural and warranted rates of growth might be reconciled; (1) measures directed at controlling population size as a contribution to

Table 2.6 Estimated Indicators from the Harrod-Domar Growth Model for Mongolia

Periods	Incremental Capital-Output Ratio (ICOR)	Savings Ratio, (MPS)	Productivity of Capital	Growth of Working-Age Population, %	Growth of Productivity of Working-Age Population, %
1981-1989	9.78 (12.31)	0.57 (20.87)	0.098 (3.55)	2.58	3.33
1990-2004	1.99 (1.40)	0.31 (30.48)	0.062 (1.40)	2.39	-1.04
1990-1993	-3.50 (-2.86)	0.30 (16.07)	-0.209 (-2.87)	1.91	-7.84
1994-2004	5.64 (5.44)	0.32 (25.52)	0.133 (5.45)	2.56	1.44
1981-2004	4.41 (3.56)	0.40 (14.45)	0.083 (3.55)	2.49	0.48

Notes: 1. The numbers in parentheses are the t-values of the estimated coefficients.

solving the unemployment problem; (2) a reduction of the labor productivity growth rate although this would reduce the improvement of the standard of living of those in work - consequently there is a clash between employment and efficiency; (3) the rising savings ratio could narrow the gap; and (4) reduce the required capital-output ratio through the use of more labor-intensive techniques (Thirlwall, 2003).

Some of the main implications of the Harrod-Domar model are provided in Table 2.5. In general, the model concludes that an economy does not attain full employment and stable growth rates naturally, similar to Keynesian beliefs. Therefore, economic growth depends on policies to increase saving, and thus investment, as well as the extent to which that investment is being used efficiently; accordingly, it suggests that investment is used more effiiciently through technological advances.

However, there are also certain criticisms of the model as well. The main criticism is the level of assumption used in the model, one example being that there is no reason why growth should be sufficient to maintain full employment. This is based on the belief that the relative price of labor and capital is fixed, and that they are used in equal proportions. Moreover, the model explains economic boom and recession under the assumption that investors are only influenced by output, known as the accelerator principle. However, this is now widely believed to be untenable.

In terms of development, criticisms include the fact that the model sees economic growth and development as one and the same. However, in reality, economic growth is only one part of development. Another criticism is that the model implies that poor countries should borrow more to finance investment in capital to trigger economic growth. However, history has shown that this often causes repayment problems later, which may hamper further economic growth leading to a "vicious cycle".[4]

Based on the Harrod-Domar Growth Model described above, the warranted and natural growth rates for Mongolia were estimated for several selected periods within 1981-2004 as shown below:

- Planned economy or pre-transition period 1981-1989;
- Transition period 1990-2004;
- Period of the transitional shocks 1990-1993;
- Period of recovery from the transitional shocks 1994-2004;
- The combined pre- and post-transition period 1981-2004.

The actual rate of growth for the period was estimated as the average value of the annual observed or actual growth rates. The results are provided in Tables 2.6 and 2.7.

It was estimated that the incremental capital-output ratio was highest during the pre-transition period of 1981-1989, reaching 9.78. The savings ratio was 0.57, or 57%, during the period; however, domestic savings accounted for just one-third of that. At the same time, the productivity of capital was also higher, but below the level observed during 1994-2004. The growth rates in the working-age population and its productivity reached their highest levels during the period observed, standing at 2.58% and 3.33% per annum, respectively.
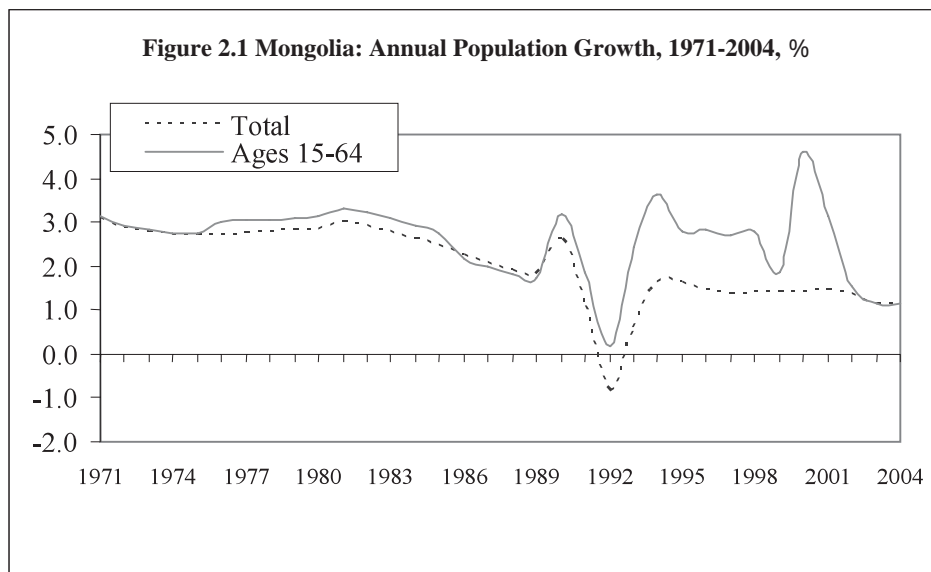
Accordingly, the actual rate of growth during the pre-transition period was more or less equal to the warranted and natural growth rates, which were about 6% per annum. It was a dynamic-equilibrium economic growth rate, which

Table 2.7 Estimated Growth Rates from the Harrod-Domar Growth Model for Mongolia, %

Periods	Actual Rate of Growth, g_a	Warranted Rate of Growth, g_w	Natural Rate of Growth, g_n	Divergences		
				g_a-g_w	g_a-g_n	g_w-g_n
1981-1989	5.99	5.84	5.91	0.14	0.08	0.06
1990-2004	1.32	15.78	1.35	(14.45)	(0.03)	(14.42)
1990-1993	(6.07)	(8.62)	(5.93)	2.55	(0.13)	2.68
1994-2004	4.01	5.64	4.00	(1.62)	0.01	(1.63)
1981-2004	2.95	8.98	2.94	(6.03)	0.01	(6.04)

Notes: 1. Negative values are shown in parentheses.

[4] A "vicious cycle"or "vicious circle" being a cycle in which one problem leads to another, which in turn aggravates the first problem.

Figure 2.1 Mongolia: Annual Population Growth, 1971-2004,

Sources: World Bank, 2005b; NSO, 2004, 2005.

maintained full employment of both capital and labor. As described in the model, expenditure on consumption goods equaled the production of consumption goods, and entrepreneurs were satisfied with what they were doing, having no reason to revise their investment plans. Therefore, given this "happy coincidence" of the growth rates defined in the Harrod-Domar model during this period, it could be claimed that this was a "Golden Age" for the Mongolian economy. On the other hand, it reflected the centrally-planned character of the economic policy of this period.

However, economic performance changed greatly after the transition. ICOR fell to 1.99, whereas the savings ratio declined to 0.31 or 31% during the period 1990-2004. Capital productivity also declined to 0.062, which was a fall of 36.7% on the pre-transition level. At the same time, the productivity of the working-age population experienced a decline of 1.04%, while the working-age population grew by 2.39% per annum. As a result, the actual annual growth rate fell to 1.32% during this period, while the warranted and natural growth rates were 15.78% and 1.35%, respectively. The growth of the working-age population was substantially higher during this period, despite the fall in total population growth (Figure 2.1). It was associated with the baby-boom periods of the 1960s and 1970s, when the country's annual population growth rate was one of the highest in the world[5]. As the estimations revealed, this poor performance of the Mongolian economy during the period 1990-2004 was associated with the initial economic hurdles of 1990-1993, which were caused by the rapid transitional shocks.

During the period 1990-1993, ICOR was -3.5, although the savings ratio was 0.30 or 30%, the lowest rate of all the periods observed. This implies that the investments

made during this period could not induce output growth. Furthermore, it was estimated that the productivity of the working-age population decreased by 7.84% per annum, the biggest fall among the periods observed. However, the working-age population grew by 1.91% annually, thus the unemployment rate was higher during this period. Accordingly, all three growth rates were negative during the period: the actual growth rate was -6.1%, whereas the warranted and natural growth rates were -8.6% and -5.9%, respectively.

However, after passing the hurdle of the economic shock, the economy has experienced a slow, but steady, recovery since 1994. ICOR returned to positive figures, reaching 5.64 per annum during the period 1994-2004. The savings ratio increased slightly to 0.32 or 32%. This increase was associated with a rise in domestic savings. However, the investment rate as a percentage of GDP did not increase much from the period of the transitional shock, due to the limited availability of foreign sources. As was mentioned earlier, net exports remained at the same level: 10.2% of GDP in both periods (Table 2.2). At the same time, the productivity of capital increased to 0.133, which was higher than that of the pre-transition period. This suggests that the efficiency of investment improved in a market-oriented environment compared to under the centrally-planned, command system.

During the period 1994-2004, the working-age population grew by 2.56% annually, while productivity returned to a positive rate of 1.44% per annum. As a result, the natural rate of growth was 4%, which was equal to the actual rate of growth of this period. It implies, first of all, that the rate of growth of productive capacity or the long-run full employment equilibrium growth rate of the Mongolian economy was 4%. This also reflects

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[5] Annual average population growth rates were 2.7% in Mongolia and SSA during 1961-1979, compared with 2.6% in Latin America & the Caribbean and 2.5% in the low-income countries and LDC. At the same time, East Asia and the Pacific, and Europe and Central Asia experienced 2.1% and 1.2% annual population growth, respectively, while the world average stood at 1.9% per annum (World Bank, 2005b).

the fact that the unemployment rate remained relatively unchanged during the period, although the reported official unemployment rate contained some inaccuracies. Secondly, it implies that the economy grew at the upper limit of its actual growth, according to the Harrod-Domar model (Table 2.5).

However, the warranted growth rate during the period 1994-2004 was estimated to be 5.64%, which exceeds both the actual and natural growth rates. It implies first of all that plans to invest were less than plans to save and the actual growth rate fell even lower than the warranted rate. Secondly, there was too much capital and too much saving, while capital was under-utilized. This shows that the Mongolian economy was experiencing a chronic tendency towards recession, as the actual rate of growth will never be sufficient to stimulate investment demand to match the amount of saving at full-employment equilibrium. This tendency was observed during the periods 1990-2004 and 1981-2004 (Table 2.7). Consequently, it appears feasible for Mongolia to increase the natural growth rate, by increasing population growth and labor productivity. Therefore, in contrast to other developing low-income countries, Mongolia needs to pursue a policy of increasing its population growth. Moreover, it is deemed to be essential to increase labor productivity through technological advances.

5. Conclusion

Mongolia underwent a rapid transition to a market-oriented economy by pursuing a neo-liberal shock-therapy policy. It was quick to dismantle its fifty-year-old centrally planned, command economic system and legal and institutional frameworks, and introduce market-oriented policies. However, cumulative growth during the transition was insufficient to bring the country out of the economic setbacks experienced in the initial years of the transitional shock. After a passage of more than a decade, the Mongolian economy has been locked in a development trap; and the economic advances attained prior to the transition have been undermined. Per capita GDP was still below its pre-transition level in 2004.

The capital investment analysis based on the Harrod-Domar growth model revealed that this poor growth performance was associated with reductions in capital investment resulting from insufficient sources of foreign funding, on which Mongolia had heavily relied during the pre-transition period. Moreover, it was revealed that the Mongolian economy was heading towards having a proneness to recession throughout the period under consideration, in both the pre-transition and transition periods. This was due to constraints resulting from the slowing growth in the population and in labor productivity.

Therefore, contrary to most other developing countries, it is necessary for Mongolia to pursue a policy of encouraging population growth and improving labor productivity. Essential policies for sustaining economic growth and bringing the country's economy out of its impasse include boosting investment in human resources, promoting education, securing the social safety net, and developing transfer of advanced, less labor-intensive technologies.

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ERINA   S.

1990

50

                                                                    GDP 2002   1989

            2004   GDP

                                            10

                                    1990   2004

                                                                            1941

                                                        1948   1952   1947

        1990

            1980   GDP   6.0   GDP   59.1

                                                        GDP   40.3
    1990   2004   GDP   30.7
                    GDP   10.2   75

                                                                [ERINA   ]