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Sectoral and Regional Labour Reallocation in Mongolia: Transition and Beyond

Enkhchimeg ENKHMANDAKH *

* *Kyoto University, Japan; enkhchimeg@msn.com, enkhmandakh.enkhchimeg.8s@kyoto-u.ac.jp*

Abstract: This paper aims to analyse Mongolia's labour market response to the market transition in the 1990s and its development throughout the 2000s. An initial look at employment figures from the early years of the transition reveals a minimal employment drop. This assumes that Mongolia's labour market trajectory is similar to the countries of the Commonwealth of Independent States (CIS). I argue that such characteristics were not due to large-scale labour hoarding, as in most CIS countries, but rather due to the multitudes of citizens in local cities becoming agricultural employees. I further argue that there has been a shift in the principal drivers of the economy and labour market since the early 2000s. This paper analyses the sectoral and regional labour reallocation throughout the 1990s and the 2000s to illustrate this. Additionally, employment elasticity to output is examined to determine the labour market response to various decline and growth periods. I find that (1) although aggregate employment did not fall substantially during the transitional recession, the drastic increase in agricultural employment disguised the job losses in other sectors; (2) at the onset of the transition and subsequent economic shocks, the agricultural sector became the shock absorber, providing livelihoods to many and remained as such throughout the 1990s. However, people who had no means of becoming herders became urban informals, and a considerable number of them continue to be employed in the urban informal sector; (3) looking at employment to output elasticities for the aggregate economy and the elasticity ratios excluding the agricultural sector, the periods after the 2000s are quite similar for both analyses, suggesting that since the 2000s, the role of the agricultural sector decreased and was replaced by the wholesale and retail trade sectors in employment, and mining in the economic domains.

Keywords: labour markets, transition economies, Mongolian labour market

JEL Classification Numbers: E24, P23, P27, P30

1. Introduction

This paper aims to analyse Mongolia's aggregate labour market response to the transitional recession of the 1990s and define its key characteristics that have since emerged. The initial look at employment figures creates a misconception that Mongolia's labour market experienced minimal turbulence, as the unemployment numbers remained moderately low. The aggregate number of employed saw almost no decline—characteristics of the countries of the former Soviet Union (FSU) (broadly applied to the countries of the Commonwealth of Independent States (CIS)). However, I argue that the fundamental changes in the labour market were profound.

During state socialism, the central government planned labour demand and supply. The new entrants were directed to their place of employment by the Directorate of the Mongolian Organised Work Force. Enterprises and institutions were mainly responsible for housing and other welfare benefits for their workers (Sanders, 1987, Jeffries, 2007, p. 42). The wages, prices, and output targets were set following the five-year plans of the central government. However, following the free market's move, all of the above decisions were decentralised, allowing the market forces to create market competition and employment was no longer guaranteed.

Following its move toward the free market, several factors have triggered a severe economic recession in Mongolia. First, the suspension of Soviet aid in the form of grants and loans, which in the second half of the 1980s accounted for 30 per cent of the GDP per year (Denizer and Gelb, 1992, p. 3). Second, the collapse of the Council for Mutual Economic Assistance (CMEA), which resulted in a loss of the foreign market. In 1989, the share of CMEA countries stood at 92.5 per cent of the total foreign trade (NSO, 1992).

Post-socialist countries of Central Eastern Europe (CEE) and FSU have had similar transitional recessions of output declines and hyperinflation. However, it is worth acknowledging the existence of vast heterogeneity in the countries' initial conditions, history, previous experience, or a lack thereof, with capitalism, traditions, and institutions, resulting in varying degrees of challenges faced economically, politically, and socially as well as the reform measures and their subsequent outcomes (Roland, 2000).

Nevertheless, to create a free-market economy, former socialist countries have implemented radical transformation programs that address various economic reforms, such as trade and price liberalisation, macroeconomic stabilisation, and privatisation of state assets; privatisation is the cornerstone of reform agendas. Similarly, privatisation in Mongolia was instrumental in creating private property and market competition. It had two important implications in Mongolia: the privatisation of livestock presented opportunities for the people; however, privatisation of state-owned enterprises (SOE) created challenges. These two forces had significant implications for internal migration and labour mobility across the country's economic and geographical regions.

Therefore, to investigate the true impact of transition on Mongolia's labour market, this study examines the reallocation of labour across sectors and regions resulting from livestock privatisation implemented in the first half of the 1990s. The entire period of the transition 1990–2018 can be divided into two distinct periods: the 1990s and the 2000s. During the 1990s reforms were underway, privatisation of livestock coupled with the privatisation of SOE and the collapse of the modern industrial sector triggered enormous shifts in employment and settlement patterns of the population, with mass urban-rural migration, an increase in agricultural employment, and a spike in informal employment.

However, starting from the early 2000s and the relatively robust economic growth, those patterns have been reversed. Rural-urban migration increased, along with a decline in agricultural employment and an increase in service sector employment. Although informal employment saw a slight decline, it persisted.

The employment to GDP elasticity ratios between 1991 and 2018 are examined to distinguish the two periods and illustrate the difference in labour market responses to economic growth and decline. Mongolia

displayed characteristics of the CIS countries in the 1990s, where the labour market showed a slower response to an output decline. Still, since the 2000s, the labour market and the economy have seen shifts in fundamental drivers for many different reasons.

The paper is structured as follows: Section 2 discusses the main labour market outcomes since the transition until 2018, such as labour force participation (LFP), unemployment, and household income. Section 3 looks at sectoral and regional labour reallocation between key sectors of the economy through transition and beyond, including descriptions of policy reforms that have had profound implications on labour mobility, such as privatisation of livestock and SOEs. Additionally, the informal employment and self-employment trends are discussed in the last subsection, illustrating its notable expansion and significance in light of market transition. In Section 4, the employment elasticity to GDP and labour market response to a series of economic growth and shocks is analysed to illustrate the distinct periods of the 1990s and the 2000s. Finally, Section 5 concludes by summarising the findings and highlighting the key labour market characteristics of Mongolia.

Before discussing further, it is useful to present a brief literature review and notes on the data used for this study.

1.1 Literature review

The transition from a socialist system to a free market has been studied extensively over the past three decades (Lavigne, 1999; Roland, 2000; Åslund, 2007; Myant and Drahokoupil, 2011 among others). There is a wide consensus among scholars that the degrees of impact and outcomes of transition reforms vary across regions (Blanchard et al., 1994; Svejnar ,1999; Roland, 2000). Scholars further agree that despite differences in outcomes, the countries of the post-socialist world can be broadly classified into two groups: (1) the Countries of Eastern Europe (CEE), where they experienced "shorter and shallower depressions"; and (2) the countries of the CIS with "longer and deeper depressions" (Myant and Drahokoupil, 2011: p. xvi-xvii).

A similar classification applies to labour market outcomes in these countries (Boeri and Terrell, 2002; Rutkowski, 2006; Riboud et al., 2002; Rashid and Rutkowski, 2001; Kapelyushnikov et al., 2011; and others). The CEE countries utilised employment adjustments in response to output declines, resulting in a rapid decrease in employment in the early transition period and persistent open unemployment (Rutkowski et al., 2005). However, the CIS countries mostly opted for the wage adjustment method, with much slower labour market responses to economic crises, with lower unemployment rates, hidden unemployment, and widespread labour hoarding, such as lowered wages, shortened working hours, early retirement schemes, and unpaid holidays (Rutkowski, 2006; Gimpelson and Kapelyushnikov, 2015). The most notable outliers in each group are the Czech Republic (Svejnar, 1999) and Estonia (see Rutkowski, 2006).

The Mongolian labour market study has not received much attention in the international literature to date, and it remains the least studied area of the Mongolian economy (Altantsetseg and Bayarmaa, 2014).

Existing research can be broadly categorised into two groups: First, surveys and reports conducted by the National Statistics Office (NSO) and the Research Institute of Labour and Social Protection (RILSP)[1], such as the Labour Force Surveys (LFS) and barometer surveys, which provide periodical data for policymakers and researchers. Second, reports and surveys conducted by the international organisations such as the International Labour Organisation (ILO), World Bank, International Monetary Fund (IMF), and United Nations and its affiliated organisations that emphasise policy prescriptions, focusing on poverty alleviation and economic growth.

Reports and studies by ILO focus more on the structural components of the labour market, with greater emphasis on youth employment and technical and vocational education and training (TVET) systems in Mongolia (Pastore, 2008; Pastore, 2009; ILO, 2016), as well as promoting and strengthening social dialogue and collective bargaining in the country (Buckley and Rynhart, 2011), with some studies providing regional comparisons (ILO, 2016 and Yoon, 2009).

Nevertheless, there are a handful of dissertations and papers authored by Mongolian researchers. Several dissertations have been produced in Russian during the 2000s, such as Adiya (see Адъяа, 2004), Oyunchimeg (Оюунчимэг, 2007), as well as Saktoyev and Bolor (Сактоев и Болор, 2007).

A research monograph by Saktoyev and Bolor (2007) highlights the deterioration of legal institutions surrounding the labour market during the transition, which serves as a background for the existing large share of informal employment. They also conclude that none of the models that characterise the labour markets in developed countries can be applied to the labour market in Mongolia.

Adiya's (2004) theoretical analysis of the Mongolian labour market and its regulation concludes that Mongolia's labour market is in its initial stage of formation. The weak labour demand keeps unemployment high and participation low. Therefore, the supply tends to outgrow demand. The conclusions reached by the above researchers highlight Mongolia's demographic characteristics, such as sparse population and the drops in birth rates during the late 1990s and the early 2000s (Adiya, 2004; Saktoyev and Bolor, 2007; Oyunchimeg, 2007). They have also identified the following challenges in the labour market: (1) higher unemployment rate among young people, (2) persistence of precarious and informal employment, (3) decline and failure of growth in labour productivity, and (4) the weakness of regulatory institutions.

Banzragch (2012) studied Mongolia and Tajikistan's education and labour market and estimated the return to education in Mongolia from 5.6 per cent to 6.5 per cent for wage earners. Higher education was associated with higher LFP. Altantsetseg and Bayarmaa (2014) studied the LFP and earning in Mongolia by conducting econometric analysis following the labour supply model presented by Heckman (1974). They conclude that expanded cash transfer policies in Mongolia have decreased the participation from 3.4 per cent to 5.4 per cent and that the determinants of employment or LFP in Mongolia differ across rural and urban areas.

The majority of studies conducted cover developments mainly after the 2000s, and few studies relate the labour market outcomes during the transition to the present circumstances. Bolormaa and Clark (2000)

offer a look at the labour market between 1991 and 1997. They discuss how the Mongolian economy, which was not heavily industrialised, deindustrialised following the transitional recession of the early the 1990s. They also identified that the drop in the employment rate was not as drastic and considered the construction sector to identify the severity of the recession and indicated that the agricultural sector was a possible absorber of labour.

However, there is a lack of research on Mongolia's labour market response to the transitional recession, which seeks to identify the *shock absorber*, recognise changes that have occurred throughout the transition period and beyond, to investigate changes that might have occurred since then. Therefore, this paper aims to fill this gap by presenting an overview of the labour market transition, covering the period until 2018, and looking at the sectoral and regional reallocation of labour during the transition and continuing that trend. This paper's scope is limited to discussions of sectoral and regional labour mobility; therefore, other issues such as youth and women's employment and labour productivity are not covered.

1.2 Data and methodology

The data used in this study are publicly available and were mainly collected from the NSO and World Development Indicators. Some of the data drawn from the World Development Indicators, such as LFP rates, were originally sourced from the ILO. I use such data to illustrate cross-country comparisons.

Labour statistics published on the NSO website began in 1992. Therefore, the labour market statistics are mainly sourced from the Statistical Yearbooks 1991–2018, excluding the yearbooks of 1994, 2001, and 2002.

The statistical methodology of the NSO has seen several updates since the early the 1990s, the major occurrences in 1997 and 2009. Before 1997, labour statistics calculated labour force as the sum of total 'able-bodied' working-age individuals, plus the number of working children and the elderly. However, from 1997, following the methodological amendments under international standards, the labour force is estimated as the number of employed, plus the number of unemployed registered with the local labour management offices (Labour and Welfare Services Office). Hence, the unregistered unemployed population of working age, students of working age, military personnel, and the incarcerated are not included in the labour force.

Until 2009, employment estimates were based on results from "Annual Reports on Population Employment" prepared by administrative units at the local level. Since 2009, the estimates have been produced using results from the LFS according to the "Methodology for Estimation of Employment and Labour Force Indicators"[2]. Additionally, a temporary increase in unemployment benefits was introduced in response to the global financial crisis (GFC), which remained effective between 1 August 2009 and 1 January 2011. The benefits rose from their earnings for 76 days to 126 days, and eligibility criteria[3] were lowered. This might have impacted the number of people registered as unemployed, although it was impossible to determine the extent. Therefore, caution is needed when interpreting figures, especially when comparing the early 1990s with the late 1990s, and the 2000s with 2009 and after.

Mongolia's first LFS was published in 2004, covering the period of October 2002–September 2003. The 2006–2007, 2007–2008, and 2008–2009 LFSs cover the period from July through June of the following years. However, starting from the 2010 LFS, surveys were conducted between January and December of the given year. Therefore, there is a gap in the second half of 2009, and a big break between October 2003 and June 2006.

Additionally, the concept of the working-age population is noteworthy. Until February 2018, Mongolia's legal working age was 16–54 years for women and 16–59 years for men[4]. However, the LFS defined the working-age population as the population aged 15 and over. Still, the official labour statistics published on the website seemed to use the legal working ages to calculate the LFP rates and relative labour market indicators.

There are contradictions on employment-to-population ratios in the data. The LFS calculated it as a share of the employed in the total number of the economically active population, i.e. opposite of unemployment rate, until 2012 LFS. After this, the rates were calculated as a share of the total number of the working-age population. This time, the official statistics on the NSO website seemed to use the latter method throughout. This study uses the working-age 15–64 to illustrate cross-country comparisons and, on some occasions, uses calculations to make data comparable.

Lastly, government resolutions, laws, amendments, and other legal and regulatory documents were obtained from the National Legal Institute's database at www.legalinfo.mn. There were very few documents before 1990, and many were missing for the 1990s, but most were available. The availability of documents has improved drastically since the late 1990s.

2. Labour market outcomes during the transition

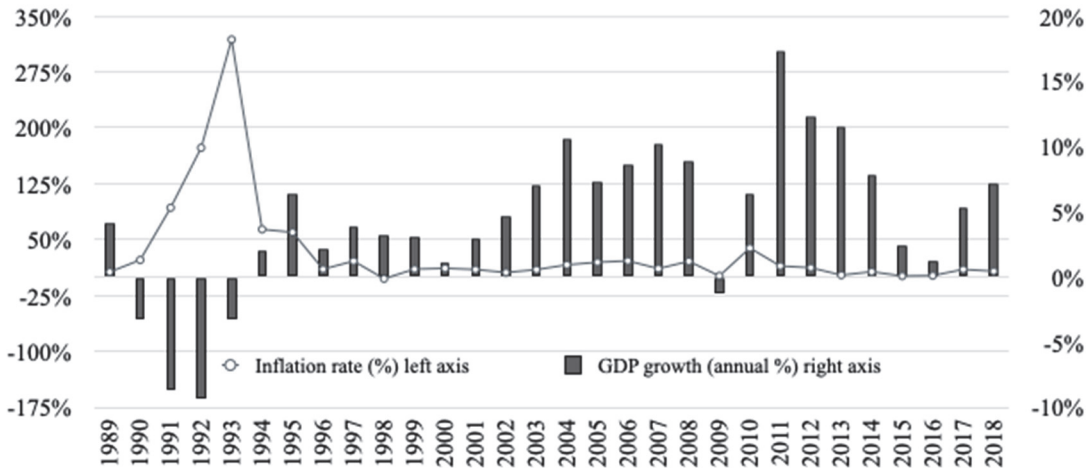
Mongolia transitioned from a socialist economic system to a market economy, which brought abrupt transformations throughout its economic, political, and social fronts. Although economic reforms have gradually started from the mid-1980s with an increase in domestic wholesale prices, the promotion of private cooperatives and greater autonomy to public sector enterprises (Milne et al., 1991), the real transition to free markets began following the collapse of the one-party system in March 1990.

The economic transformation brought a GDP decline (the halt of external financing, output decline, and loss of CMEA foreign markets combined) of roughly 62 per cent in national purchasing power during the three years 1989–1991, far greater than Europe and America during the Great Depression and similar to wartime Italy and Japan (Boone, 1994). Figure 1 illustrates the GDP growth rates and inflation rates during 1989–2018. However, in terms of cumulative output decline and inflation rates, circumstances in Mongolia were much milder than those in CIS countries and the Baltic States (Narantuya, 2013).

The LFP rate had started declining rapidly from the higher than the international average[5] to as low as 61.7 per cent in 2000 (Figure 2). Since then, the LFP rate has remained low, with an average of 62.5 per cent during 2000–2018. According to the ILO modelled estimates, the average LFP rate in Mongolia is

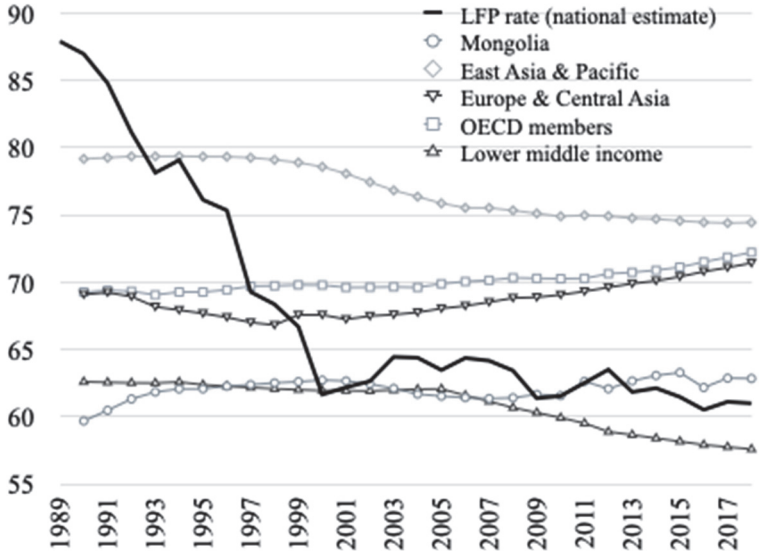
much lower than that in East Asia and Pacific, Europe, Central Asia, and OECD countries and slightly higher than that of the lower-middle-income countries. However, the reason for Mongolia's high LFP rate until 1997 had a methodological explanation, i.e., labour force was calculated based on "able-bodied" working-age population, working children and elderly, rather than the entire working-age population.

Figure 1. GDP growth rates and inflation rates, 1989-2018



Source: World Development Indicators, NSO

Figure 2. Labour Force Participation rates 1989-2018



Source: LFP rate (national estimate) is calculated using data from the Statistical Yearbooks 1991 onwards; the rest are the LFP rate for population aged 15-64 (ILO modelled estimates) from World Development Indicators

On average, Mongolia's total population grew annually by 1.3 per cent during 1992–2002 and 1.7 per cent during 2003–2018. Meanwhile, the annual growth of the working-age population over the same period was 2.4 per cent and 2.8 per cent, respectively (Table 1).

Table 1. Population and labour market indicators, Mongolia, 1992-2018

	1992	1997	2002	2010	2018
Total population	2,158,362	2,307,484	2,465,657	2,760,968	3,238,479
Working age population	1,134,600	1,229,600	1,439,200	1,863,400	2,226,600
Economically active population	860,000	852,000	901,700	1,147,100	1,358,600
Employed	806,000	788,300	870,800	1,033,700	1,253,000
Unemployed	54,000	63,690	30,900	38,300	25,000
Economically inactive population	274,526	409,889	537,585	716,233	867,964

Source: Statistical Yearbooks (various years), NSO database

However, the number of employed grew on average by just 0.8 per cent, while the economically inactive population grew by 7.2 per cent a year during 1992–2002. These figures grew 2.3 per cent and 3.2 per cent, respectively, during 2003–2018. However, the growth rate on inactive population remained higher, indicating the labour market's failure to absorb the growing working-age population. According to World Development Indicators, the average annual growth of the working-age population (15–64 years old) in Mongolia (2 per cent) remained one of the highest among the post-socialist countries, along with Uzbekistan (2.4 per cent) and Turkmenistan (2.8 per cent) during 1990–1999.

The reason for the sustained growth in the population is Mongolia's extremely high fertility rate throughout the socialist period, the legacy of the central government's pro-natalist policies. The total fertility rate (TFR) peaked at 7.6, for much of the 1960s and early the 1970s. Birth rate and population growth declined sharply during the 1990s to 0.8 per cent from 2.8 per cent in the late 1980s. This decline was observed not only in Mongolia but also throughout post-socialist countries. Economic hardships of the time, coupled with the emergence of family planning options, have contributed to this decline (NSO, 2001).

Because TFR was exceptionally high, its sharp decline that reached the lowest, 2.1 per cent, in the early 2000s, remained above the replacement rate. The rates were one of the highest, along with Tajikistan, among the transition economies (Table 2). Due to the high TFR during the socialist era, Mongolia overcame the population decline without major consequences. This is one of the characteristics of the

Mongolian labour market. The birth rate and population growth rate have steadily increased since the early 2000s.

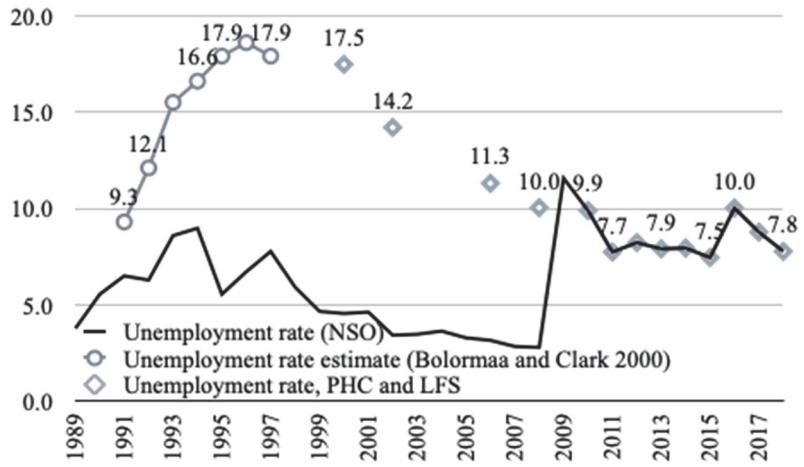
Table 2. Average total fertility rates in Mongolia and the other transition economies, 1985-2005

	1985-1990	1990-1995	1995-2000	2000-2005
Mongolia	4.74	3.35	2.40	2.12
Central Asia	4.26	3.70	3.01	2.69
CIS (excluding Central Asia)	2.25	1.89	1.50	1.37
CEE	2.02	1.66	1.32	1.28

Source: World Development Indicators

The official unemployment rate remained relatively low, within single digits, throughout the 1990s (Figure 3). However, it reflected only the number of people registered with the local employment agency (Labour and Welfare Services Office). During the transition, Mongolia's social protection system deteriorated significantly, with low unemployment benefits, sometimes unpaid. This might have lowered the incentive for the unemployed to register. However, official unemployment rates at the time were widely accepted as underestimated[6].

Figure 3. Unemployment rates, 1989 - 2018

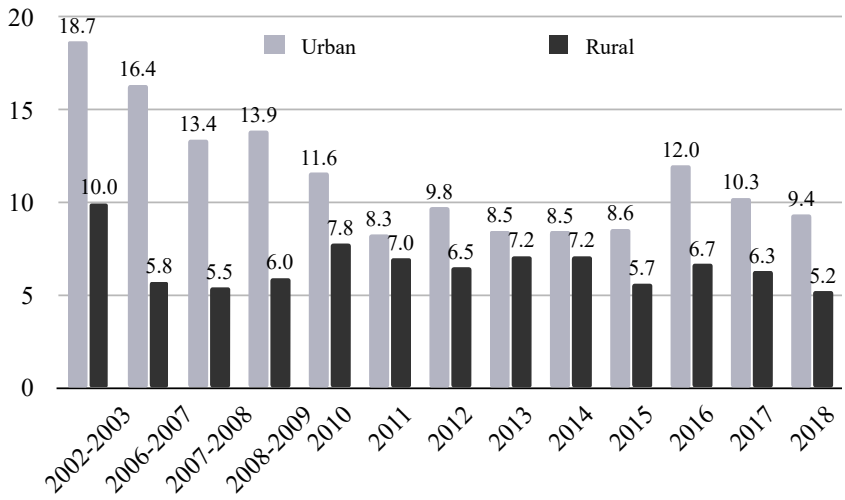


Source: Statistical Yearbooks, 2000 PHC, LFS and Bolormaa and Clark (2000)

Along with the unemployment rates published by the NSO, Figure 3 includes estimates from Bolormaa and Clark (2000), who calculated unemployment, including individuals who were outside the labour force without reasons. It also includes survey-based estimates from the Population and Housing Census (PHC) and a series of LFS. It is evident from these estimates that the scope of unemployment is much wider.

Furthermore, there are considerable differences between unemployment in urban and rural areas. According to the LFS (which also included unregistered unemployed), unemployment was considerably higher in urban than in rural areas (Figure 4). Between 2002 and 2003, unemployment was highest in both regions, and urban unemployment has declined since; overall, it remains nearly twice (1.8 times) the rural unemployment. Although rural unemployment remained within single digits throughout the period, there have been increases in 2010, 2013, and 2016.

Figure 4. Unemployment rate, by region, 2002-2018

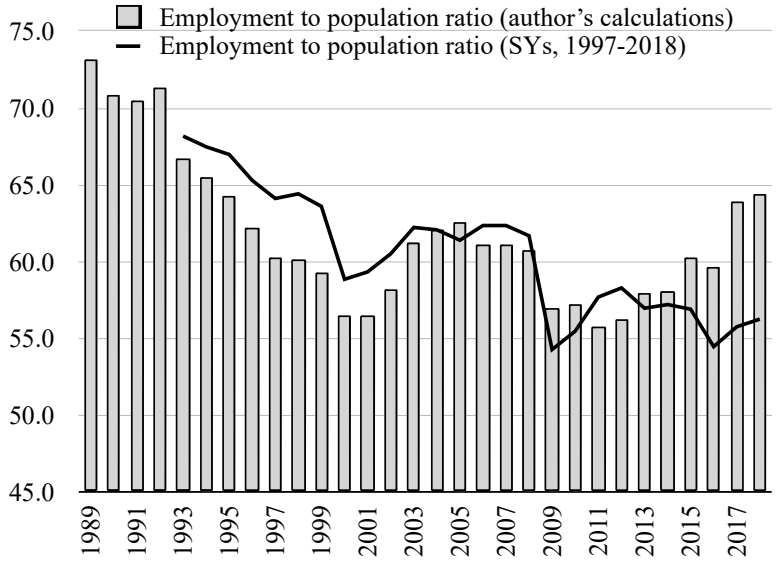


Source: LFS

The employment-to-population ratio has been officially published since 1997, covering the period starting 1993 (NSO Statistical Yearbook 1997) and is shown as a line in Figure 5. Another ratio (bar) as the share of employed in the working-age population (15–54 for women and 15–59 for men) was calculated to allow for comparison. Figure 5 shows that it had fallen consistently from a high of 73.2 per cent in 1989 to a low of 56.5 per cent in 2000, and the eighteen-year average for 2001–2018 was 58.6 per cent.

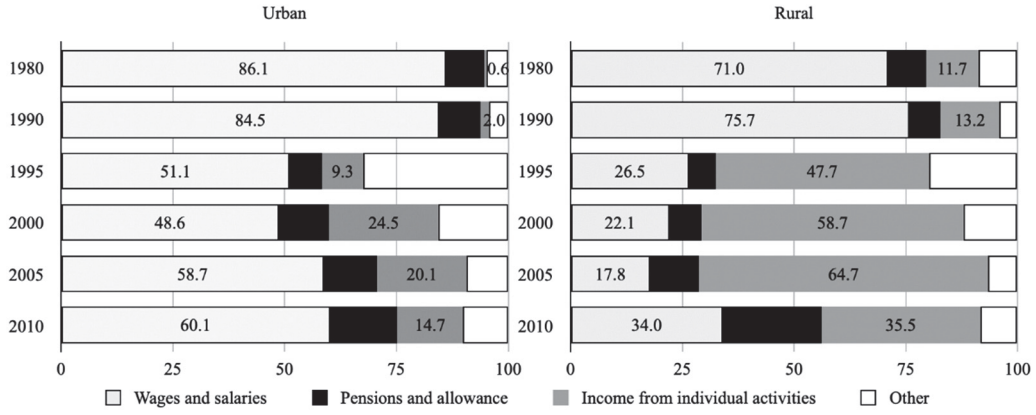
Lastly, household income composition has seen drastic shifts in rural and urban households (Figure 6). Slight changes in both groups' wage and salary income during 1980–1990 plummeted by more than 30 per cent in the next five years for urban households and nearly 50 per cent for rural households. For the same period, income from individual activities increased substantially for rural households to reach 48 per cent, highlighting increased private herding. However, urban households had increased incomes from other sources exceeding 32 per cent, hinting at the expansion of private economic activities within the informal economy.

Figure 5. Employment-to-population ratio, 1989-2018



Source: Own calculations using data from NSO
For comparison, the bar chart, has been calculated using working age population, 15-54 for women and 15-59 for men, throughout the period, whereas the line chart reflects official numbers from Statistical Yearbooks (SY)

Figure 6. Composition of average monetary income per household, urban, 1980-2010



Source: NSO database

Labour market indicators illustrated so far reveal that LFP is relatively low, but the registered unemployment rate is also low, suggesting limited job opportunities and demoralised labour force. It also reveals that the number of economically inactive people had increased at a higher rate. Many of them

could be employed in Mongolia's large informal sector, as Anderson (1998) stated, most people employed in the informal sectors did not consider themselves employed.

Regarding the rise in economic inactivity, several underlying factors may have contributed to its rise.

i. An increase in birth rates had resulted in a growing number of people with childcare needs, against the backdrop of deteriorated social services and drastic budget cuts for early childhood education and the number of available childcare institutions[7].

ii. There was evidence of economic and climatic shocks affecting employment and economic activity (discussed in detail in the next section), such as:

a) In the mid-1990s following privatisation leading to job losses;

b) Between 1999 and 2002, severe droughts and *dzud*[8] that occurred for three consecutive years resulted in a loss of almost 10 million heads of livestock[9], leaving many herders unemployed. Most of them migrated to urban areas, particularly Ulaanbaatar, in search of employment, and some failed to find employment.

c) During the GFC and the significant economic decline brought by the fall of commodity prices on the world market, another devastating *dzud* in the winter of 2009–2010 resulted in a 1.3 per cent GDP decline and the loss of 11 million animals.

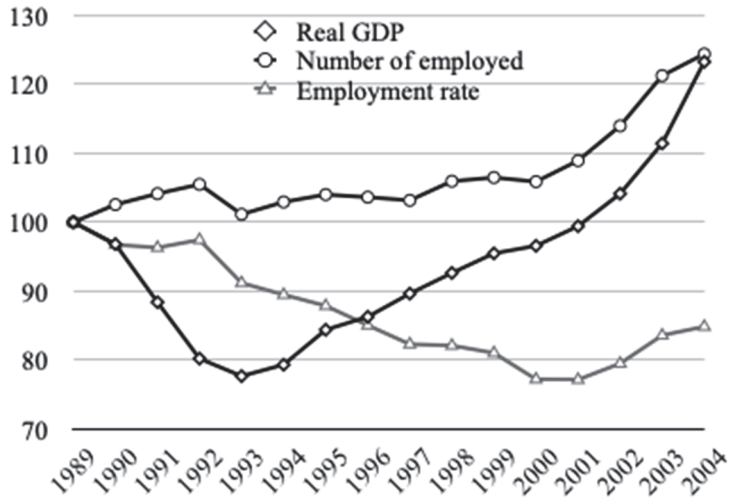
d) Lastly, the aftermath of the economic downturn caused by yet another fall in commodity prices in 2014, following the mining boom of 2011.

iii. The increase in welfare benefits following the 2003 Social Security Sector Master Plan, which resulted in several different universal cash transfers, such as the Child Money Programme (CMP), maternity cash benefits, Human Development Fund (HDF) cash transfers, cash allowances for newborns, newlywed couples, and large families[10]. Arguably, the expansion of different welfare benefit programs aimed at women of childbearing age, monthly and quarterly cash transfers such as CMPs, maternity cash benefits, and other cash allowances enabled many women to remain outside the labour force. Altantsetseg and Bayarmaa's (2014) estimation of the participation model found that during the expansion years, LFP decreased by 3.4 per cent to 5.4 per cent.

To summarise, the transition brought sweeping changes across the labour market in Mongolia: a decline in LFP, an increase in economic inactivity, a decline in employment-to-population ratios, and a rise in unemployment as well as stark differences across geographical regions.

However, the aggregate employment adjustment, 1989 taken as a baseline, was very stable in the first three years (Figure 7). The number of employed increased until 1993, while the real GDP dropped to 78 per cent in 1993 and did not reach the 1989 level until 2002. In contrast, the employment to population ratio continued to drop throughout the 1990s and remained below the 1989 level. The next section examines Mongolia's employment and settlement patterns to explain the reasons behind these figures and how economic and climatic shocks affected them.

Figure 7. Real GDP (in constant 2010 USD), the number of employed and employment rate adjustments (1989=100)



Source: Calculated using data from NSO, Statistical Yearbooks and World Development Indicators

3. Sectoral and regional reallocation of employment

The changes in the labour market as a result of market transition were reflected in the entry and exit from the labour force, and in the movements of workers across different economic sectors and geographic regions.

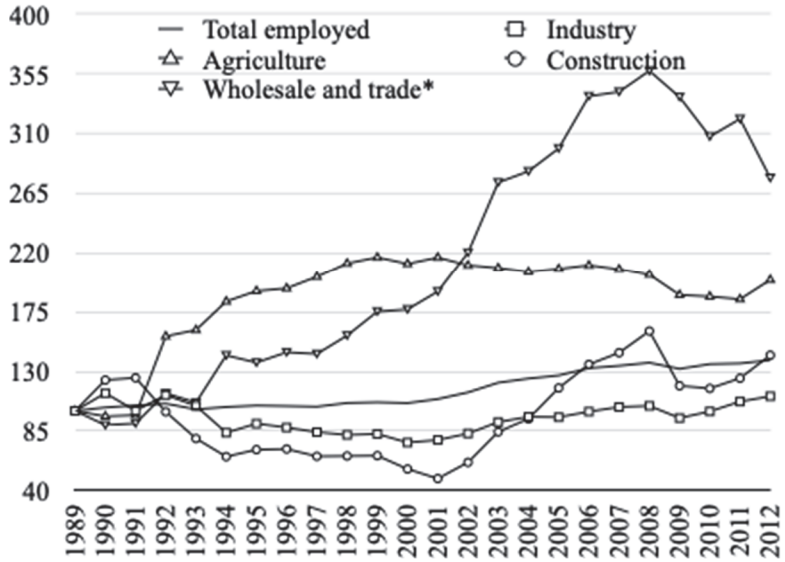
3.1 Sectoral allocation

At the aggregate level, employment during the early years of transition did not show a drastic decline, as seen in Figure 7. In absolute terms, the number of employees increased by over 11 thousand between 1990 and 1995 (see Table 3). This limited labour shedding pattern is similar to the characteristics of CIS countries. However, looking at each sector in isolation reveals that the only sector that gained considerable employment was the livestock sector[11] (an increase of 173.4 thousand in five years). The total number of agricultural workers stood at 180.9 thousand in 1990, of which 147.5 thousand were herders. However, the number of herders spiked, reaching 390.5 thousand in 1995 and 421.4 thousand in 2000[12]. The agricultural sector was one of the biggest absorbers of labour during the transition, where the share of total agricultural employment increased from 33 per cent in 1990 to almost half in 1999. Still, it has been declining since (see Figure 8, Table 3).

Most other sectors experienced declines in 1990–1995, except wholesale and retail trade and financial services. The wholesale and retail trade sector[13] grew steadily before accelerating in the early 2000s but

experienced a decline during the GFC years. In 2009 and 2010, employment in the wholesale and trade sector dropped by 24.7 thousand, despite the positive number between 2005 and 2010, as in Table 3, which is obscured by the growth for the rest of the period.

Figure 8. Sectoral adjustments (pre-transition year 1989 as baseline)



Source: Calculated using data from National Statistical Yearbooks * - trade, procurement and material technical supply on earlier versions of Statistical Yearbooks

Table 3. Changes in number of employed over five 5-year periods, by economic sectors, 1990-2015

	1990	1995	2000	2005	2010	2015
Total	783,600	794,700	809,000	1,009,900	1,033,700	1,151,200
		11,100	**14,300**	**200,900**	**23,800**	**117,500**
Agriculture, forestry, fishing and hunting	180,900	354,300	393,500	386,200	346,600	327,600
		173,400	**39,200**	**-7,300**	**-39,600**	**-19,000**
Industry	131,600	108,100	91,000	113,900	119,100	145,400
		-23,500	**-17,100**	**22,900**	**5,200**	**26,300**
Construction	66,100	29,500	23,400	48,900	48,758	88,118
		-36,600	**-6,100**	**25,500**	**-142**	**39,360**
Wholesale and retail trade	54,600	64,800	83,900	141,900	146,200	178,200
		10,200	**19,100**	**58,000**	**4,300**	**32,000**

Transportation, storage & communication	57,700	31,600	34,100	42,500	87,300	91,000
		-26,100	**2,500**	**8,400**	**44,800**	**3,700**
Financial and insurance services	3,900	8,300	6,800	16,100	15,200	23,800
		4,400	**-1,500**	**9,300**	**-900**	**8,600**
Public administration	32,100	31,100	34,700	46,700	70,400	84,100
		-1,000	**3,600**	**12,000**	**23,700**	**13,700**
Education	86,800	48,400	54,400	58,800	85,300	89,000
		-38,400	**6,000**	**4,400**	**26,500**	**3,700**
Health	49,200	38,100	33,600	39,500	40,300	38,200
		-11,100	**-4,500**	**5,900**	**800**	**-2,100**
Other	120,700	80,500	53,600	115,400	74,542	85,782
		-40,200	**-26,900**	**61,800**	**-40,858**	**11,240**

Source: Calculated using data from the National Statistical Yearbooks

The sector with the biggest drop in employment in the first five years was the education sector, followed by the construction sector. The transportation, storage and communications, and the industry sectors decreased by 49.6 thousand. The health sector also declined by over 11 thousand, bringing the total close to 136 thousand. The education and health sectors experienced the adverse effects of transition in the early years due to budget cuts and drops in real wages, increasing school dropouts and maternal mortality[14].

Employment in the construction sector dropped from 66.1 thousand in 1990 to 29.5 thousand in 1995, dropping about 45 per cent. It managed to recover quite rapidly since 2002 to reach 66.8 thousand in 2008, surpassing the 1990 level but dropped to 49.6 thousand due to the GFC the next year. The construction sector is highly responsive to the business cycle.

Although the decline was not as drastic, the industry sector surpassed its pre-transition level only in 2012. Reinert (2004) wrote, "In Mongolia 50 years of the industrial building was virtually annihilated over only four years, from 1991 to 1995, not to recover again" (p. 158).

It is fruitful to look at how privatisation contributed here. First, if we consider employment in the agricultural sector, the reason behind the huge increase was the privatisation of livestock in the early 1990s. Privatisation of state assets was one of the key reforms of transition, and the programme was to be carried out in three phases. In the first phase, according to Jermakowicz and Kozarzerski (1997), plans were made to privatise by the end of 1992:

1. Eight hundred and four large enterprises, mainly in the industry, construction, transportation, and trading sectors (681 were sold).

2. 3750 smaller enterprises predominantly in the retail, trade, and small manufacturing sectors, including restaurants, small factories, shops, and retail outlets (3300 were sold);

3. The agricultural privatisation that included agricultural assets, livestock and state farms (790 agricultural entities and state farms were privatised).

By mid-1992, the majority of the second and third privatisation sub-categories were complete. According to Statistical Yearbooks, the share of privately owned livestock rose from 28 per cent in 1989 to 90 per cent in 1993, explaining the large increase in agricultural employment around that time. However, the privatisation of large-scale enterprises was delayed until early 1992 but accelerated subsequently, and by mid-1993 three quarters were complete, before slowing down again in 1994. Besides, it explains the relatively sharp drop in industry sector employment in 1993 (see Figure 8). In short, the lion's share of privatisation in the country was completed throughout the first phase in the 1990s.

An interesting observation can be made when considering the differences in the job losses in the construction and industry sectors. Despite ambitious privatisation agendas, the state-controlled the so-called strategic enterprises in the industrial sector, including mining, transport, and utilities; hence, moderate job losses. Although the industry sector (including the construction sector) lost over 60 thousand employees in the first five years, almost 61 per cent were from the construction sector alone. According to the World Bank (1996), out of 705 large and small enterprises privatised in the industry sector, 342 (48.5 per cent) were in construction, making it a private enterprise dominated sector (62 per cent) contributing 2 per cent of GDP. However, 36 per cent of the rest of the industry sectors were privatised and contributed 32 per cent of the GDP. This revealed the state's reluctance to privatise strategic enterprises.

Regarding the possibilities of labour hoarding and underemployment, the World Bank (1996) suggested that overstaffing, early retirement, and shortened working hours were tolerated in the remaining state sector. Anecdotal evidence suggests that most separations were voluntary. The consumer price index rose by 'more than twenty times between January 1991 and January 1994. The average wages and salaries in the public sector increased by only eight times, justifying the voluntary separations. Thus, public-sector workers experienced a loss of about 60 per cent of their real salaries during those three years' (Ginneken 1995, p. 48).

In conclusion, despite rapid privatisation of state assets, enterprise restructuring was slower than anticipated, and labour hoarding occurred in the remaining state sectors. Notably, among the strategic enterprises that remained state-owned, many were Russian-Mongolian joint-stock companies, such as *Erdenet Mining Corporation, Mongolrostsvetmet* (formally, Mongolsovtsvetmet), and *Ulaanbaatar Railway*, some of which remain as such to this day. Therefore, undeniably, Russian management approaches or reluctance to respond to market forces independently influenced the management decisions of those enterprises.

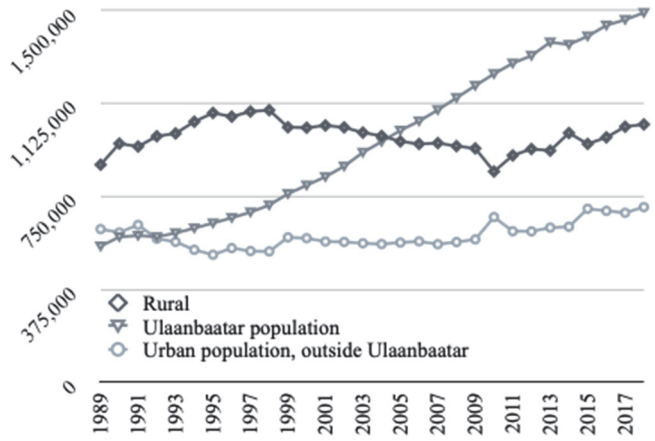
3.2 Regional allocation

After the collapse of communism in many transition countries faced with economic challenges, people moved to urban centres looking for employment. On the contrary, in Mongolia, an increased number of

herders and people losing jobs has created a distinctive internal migration pattern in Mongolia - the urban-rural migration (Figure 9).

Notably, the population of the capital, Ulaanbaatar also rose constantly, whereas the figures for rural and the rest of the urban regions are mirror-images. From this, it can be concluded that during the transition years, there were two distinct forces at play: (1) people internally migrating from urban to rural areas, mostly from aimag[15] centres and other cities to pursue livestock herding; (2) people who were laid off or quit jobs in rural areas and smaller cities moving to Ulaanbaatar in search of job opportunities. Figure 10 shows the in- and out-migration of Ulaanbaatar. Here, it is evident that in-migration was much larger than out-migration. However, Ulaanbaatar's out-migration increased during the early years of the transition. Between 1989 and 1995, over 40 thousand people migrated out of the capital city.

Figure 9. Population, urban (except UB), rural, Ulaanbaatar, 1989-2018



Source: NSO database

Since the 2000s, the in-migration to Ulaanbaatar drastically increased. The rural population steadily decreased simultaneously. The population in other urban areas remained relatively stable, as people who moved to Ulaanbaatar (as suggested) were mostly absorbed by the growing service sector (as discussed in the previous subsection).

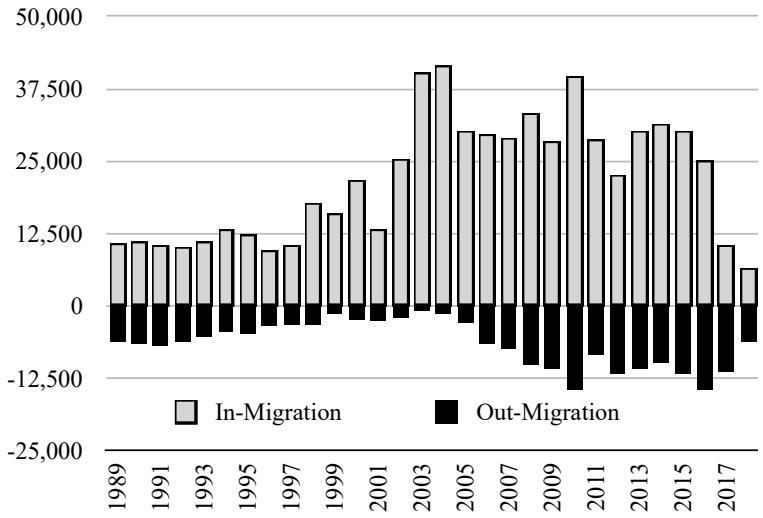
The sharp decrease in the rural population and an equal increase in other urban populations in 1999 and in 2010 could be explained by *dzuds*, and herders, who lost their animals resettled in urban centres. 2014 saw another return to rural areas and a slight decrease in the Ulaanbaatar population and a slight increase in other urban areas. This could be related to the economic downturn Mongolia faced following the fall of commodity prices. However, this time, the migration scale was much smaller compared to that in the early 1990s.

Bolormaa and Clark (2000) argued that most Mongolians have familial connections with the herding lifestyle, and many people have become herders. However, this argument seems to miss an important point that not everyone who wished to become a herder could take up this lifestyle. First, agricultural

privatisation was largely reserved for existing state farmworkers and locals. Second, harsh climate and isolated living were not conducive, especially for people in the city.

Between 1990 and 1995, agricultural employment increased by 173.4 thousand, while the population in the rural regions and Ulaanbaatar increased by 113.8 thousand and 55.8 thousand, respectively. The population in the other urban settlements declined by approximately 80 thousand during the same periods. In contrast, during the 2014–2015 economic downturn, the urban population increased by 105.9 thousand. The rural population decreased by 44 thousand, suggesting that livestock herding no longer served as a 'shock absorber' in economic hardship.

Figure 10. In and out-migration of Ulaanbaatar, 1989-2018



Source: NSO database

3.3 Informal employment and self-employment

As a result of the transition in post-socialist countries, there was a surge in informal and self-employment. An increase in informal employment was more pronounced in CIS countries than in CEE countries. Mongolia displays characteristics similar to those of low-income CIS countries, with a substantial increase in informal employment.

The definition of informal employment within the scope of this paper refers to all those who worked in non-agricultural informal jobs, that is, employees with no social protection coverage, paid annual or paid sick leave; or employers' own-account workers and owners of informal sector enterprises or producing only for own-use production (as households); and all contributing family helpers, as noted in the LFS 2010 (NSO, 2011 p. 60).

Although unofficial and private trade activities were not entirely new (Takiguchi 2013), informal economic activities spiked in the first decade since the start of the transition. According to Anderson (1998),

the informal sector in Ulaanbaatar employed 30–35 per cent or 105 thousand to 130 thousand of the labour force; equalled to around 33–38 per cent of officially recorded GDP at the end of 1996; 47–51 per cent of households[16] have some informal income; informal activities generate one-thirds of Ulaanbaatar households' income, and informal economy has helped 15 per cent of Ulaanbaatar households rise above poverty.

According to the LFS, the average share of informal employment (non-agricultural) in total employment was 15.8 per cent between 2002 and 2018, ranging from the lowest, 12.5 per cent in 2008–2009 and the highest,18.1 per cent in 2013. However, the seemingly modest percentages become higher if calculated as a share of total non-agricultural employment, with figures ranging from the highest, 27.4 per cent in 2002–2003 to the lowest,19.8 per cent in 2011[17]. Additionally, if we combine the informal sector with the number employed in the agricultural sector, cumulatively, the two sectors absorb over 40 per cent of total employment[18].

Compared with other transition economies, excluding the livestock sector, informal employment in Mongolia is relatively small. The number resembles that in the CEE countries, such as the Czech Republic and Slovakia (Rutkowski 2006). However, the reason for informal employment is quite different from that of the European transition economies. In Mongolia, much like in the CIS countries, the informal sector was an employer of last resort providing subsistence income. In CEEs, the informal sector was a way of evading taxes and strict regulations. This argument is backed by the fact that informals in Mongolia used to pay taxes between 1993-2015[19].

The three largest sectors that constitute almost 80 per cent of informal employment are (1) wholesale and retail trade and repair of motor vehicles and motorcycles, (2) transportation and storage, and (3) manufacturing. According to the 2002-2003 LFS, over 71 per cent of informal employment was located in urban areas, the number rose slightly, and the average stood at 75.2 per cent between 2007-2008 and 2018. The share of Ulaanbaatar, on average, was 47.7 per cent for the same period. As of 2018, the number of informally employed in the capital was 106.8 thousand out of a total of 220 thousand (Figure 11). Gender wise, women take up a higher share in the wholesale and retail, processing, education, health, and other service sectors within the informal sector.

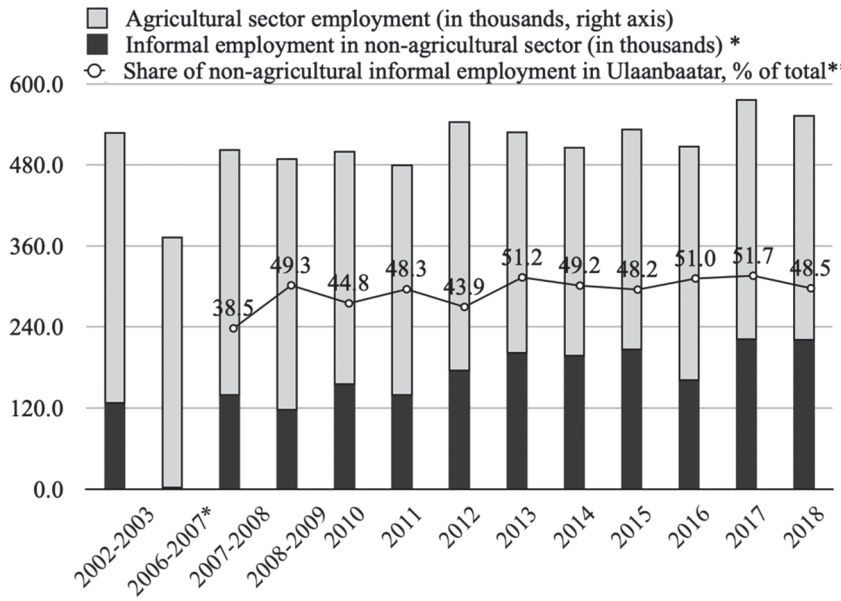
During the socialist regime, self-employment was not widespread. Throughout the 1980s, self-employment income ranged around 3 per cent of the total income of the population (Milne et al. 1991, p. 51). The number of self-employed stood at 4,000 by mid-1991, according to the World Bank (1991).

According to the NSO database, the average household share of income from private economic activities stood at 42 per cent and 25 per cent in 2000 and 2010, respectively. The 2000 PHC revealed that the number of self-employed stood at 243,212 or 31.2 per cent of total employment, over 75 per cent of which were men. Women represented 28 per cent out of 9,964 employers and 70 per cent of 197,441 unpaid family workers.

According to the World Development Indicators, the share of self-employment (ILO modelled estimate) in Mongolia remained over 60 per cent during the 1990s. The estimate is well above the average

in most transition economies, OECD countries (19.2 per cent), and Europe and Central Asia (20.3 per cent), but it is lower than East Asia and Pacific regions (61.7 per cent). Recently, the percentage of self-employment has been decreasing, reaching the lowest in 2016 (48.3 per cent), with an average of 60.8 per cent during 1991–1999, 57.4 per cent during 2000–2010, and 51 per cent during 2010–2018.

Figure 11. Total agricultural and informal sector employment and share of informal employment in Ulaanbaatar



Source: LFS's, various years,*- LFS 2006-2007 did not include analysis on informal employment, ** 2002-2003 does not offer numbers in Ulaanbaatar

Harris-Todaro's two-sector model provides a theory of understanding rural-urban migration in developing countries and explains persistently high unemployment and informal employment in urban areas. They argue that politically determined high minimum wages in the industrial sector that exceed agricultural earnings would act as an incentive for rural residents to migrate to urban areas and contribute further to the rise of urban unemployment. However, they wait for the opportunity to enter formal employment in the modern sector (Harris and Todaro, 1970). Restriction of migration and wage subsidy are the two policies that can be used in combination to limit rural-urban migration. Roland (2014) argues that creating jobs in rural areas, instead of urban areas, would be the solution.

In Mongolia, this data illustrates that, as the country deindustrialised and jobs disappeared in the urban areas, people migrated to rural areas as agricultural gains became higher than those in modern industrial sectors in urban areas. The population with no means of taking up agricultural jobs moved to or stayed in Ulaanbaatar to become informal workers or urban unemployed. However, since the 2000s, people settled in the capital are not waiting to return to herding. A recent internal migration study has revealed that

migration is mostly related to lack of job opportunities, inadequate living conditions (poor infrastructure), and the low quality of health and education services in rural regions (IOM 2018).

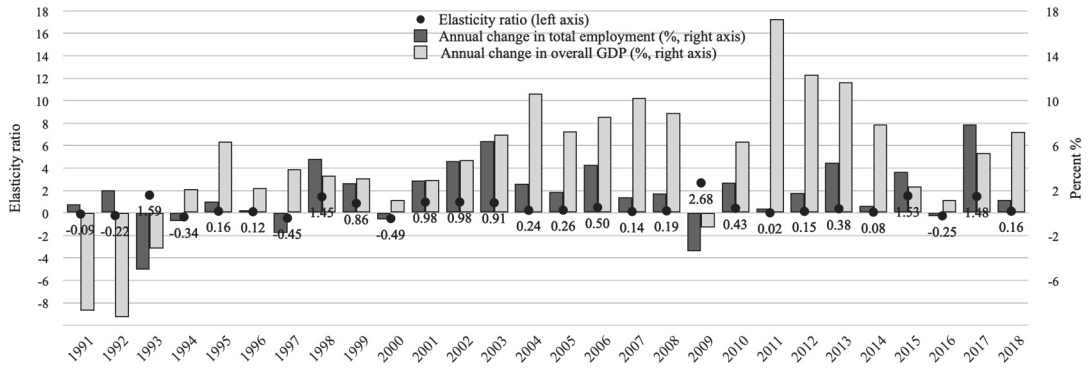
4. Employment elasticity and labour market response to the transition

The labour market changes were felt throughout Mongolia from the onset of transition, with people losing jobs, starting petty trades, and returning to traditional livestock herding. Official labour statistics reveal very little on the surface. However, a closer look at the movement of labour between different sectors, considering the emergence of informal and self-employment and the massive return to livestock herding and migration to rural areas, indicates profound changes.

Conventionally, a decline in economic growth should decrease the demand for labour, and increased output should consequently increase it. However, the economic circumstances in the transition economies during the early years of transformation could not be explained by "normal" economic, policy variables, but by their method and scope of economic reform policies (Polanec, 2004 as discussed in Bah and Brada, 2014).

This section uses the same technique used by Bah and Brada (2014) to estimate the average annual elasticity ratio of employment to output. The percentage change in employment in a given year divided by the percentage change in GDP[20]. This exercise is performed three times: for the aggregate economy, excluding the agricultural sector; and for the agricultural sector alone, to estimate how the labour market reacted to the shocks of transition and agricultural sector impact. Figure 12 illustrates the results for the overall employment elasticity to output.

Figure 12. Employment elasticity to GDP, percentage change in employment and GDP, 1991-2018



Source: Calculated using data from NSO, World Development Indicators

In the first two years, between 1991 and 1992, employment elasticity ratios were negative, i.e. while overall GDP declined, aggregate employment grew. But in 1993, the ratio was 1.592, indicating that for every 1 per cent GDP loss, 1.6 per cent of jobs were being lost. GDP growth became positive starting from

1994; however, jobs do not seem correlated with the output, just as SOEs were being privatised. In 1994, 1997, and 2000, overall employment decreased despite positive GDP growth.

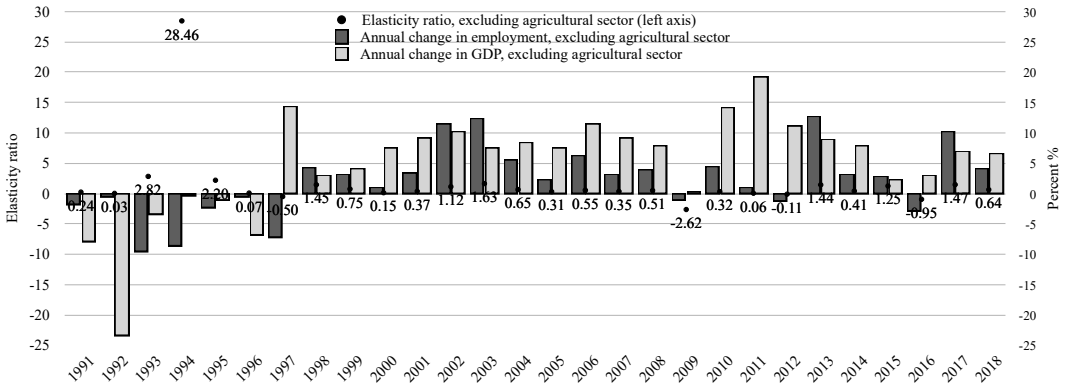
However, starting from 2001, the employment elasticity ratios improved, especially in 2001–2003, indicating that job and output creations were almost equal. From then on until the GFC, employment growth remained positive, but the rates dropped. This could be related to the mining sector GDP growing 5.5 times. Still, the number of employed went from 19.9 thousand to only 39.8 thousand, between 2001 and 2005 (total employment increased by 16% during the period). The mining sector's share in total employment averaged around 2.6 per cent during 1995–2004 and 4 per cent during 2005–2018.

The GFC resulted in the GDP growth to plunge to 1.3 per cent, and this time jobs were lost too, but at a higher rate of 3.4 per cent. Economic growth quickly returned, and Mongolia enjoyed very high growth for the next five years. However, the jobs were not as quick to return. This again indicates that growth was driven by the mining sector, which is not a labour-intensive sector.

Table 4 illustrates Mongolia's GDP composition, showing an increase in the share of agriculture in GDP during the 1990s and a decline in the 2000s. In comparison, the mining GDP increased substantially starting in the 2000s.

Considering the discussions in the previous sections on the disproportionate increase in agricultural employment, Figure 13 repeats the exercise, excluding the agricultural sector.

Figure 13. Employment elasticity to GDP, excluding agricultural sector, 1991-2018



Source: Calculated using data from NSO, World Development Indicators

The results illustrate the impact of the economy's transition, with massive declines in output of 8 per cent, 23.4 per cent, and 3.4 per cent in 1991, 1992, and 1993, respectively. This also illustrates the acceleration period of large-scale privatisation in 1993 (elasticity ratio of 28.461) and 1994 with substantial declines in employment and the second phase of privatisation with the second wave of decline in 1997. 1997 was also when the Law on Minerals was passed, and Mongolia enjoyed a brief growth in the mining sector. The two figures contradict each other, resulting in a negative elasticity ratio of -0.505. The job growth increased from 1998, surpassing GDP on several occasions. In 1998, the increase was attributed to the increase in

the service sector. Still, in 2002 and 2003, most of the increase was in mining, other industry, and service sectors with losses in agriculture.

Overall, up until the early 2000s, the GDP declines were much larger, and labour market responses were slower. During 2009, due to the GFC, although output managed to stay positive, employment declined with an elasticity ratio of − 2.625. Similar negative ratios of − 0.109 and − 0.948 were discovered in 2012 and 2016, respectively. In 2009, there were major losses in employment in agriculture (due to *dzud*), mining, construction, wholesale, real estate, and banking sectors (due to GFC). In 2012, employment decreased in the wholesale and transportation sectors the most, and in 2016, the pattern was similar to that in 2009.

However, 2002, 2003, 2013, and 2017 saw job creations exceeding the GDP growth. The rates were much lower at other times. The above data illustrates that the overall elasticity of employment to GDP had stabilised in the late 1990s and early 2000s and remained relatively elastic.

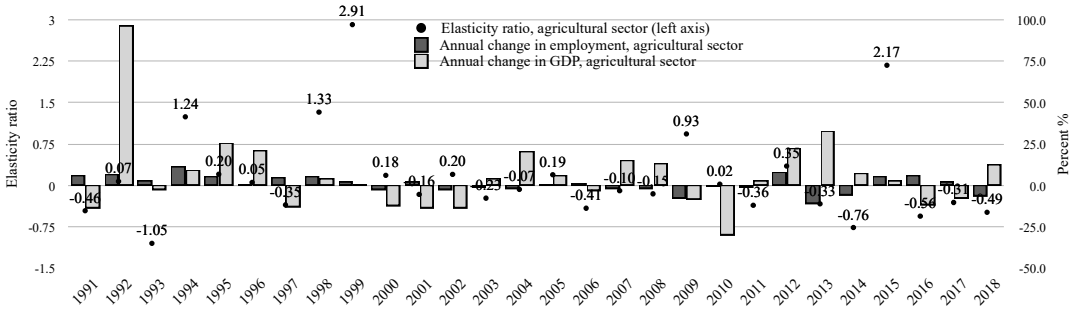
Table 4. GDP composition, 1990-2010

	1990	1995	2000	20005	2010
Agriculture	12.5	32.5	27.4	19.8	14.3
Mining	12.5	11.3	11.3	21.0	23.6
Processing industry	23.3	17.6	9.1	7.7	8.4
Electricity, gas, steam, air conditioning supply	2.2	1.4	2.6	2.7	2.1
Water supply; sewerage, waste management and remediation activities	0.4	0.3	0.4	0.5	0.4
Construction	5.7	2.0	2.6	3.0	1.7
Wholesale and retail trade; repair of motor vehicles and motorcycles	16.3	14.7	15.6	14.0	15.6
Transportation and storage	8.2	4.5	7.8	8.6	7.8
Accommodation and food service activities	0.5	0.6	1.0	0.8	0.6
Information and communication	3.0	1.7	3.4	3.9	3.4
Financial and insurance activities	1.1	1.3	2.5	3.7	2.9
Real estate activities	6.3	2.0	4.1	5.4	6.6
Public administration	2.2	2.6	3.9	2.2	3.6
Education	2.8	3.3	4.0	2.9	4.0
Health	1.9	2.2	1.6	1.2	1.7
Other	1.1	2	2.7	2.6	3.3

Source: NSO (2012) and NSO website

If the calculations are repeated one last time for the agricultural sector, it highlights the large variances in elasticity ratios (Figure 14). The employment increased from the get-go, but GDP growth was very high in 1992, where the agricultural sector share of GDP went up to 26 per cent from 12 per cent a year prior. Output growth slowed down since then, but employment continued to grow until 2000, after which the rate slowed and continued to decline on average.

Figure 14. Employment elasticity to GDP, agricultural sector, 1991-2018



Source: Calculated using data from NSO, World Development Indicators

There were several fluctuations in employment and output growth rates, which means that, for the most part, agricultural employment is inelastic regarding agricultural sector GDP. The important revelation it provides is the agricultural sector's response to *dzud*. The periods of harsh winter directly affect the sector, where some herders lose all of their livestock, who then cease to be herders and are forced to migrate to urban centres (see Figures 7 and 8). The real agricultural GDP rose on average by 10.6 per cent a year between 1990 and 1999 but declined by 13.3 per cent annually in three years between 2000 and 2002.

A similar but more severe decline occurred again during *dzud* in the winter of 2009–2010, with decreases in both, the real GDP (cumulatively 38 per cent in two years) and employment (8.2 per cent). The overall picture is more inelastic than the rest of the economies, for example, in many instances with a larger increase in employment than the output or sometimes going in the opposite direction. This is because the output in this sector is largely tied to climatic conditions, and employment largely depends on the extent of the losses sustained during *dzud*. Additionally, notably, the overall employment trend in the agricultural sector is declining, and we hardly ever observe a substantial increase in employment, apart from 2012, where employment in other sectors declined.

By observing the employment elasticity to GDP and the above-discussed labour market transitions, we can draw a few key conclusions:

• A large part of the 1990s was extremely precarious in terms of both employment and output growth.

• In Figure 12 and 13, for the periods since the 2000s, the figures had stabilised and looked similar, suggesting that the agricultural sector's impact had started to decline.

• Although employment elasticity ratios have remained positive, meaning employment growth remained in tandem with GDP growth, job creation persisted in being lower than output growth due to the growth of capital-intensive sectors, such as mining.

• During the GFC, GDP decline in 2009 was largely driven by the agricultural sector declines of over 8 per cent in output and over 7 per cent in employment (when *dzud* coincided and was largely responsible), while the rest of the economy's output managed to stay positive at 0.4 per cent and employment declined by 1 per cent.

5. Conclusion

The market transition in Mongolia had a sweeping impact on all aspects of the economy, including the labour market. The event amplified some, created, and reversed other characteristics of the Mongolian labour market throughout the 1990s and 2000s.

First, it amplified the role of the traditional livestock sector. During state socialism, Mongolia was on the path of industrialisation. The labour force engaged in the industrial sector was on the rise, while the traditional livestock sector declined. With the collapse of socialism and subsequent privatisation of livestock, the sector was revived once again, absorbing nearly half of the total employment by the end of the 1990s.

Secondly, the transition to the free market also "created" informal and self-employment practices. The fraction of the economy deemed illegal in the Soviet era, mushroomed with street vendors, petty traders, and cab drivers. The number of people employed in non-agricultural informal employment was estimated to be around 105 to 130 thousand by the end of 1996 (roughly 15 per cent of total employment). Although this phenomenon is certainly not unique to Mongolia, the persistence and slower growth in wage employment seem to be singular.

Third, state socialism with rapid industrialisation coupled with the state planning dictated employment and settlement allocations have been increasing urbanisation rates. However, the transition to the market and the consequent freedom of movement, and opportunities in rural areas following herds' privatisation have reversed the migration patterns and increased urban-rural migration.

However, with the turn of the century, these characteristics have seen adjustments again. Starting in the early 2000s, triggered by *dzud,* devastating the herds and the simultaneous return of the economy's growth elsewhere, the agricultural employment started to decline. By 2018, the share of agriculture in total employment decreased to 27 per cent (almost halved).

However, informal sector employment has proven to be much more robust to change. As the tertiary sector developed further, it provided the primary option of income for many. The share of non-agricultural informal employment in total employment stood at 17.6 per cent in 2018.

Regarding internal migration, it has seen another reversal, the rural-urban migration pattern, with an increased rate of in-migration to Ulaanbaatar where 47 per cent of the total population resided as of 2018.

Although aggregate employment did not fall substantially during the transitional recession, the close examination of labour mobility between sectors reveals that the drastic increase in agricultural employment disguised job losses in other sectors. During the transition, agricultural and informal sector employment became shock absorbers, providing livelihoods to many. Despite the declining trend in agriculture, the informal sector share is still considerable.

Finally, looking at employment to output elasticities for the aggregate economy and excluding the agricultural sector, the periods after the 2000s are similar, suggesting that since the 2000s, the agricultural sector's role decreased, and the service sector's share of the total employment increased. In contrast, the mining sector overtook the share of economic output.

Notes

[1] Formerly known as the Institute for Labour Studies (ILS), Ministry of Labour and Social Protection.

[2] Adopted by the Joint Resolution 01/68/94 of 2009 from the Chairman of the NSO and the Minister for Social Welfare and Labour.

[3] Law on Unemployment Benefits accessible at https://www.legalinfo.mn/law/details/382.

[4] The retirement age has been raised to 65 for both men and women on 2 February 2018 with the amendment to the Law on Pensions and Benefits Allocated from the Social Insurance Fund.

[5] The international average stood at 65.5 during 1990-1992, according to the World Development Indicators.

[6] (1) Milne et al. (1991) stated that "by mid-1990... about 7-8 per cent of the labour force were reported to be unemployed and by the end of the year it reached 15 per cent" (p.16); (2) World Bank (1991) report claims that "including non-registered unemployed, the Ministry of Labor estimated unemployment at about 45,000 (4.8 per cent) in mid-1991" (p. 11); (3) ADB (1992) report suggests 6 per cent unemployment at the end of 1990, but asserts that it reached 11 per cent by mid-1991 (p. 27); (4) According to Appendix 1 of the Government Resolution on National Program on Reduction of Unemployment, unemployment rose from 3.1 per cent to 8.7 per cent in 1990 to 1994 (GOM 1995: p. 1); (5) The Ministry of Population Policy and Labour estimated that by the end of 1994, unemployment was close to 15 per cent (cited in Subbarao and Ezemenari, 1995).

[7] Public expenditure on education as a percentage of GDP has fallen from 10.4 per cent in 1989 to 5.5 per cent in 1998 (Burn and Oyuntsetseg 2001).

[8] *Dzud* is a term for a severe winter, following a dry summer, which creates extremely harsh conditions for the survival of livestock. Large numbers of livestock perish, primarily due to starvation and being unable to graze, in some cases directly from the cold.

[9] 3.3 million heads of livestock perished between 1999-2000, 4.2 million between 2000-2001 and 2.2 million between 2001-2002, cumulatively making up almost 30 per cent of total livestock and approximately 13 per cent of average GDP between 1999-2002.

[10] According to the Government resolutions, the CMP was universalised in July 2006. As of January 2008, the transfer amount was about 100 US dollars a year, distributed every month. The maternity cash benefits, around 30 US dollars per month distributed to expectant mothers from the fifth month of pregnancy for 12 months (between November 2009 and June 2017). HDF transferred around 15 US dollars per month to each citizen in 2011. Cash allowances for the newlyweds and newborns were one-time payments of 500,000 MNT (about 400 US dollars) and 100,000 MNT (about 80 US dollars), respectively (applied to first-time married couples and babies born between 1 January 2006 and 31 December 2009).

[11] Average shares of herders in the total number of agricultural sector employment between 2005 and 2015 was 90 per cent.

[12] Number of herders indicate the number of people engaged in livestock herding, but not necessarily employed, which might explain the slightly higher number of herders reported.

[13] Trade, procurement and material-technical supply on earlier versions of the National Statistical Yearbooks and Figure 8.

[14] Government investment in education during the socialist period was relatively high, by 1990 the total expenditure on education accounted for 17.6% of government expenditure and 11.3% of GDP. However, between 1990 and 1992, the education expenditure was cut by 56 per cent. By 1993, the allocation to education had been reduced to 3.8% of GDP (Wu, 1994, p.xv). By 1993, 'an estimated 23 per cent of compulsory school-age children were not enrolled in school. There were about 100,000-120,000 dropouts in 1993. In 1994, primary school dropouts numbered 10,465 and secondary school dropouts 12,588'. The dropout rates were higher in rural areas and among older boys. (Burn and Oyuntsetseg, 2001, p. 29). 'Maternal mortality rates, have deteriorated over the transition, from 119 per 100,000 live births in 1990 to 157 per 100,000 live births in 1998' (ibid, p. 13)

[15] Administrative division in Mongolia (a province)

[16] The number of Ulaanbaatar household stood at 161 thousand in 1999 or around 30 per cent of a total of 541 thousand households. The author does not use the absolute number of households in Ulaanbaatar or total, in his study. The 1996 numbers could be estimated to be around 145 thousand and 28 per cent of total households, using a simple estimation from the average growth rate.

[17] The latest figure for 2019 LFS was 31.5 per cent, with 269,474 employed in non-agricultural informal employment. The total number of employed in the non-agricultural sector and the agricultural sector were 856,001 and 1,146,160 respectively.

[18] The reason for equating the livestock sector to informal employment is that herders do not pay any tax on income gained from their herds. Additionally, informal employment, along with livestock herding, was the biggest shock absorber during the transition.

[19] In 1993, the Law on Income Tax of Citizens Privately Engaged in Business and Services with Unregistered Income was passed, which listed 32 different activities ranging from taxicab driving, selling cigarettes and chewing gum on the streets, shoe-shining, shoe repairs, and kiosk operations. Each

category has a flat tax rate. Although the flat tax rate provided simplicity and efficiency in terms of calculations, it collected a greater percentage of income from those informal employees who were vulnerable and depended more on such income. The law was amended in 2001 and repealed on 1 January 2016.

[20] However, it should be noted that this simple analysis does not consider the effect of wages or lags. This study aims to illustrate the effect of agricultural employment on overall employment outcomes.

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