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***Tracking economic policy and poverty  
outcomes in Mongolia***

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## **Abstract**

Mongolia's transition strategy is unique in Asia and has been accompanied by very high levels of poverty. For these reasons, policy choices have been the focus of substantial national and international attention. This paper examines the relationship between these policy choices and the evidence on which they were based. The salient features of Mongolia, its transition and the evolution of its policy stance are presented first. This is followed by an examination of the poverty surveys, undertaken in 1995, 1998 and 2002, and their degree of comparability. The paper then maps poverty outcomes back to policy choices using standard analytical techniques. These include a growth-inequality decomposition, the compilation of pro-poor growth statistics and the derivation of growth incidence curves. The results of these analyses demonstrate severe weaknesses in the evidential record and in the degree of transparency with which this has been presented by those agencies responsible for undertaking the poverty surveys, principally the Mongolian Statistical Office and the World Bank. Nevertheless, we conclude that there has been poverty reduction in Mongolia although this is based on a 'trickledown' effect and the reduction would have been greater had more attention been paid to managing inequality.

**Keywords:** Mongolia, poverty, inequality, growth, transition

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## **1. Introduction**

Mongolia's transition strategy, entailing rapid liberalisation, deregulation and privatisation, in tandem with stringent economic stabilisation, is without parallel in East Asia. Yet Mongolia is also one of Asia's poorest, most remote and under developed countries<sup>1</sup> with over 36 percent of the population living below the poverty threshold. The national authorities and major donors have devoted considerable attention to the study of poverty during the transition, and have conducted three Living Standards Measurement Surveys (LSMSs) in 1995, 1998 and 2002. The very clear policy stance and the presence of an apparently sound longitudinal dataset, make Mongolia an ideal vehicle for tracking poverty outcomes alongside policy choices.

In this paper we examine the interactions between growth, distributional changes and poverty since the mid-1990s and investigate the wider efficacy of Mongolia's orthodox transition strategy. The analytical substance of our review is provided by the application of a standard growth versus inequality poverty decomposition methodology, and the estimation of pro-poor growth statistics. In doing so, we also address a controversy that has emerged over the comparability of the 2002 survey and thus the recent trajectory of poverty reduction - which the World Bank has claimed (in contrast with the published record) shows a sizeable fall in the headcount.

Overall, we conclude that data weaknesses limit the usefulness of the empirical record for judging or indeed framing policy choices, and specifically that the break claimed by the World Bank lies at the heart of this. We do however find evidence via a re-estimation procedure that poverty levels have fallen in recent years. Yet we argue that these reductions must be treated with caution as they are inconsistent with other indicators and would have been more substantial had greater attention been paid to managing inequality. We also find that the current policy stance is "distributionally blind" and that ongoing reductions are dependent on "trickledown" gains from Mongolia's booming mining sector, and as such, are fragile and vulnerable to external changes.

This paper is organised into four sections. We begin by setting out the economic and social context and the basic shape of the transition strategy. This is followed by a review of poverty outcomes, including discussion of the controversy surrounding the 2002 results. Third, we provide a review of the dynamics of poverty, inequality and growth, by decomposing poverty changes, and estimating pro-poor growth statistics and growth incidence curves. Fourth, we trace the pattern of poverty reduction back to policy choices and external events, and close by commenting on future prospects.

## **2. Context and the Transition Policy Stance**

Mongolia's difficult geography and its geo-political position between two of the World's great powers generate a number of specific characteristics and developmental challenges. It can be argued these characteristics have also shaped its political economy and hence, its atypical, laissez-faire post-transition policy approach.

### **2.1 History and geography**

Mongolia is a large, landlocked and sparsely populated country with an unforgiving climate. At the closest point Mongolia's frontier is over 800 kilometres from the sea, while its population of barely three million people inhabit a land just short of the size of Western Europe. The country's isolation is deepened by the absence of any significant infrastructure: a single railway links the capital, Ulaanbaatar, with Beijing and Moscow;

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<sup>1</sup> Mongolia's Purchasing Power Parity GDP per capita was \$2,056 in 2004, UNDP (2006).

and outside of a highway to the Russian border, there are no major roads. Backwardness is a defining feature of the economy. Mongolia has effectively de-industrialised in the years since the collapse of communism, and nomadic pastoralism survives with around 40 per cent of the population engaged in herding and other forms of subsistence agriculture (Marshall, 2004).

These geographical realities impose a series of vulnerabilities and constraints. The dangers posed by the harshness of the climate were made dramatically clear during the *Dzud* (extreme winter) of 1999, when upwards of 11 million animals perished, causing a staggering 30 percent decline in agricultural output (Marshall, 2004). What is often referred to as the country's "Tyranny of Distance", makes the cost of internal supply and the export of goods problematic (UNDP Mongolia, 2004).

However, Mongolia also possesses naturally given advantages - chiefly its vast mineral wealth. It is a major exporter of copper and is growing in importance as a source for gold and molybdenum. These extractive industries have generated a very considerable surplus as commodity prices have risen substantially in recent years. This is, of course, a double edged sword and brings with it further vulnerabilities and imbalances, which we argue that recent economic policy has exacerbated.

Geo-politics have also cast a long shadow over Mongolia's development. China's annexation of Inner Mongolia and the establishment of the modern Mongolian state in 1921 marked the beginning of her economic and strategic alignment, though not full integration, with Mongolia's northern neighbour, the former Soviet Union (FSU). Initially near feudal in character, Mongolia had become a full command economy by the mid 1970s. The dash for development under Soviet tutelage laid the basis for its pre-transition industrial base, and this period saw considerable structural and social change. Growth averaged 5 percent during the 1980s and human development outcomes (in education and health) were transformed (Nixson and Walters, 2000; UNDP, 2004).

**Figure 1: Map of Mongolia**



Source: Lonely Planet, [www.lonelyplanet.com/maps/asia/mongolia](http://www.lonelyplanet.com/maps/asia/mongolia)

But Mongolia's soviet economic model was already stagnating by the late 1980s and was sustained by very significant transfers from the FSU, which amounted by then to around 30 percent of official GDP (potentially more if adjustments are made for the true value of rouble-denominated trade). As early as 1985 measures were beginning to re-

organise the economy to align with its given narrow comparative advantages in minerals, and the cashmere cash crop, which remains the mainstay of nomadic incomes (Marshall, 2004).

## **2.2 The transition to the market**

The transition began in 1990, a year before the collapse of the Soviet Union, and was consolidated with the adoption of a new constitution in 1992. Mongolia's adherence to a radical version of "shock therapy" can also be traced to that time (Pomfret, 1999). The early transitional period was a cathartic, but crucially, also a chaotic time. Reform was unrelenting but also poorly executed and inappropriately phased. Nixon and Walters (2000) describe the period as being one of organizational chaos, where different ministries formed administrative baronies pursuing divergent and often contradictory objectives.

Over time, the policy approach has become more consistent and policymakers have remained loyal, regardless of changes of government, to an avowedly neo-liberal agenda. This has conformed to a standard template of price liberalisation, de-regulation, mass privatisation and the general scaling back of the State. The justification for the near simultaneous implementation of these measures is made in terms of affecting a fundamental break with the past and the creation of an "interlocking web" of market capitalist economic relations – free competition, flexible and "correct" prices, sound private property rights, open trade and a fiscally constrained state<sup>2</sup>.

Commentators from diverse ideological perspectives do however highlight somewhat different drivers for the speed of change in Mongolia. The orthodox and generally supportive group (see for example Pomfret, 1999) identify fiscal pressures as being dominant – in essence the reason for ending the soft budget constraint was not a means of securing allocative efficiency, but rather, the basic unaffordability of the State. Critics, notably Marshall, Nixon and Walters (2004) cite political and sectional interests as the key forces, with policy driven by the imperative of securing an irrevocable new order, through rewarding key groups and members of the then emerging elite.

This policy stance has also been maintained in spite of a very painful post transition recession, which involved, according to the official data, a GDP per capita compression of around 30 percent (see Figure 2) - though Nixon and Walters (2000) drawing on Boone (1994), argue the real reduction in domestic absorption was as high as 60 percent, if the withdrawn Soviet subsidies and the Terms of Trade shock following the collapse of the Council for Mutual Economic Assistance (CMEA) are properly taken into account.

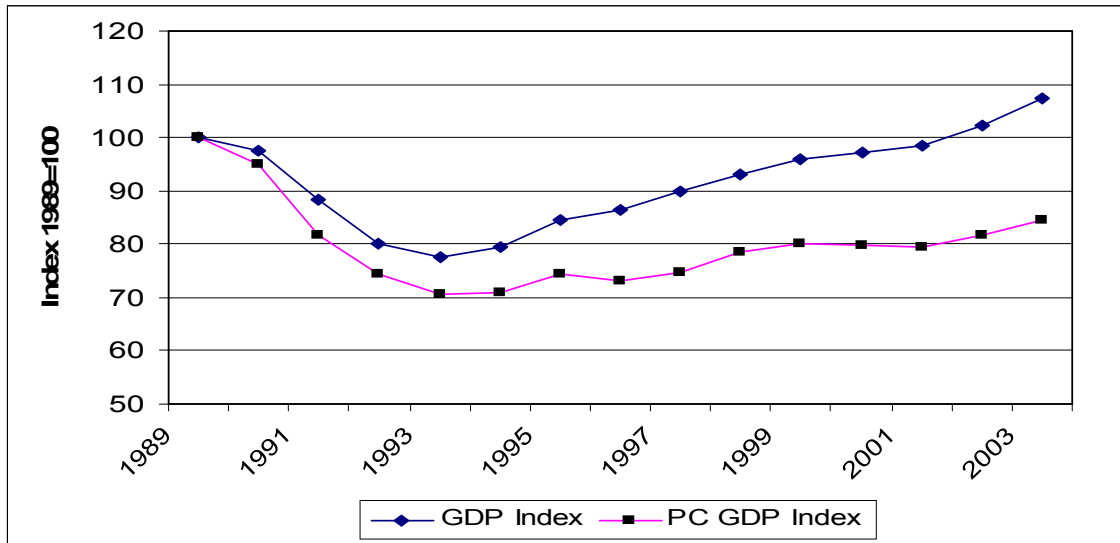
This level of retrenchment inevitably caused severe economic and social dislocation. In the years following 1990, the industrial base collapsed and a mass return to the land took place as Mongolian families sought coping strategies. By 1995 poverty had climbed to 36 percent of the population from the minimal levels in the pre-transition period.

The initial stabilisation outcomes were little better (see Figure 3). There was a significant inflation spike in 1992 followed by a rapid return to price stability. Inflation has since remained exceptionally low for such a structurally disarticulated economy. In turn, the Mongolian Togrog stabilised after initial heavy depreciation, and the current account secured some balance, albeit one sustained by large aid in-flows, which by the mid 1990s had come to match the proportion once represented by Soviet transfers.

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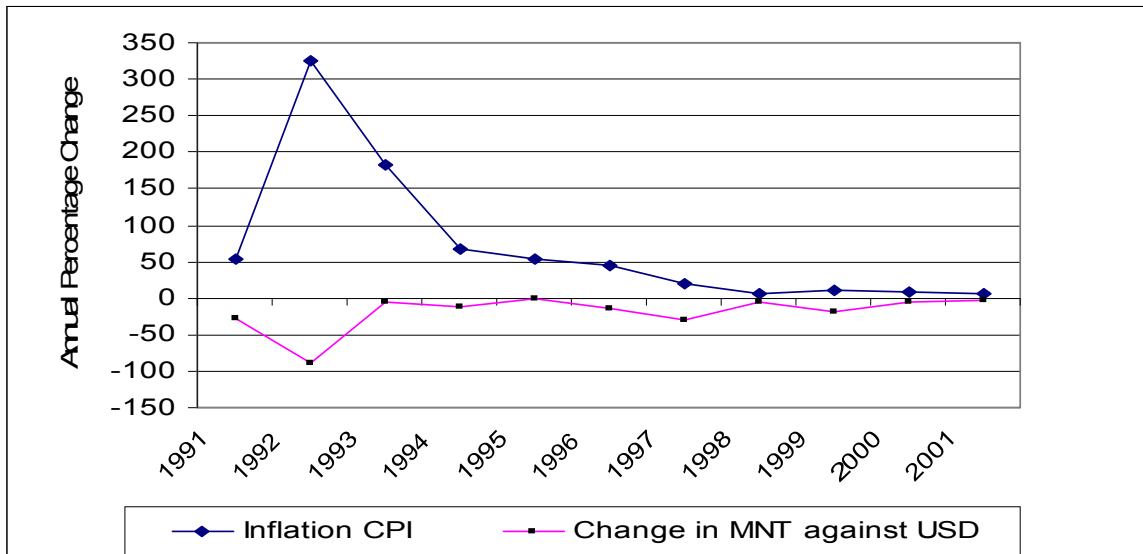
<sup>2</sup> See any standard account of Shock-therapy transition approaches – for example Stiglitz (1999).

**Figure 2: GDP and GDP per capita post transition**



Source: Mongolian Statistical Yearbook, 2004.

**Figure 3: The Impact of Stabilisation Policy**



Source: Mongolian Statistical Yearbook, 2004.

The evolution of policy over the period since 1990 can be discussed in terms of changes of emphasis rather than direction and is shown in Table 1. Marshall (2004) identifies four stages within a continuum: the immediate transition, consolidation, acceleration and adaptation. Yet this account possibly overplays the extent of change, and it is more appropriate to view the policy trajectory in terms of key milestones, within a pattern of reform followed by periods of consolidation. It is worth noting however, that many Mongolian policymakers today are highly critical, and even disavow, economic management in the early transition (Marshall, 2004).

**Table 1: Transition Policy Milestones**

Year	Milestones
1991	Near complete and overnight price liberalisation Privatisation by assignment (voucher based) of most medium sized State Owned Enterprises (SOEs)
1992	Transfer of herds and privatisation of agricultural cooperatives ( "Negdels"), Banking re-structuring, including privatisation of major Banks
1993	Togrog floated and becomes fully convertible, Some capital account deregulation takes place External tariff reductions made (to an average of 10%)
1994	National Poverty Action Programme (NPAP) launched comprising targeted poverty alleviation projects.
1996	Full price deregulation Abolition of all tariffs (an effective 0% rate)
1997	Mongolia's accession to the World Trade Organisation (WTO) Further deregulation of capital transactions and tax holidays offered to foreign investors Transfer (by assignment) of residential property, directly and at no cost to occupiers
2000	Tariffs re-imposed at 5% Strategic SOE privatisation announced
2001	Interim Poverty Reduction Strategy Paper (PRSP) adopted, stronger commitment to poverty relief articulated
2002	Land privatisation plans announced
2003	Final PRSP adopted, signalling more interventionist (but still limited) policy stance Privatisation of the Economic and Social sectors trailed (the so-called New Zealand Model)
2004	Land privatisation initiated
2005	Social sector privatisation initiated Child support scheme for poorest families launched
2006	Windfall tax imposed on mineral companies to support a National Development Fund Reductions in income and value-added taxes, child support scheme universalized
2007	National Development Strategy launched

Alongside the unrelenting commitment to liberal structural reforms, the Government undertook, with the support of the International Financial Institutions (IFI), a series of stringent stabilisation measures. This approach became entrenched within the monetary authorities after the initial inflation spike in 1992, which arguably was itself driven by poor policy phasing. The resultant hyperinflation conditioned attitudes and created a political constituency supportive of the deflationary bias of policy. Critical commentators

have argued that this stringency accelerated and cemented the process of deindustrialisation<sup>3</sup>.

### 3. Growth, Inequality and Poverty Outcomes

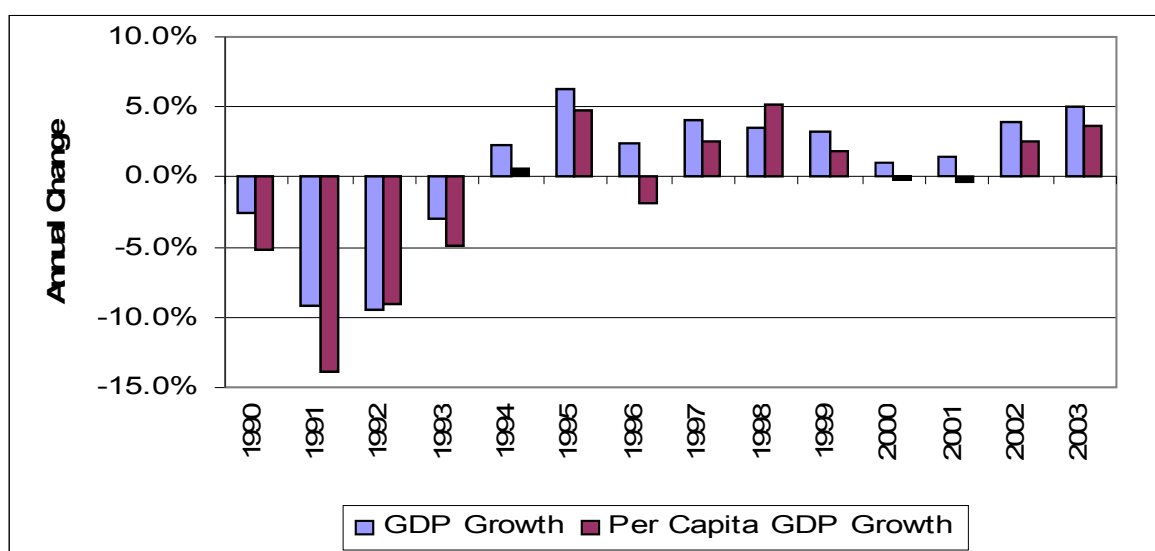
This section presents and discusses the economic and poverty data for the period since the mid 1990s. Here we draw heavily on Mongolia's three LSMS poverty surveys (1995, 1998 and 2002) which were carried out with the financial support and oversight of the World Bank and the United Nations Development Programme (UNDP)<sup>4</sup>. Our objectives are to chart the changes in poverty levels and the immediate determinants – economic growth and changes in the size distribution of income. We also address the controversy which has emerged over the comparability of the 2002 results with past surveys, and the assertion by the World Bank that very significant poverty reduction has occurred in the latter period.

#### 3.1 Published Results

As Figure 4 below demonstrates, Mongolia's growth performance, especially in per capita terms was disappointing until 2003 when growth, alongside mineral output, climbed significantly. For the period between the three poverty surveys per capita incomes rose on average only by around 1 percent a year: the total cumulative change between 1995 and 1998 was 5.8 percent and 3.9 percent between 1998 and 2002<sup>5</sup>.

Given weak overall growth, it is unsurprising that the headline poverty data given in Table 2 show little change alongside initially worsening, then improving variations in the depth and severity measures. Inequality (given by the Gini coefficient) exhibits a similarly variable path – significantly worsening between 1995 and 1998 and improving marginally between 1998 and 2002

**Figure 4: Growth Performance 1996 onward**



Source: Mongolian Statistical Yearbook, 2004

<sup>3</sup> See Nixon and Walters, 2000; Griffin *et al.*, 2003

<sup>4</sup> The World Bank funded the 1995 survey, UNDP the 1998 and both co-funded the 2002 survey.

<sup>5</sup> IMF World Economic Outlook database-  
<http://www.imf.org/external/pubs/ft/weo/2006/02/data/index.aspx>



**Table 2: Poverty and Inequality Aggregates 1995 to 2002**

Survey Year/ Measure	Poverty Headcount	World Bank Restated Headcount <sup>6</sup>	Poverty Gap	Severity (squared poverty Gap)	Gini Coefficient
1995	36.3		10.9	4.8	0.31
1998	35.6 [-1.9%]	43.1	11.7 [+7.3]	5.6 [+16.7]	0.35 [+12.9%]
2002	36.1 [+1.4%]	36.1 [-16.2%]	11.0 [-6.0%]	4.7 [-16.1%]	0.33 [-5.7%]

[Change on previous survey in parenthesis, note that a positive change (+) represents deterioration]

These results have informed the general conclusion in the literature that the period has seen little poverty reduction and that Mongolia has developed an entrenched poverty problem. Furthermore, they also suggest the growth pattern has been far from pro-poor, and in essence, the transition might well be characterised by Bhagwati's concept of "immiserating growth"<sup>7</sup>.

However, a major controversy has emerged regarding the comparability of the 1998 and 2002 surveys and more generally about the representativeness of the early studies. The chief protagonist in this debate was the World Bank, which in its 2006 Poverty Assessment, argued, for a variety of methodological reasons, that the 2002 poverty line was inconsistent with its predecessors. The Bank maintained that the 2002 line specified a more accurate, but also by implication, a higher monetary value for the poverty threshold (World Bank, 2006). A backward projection of this higher threshold automatically captures a greater proportion of the population.

On this basis, the Bank offered what it viewed as a more realistic comparison, by re-estimating poverty for 1998 based on its higher poverty line (i.e. given its 2002 methodology) and scaled the results to reflect the wider geographical coverage. It concluded that poverty in 1998 would have been 43.1 percent and not the 35.6 percent as quoted had the revised approach been applied earlier. Thus the 2002 poverty rate of 36.1 percent represented a substantial fall of 4.5 population percentage points, and a corresponding 16 per cent reduction on the 1998 base. The Bank further supported its case by back-tracking the 2002 rate using macroeconomic variables and the changes in income distribution via its Povstat poverty modelling software<sup>8</sup>. This also suggested a revised headcount figure of over 40 percent in 1998 (World Bank, 2006).

### **3.2 The 1998-2002 comparability controversy**

While these arguments have some basis in the empirical literature, the World Bank's claims need to be treated with some caution - and this is not merely because the level of the restatement is so substantial. We make two observations in support of this. First, the Bank discloses so little about its workings or the supporting data in the 2006 assessment that it is impossible to replicate the results. Second and more significantly,

<sup>6</sup> See World Bank (2006).

<sup>7</sup> Bhagwati (1958) explains this in terms of a non-developmental growth process whereby output gains accrue entirely to the rich. It has strong parallels with Mongolia's experience in that his exposition is linked with trade relations and dominance of primary products in LDC exports.

<sup>8</sup> This program allows changes in poverty rates over time to be estimated based on distributional information and macroeconomic data See [www.worldbank.org/psia](http://www.worldbank.org/psia).

the Bank's re-stated stylised facts have a poor fit with other economic data. Indeed, alongside the 16 per cent fall in the headcount, the Bank's re-stated scenario has a corresponding 18 per cent increase in average consumption levels, yet this happened over four years when total per capita GDP growth was only 3.9 percent, and the period witnessed the severe hardship associated with the 1999 *Dzud*. Reconciling this external evidence with such a large reduction is therefore difficult. The Bank's restated results do suggest a fall in inequality but not a substantial one, and the Poverty Assessment raises questions about the reliability of this trend, noting that it runs against experience elsewhere, anecdotal evidence and recorded asset distribution data (World Bank, 2006, Box 1, page 8). The remaining possibility, that the expansion in consumption and fall in poverty were fuelled by exceptional levels of growth in the non-observed sector, is also difficult to accept given the very large contraction forced by the *Dzud* on subsistence agriculture.

Concerns have however, been voiced in the past about the adequacy of the 1995 and 1998 surveys. Bremmer in Griffin *et al.* (2003) is critical of the statistical methodology employed. He argued that had standard best practice been adopted, a headcount of 51.7 percent would have been recorded for 1995 and 51.2 percent for 1998. The practices he singled out for criticism included the re-pricing mechanisms employed to allow for regional differences, and this argument also formed part of the Bank's critique.

This controversy provides the starting point for our empirical research. Resolving this question is a necessary precursor to the approach we employ to decompose and attribute the changes in poverty and our estimation of pro-poor growth indices for the two periods. Given the lack of disclosure of the original data set or the 2002 revisions, the method we use to make the two comparable cannot make use of the survey data. However, before presenting our findings, it is worth discussing the World Bank's case.

Four principal methodological arguments are made: first, that the 2002 survey makes use of a single poverty line whereas past surveys have used a series of regional lines; second, that the 2002 poverty line was estimated using a far wider basket of consumption items; third, the level of geographical coverage in 2002 was greater; and fourth, that the recall period was longer and done in a more rigorous manner in the latter survey. These arguments identify very real changes in the survey design and data capture methods. The expansion of the consumption basket and changes in coverage are well known sources of measurement error (Schelzig, 2001). Yet the claim that the surveys are therefore fundamentally non-comparable is questionable. We take each of the arguments in turn.

First, the use of a single versus a group of poverty lines is simply a change in the re-pricing methodology. In 2002 re-pricing takes the form of consumption adjustments whereas previously, separate lines were specified. A change of this nature can potentially bias the results, but the direction of the bias is ambiguous.

The second issue, that of the substantial increase in consumption items (288 were added to a base of 96) is arguably the most well grounded objection. Yet this is more likely to have a material effect on reported consumption than the estimated poverty threshold, since the nominal poverty threshold in 2002 is priced to the same adult per diem baseline of 2,100 calories. Therefore the more likely outcome of adding items to the consumption basket is actually a fall in reported poverty, as reported consumption would arguably run ahead of the higher poverty line (Lanjouw and Lanjouw, 2001). Indeed, a comparison of 2002 consumption levels made consistent with the 1998 basket (taken from the World Bank's restatement exercise), with the actual 2002 results (see Table 3) suggests this change implies an increase in national mean consumption of 15 percent.

**Table 3: Estimated impact on mean consumption of applying 2002 survey methodology**

Category	2002 Actual Mean Cons. MNT	2002 Mean Cons. Based on 1998 basket MNT	Estimated Uplift due to method change %
Ulaanbaatar	43,002	34,144	25.9%
Urban	40,348	33,956	18.8%
Rural	32,269	29,920	7.9%
National	36,747	31,958	15.0%

The Bank's third and fourth arguments on coverage and recall would potentially also have effects, as the changes might alter the balance of respondents and their reported consumption patterns. In addition it is apparent that the latter survey data show the added *Aimags* (Mongolian provinces) were on balance poorer than the set common to both, thus increasing poverty. Equally, a longer recall period is likely to reduce reported consumption.

Overall, it is difficult to reach a firm judgment on these issues, but on balance, the World Bank's case that the two poverty thresholds are no longer directly comparable is persuasive. This is further supported by the level of discontinuity between the re-priced values of the poverty thresholds – since for comparability to hold, the real value of poverty lines should remain constant through time. As Table 4 makes clear, this appears to be the case for 1995 and 1998, but not from 1998 to 2002.

**Table 4: Comparison of Re-priced<sup>9</sup> Poverty lines**

Year	Nominal Poverty Line MNT	Value at 1998 price base MNT	Real terms change on 1998 value
1995	7,240	14,624	-0.3%
1998	14,674	14,674	-
2002	24,674	19,082	+30.0%

However, the counter arguments articulated above are also persuasive, and there remain strong methodological similarities between the surveys. Therefore, although we do not reject the Bank's position, we consider that the survey datasets might be made comparable with appropriate adjustments. These are the specification of a fixed poverty line and amendments to the nominal means to compensate for the expanded consumption set. This implicitly means we would accept the existence of two real poverty thresholds: a lower one based on the truncated 1998 consumption set, and a higher one using the revised 2002 set.

Our approach is then to estimate headcounts for 1998 and 2002, consistent with the two nominal poverty thresholds. To do this we employ the World Bank's Povcal software

<sup>9</sup> Some caution is needed here in that there is a discontinuity between the re-pricing indices published by the IMF and the Mongolian NSO, here (as elsewhere) we re-priced at the mid point of the two. The mismatch between 1998 and 2002 also emerges when the separate IMF and NSO indices are used.

which fits Lorenz curves to distributional data and mean consumption levels<sup>10</sup>. By fixing the poverty line at either the 2002 or 1998 values and by re-pricing and adjusting the nominal means (by the average adjustment given in Table 6), we derive simulated consistent headcounts. This is a fairly standard application of Povcal, which provides Lorenz curves based on both the standard Generalised Quadratic specification (GQ) and Kakwani's Beta specification. We select our specification on the basis of the quality of fit given by the program and the proximity to the known (published) Gini coefficient (see Chen, Datt and Ravallion, 1991).

**Table 5: Revised Poverty Estimates**

Survey Year	Published and Re-estimated Headcounts [ % change]	World Bank Restated Headcount [ % change]
Revised Scenario 1: Using the higher (2002 basis) poverty line		
1998	43.3	43.1
2002	36.1 [-16.6]	36.1 [-16.2%]
Revised Scenario 2: Using the lower (1998 basis) poverty line		
1998	35.6	n/a
2002	29.5 [-18.2%]	n/a

The results are given in full in Appendix 1 and consolidated in Table 5 above: the 1998 headcount consistent with the published 2002 value is 43.4 percent; and the 2002 headcount consistent with the 1998 published value is 29.1 percent.

Our results under both of these revised scenarios, suggest that there was a substantial reduction in the underlying poverty level between 1998 and 2002, and that the magnitude of the change is close to that found by the World Bank. This is in marked contrast to the pattern given in the published data. Again, these scenarios are also inconsistent with what we know about economic growth and distributional changes over the period. For these reasons, and their dependence on the somewhat crude estimation technique we use and the assumptions made, we regard these results as illustrative but not definitive. However, we are inevitably forced to use them for the analysis in the next section identifying the relative contributions of growth and distributional change.

#### 4. Poverty Reduction Dynamics

In this section we investigate the extent to which growth in Mongolia has been “pro-poor” in the two periods as given by the importance of increases in average consumption (as a surrogate for growth) and distributional change. In turn, this provides evidence for our review of the policy stance which follows in Part IV. Our approach relies on three interlocking pieces of analysis: firstly, we present the results of our decomposition of poverty changes; second, we estimate a number of pro-poor growth statistics; and third we plot growth incidence curves (GICs), depicting the changes across the distribution. Results are provided on the basis of our second revised scenario (i.e. the lower poverty line consistent with the 1998 methodology), thus ensuring the real value of the poverty line is consistent across all three surveys.

At the outset, it is important to also acknowledge that the notion of *pro-poor growth* is a contested concept, between those who assert that any poverty reducing growth is pro-poor - the orthodox and so called *Weak* position versus those who hold that growth is only pro-poor to the degree that it more than proportionality benefits the poor – the

<sup>10</sup> See <http://www.worldbank.org/lsmstools/povcal/>.

heterodox and so called *Strong* position. Although we favour the latter definition, in the following we adopt an even handed approach and allow the results to speak for themselves.

#### 4.1 Poverty Decomposition

We rely on the decomposition specified by Kakwani (1994) which isolates growth and distributional effects by differencing actual versus simulated growth-neutral and distribution-neutral outcomes, and averaging them from the base and terminal positions<sup>11</sup>. Formally the change in any additive poverty measure (P) between two surveys, specified by their means ( $\mu_1$ ,  $\mu_2$ ) and distributions ( $\psi_1$ ,  $\psi_2$ ), can be decomposed as follows<sup>12</sup>:

*Total change in poverty equals*

$$P(\mu_2, \psi_2) - P(\mu_1, \psi_1) =$$

*A Growth Component*

$$\frac{1}{2} \{ [P(\mu_2, \psi_1) - P(\mu_1, \psi_1)] + [P(\mu_2, \psi_2) - P(\mu_1, \psi_2)] \}$$

*Plus an inequality component*

$$+ \frac{1}{2} \{ [P(\mu_1, \psi_2) - P(\mu_1, \psi_1)] + [P(\mu_2, \psi_2) - P(\mu_2, \psi_1)] \}$$

The mechanism for simulating these outcomes is the iterated use of the Povcal software (referred to above) via the specification of different re-priced mean incomes and Lorenz Curves (based on published distributional data), while also holding the poverty line fixed. For consistency we set the poverty line in each period at the base level (i.e. we use the 1995 value for the 1995 to 1998, and the 1998 value for the 1998 to 2002 comparison). Additionally, we corrected for marginal estimation errors by fixing the start and end positions to the published results where possible. The technique yields simulated headcount ratios which can then be differenced in line with the decomposition formula. Table 6 reports the summary results, a full set of outcomes with some variation of the assumptions is provided in Appendix 2.

**Table 6: Poverty Decomposition based on preferred scenarios**

Period	1995-1998	1998-2002
Growth Effect [% change on base]	-1.9 [-5.2%]	-6.7 [-18.8%]
Inequality Effect [% change on base]	+1.2 [+3.3%]	+0.2 [+0.6]
Total Change in Headcount [% change on base]	- 0.7 [-1.9%]	-6.5 [-18.2%]

Several significant findings emerge from the decomposition. First it is apparent that poverty reduction between 1995 and 1998 was disappointing: poverty fell by a mere 1.9 percent overall; had inequality not worsened the reduction would have doubled to 5.2 percent. Underpinning this was the general deterioration in the Gini coefficient. It is worth remarking however, that the distributional data for 1998 (used in Povcal) understates the actual Gini coefficient and potentially the real inequality effect may have been even higher.

<sup>11</sup> We prefer this to the decomposition offered by Ravallion (1992) which provides a decomposition working from the base position, as it avoids a residual term. Kakwani's decomposition effectively allocates this between the two effects.

<sup>12</sup> This formal specification taken from McCulloch and Baulch (1999).

In contrast, the second period sees a very much more substantial poverty reduction of 18.2 percent, with only a mild distributional effect working in the opposite direction. Counter intuitively this arises even though the Gini improves marginally. This is because the Gini is affected by the entire distribution so that it is possible that it may not accurately reflect the shape of the Lorenz curve in the region of the poverty line.

#### 4.2 Pro-poor growth statistics

Based on the poverty decomposition we calculated a series of standard pro-poor growth statistics. Their meanings are summarised below and the results are reported in Table 7 and in full at Appendix 3:

- The Growth Elasticity of Poverty reflecting the headcount's responsiveness to changes in growth in average incomes.
- The Poverty Pro-poor Growth Index (PPGI) which is the ratio of partial to total elasticity, reflecting the pro-poor orientation of growth. Authors from the *Strong* position hold that a value of one and above indicates a progressive growth process.
- The Poverty Equivalent Growth Rate (PEGR) which is the rate of growth that would have occurred had all incomes increased in line with those of poor. This measure is especially useful as it can be interpreted from both conceptual positions: from the *Weak* side, growth is pro-poor so long as the rate is positive; from the *Strong* position, it is considered pro-poor if the PEGR's is above the overall rate of growth.

**Table 7: Pro-poor Growth Statistics 1995 to 1998 and 1998 to 2002**

Metric	1995 to 1998	1998 to 2002
Growth Elasticity of Poverty		
- Total	-1.65	-1.38
- Partial	-4.35	-1.42
Pro-poor Growth Index (PPGI)	0.38	0.97
Poverty Equivalent Growth Rate (PEGR)	0.44%	12.69%
Memo: Overall Growth Rate (of Consumption)	1.2%	13.1%

It is worth emphasising again that the growth rate in this context is the average growth in consumption given by the surveys and not the economy-wide growth rate.

These results generally bear out the findings from the poverty decomposition. Specifically, in the first period, the overall reduction in the headcount is accompanied by unfavourable distributional changes. This is illustrated by the low PPGI and the divergence of the PEGR from the average growth in consumption. Yet the high total elasticity underscores how poverty is still responsive to growth, and the reduction is therefore limited by the lack of overall growth. Despite this, the period is only minimally pro-poor even under the *Weak* definition.

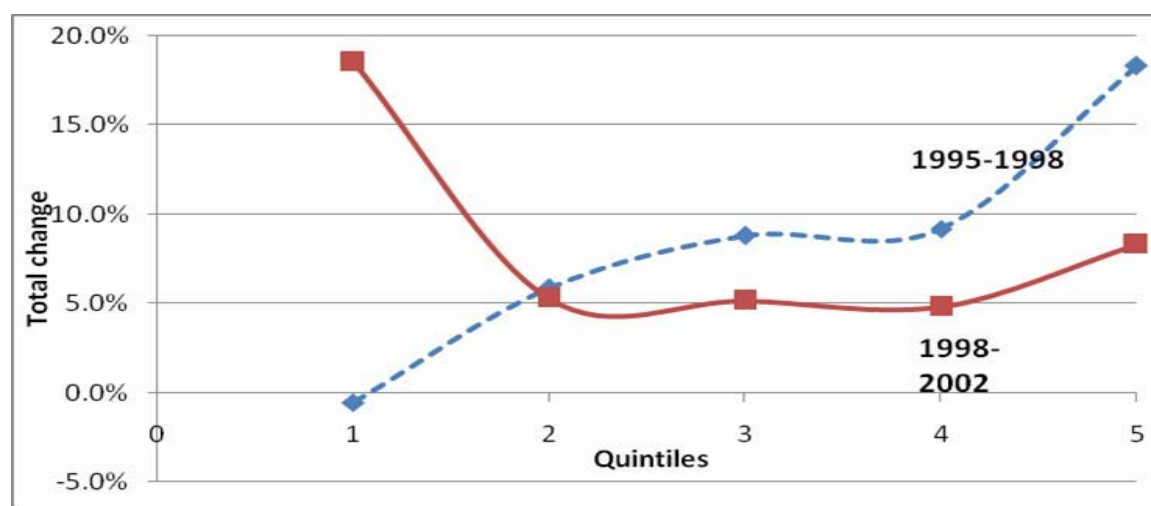
The second period, in contrast, sees a high level of poverty reduction and a near-direct pass through from mean consumption growth to the consumption of the poor. From the *Weak* position this period is highly pro-poor. From the *Strong* position the picture is unclear - the PPGI and PEGR show that average incomes still rise above those of the poor, thus this growth episode might be labelled "neutral".

### 4.3 Growth Incidence Curves

Additionally, and independently of the decomposition exercise, we have also calculated and plotted growth incidence curves (GICs) for the two periods (see Figure 6)<sup>13</sup>. Unfortunately, the lack of published data has limited us to interpolating the curves between quintiles. This is admittedly an inadequate representation, but something of the overall change is apparent. It is important to recall that the changes in consumption depicted by the GICs represent the effect of both growth and distributional shifts at different levels.

Referring first to the 1995-98 period (the broken line) we see that the highest quintile received the greatest increase, while consumption in the lowest quintile actually falls. This is consistent with the negative distributional change reflected by the worsening Gini. Confusingly, growth in consumption around the second quintile is positive yet there is only very weak poverty reduction taking place.

**Figure 6: Growth Incidence Curves 1995 to 1998 (broken line) and 1998 to 2002 (unbroken line)**



The curve for the 1998-2002 period (unbroken line) is rather different. This has two maxima – in the first quintile and in the last. While the changes at the top of the distribution are a fairly standard transition phenomenon, improvements at the bottom are unusual. The falls in the published severity and poverty gap measures are however consistent with this. Although consumption around the poverty line (i.e. at the 36<sup>th</sup> percentile) in the second quintile is positive, at around 6 percent, this only weakly supports the World Bank's claimed (and our estimated) substantial reduction in poverty.

### 4.4 Sensitivity and reliability of results

It is important to emphasise the difficulties our weak data have imposed on the analysis, and to reflect on the sensitivity of our findings to changes in the adjustments we have made. Three sets of considerations need to be noted.

First, caution must be expressed in relation to our re-estimation of the degree of poverty reduction between 1998 and 2002. Central to this adjustment is the very crude estimate we make of the impact on mean consumption of moving to the new survey design in 2002. The precise impact of using a wider consumption basket is unlikely to be well-

<sup>13</sup> In this context, it would be more accurate to refer to them as *growth in consumption incidence curves*, as they indicate the changes in consumption at different positions along the distribution.

mapped by the difference in averages we gleaned from the World Bank's re-working of the results. The impact could also have been rather different in the 1998 base, whereas our estimation procedure assumes that they are the same. However, there is little else to go on given the lack of disclosure and we purposefully avoid re-estimating the two poverty lines themselves.

Second, there is the impact of our re-pricing assumptions on the decomposition and thus the statistics for both periods. The differencing procedure we use relies on accurately re-pricing the poverty lines and nominal means to ensure consistency. Practice varies among researchers, but it is common to use a standard consumer inflation measure (see for example McCulloch and Baulch, 1999) and we sought to use the published CPI for Mongolia. However, the data published by the Mongolian authorities are at odds with those provided by the International Monetary Fund (IMF). In spite of enquires we were unable to resolve this discrepancy and have therefore re-priced using the midpoint of the two indices. Changing the re-pricing basis would have a substantial impact on the relative growth and inequality effects in both periods, and some effect on the estimated poverty reduction in the second period. Appendix 2 provides an indication of the impact on our results of varying the re-pricing approach.

Third, there are a number of other weaknesses which, although not significant in terms of their impact, raise general worries about the quality of our results. These include the limited quintile based information available to us, and inconsistencies between mean and median consumption growth in the first period.

## **5. The Policy Stance and Poverty Outcomes**

Tracing the causal connections between policy actions and poverty outcomes is necessarily problematic. This is not merely because we have to contend with the presence of lags and multiple causations, but also crucially because there is no well-defined counterfactual. In addition, the data weaknesses we have described ensure that our results can be no more than illustrative of the pattern of change. In discussing the effectiveness of policy therefore caution is necessary. Nevertheless, we do attempt below to provide some comparison of the results against our outline of policy and external economic events, and we comment on the likely future trajectory of poverty levels in Mongolia.

We begin with two general observations on the pattern of poverty reduction and its key drivers. Firstly, our work suggests that both periods saw reductions in poverty levels - in the initial period the reduction was minimal and the second it was potentially substantial. Our account contrasts with the official published position, but accords with that offered by the World Bank. However, in the light of our misgivings, we cannot say with conviction *just* how substantial the reduction was in second period.

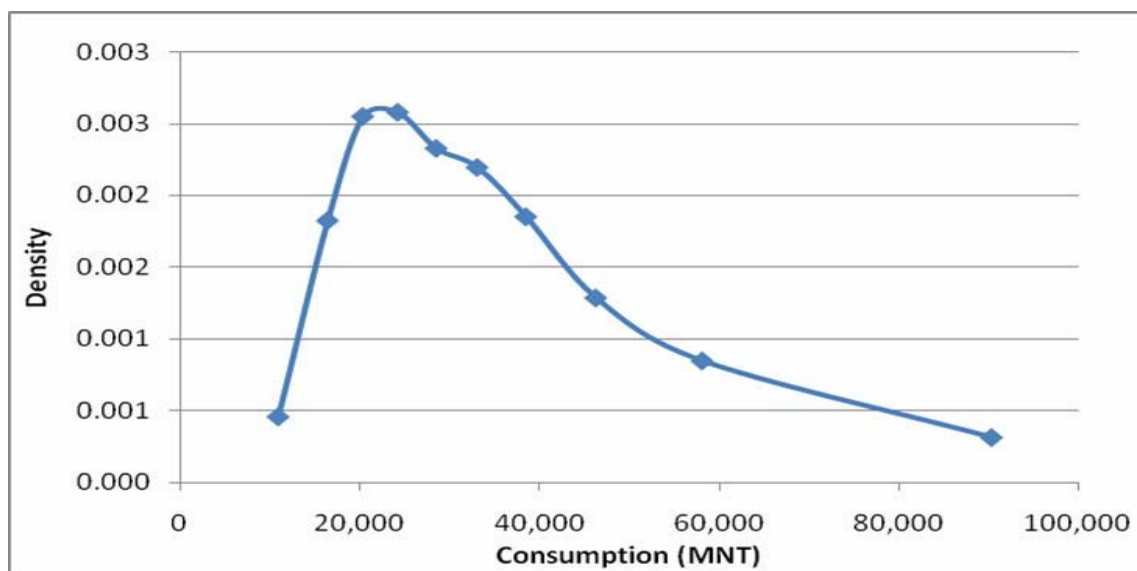
Second, the analysis tends to suggest that the two periods were also very different in terms of the dynamics at work. Between 1995 and 1998, adverse distributional changes play an important role, more than halving the potential reduction in poverty, whereas between 1998 and 2002 distribution appears to play no role and growth almost entirely drives the reduction. On the face of it, this suggests that inequality has mattered less as the transition has proceeded.

But we believe this would be a misreading of the results. Simply because there is little distributional change between 1998 and 2002 does not mean the share of income captured by the poor is unimportant to poverty reduction. An examination of the consumption density function for 2002 (see Figure 7 below) underlines why greater equity could have offered still higher reductions in the headcount in the latter period. It is



clear that consumption levels peak very close to the nominal poverty line of 24,743 Togrogs – managing inequality matters greatly therefore in this economy . It also has to be recalled that the Bank, like us, express doubts about the reliability of the published distributional statistics.

**Figure 7: Consumption Density Function 2002**



Mapping the pattern of poverty reduction to events or policy actions is even more problematic. We effectively have stagnating consumption between 1995 and 1998 with worsening inequality, followed in the 1998 to 2002 period of expanding consumption alongside moderately improving equality. Within themselves these events are not necessarily inconsistent, yet there is little evidence external to our calculations, to explain why these changes occur.

The external environment is similar in both periods: the initial year sees a major retrenchment of growth in 1996 with the fallout of the banking crisis of the mid 1990s; yet the second period sees the painful *Dzud* of 1999 and its aftermath. Although these events may have had a distributional impact, GDP per capita growth for the two periods is similar at 5.0 percent and 3.9 percent respectively. These figures also contrast with the growth in average consumption suggested by the survey data at 1.7 percent and 13.1 percent respectively. The World Bank's 2006 Poverty Assessment notes still higher (and therefore more contradictory) rises in consumption. A possibility is the growing importance of the unobserved sector and remittances in the second period. The former seems unlikely given the impact of the *Dzud* on subsistence agriculture, though the latter may offer some explanation.

A similar difficulty arises when the development of policy is examined. There is little discernable change over the two periods, and the key developments that might affect consumption, chiefly price liberalisation and asset privatisation, took place either before or just within the first period. It is possible that there would have been a strongly negative distributional impetus between 1995 and 1998, and this does accord with the initially worsening Gini. Similarly it might be suggested that poverty alleviation efforts for the poorest under the PRSP began to be felt then, which positively influences distribution around the poverty line. It is also apparent that this latter period is somewhat "quieter" in policy terms and lacks major reforms. But then again, the late 1990s also sees the privatisation by assignment of family homes, which empirical research has

suggested had a major impact on consumption and distribution (Nixson and Walters, 2006). Moreover, the growth incidence curves in Figure 7 provide some evidence of a “hollowing out” of the distribution.

These findings are far from clean, and along with our various data concerns, means that it is extremely difficult to distinguish the noise from the signal in the data, and inevitably limits the insights we might offer for the future. Two post 2002 developments do however merit special comment.

The first is that Mongolia’s recent growth acceleration is predominately associated with its booming minerals sector. This is an activity well-known for its limited poverty reducing potential - with the demands and benefits it generates likely to be far from equitably distributed. This is separate and additional to the inherent vulnerabilities and dependency associated with specialisation of this sort. Recent reversals in copper prices underline these dangers.

The second is that although this boom has also generated fiscal space, the State has done little to address directly Mongolia’s entrenched poverty problem. It seems that decision makers remain distributionally blind. Recent policy choices, if anything, have become less pro-poor in orientation, with the 2006 and 2007 budgetary surpluses being returned to those in the middle and top of the income distribution via large tax cuts and the universalisation of previously targeted welfare benefits.

With the notable exception of greater investment in infrastructure, the National Development Plan published in 2007 (Government of Mongolia, 2007) signals that short term growth maximisation, based on the disengagement of the State, continues to be viewed as the primary means of securing Mongolia’s development. The poverty reduction model at the heart of this strategy is one of “trickledown” premised on high mineral prices.

## **6. Conclusions**

Two distinct sets of conclusions arise from the paper. The first centre on the poor quality of the empirical evidence and the second on the (albeit limited) inferences it is possible to make about the trajectory of poverty and the broad policy stance during the later period of Mongolia’s transition.

An important, initial conclusion that we reach is that what can be said with certainty about poverty, its determinants, and the relationship with policy is heavily limited by the inconsistencies and inadequacies of the longitudinal data record. This is a disappointing finding which has lessons for both national policymakers and the international sponsors of the poverty surveys in Mongolia (and elsewhere). Indeed, there seem to be few policy benefits from financing such expensive, purportedly world-class surveys without paying due regard, at the design and implementation stages, to issues of comparability through time.

A linked but conceptually separate conclusion is that our analysis was also limited by excessive secrecy about the data on the part of the National Statistical Office; and opacity about the ‘ex post’ methods used to ensure comparability on the part of the World Bank. There is a severe lack of transparency in the process at every stage. Data, even at the summary level, are generally not available to independent researchers; and moreover, the analyses applied by the Bank in re-casting poverty aggregates are referenced but not discussed in any useful way. In consequence, the published results are not fully replicable, and the possibilities for informed debate over policy outcomes are further limited.

The weaknesses in the data record and the lack of disclosure also have implications for national ownership and policy formulation. Not merely is it very difficult to trace the general direction of change, but the standard “tool kit” of poverty diagnostics (as recommended by the World Bank) is rendered ineffective. Researchers and policymakers alike are forced, in most cases, to make very crude approximations to the key statistics, and left to second guess the underlying dynamics and likely alternative outcomes.

These shortcomings mean that it is impossible to reach strong conclusions about the interaction between poverty and policy choices (this in itself prompts questions about the underlying motivations for the lack of disclosure). Nevertheless, we believe that it is possible to draw a second set of, albeit tentative, conclusions about the pattern of change. First, there is evidence that poverty levels fell over the two periods, and significantly so between the 1998 and 2002 surveys, furthermore that this latter reduction was entirely driven by strong growth in average incomes. Second, however, we find that inequality remains central to the determination of poverty in Mongolia, and that the reduction (in both periods) would have been greater had more attention been devoted to managing distributional change.

We argue as a result, that the ongoing emphasis on trickledown as a core mechanism for poverty reduction is misplaced. Should the recent strong economic growth driven by the booming minerals sector be reversed, then the failure to address inequality will have a very significant impact on the incidence of poverty. In spite of this inherent vulnerability, economic policy appears to be becoming less not more concerned with inequality. This is not encouraging for the future, and especially so for the (at least) 36 percent of Mongolia’s population that remain below the national poverty line.

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## Appendix 1

Estimation of consistent poverty lines for 1998 and 2002

Base data

	1998 Survey	2002 Survey
Nominal Mean	21,795	36,747
Re-pricing index (midpoint IMF & Mongolian CPI series, 1995=100)	202.0	261.9
Means at 1998 prices	21,795	28,340
Means at 2002 prices	28,260	36,747
Further adjustment index for methodological change (see Table 3)	100.0	114.99
Mean after adjustment (forward projection, 1998 basis)	n/a	24,674
Mean after adjustment (backward projection, 2002 basis)	32,495	n/a
Nominal Poverty Lines	14,674	24,743
Published Gini	0.35	0.33

Povcal output

(a) Backward projection using 2002 basis

	P0	P1	P2	Gini
2002 Actual	36.1	9.7	3.9	0.33
1998 Estimates (Generalised Quadratic specification)	43.3	15.2	7.3	0.34

(b) Forward projection using 1998 basis

	P0	P1	P2	Gini
2002 Estimates (Beta specification)	29.1	8.3	3.3	0.33
1998 Actual	35.6	11.7	5.6	0.35

## Appendix 2

### Alternative poverty decomposition results

		Period 1: 1995 to 1998	Period 2: 1998 to 2002	
			Without	With
<i>Unadjusted output:</i>				
<i>Re-ricing basis:</i>	IMF/ NSO	(-0.7, +2.4, +1.7)	(-13.6, -0.4, -14.0)	(-6.8, +0.1, -6.7)
	NSO	(-5.7, 2.4, -3.3)	(-12.8, -0.7, -13.5)	(-6.4, 0, -6.4)
<i>Start &amp; end points fixed to actuals:</i>				
<i>Re-ricing basis:</i>	IMF/ NSO	<u>(-1.9, +1.2, -0.7)</u>	(-6.4, +6.9, +0.5)	(-3.2, +3.7, +0.5)
	NSO	(-4.4, +3.7, -0.7)	(-5.9, +6.4, +0.5)	(-3.0, +3.5, +0.5)
<i>Start point fixed to actuals:</i>				
<i>Re-ricing basis:</i>	IMF/ NSO	n/a	n/a	<u>(-6.7, +0.2, -6.5)</u>
	NSO	n/a	n/a	(-6.3, +0.2, -6.1)

#### Notes:

1. Ordering of decomposition results: growth effect, distribution effect, total change in headcount.
2. Preferred scenarios shown in bold underlined text.
3. Second period results assume use of lower (1998 basis) poverty threshold throughout. Appendix 1 gives projected headcount using the higher (2002) threshold.
4. Comparability adjustment refers to 15 percent uplift in mean consumption resulting from methodological changes in poverty threshold calculation in 2002.
5. Alternative re-ricing bases reflect a divergence between CPI indices reported by the IMF and the Mongolian National Statistical Office (NSO). The adopted action is to re-price using the midpoints of the two series.
6. Fixing start and end points refers to replacing unadjusted Povcal output with actual headcount figures with published data. Partial fixing for 2002 reflects the discontinuity

between the two poverty lines; this partial option is therefore the basis of the re-estimation exercise given in Appendix 1.

#### Results for pro-poor growth statistics

Metric	Formula	1995 to 1998	1998 to 2002
<u>Growth (of Consumption) Elasticity of Poverty</u>			
- Total	$\epsilon_H = \delta = \delta_H / \delta \mu \cdot \mu / H$ - Total % Change in P0 - Change in Mean Consumption	<u>-1.65</u> -1.93% 1.17%	<u>-1.38</u> -18.02% 13.08%
- Partial	$\epsilon_H = \eta = \delta H_G / \delta \mu \cdot \mu / H$ - Change in P0 holding inequality constant	<u>-4.35</u> -5.10%	<u>-1.42</u> -18.58%
<u>Pro-poor Growth Index (PPGI)</u>	$\phi = \delta / \eta$ - Total over partial elasticity	<u>0.38</u>	<u>0.97</u>
<u>Poverty Equivalent Growth Rate (PEGR)</u>	$\gamma^* = (\delta / \eta) \gamma$ - PPGI x mean Growth Rate  - PEGR Compared against Mean Consumption Change	<u>0.44%</u>  Well below growth rate	<u>12.69%</u>  Slightly below growth rate
<u>Brief Comments</u>		Overall reduction very low. Pro-poor only in <i>Weak</i> sense. Poverty fairly responsive to growth, but also brings rising inequality.	Large reduction. Pro-poor in a weak sense, and neutral in <i>strong</i> sense. Poverty responsive to growth, but again with a small offsetting distributional effect.

Note:

Calculations are premised on preferred decomposition options (see Appendix 2): Fixed start and end points for 1995 to 1998; adjusted and partially fixed for 1998 to 2002.





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