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Pro-poor Growth during Exceptional Growth. Evidence from a Transition Economy

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Abstract

The paper uses a range of methods to assess changes in income, poverty and income distribution between 2001 and 2002 in Kazakhstan. It is found that outstanding GDP growth has been translated into very modest growth in mean household income. However, both income poverty and inequality have decreased significantly and growth has been 'pro-poor', which is explained by changes in inequality accounting for almost all the changes in poverty. The elasticity of poverty with respect to both growth and inequality is also found to be high. These findings suggest that GDP changes can be, at times, disjoint from household income performance and that, when this happens, income redistribution can still play a key role for poverty reduction. Yet a much greater reduction in poverty would have occurred if mean income would also have risen. Hence, the distribution of GDP growth among factors of production and the distribution of income among households are the cornerstones of poverty reduction rather than GDP growth alone.

JEL Classification: D31, D63, I32, O1, P36

Keywords: Growth, Poverty, Inequality, Kazakhstan

1. Introduction

Kazakhstan has emerged during the past few years as one of the fastest growing countries in the world. In the four consecutive years between 1999 and 2002, the country enjoyed a GDP growth rate of 2.7% in 1999, 9.8% in 2000, 13.5% in 2001 and 9.5% in 2002. The National Statistical Agency (NSA) has also estimated that poverty (headcount index) has declined over the same period from 34.5% to 20.5%.[2] Such estimates have been subject to speculation because during the period considered the survey methodology and questionnaires as well as data aggregation procedures have often changed and absolute figures such as the headcount index are likely to be non-comparable over the period. However, starting from 2001 the NSA has implemented a very comprehensive quarterly living standards survey on a rotating sample of 12,000 households, which is now considered to be a reliable and consistent source of information.

This paper uses the 2001 and 2002 surveys to address three main questions. First, what are the actual changes in absolute poverty and inequality between 2001 and 2002 using a consistent income measure and a consistent methodology to aggregate data (section 2); Second, to what extent was poverty reduced by changes in mean income as opposed to changes in the distribution of income (section 3); Third, to what extent was income growth 'pro-poor', in the sense of benefiting poorer households more than richer households (section 4).

Addressing these questions in a transitional economy such as Kazakhstan helps to shed light on the controversial relationship between GDP growth and household welfare in transitional economies. The benefits of GDP growth to household welfare

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[2] NSA (1999-2002)

extend beyond the short-term, and this paper observes only two consecutive years. However, the years observed followed a two-year period of significant growth (1999 and 2000) and coincided with a two-year period of exceptional growth (2001 and 2002). We should expect some of this growth to be reflected in improvements in living standards. The paper uses decomposition methods and pro-poor growth measures to assess whether changes in poverty have actually occurred and, if this is the case, what explains such changes.

It should be noted that the growth of household income measured by means of household surveys cannot be used as a proxy for GDP growth, or vice-versa. In national accounting, private consumption is only one of the components of GDP. If measured by the expenditure-side method, as indicated by the UN system of national accounts, GDP includes private consumption, government consumption, non-profit institutions serving households, gross capital formation and net exports. Household consumption as measured by household surveys may represent private consumption but would then comprise only a part of this measure.[3]

GDP and household consumption measured by household surveys are therefore two very different measures whose growth rates are not necessarily related. Indeed, while GDP in Kazakhstan increased by 9.5% between 2001 and 2002, mean household income measured by household surveys increased by only 0.7%. Thus, the question is whether such a small change in household income has been sufficient to reduce poverty and/or whether other distributional mechanisms have been at work in favour of the poor.

2. Changes in poverty and inequality 2001-2002[4]

Positive changes in both poverty and income inequality are visible between 2001 and 2002 (table 1). Mean consumption expenditure has increased by 0.7%, although we have remarked that this rise is very moderate relative to the growth of GDP. The median has also shifted positively by 2.2% while dispersion – as measured by the coefficient of variation – has decreased by 4.2%.

As measures of poverty, we use the Foster-Greer-Thorbecke (1984, FGT below) class of poverty measures including the Headcount Index P(0), the Poverty Gap Index P(1), and the Severity of Poverty Index P(2). The three indexes can be expressed in a general form and distinguish themselves by the different weights attributed to the distance between income of the poor and the poverty line. P(0) attributes equal weight to all incomes of the poor while P(1) and P(2) attribute an increasingly greater weight to incomes of the poor distant from the poverty line.[5]

[3] As explained in NSA (2002), the statistical agency of Kazakhstan calculates private consumption ('Final Consumption Expenditure of Households' in their terminology) by aggregating expenditure on purchases of consumer goods and services from all trade enterprises, city markets and non-organised trade, from public service enterprises, passenger transport, communication establishments, hotels, commercial institutions of culture, health care, education and consumption of goods and services received in kind (self-production for consumption, imputed services of owner occupied dwellings and benefits in kind derived from other labour activities). By aggregating consumption data from the supply side, private consumption is likely to include consumption of non-citizens, enterprises and other organisations which is beyond what household consumption from household surveys can measure.

[4] A description of the data used in this paper is available in the Annex.

[5] The general formula for the FGT poverty indexes is:

All FGT Poverty indexes have declined between 2001 and 2002 and the decline has been deeper the 'deeper' is the poverty measure used. The Headcount Index has decreased by 12.5% and the Poverty Gap and the Severity of Poverty Indexes have declined by 20.5% and 23.1% respectively. Poverty appears to have decreased for the very poor relatively more than for the poor as a whole.

As measures of inequality, we use three of the Generalised Entropy (GE) class of measures – GE(0), GE(1) and GE(2) – and the Gini coefficient. The three GE measures are distinguished by the different weights attributed to distances between incomes in different parts of the income distributions. GE(0) gives more weight to distances in the lower end of the distribution, GE(1) gives equal weight across the distribution and GE(2) gives more weight to distances in the upper part of the distribution. GE(0) is also known as the mean log deviation, GE(1) as the Theil index and GE(2) as half the squared coefficient of variation. The Gini coefficient can be defined as "*(...) the average difference between all possible pairs of income in the population, expressed as a proportion of total income*" (Cowell 2000, p.23).[6]

$$P = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^{\theta}$$

With *n*=population; *q*=population below the poverty line; y_i=income of person *i*; *z*=poverty line and θ=Poverty aversion parameter. With θ =0 we obtain P(0); with θ =1 we obtain P(1) and with θ =2 we obtain P(2). For a further description of these indexes see Ravallion (1994)

[6] The general formula for the Generalised Entropy class of measures is:

$$GE(\theta) = \frac{1}{\theta^2 - \theta}\left[\frac{1}{n}\sum_{i=1}^{n}\left[\frac{y_i}{y^*}\right]^{\theta} - 1\right]$$

With n=population; y_i=income of person *i*; y*=average income and θ=discretionary parameter. With θ=0 and θ=1 the equation is solved by taking the limit of GE(θ) for theta that tends to zero and for theta that tends to one using l'Hôpital's rule. With theta that tends to zero, we obtain the Mean Log Deviation:

$$GE(0) = \sum_{i=1}^{n}\frac{1}{n}\left[\log\left(\frac{y^*}{y_i}\right)\right]$$

And with theta that tends to one we obtain the Theil index:

$$GE(1) = \sum_{i=1}^{n}\frac{1}{n}\left(\frac{y_i}{y^*}\right)\left[\log\left(\frac{y_i}{y^*}\right)\right]$$

With theta equal to two and substituting two to theta in the general formula we obtain half of the squared coefficient of variation:

$$GE(2) = \frac{1}{2}\left[\frac{1}{n}\sum_{i=1}^{n}\left[\frac{y_i}{y^*}\right]^{2} - 1\right]$$

See Cowell (2000) for a full description of these measures.

Table 1 **Summary statistics, poverty and inequality measures 2001-2002**

	2001	2002	% change
Summary Statistics			
Number of observations	11,883	11,820	-0.5
Sum of frequency weights (population)	14,630,735	14,175,339	-3.1
Mean Income (Tenge*, real values 2001)	71,849	72,337	0.7
Median (Tenge, real values 2001)	62,049	63,415	2.2
Coefficient of variation	0.572	0.548	-4.2
Poverty line (Tenge)	37,886	37,886	0.0
FGT Poverty Measures			
P(0) – Headcount index	17.6	15.4	-12.5
P(1) – Poverty gap index	3.9	3.1	-20.5
P(2) – Severity of poverty index	1.3	1.0	-23.1
Generalised Entropy Indexes and Gini Coefficient			
GE(0) – Mean log deviation	0.142	0.129	-9.2
GE(1) – Theil index	0.142	0.130	-8.5
GE(2) – Squared coefficient of variation/2	0.164	0.150	-8.5
Gini coefficient	0.294	0.281	-4.4

Source: Author's calculations. (*) The Tenge is the national currency of Kazakhstan.

Income inequality has also visibly decreased and the size of the fall in inequality seems to be a decreasing function of income. The more weight is given to distances between incomes in the lower end of the distribution, the higher is the fall in inequality. Thus, GE(0) has fallen more than GE(1) and GE(2) respectively meaning that inequality has fallen more among the poor than among the rich. The fall in the Gini coefficient also indicates that, on average, distances between incomes have declined by 4.4%.

3. The decomposition of poverty changes into growth and inequality components

We observed positive changes in both poverty and inequality indicators. But how much of the poverty decline is imputable to changes in mean income and how much is imputable to changes in inequality?

Changes in poverty can be the result of changes in mean income or changes in inequality. We could see, for example, a fall in poverty during a period of zero growth or even negative growth if income inequality changes due to redistributive policies (for example with an increase in taxes on the rich and a parallel increase in state spending for the poor) or because the income of the poor has improved relative to the income of the rich for reasons not related to direct redistributive policies. Alternatively, we could see poverty increasing during a period of income growth if growth has been 'pro-rich', i.e. has benefited the rich but not the poor. We could also have poverty reducing growth with inequality unaltered. If the poverty line is an absolute value (in real terms), the whole income distribution shifts upwards with a number of poor crossing the poverty line.

This line of thinking has contributed to the generation of literature on the decomposition of poverty changes into growth and inequality components (Jain and Tendulkar 1990, Kakwani and Subbarao 1990, Datt and Ravallion 1992, Kakwani 1997, Shorrocks 1999). The methodologies used are very similar and the differences between them can be explained by the reference period considered, the treatment of a residual that can emerge from some of the decompositions and the poverty measures used.

One of the most popular decompositions applied in the literature is Datt and Ravallion (1992). Applying the methodology to two time periods and taking time one as the reference period, we can decompose poverty changes as follows:

$$\Delta P = P_2 - P_1 = G + D + \varepsilon$$

$$G = [P(\frac{z}{\mu_2}, L_1) - P(\frac{z}{\mu_1}, L_1)] \qquad [1]$$

$$D = [P(\frac{z}{\mu_1}, L_2) - P(\frac{z}{\mu_1}, L_1)]$$

Where ΔP=Change in poverty; G=Growth component; D=Distribution component; P_t is the poverty measure at time t, z is the poverty line, μ_t is the mean of income at time t and L_t is a vector of parameters fully describing the Lorenz curve at time t with $t=1,2$ and ε is a residual representing components of poverty changes that cannot fully be attributed to growth or redistribution factors.[7]

Datt and Ravallion (1992) notice that the residual emerging from their decomposition can be made to disappear by averaging the components obtained using the initial and final years of reference but the authors argue that this procedure is arbitrary and they proceed by keeping the residual in the equation. Kakwani (1997) shows with an axiomatic approach that averaging the components is in fact the correct procedure for these types of decompositions and suggests a decomposition method based on this principle. Using the same notations we used in [1], Kakwani's decomposition is described as follows:

$$\Delta P = P_2 - P_1 = G + D$$

$$G = \frac{1}{2}[P(\frac{z}{\mu_2}, L_1) - P(\frac{z}{\mu_1}, L_1)] + [(\frac{z}{\mu_2}, L_2) - (\frac{z}{\mu_1}, L_2)] \qquad [2]$$

$$D = \frac{1}{2}[P(\frac{z}{\mu_1}, L_2) - P(\frac{z}{\mu_1}, L_1)] + [(\frac{z}{\mu_2}, L_2) - (\frac{z}{\mu_2}, L_1)]$$

Where ΔP=Poverty change; G=Growth component and D=Distribution component.

Shorrocks (1999) reaches the same conclusion as Kakwani but follows a different path of reasoning. He applies the 'Shapley rule' (Shapley 1953 – a concept borrowed from cooperative game theory) to a range of poverty and inequality decompositions, including the one we are considering in this paper, and develops a generalised framework for this type of analyses providing the mathematical foundation for the framework and deriving the formulas for applications to each case. Comparing Kakwani's (1997) and Shorrocks' (1999) resulting formulas for the two periods case, it is evident that they are one and the same. In fact, both authors refer to Datt and Ravallion (1992) and, with different methodologies, reach the same conclusion that there is no

[7] Datt and Ravallion (1992) explain the residual as "*(...) the difference between the growth (redistribution) components evaluated at the terminal and initial Lorenz curves (mean incomes), respectively.*" (p. 278)

reason for the residual term to exist.[8] Thus, we will use the formula in [2] to decompose poverty changes into growth and distribution effects.

The decomposition of poverty changes into growth and distribution components in practice is not as straightforward as the formula in [2] may suggest. Poverty measures are estimated as functions of the mean income relative to the poverty line and of the Lorenz curve parameters. An expected function of the Lorenz curve is chosen and then the poverty measures are derived, so that each measure is a function of both mean income and the Lorenz curve parameters.[9] By keeping the Lorenz curve parameters fixed and changing the mean income alternatively for the time periods considered, growth and redistribution components of a poverty change can be calculated.

Such procedure implies the choice of a Lorenz curve function manageable enough to derive the formulas for the poverty measures. We follow the same approach as Datt and Ravallion (1992) and Datt (1998). We experiment with the General Quadratic (GQ) Lorenz curve (Villasenor and Arnold 1989) and the Beta model (Kakwani 1980) and choose from the two specifications on the basis of a goodness-of-fit test. The only differences from the cited authors is that we apply these functions to unit data rather than to grouped observations[10] and that we use Kakwani/Shorrocks decomposition formula rather than Datt and Ravallion's.[11]

In table 2 we report the decomposition results based on [2] and on the GQ specification.

Table 2: Poverty Change Decomposition into Growth and Redistribution Components (2001-2002)

	Poverty change[12] (ΔP)	**Growth Component (G)**	**Distribution Component (D)**
P(0) – Headcount index	-2.11	-0.31	-1.80
P(1) – Poverty gap index	-0.79	-0.09	-0.70
P(2) – Severity of poverty index	-0.33	-0.04	-0.30
%			
P(0) – Headcount index	100	14.7	85.3
P(1) – Poverty gap index	100	11.4	88.6
P(2) – Severity of poverty index	100	10.6	89.4

Source: Author's calculations

[8] Shorrocks (1999) does not quote Kakwani and bases his work on a rather different literature.

[9] See also Datt (1998)

[10] Note that each unit in a sample is representative of a group of observations in the population. This justifies the use of the same methodology developed for grouped data from a population on unit data extracted from a sample.

[11] Datt and Ravallion (1992) and Datt (1998) use 'Povcal', a software developed for this purpose, for the decompositions. We could not use Povcal on unit data and developed a Stata module instead. In order to test the Stata module, we ran it with Datt and Ravallion (1992) Indian grouped data and with our data grouped into income classes using Datt and Ravallion (1992) decomposition methodology. Both tests confirmed that our Stata module worked correctly.

[12] Poverty changes are calculated as the difference between the 2001 and 2002 poverty rates. The poverty rates calculated for this decomposition are slightly different from the poverty rates reported in table 1 because they are estimated on the basis of the GQ Lorenz curve instead of being calculated directly on the data.

As it is clearly visible from the table, all the three poverty measures changes have been determined mostly by changes in the distribution of income rather than by changes in mean income. This finding was suggested by the statistics presented in the previous section and is confirmed by this decomposition. If redistribution had not occurred, the actual change in the mean income would have reduced poverty much less than it actually did. A growth in mean income is in fact neither a necessary nor a sufficient condition for poverty reduction.

Making use of the same Lorenz curve specification, we can also calculate the elasticities of poverty to changes in mean income and changes in the distribution of income as measured by the Gini coefficient. We report these elasticities in table 3 for 2001 and 2002. As expected, the elasticities of poverty with respect to changes in mean income are negative and the elasticities of poverty with respect to changes in the Gini coefficient are positive. To a reduction (increase) in mean income corresponds an increase (reduction) in poverty and to a reduction (increase) in the Gini coefficient corresponds a reduction (increase) in poverty. The size of these elasticities is also quite significant and the size increases for deeper poverty and between 2001 and 2002. In practice, poverty in general and deep poverty in particular are shown to be very sensitive to changes in both mean income and the distribution of income in each period, and this sensitivity increases between 2001 and 2002.[13]

Table 3 Poverty elasticity

	Relative to the mean	**Relative to the Gini coeff.**
	2001	
P(0) – Headcount Index	-2.5	2.3
P(1) – Poverty Gap Index	-3.6	5.1
P(2) – Severity of Poverty Index	-4.7	8
	2002	
P(0) – Headcount Index	-2.8	2.5
P(1) – Poverty Gap Index	-4	5.6
P(2) – Severity of Poverty Index	-5.4	8.7

Source: Author's calculations

Following Kakwani, Khandker and Son (2002), we can also decompose the elasticises of poverty changes into growth and inequality effects, rather than decomposing absolute poverty changes. This is derived by the authors from Kakwani (1997) which is our formula in [2] and is similar to combining the decomposition exercise and the estimate of elasticities relative to mean income presented above, with the difference that, in this last case, elasticities are calculated over time rather than for each time period. Again, over two periods, the methodology can be described as follows:

[13] Note that elasticities are calculated for each year and not over the period. The modest change in mean income between 2001and 2002 is irrelevant in these calculations.

$$\delta = \eta + \zeta$$
$$\delta = \frac{1}{\gamma}(Ln(P(z,\mu_2,L_2)) - Ln(P(z,\mu_1,L_1)))$$
$$\eta = \frac{1}{2\gamma}(Ln(P(z,\mu_2,L_1)) - Ln(P(z,\mu_1,L_1)) + Ln(P(z,\mu_2,L_2)) - Ln(P(z,\mu_1,L_2))) \quad [3]$$
$$\zeta = \frac{1}{2\gamma}(Ln(P(z,\mu_1,L_2)) - Ln(P(z,\mu_1,L_1)) + Ln(P(z,\mu_2,L_2)) - Ln(P(z,\mu_2,L_1)))$$

Where δ is the estimate of total elasticity of poverty; η is the estimate of growth elasticity of poverty; ζ is the estimate of the inequality effect of poverty reduction; z is the poverty line; μ_t is the mean income at time t; L_t is a vector of parameters fully describing the Lorenz curve at time t; and γ is the difference of the natural logarithms of mean incomes between the two periods considered; [Ln(μ_2)-Ln(μ_1)].

The results of this last decomposition are presented in table 4. We can see that the total elasticity of poverty with respect to changes in mean income is -6.6 for the headcount index, -11.9 for the poverty gap measure and -17.4 for the severity of poverty measure. The deeper the poverty the more elastic is poverty to changes in mean income and such elasticity is explained mainly by changes in the distribution component. Thus, Kakwani, Khandker and Son (2002) methodology confirms our findings on growth and distribution effects and on poverty elasticities presented in table 2 and 3 respectively.

Table 4 **Total Poverty Elasticity Decomposition into Growth and Inequality Effects (2001-2002)**

	Total Poverty Elasticity	Growth effect	Inequality effect
P(0) – Headcount index	-6.6	-1.0	-5.7
P(1) – Poverty gap index	-11.9	-1.4	-10.6
P(2) – Severity of poverty index	-17.4	-1.8	-15.5

Source: Author's calculations

4. Has growth been 'pro-poor'?

In previous sections we noticed how changes in poverty may be explained in terms of growth of income and changes in the distribution of income. A growth in income accompanied by a growth in inequality may in fact increase poverty rather than decrease it. If income grows only for families above the poverty line, we have an average growth in income together with increased inequality and no changes in poverty. The concept of 'pro-poor' growth has been developed to take this factor into account. It is the distribution of growth across the income distribution – rather than the distribution of income - which is of interest. By pro-poor growth it is meant a total growth in income that has benefited the poor more than the non poor.

The literature on the decomposition of poverty-changes into growth and inequality effects mentioned in section 3 has led to a search for a measure of growth that can take into account whether growth has been pro-poor. We use two similar contributions that have recently appeared in the literature; Ravallion and Chen (2003) and the Kakwani, Khandker and Son (2002) paper that we have already quoted in section 3.

Ravallion and Chen (2003) propose a measure of pro-poor growth where, rather than calculating the growth rate of the average income of the poor, the authors measure the average growth rate of the poor up to the poverty line. It is the average growth of income of the percentiles up to the poverty line which is of interest. The pro-poor growth measure used is the 'Growth Incidence Curve' (GIC). The GIC is the curve determined tracing the growth rate in mean income of each quantile between 2001 and 2002. The curves described by mean incomes for each quantile in 2001 and 2002 respectively are also known as the parade of dwarfs, Pen's parade or the quantile function. The GIC is basically built on the 'growth' or distance between two Pen's parades drawn for the two time periods. The GIC estimated over two periods can be specified in relation to the Lorenz curve and mean income as follows:

$$g_{(1,2)}(p) = \frac{\mu_2 L_2^{'}(p)}{\mu_1 L_1^{'}(p)} - 1 \qquad [4]$$

Where L'_t is the first derivative of the Lorenz curve at time t, and μ_t is the mean income at time t with $t=1,2$. The pro-poor growth measure (the mean growth rate of the poor) is therefore:

$$PPG = \frac{\int_0^{H_1} g_{(1,2)}(p)dp}{H_1} \qquad [5]$$

Where H_1 is the headcount index at time 1 and p is the cumulated population.[14] We calculated [4] and [5] on our discrete data grouped in deciles rather than using a parameterised curve. Results are reported in table 5.

Table 5: Growth and Pro-poor Growth

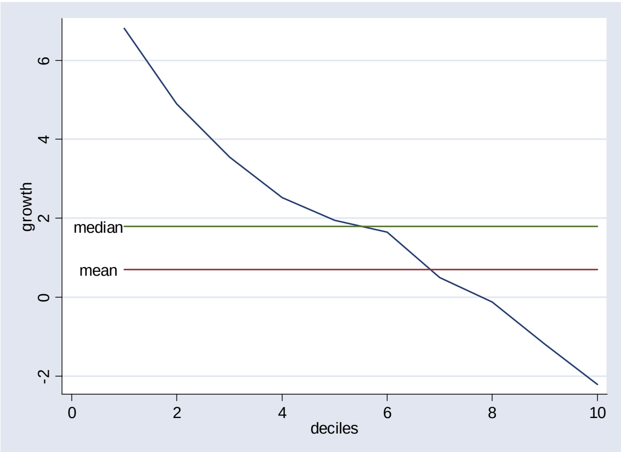
Deciles	**Mean Income 2001 -Tenge (1)**	**Mean Income 2002 – Tenge (2)**	**Growth rate in mean income (3)**	**Pro-poor Growth Rates (4)**
1 (poorest)	25,495	27,230	6.8	6.8
2	35,864	37,618	4.9	5.8
3	43,382	44,920	3.5	5.1
4	50,800	52,080	2.5	4.4
5	58,358	59,493	1.9	3.9
6	66,606	67,702	1.6	3.6
7	76,982	77,368	0.5	3.1
8	89,962	89,850	-0.1	2.7
9	108,957	107,660	-1.2	2.3
10 (richest)	165,751	162,083	-2.2	1.8

Source: Author's calculations.

[14] See Ravallion and Chen (2003) for more details.

In columns 1 and 2 of table 5, we report mean income by decile (the values that trace the Pen's parades). In column 3, we have the percentage growth rates of mean income by decile (the values that trace the GIC). We can see that the incomes of the lowest (poorest) deciles have grown faster than the upper (richest) deciles and that growth rates decrease in mean income with no exceptions. Column 4 shows instead the means of growth rates by cumulated deciles (the pro-poor growth rates). Both patterns depicted in columns 3 and 4 are clearly pro-poor and this is visibly confirmed by the growth incidence curve drawn in figure 1

Figure 1 Growth Incidence Curve 2001-2002



Source: Author's calculations

Kakwani, Khandker and Son (2002) also propose a pro-poor growth measure, the Poverty Equivalent Growth Rate (PEGR). This measures the rate of growth that would have been necessary to change the poverty rate as it actually changed but with inequality kept constant. Following from equation [3], the PEGR is defined as:[15]

$$\gamma^* = \left(\frac{\delta}{\eta}\right)\gamma \qquad [6]$$

Results for the PEGR are reported in table 6.

Table 6 Poverty Equivalent Growth Rate

Poverty measure	PEGR	Actual Growth Rate
P(0) – Headcount index	12.6	0.7
P(1) – Poverty gap index	16.1	0.7
P(2) – Severity of poverty index	17.6	0.7

Source: Author's calculations

[15] Kakwani, Khandker and Son (2002) note that the pro-poor measure proposed by Ravallion and Chen (2003) (they comment on an earlier version of the paper) - which we used in this paper - is the PEGR obtained from the Watts index. Therefore, table 6 extends table 5 in that the PEGRs are calculated also for the FGT measures.

A higher PEGR relative to the actual growth rate indicates that growth has been pro-poor. We can see that the PEGR is higher for all three FGT measures and that it increases when moving from the headcount index P(0) to the severity of poverty index P(2). In substance, in the absence of inequality changes, we should have had greater growth rates for deeper poverty. This is a further indication that inequality changes have played a substantial role in improving welfare, especially for the poorest and confirms that growth has been pro-poor.

5. Conclusion

The paper has used a range of methods to assess changes in income, poverty and income distribution between 2001 and 2002 in Kazakhstan using two large household surveys and household annual consumption expenditure per capita as a measure of income.

We found that both poverty and inequality have decreased as measured with the FGT class of poverty measures and the General Entropy class of inequality measures respectively. Changes in poverty indicate that the very poor have benefited more than the poor as a whole. Changes in inequality indicate that the poor have experienced higher inequality reduction than the non-poor.

We used a methodology developed in the early 1990s and refined by Kakwani (1997) and Shorrocks (1999) to decompose changes in poverty into changes of growth and distribution components and found that changes in income distribution accounted for most of poverty changes. We also found poverty to be rather elastic relative to mean income and to inequality in 2001 and 2002. When we measured total poverty elasticity to changes in mean income over the two years considered we found even higher elasticity explained mainly by changes in inequality.

Next, we tested whether mean income growth has been pro-poor, i.e. whether it benefited lower quantiles in the income distribution more than upper quantiles. We used a Growth Incidence Curve (GIC) and a Pro Poor Growth (PPG) measure proposed by Ravallion and Chen (2003) and a Poverty Equivalent Growth Rate (PEGR) proposed by Kakwani, Khandker and Son (2002) to assess whether growth has been pro-poor. All measures consistently confirmed that growth has been pro-poor, as initially suggested by changes in poverty and inequality measures.

Considering that between 2001 and 2002 Kazakhstan experienced a GDP growth of 9.5%, a figure of 0.7% growth in household mean income can only be considered very disappointing. However, we saw that a modest growth in household income can be accompanied by significant changes in income distribution which can result, in turn, in very positive reductions in poverty and inequality. Considering further that poverty elasticity to changes in mean income has also been very significant, a better distribution of GDP growth among factors of productions (labour and households in particular) could have resulted potentially into an outstanding 'multiplicatory' effect on poverty reduction. In terms of pro-poor policies, these findings would suggest that the distribution of growth among factors of production and the distribution of income among households are the cornerstones of poverty reduction rather than GDP growth alone.

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