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The Case of Kyrgyzstan 1993-97

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CONTENTS

LIST OF TABLES	iv
ACKNOWLEDGEMENTS	v
ABSTRACT	vi
1. INTRODUCTION	1
2. FUNDAMENTAL ECONOMIC CHANGE ...	4
3. ... AND FUNDAMENTAL SOCIAL CHANGE	1
4. DATA AND METHODOLOGY	3
5. CHANGES IN POVERTY IN KYRGYZSTAN (1993-97)	7
6. CHANGES IN INEQUALITY (1993-97)	3
7. DETERMINANTS OF SOCIAL STRUCTURE: THEORETICAL CONSIDERATIONS AND PRELIMINARY ANALYSIS	2
7.1 Geographical location variables	1
7.2 Household composition	1
7.3 Socio-demographic variables	2
7.4 Physical capital	4
7.5 Sources of income, market and non-market activities	5
8. SOCIAL STRUCTURE IN TRANSITION: A QUANTILE REGRESSION ANALYSIS	7
9. CONCLUSION	6
REFERENCES	10

LIST OF TABLES

Table 1	Basic macro-economic data – Kyrgyzstan 1990-97	5
Table 2	KMPS and LSMS poverty lines – Kyrgyzstan 1993-97	13
Table 3	Poverty under alternative definitions – Kyrgyzstan 1993-97	15
Table 4	Distribution of household expenditure and inequality – Kyrgyzstan 1993-97	20
Table 5	Variable summaries, geographic location variables – Kyrgyzstan 1993 and 1997	24
Table 6	Variable summaries, other characteristics – Kyrgyzstan 1993 and 1997	26
Table 7	Regression analysis, ordinary least squares – Kyrgyzstan 1993 and 1997	35
Table 8	Regression analysis, quantile regressions – Kyrgyzstan 1993	37
Table 9	Regression analysis, quantile regressions – Kyrgyzstan 1997	39

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ABSTRACT

The transition from plan to market has fundamentally transformed the social structure in Central and Eastern Europe and the Former Soviet Union. The small Central Asian Republic of Kyrgyzstan exemplifies these changes.

Using data from nationally representative living standards measurement surveys in 1993 and 1997, changes in welfare and the social structure are analysed. The results suggest that poverty and inequality fell between 1993 and 1997. Real welfare improvements were recorded for the poorest households and for the richest five per cent. Despite these successes, massive inequalities persist.

Region and the presence of dependant household members are important correlates of welfare and social class formation. High levels of welfare in 1997 are related to entrepreneurial and capital rental activities. There is tentative evidence to support the hypothesis that the factor markets increasingly determine social structure.

Keywords: Kyrgyzstan, economic and social change, inequality, poverty, social class

1. INTRODUCTION

The economic transition in Central and Eastern Europe and the states of the Former Soviet Union (FSU) has been accompanied by massive social changes¹. There is widespread agreement among students of the transition from plan to market that the process has led to a widening of the distribution of incomes and wealth and an increase in relative and absolute poverty. There is less agreement, however, with respect to the magnitude of these changes, their causes and whether they constitute a transitory or a permanent phenomenon.

The early literature on the welfare costs of transition emphasized the temporary nature of welfare losses throughout the transition economies and contrasted measured and actual welfare losses. Price liberalization resulted in a once-and-for-all increase in price levels and a significant reduction in real incomes. As the rigidities of the centrally planned economy were removed, growth was expected to resume and real incomes would quickly recover. The measured initial welfare costs would overstate the actual welfare costs as the pervasive shortage deformation of the centrally planned economy would disappear. The ubiquitous queues for goods would vanish, search and hoarding costs would decrease and product quality and consumer choice would increase (see e.g., Lipton and Sachs 1990; Roberts 1993). In the medium- and long-run populations would prosper. The social structure would be transformed as old privileges would be removed and skills, human capital and entrepreneurial spirit would be justly rewarded.

The reality in the majority of transition economies turned out rather different. The transitional recession was generally more prolonged and deeper than expected. Real income levels in Central Europe rapidly recovered and now generally exceed their pre-transition levels. However, real incomes throughout the FSU continue to lag behind their pre-transition levels and economic growth has yet to resume in a number of countries. In the FSU the emergence of widespread unemployment and underemployment, the spread of wage and pension arrears and the generalized inability of the social safety net to cope with the new demands on the system resulted in the impoverishment of large swathes of the population and an unprecedented widening of the income and wealth

¹ Changes in poverty and the distribution of incomes are well-documented. See for example EBRD (1997) and Milanovic (1998) for two recent contributions to the debate.

distribution. The social structure was fundamentally transformed. Many previously secure and middle-class households lost their wealth and social status while at the top of the distribution 'political' capital was generally successfully transformed into 'economic capital' while upwardly mobile skilled and educated entrepreneurs encountered many obstacles on their way to the higher echelons of the social structure.

In this paper, the economic and social transformation in the Kyrgyz Republic is analysed and discussed. The small Central Asian Republic of Kyrgyzstan became independent in 1991 and embarked on a programme of radical transformation and modernization of its economy. Kyrgyzstan rapidly acquired the reputation of an eager and consistent reformer with the international community. By the mid-1990s the country's 'shock therapy' started to produce results and economic growth rebounded strongly (although Kyrgyzstan was adversely affected by the turmoil that hit the Russian economy in the summer of 1998).

While the facts about the successful transformation of the Kyrgyz economy into a market economy are well known, the accompanying social changes are also well documented. Between 1993 and 1998, the Kyrgyz National Committee on Statistics with the support of the World Bank, carried out five surveys of living standards and economic conditions in Kyrgyzstan. For the purposes of this paper, data from the 1993 Kyrgyzstan Multipurpose Poverty Survey and the 1997 Living Standards Measurement Survey are used.²

As poverty in Kyrgyzstan was reported to have soared to unprecedented levels (70 to 80 per cent of the population), this area has received most of the attention in the applied research on social changes in Kyrgyzstan during the transition.

World Bank (1995), Ackland and Falkingham (1997) and Grootaert and Braithwaite (1998) provide analyses of poverty and of its correlates during the early stages of transition, using the 1993 data. Their results suggest that

² The data used in this paper are from the 1993 Kyrgyzstan Multipurpose Poverty Study (KMPS) and the 1997 Kyrgyzstan Living Standards Measurement Survey (LSMS). The 1993 KMPS data was obtained courtesy of the Poverty and Human Resources Division of the World Bank and the 1997 LSMS were obtained from the Population Living Standards Statistics and Labor Market Departments of the National Statistics Committee of the Kyrgyz Republic.

geographical factors are important correlates of poverty in Kyrgyzstan: rural households and households in the southern part of Kyrgyzstan exhibit a high incidence of poverty, households in the capital Bishkek incur the lowest poverty risk. The probability of being poor increases for large households. Human capital effects – age, education and gender – are typically poor predictors of poverty status. Households with a household head who is employed are less likely to be poor than households with a head who is not employed. However, there are no significant unemployment or pensioner benefits.

Anderson and Pomfret (1999) express their discomfort of using an absolute poverty line to determine poverty status, given that the resulting poverty levels are extremely high, suggesting that most segments of the income or expenditure distribution are of interest. For this reason, they advocate the use of quantile regression in order to identify the characteristics of households at the bottom of the expenditure distribution. Using data for 1993 and 1996, they confirm that region and household size are important correlates of low expenditure. In addition, they show that returns to education increased during the transition.

In this paper, the available evidence about changes in living standards and social structure in Kyrgyzstan during the transition is re-examined using new data from the 1997 Living Standards Measurement Survey, along with the 1993 data which serves as a point of reference. Intertemporal changes in poverty and inequality are analysed but the focus of the analysis then shifts to the study of fundamental social change, taking into account changes occurring at all levels of the welfare distribution. Following the work done by Grootaert and Braithwaite (1998) and Anderson and Pomfret (1999), a linear welfare equation is estimated using quantile regressions in order to identify the correlates of social status or social class.

The paper proceeds as follows. In section 2, the comprehensive economic changes that have taken place in the Kyrgyz economy during the transition are illustrated. Section 3 provides a discussion of the interaction between these radical changes to the economy and the social sphere. In section 4, the data is described and a detailed discussion of the subsequent statistical analysis is put forward. Sections 5 and 6 provide an assessment of changes in poverty and inequality respectively during the period 1993-97. In section 7 the data is summarized and a preliminary analysis of social change is carried out in a univariate context. Section 8 proceeds with the multivariate analysis of social change and presents results of the estimation by ordinary

least squares and quantile regression of two separate welfare equations for Kyrgyzstan in 1993 and 1997. Finally, section 9 concludes.

2. FUNDAMENTAL ECONOMIC CHANGE ...

The Republic of Kyrgyzstan gained independence from the Soviet Union in 1991 and rapidly acquired a reputation of an avid reformer. Reforms enacted shortly after independence and structural and institutional reforms implemented since 1994 as part of an IMF-backed stabilization programme would transform the face of the Kyrgyz economy forever.

The majority of prices were liberalized in the beginning of 1992, resulting in a bout of corrective inflation (see Table 1). Furthermore, export duties were removed, import tariffs were substantially reduced and the majority of controls on capital movements eliminated. A comprehensive privatization programme was announced in late 1991. Kyrgyzstan introduced her own currency – the som – in 1993. The early reform measures initially had devastating consequences for the economy. Introduction of the som impeded trade with the traditional trade partners Russia, Kazakhstan and Uzbekistan, who demanded payment in hard currency which Kyrgyzstan lacked (Abazov 1999: 243). Separation from the Soviet Union also meant that Kyrgyzstan would no longer benefit from transfers from the federal budget, on which the country had previously been heavily dependent.

Consequently, Kyrgyzstan experienced a period of unprecedented economic turmoil (see Table 1). Gross Domestic Product (GDP) declined sharply, the economy shrinking by over 50 per cent between 1990 and 1995. Inflation, which had accelerated as a result of the large-scale liberalization of prices in 1992, remained high thereafter. Consumer prices increased by 855 per cent in 1992, 772 per cent in 1993 and 229 per cent in 1994, before reaching double-digit figures in 1995.

Unemployment, hitherto an unknown labour force status, increased rapidly. The 'official' unemployment rate increased from zero in 1990 to 4.3 per cent in 1996 (3.2 per cent in 1997) but actual unemployment and underemployment are much higher. The World Bank estimates (IMF 1998: 12) that in 1997 the unemployment rate in Kyrgyzstan was 18 per cent in rural areas and 21 per cent in urban areas.

TABLE 1
BASIC MACRO-ECONOMIC DATA – KYRGYZSTAN 1990-97

	1990	1991	1992	1993	1994	1995	1996	1997
population (in millions)	4.4	4.4	4.5	4.5	4.5	4.5	4.6	4.6
GDP at constant prices (in per cent)	3.0	-5.0	-19.0	-16.0	-20.0	-5.4	7.1	10.4
GPD (1990=100)	100.0	95.0	77.0	64.6	51.7	48.9	52.4	57.8
GDP per capita in US dollars	n.a.	n.a.	n.a.	195.1	245.0	331.3	379.2	366.0
industrial gross output (in per cent)	-0.6	-0.3	-26.4	-25.3	-27.9	-12.5	3.9	20.0
agricultural gross output (in per cent)	1.3	-10.0	-5.0	-10.0	-15.0	4.0	13.0	n.a.
share of industry in GDP (in per cent)	26.0	27.5	32.1	25.1	20.5	12.0	11.9	15.5
share of agriculture in GDP (in per cent)	32.0	35.3	37.3	39.0	38.3	40.6	46.6	43.4
employment share of industry (in per cent)	19.1	18.2	16.3	16.1	14.7	14.6	11.1	10.2
employment share of agriculture (in per cent)	32.7	35.5	38.2	39.0	42.0	42.0	46.8	48.0
unemployment rate	n.a.	0.0	0.1	0.2	0.7	3.0	4.5	3.2
consumer prices (annual average)	n.a.	85.0	855.0	772.4	228.7	52.5	30.4	25.5

Source: EBRD (1999), IMF (1999).

The existence of widespread unemployment and underemployment and pervasive wage and pension arrears provide fertile breeding ground for the 'informalization' of the economy. It is estimated (IMF 1998: 12) that approximately 1 million workers – over half of the economically active population – are working in the informal economy, as agricultural workers, subsistence farmers or in the informal private sector.

The overall deterioration in the economic performance has been accompanied by a large-scale reallocation of resources. Resources have been shifted away from the industrial sector and into agriculture. Industrial output fell by two-thirds between 1990 and 1995 and industry's share of total employment fell from 26 per cent in 1990 to 15.5 per cent in 1997. The agriculture sector acts as a buffer, absorbing a lot of the excess labour. As a result, employment in agriculture has increased both as a share of total employment and in levels. In 1990, the agriculture sector accounted for 32.7 per cent of total employment. By 1997, its share has gone up to 48 per cent, and over 800,000 persons are employed in agriculture, producing 43 per cent of GDP.

Kyrgyzstan's shock therapy started producing tangible results by 1996. GDP started recovering and the economy grew by 7.1 per cent in 1996 and 10.4 per cent in 1997, mainly as a result of strong growth in the agricultural sector and the start-up of the Canadian-Kyrgyz joint venture at the Kumtor gold mine (IMF 1999: 5).

According to official statistics 8,500 enterprises were privatized between 1991 and 1996 (Abazov 1999: 243) and the private sector accounted for 76 per cent of GDP in 1997 (IMF 1999: 7). Formerly state-run collective farms were returned into private hands and privatization of housing meant that the overwhelming majority of Kyrgyz became homeowners.

Within a fairly limited space of time, the Kyrgyz government had created a legislative framework that would provide the pillar of a stable and functioning market economy.

3. ... AND FUNDAMENTAL SOCIAL CHANGE

The economic transition has shaken the foundations of Kyrgyz society. Out of the transitional recession and hyperinflation emerged the mass impoverishment of the population. While hyperinflation wiped out the real

value of household savings and sent real incomes tumbling, budgetary stringency requirements hampered the introduction of a comprehensive social safety net to protect the unemployed and other vulnerable groups. Following IMF (1999: 12), the proportion of households living in poverty increased from 54 per cent in 1993 to 70 per cent in 1996.

The privatization of enterprises, farms and housing entailed a massive transfer of assets and capital incomes, with far-reaching distributional implications. The privatization of enterprises followed the Russian model, with vouchers being distributed to Kyrgyz citizens in an effort to popularize holdings of ownership titles, with the benefits of privatization accruing to the entire population. The actual outcome of the privatization process proved very different, however, with the majority of ownership titles returning to company directors and managers. The outcome of the privatization process was to highly skew the distribution of property and wealth in favour of a small group – 3 to 7 per cent of the population (Rumer 1996) – and had become an important contributor to the new social inequalities. Inequality, which prior to the transition appeared to be on a par with levels prevailing in western market economies, soared early on in the transition process and then started coming down from their very high levels. IMF (1998: 12) reports that the Gini coefficient of household expenditure fell from 0.54 to 0.46 between 1993 and 1997 and the Gini coefficient for household income decreased from 0.66 to 0.51.

The economic turmoil in Kyrgyzstan triggered social changes at all levels and caused large-scale population movements (see Abazov 1999). The erosion of industrial activity sparked an exodus from the industrial centres and a return to an 'agricultural way of life'. Between 1993 and 1997, the share of the rural population increased from 57 per cent to 61.5 per cent while agriculture also expanded its share of total employment to just under 50 per cent. Much of the agricultural activity is low-productivity subsistence farming. IMF (1998: 12) estimates the number of subsistence farmers at 350,000.

The ethnic composition of the population also underwent considerable change. Ethnic Russians, which in 1993 made up almost a quarter of the population, left Kyrgyzstan *en masse*, their emigration mainly triggered by changes in ethnic policies working at their disadvantage (see Robertson 1996: 113-128). By 1997, the share of Russians in the total population had decreased from one quarter to one sixth. In addition, between 1991 and 1996, 102,000 people emigrated from Kyrgyzstan to OECD countries.

These were mainly ethnic Germans that returned to Germany (Abazov 1999: 247).

The fundamental changes in Kyrgyz society brought about by the transition to the market had far-reaching implications for the possibilities of Kyrgyz citizens to shape their own destiny, or what Max Weber calls the distribution of 'life chances' (Weber 1978).

4. DATA AND METHODOLOGY

This paper sets out to analyse and explain the transition-induced changes in the social structure of the Kyrgyz Republic during the 1990s. For this purpose, it uses the 1993 Kyrgyzstan Multipurpose Poverty Survey (KMPS) and the 1997 Living Standards Measurement Survey (LSMS), two nationally representative surveys that have as their main objective the collection of information on living standards in the Kyrgyz Republic in order to measure and identify poverty and to assess the effectiveness of the government's development policy.

The 1993 KMPS survey was implemented by the Kyrgyz National Committee on Statistics, in association with the World Bank and the University of North Carolina. The initial stocktaking of 1993 was followed by four surveys modelled on the World Bank's Living Standards Measurement Study (LSMS), the first of which took place in spring 1996 and the last in fall 1998. For the purposes of this paper, the fall 1997 LSMS survey is used.

The 1993 survey was based on a representative sample of approximately 2,000 households (approximately 10,000 individuals). The households were selected using a stratified multi-stage sampling procedure. The 1997 LSMS contains information on 2,700 households (approximately 14,000 individuals). Households were selected using simple random sampling.

The KMPS and LSMS surveys use very extensive questionnaires, collecting information on a wide range of characteristics and activities of the households and their members. The non-response rate for both surveys is approximately 10 per cent.

Max Weber defines 'social structure' as the uneven distribution of 'life chances', which one may interpret more generally as the relative ease with

which households have access to consumable resources in a wider sense (e.g., food, shelter, clothing, employment opportunities, education opportunities). Households with inadequate access to resources are poor. The objective of the paper is to identify correlates of 'social structure' and attribute causality to them to the extent possible. Changes in poverty and inequality are inextricably linked to changes in social structure. The available evidence is re-examined to identify the direction and the magnitude of changes in poverty and inequality and a statistical model of the distribution of household resources or household welfare is estimated.

The analytical framework for this analysis is provided by Glewwe (1991). The following reduced-form equation describing the household's welfare is estimated:

$$(1) W_i = \beta_1 hh_char + \beta_2 hh_econ + \varepsilon_i$$

where W_i = household i 's welfare level
 hh_char = socio-demographic characteristics of household i
 hh_econ = economic environment of household i
 β_1, β_2 = model parameters
 ε_i = random error term.

The reduced-form (1) is representative of the structural equations that specify the process by which household income and expenditure are generated. Equation (1) does not allow to draw inferences about the effect of household characteristics on the household's income and consumption decisions. This would require the explicit modelling of the structural equations. Instead, equation (1) provides estimates of the net effect of various household characteristics on the household's welfare, while at the same time holding all other characteristics constant. It is assumed that the hh_char variables are endogenous within a relevant time period i.e., that there are no feedback effects from household welfare to the socio-demographic characteristics of the household in the short-run³ (Grootaert and Braithwaite 1998: 8).

³ This assumption may be problematic. As the relevant time period increases, it is likely that the majority of household characteristics that could be considered for policy or targeting purposes become indeed endogenous (e.g., household size and the number of children), hence invalidating the approach employed above. However, while this problem is explicitly recognized, a pragmatic approach is adopted as the objective of the statistical analysis is to identify the correlates of household welfare and the determinants of social structure in the short-run (Grootaert and Braithwaite 1998: 14).

Equation (1) may thus be estimated by ordinary least squares (OLS), but this approach effectively imposes constant model parameters over the entire distribution of the dependent variable i.e., it assumes that the effect of given household characteristics on the household's welfare are constant throughout the welfare distribution. Quantile regressions (Koenker and Bassett 1978; Buchinsky 1994; Chamberlain 1994) relax the assumption of parameter constancy throughout the distribution of the dependent variable. In fact, given a set of explanatory variables, quantile regressions can be used to characterize the entire conditional distribution of the dependent variable. This is of particular relevance to the problem at hand, as the attention focuses not only at the midpoints of the welfare distribution but other points of the distribution are equally relevant. Different coefficients at different quantiles may be interpreted as capturing differences in the response induced by changes in the explanatory variables at different points of the conditional distribution of the dependent variable. Furthermore, when the error-term is non-normal, quantile regression estimators may be more efficient than the OLS estimators (Buchinsky 1998: 89).

If one defines q as the quantile to be estimated then quantile regressions are computed by minimizing the following term:

$$(2) \quad \phi_q = -(1-q) \sum_{y \leq x'\beta} (y_i - x_i'\beta) + q \sum_{y > x'\beta} (y_i - x_i'\beta) = \sum_{i=1}^n [q - 1(y \leq x'\beta)](y_i - x_i'\beta)$$

where $0 < q < 1$ and the value of the function $1(z)$ signals the truth (1) or otherwise (0) of the statement z i.e., it is equal to 1 if the residuals are negative and equal to 0 if the residuals are positive (Deaton 1997).

The corresponding minimization condition is given by:

$$(3) \quad \sum_i x_{ij} [q - 1(y_i \leq x_i'\beta)] = 0.$$

Median least squares – the quantile regression for the 50th percentile – expresses the median of the dependent variable as a function of the model explanatory variables. It differs from the OLS estimator inasmuch as the quantile regression estimator fits a line to the data that minimizes the

absolute sum of the errors rather than the sum of squared errors. Quantiles other than the median are obtained by weighting the residuals $y_i - x_i'\beta$. Thus, the quantile regression for the 10th percentile attaches a weight of -0.90 to negative residuals and a weight of +0.10 to positive residuals.

After discussing the econometric specification of the model describing social structure, attention now turns to the definition of the dependent variable i.e., the measurement of 'life chances' or more generally the household's resources to meet its needs.

A statistical measure of the household's 'life chances' would include income and the stock of wealth but also access granted to consumable resources through social contracts (kin or clan relationships) and benefits received in-kind. In the absence of a reliable and observable measure of 'life chances', a proxy variable may be used that can be expected to closely approximate the outcome variable.

Household expenditure provides a reliable representation of the household's short-term welfare level, which in turn determines its ability to obtain access to consumable resources.

In the long-run, a household's welfare is determined by its 'permanent income'. As expenditure exhibits greater stability over the life-cycle than income, expenditure is generally considered to provide a more faithful estimate of 'permanent income' than current income. During periods of below-average current income, households may draw on their accumulated stock of wealth in order to maintain the acquired level of welfare. If the shock to current income is more long lasting than expected, permanent income is revised downwards and household expenditure is adjusted accordingly. Thus, in the short-run as well as in the long-run, current household expenditure provides a better approximation of household permanent income and welfare than current household income.

In addition, Kyrgyzstan has a large rural population and a large agricultural sector. Many households possess plots of land and engage in small-scale farming or animal husbandry, often for personal consumption. The output of these activities is not traded in the marketplace. Furthermore, many households receive in-kind benefits through the workplace or the local authorities and from relatives and friends.

The KMPS and LSMS household expenditure variables include imputations for auto-consumption and benefits received in-kind, although caveats apply (see Ackland and Falkingham 1997: 84), and are therefore preferred to household income as a measure of welfare or access to consumable resources.

5. CHANGES IN POVERTY IN KYRGYZSTAN (1993-97)

Observers of the Kyrgyz economy are in general agreement that poverty substantially increased over the course of the transition to the market. Precise quantitative assessments of the changes in poverty are, however, very dependent on the identifying assumptions made by the researchers.

The Kyrgyz authorities retain an 'absolute' concept of poverty i.e., the poverty cut-off point represents a minimum expenditure level needed for subsistence. The KMPS and LSMS surveys are accompanied by poverty lines that are generated using information on household expenditure patterns derived from the surveys. In each survey, an 'upper' and a 'lower' poverty line are constructed, in order to distinguish between 'poor' and 'very poor' households.

However, poverty analysis in the Kyrgyz context is hampered by the co-existence of this plethora of poverty lines which bear little relationship to each other (see Table 2).

After adjusting the 1993 'upper' poverty line of 1284 soms per annum for the inflation that occurred between October 1993 and October 1997, we find that the real value of the 1993 poverty line is equal to 5398 soms per annum at 1997 prices. Yet the 1997 poverty line is only set equal to 4647 soms per annum, the difference between the two poverty lines roughly equal to 15 per cent. Using the 1993 KMPS poverty line, 44 per cent of household in 1993 are identified as poor. Using the 1997 LSMS poverty line, 51 per cent of households in 1997 are identified as poor. The tentative conclusion emerging from the comparison of these two figures is that poverty increased between 1993 and 1997. However, by how much poverty really changed between 1993 and 1997 remains unclear as meaningful intertemporal comparisons of poverty rates require that the same poverty standard is consistently applied.

TABLE 2
KMPS AND LSMS POVERTY LINES – KYRGYZSTAN 1993-97

	1993	1996	1997
lower poverty line	749.0	2199.0	2438.7
upper poverty line	1284.0	4190.1	4646.8
lower poverty line at 1997 prices	3148.8	2715.8	2438.7
upper poverty line at 1997 prices	5397.9	5174.8	4646.8
lower poverty line as per cent of mean	42.98	46.99	36.30
upper poverty line as per cent of mean	73.67	89.55	69.18
lower poverty line as per cent of median	60.31	61.41	52.89
upper poverty line as per cent of median	103.38	117.01	100.78
lower bound poverty rate	0.2772	0.1933	0.1489
upper bound poverty rate	0.4388	0.5185	0.5101

The consequence of the absence of an intertemporally comparative poverty line is an opaque account of trends in poverty during the transition: according to IMF (1999: 12) 54 per cent of Kyrgyz households were poor in 1993 and 70 per cent in 1996. However, according to IMF (1999: 12) only 40 per cent of households were poor in 1993 and only 50 per cent poor in 1996.

Poverty comparisons between 1993 and 1997 are further impeded by the fact that the 1993 KMPS made use of an elaborate set of household equivalence scales to account for the differences in needs between various household members. According to these implicit equivalence scales, the subsistence minimum for a working-age female is equal to 80 per cent of the subsistence level of a working-age male while a young child aged four to six years has needs equal to two thirds of those of an adult working-age male (World Bank 1996: 46). The LSMS surveys, on the other hand, implicitly assume that there are no differences in needs between household members and that there are no economies of scale in consumption.

However, average household sizes in Kyrgyzstan are large and child dependency ratios, compared to western countries, are high. In addition, the privatization of housing and the liberalization of prices of utilities have

increased the scope for economies of scale in consumption. The assumption of no economies of scale is clearly unreasonable.

The analysis of household consumption patterns in similar circumstances (e.g., Foley 1997 for Russia in 1992) suggests that the scope for economies of scale is limited in transition economies. The scale economy factor is close to 1.0 (approximately 0.90), suggesting that the per capita scale operated by the LSMS may be approximately correct. However, the results in Table 3 show that even small adjustments for economies of scale in consumption and differences in needs yield substantially different results relative to the 'no adjustment' scenario. It therefore appears erroneous to claim that economies of scale and differences in needs may safely be ignored as even small adjustments yield fundamentally different results.⁴

In order to test the sensitivity of the poverty results to the assumptions made about scale elasticities and differences in needs and allowing for the diversity of poverty lines, Table 3 contains 144 poverty indices for each year.

Six absolute poverty lines and three relative poverty lines are used. The absolute poverty lines stem from the 1993 KMPS and the 1996 and 1997 LSMS surveys. They are rendered intertemporally comparable by adjusting them for changes in consumer prices between 1993 and 1996/97 using a month-to-month consumer price index.

The three relative poverty lines are set equal to half the median, two thirds of the median and three quarters of the median. The problems encountered by updating an absolute poverty line through time may be overcome if a relative poverty line is used which determines the poverty cut-off point relative to the mean or median expenditure levels. Relative poverty lines may be deemed inappropriate in very poor countries where an average

⁴ It should be observed at this point that although there exists a vast literature on the subject of equivalence scales, there is little agreement in the literature as to what constitutes the 'true' equivalence scale to be used in applied work. The choice of the equivalence scale factor is thus largely left at the discretion of the researcher. Nelson (1993: 489) argues therefore that the pragmatic standard for policy guidelines should be that 'scales be reasonable and well-informed; absolute truth and generality is not required'.

TABLE 3
POVERTY UNDER ALTERNATIVE DEFINITIONS – KYRGYZSTAN 1993-97

	1993							per capita
	$\varepsilon=0.00$	$\varepsilon=0.50$	$\varepsilon=0.75$	oecd	$\varepsilon=0.80$	$\varepsilon=0.90$	$\varepsilon=1.00$	
	HEADCOUNT INDEX							
1993 lower	0.0790	0.1435	0.1993	0.1678	0.2184	0.2581	0.3000	0.3191
1996 lower	0.0682	0.1260	0.1724	0.1425	0.1838	0.2148	0.2540	0.2710
1997 lower	0.0604	0.1120	0.1559	0.1275	0.1623	0.1864	0.2235	0.2401
1993 upper	0.1301	0.2550	0.3587	0.2989	0.3846	0.4347	0.4858	0.5158
1996 upper	0.1260	0.2473	0.3444	0.2881	0.3702	0.4197	0.4698	0.5008
1997 upper	0.1131	0.2148	0.3108	0.2545	0.3304	0.3800	0.4331	0.4628
0.50*median	0.2736	0.2623	0.2628	0.2633	0.2633	0.2638	0.2581	0.2566
0.67*median	0.3516	0.3578	0.3480	0.3542	0.3490	0.3505	0.3516	0.3500
0.75*median	0.3980	0.3882	0.3893	0.3893	0.3918	0.3934	0.3918	0.3934
	F-G-T INDEX							
1993 lower	0.0307	0.0485	0.0676	0.0565	0.0725	0.0836	0.0969	0.1041
1996 lower	0.0276	0.0421	0.0585	0.0490	0.0627	0.0723	0.0836	0.0898
1997 lower	0.0256	0.0380	0.0526	0.0441	0.0565	0.0651	0.0723	0.0808
1993 upper	0.0474	0.0828	0.1168	0.0963	0.1254	0.1449	0.1654	0.1796
1996 upper	0.0457	0.0793	0.1118	0.0922	0.1201	0.1388	0.1606	0.1722
1997 upper	0.0417	0.0712	0.1000	0.0827	0.1074	0.1243	0.1441	0.1546
0.50*median	0.0917	0.0858	0.0843	0.0849	0.0847	0.0852	0.0852	0.0855
0.67*median	0.1221	0.1154	0.1134	0.1139	0.1139	0.1142	0.1139	0.1140
0.75*median	0.1369	0.1304	0.1280	0.1287	0.1286	0.1289	0.1285	0.1285

TABLE 3 (continued)

	1997							
	$\varepsilon=0.00$	$\varepsilon=0.50$	$\varepsilon=0.75$	oecd	$\varepsilon=0.80$	$\varepsilon=0.90$	$\varepsilon=1.00$	per capita
	Headcount index							
1993 lower	0.0013	0.0177	0.0724	0.0405	0.0961	0.1598	0.2569	0.2794
1996 lower	0.0008	0.0109	0.0461	0.0238	0.0636	0.1053	0.1741	0.1966
1997 lower	0.0005	0.0081	0.0315	0.0185	0.0438	0.0783	0.1298	0.1492
1993 upper	0.0092	0.0936	0.3126	0.1923	0.3586	0.4624	0.5551	0.5761
1996 upper	0.0080	0.0843	0.2839	0.1660	0.3339	0.4397	0.5316	0.5512
1997 upper	0.0050	0.0604	0.2207	0.1245	0.2760	0.3719	0.4814	0.5029
0.50*median	0.1232	0.1099	0.1200	0.1141	0.1189	0.1279	0.1293	0.1292
0.67*median	0.2481	0.2485	0.2610	0.2511	0.2630	0.2662	0.2672	0.2668
0.75*median	0.2420	0.2874	0.3236	0.3042	0.3272	0.3432	0.3615	0.3573
	F-G-T INDEX							
1993 lower	0.0001	0.0013	0.0063	0.0033	0.0086	0.0159	0.0283	0.0326
1996 lower	0.0000	0.0007	0.0038	0.0019	0.0052	0.0099	0.0183	0.0213
1997 lower	0.0000	0.0004	0.0026	0.0013	0.0036	0.0069	0.0131	0.0154
1993 upper	0.0007	0.0086	0.0344	0.0195	0.0448	0.0719	0.1078	0.1182
1996 upper	0.0006	0.0075	0.0304	0.0172	0.0398	0.0649	0.0989	0.1088
1997 upper	0.0004	0.0052	0.0220	0.0123	0.0291	0.0493	0.0782	0.0869
0.50*median	0.0125	0.0104	0.0112	0.0113	0.0114	0.0119	0.0128	0.0130
0.67*median	0.0288	0.0255	0.0274	0.0272	0.0278	0.0286	0.0303	0.0305
0.75*median	0.0276	0.0303	0.0369	0.0362	0.0383	0.0425	0.0470	0.0475

F-G-T poverty index computed for poverty aversion parameter equal to 2.

income barely meets subsistence needs and during recessions when average income levels are falling. Both caveats apply in the Kyrgyz case⁵.

Eight different equivalence scales are used. The 'epsilon'-denoted scales in Table 3 are so-called two parameter scales that make adjustments for differences in needs (children have lower needs than adults) and economies of scale in consumption. The equivalent expenditure is computed as follows:

$$eq_exp = household\ expenditure / (nb_adults + 0.9 * nb_children)^\epsilon$$

The so-called OECD scale adjusts the denominator of the expression above by attaching a weight of 1.0 to the first adult in the household, a weight of 0.5 to subsequent adults and a weight of 0.3 to children. The OECD scale therefore also takes into account differences in needs as well as economies of scale in consumption. Finally, the per capita scale simply divides total household expenditure by household size i.e., no adjustment is made for economies of scale and/or differences in needs.

In order to take into account the 'gap' dimension of poverty, two poverty indices are computed. The Headcount index⁶ gives the share of poor households in the population. It does not establish a hierarchy among poor households. The F-G-T index⁷, however, also takes into account a household's average shortfall from the poverty line thus implicitly recognizing the difference between a household with a small 'poverty gap'

⁵ The latter caveat is certainly the more damning one, from the point of view of intertemporal comparisons. If distributional changes are sizeable over time, affecting the central tendency of household income or expenditure, it becomes difficult to pin down the factors that are the driving forces of changes in the poverty rate. Notice, however that real household expenditure and income levels in Kyrgyzstan recovered faster than e.g., real wages and that real expenditure levels in 1997 are lagging real expenditure levels in 1993 by only approximately 10 per cent, an arguably small percentage given the overall dimension of social change.

⁶ The Headcount index is defined as follows: $HC = p/n$ where p is the number of poor households and n is the total number of households.

⁷ The formula for the F-G-T index is: $F-G-T = \frac{1}{n} \sum_{i=1}^p \left(\frac{z-y_i}{z} \right)^\epsilon$ where z is the poverty

line, y_i is the income of poor household i and ϵ is a poverty aversion parameter. The F-G-T index is due to Foster *et al.* (1984).

and a household with a large 'poverty gap' and incorporating this difference in the computation of the index.

Table 3 contains 144 poverty indices for 1993 and 1997. Of these, only 8 pairs are compatible with an increase in poverty between ('pseudo p-value' of 0.0556). All the F-G-T indices suggest that poverty decreased. This is due to an increase in the relative and absolute expenditure levels of the poorest households. All the Headcount indices for the relative poverty lines indicate that poverty is falling and poverty decreases across the board if the 'lower' poverty lines are used as cut-off points, suggesting that the extent of extreme poverty is substantially reduced between 1993 and 1997.

Using the 1997 upper poverty line as a cut-off point and the per capita equivalence scale, the proportion of impoverished households increased from 46.28 per cent to 50.29 per cent. However, using the same 1997 upper poverty line and the arguably very conservative equivalence scale $\epsilon=0.90$, poverty decreases slightly from 38.00 per cent to 37.19 per cent.

If the 1997 poverty line is used in conjunction with the OECD equivalence scale, a scale thought to be consistent with consumption patterns in developed market economies, the share of impoverished households is halved, dropping from 25.45 per cent to a mere 12.45 per cent.

At the three quarters of median poverty cut-off point applied by Grootaert and Braithwaite (1998) to a range of transition economies, the proportion of poor households in Krygyzstan is reduced by 3 to 10 per cent depending on the scale factor used (the Headcount index decreases from approximately 0.40 to approximately 0.35).

In summary, one may say that poverty measures are very sensitive to the assumptions made about economies of scale in consumption and differences in needs. Intertemporal comparisons of poverty rates may be treacherous as there is considerable uncertainty regarding the adequacy of equivalence scales and of the poverty lines. One may, however, confidently assert that the extent of extreme poverty was considerably reduced between 1993 and 1997 and that quite possibly overall poverty also came down, although it is almost impossible to assert by how much

6. CHANGES IN INEQUALITY (1993-97)

Real household expenditure per capita fell by approximately 7.5 per cent between fall 1993 and fall 1997. At the same time, inequality, which had considerably increased since the beginning of the transition, started to recede (see Table 4).

The ubiquitous Gini coefficient⁸ which can be interpreted as the expected expenditure gap between two persons randomly selected from the population, decreases from 0.47 to 0.42 on a per capita basis and the Gini for equalized household expenditure decreases from 0.47 to 0.40.

The Atkinson index⁹ – which can be thought of as an index constructed on the basis of a social welfare function – and the percentage difference between the tenth and the ninetieth percentiles of the expenditure distribution confirm the reduction in inequality for per capita and equalized household expenditure.

The Theil measure of entropy¹⁰ and the relative mean deviation of household expenditures¹¹ – roughly equal to the average percentage transfer from those above the mean to those below the mean necessary to achieve perfect equality – yield ambiguous results: inequality increases if it

⁸ The Gini coefficient is equal to: $I_{Gini} = \frac{2}{n^2 \bar{y}} \sum_{i=1}^n i(y_i - \bar{y})$. n is the population size, \bar{y} is mean household expenditure and y_i is household i 's expenditure.

⁹ The Atkinson index is defined as follows: $I_{Atkinson} = 1 - \left(\frac{1}{n} \sum_{i=1}^n \left(\frac{y_i}{\bar{y}} \right)^{1-\varepsilon} \right)^{1/1-\varepsilon}$

where the variables are defined in the same way as for the Gini coefficient and ε is the degree of social aversion to inequality.

¹⁰ The Theil measure of entropy is obtained as follows: $I_{Theil} = \frac{1}{n} \sum_{i=1}^n \frac{y_i}{\bar{y}} \log \frac{y_i}{\bar{y}}$, with the variables defined in the same way as above.

¹¹ The relative mean deviation of household expenditure is computed in the following

way: $I_{relmeandev} = \frac{\sum_{i=1}^n |y_i - \bar{y}|}{2n\bar{y}}$ and the variables are defined in the same way as above.

TABLE 4
DISTRIBUTION OF HOUSEHOLD EXPENDITURE AND INEQUALITY – KYRGYZSTAN 1993-97

	1993							
	$\epsilon=0.00$	$\epsilon=0.50$	$\epsilon=0.75$	oecd	$\epsilon=0.80$	$\epsilon=0.90$	$\epsilon=1.00$	per capita
	inequality indices							
I Atkinson	0.4049	0.3689	0.3700	0.3693	0.3720	0.3776	0.3855	0.3820
I Gini	0.4878	0.4611	0.4629	0.4620	0.4647	0.4697	0.4767	0.4736
I Theil	0.4140	0.3658	0.3704	0.3678	0.3740	0.3843	0.3986	0.3873
I relmeande	0.3588	0.3370	0.3392	0.3379	0.3408	0.3449	0.3503	0.3485
I p90/p10	2.8183	2.7184	2.7007	2.7440	2.7270	2.7564	2.7916	2.7955
	percentile ratios							
p10/p50	0.202	0.200	0.202	0.200	0.199	0.201	0.201	0.198
p25/p50	0.449	0.480	0.481	0.4620	0.482	0.482	0.488	0.494
p75/p25	1.330	3.744	3.787	3.737	3.784	3.827	3.844	3.757
p75/p50	1.942	1.796	1.823	1.806	1.825	1.846	1.877	1.855
p90/p10	15.824	14.455	14.181	14.410	14.598	14.740	15.245	15.593
p90/p50	3.193	2.890	2.869	2.884	2.909	2.965	3.063	3.081
p95/p90	1.324	1.301	1.317	1.307	1.322	1.336	1.324	1.279
p95/p50	4.255	3.789	3.822	3.806	3.873	3.969	4.078	3.975
p95/p25	9.630	8.112	7.973	7.891	8.084	8.288	5.696	8.115
	decile shares							
1st	0.0062	0.0074	0.0073	0.0073	0.0072	0.0071	0.0069	0.0070
2nd	0.0193	0.0217	0.0219	0.0219	0.0218	0.0215	0.0209	0.0209
3rd	0.0313	0.0355	0.0353	0.0355	0.0351	0.0347	0.0342	0.0347
4th	0.0455	0.0488	0.0489	0.0489	0.0486	0.0479	0.0469	0.0473
5th	0.0607	0.0660	0.0651	0.0657	0.0648	0.0638	0.0624	0.0623
6th	0.0801	0.0845	0.0834	0.0838	0.0830	0.0800	0.0808	0.0815
7th	0.1037	0.1062	0.1055	0.1054	0.1049	0.1038	0.1025	0.1031
8th	0.1360	0.1348	0.1360	0.1352	0.1362	0.1356	0.1347	0.1341
9th	0.1827	0.1826	0.1827	0.1820	0.1828	0.1838	0.1845	0.1879
10th	0.3345	0.3126	0.3140	0.3143	0.3155	0.3198	0.3262	0.3212
richest 5 %	0.2075	0.1907	0.1917	0.1910	0.1929	0.1963	0.2013	0.1968

TABLE 4 (continued)

	1997							
	$\varepsilon=0.00$	$\varepsilon=0.50$	$\varepsilon=0.75$	oecd	$\varepsilon=0.80$	$\varepsilon=0.90$	$\varepsilon=1.00$	per capita
	inequality indices							
I Atkinson	0.1847	0.1934	0.2166	0.2112	0.2278	0.2366	0.2525	0.2584
I Gini	0.3486	0.3603	0.3839	0.3783	0.3900	0.4032	0.4179	0.4232
I Theil	0.0677	0.2171	0.3552	0.3091	0.3896	0.4664	0.5547	0.5809
I relmeande	0.2493	0.2746	0.3071	0.2954	0.3154	0.3341	0.3554	0.3625
I p90/p10	1.6141	1.6176	1.6815	1.6942	1.7056	1.7609	1.8071	1.8309
	percentile ratios							
p10/p50	0.462	0.481	0.472	0.473	0.470	0.465	0.461	0.459
p25/p50	0.671	0.669	0.655	0.665	0.653	0.649	0.644	0.645
p75/p25	2.351	2.390	2.515	2.482	2.531	2.605	2.668	2.708
p75/p50	1.577	1.599	1.648	1.650	1.654	1.692	1.718	1.748
p90/p10	5.024	5.041	5.374	5.442	5.505	5.817	6.093	6.240
p90/p50	2.321	2.424	2.535	2.573	2.587	2.705	2.812	2.862
p95/p90	1.238	1.243	1.335	1.317	1.354	1.382	1.393	1.423
p95/p50	2.872	3.013	3.385	3.388	3.696	4.420	3.915	4.073
p95/p25	4.280	4.504	5.165	5.095	5.658	6.807	6.078	6.311
	decile shares							
1st	0.0501	0.0388	0.0313	0.0307	0.0296	0.0262	0.0230	0.0221
2nd	0.0628	0.0494	0.0413	0.0427	0.0385	0.0359	0.0334	0.0330
3rd	0.0669	0.0537	0.0432	0.0491	0.0438	0.0410	0.0369	0.0347
4th	0.0693	0.0600	0.0541	0.0531	0.0508	0.0466	0.0435	0.0427
5th	0.0811	0.0707	0.0611	0.0642	0.0610	0.0557	0.0531	0.0522
6th	0.0927	0.0827	0.0723	0.0738	0.0693	0.0678	0.0666	0.0667
7th	0.1035	0.0905	0.0926	0.0928	0.0903	0.0858	0.0788	0.0770
8th	0.1222	0.1197	0.1100	0.1133	0.1105	0.1086	0.1054	0.1041
9th	0.1471	0.1465	0.1462	0.1534	0.1482	0.1499	0.1522	0.1518
10th	0.2042	0.2881	0.3478	0.3269	0.3581	0.3826	0.4071	0.4156
richest 5 %	0.1263	0.1883	0.2351	0.2095	0.2438	0.2640	0.2941	0.3011

Atkinson inequality index computed for inequality aversion parameter equal to 1.

is assumed that there are few or no economies of scale in consumption but inequality decreases if allowance is made for scale economies in consumption.

As the fundamental changes in the Kyrgyz economy translate into social changes at all levels of the welfare and consumption distribution, single-valued inequality indices e.g., Gini, Atkinson or Theil measures may not capture the whole extent of the 'distributional' changes taking place. For this reason, the standard inequality measures are complemented by percentile ratios and decile shares.

The percentile ratios confirm that inequality of household expenditure (and thus, presumably, income) considerably decreased between 1993 and 1997 i.e., that the 'distance' between the various percentiles of the expenditure distribution is reduced and that the distribution becomes more compressed.

The situation of the least well off households ('the poorest ten per cent') dramatically improves: the ratio of the expenditures of the 90th percentile to the expenditures of the 10th percentile decreases from approximately 15 to approximately 6.

The decile shares of household expenditure illustrate the extreme inequality in the distribution of consumable resources but confirm that inequalities are shrinking over time. The households located in the bottom three deciles of the expenditure distribution increase their share of total expenditure, as well as households in the top decile.

In 1993, the poorest ten per cent account for less than 1 per cent of total expenditure but in 1997, the poorest ten per cent account for approximately 3 per cent of total expenditure. At the other end of the spectrum, the richest ten per cent account for approximately one third of total expenditure in 1993 and for 35-40 per cent of total expenditure in 1997. Closer examination of the top decile of the distribution shows that most of the gains accrue to the richest five per cent of households.

Notice that, as real income and expenditure levels decrease between 1993 and 1997 (albeit only moderately), decile shares are applied to a shrinking total. Taking into account inflation, the living standards of the poorest and the richest households increase between 1993 and 1997, while the living standards of the remaining households falls or, at best, stagnate.

Like for the analysis of changes in poverty across time, the conclusions about intertemporal changes in inequality are very sensitive to the assumptions made about equivalence scales. However, unlike in the case of the poverty analysis, this sensitivity of the inequality measures does not fundamentally cloud the major conclusions.

The distribution of household expenditure – and thus income and welfare – in Kyrgyzstan is highly polarized and unequal. However, inequalities are substantially reduced between 1993 and 1997 and significant improvements in the living standards of the poorest as well as the richest are recorded. The improvements at the bottom of the expenditure distribution can be explained by the strong growth in the agricultural sector and by welfare reforms that deliver a better targeting of scarce social assistance funds. The small group of very wealthy households at the top of the expenditure distribution coincides, in all likelihood, with the small group of households to whom accrued the bulk of the benefits from the privatization of previously state-owned enterprises.

7. DETERMINANTS OF SOCIAL STRUCTURE: THEORETICAL CONSIDERATIONS AND PRELIMINARY ANALYSIS

The analysis in this section is mainly descriptive. A set of characteristics are identified which are expected to be correlated with the household's welfare or social position. The nature of the relationship between the selected household characteristics and social class is explained. The explanatory variables fall into five categories: geographic location variables, household composition variables, socio-demographic variables, variables describing the wealth holdings of the households and variables describing the market and non-market activities of the household.

For reasons explained earlier, it is assumed that these household characteristics are exogenous over the short time period under consideration here.

Summary statistics of the explanatory variables (population means, poverty rates and decomposition by expenditure percentiles) are provided in Tables 5 and 6.

TABLE 5
VARIABLE SUMMARIES, GEOGRAPHIC LOCATION VARIABLES – KYRGYZSTAN 1993 AND 1997

	1993							
	all	poor	<10th	10th-25th	25th-50th	50th-75th	75th-90th	>90th
Bishkek	0.1675	0.1813*	0.0464	0.0756	0.1178	0.1921	0.2302	0.3731
Chui	0.2471	0.3368*	0.1856	0.2234	0.2397	0.2500	0.2784	0.2902
Jalalaba	0.1141	0.4706*	0.1289	0.1684	0.1116	0.1074	0.0997	0.0622
Issuk Kul	0.0995	0.4042*	0.1289	0.1065	0.1095	0.0950	0.0893	0.0622
Narun	0.0455	0.5604*	0.0773	0.0790	0.0517	0.0289	0.0275	0.0311
Osh	0.2764	0.4486*	0.3608	0.3024	0.3099	0.2748	0.2199	0.1554
Talas	0.0497	0.4412*	0.0722	0.0447	0.0599	0.0517	0.0550	0.0259
rural	0.5675	0.4702*	0.8299	0.6873	0.5992	0.5145	0.4742	0.3627
urban	0.4325	0.2594*	0.1701	0.3127	0.4008	0.4855	0.5258	0.6373
Bishkek	0.1675	0.1813*	0.0464	0.0756	0.1178	0.1921	0.2302	0.3731
Chui, rural	0.1801	0.3439*	0.1495	0.1649	0.1612	0.1818	0.1993	0.2332
Chui, urban	0.0670	0.3178*	0.0361	0.0584	0.0785	0.0682	0.0790	0.0570
Jalalaba, rural	0.0576	0.6814*	0.1186	0.1168	0.0620	0.0310	0.0309	0.0104
Jalalaba, urban	0.0565	0.2500*	0.0103	0.0515	0.0496	0.0764	0.0687	0.0518
Issuk-Kul, rural	0.0644	0.5397*	0.1186	0.0893	0.0785	0.0475	0.0481	0.0104
Issuk-Kul, urban	0.0351	0.1493*	0.0103	0.0172	0.0310	0.0475	0.0412	0.0518
Narun, rural	0.0351	0.5714*	0.0567	0.0619	0.0475	0.0165	0.0172	0.0259
Narun, urban	0.0105	0.5238*	0.0206	0.0172	0.0041	0.0124	0.0103	0.0052
Osh, rural	0.1984	0.4753*	0.3196	0.2165	0.2190	0.2045	0.1409	0.0725
Osh, urban	0.0780	0.3800*	0.0412	0.0859	0.0909	0.0702	0.0790	0.0829
Talas, rural	0.0319	0.5000*	0.0670	0.0378	0.0310	0.0331	0.0378	0.0104
Talas, urban	0.0178	0.3235*	0.0052	0.0069	0.0289	0.0186	0.0172	0.0155

TABLE 5 (continued)

	1997							
	all	poor	<10th	10th-25th	25th-50th	50th-75th	75th-90th	>90th
Bishkek	0.1571	0.0314*	0.0000	0.0209	0.0211	0.1315	0.4536	0.6840
Chui	0.1416	0.0613*	0.0309	0.0543	0.1282	0.2459	0.2714	0.2524
Jalalaba	0.1135	0.5842*	0.2880	0.1817	0.1314	0.0946	0.0358	0.0000
Issuk Kul	0.1277	0.4754*	0.3015	0.2175	0.1725	0.1865	0.0948	0.0234
Narun	0.1135	0.8286*	0.1697	0.0952	0.0287	0.0126	0.0045	0.0006
Osh	0.2312	0.4713*	0.1462	0.3821	0.4658	0.2850	0.1178	0.0348
Talas	0.1154	0.5168*	0.0637	0.0483	0.0523	0.0439	0.0220	0.0048
rural	0.6144	0.5014*	0.9393	0.8195	0.7549	0.5884	0.2963	0.2095
urban	0.3856	0.1554*	0.0607	0.1805	0.2451	0.4116	0.7037	0.7905
Bishkek	0.1571	0.0314*	0.0000	0.0209	0.0211	0.1315	0.4536	0.6840
Chui, rural	0.1027	0.1478*	0.0309	0.0426	0.1091	0.1964	0.2010	0.1842
Chui, urban	0.0390	0.0816*	0.0000	0.0117	0.0191	0.0495	0.0703	0.0681
Jalalaba, rural	0.0849	0.6643*	0.2790	0.1643	0.0963	0.0685	0.0143	0.0000
Jalalaba, urban	0.0286	0.2486*	0.0090	0.0174	0.0351	0.0261	0.0215	0.0000
Issuk-Kul, rural	0.0872	0.6672*	0.2956	0.1841	0.1167	0.0696	0.0167	0.0115
Issuk-Kul, urban	0.0405	0.1521*	0.0059	0.0334	0.0557	0.1169	0.0782	0.0119
Narun, rural	0.0880	0.8758*	0.1462	0.0766	0.0213	0.0051	0.0024	0.0000
Narun, urban	0.0255	0.6558*	0.0235	0.0186	0.0074	0.0075	0.0022	0.0006
Osh, rural	0.1590	0.5073*	0.1360	0.3068	0.3629	0.2094	0.0453	0.0122
Osh, urban	0.0722	0.3627*	0.0101	0.0753	0.1029	0.0756	0.0725	0.0225
Talas, rural	0.0926	0.5211*	0.0515	0.0451	0.0487	0.0393	0.0165	0.0015
Talas, urban	0.0228	0.4839*	0.0123	0.0032	0.0037	0.0046	0.0054	0.0033

* denotes Headcount poverty index, poverty line is 'upper' 1997 poverty line (adjusted for inflation), equivalence scale is $\varepsilon=0.90$.

TABLE 6
VARIABLE SUMMARIES, OTHER CHARACTERISTICS – KYRGYZSTAN 1993 AND 1997

	1993							
	all	poor	<10th	10th-25th	25th-50th	50th-75th	75th-90th	>90th
child dependency ratio (<6)	0.1230	0.1230	0.1558	0.1521	0.1319	0.1062	0.1084	0.0863
child dependency ratio (≥6)	0.2012	0.2007	0.1989	0.2231	0.2221	0.1994	0.1580	0.1778
female	0.1832	0.3827*	0.1804	0.2062	0.1694	0.1756	0.1993	0.1969
male	0.8168	0.3794*	0.8196	0.7938	0.8306	0.8244	0.8007	0.8031
Kyrgyz	0.5073	0.4657*	0.7423	0.6117	0.5186	0.4534	0.4414	0.3627
Russian	0.2424	0.2716*	0.1186	0.1993	0.2169	0.2712	0.2793	0.3420
Uzbek	0.1136	0.3470*	0.0773	0.1065	0.1219	0.1346	0.1207	0.0725
other ethnicity	0.1366	0.2786*	0.0619	0.0825	0.1426	0.1408	0.1586	0.2228
primary school	0.1482	0.3966*	0.1771	0.1655	0.1393	0.1618	0.1306	0.1295
incomplete secondary	0.1843	0.3803*	0.1771	0.1759	0.1871	0.1846	0.1512	0.2435
complete secondary	0.1712	0.4787*	0.2813	0.2207	0.1580	0.1494	0.1340	0.1192
complete secondary and professional training	0.2445	0.3941*	0.2031	0.2690	0.2661	0.2178	0.2577	0.2435
higher education	0.2518	0.2851*	0.1615	0.1690	0.2495	0.2863	0.3265	0.2642
own real estate (y/n)	0.0581	0.0565	0.0311	0.0344	0.0394	0.0620	0.0862	0.1088
own land (y/n)	0.5775	0.5756	0.4794	0.5464	0.6219	0.6033	0.5533	0.5648
wage income	0.2459	0.2438	0.1225	0.1697	0.2474	0.2872	0.2893	0.2942
self-employment income	0.0377	0.0373	0.0347	0.0329	0.0327	0.0426	0.0297	0.0554
pension income	0.1443	0.1492	0.2226	0.1645	0.1498	0.1376	0.1186	0.1238
social assistance income	0.0793	0.0789	0.1154	0.1061	0.0811	0.0621	0.0725	0.0472
agriculture income	0.3643	0.3634	0.3487	0.3979	0.3638	0.3821	0.3368	0.3110
private transfer income	0.0670	0.0662	0.0566	0.0515	0.0812	0.0492	0.0711	0.0939
property income	0.0020	0.0020	0.0000	0.0027	0.0026	0.0000	0.0050	0.0014
other income	0.0035	0.0034	0.0017	0.0059	0.0022	0.0042	0.0014	0.0056

TABLE 6 (continued)

	1997							
	all	poor	<10th	10th-25th	25th-50th	50th-75th	75th-90th	>90th
child dependency ratio (<6)	0.1125	0.1439	0.1459	0.1485	0.1433	0.1129	0.1033	0.0725
child dependency ratio (\geq 6)	0.2194	0.2855	0.2662	0.2837	0.2710	0.2398	0.1975	0.1434
female	0.2489	0.3592*	0.2636	0.1799	0.1896	0.1731	0.2853	0.3685
male	0.7511	0.3755*	0.7364	0.8201	0.8104	0.8269	0.7147	0.6315
Kyrgyz	0.7167	0.4505*	0.9610	0.9003	0.8211	0.7121	0.5046	0.4103
Russian	0.1617	0.1026*	0.0247	0.0344	0.0585	0.1216	0.2805	0.3990
Uzbek	0.0413	0.3313*	0.0044	0.0443	0.0642	0.0628	0.0466	0.0145
other ethnicity	0.0803	0.1253*	0.0099	0.0210	0.0563	0.1035	0.1683	0.1761
primary school	0.2447	0.4396*	0.3575	0.2788	0.2528	0.2438	0.1849	0.1516
incomplete secondary	0.3466	0.4587*	0.4854	0.4365	0.3538	0.3251	0.2206	0.2139
complete secondary	0.0903	0.3973*	0.0847	0.1092	0.1083	0.0807	0.0922	0.0936
complete secondary and professional training	0.1617	0.2701*	0.0402	0.1128	0.1602	0.1879	0.2047	0.2396
higher education	0.1567	0.1605*	0.0322	0.0626	0.1249	0.1625	0.2976	0.3013
own real estate (y/n)	0.0571	0.0278	0.0078	0.0279	0.0483	0.0671	0.1192	0.0890
own land (y/n)	0.5481	0.7337	0.8327	0.7150	0.6684	0.5255	0.2917	0.2623
wage income	0.4867	0.4865	0.3885	0.4746	0.5506	0.5248	0.6276	0.5138
self-employment income	0.0506	0.0324	0.0147	0.0388	0.0423	0.0350	0.0451	0.0670
pension income	0.1151	0.1341	0.1650	0.1424	0.1013	0.1081	0.0641	0.0448
social assistance income	0.0294	0.0419	0.0624	0.0373	0.0338	0.0264	0.0075	0.0064
agriculture income	0.1657	0.2023	0.2808	0.1906	0.1685	0.1497	0.0905	0.0610
private transfer income	0.0860	0.0663	0.0547	0.0821	0.0678	0.0839	0.0828	0.0948
property income	0.0454	0.0129	0.0103	0.0146	0.0142	0.0486	0.0750	0.2064
other income	0.0098	0.0082	0.0092	0.0080	0.0067	0.0092	0.0075	0.0057

* denotes Headcount poverty index, poverty line is 'upper' 1997 poverty line (adjusted for inflation), equivalence scale is $\varepsilon=0.90$.

7.1 Geographical location variables

Regional factors are very important determinants of the social structure of Kyrgyzstan as they basically stand for proxies of the economic structure. The capital Bishkek and the surrounding oblast Chui are the centres of economic activity and enterprise. Kyrgyzstan is very mountainous and is in fact physically separated into north and south by the mountain range Tian Shan. Kyrgyzstan has a large rural population but only a limited stock of fertile farm land.

Between 1993 and 1997, population movements away from urban centres to rural areas have taken place and the rural population has increased by 5 per cent, to over 60 per cent of the total population in 1997.

The Bishkek and Chui oblasts in the north become less populated and more prosperous. In 1997 over 90 per cent of households in the top decile of the expenditure distribution live in these oblasts but fewer than 5 per cent of the households in the bottom decile. Headcount poverty rates are well below 10 per cent in Bishkek and Chui.

The urban-rural divide is accentuated over the course of the transition. The rich are increasingly living in urban areas while the poor population predominantly lives in rural areas. In 1993 83 per cent of the poorest ten per cent lived in rural areas while in 1997 94 per cent of the poorest ten per cent are rurally based. The poverty rate in rural areas has increased from 47 to 50 per cent. The absolute number of rural poor has, however, increased faster than that as the rural population also increased during that period. The urban poverty rate decreases from 26 to 16 per cent and poverty increases in all oblasts bar Bishkek and Chui.

The poorest oblast is the mountain oblast Narun where 80 per cent of all households were poor in 1997. The second highest incidence of poverty is observed in the southern oblast of Jalalaba with 58 per cent poor households, followed by the mountain oblast Talas with a poverty rate of 52 per cent.

7.2 Household composition

The average household sizes in Kyrgyzstan are much larger than in western countries. In 1993 the average household size was 5 with household size ranging from 1 to 15. In 1997 the average household size had increased to 6, with some households as large as 17 members.

The use of equivalence scales is thus not only important from the point of view of the existence of economies of scale in consumption and differences in needs but also from the point of view of achieving inter-household comparability of the expenditure and income information.

After suitable equalization of household expenditure, one would not expect a systematic relationship between household size and household expenditure to exist. Larger households will typically comprise more working-age adults, but they will also typically comprise more young dependants and elderly household members. The positive effect the former has on the household's access to resources is in all likelihood offset by the latter effect.

One might however, expect the existence of a systematic relationship between the presence of dependent children and household welfare as the presence of dependent children in the household restricts the labour market involvement of adult household members. Young dependants in particular generally require the full-time attention of an adult.

The presence of children in a household may also interact with its welfare through an additional channel. The average age of adult household members in a household with children is generally lower than the average adult age in households with no children. If household members are younger, they will generally have less potential and actual labour market experience and will therefore command a lower wage.

The results in Table 6 suggest the existence of an inverse relationship between the child dependency ratios and household welfare. In 1997 the child dependency ratio for children younger than six years was twice as high for households in the bottom decile of the expenditure distribution than for households in the top decile (0.1439 against 0.0725). Poor households also exhibit a significantly higher child dependency ratio for children aged 6 or older than better-off households.

7.3 Socio-demographic variables

A household's wealth and the ensuing social status may be inherited or not. Generally in market economies, an important correlate of non-inherited wealth is human capital. Human capital may be proxied by education. Here the level of human capital embodied in a household is approximated by the education of the household head. Notice an important caveat: the education

variables for 1993 and 1997 (Table 6 and thereafter) are not strictly comparable.

Human development indicators (e.g., life expectancy, literacy rates) for Kyrgyzstan are generally much higher than for countries at comparable stages of economic development. This is confirmed by the education variables in Table 6. On average, Kyrgyz household heads are very well educated. In 1993 one quarter of household heads had received higher education and almost 70 per cent of household heads had completed secondary school.

Despite Kyrgyzstan's good record on education, the legacy of central planning and the broad diffusion of education with very little specialization suggest that returns to education were low during the early stages of the transition. This is confirmed by the results in Table 6. The presence of a household head with only primary or incomplete secondary education does not represent a particular obstacle to the household to reach the higher deciles of the expenditure distribution. At the same time, over one quarter of households with a higher education household head are poor.

The returns to education in 1997 are more in line with the *a priori* expectations. Households whose heads have received at least complete secondary education have a low probability of belonging to the lower expenditure deciles. Conversely, households where the head has received less than secondary education have a high probability of being poor or belonging to the lower deciles of the expenditure distribution.

While education appears to gain in importance as a vehicle to achieve higher social status, Kyrgyzstan remains a very traditionalist society where kin and clan relationships play an important role in the determination of a household's social position. Despite the extensive questionnaires of the KMPS and LSMS surveys, it is extremely difficult to identify a set of variables that capture these complex relationships. Only two variables – gender and ethnic origin of the household head – are retained in the analysis although these are arguably imperfect proxies for kin and clan relationships.

Like the other Central Asian successor states of the Soviet Union, the Kyrgyz Republic is a predominantly Islamic state. The social status of women was generally predicted to be eroded in these traditionalist societies after the collapse of communist rule. This does not appear to be the case in Kyrgyzstan which has largely remained a secular society. Table 6 suggests

that the gender of the household head is not systematically related to the social status of the household. In fact, if anything, the figures suggest that the social position of female headed households improved between 1993 and 1997.

Large-scale migration movements mainly related to ethnic policies at home and abroad triggered a profound transformation of the ethnic composition of the Kyrgyz society. Many ethnic Russians which previously constituted the local elites and provided the main source of labour for the industrial sector returned to Russia as newly introduced Kyrgyz legislation discriminated against them and as employment opportunities in industry disappeared as a result of the de-industrialization of the economy.

The results in Table 6 suggest that mainly poor non-Kyrgyz emigrated from Kyrgyzstan. Russians, in particular, maintain a strong representation in the top decile of the expenditure distribution and poverty rates among non-Kyrgyz households declined between 1993 and 1997. It would appear that the bulk of the migration movements between 1993 and 1997 involved households from the lower social ranks and that the highest social stratum generally remained unaffected by the migration movements taking place.

7.4 Physical capital

Ownership of physical capital is a key determinant of social rank and households with a larger stock of physical capital will generally benefit from better access to consumable resources. As a result of the privatization of state-owned assets, access to physical capital was granted to the population at large and property markets started to operate.

Household wealth and the stock of physical capital are captured by two variables: ownership of real estate (other than the household's dwelling) and ownership of agricultural land. Although the KMPS and LSMS surveys include information on the household's stock of savings, it was decided not to use this information in the present context as it is judged to be unreliably measured (many missing values). It should also be pointed out that due to slight differences between the 1993 and 1997 questionnaires, the physical capital variables are not strictly comparable between the two years.

Ownership of real estate other than the household dwelling is not very diffused. Just under 6 per cent of households possess any real estate and the ownership share appears to be stable over time. Real estate ownership is, however, clearly highly correlated with social status and the link appears to

be strengthening over time. The share of poor households in possession of real estate considerably decreased between 1993 and 1997.

Land ownership, on the other hand, appears to become more highly correlated with lower expenditure levels and social status over time. While the share of households possessing agricultural land remains more or less stable through time, the share of poor households possessing land substantially increases. In 1993 58 per cent of poor households owned agricultural land while in 1997 73 per cent of poor households were landowners. The share of landowners among the higher expenditure distribution deciles decreased over the same period. These results are, however, consistent with the conversion of the Kyrgyz economy into a mainly agriculturally based economy.

Notice that a strong case may be put forward to consider the physical capital variables to be endogenous to the expenditure model. This will certainly be true in the long-run and may even apply to the short-run time horizon chosen for the present statistical analysis. However, the physical assets variables are important indicator variables for social status and their inclusion in the model is adjudicated to be of great importance. It should, however, be cautioned against attributing strict causality from the physical capital variables to household expenditure and social status in the interpretation of the regression results (Grootaert and Braithwaite 1998: 16).

7.5 Sources of income, market and non-market activities

Of all the social and economic changes brought about by the transition to the market, changes in the factor markets had, by definition, the largest impact on household income and expenditure decisions and considerably increased the potential for both upward and downward social mobility relative to the pre-transition period.

However, labour force status and the household's interactions with the factor markets are rather difficult to determine.

The determination of the household's labour force status is particularly difficult. At the household level (the explanatory variable is household expenditure), average household sizes are large and the labour force status of individual household members e.g., the household head, may only contain limited information about the relations that the household entertains with the labour market.

At the individual level, it is not straightforward to determine the labour force status of individual respondents from KMPS and LSMS questionnaires. Registered unemployment is low, yet unemployment and underemployment are pervasive. The shadow economy employs an estimated one million people, over half of the economically active population. Many individuals disclose concurrent statuses e.g., retired or unemployment but working, multiple part-time jobs. Assigning individuals to mutually exclusive categories e.g., employed, unemployed or retired will not only involve judgement but may also be fraught with measurement error.

In order to overcome these difficulties, the labour force status of the household and more generally the household's market and non-market activities are described using the sources of household incomes. Eight types of income are defined: wage income, self-employment income, pension income, non-pension transfer income (social assistance), agricultural income, private transfer income (help received from relatives and friends), property income and other income sources. The variables of interest are the respective income shares. The definitions of the income categories may not be strictly comparable across years.

The income data are summarized in Table 6. In 1993 households in the lower expenditure deciles receive lower than average shares of wage income and higher than average shares of transfer (pension and non-pension) income. Households in the higher expenditure deciles receive higher than average shares of wage, self-employment and private transfer income and lower than average shares of transfers.

The 1997 data exhibits similar patterns to the 1993 data. However, property income as a source of income for better-off households became significantly more important. The role of agriculture income substantially declines among highest deciles.

The preliminary analysis of the household income shares offers evidence of the stabilization of the economy and a greater 'market orientation' of the economy. Wage, self-employment and property income shares increase while agriculture income shares decrease. The share of public transfers is reduced and the share of private transfers increases.

8. SOCIAL STRUCTURE IN TRANSITION: A QUANTILE REGRESSION ANALYSIS

The previous section provides a descriptive analysis of changes to the social structure in Kyrgyzstan during the transition to the market. In this section, this descriptive analysis is complemented with a rigorous multivariate analysis.

A semi-logarithmic version of the reduced form equation (1) is estimated, first by ordinary least squares and then by quantile regressions. The semi-logarithmic form is preferred to linear form as household expenditure is approximately log-normally distributed and highly skewed to the left.

Table 7 reports OLS regression coefficients and standard errors for the log expenditure model of social status.

The model is robust to the choice of equivalence scales i.e., although results are only reproduced for the scale elasticity factor $\varepsilon=0.90$, the model generally yields the same qualitative results, regardless of the equivalence scale used.¹²

The adjusted model R^2 for the 1993 regression is very low. Only one fifth of the variation in log expenditure is explained by factors included in the model. The model fit substantially improves for 1997 regression ($R^2=0.5284$).

The OLS model appears to be well specified. The two-way diagnostic plot of residuals versus fitted values does not reveal any systematic patterns. A RESET test (Ramsey 1969) rejects the hypothesis of omitted variables. The model is not heteroscedastic and no evidence is found of significant multicollinearity between the model covariates.

In the 1993 model, regional variables, child dependency ratios and wealth proxies are highly significant. The educational and market/non-market activities variables exhibit limited explanatory power while gender and ethnicity of the household head do not contribute significantly to the explanation of social status in Kyrgyzstan in 1993.

¹² This is not true, however, of the models using as dependent variable the log of per capita household expenditure or unadjusted household expenditure.

TABLE 7
REGRESSION ANALYSIS, ORDINARY LEAST SQUARES – KYRGYZSTAN
1993 AND 1997

	1993		1997	
	coefficient	standard error	coefficient	standard error
Chui, rural	-0.5169 ***	(0.0889)	-0.3922 ***	(0.0503)
Chui, urban	-0.4864 ***	(0.0973)	-0.3345 ***	(0.0629)
Jalalaba, rural	-1.1477 ***	(0.1181)	-1.1093 ***	(0.0554)
Jalalaba, urban	-0.2484 ***	(0.0956)	-0.7044 ***	(0.0651)
Issuk-Kul, rural	-1.1805 ***	(0.1402)	-1.1685 ***	(0.0605)
Issuk-Kul, urban	-0.1095	(0.1141)	-0.6742 ***	(0.0613)
Narun, rural	-1.0662 ***	(0.2027)	-1.4065 ***	(0.0563)
Narun, urban	-0.5038 **	(0.2529)	-1.0303 ***	(0.0759)
Osh, rural	-0.8303 ***	(0.0970)	-0.8896 ***	(0.0482)
Osh, urban	-0.5185 ***	(0.1002)	-0.6564 ***	(0.0541)
Talas, rural	-0.6307 ***	(0.1484)	-0.9178 ***	(0.0579)
Talas, urban	-0.4049 **	(0.1946)	-0.7477 ***	(0.1071)
child dependency ratio (<6)	-0.6763 ***	(0.1800)	-0.6859 ***	(0.0776)
child dependency ratio (≥6)	-0.3417 ***	(0.1294)	-0.5818 ***	(0.0572)
male	0.0565	(0.0683)	-0.0311	(0.0281)
Russian	0.0872	(0.0742)	0.1989 ***	(0.0383)
Uzbek	0.2865 ***	(0.0781)	0.0897	(0.0553)
other ethnicity	0.2551 ***	(0.0801)	0.1174 **	(0.0493)
incomplete secondary	0.1397	(0.0871)	0.0426	(0.0313)
complete secondary	-0.0336	(0.0983)	0.0282	(0.0412)
complete secondary and professional training	0.2135 **	(0.0871)	0.1375 ***	(0.0365)
higher education	0.3163 ***	(0.0835)	0.2701 ***	(0.0378)
own real estate (y/n)	0.2323 **	(0.1080)	0.1394 ***	(0.0454)
own land (y/n)	0.1766 ***	(0.0565)	0.0679 **	(0.0327)
self-employment income	-0.0783	(0.1568)	0.2540 ***	(0.0880)
pension income	-0.5293 ***	(0.1201)	-0.2670 ***	(0.0663)
social assistance income	-0.6072 ***	(0.1707)	-0.2967 **	(0.1260)
agriculture income	0.1218	(0.0924)	0.1663 ***	(0.0585)
private transfer income	-0.1741	(0.1385)	0.0266	(0.0683)
property income	0.3855	(0.7670)	0.1722 **	(0.0826)
other income	0.1446	(0.8910)	0.2228	(0.2426)
constant	5.1095 ***	(0.1318)	9.5375 ***	(0.0516)
R ²	0.1798		0.5284	

*** significant at 1 per cent level, ** significant at 5 per cent level, * significant at 10 per cent level.

In the 1997 version of the social class model, the same explanatory variables that were highly significant in 1993 remain highly significant in 1997. In addition, the significance of the market/non-market activities variables improves. Gender, ethnicity and, to a lesser extent, education, maintain low explanatory power.

Sign reversals across time occur for the gender (male) dummy (from positive to negative), the education dummy for complete secondary school (from negative to positive), the share of self-employment income (from negative to positive) and the share of private transfer income (from negative to positive). These sign reversals are generally in accordance with the expectation that market forces play a greater role in determining social status after the transition.

The OLS estimator imposes parameter constancy throughout the distribution i.e., the effect of the covariates on household expenditure is the same, regardless of the household's position in the expenditure distribution. This restriction is seen as too limiting for a model that is trying to explain changes in social structure i.e., changes that occur throughout the entire distributions of income, expenditure and wealth. For this reason, a quantile regression model is estimated. Quantile regressions describe the entire conditional distribution of the dependent variable. Different estimated coefficients at different quantiles may be interpreted as different behavioural responses to changes in the covariates at different points in the conditional distribution of the dependent variable.

Quantile regressions of the log of household expenditure are estimated for the 10th, 25th, 50th, 75th and 90th percentiles. The results are presented in Table 8 (1993) and Table 9 (1997). Standard errors are bootstrapped using 100 replications.

The quantile regression models provide a poor fit in 1993. The lowest pseudo R^2 of 0.0804 is recorded for the 90th percentile of the expenditure distribution while the best fit (pseudo R^2 of 0.1492) is obtained for the 10th percentile. The model fit is better at the bottom of the expenditure distribution than at its top.

The fit significantly improved for the 1997 quantile regressions. The lowest pseudo R^2 is equal to 0.2652 for the 10th percentile. The model now provides a better fit for the higher percentiles than for the lower percentiles. The improvement in the model fit over time and the reversal of the fit by

TABLE 8
REGRESSION ANALYSIS, QUANTILE REGRESSIONS – KYRGYZSTAN 1993

	quantile 0.10		quantile 0.25		quantile 0.50		quantile 0.75		quantile 0.90	
	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error
Chui, rural	-0.5593 ***	(0.1688)	-0.5645 ***	(0.1031)	-0.4394 ***	(0.0935)	-0.3296 ***	(0.0857)	-0.4233 ***	(0.1076)
Chui, urban	-0.4763 ***	(0.1627)	-0.5173 ***	(0.1046)	-0.4645 ***	(0.1269)	-0.5124 ***	(0.1334)	-0.4888 ***	(0.1289)
Jalalaba, rural	-1.5005 ***	(0.2854)	-1.3269 ***	(0.1658)	-1.2475 ***	(0.1341)	-1.0657 ***	(0.1849)	-0.8931 ***	(0.1716)
Jalalaba, urban	-0.2920	(0.2028)	-0.2788 *	(0.1543)	-0.2246 **	(0.1104)	-0.3037 **	(0.1318)	-0.3900 ***	(0.1461)
Issuk-Kul, rural	-1.8605 ***	(0.3282)	-1.3960 ***	(0.2647)	-1.0336 ***	(0.1284)	-0.8414 ***	(0.1531)	-0.7855 ***	(0.1779)
Issuk-Kul, urban	-0.2455	(0.1993)	-0.1366	(0.1667)	-0.2418 **	(0.1171)	-0.2163	(0.1364)	-0.3229 **	(0.1419)
Narun, rural	-1.3587 **	(0.6231)	-1.2473 ***	(0.2528)	-0.8391 ***	(0.1804)	-0.7913 ***	(0.1672)	-0.5789 **	(0.2919)
Narun, urban	-0.8396 **	(0.3330)	-1.1445 ***	(0.4154)	-0.3996	(0.4194)	-0.2022	(0.1961)	-0.5642 **	(0.2650)
Osh, rural	-1.2249 ***	(0.2332)	-0.8579 ***	(0.1699)	-0.7169 ***	(0.0983)	-0.7066 ***	(0.1029)	-0.7914 ***	(0.1584)
Osh, urban	-0.6279 ***	(0.2151)	-0.6474 ***	(0.1385)	-0.5563 ***	(0.1206)	-0.4550 ***	(0.1093)	-0.4909 ***	(0.1527)
Talas, rural	-0.7511 ***	(0.2858)	-0.7039 ***	(0.2504)	-0.6913 ***	(0.1737)	-0.6096 ***	(0.1649)	-0.6359 ***	(0.2464)
Talas, urban	-0.2866	(0.5376)	-0.4217 *	(0.2278)	-0.5656 ***	(0.2058)	-0.3581 *	(0.2099)	-0.4041	(0.3135)
child dep. ratio (<6)	-1.0692 ***	(0.3583)	-0.8118 ***	(0.3060)	-0.7781 ***	(0.1828)	-0.6777 ***	(0.1736)	-0.3988	(0.2567)
child dep. ratio (≥6)	-0.2993	(0.2756)	-0.3340	(0.2041)	-0.4617 ***	(0.1455)	-0.5651 ***	(0.1294)	-0.2028	(0.2091)
male	0.1668	(0.1207)	0.1151	(0.1003)	0.0208	(0.0637)	-0.0378	(0.0719)	0.0230	(0.0889)
Russian	0.1249	(0.1332)	0.0266	(0.1227)	-0.0244	(0.0784)	0.0459	(0.0902)	0.0892	(0.1064)
Uzbek	0.3344 *	(0.2012)	0.2850 **	(0.1198)	0.2793 ***	(0.0874)	0.1667 *	(0.0894)	0.0960	(0.1368)
other ethnicity	0.1378	(0.1796)	0.1778	(0.1176)	0.1574 *	(0.0954)	0.2572 ***	(0.0744)	0.1619	(0.1077)
incomplete secondary	0.0563	(0.1803)	0.2016 *	(0.1184)	0.0940	(0.0942)	0.1664	(0.1020)	0.1282	(0.1058)
complete secondary	-0.1254	(0.2070)	-0.1182	(0.1429)	-0.0188	(0.1079)	0.0424	(0.1133)	0.0789	(0.1328)

TABLE 8 (continued)

	quantile 0.10		quantile 0.25		quantile 0.50		quantile 0.75		quantile 0.90	
	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error
complete secondary and prof. training	0.2601 *	(0.1578)	0.1866	(0.1263)	0.1691	(0.1050)	0.2230 **	(0.1056)	0.0980	(0.1010)
higher education	0.3281 *	(0.1685)	0.3125 ***	(0.1183)	0.3115 ***	(0.0854)	0.1868 *	(0.1014)	0.1483	(0.1107)
own real estate (y/n)	0.3716	(0.2963)	0.2458	(0.1524)	0.3031 **	(0.1312)	0.2916 ***	(0.1106)	0.1629	(0.1524)
own land (y/n)	0.2556 **	(0.1046)	0.3417 ***	(0.0819)	0.1681 ***	(0.0644)	0.0692	(0.0552)	0.1588 *	(0.0814)
self-employment income	0.1414	(0.2446)	-0.0835	(0.1880)	-0.1670	(0.1819)	-0.2080	(0.2292)	-0.1543	(0.2204)
pension income	-1.0986 ***	(0.2419)	-0.6093 ***	(0.1796)	-0.4315 ***	(0.1199)	-0.4604 ***	(0.1381)	-0.2946 *	(0.1672)
social assistance income	-0.8199	(0.5511)	-0.4385 *	(0.2536)	-0.5107 ***	(0.1440)	-0.3934 ***	(0.1147)	-0.3804 *	(0.2291)
agriculture income	0.0606	(0.2075)	0.0127	(0.1451)	0.1033	(0.0915)	0.1155	(0.0793)	-0.0732	(0.1167)
private transfer income	-0.1182	(0.2765)	-0.2657	(0.1725)	-0.2307	(0.1445)	-0.1349	(0.2230)	0.0782	(0.1570)
property income	-1.0293	(1.4350)	-0.2305	(1.5078)	0.0157	(1.3731)	0.8760	(1.0883)	0.3401	(1.1232)
other income	-1.2417	(2.3427)	-0.9278	(1.9446)	0.9936	(1.3297)	0.3260	(0.7493)	-0.3730	(1.1537)
constant	4.0926 ***	(0.2478)	4.5761 ***	(0.2032)	5.2974 ***	(0.1312)	5.8802 ***	(0.1475)	6.2805 ***	(0.1626)
R ²	0.1492		0.1131		0.1008		0.0924		0.0804	

*** significant at 1 per cent level, ** significant at 5 per cent level, * significant at 10 per cent level.

TABLE 9
REGRESSION ANALYSIS, QUANTILE REGRESSIONS – KYRGYZSTAN 1997

	quantile 0.10		quantile 0.25		quantile 0.50		quantile 0.75		quantile 0.90	
	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error
Chui, rural	-0.4872 ***	(0.0811)	-0.4511 ***	(0.0653)	-0.3688 ***	(0.0547)	-0.4282 ***	(0.0677)	-0.4188 ***	(0.1215)
Chui, urban	-0.3194 ***	(0.1197)	-0.3764 ***	(0.0781)	-0.3181 ***	(0.0813)	-0.3357 ***	(0.1009)	-0.3380 ***	(0.1258)
Jalalaba, rural	-1.2112 ***	(0.1301)	-1.1473 ***	(0.0719)	-1.0458 ***	(0.0655)	-1.0345 ***	(0.0856)	-1.1577 ***	(0.0839)
Jalalaba, urban	-0.5699 ***	(0.1050)	-0.6722 ***	(0.0534)	-0.7067 ***	(0.0866)	-0.7397 ***	(0.0955)	-0.7342 ***	(0.1696)
Issuk-Kul, rural	-1.2362 ***	(0.1358)	-1.2109 ***	(0.0866)	-1.0924 ***	(0.0732)	-1.1848 ***	(0.0719)	-1.2129 ***	(0.1081)
Issuk-Kul, urban	-0.7483 ***	(0.1175)	-0.7767 ***	(0.0938)	-0.6362 ***	(0.0690)	-0.6996 ***	(0.0921)	-0.7099 ***	(0.1320)
Narun, rural	-1.3188 ***	(0.1076)	-1.3421 ***	(0.0726)	-1.4091 ***	(0.0616)	-1.5395 ***	(0.0734)	-1.5921 ***	(0.1255)
Narun, urban	-1.0397 ***	(0.1069)	-1.1311 ***	(0.0944)	-1.0188 ***	(0.0869)	-1.0958 ***	(0.1097)	-1.0814 ***	(0.1368)
Osh, rural	-0.7713 ***	(0.0945)	-0.8455 ***	(0.0605)	-0.8737 ***	(0.0588)	-0.9584 ***	(0.0770)	-1.0763 ***	(0.0907)
Osh, urban	-0.6097 ***	(0.1101)	-0.6845 ***	(0.0625)	-0.6655 ***	(0.0624)	-0.7386 ***	(0.0768)	-0.6950 ***	(0.1175)
Talas, rural	-0.9647 ***	(0.1009)	-0.9273 ***	(0.0728)	-0.8820 ***	(0.0768)	-0.8743 ***	(0.0768)	-1.0404 ***	(0.1023)
Talas, urban	-1.3420 ***	(0.1431)	-1.1039 ***	(0.1367)	-0.6046 ***	(0.2136)	-0.4046 ***	(0.1156)	-0.5799 ***	(0.1086)
child dep. ratio (<6)	-0.4745 ***	(0.1276)	-0.4439 ***	(0.1047)	-0.5458 ***	(0.0895)	-0.8384 ***	(0.1151)	-0.8939 ***	(0.1569)
child dep. ratio (≥6)	-0.3508 ***	(0.1025)	-0.4517 ***	(0.0707)	-0.5936 ***	(0.0701)	-0.6672 ***	(0.0796)	-0.7126 ***	(0.1081)
male	0.0702	(0.0559)	0.0165	(0.0323)	-0.0585 ***	(0.0323)	-0.0731	(0.0458)	-0.1075 **	(0.0506)
Russian	0.1904 **	(0.0805)	0.2456 ***	(0.0452)	0.2055 ***	(0.0516)	0.1722 ***	(0.0453)	0.1418 *	(0.0831)
Uzbek	0.0021	(0.0874)	0.0316	(0.0714)	0.1044	(0.0664)	0.0970	(0.0880)	0.1055	(0.1041)
other ethnicity	0.0709	(0.0837)	0.1269 **	(0.0557)	0.1186 **	(0.0488)	0.1592 **	(0.0629)	0.1557	(0.0969)
incomplete secondary	-0.0234	(0.0647)	0.0818 **	(0.0390)	0.0828 **	(0.0398)	0.0451	(0.0512)	-0.0117	(0.0627)
complete secondary	0.0501	(0.0756)	0.0304	(0.0562)	0.0193	(0.0506)	0.0141	(0.0589)	-0.0315	(0.0836)

TABLE 9 (continued)

	quantile 0.10		quantile 0.25		quantile 0.50		quantile 0.75		quantile 0.90	
	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error	coeff.	st. error
complete secondary and prof. training	0.1698 ***	(0.0617)	0.1559 ***	(0.0425)	0.1593 ***	(0.0454)	0.1109 *	(0.0570)	0.0762	(0.0713)
higher education	0.2984 ***	(0.0750)	0.3016 ***	(0.0493)	0.2887 ***	(0.0462)	0.2343 ***	(0.0523)	0.1548 **	(0.0648)
own real estate (y/n)	0.0934	(0.0669)	0.1148 **	(0.0529)	0.1233	(0.0783)	0.2140 ***	(0.0563)	0.1813 **	(0.0781)
own land (y/n)	0.0779	(0.0480)	0.0648	(0.0437)	0.0406	(0.0425)	0.0135	(0.0465)	0.0599	(0.0664)
self-employment income	0.0512	(0.1532)	0.1379	(0.1295)	0.2263 **	(0.1050)	0.2750 **	(0.1271)	0.4921 ***	(0.1457)
pension income	-0.2533 **	(0.1003)	-0.1403	(0.0911)	-0.2844 ***	(0.0740)	-0.2919 ***	(0.0775)	-0.2892 **	(0.1333)
social assistance income	-0.3032	(0.2306)	-0.3320 ***	(0.1160)	-0.4273 ***	(0.1528)	-0.4387 **	(0.2081)	-0.1527	(0.3163)
agriculture income	0.0060	(0.1006)	0.1383 *	(0.0749)	0.1968 **	(0.0786)	0.2384 ***	(0.0654)	0.1819	(0.1216)
private transfer income	-0.1731	(0.1298)	-0.0115	(0.0863)	0.0406	(0.0878)	0.0813	(0.0865)	0.1351	(0.1227)
property income	-0.1085	(0.1659)	0.0421	(0.0818)	0.1373	(0.1358)	0.2607 *	(0.1376)	0.4336 **	(0.1799)
other income	-0.0874	(0.3566)	-0.0401	(0.3619)	0.4552	(0.3576)	0.3902 *	(0.2364)	0.1253	(0.5656)
constant	8.8507 ***	(0.1110)	9.1072 ***	(0.0653)	9.5054 ***	(0.0631)	9.9738 ***	(0.0809)	10.4023 ***	(0.0834)
R ²	0.2652		0.2973		0.3343		0.3579		0.3683	

*** significant at 1 per cent level, ** significant at 5 per cent level, * significant at 10 per cent level.

percentiles may be interpreted as a sign of the increasing role of the 'logic of the market' in determining social class.

The geographical location variables play an important role in determining social status. The regional dummy variables are highly significant in 1993 and 1997. The omitted region is Bishkek. Households living in Bishkek are better off than households living elsewhere and this is true regardless of the household's position in the expenditure distribution. Rural households are significantly worse off relative to urban households in the same oblast. This is again true at all expenditure levels.

The regression results also suggest that between 1993 and 1997, households living in the Chui oblast close the welfare gap that separates them from households in Bishkek. However, all remaining urban districts become worse off relative to Bishkek during the same period. Households in the urban districts also typically become worse off relative to rural districts in the same oblast.

The regional changes that occur between 1993 and 1997 suggest a concentration of 'viable' or productive industries in the northern oblasts of Bishkek and Chui. The expansion of agricultural activities in rural communities is accompanied by the de-industrialization in the remaining regions, mainly in the urban centres outside Bishkek and Chui. By 1997, the main engines of growth in the Kyrgyz economy are the industries in the north and the large agricultural sector. The condition of households living in areas where the economic performance continues to deteriorate worsens.

This explanation is consistent with the substantial deterioration of living standards relative to Bishkek of households in the rural districts of the Narun and Talas oblasts, two mountainous regions with limited potential for productive agriculture.

In 1993 rural location entails a particularly heavy penalty for poorer households relative to better off households. In 1997 rural location entails penalties for better off households in the Narun, Osh and Talas oblasts i.e., again oblasts with limited agricultural potential.

Quantile regression results also confirm the existence of important household composition effects on welfare and social status.

The presence of dependent children negatively affects households' access to resources. In 1993 a very high burden is imposed by the presence of young dependent children (age <6) on the least well off households relative to the better-off households. The reverse holds in 1997: the presence of dependent children burdens well-off household more than their poorer counterparts. A possible explanation for this reversal is the higher opportunity cost of non-labour activities for better-off households i.e., the income foregone by child care activities is potentially higher for richer households than it is for poorer households.

The gender of the household head is not a statistically significant covariate of social status in 1993. In 1997 the gender of household head effect is significant and negative for the 50th and 90th percentiles (suggesting better access to resources for female headed households for higher expenditure households). The estimated coefficients are quite small but the results confirm earlier observations that the status of females in the Kyrgyz Republic has not deteriorated as a result of the transition to the market. If anything, the social standing of women has improved.

The ethnic composition of the Kyrgyz population radically changed between 1993 and 1997, with the share of ethnic Kyrgyz increasing and the share of ethnic Russians tumbling. However, dummy variables for the ethnic origin of the household head can only be given weak correlation with social status. The omitted category are households with a Kyrgyz head of households. In 1993, households of Uzbek ethnic origin are significantly better off than Kyrgyz households, especially at the bottom of the distribution. The explanation for this may be that the territories close to the Uzbek border in western Kyrgyzstan are fertile agricultural lands. As agriculture provided the main source of relief for poor households during the depths of the transitional recession, Uzbek households in these regions had a better access to consumable resources than their poor Kyrgyz counterparts in other regions.

Coefficients on the ethnic Russian dummies are small and insignificant in the 1993 regressions. In 1997, ethnic Russian households are significantly better off than Kyrgyz households, with the strongest effects being observed at the 25th and 50th percentiles. This is consistent with the hypothesis stated earlier that most of the emigration by ethnic Russians was by poorer households. The Russians remaining in Kyrgyzstan are, on average, better educated and more skilled than Kyrgyz in comparable

occupations, explaining why Russian households are better off than Kyrgyz households throughout the distribution.

The market economy rewards malleable human capital and skills but entails penalties for obsolete human capital that cannot be profitably reemployed. Under central planning returns to human capital were generally low and for ideological reasons also sometimes counter-intuitive (e.g., miners receiving higher wages than medical doctors or teachers).

Evidence of the remnants of the former reward structure of human capital can be found in the regression results for 1993. Notice that the omitted education dummy variable is for primary education.

The education variables are not highly significant in the 1993 and 1997 quantile regressions, although the higher education dummy variable typically is significant. Sign reversals throughout the distribution occur in both years. In particular in 1993, the coefficient on complete secondary education is negative for poorer households and positive for richer households (but small and not statistically significant) i.e., returns to primary education are higher than returns to secondary education for poor households. The reason for this peculiar result may be the 'ideological' distortions imposed on the wage structure under central planning.

Higher education typically provides higher returns to households at the bottom of the expenditure distribution than at top of the distribution. Social status in 1993 does not appear to be conveyed on the basis of education or human capital embodied in the household. As mentioned above, many highly educated groups were poorly paid under central planning and many remained so after the transition. Despite their education and despite the obvious demand for their skills, doctors and teachers did not generally belong to the group of 'winners' from the transition. In 1997, higher education is an important correlate of social status and becomes a vehicle for upward social mobility.

Comparing the 1993 and 1997 regression results, returns to education generally appear to be falling. This result, if true, would be consistent with the hypothesis that returns to obsolete human capital acquired under central planning are falling. However, this conclusion cannot be positively drawn as the education variables are not strictly comparable between years.

The household's stock of physical capital is incorporated into the analysis through dummy variables describing the household's ownership of real estate and agricultural land. Ownership of real estate and land is expected to be correlated with wealth which in turn determines the ease of the household's access to resources. The coefficients on the physical capital dummy variables are expectedly positive in 1993 and 1997.

Ownership of real estate is clearly correlated with social status, although significance levels are low due to the small number of households that possess real estate. In 1993, the effect of real estate holdings on household expenditure is higher for poorer households. This may represent a dissaving effect as households adjust their consumption pattern to the fact that their permanent income has fallen. In 1997, the effect from real estate on household expenditure is strongest (and significant) for the higher percentile of the expenditure distribution as ownership of physical capital becomes a clear-cut identifying characteristic of better-off households.

Ownership of – and presumably access to – agricultural land is an important determinant of household expenditure in 1993. The relationship is particularly strong for poorer households. The strength of the relationship for poor households confirms the importance of agricultural subsistence activities in households' survival strategies.

In 1997 no systematic relationship between ownership of agricultural land and household expenditure or social status is detected. Coefficients are positive throughout the distribution but small and not statistically significant. The reason for this change may be the different units of measurement used in the 1993 and 1997 surveys.

The final set of regressors describe the household's links with the labour market and more generally its market and non-market activities. The activities of the households are proxied using income shares. The omitted category is wage income.

One of the major changes of the transition to the market is the increase in scope for and scale of self-employment activities. In 1993, the share of self-employment income is not systematically related to household expenditure. In addition, the coefficient on the share of self-employment income is only positive at the 10th percentile and negative for the remaining quantiles. Negative coefficients for regressions onwards from the 25th percentile may reflect the limited opportunities and the limited profitability of self-

employment activities during the early stages of transition. The positive coefficient at the lowest quantile suggests, in turn that the most profitable self-employment activities were 'push' self-employment activities, brought about by hardship.

In 1997 the relationship between self-employment and social class has fundamentally changed. An increase in the share of self-employment income relative to wage income yields positive returns throughout the distribution and the coefficients are highly significant for high-expenditure households. This time around, returns to self-employment increase with expenditure levels, suggesting 'pull' self-employment or genuine enterprise.

The coefficients on agricultural income are only weakly significant. They are positive for poor and negative for richer households in 1993, confirming the role of agriculture as a subsistence activity in 1993. In 1997, throughout the entire distribution, an increase in agricultural income relative to wages has a positive effect and the effect is broadly increasing in expenditure. This, in turn, suggests that agriculture completes the transition from a mainly subsistence-based sector to a genuine sector of economic activity

An increase in the share of public transfer income – pensions as well as social assistance – relative to wages has a negative effect on the household's capacity to access resources. In 1993 the negative effect from transfers is much more pronounced for poorer households but the effect is abated in 1997. Although the income share are not strictly comparable, the results plus casual observation suggest that the public transfer system became more targeted and benefits more directed towards genuinely needy households.

As the share of public transfers in total income decreases, the share of private transfers in total income increases, suggesting that private transfers may act as a substitute for the loss of public transfers.

In 1993, the effect of an increase in private transfers relative to wages is not statistically significant and the coefficients are negative, with the exception of the 90th percentile. In 1997, the coefficients on the share of private transfer income are positive for the 50th, 75th and 90th percentiles and negative for the lower percentiles of the expenditure distribution. Coefficients are increasing with expenditure levels, suggesting that private transfers are only performing little redistribution in favour of the least well

off households. Coudouel *et al.* (1997) analyse private transfers in Central Asia and reach a similar conclusion (page 204): '[...] public transfers redistribute income from the richest to the poorest [...]. This is not necessarily the case with private transfers. Most altruistic transfers take place between relatives. Assortive mating means that relatives of the poor tend to be poor themselves. Resources may flow from particular households to those somewhat less affluent than themselves, but the very poorest may well be excluded – those to whom they turn may find it difficult to provide adequate assistance given their own circumstances'.

Property income effects are not statistically significant in 1993 but turn significant for high expenditure households in 1997. The coefficients on property income increase throughout the distribution and are of a comparable magnitude to the self-employment coefficients for the 75th and 90th percentiles. The results provide more evidence for the increasingly important role that factor markets play in the determination of social status in the Kyrgyz Republic.

9. CONCLUSION

The Kyrgyz economy has undergone major changes during the 1990s. In this context of fundamental systemic change, changes in poverty, inequality and, more, generally, the social structure are analysed over the period 1993 to 1997.

Despite evidence to the contrary (see IMF 1998; IMF 1999), the results provide support for the hypothesis that both poverty and inequality decreased between 1993 and 1997. The poverty and inequality results are sensitive to the assumptions made about scale economies in consumption and differences in needs among household members. Furthermore, the poverty results are very sensitive to the poverty line that is selected.

Inequality substantially decreases. The Gini coefficient for the distribution of household expenditures falls from about 0.47 to about 0.40. Despite this reduction, the level of inequality in Kyrgyzstan is still very high although the substantial reduction in inequality is an encouraging sign. It appears that the change in inequality is caused by an improvement in the living standards of households at the bottom end of the expenditure and income distribution. The causes for this improvement can be attributed to the strong growth in the agricultural sector, which employs the majority of the poor

and possibly to the introduction of the targeted Unified Cash Benefit system.

The welfare of the richest households (the richest five per cent) has also increased in real terms during 1993 to 1997 but the living standard of the remaining households has continued to deteriorate or, at best, stagnate. This development has prevented the emergence of a genuine middle-class and, if not reversed, this trend could prove perilous to the future development of the market economy.

Although there is strong evidence that poverty decreased between 1993 and 1997, the exact magnitude of the changes depends on the equivalence scale and poverty line that are used. Both absolute and relative poverty are decreasing. The most significant development is the substantial reduction in extreme poverty, which may be attributed to the same causes as the decrease in inequality. Thus, while the quantitative improvements in poverty in Kyrgyzstan have been genuine but limited in scope, there has been a substantial qualitative improvement of the situation of the least well off households.

The estimation of welfare equations confirms the existence of very large regional differences within Kyrgyzstan. The capital Bishkek and the surrounding oblast Chui are the richest regions. Rural households are generally significantly worse-off than urban households in the same region. Despite the urban-rural divide, there is little evidence for significant migration from rural to urban areas but the contrary is actually the case. This is likely to be caused by slow rates of job creation in urban areas and strong growth and job creation in the agricultural sector. Thus, over time the situation of rural households improves relative to urban households in regions where productive agriculture is undertaken.

The results also suggest that the presence of dependent children in the household represents a considerable financial burden. More generally, household dependence measured by the share of household transfer income is associated with lower welfare and lower social status. Low standards of living and a high incidence of poverty among households with children is detrimental to human capital formation and may therefore undermine the long-term growth prospects of the economy.

While dependence on public transfers is associated with a higher poverty incidence and lower status, the results suggest that the negative effect is

diluted over time, possibly reflecting the improved targeting of welfare payments as a result of the introduction of the Unified Cash Benefit system in 1995.

Although the share of private transfer income in total household income increases over time, no evidence is found in favour of the hypothesis that private transfers are substituted for increasingly scarce public transfers. Private transfers appear to be only mildly redistributive and the benefits do not appear to be directed at the poorest segments of society.

There is also evidence of the transformation of agricultural activity, from mainly a subsistence activity during the early stages of transition to a genuine sector of economic activity and growth by 1997.

Social class formation in the Kyrgyz Republic increasingly assumes traits observed in market economies. Education, which exhibited few returns and had little influence on the distribution of welfare until the early stages of the transition, has turned into a significant indicator of social status. Persons with higher levels of education enjoy high standards of living while large penalties are attached to low levels of education.

Non-farm self-employment activities exhibit strong growth between 1993 and 1997. While a lot of the initial self-employment appears to have been 'push' self-employment i.e., activities to guarantee the household's subsistence in the absence of other links with the factor markets, the majority of 'new' self-employment activities appear to be genuine entrepreneurial activities. Self-employment becomes an important correlate of social class. There is also evidence for the emergence of a wealthy class of property owners.

After the successful stabilization of the economy and the resumption of growth, the greatest challenge for the nascent Kyrgyz market economy is now the elimination of poverty and the reduction of massive inequalities in income and particularly wealth.

Given the nature of the inequalities identified in this paper, there are few policies that promise to deliver poverty alleviation and reduced inequality in the short-term. A strengthening of the redistribution towards vulnerable households (households with children, unemployed, pensioners) is likely to provide some immediate successes but may be hampered by the insufficiency of budgetary means. The promotion of gainful employment

through effective minimum wages and the elimination of wage arrears fulfil a similar purpose but also encounters similar constraints.

Although average levels of educational achievement are high, the educational system appears to dispense general training and training little adapted to the needs of the 'new' economy. Before government policy can effectively promote the equality of outcomes in terms of income and wealth, it needs, in the first instance, to promote the equality of opportunities. This can be achieved through investment in education and training, especially for the least well off.

Regional differences are very important and difficult to eradicate in the short-term. A lot of surplus labour was shed in the industrial sector and a large share of the displaced has moved into the agricultural sector. The economic revival has been spurred by the agricultural sector and also by the emerging service sector. However, productive agriculture continues to be hampered by inadequate infrastructures and difficulties to dispatch the produce to markets. Regional policies aimed at creating infrastructures outside the main centres of activity Bishkek and Chui are an important ingredient of a long-term growth strategy, as is an effective distribution of the benefits of economic growth in the short-run. Failure to redistribute the proceeds generated by the shift to the new economic system may jeopardize the institutions that delivered growth in the first place. Policies for sustainable growth therefore have to tackle the root causes of the distributional inequalities.

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