Mobility and the Dynamics of Poverty in Iran: Evidence from the 1992-1995 Panel Survey*

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Abstract

In the last three decades, revolutionary Iran has experienced large shocks to its political and economic system with likely effects on poverty, inequality, and economic mobility. While poverty has declined, inequality has remained relatively high and stable over nearly four decades. In this paper, for the first time, we examine poverty and inequality in a dynamic context using a four-year panel data, collected during 1992-95. We show that short-term income mobility is relatively high, which helps mitigate persistent high inequality. We offer a range of estimates of transition probabilities, indicating that, for example, someone in the lowest (highest) quintile has between 25 and 50 percent chance of moving up (down) the income ladder. Focusing on the dynamics of poverty, we distinguish between short and long term poor and between chronic and transient poverty. Surprisingly, we find that chronic poverty is a more serious problem in urban than rural areas, while transient poverty is geographically more uniformly distributed. Finally, using Tobit and quantile regression, we examine the correlates of these two types of poverty. Both chronic and transient poverty are higher for households headed by women and by younger and less educated men. While minorities suffer more from transient poverty, they are less likely to be chronically poor. We discuss the implications of these findings for policy to alleviate chronic and transient poverty.

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1 Introduction

In the last three decades, revolutionary Iran has achieved considerable improvement in the welfare of its less fortunate citizens but has failed to lower inequality (Salehi-Isfahani 2009). The Islamic Revolution swept into power in 1979 espousing a strong pro-poor and egalitarian agenda, but, three decades later Iranian politics is still dominated by populism and issues related to poverty and the distribution of income and wealth. The revolutions has been successful in bringing down the poverty rate to single digits based on the so-called international two-dollars-a-day poverty line (equal to about $3 in 2007), but the last two presidential elections were largely fought over who was more pro-poor. Although these issues have been hotly debated in Iran, published research on the subject has been scarce and confined to snapshots gleaned from cross-section data. In this paper we contribute to this debate by presenting for the first time evidence from panel data.

Like unemployment, an important dimension of poverty is its duration, which compounds its social cost. Empirical studies based on cross-section data offer good snapshots of poverty and the distribution of income, but for a better understanding of poverty and distribution we need to know the extent of economic mobility. A given level of poverty measured from cross-section data can arise from very different social situations. For example, a society in which a quarter of the population forms an underclass of the chronically poor will look the same in a snapshot as one with the same proportion of poor but one in which different people were poor in any given year. The society with greater mobility will face different social and political challenges than the one with an underclass, and the two societies will require different policies to address their respective problems (Baulch and Hoddinott 2000). Short term or transient poverty is better alleviated by policies that assist with consumption smoothing, such as better access to credit, whereas long term or chronic poverty may call for income transfers or programs that increase the poor's earning capacity (Lipton and Ravallion 1995). For these reasons the use of longitudinal studies of poverty and mobility have increased rapidly (for references to this literature, see McKay and Lawson 2002, and Fields 2001).

We compare two ways of looking at poverty dynamics, one related to the length of stay in poverty and the other is chronic versus transient poverty (Jalan and Ravallion 2000). Although both concepts deal with the role of time in poverty, they produce different results from the same data. We find that while about 42 percent of the people were poor at least once during the panel, only 4 percent were poor in all four years. However, according to the Jalan and Ravallion measure, 36 percent of poverty in Iran is chronic and the rest is

transitory.

We analyze the role of individual characteristics that are correlated with each type of poverty. We learn that, living in urban areas is associated with greater chronic and lower transient poverty relative to rural areas, that people living in households headed by women or younger individuals are more likely to suffer from both types of poverty. Finally, education has the usual negative correlation with both chronic and transient poverty.

We also use the panel data to examine the extent of income mobility across the entire range of incomes by estimating quintile transition probabilities. We pay careful attention to distinguishing between true mobility and mobility caused by transitory shocks and statistical noise. Observed mobility may overstate true mobility because it is sensitive to measurement error and transitory shocks to income and expenditures. Without any corrections, we find a fair amount of mobility across expenditure quintiles, similar to what has been reported for other developing countries (Fields 2001). In rural areas, about 55 percent of individuals in the richest and poorest quintiles move to other quintiles each year, while for urban areas this is 45 percent. Estimated mobility is very sensitive to the assumptions made about the sources of transitory movements in income, especially measurement error. We correct for measurement error using three methods: 1) by averaging expenditures for two consecutive years; 2) by ignoring movements more than 20 percent of the expenditures; 3) and by correcting for bulk purchases of grains. These corrections provide a wide range of estimated mobility. The first method results in 3-5 percentage points lower mobility in rural areas and the city of Tehran, while urban mobility is unchanged. Method 2 lowers mobility in urban areas and Tehran by 10-15 percentage points and only 5 percentage points in rural areas. Method 3, for obvious reasons, affects rural families most and lowers their mobility by 7 percentage points. Since the rural poor are more likely to engage in large bulk grain 'purchases' (mostly consumption of own-production), this particular result indicates that poverty measures can under-estimate the extent of poverty using declared monthly expenditures.

We organize the paper into six sections. The next section will describe the macroeconomic context in Iran in the 1990s. The 1992-95 period, which our panel covers, was particularly volatile, perhaps generating more income mobility than would exist otherwise. Section 3 introduces the panel data and Section 3.1 discusses attrition and other issues that affect these data. We first analyze mobility, in Section 4, before moving to poverty. We provide estimates of the transition probabilities based on per capita expenditure quintiles, paying careful attention to measurement error and transitory shocks to income. Section 5 considers poverty and its determinants, distinguishing between those in poverty for short

and long periods, those in poverty in consecutive years versus those who are poor intermittently, and between transient and chronic poverty. Section 6 offers a summary of the results and concluding remarks.

2 Economic policy and poverty reduction in Iran

The Islamic Revolution of 1979 is perhaps unique among modern revolutions in that it identified the poor as its social and political base, in much the same way that the Russian and the Chinese revolutions associated themselves with the working class and the peasantry.[1] The Islamic Republic continues to identify the poor as its main social base and proclaims social justice as its key policy objective. Under the Rafsanjani (1989-1996) and Khatami (1997-2005) administrations pro-poor policies of the early days, such as food subsidies, direct transfers, and progressive social programs in health and education, continued, but the emphasis changed to reconstruction, joining the global economy, and economic growth. Some of these policies have been highly effective in transforming the lives of Iran's poor households. A rural health delivery system is credited with rapid decrease in fertility and child mortality (Salehi-Isfahani et al. 2010), and the literacy campaign has reduced illiteracy and all but eliminated the gender gap in school enrollments (Salehi-Isfahani 2005). The government spends about $2 billion on subsidies for food and medicine, and several semi-public foundations and charities assist the poor with income and credit (Esfahani 2005). The largest such charity, *Komiteh Emdad Emam* (Imam Khomeini's Assistance Committee), which operates under the Supreme Leader's office, has under its direct aid coverage households identified by the community organizations to be in extreme poverty (Esfahani 2005). These number about 8 percent of the population or somewhere between one-half to two-thirds of all poor individuals. The official rhetoric in favor of the poor is yet to translate into a coherent poverty monitoring and reduction program. In 2003 the government decided to create a new ministry of welfare which has so far not offered such a program. Government plans do not cite any specific poverty goals, but after years of debate a law to target Iran's vast subsidy program has been approved and is expected to be implemented in 2010.

The revolution was followed quickly by large scale nationalization of banks and major industrial establishments, placing about 80 percent of total industrial production under the control of the government. The war of 1980-88 with Iraq intensified the government's role

[1] Ayatollah Khomeini popularized the word *mostazafan*–literally, the disinherited–to refer to the Islamic Revolution's social base. In 1979, he set up the *Mostazafan* and *Janbazan* Foundation (Foundation for the Disinherited and War Veterans) to take over the property of the Shah.

in the economy as rationing of basic goods and extensive price controls were introduced to protect the poor against war time inflation. Economic reform that started after the war ended in 1988 gradually dismantled rationing and price controls, increased the role of markets in distribution of goods and services, and began the move away from state ownership of productive assets. More recently, starting with the election of President Ahmadinejad in 2005, there has been a return, in rhetoric and policy, to the early days of the Islamic Republic, when redistribution trumped growth.

The panel data we use in this study covers a critical period of the reform effort. During the first two years, 1992-93, reforms were ascendant, but during 1994-95 they were pushed back, following mismanagement of the macroeconomy which resulted in the rapid accumulation of a large short-term foreign debt and painful restructuring. The reform was also plagued by fluctuations in the oil revenues, which account for roughly 50 percent of government revenues and 80 percent of exports. Oil revenues soared in 1990-91 as a result of the first Persian Gulf war, followed by heavy external borrowing in 1992-93, and finally a payment's crisis in 1994-95. The heavy borrowing, mainly in short term loans, was the result of a poorly managed foreign exchange liberalization program, which brought the reform program to a premature halt (Pesaran 2000). Iran's external debt, which had been negligible up to that point, climbed to nearly $23 billion in 1994, or 50 percent of the GDP, 76 percent of which was of short maturity (World Bank 2003). The crisis started by a drastic devaluation in March 1993, which increased inflation to a record 50 percent in 1995.

The combined effect of these factors on the economy is seen in the level of imports, which averaged about $27 billion during 1992-93 but fell to about $15 billion during 1994-95, and in the rate of growth of GDP, which fell from about 8 percent in 1990-93 to less than 1 percent in 1994-95 (Figure 1). Private per capita consumption also fell, though by less than the GDP per capita.

[*Figure 1*]

3 Data

The base survey of the panel, taken in 1992 by the Statistical Center of Iran, is a self-weighted, nationally representative sample of 5090 households who resided in 172 sampling clusters (63 rural and 109 urban), with an average of about 30 families in each cluster. The survey includes all the basic demographic and economic characteristics of the households

including self reported income and (disaggregated) expenditure. Similar to most household surveys, expenditures are based on a 30 or 365 day recall period, depending on the frequency of purchase. Food, fuel, and clothing, for example, are reported for the last 30 days, while health, education, and housing expenditure are annual.[2] The interviewees are the household head and are interviewed during November of each year, which is after the fall harvest.

The household location can be identified up to the province level – 24 provinces at the time of survey – and by urban and rural. We divide the residing region of household into three groups: 1) urban areas in Tehran province, which is mostly the city of Tehran; 2) other urban areas, called urban from here after; and 3) rural areas. The first region, Tehran, is composed of the capital and its surrounding cities and is treated as a distinct region because it accounts for more than 15 percent of Iran's population, attracts migrants from all over the country and its cost of living is significantly higher than other urban areas; hence needs its own poverty line. We use CPI (by region) for deflating income and expenditure. Changes in the CPI in the three regions are highly correlated. Table 1 presents the summary statistics for the sample of all households in 1992.[3]

[*Table 1*]

Our preferred measure of welfare is per capita household expenditures (pce). We have also worked with income data. The results are not very different, but as in other developing countries, we believe that pce is more accurately estimated in our survey because it is based on a larger number of questions than income and because people are more likely to misreport income (Deaton 1997).

3.1 Attrition

For most of our analysis, we work with a balanced sample of households who were interviewed in the all four years of the panel. This raises an important concern regarding attrition and sample selection (Wooldridge 2002, 585-590). If households drop out of the panel for reasons related to the characteristics we are analyzing here, the balanced sample suffer from selection and our conclusions are wrong. Attrition is high during the first year (14.3 percent), and falls to about 7 percent per year in the remaining two years. About 66 percent of the base survey in 1992 are present in all four years. As depicted in Table

[2] Evidence from experimentation with the length of the recall period in India suggests that a shorter recall period results in higher levels of reported expenditures (Scott and Amenuvegbe 1990; Deaton 2001).

[3] A comparison of the mean values for the variables in the whole and balanced samples is reported in Table 16 of Appendix A.

2, attrition in our sample follows an expected pattern: it is more serious in urban areas where geographic mobility is higher, with 45 percent dropping out in Tehran by the last year, compared to 21 percent in rural areas. The attrition rate drops to half after the first year, presumably because the more mobile families leave the panel in the first year.

[*Table 2*]

There are three main sources of attrition in the data: 1) households moving away, 2) households not being present at the time of interview despite living in the same place as before, and 3) households refusing to continue participating in the survey. According to SCI officials familiar with the survey, the first was the primary reason for attrition. To the extent that moving is the reason for attrition, we can try to model the probability of attrition and then use the estimated probabilities as weights in other regressions. For example, a strong predictor of attrition appears to be whether the household rents or owns its home. Those who rent in the first round are more likely to leave the sample (see Table 3). Renters in rural areas are much more likely to leave the survey (70 percent of renters versus 18 percent of non-renters attritted), while in urban areas the probability of renters not remaining in the panel is 87 percent relative to 27 percent for non-renters, and in Tehran, the attrition rates are 83 percent versus 36 percent.

[*Table 3*]

A key question for bias in our results on poverty dynamics and mobility is whether attrition depends on poverty status. Table 4 presents attrition rates by poverty status for those who participated in the first round in 1992.[4]. The difference between the attrition rates of poor (32.6 percent) and non-poor (34.1 percent) households is not statistically significant.

[*Table 4*]

We also look at the attrition rates across different quintiles of each region. Because attrition is different across regions, we analyze both attrition and mobility separately for each region. Table 5 shows that differences in attrition rate across quintiles are not significant, except for the first (bottom) quintile in rural areas and the third quintile in the urban areas. In Tehran, there is virtually no difference in attrition rates between the poor and the non-poor.[5]

[4]We define the poverty line later in Section 5

[5]A comparison of the mean values for the variables in the whole and balanced samples is reported in Table 16 of Appendix A.

[*Table 5*]

Although the differences in the poverty status of those who leave and those who stay in the panel are not significantly different, potential differences along other dimensions require that we use weights to correct for selection. We use inverse response probabilities as weights to correct for attrition (see Wooldridge 2002, 585-590). For households in the first round (1992) we predict the probability of remaining in the survey in successive rounds (1993 through 1995) using variables that affect attrition but not poverty status and mobility, such as renting rather than owning a home. Table 3 suggests that, for example, being a renter influences attrition, but not income mobility.

In Table 6, we estimate Logit regression of attrition (a binary variable equal to one if a household was present in all rounds, zero otherwise) on household characteristics. Not all variables in the regression satisfy the requirements of exogeneity to economic status. For example, region of residence which explains attrition may be also correlated with mobility. To mitigate this problem, we analyze mobility separately for each region. This can solve the problem as long as households who left the panel did not change their region of residence. But assuming that those who left their region of residence are improving their welfare, the predicted mobility and poverty dynamics provide lower bounds for mobility and are therefore conservative estimates. Using the Logit regression results, we predict the probability of leaving the panel for each household, and use its inverse as the weight for that household. For individual weights, where applicable, we use the multiple of this weight and household size.

[*Table 6*]

4 Measuring Mobility

Mobility is a difficult concept to measure with precision. Change in income or expenditure is almost always likely to contain measurement error, causing mobility to be confused with noise in the data and therefore overestimated. Baulch and Hoddinott (2000) argue that high observed mobility in the studies of income or expenditure dynamics is partly the artifact of measurement error rather than actual change in status. Lee (2008) shows that measures of income and consumption persistence over time are estimated with 65 to 55 percent bias. It is often difficult if not impossible to fully remove the effect of measurement error on estimates of mobility because of data limitations.

We estimate mobility using per capita expenditures, which contain less measurement error than income because they are aggregated from detailed expenditures on many items. Errors in expenditures arise in part from variation in the recall ability of the interviewees. Respondents can forget what they consumed (omission error) or the date of consumption (telescoping error).[6] Recall errors decrease as the number of consumption categories and the detail level increases (Deaton 1997). However, as Browning, Crossley, and Weber (2003) show, there is a trade-off in reducing measurement error through asking more detailed questions as the respondents become tired and therefore less precise.

Before discussing our strategy to deal with measurement error, we first examine the raw transition matrices using the observed expenditure data in Table 7. We divide households into five expenditure quintiles from the poorest (quintile 1) to the richest (quintile 5), using the weights explained in Section 3.1. The rows represent the quitiles of the distribution in the first period and the columns the second. In this table we report transition probabilities for transitions between 1993 and 1994 (the years in the middle of the panel) only. This is because we wish to compare these transition probabilities with those obtained by averaging expenditures for the first and the last two years (see below). In these estimates, mobility appears relatively high: depending on the region, 45-55 percent of the lowest and 44-56 percent of the highest quintile are staying put. These transition probabilities are consistent with those reported for other countries (Fields 2001). Observed mobility in rural areas is higher than urban areas and Tehran, and it is especially high for the poorest quintile. This is not surprising because fluctuations in weather conditions and rainfall add to rural income variability.

[*Table 7*]

How much of the mobility we observe in this table is due to measurement error? We try to answer this question in several ways. Our answer is to use the *average* expenditures of 1992-93 and 1994-95 to get rid of some of the transitory elements and see how the transition probabilities change. Table 8 shows that doing this reduces the (upward) mobility of the poorest quintile in rural areas by about 3 percentage points, in Tehran by 5 points and leaves the urban number unchanged. The larger correction in Tehran and rural areas fit our prior of higher variability income in these areas. High variability of incomes in rural areas could result from the effect of weather on agricultural incomes, and in Tehran because of the closer connection between incomes in the capital city and fluctuating oil revenues.

[6]For discussions of income and consumption measurement errors, see Lee (2008) and Sudman and Bradburn (1973).

[*Table 8*]

Next, we try to eliminate transitory income changes (between 1993 and 1994) by not counting movements due to changes in expenditures of less than 20 percent in order to reduce the effect of transitory shocks and time-varying measurement errors. By choosing a rather high threshold for counting changes that are real, we wish to put a lower bound on our estimates of mobility. However, ignoring these income movements may at the same time eliminate real movements in household welfare. The results in Table 9 indicate that the proportion of the lowest quintile in rural areas who stay put increases by about 4 percentage points while in urban areas and Tehran the increases are about 7 and 12 percentage points, respectively. This time, the largest adjustment in mobility is for urban individuals.

[*Table 9*]

Overestimation of mobility may also arise from the fact that our welfare is based on monthly expenditures rather than actual daily consumption. Large purchases made in the month of reference (November) can push a person one or more quintiles up without any change having occurred in the person's consumption or economic status. Many items are collected on an annual basis, such as expenditures on education and durable goods and are therefore immune to this particular problem. Close examination of survey data reveals that expenditures grains, which affect poorer rural households more, can be in seasonal and in bulk, causing jumps in expenditures unrelated to consumption. Using the more detailed Expenditures and Income Survey (HEIS), Salehi-Isfahani (2003) has shown that this problem is more acute for rural households and it can cause substantial distortion in the estimation of poverty rates. For panel data, too, large purchases are more prevalent among rural households, presumably because large purchases in rural areas may coincide with harvest times. Table 10 shows that, in 1992, 13 percent of rural households reported grain purchases of greater than 250 kilograms compared to 4 percent for households in urban areas and Tehran. For example, those who made their 'purchase' during the month of the interview in one panel year but not the next would appear, without justification, to have dropped into a lower quintile. Average share of expenditures on grain in 1992 was 9 percent in rural areas and 5 percent in urban areas and Tehran.

[*Table 10*]

The error created by bulk purchases of grain in estimating mobility appears particularly acute for lower income rural households. About 24 percent of households who moved up

from the poorest quintile in 1992 to a higher quintile in 1993 were those who also moved down from grain quintiles 4-5 in the same period. To correct for this potential bias, for those with high grain purchases of 250 kg or more per month we replace expenditure on grains in each year with its average for the four years, thus reducing the impact of bulk purchases in any given year. The results are presented in Table 11. The change in the proportion of rural individuals who remain in the lowest quintile is quite noticeable, from 45.2 percent to 52.7 percent. The change for the corresponding quintiles in urban areas and Tehran is comparatively very small, reflecting the smaller proportion of households there with high grain purchases.

[*Table 11*]

5 Dynamics of Poverty

We now focus on mobility in the lower part of the distribution, that is, movements into and out of poverty. Mobility of the poor is of particular interest because the costs of poverty multiply with its duration. It is one thing to be stuck, say, around the median income and quite another to be persistently below the poverty line. We are interested to know the proportion of households who are persistently poor relative to those who drop into and get out of poverty temporarily, as well as what determines how long people stay poor. We adopt cost-of-basic-needs poverty lines used by Salehi-Isfahani (2009) for each region. They correspond to the average per capita expenditure of households whose food intake is 2200 calories per adult equivalent person. The poverty lines for 1992 are 1,065 rials ($2.23) per person per day in rural areas, 1,416 rial ($2.96 PPP) in urban areas, and 1,999 rials ($4.19 PPP) in Tehran.

Table 12 presents the headcount ratios for all four years. Poverty rates are similar to those reported in (Salehi-Isfahani 2009) using the larger expenditure surveys (HEIS), and they exhibit a predictable trend in light of the macroeconomic changes discussed in section 2. The incidence of poverty was higher in rural areas in 1992, which was a good year, than urban areas and Tehran, but in 1993 it increased faster than in other regions, by about 25 percent (4.9 percentage points) compared to an increase of about 10 percent in urban areas and a *fall* of 12 percent in Tehran. All areas eventually experienced increase in poverty as the debt-induced economic crisis took hold, so that by 1995 poverty rates in all regions were higher.

[*Table 12*]

A major advantage of panel data is that they allow us to observe poverty status of individuals in four different years, which provides a basis for distinguishing short and long term poverty. Table 13 presents the percentage of individuals by the number of years in which they were poor. About 42.6 percent were at least poor in one of the four years, which is about twice the poverty rate in any single year. On the other hand, only 5 percent of population were poor in all four years (6 percent in three years). Evidently, there is a lot of movement in and out of poverty.

[*Table 13*]

5.1 Chronic and Transient Poverty

There are several ways to distinguish long and short term poverty (McKay and Lawson 2002 offer a review). Interest in this distinction is rooted in welfare and development policy that combat poverty. Policies targeted at those with occasional spells of poverty may differ from those addressing the needs of chronically poor (Baulch and Hoddinott 2000). Short term or transient poverty is better alleviated by policies that assist with consumption smoothing, such as better access to credit markets, whereas long term or chronic poverty may call for transfers or programs that increase the poor's earning capacity (Lipton and Ravallion 1995). The consequences of the two types of poverty also differ from a welfare point of view. A family that suffers a long spell of poverty may lose its ability to rebound on its own, thus needing assistance to escape from poverty. Long term poverty can also undermine child education and health, and thereby transfer poverty from one generation to the next. In short, whereas short term poverty can be viewed as a welfare problem, long term poverty is a development problem.

Jalan and Ravallion (2000) offer a particular definition of chronic and transient poverty, which is widely used in the empirical literature because of its many appealing features including decomposability and sensitivity to how poor a person is (Haddad and Ahmed 2002; McKay and Lawson 2002). It can also mitigate the problem of measurement error to some extent by assigning smaller values to individuals close to the poverty line. According to their definition, aggregate inter-temporal poverty function for household i in our sample is given by:

$$P_i = P(y_{i92}, y_{i93}, y_{i94}, y_{i95}), \tag{1}$$

where $y_{i92} \cdots y_{i95}$ are real per capita expenditures for household i in 1992 through 1995. This poverty function is composed of two parts, transient and chronic. The chronic component

of aggregate poverty is defined as:

$$C_i = P(\bar{y}_i, \bar{y}_i, \bar{y}_i, \bar{y}_i), \tag{2}$$

where $\bar{y}_i$ is the mean of real per capita expenditures over the four years of the panel. The transient part is the difference between the total poverty function (equation (1)) and chronic poverty (equation (2)):

$$T_i = P(y_{i92}, y_{i93}, y_{i94}, y_{i95}) - P(\bar{y}_i, \bar{y}_i, \bar{y}_i, \bar{y}_i) \tag{3}$$

For implementation, Jalan and Ravallion (2000) require their poverty measure P to be additive over time and across households, and the individual poverty function, $p(y_{it})$, to be the same for all periods and convex. Additivity implies that we can compute the poverty measure for several periods by adding up individual poverty measures for each period:

$$P_i = P(y_{i92}, y_{i93}, y_{i94}, y_{i95}) = p(y_{i92}) + p(y_{i93}) + p(y_{i94}) + p(y_{i95}), \tag{4}$$

For a convex individual poverty measure, Jalan and Ravallion (2000) choose the well-known squared poverty gap index of Foster et al. (1984):

$$p(y_{it}) = \begin{cases} (1 - y_{it})^2 & \text{if } y_{it} < 1 \\ 0 & \text{otherwise} \end{cases}$$

This measure of poverty equals one when per capita expenditure is zero and approaches zero as expenditures get close to the poverty line. It has the desirable property of being sensitive to transfers between the poor. To compute regional measures of chronic and transient poverty we use equations (2) and (3) to calculate the values of chronic and transient poverty for each household and then take their (weighted) average across the region.[7]

A longer panel is obviously beneficial for this decomposition. Jalan and Ravallion (2000) use a six-wave panel, but panels with fewer waves are common in the literature that followed their methodology (McKay and Lawson 2002). For example, Haddad and Ahmed (2002) use a three-wave panel from Egypt; Muyanga et al. (2007) a three-wave panel from Kenya, and Bigsten and Shimeles (2008) a five-wave panel from Ethiopia.

The results of the decomposition using our four-year panel are presented in Table 14. Chronic and transient poverty account for 36 and 64 percent of the total poverty, respectively. The share of chronic poverty is higher in Tehran and rural areas, where, as noted in

[7]Following accepted practice, to calculate poverty we keep the poverty line constant across periods and use real per capita expenditures (Jalan and Ravallion 2000; Muller 2002).

section 4, incomes may be more variable than in small urban areas.

[*Table 14*]

5.2 Determinants of Chronic and Transient Poverty

Policy for poverty reduction can benefit from the distinction between chronic and transient poverty if individuals suffering from these types of poverty can be distinguished based on their observable characteristics. We follow the methodology in Jalan and Ravallion (2000) to study the determinants of each type.

Consider the following models:

$$C_i = X_i\beta_C + \epsilon_{Ci} \tag{5}$$

$$T_i = X_i\beta_T + \epsilon_{Ti}, \tag{6}$$

where X_i is a vector of explanatory variables, C_i and T_i are computed from equations (2) and (3) respectively. Both dependent variables are censored because they are zero for the non-poor, making OLS estimates inconsistent. Tobit regression can help with censoring, but it assumes that the errors are normally distributed, and can yield biased results if this assumption is violated (Arabmazar and Schmidt 1982). The literature on chronic poverty has therefore resorted to censored quintile regression (CQR) to get consistent estimates that do not depend on normality and, in addition, are less sensitive to outliers. [8]. CQR estimates of (5) and (6) are obtained by minimizing (7) and (8) over parameters β_C and β_T respectively.

$$\min_{\beta_C} \frac{1}{N} \sum_{i=1}^{N} \rho_\theta \left| C_i - \max(0, X_i\beta_C) \right| \tag{7}$$

$$\min_{\beta_T} \frac{1}{N} \sum_{i=1}^{N} \rho_\theta \left| T_i - \max(0, X_i\beta_T) \right|, \tag{8}$$

in which θ represents the quantile and ρ_θ is a weighting function that centers the data based on that quantile, i.e.,

$$\rho_\theta(\lambda) = \left[\theta I(\lambda \geq 0) + (1-\theta)(\lambda < 0)\right] |\lambda|$$

[8]This method only assumes that errors are i.i.d. and continuously differentiable with positive density at the chosen quintile.

We used the Stata command *qcenreg*, developed by Robert Vigfusson, to compute CQR estimates.[9] The results for both Tobit estimation and censored quantile regressions are shown in Table 15.[10] The two left columns report the Tobit regressions for chronic and transient poverty and the two right columns are the CQR regressions. Interestingly, most of the coefficients for Tobit and CQR are qualitatively similar. Note that the coefficients do not present any causal effect, rather they show correlations between the covariates and the measures of chronic and transient poverty.

Most of the estimated coefficients for both chronic and transient poverty are significant.[11] Larger households are more likely to be chronically and temporarily poor as the coefficients for household size are positive and significant. This is consistent with the intuition and the literature for other countries that larger households are more likely to be poor.

The Tobit and CQR results indicate that, relative to rural areas, people in urban areas and Tehran are less susceptible to transient poverty. In addition, the CQR results show that they are more susceptible to chronic poverty, but the Tobit results are silent on this. These findings fit what we have seen before, namely, that agricultural activity is more precarious, resulting in more poverty of a transient nature. These results suggest that poverty alleviation strategies that target the transient poor are more urgent in rural areas, and policies that combat chronic poverty are more suited for urban areas. The Tobit and CQR estimates agree on the effect of living in a household that is headed by a woman on chronic poverty, which is to increase it incidence. Again, this finding has implications on the choice of poverty alleviation policies for female headed households.

The effect of age is computed from the coefficients of age and age squared, and it is mostly negative, indicating that younger people are more likely to be both chronically and transiently poor.[12] This may be because young people are four times more likely to be unemployed than adults (Salehi-Isfahani 2008; Salehi-Isfahani and Egel 2009), and assets accumulate with age. The dummy variable "Head speaks Persian," which equals one if the head of the household can speak and understand Persian and zero otherwise, indicates the degree of social inclusion that comes with language. Although Iran has large Azeri and Kurdish minorities, only 8% of the sample could neither speak nor understand Persian. Both the Tobit and CQR estimates indicate the non-Persian speaking minority is in greater

[9] The program did not converge for values of θ less than 0.87 in the case of chronic poverty (presumably because it is zero for almost 90% of the households), and for θ more than 0.90, in the case of transient poverty. We were able to obtain convergence for $\theta = 0.89$, i.e., at the 89% quantile, which is what we report.

[10] We do not apply attrition related probability weights to these regressions.

[11] Jalan and Ravallion (2000) had to multiply poverty lines by 1.5 to get significant coefficients.

[12] The marginal effect is negative until about age 105.

danger of transitory poverty. For chronic poverty, the Tobit estimate is not significant while CQR shows that minorities are in less likely to be chronically poor. Not surprisingly, more education is correlated with less chronic and transient poverty, a result seen from both methods of estimation. Having migrated in the past year, mostly from rural to urban areas or from smaller urban areas to Tehran, does not seem to affect poverty status of either kind.

[*Table 15*]

6 Conclusion

This paper utilizes for the first time panel data to throw light on the dynamics of poverty and mobility in Iran in the 1990s. Previous studies of poverty have presented snapshots of poverty in Iran. The motivation behind looking at income mobility and changes in poverty status over time is that snapshots can give a misleading picture of economic status. Families that fall into poverty for a short period of time may be able to bounce back using their own resources, but those who remain in poverty for a long spell may lose their ability to rebound on their own, and thus be in greater need of assistance to escape from poverty compared to the short term poor. Long term poverty can undermine child education and health and thereby affect economic growth by transferring poverty from one generation to the next. Conversely, inequality combined with a higher degree of income mobility is more tolerable than the same degree of inequality when mobility is low and individuals feel condemned to their social and economic position. By the same token, policies that alleviate short and long term poverty are not necessarily the same. Knowledge of the type of poverty that affects individuals is therefore useful in design of effective policies.

As with most panel data, our data suffer from two types of problems that can affect our findings. First, there is considerable attrition that can potentially cause selection. Fortunately, attrition is not related to poverty status, though it is to other characteristics that are correlated with poverty and income. We model attrition behavior in order to obtain probability weights for the regressions later in the paper. Second, dynamics of poverty and income mobility are highly sensitive to measurement error. We used several methods to provide a range of estimates that we hope encompass the true degree of mobility in Iran of the 1990s. Even with these adjustments, we find that mobility is relatively high with about 40 percent of those in the lowest quintile moving up in one year.

Our analysis of correlates of poverty show that younger individuals and those living in families headed by women are more likely to be chronically poor or spend longer time in

poverty. The incidence of chronic and transient poverty depend on region of residence, but not whether or not the person recently migrated. Individuals living in urban areas other than Tehran are more likely to be chronically poor relative to rural individuals. Rural and Tehran residents are more likely to be transient poor, perhaps because of the greater variance of agricultural incomes and incomes in the capital city which are affected by variation in government oil revenues. We find that minorities suffer more from transient poverty, but they are less likely to be chronically poor. Among variables that lend themselves to policy, education reduces both transient and chronic poverty.

To the extent that the chronically poor are in greater need of assistance, our findings can help with more effective targeting of scarce public resources. The strong correlation of education with both chronic and transient poverty indicates the importance of providing equal opportunity of access to education for all Iranians. Those agencies of the government, such as the Ministry of Welfare and the Komiteh Emdad, that are tasked more specifically with assisting the chronically poor, need to be aware of the greater likelihood of finding them in households headed by women and in small urban and minority areas.

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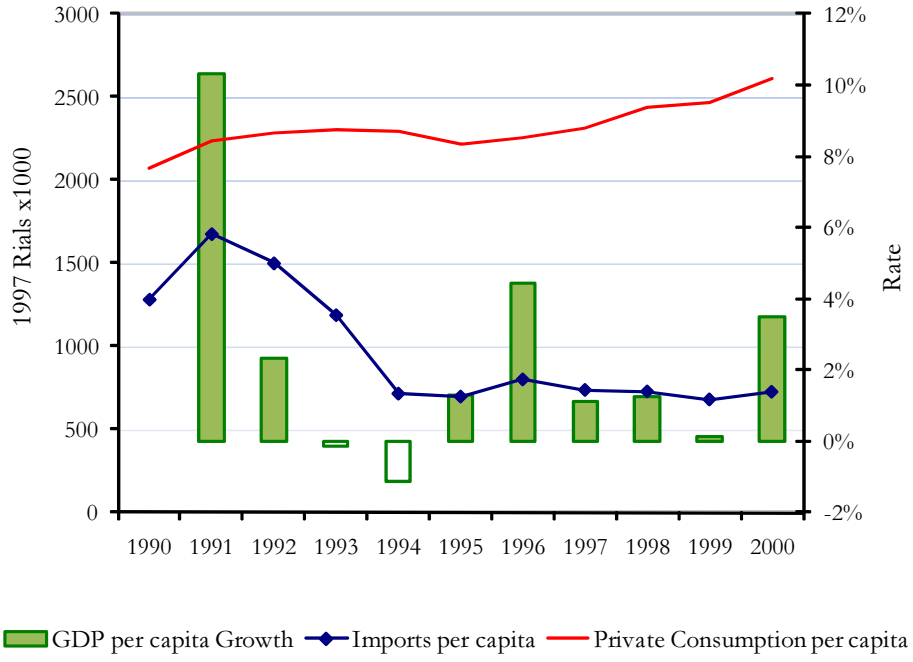
Figure 1: Imports as percentage of GDP, GDP growth, and per capita private consumption (1000 Iranian 1997 rials), 1990-2000



Source: Central Bank of Iran, *Annual Reports*, various years.

Table 1: Summary Statistics of Variables of the Balanced Sample

Variable	Observations	Mean	Std. Dev.	Min	Max
Region of the household					
Rural	5081	0.36	0.48	0	1
Urban	5081	0.38	0.49	0	1
Tehran	5081	0.26	0.44	0	1
Household size	5081	5.10	2.45	1	19
Education of the head					
Illiterate	5081	0.34	0.47	0	1
Read & write	5081	0.20	0.40	0	1
Primary	5081	0.20	0.40	0	1
Mid school	5081	0.10	0.30	0	1

Continued on the next page

Table 1 – continued from previous page

Variable	Observations	Mean	Std. Dev.	Min	Max
High school	5081	0.10	0.30	0	1
College and higher	5081	0.05	0.22	0	1
Age of head	5081	44.32	15.22	15	99
Head is female	5081	0.08	0.27	0	1
Martial status of the head					
Married	5081	0.89	0.31	0	1
Widowed	5081	0.08	0.27	0	1
Divorced	5081	0.01	0.08	0	1
Never Married	5081	0.02	0.13	0	1
Economic activity of the head					
Employed	5081	0.84	0.37	0	1
Unemployed	5081	0.02	0.13	0	1
Retired	5081	0.10	0.30	0	1
Student	5081	0.00	0.06	0	1
Homemaker	5081	0.02	0.14	0	1
Other	5081	0.02	0.16	0	1
Job type of the head					
Employer	5081	0.11	0.32	0	1
Self-employed	5081	0.31	0.46	0	1
Employed in pblic sector	5081	0.22	0.41	0	1
Employed in private sector	5081	0.19	0.39	0	1
Unpaid family labor	5081	0.00	0.03	0	1
PCE, in 1992 Rials	5081	70324.95	85276.97	900	1308433
PCI, in 1992 Rials	5081	60798.43	78587.10	0	1433333
Rent the residence	5081	0.14	0.35	0	1
Rent the residence for free	5081	0.12	0.33	0	1
Owns a car	5081	0.16	0.37	0	1
Is a migrant	5061	0.02	0.14	0	1
Speaks or understands Persian	3362	0.93	0.26	0	1

Table 2: Attrition by Region of Residence

When left the panel	Region			
	Rural %	Urban %	Tehran %	Total %
2nd year	7.3	16.4	21.1	14.3
3rd year	4.7	8.3	10.2	7.5
4th year	5.3	9.1	9.4	7.8
Never left	79.7	62.9	51.8	66.1
Left but returned	3.1	3.3	7.5	4.3
Total	100.0	100.0	100.0	100.0

Note: Standard errors are in parentheses. Pearson χ^2 test rejects the hypothesis that the column values are equal, at 0.1% level.

Table 3: Attrition among the Renters and Non-renters

	Renters	*Non-renters*	*Difference*
Rural	70.6	18.4	-52.2***
	(5.6)	(0.9)	(5.8)
Urban	86.9	27.2	-59.7***
	(1.9)	(1.1)	(2.6)
Tehran	83.6	36.3	-47.3***
	(2.0)	(1.5)	(2.9)

Note: Cells show the percentage of households who were interviewed in the first round in 1992, but left the survey later. Standard errors are in parentheses. 'Difference' is the difference in percents attritted between renters and non-renters. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Attrition Rates of the Poor and Non-poor

	poor	*Non-poor*	*Difference*
Percent left the panel	32.6	34.1	1.50
	(1.6)	(0.7)	(1.79)

Table 5: Attrition among Quintiles by Region of Residence

	PCE Quintiles*				
	1	2	3	4	5
Rural	25.7†	18.7	19.8	19.8	17.6
	(2.3)	(2.0)	(2.1)	(2.1)	(2.0)
Urban	35.6	41.9	29.5‡	38.2	40.1
	(2.4)	(2.5)	(2.3)	(2.5)	(2.5)
Tehran	46.9	48.8	44.2	51.2	50.0
	(3.1)	(3.1)	(3.1)	(3.1)	(3.1)

Note: Cells show the percentage of households who were interviewed in the first round in 1992, but left the survey later. Standard errors are in parentheses. 'Difference' is the difference in percents attritted between renters and non-renters. * quintiles 1 is the poorest and 5 the richest.

Table 6: Response Probability Logit Regression

	(1) Response
Living in Urban	-0.46***
	(0.08)
Living in Tehran	-0.80***
	(0.09)
Rent	-2.77***
	(0.11)
Free Rent	-1.33***
	(0.09)
Constant	1.67***
	(0.06)
Observations	5081
Psuedo R-squared	0.19

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Observed Mobility between 1993 and 1994

	1994					
1993	1	2	3	4	5	Total
Rural	%	%	%	%	%	
1	45.2	22.2	13.3	13.1	6.3	100.0
	(3.4)	(2.8)	(2.1)	(2.2)	(1.6)	
2	29.0	26.9	19.7	16.0	8.3	100.0
	(3.1)	(3.0)	(2.6)	(2.4)	(1.7)	
3	13.5	24.5	24.2	20.3	17.5	100.0
	(2.2)	(2.8)	(2.8)	(2.7)	(2.6)	
4	8.4	19.4	24.9	25.6	21.7	100.0
	(1.8)	(2.7)	(2.7)	(2.8)	(2.7)	
5	4.1	6.8	18.2	24.8	46.2	100.0
	(1.2)	(1.5)	(2.5)	(2.5)	(3.0)	
Total	20.0	20.0	20.1	19.9	20.0	100.0
	(1.2)	(1.2)	(1.1)	(1.1)	(1.1)	
Urban						
1	55.9	23.3	12.6	3.3	4.9	100.0
	(4.1)	(3.4)	(2.5)	(1.2)	(2.5)	
2	27.0	36.4	15.0	13.1	8.6	100.0
	(3.4)	(4.0)	(2.6)	(2.5)	(2.3)	
3	11.0	24.8	29.3	22.7	12.2	100.0
	(2.3)	(3.8)	(3.4)	(3.2)	(2.4)	
4	3.9	9.7	27.7	40.0	18.6	100.0
	(1.3)	(2.2)	(3.4)	(3.5)	(2.7)	
5	3.0	5.3	14.6	20.8	56.2	100.0
	(1.1)	(1.5)	(2.6)	(2.6)	(3.3)	
Total	20.2	19.9	19.9	20.0	20.0	100.0
	(1.4)	(1.5)	(1.3)	(1.3)	(1.3)	
Tehran						
1	48.5	26.8	15.0	5.1	4.7	100.0
	(4.8)	(4.1)	(3.3)	(1.7)	(1.9)	
2	24.1	27.5	17.9	24.3	6.2	100.0
	(5.3)	(5.3)	(3.4)	(4.4)	(1.9)	
3	12.9	19.9	30.4	16.9	19.9	100.0
	(4.5)	(4.3)	(6.2)	(4.0)	(5.7)	
4	9.5	14.7	22.4	28.5	24.9	100.0
	(3.4)	(5.2)	(3.7)	(4.9)	(4.3)	
5	5.1	10.9	14.2	25.8	44.0	100.0
	(3.1)	(3.2)	(3.9)	(4.7)	(5.2)	
Total	20.1	20.0	20.0	20.1	19.9	100.0
	(2.1)	(2.0)	(1.9)	(1.9)	(1.9)	

Note: Pearson χ^2 test rejects the hypothesis that the columns are equal, at 0.1% level.

Table 8: Mobility between Averaged Expenditure of 92-93 and 94-95

	1994-95					
1992-93	1	2	3	4	5	Total
Rural	%	%	%	%	%	
1	48.2	27.0	15.4	6.4	3.0	100.0
	(3.4)	(3.1)	(2.4)	(1.7)	(1.1)	
2	20.7	30.2	23.3	16.0	9.8	100.0
	(2.6)	(3.1)	(2.9)	(2.5)	(1.9)	
3	15.4	21.1	24.4	24.0	15.2	100.0
	(2.4)	(2.6)	(2.7)	(2.9)	(2.4)	
4	10.8	14.1	20.2	29.0	25.8	100.0
	(2.0)	(2.2)	(2.7)	(2.9)	(2.8)	
5	5.3	7.3	16.7	25.1	45.7	100.0
	(1.6)	(1.6)	(2.3)	(2.6)	(3.0)	
Total	20.1	20.0	20.0	20.1	19.9	100.0
	(1.2)	(1.2)	(1.2)	(1.2)	(1.1)	
Urban						
1	54.6	29.1	8.9	5.3	2.1	100.0
	(4.0)	(3.7)	(2.1)	(1.7)	(1.1)	
2	27.3	32.5	23.4	11.8	4.9	100.0
	(3.5)	(4.2)	(3.4)	(2.4)	(1.6)	
3	9.9	23.3	28.8	24.5	13.5	100.0
	(2.0)	(3.4)	(3.2)	(3.5)	(2.7)	
4	6.3	10.4	25.4	32.3	25.6	100.0
	(2.3)	(2.2)	(3.0)	(3.4)	(3.1)	
5	2.0	4.6	13.7	25.9	53.8	100.0
	(0.9)	(1.3)	(2.4)	(3.3)	(3.4)	
Total	20.0	20.0	20.0	20.0	20.0	100.0
	(1.4)	(1.5)	(1.3)	(1.4)	(1.2)	
Tehran						
1	53.7	32.1	11.4	2.2	0.6	100.0
	(5.5)	(5.0)	(2.9)	(1.2)	(0.6)	
2	26.0	28.7	22.9	19.5	2.9	100.0
	(5.0)	(4.7)	(4.5)	(4.1)	(1.3)	
3	11.9	26.3	29.4	19.4	13.0	100.0
	(4.1)	(5.0)	(4.3)	(4.2)	(3.1)	
4	8.0	10.2	25.2	29.6	27.0	100.0
	(4.6)	(2.7)	(5.2)	(5.3)	(5.5)	
5	0.8	2.5	10.7	30.0	56.0	100.0
	(0.8)	(1.2)	(3.1)	(5.0)	(5.3)	
Total	20.1	20.0	19.9	20.1	19.9	100.0
	(2.2)	(1.9)	(1.9)	(1.9)	(2.0)	

Note: Pearson χ^2 test rejects the hypothesis that the columns are equal, at 0.1% level.

Table 9: Mobility Ignoring Movements More than 20% 1993 and 1994

	1994					
1993 Rural	1 %	2 %	3 %	4 %	5 %	Total
1	50.2	17.1	13.3	13.1	6.3	100.0
	(3.4)	(2.4)	(2.1)	(2.2)	(1.6)	
2	25.6	37.5	12.6	16.0	8.3	100.0
	(3.0)	(3.3)	(2.2)	(2.4)	(1.7)	
3	13.5	17.2	37.2	14.6	17.5	100.0
	(2.2)	(2.5)	(3.2)	(2.3)	(2.6)	
4	8.4	19.4	18.5	35.4	18.3	100.0
	(1.8)	(2.7)	(2.4)	(3.1)	(2.5)	
5	4.1	6.8	18.2	22.0	48.9	100.0
	(1.2)	(1.5)	(2.5)	(2.4)	(3.0)	
Total	20.4	19.6	20.0	20.2	19.9	100.0
	(1.2)	(1.2)	(1.1)	(1.1)	(1.1)	
Urban						
1	63.1	16.2	12.6	3.3	4.9	100.0
	(4.0)	(3.0)	(2.5)	(1.2)	(2.5)	
2	21.0	48.3	9.1	13.1	8.6	100.0
	(3.2)	(4.0)	(2.0)	(2.5)	(2.3)	
3	11.0	19.4	46.9	10.6	12.2	100.0
	(2.3)	(3.7)	(3.9)	(2.3)	(2.4)	
4	3.9	9.7	25.9	45.1	15.4	100.0
	(1.3)	(2.2)	(3.4)	(3.6)	(2.6)	
5	3.0	5.3	14.6	17.5	59.5	100.0
	(1.1)	(1.5)	(2.6)	(2.4)	(3.2)	
Total	20.4	19.8	21.8	17.9	20.0	100.0
	(1.4)	(1.5)	(1.4)	(1.2)	(1.3)	
Tehran						
1	60.4	14.8	15.0	5.1	4.7	100.0
	(4.6)	(3.1)	(3.3)	(1.7)	(1.9)	
2	24.1	39.9	6.5	23.3	6.2	100.0
	(5.3)	(5.4)	(2.1)	(4.4)	(1.9)	
3	12.9	19.9	35.9	11.4	19.9	100.0
	(4.5)	(4.3)	(6.2)	(3.6)	(5.7)	
4	9.5	14.7	22.4	34.7	18.6	100.0
	(3.4)	(5.2)	(3.7)	(5.1)	(3.8)	
5	5.1	10.9	14.2	21.8	48.0	100.0
	(3.1)	(3.2)	(3.9)	(4.1)	(5.3)	
Total	22.5	20.0	18.8	19.3	19.4	100.0
	(2.1)	(2.0)	(1.9)	(1.8)	(2.0)	

Note: Pearson χ^2 test rejects the hypothesis that the columns are equal, at 0.1% level.

Table 10: Distribution of Reported Size of Grain Purchase (Kilograms Per Month) in 1992

	Rural		Urban		Tehran	
Weight Category	Number	%	Number	%	Number	%
0 – 10	102	6.9	50	4.1	8	1.2
10 – 50	303	20.5	309	25.3	209	31.1
50 – 100	384	26.0	439	35.9	267	39.7
100 – 250	489	33.1	373	30.5	166	24.7
250 – 500	129	8.7	41	3.4	17	2.5
500+	69	4.7	10	0.8	6	0.9
Total	1,476	100.00	1,222	100.00	673	100.00

Table 11: Mobility Corrected for Grains>250kg between 1993 and 1994

	1994					
1993 Rural	1 %	2 %	3 %	4 %	5 %	Total
1	52.7	24.0	10.3	10.0	3.1	100.0
	(3.4)	(2.8)	(1.9)	(1.9)	(1.0)	
2	25.6	29.1	23.1	15.0	7.0	100.0
	(3.0)	(3.1)	(2.7)	(2.4)	(1.5)	
3	12.1	25.2	25.9	20.9	15.9	100.0
	(2.1)	(2.8)	(2.9)	(2.7)	(2.6)	
4	6.5	15.2	25.2	27.3	25.9	100.0
	(1.6)	(2.3)	(2.9)	(2.8)	(2.8)	
5	3.2	6.4	15.8	26.7	47.9	100.0
	(1.1)	(1.4)	(2.3)	(2.7)	(3.0)	
Total	20.0	20.0	20.0	20.0	20.0	100.0
	(1.2)	(1.2)	(1.2)	(1.1)	(1.1)	
Urban						
1	54.8	25.6	10.7	4.0	4.9	100.0
	(4.3)	(3.9)	(2.2)	(1.4)	(2.5)	
2	28.0	34.6	17.5	12.5	7.4	100.0
	(3.4)	(3.7)	(2.8)	(2.5)	(2.2)	
3	10.8	23.5	31.8	21.7	12.2	100.0
	(2.2)	(3.7)	(3.4)	(3.1)	(2.4)	
4	3.6	11.4	26.8	38.6	19.6	100.0
	(1.2)	(2.4)	(3.5)	(3.5)	(2.8)	
5	2.9	5.2	12.5	23.6	55.9	100.0
	(1.1)	(1.5)	(2.4)	(2.9)	(3.3)	
Total	20.1	20.1	19.8	20.1	20.0	100.0
	(1.4)	(1.5)	(1.3)	(1.3)	(1.3)	
Tehran						
1	49.6	25.5	15.1	5.1	4.8	100.0
	(4.8)	(4.0)	(3.3)	(1.7)	(2.0)	
2	23.2	27.8	19.1	22.0	7.9	100.0
	(5.2)	(5.3)	(3.5)	(4.2)	(2.2)	
3	12.9	22.0	28.6	18.2	18.3	100.0
	(4.5)	(4.5)	(6.2)	(4.2)	(5.7)	
4	8.8	14.2	22.9	29.3	24.8	100.0
	(3.3)	(5.2)	(3.8)	(4.9)	(4.3)	
5	6.1	9.9	14.3	25.7	44.0	100.0
	(3.2)	(3.1)	(3.9)	(4.7)	(5.2)	
Total	20.1	19.9	20.0	20.1	19.9	100.0
	(2.1)	(2.0)	(1.9)	(1.9)	(1.9)	

Note: Pearson χ^2 test rejects the hypothesis that the columns are equal, at 0.1% level.

Table 12: Proportion of individuals in poverty by region, balanced panel, 1992-95 (percents)

	Region			
	Rural	Urban	Tehran	Total
1992	19.6	17.6	17.7	18.4
	(0.4)	(0.4)	(0.5)	(0.2)
1993	24.5	19.3	15.6	20.7
	(0.4)	(0.4)	(0.5)	(0.3)
1994	25.5	20.3	18.0	22.2
	(0.5)	(0.5)	(0.6)	(0.3)
1995	22.1	20.9	19.2	21.1
	(0.4)	(0.5)	(0.6)	(0.3)

Table 13: Distribution of Individuals by Number of Years in Poverty by Region

	region			
Years Poor	Rural %	Urban %	Tehran %	Total %
0	50.8	60.7	62.9	57.4
	(0.7)	(0.8)	(1.2)	(0.5)
1	23.1	17.6	18.5	20.0
	(0.6)	(0.7)	(1.0)	(0.4)
2	14.2	10.1	9.7	11.6
	(0.5)	(0.5)	(0.8)	(0.3)
3	8.6	7.3	5.2	7.3
	(0.4)	(0.5)	(0.6)	(0.3)
4	3.3	4.3	3.8	3.8
	(0.3)	(0.4)	(0.4)	(0.2)
Total	100.0	100.0	100.0	100.0

Note: Pearson χ^2 test rejects the hypothesis that the column values are equal at 0.1% level

Table 14: Total, Chronic, and Transient Poverty by Region

	Total		Chronic		Transient	
Region	Value	Share(%)	Value	Share(%)	Value	Share(%)
Rural	0.1072	100	0.0369	34	0.0703	66
Urban	0.0758	100	0.0311	41	0.0447	59
Tehran	0.0649	100	0.0198	31	0.0451	69
Total	0.0855	100	0.0307	36	0.0548	64

Weighted average of total, chronic, and transient poverty measures across all households, in each area, are reported in the columns headed "Value". Share of total poverty, in per cents, that is made from, chronic, and transient poverty is reported in columns with heading "Share (%)".

Table 15: Determinants of Chronic and Transient poverty

	Tobit Reg.		Censored Quantile Reg.	
	Chronic	Transient	Chronic	Transient
HH size	0.054**	0.017**	0.030**	0.018**
	(0.008)	(0.002)	(0.001)	(0.001)
Urban	0.030	-0.033**	0.047**	-0.073**
	(0.040)	(0.011)	(0.007)	(0.006)
Tehran	0.010	-0.037**	0.059**	-0.078**
	(0.052)	(0.014)	(0.009)	(0.008)
Female headed HH	0.228**	0.026	0.135**	0.086**
	(0.068)	(0.020)	(0.010)	(0.010)
Age	-0.031**	-0.011**	-0.015**	-0.016**
	(0.007)	(0.002)	(0.001)	(0.001)
$\text{Age}^2 \times 10^{-3}$	0.292**	0.099**	0.129**	0.145**
	(0.071)	(0.020)	(0.012)	(0.011)
Head speaks Persian	0.078	-0.047**	0.067**	-0.060**
	(0.056)	(0.015)	(0.011)	(0.009)
Education of the head				
Primary	-0.175**	-0.059**	-0.095**	-0.057**
	(0.050)	(0.014)	(0.010)	(0.007)
Middle School	-0.328**	-0.064**	-0.120**	-0.042**
	(0.082)	(0.019)	(0.022)	(0.010)
High School	-0.491**	-0.160**	-0.077**	-0.134**
	(0.109)	(0.023)	(0.017)	(0.013)
University	-3.067	-0.317**	-0.157**	-0.207**
	(0.000)	(0.045)	(0.037)	(0.041)
Migrated last year	0.170	0.054	-0.046	0.047
	(0.172)	(0.051)	(0.052)	(0.039)
Constant	-0.304	0.170**	0.136**	0.561**
	(0.176)	(0.049)	(0.028)	(0.027)
Observations	3346	3346	5430	12358

The two columns on the left report the Tobit regression of chronic and transient poverty on household characteristics. The two columns on the right are the comparable censored quantile regressions (CQRs) of the chronic and transient poverty at 89% quantile level. The CQR regressions are done, following Jalan and Ravallion (2000), as described by equations (7) and (8). Chronic and transient poverty are defined according to equations (2) and (3). All regressors take the 1992 values. Standard errors are in parentheses.

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

A Comparison of Balanced and Full Samples

Table 16: Mean Values of Variables in 1992 for the Whole and Balanced Samples

Variable	Comparison of Samples		
	Whole Sample	Balanced Sample	Difference
Region			
Rural (%)	36.28	43.71	-7.43***
	(0.67)	(0.85)	(1.08)
Urban (%)	38.17	36.29	1.88*
	(6.81)	(8.03)	(1.08)
Tehran (%)	25.55	23.53	2.02**
	(0.61)	(0.64)	(0.89)
Household size	5.10	5.24	-0.15***
	(0.03)	(0.04)	(0.05)
Education of head			
Illiterate (%)	33.77	35.84	-2.07**
	(0.66)	(0.73)	(0.98)
Read/Write only (%)	20.3	21.14	-0.84
	(0.56)	(0.62)	(0.84)
Primary (%)	20.38	19.58	0.80
	(0.56)	(0.60)	(0.82)
Middle School (%)	10.32	9.54	0.78
	(0.43)	(0.44)	(0.62)
High School (%)	9.98	8.92	1.06*
	(0.42)	(0.45)	(0.60)
University (%)	5.25	4.98	0.27
	(0.31)	(0.33)	(0.45)
Age of Head	44.35	45.42	-1.07***
	(0.21)	(0.23)	(0.31)
Female Head (%)	7.82	7.68	0.14
	(0.38)	(0.40)	(0.55)
Marital Status			
Married (%)	88.92	89.13	-0.22
	(0.44)	(0.47)	(0.65)
Widowed (%)	8.16	8.28	-0.12
	(0.38)	(0.42)	(0.57)
Divorced (%)	0.71	0.66	0.04
	(0.12)	(0.12)	(0.17)
Never Married (%)	1.71	1.42	0.29
	(0.18)	(0.18)	(0.26)
Economic Activity			
Employed (%)	83.47	83.40	0.07
	(0.52)	(0.56)	(0.77)
Unemployed (%)	1.85	1.72	0.13
	(0.19)	(0.20)	(0.27)
Retired (%)	9.67	10.16	-0.49

Continued on next page

Table 16 – continued from previous page

Variable	Comparison of Samples		
	Whole Sample	Balanced Sample	Difference
	(4.14)	(0.46)	(0.62)
Student (%)	0.43	0.28	0.16
	(0.09)	(0.08)	(0.12)
Homemaker (%)	2.00	1.88	0.12
	(0.20)	(0.21)	(0.29)
Other (%)	2.57	2.57	0.01
	(0.22)	(0.24)	(0.33)
Job Type of Head			
Employer (%)	11.44	12.29	-0.85
	(0.45)	(0.50)	(0.67)
Self-Employed (%)	31.31	32.65	-1.34
	(0.65)	(0.71)	(0.96)
Public (%)	22.05	21.21	0.84
	(0.58)	(0.62)	(0.85)
Private (%)	18.55	17.11	1.45
	(0.55)	(0.57)	(0.79)
Unpaid Family (%)	0.12	0.14	-0.02
	(0.05)	(0.06)	(0.07)
PCE, Rials per Month	70228	69216	1011
	(1195)	(1276)	(1750)
PCI, Rials per Month	60724	59905	818
	(1101)	(1181)	(1616)
Rent (%)	14.11	7.77	6.34***
	(0.49)	(0.41)	(0.65)
Free Rent (%)	12.05	11.05	1.00
	(0.46)	(0.47)	(0.66)
Own a Car (%)	15.98	16.37	-0.39
	(0.51)	(0.56)	(0.76)
Migrant (%)	1.97	1.17	0.80***
	(0.20)	(0.16)	(0.26)