

Revolution and redistribution in Iran: poverty and inequality 25 years later

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Version August 2006

Abstract

Despite nearly three decades of revolutionary government rule in Iran poverty and inequality remain the central issues of political debate in Iran. Economic dissatisfaction, which led to electoral upset by a populist candidate in the 2005 presidential election, has been widely attributed to rising poverty and inequity. Using household survey data I describe the trends in poverty and inequality for the last three decades and show that this thesis is not grounded in facts. The evidence shows that poverty, having substantially declined in recent years, is quite low by international standards and in comparison to pre-revolution years. Inequality improved significantly immediately after the Revolution but has remained relatively stable during the last 15 years. Significantly, poverty sharply declined and inequality decreased somewhat in the five years leading up to the election. Increased welfare of the poor over the period is also evident in access to basic services, such as electricity and safe water, as well as in ownership of household appliances. The wide gap between the evidence presented here, which shows improvement in the welfare of the poor, and popular sentiments in Iran, which indicate worsening poverty and inequality, raises important questions about the political economy of redistribution in Iran. I suggest that in the context of a distributive economy such as Iran's, in which wealth accumulation is seen to depend more on political access than individual productivity, more subjective feelings of envy and fairness may matter more than objective indicators of poverty and inequality.

*Please send comments to salehi@vt.edu. An earlier version of this paper was presented at the Third Annual World Bank Conference on Inequality, Washington D.C., June 5-6, 2006. I wish to thank for comments and encouragement Hojat Ghandi, Farrukh Iqbal, Branko Milanovic, Javad Shirazi, and Vijayendra Rao; for able research assistance Marenglen Marku; and for access to survey data the Statistical Center of Iran. All errors that remain are mine.

1 Introduction

The unexpected landslide victory of Mahmoud Ahmadinejad in Iran's presidential election in 2005 has been attributed to voters' concern with poverty and economic injustice.¹ His populist platform promising a more equitable distribution of the oil wealth—"take the oil money to people's dinner table"—appears to have resonated more widely with voters than calls for democracy from his better known reformist rivals. Since his election, president Ahmadinejad has moved quickly to solidify his political base into a wider social movement which is being described as "the second wave" of the Islamic Revolution. Many observers attribute Ahmadinejad's ascent, in the words of one commentator, to "frustration with widening income gaps" and widespread poverty which "propels Iran toward extremist politics."² The shock of Ahmadinejad's election has shifted conventional wisdom on the roots of political discontent in Iran away from lack of democracy to poverty and inequality. Populism can feed on poverty and inequality, but in the case of Ahmadinejad in Iran, the premise for the claim simply does not hold: there is no evidence that the poor have lost ground in recent years, that the Revolution has generally failed its most ardent supporters—the poor, nor that inequality has been on the increase.

Attributing the revival of populist politics in Iran to rising poverty and inequality raises important questions about the impact of the Islamic Revolution on the poor who formed its social base. The revolution's leader, Ayatollah Khomeini, repeatedly declared that the revolution belonged to the disinherited (*mostazafan*) and the barefooted (*paberehnegan*), and promised large scale redistribution of income and wealth (Behdad 2000 and Saeidi 2001).³ However, populist politics seemed lost color as the war with Iraq ended and economic and political reform under the Rafsanjani (189-1996) and Khatami (1997-2004) administrations

¹Michael Ignatieff, "Iranian lessons," *New York Times*, July 17, 2005; Abbas Milani, "Regime change", *Wall Street Journal*, October 31, 2005; Amuzegar (2005), Ghamari (2005), and (Sazgara 2006).

²Afshin Molavi, *New York Times*, November 3, 2005.

³The Constitution of the Islamic Republic of Iran is quite explicit in committing the government to provide for the poor. Article 29 considers it a person's right to have access to "social protection in retirement, unemployment, old age, disability, . . . , which the government is committed to provide."

gradually shifted the social agenda from distribution to growth. It has been suggested that the return to the populism of the early years of the Revolution under Ahmadinejad is in part a rejection of the economic reform programs of the previous sixteen years (Ghamari 2005) or of emphasis on reform in general over poverty reduction. Does this imply that the Revolution has failed to deliver on its promises to the poor or that inequality has worsened with economic growth? In this paper I examine the record of the past three decades using extensive survey data to determine how poverty and inequality have changed since the 1970s.

My findings question conventional wisdom that poverty and inequality are the root cause of economic discontent in present day Iran or of the recent rise in populism. The evidence shows that poverty has declined substantially compared to the years just before the Revolution, and, significantly, most of the decline has occurred during the the past 15 years when reforms have been under way. The poverty rate (defined as the proportion of individuals under \$2 per day) has been in the single digits in the last several years, which is quite low by the standards of developing countries, and one-eighths its rate before the Revolution. Inequality fell immediately after the Revolution but has remained steady for the past two decades. Interestingly, populist economic policies of the 1980s appear to have failed to shield the poor from the ravages of the war and collapse of oil exports in the 1980s. Both poverty and inequality deteriorated in the 1980s. But perhaps the most gain in the quality of life for the poor has been in access to basic services, such as electricity and safe water. These improvements in welfare are closely related to improvements in health, fertility, and education outcomes which have been documented elsewhere (Mohammad Jalal Abbasi-Shavazi and McDonald 2002, Hoodfar and Assadpour 2000, Salehi-Isfahani 2005).

Shifting priorities and changing policies during the nearly two and a half decades of Islamic rule has made it difficult to conclude, for voters as well as for researchers, how to assign credit for gains by the poor. The Islamic Revolution no doubt played a role. The overthrow of monarchy in 1979 happened with enough force to disturb existing social and

economic relations. Wide ranging expropriation and nationalization in the name of the poor helped qualify the 1979 change of regime as a social revolution.⁴ Pro-poor policies such as rural electrification and rationing of a wide range of commodities were implemented during the first decade of the Revolution, in part to help mobilize large numbers of volunteers, mostly from poorer neighborhoods, to fight in the war with Iraq. Direct assistance to the poor through a network of semi-public charities, the largest of which is the Komiteh Emdad, was also effective in poverty reduction (Esfahani 2005). Perhaps the most lasting influence of the Revolution has been to move the Iranian social contract closer to the special brand of Middle Eastern populism which Yousef (2004) has called the “interventionist-redistributive social contract” (see also World Bank 2004). In terms of benefits for the poor, though there were some immediate improvements in poverty (see below) and the distribution of income (Behdad 1989), there is little evidence that the Revolution improved the lot of the poor during its first decade (Nowshirvani and Clawson 1994).

The economic reforms which were put in place after the war rolled back some distributional policies of the early years of the revolution, notably dismantling the commodity rationing system, but stopped short of reducing the considerable level of social protection offered through subsidies and the labor market. The reforms on the whole encouraged private enterprise, but failed to significantly privatize the economy. In particular, they did not affect the semi-public agencies that provide social assistance to the poor that sprang up after the Revolution (Esfahani 2005). But perhaps the most effective anti-poverty program of the Rafsanjani administration was the ambitious rural health and family planning program, which has earned high marks from international institutions (Hoodfar and Assadpour 2000). Rising oil income has also played a key role in lowering poverty, especially since 1999, when the economy has grown by about 5 percent per year thanks to rising oil prices. Oil-induced growth in post-revolution Iran appears to have been good for the poor, lifting many out of poverty and even increasing their share in income.

⁴For a description of expropriation and interventionist policies in the early years of the Revolution see, Behdad (1989) and Nomani and Behdad (2006)

I rely on extensive survey data in unit records on household and individual expenditures for a thirty year period extending from before the 1979 Revolution to 2004. There are a few published studies of poverty and income distribution available in English, but none that cover the last ten years. Mehran (1975) and Pesaran (1976) analyze the distribution of income in the 1970s, and Behdad (1989) and Nowshirvani and Clawson (1994) in the 1980s. Assadzadeh and Paul (2004) analyze changes in poverty during 1984-1993, but there are no studies to my knowledge of the extent of poverty for the period before the Revolution. There are a number of papers in Persian on poverty and inequality, but because they employ varying methodologies and reaches widely different conclusions, they have failed to present us with a consistent picture for the post Revolution period. The government which collects and publishes an enormous amount of survey data, such as those used in this paper, has not measured or tracked poverty systematically. It has only recently started to publish an official poverty line. As a result, widely varying poverty rates are quoted inside and outside Iran inhibiting the development of a useful public debate in Iran.⁵

The plan of the paper is as follows. The next section discusses the trends in national output per head and in personal incomes and expenditures. This section uses widely available macroeconomic data and household survey data to show that economic well being has, on average, been restored to its pre-Revolution level. This finding provides the context for comparisons of poverty and inequality in later sections. Section 3 provides an international comparison of poverty and inequality to show that Iran's position relative to its peers is quite favorable. Low poverty rates and average inequality rates question the a direct link between Iranian populism and economic injustice as it has been argued for Latin American countries. Section 4 discusses the trend in poverty, and section 5 traces the same for inequality. Section 6 shows the extent of access to basic services such as safe water and electricity, and ownership of home appliances. Section 7 discusses the implications of the

⁵See, for example, Raisdana et al. (2000) and Amuzegar (2005). Published poverty rates in official sources in English also vary widely, ranging from 7.2% in World Bank (2005), to 20% in United Nations (2003), and to 40% in Central Intelligence Agency (2005).

findings in view of the importance of distributional issues in Iranian politics.

2 The rise and fall of the standard of living in Iran

The 1979 Revolution broke a twenty-year long period of rising living standards, making the post-Revolution economic decline seem like an unprecedented disaster. During 1960-77, GDP per capita grew at 6.6 percent per year, allowing it to treble in just one generation.⁶ By 1988, after the post-Revolution chaos, the 1980-88 war with Iraq, and the oil price collapse of 1986 had worked their way through the economic system, GDP per capita was only one-half of its 1977 level. Fifteen years later economic growth had brought incomes back to their pre-Revolution peak.

Figures 1 and 2 depict the rise and fall of incomes during the 1955-2004 period.⁷ As these figures show, economic decline came in at least two stages, marked by different but closely timed events. First came the disruptions following the 1979 Revolution itself. These began with worker strikes in 1978 and continued for several years afterwards with nationalizations of banks and large enterprises and disruptions in worker-management relations (Bayat 1987, Behdad 1989, Amuzegar 1993). A year and a half later came the Iraqi invasion of Iran, which lasted for eight years and wrecked the local economy in south-western Iran, caused major damage to productive infrastructure in other places in the country, and disrupted oil production and exports. Finally, the oil price collapse of 1986 reduced the price of Iran's main export to one-third, effectively ending the oil price boom that had started a dozen years earlier in 1973. According to all three series, per capita GDP reached its peak before

⁶I use a single Georgian calendar year to refer to the Iranian year which begins on March 21 of that year and ends on March 20 of the following year.

⁷ Figure 1 uses national income data from three sources, Penn World Tables (Summers, Heston, and Aten 2002), World Development Indicators (WDI) World Bank (2005), and the Central Bank of Iran (CBI). The first two series correct for differences in the cost of living between Iran and the United States by using Purchasing Power Parity (PPP) exchange rates. They are both expressed in constant prices (1996 for Penn and 2000 for WDI). GDP per capita and private consumption which are from CBI are in constant 1997 rials. The WDI and CBI series track each other very closely, while the Penn series shows higher GDP per capita in the 1990s. Figure 2 is based on survey data. See Tables 6 and 7 in Appendix B for the data used to produce these graphs.

the Revolution in 1976, at \$7976 international dollars (WDI series, 2000 prices).⁸ By the end of the war in 1988, it had fallen to \$4156, a decline of 48 percent compared to its peak in 1976 and about where it had stood twenty years earlier. By 2004, economic growth which started after the end of the war had brought GDP per capita back to \$6983, which is where it was in 1975 according to WDI series.

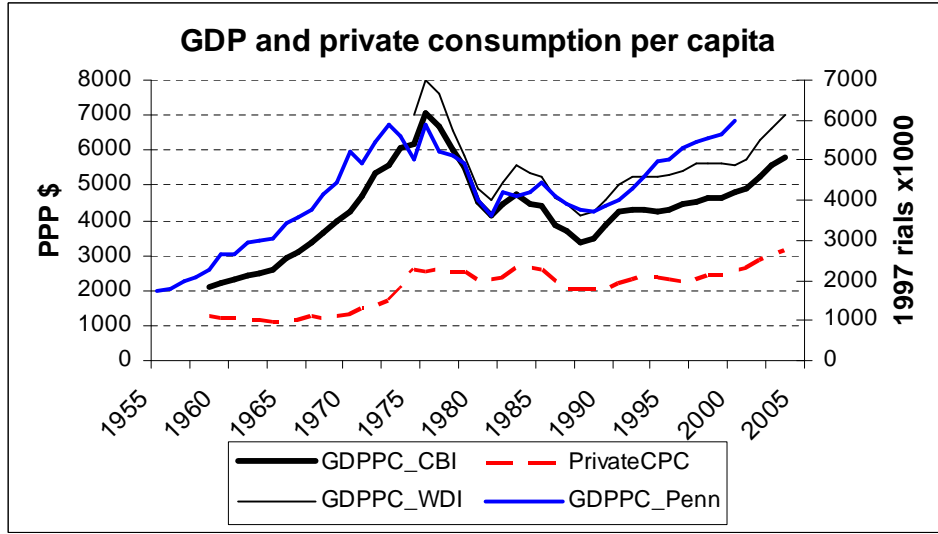
From the viewpoint of the national economy, the extent of economic decline is breathtaking, especially considering the rapid pace of growth that it reversed (Figure 1). Reversals of fortune of this magnitude in such a short period are rare in modern history. However, from the viewpoint of private consumption (Figure 1) or household income and expenditures (Figure 2), the rise and fall of living standards appears much less dramatic.⁹ Private consumption (according to national income data) grew at 4.5 percent between 1960-77, which is about 2 percentage points less than GDP per capita, but was down by only 23 percent in 1988 compared to its peak in 1977. Growth of per capita consumption during 1997-2004, at 4.6 percent per year, compares well with the 1960-77 experience. By 2004, per capita consumption had surpassed its level in the 1970s and GDP per capita was near its peak in 1977, while poverty was lower in 2004 compared to 1977.

Three points are worth noting based on the evidence presented in this section. First, with no increase in GDP per capita, a lower poverty rate in 2004 compared to 1975 is evidence of improvement in the relative standing of the poor if not of overall equality over the last 30 years (more on this later). Second, despite the recovery of GDP per capita and private consumption in recent years, the memory of the harsh times of the 1980s continues to haunt many Iranians. This is reflected in exaggerated comparisons of pre- and post-Revolution living standards, a favorite pastime for middle class Iranians, which appears in

⁸To compare the actual levels indicated for 1976 by the different series we can convert them all to 2000 prices using PPP inflation rates in World Bank (2005): \$6313 for Penn, \$7,976 for WDI, and \$8072 for CBI (7,051,200 rials divided by the PPP exchange rate of 917 for 1997 and multiplied by 1.05 inflation factor between 1997-2000).

⁹Household expenditure and income data are taken from the annual Household Expenditure and Income Surveys (HEIS) conducted by the Statistical Center of Iran. Because their reports are published separately for rural and urban areas, I have not produced the average for the country as a whole.

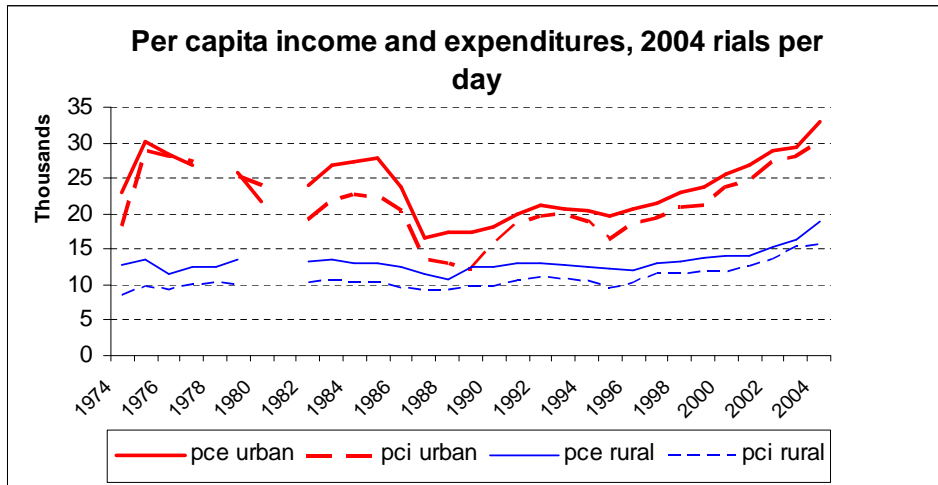
Figure 1: GDP per capita according to different sources of data, 1955-2005



Notes: Left axis: GDPPC_Penn (GDP per capita, RGDPCH, Penn World Tables Mark 6.1, 1996 PPP US dollars), and GDPPC_WDI (World Bank, 2000 PPP US dollars). PPP dollars correct for differences in purchasing power between Iran and the United States. Right axis, GDPPC_CBI (Central Bank of Iran, thousand 1997 rials), PrivateCPC (private consumption per capita, thousand 1997 rials). See also footnote 7.

Sources: Summers, Heston, and Aten (2002), World Bank (2005), Central Bank of Iran, *Annual Report*, various years.

Figure 2: Average real daily per capita expenditures, 1974-2004 (2004 rials)



Notes: Average household expenditures divided by average household size and converted to 2004 prices using the consumer price indices for rural and urban areas.

Source: Statistical Center of Iran, HEIS reports, various years.

accounts of visiting journalists.¹⁰

Third, as Figure 2 shows, the rural economy has been remarkably insulated from the fluctuations in the rest of the economy.¹¹ While the urban economy was on the roller coaster ride of boom and bust, the average rural family did not directly experience the great boom of the 1970s nor the big crash in the 1980s. Their loss in terms stagnant incomes for an entire generation (1974-2000) is nevertheless quite severe. Positive movement in rural consumption started to appear in the mid 1990s when per capita consumption first started to crawl up and then, between 1999-2004, it accelerated. During this period, which corresponds to the Third Development Plan, rural consumption grew at par with urban consumption, at 6.7 percent per year. Despite parity in terms of growth in recent years, over the longer period since the end of the war the gap between rural and urban areas has widened. The gap tends to narrow during periods of economic decline, as in the mid 1980s, and widen with growth, as in the period since the end of the war. The ratio of rural to urban consumption reached its lowest value of 0.45 in 1975, a year of maximum prosperity, and its peak in 1989, a low point in the last thirty years. The ratio has fluctuated round 0.5 in recent years. The widening of the gap during period of growth may be because more able rural workers migrate to cities, leaving behind the old and the less well off families. Since the rural-urban gap is one of the most important sources of inequality, reduction in overall inequality in the country may not happen until rural incomes catch up.

3 International comparison of poverty and inequality

The economic despair reported in press accounts of Iran and noted above is quite at odds with how Iran compares with other countries in terms of poverty and inequality. It appears

¹⁰According to one report, “in real terms, Iranians earn *one-fourth* of what they did earn [before the 1979 Revolution]” (emphasis added), Afshin Molavi, “Economic Ills Fuel Iranian Dissent,” *The Washington Post*, July 8, 2003, A. 13. Another report lowers the decline to one-third, “Today, real per capita income is a third of what it was before the Revolution” (Molavi 2004), and still another account lowers it to one-half, “income today is less than half the prerevolutionary level.” (Sazgara 2006)

¹¹It is partly for this reason that in this paper, where possible, I present consumption expenditures for rural and urban households separately.

that the dramatic economic swings of the last three decades that have dealt a serious blow to the aspiration of middle class Iranians have left the poor in Iran in a respectable position compared to other developing countries. Comparisons of poverty levels are more difficult than inequality because there are no satisfactory ways to compare living standards, and therefore poverty thresholds, across countries whereas objective statistical yardsticks to compare level of inequality exist. Reported poverty rates (proportion living in poverty) for Iran vary greatly because different authors and institutions define different levels for the poverty line. For example, United Nations (2003, 6) reports that 20 percent of Iranians lived under poverty in 2003, which is a fair statement given the poverty line they assume: about 8800 rials (\$3.60 in international dollars) per person per day, which is quite a bit higher than the one and two dollars per day commonly used for international comparisons. World Bank (2005) reports poverty (and inequality) measures for a number of countries, including Iran, using the standards of \$1 and \$2 per person per day. Table 1 compares poverty and inequality in Iran with a number of countries of interest: Egypt and Turkey, the two other large countries in the Middle East besides Iran; Mexico and Venezuela, two oil exporting countries from Latin America; China, India and Pakistan, poorer but fast growing countries of Asia; and Malaysia, a predominantly Muslim country with a dynamic economy. The data are for 1998-2001, the closest neighboring years for which comparable data were available.

In terms of poverty, Iran compares well with the countries in this table. The proportions of individuals under \$2 per day is 7.2 percent in Iran, which is lower than Malaysia, Mexico and Turkey, whose average incomes are the same or higher than Iran's. Not surprisingly, Iran's poverty rate is considerably lower than the poorer countries of China, Egypt, India, and Pakistan. In terms of inequality, as measured by the Gini index, Iran is about average (0.43) for this group of countries. The poorer countries of Egypt, India, and Pakistan have lower inequality (0.30-0.35), but Iran's index is lower than countries with similar income (0.49 and 0.54 for Malaysia and Mexico) except for Turkey (0.40). In short, following a

Table 1: International comparison of poverty and inequality

Country	GDP PC in 2003	Poverty rate % under \$2	Gini index
Iran	6608	7.2 (1998)	43.0 (1998)
Egypt	3731	43.9 (1999)	34.4 (2000)
Turkey	6398	10.3 (2000)	40.0 (2000)
China	4726	50.1 (1999)	44.7 (2001)
India	2732	80.6 (1999)	32.5 (2000)
Pakistan	1981	65.6 (1998)	33.0 (1999)
Venezuela	4647	30.6 (1998)	49.1 (1998)
Mexico	8661	26.3 (2000)	54.6 (2000)
Malaysia	8986	9.3 (1997)	49.2 (1997)

Note: GDP per capita is in constant 2000 international (PPP) dollars, and the poverty rate is the percentage of individuals living under \$2 per day.

Source: World Bank (2005).

tumultuous post-revolution period, judged by the standards of this group of developing countries, Iran's poverty rate is quite low and its inequality is about average.

4 Poverty

4.1 Defining a poverty line for Iran

The literature on the meaning and measurement of poverty is extensive and contentious (Bhalla 2002), and extends beyond economics (Sen 1999). It is generally agreed, however, that measures of poverty based on what individuals spend on their livelihood serve an important purpose in monitoring of poverty. Poverty thresholds based on surveys of individual income and expenditures therefore form the mainstay of poverty measurement. In this section I compute such thresholds using household expenditure data.¹² In section 6 I consider the extent to which the poor have benefited from increased access to basic services which influence the quality of their life over and above what they spend on themselves.

Following accepted practice, I measure poverty using a poverty threshold based on ex-

¹²For a description of the data see Appendix A.

penditures reported in household surveys. Estimates of household expenditures are generally preferred to income because personal incomes are recorded less accurately. Measurement of farm income and the self employed in the informal sector difficult and, in addition, individuals maybe unwilling to disclose their incomes if they identify interviewers as tax officials. Expenditures are on the other hand calculated from answers to numerous questions related to specific items which do not directly reveal a person's income. I use a poverty threshold (or poverty line) based on the level of expenditures per person for an average household whose food outlays allows each member to consume a minimum level of calories per day (about 2200). This is the basic approach which has been used in Iran by Pajouyan (1994), Tabibian (2000), and Salehi-Isfahani (2003), among others. The poverty line is thus measured by the average expenditures for a group of households whose food intake amounts to about 2200 calories per day (see Table 2). A closely related method, employed by Assadzadeh and Paul (2004), calculates the cost of a given minimum nutritional bundle at current market prices and augments it by the proportion of non-food expenditures at the sample mean.¹³

Studies that measure poverty in Iran use the Household Expenditure and Income Surveys collected every year by the Statistical Center of Iran.¹⁴ These surveys ask households about their expenditures in the last 30 days or the last 12 months, depending on the type of expenditure, but do not ask about consumption. The difference between expenditure and consumption can be large, especially for some rural households who buy their food in bulk at harvest time.¹⁵ Table 2 compares various estimates of poverty lines in rials per person per day (to convert to international dollars, divide by the PPP exchange rate rials given on the last row of the table). The estimates from each source is for a specific year, which I have

¹³There is no best way to calculate non-food expenditures that correspond to a minimum calorie bundle. See Ravallion (1992) for a survey of methods for measuring poverty thresholds using food and non-food expenditures.

¹⁴See Appendix A for a description of these surveys.

¹⁵In 2001, about 24 percent of rural families bought more than 500 kilograms of grain in the month of interview. So, in that month the mere purchase of this amount of grain may have placed them above the poverty line, even if they were in fact poor if the expenditure were annualized (Salehi-Isfahani 2003).

Table 2: Various poverty lines for selected years (per person per day, in current rials)

	1977	1984	1989	1994	1999	2004
Urban						
MPO	75.8	210.4	535.7	1444.5	4327.4	4996.4
Assadzadeh & Paul	95.6	265.2	675.5	1824.9	5456.8	7678.6
Tabibian	85.2	236.4	603.3	1627.5	4864.2	5446.2
Pajouyan	66.4	184.3	468.2	1396.4	4819.4	5775.7
Salehi-Isfahani	73.9	205.0	521.6	1406.0	4204.4	5805.5
Rural						
MPO	42.4	122.3	311.1	837.8	2504.8	8625.6
Assadzadeh & Paul	67.4	194.2	430.5	1160.4	3869.0	10885.7
Tabibian	47.6	137.5	304.8	823.4	2739.6	9707.2
Pajouyan	50.5	145.6	323.6	1049.7	2795.5	7547.4
Salehi-Isfahani	50.9	146.5	325.2	881.1	2929.7	8401.4
PPP exchange rate	32.4	89.9	157.1	481.5	1118.2	2775.3

Note: Estimates of poverty lines were extended to other years using the CPI's for rural and urban areas. The PPP exchange rate for 1977 is not available the 1984 rate
Sources (and the year for which the estimate was made): Management and Planning Organization (2000), 1998; Pajouyan (2000), 1995; Tabibian (2000), 1996; Salehi-Isfahani (2003), 2001.

extended to other years using the consumer price indices for rural and urban areas. There is a fair amount of agreement among these estimates of poverty threshold and in later years they generally exceed the \$2 per person per day which is the international benchmark. In section 4, to economize on space, I use only the \$2 per day and the Assadzadeh-Paul rates; the former because it is an international benchmark, and the latter because it represents the upper bound on poverty threshold in Table 2 and because its source is published in English.

4.2 Household vs. individual level poverty rates

The purpose of most poverty measurement is to determine the proportion of individuals below a certain level of per capita expenditures or income. In Iran poverty rates are often defined as the proportion of households below a household poverty threshold, which tends to overestimate poverty at the level of the individual, because households with lower expenditure and incomes are generally smaller than average (see Table 3). Household level poverty

Table 3: The relationship between household size and household expenditures

Decile of expenditure	Household size		
	1984	1994	2004
1	2.70	3.11	2.98
2	4.47	4.72	3.88
3	5.02	5.09	4.27
4	5.47	5.27	4.42
5	5.68	5.51	4.55
6	5.76	5.58	4.61
7	5.83	5.63	4.74
8	5.91	5.80	4.65
9	5.91	5.77	4.77
10	6.04	5.89	4.63
Total	5.28	5.24	4.35

Source: Author's calculations, HEIS

rates further complicate interpreting the trend in poverty because the relationship between household size and expenditure class in Iran has changed over time. As seen in Table 3, average household size in the poorest three deciles of household expenditures rose during 1984-94 before declining to 2004, while it declined continuously for richer households.

For 1984 and later years when unit record data are available,¹⁶ individual-level poverty rates are easily calculated. For earlier years, for which I have to rely on the published survey results, whenever the distribution of household size by expenditure or income group has been reported, I have used the information to estimate individual poverty rates. Furthermore, because the poverty lines I use do not necessarily correspond to the expenditure thresholds in the published results, I estimated poverty rates by assuming a linear relationships between the number of individuals within an expenditure category and the level of expenditures.

The results are presented below in Figure 4 and in Table 9 in Appendix B.

¹⁶Assadzadeh and Paul (2004) identify their first expenditure survey as 1983, but to my knowledge the 1983 survey is not available in unit record and from the sample characteristics it seems that they are actually using the Iranian year 1363 (1984/85) survey.

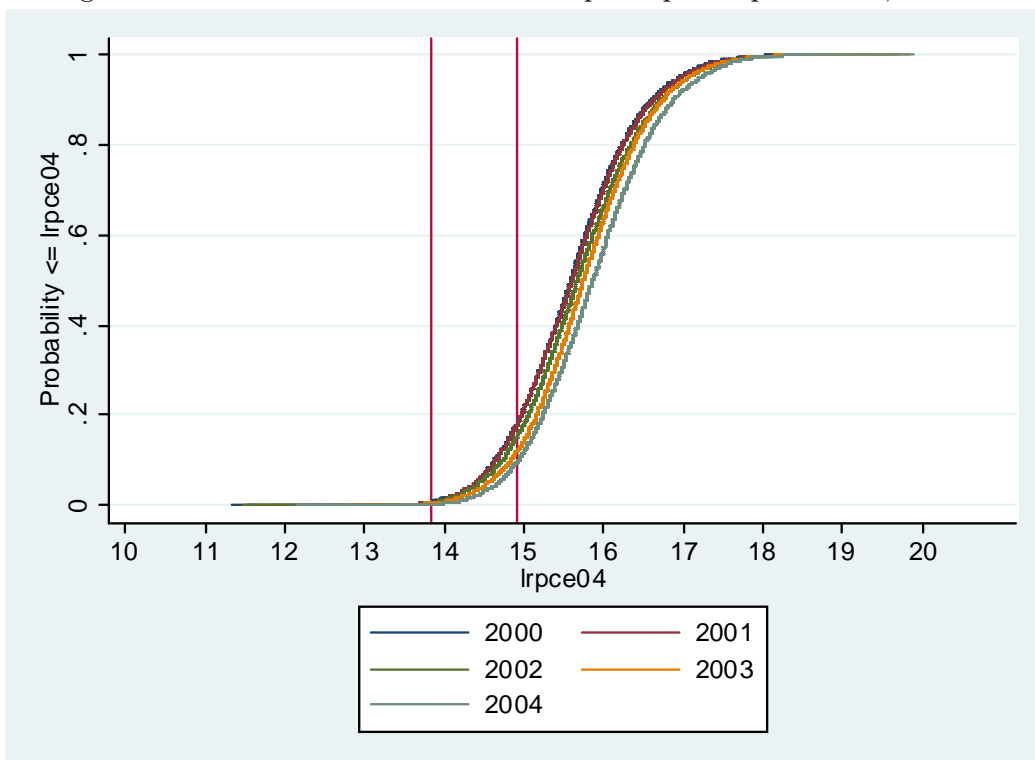
4.3 The trend in poverty

Measuring changes in poverty is fortunately much less contentious than measuring it for a given year. All poverty indicators based on HEIS surveys reveal the same trend because the relative position of the cumulative distributions of expenditures for different years are generally characterized by stochastic dominance. Thus, any poverty line applied consistently to all years would show the same trend. To see this, consider the distributions of per capita expenditures depicted in Figure 3 for the most recent years, which is a period of economic growth. The vertical poverty lines show the poverty rates (the so-called Head Count Ratio) by the vertical height of the distribution functions, which is the proportion of individuals with expenditures below that level. Because the distribution functions do not intersect (stochastic dominance) and are positioned to the right for later years, no matter where we place the poverty line, the Head Count Ratio declines over time. This graph also shows that the proportion of the population under poverty is adequate for describing the trend in poverty. More complex indices, such as the poverty gap index, which are more sensitive to the depth of poverty and changes in the lower tail of the distribution and are therefore generally preferred to the Head Count Ratio, would tell the same story of change in poverty over time. This is because the shape of the expenditure distribution function at the lower tail has remained relatively constant over time.

As noted earlier, to track changes in poverty over the 1974-2004 period I use the standard \$2 per day rate converted to rials at the PPP exchange rate for each year, and the poverty line for 1994 used in Assadzadeh and Paul (2004)—henceforth AP—and generalized to other years using the consumer price indices for rural and urban areas.¹⁷ These poverty lines represent the two extremes in Table 2, but once extended to the 1970s they switch sides. A major difference between the two thresholds is that the \$2 per day is the same for rural and urban areas, whereas AP allows for different rates. Neither measure of poverty fully takes into account the effect on poverty of subsidies for food, energy and medicine,

¹⁷See Chen and Ravallion (2001) for a discussion of this methodology.

Figure 3: Cumulative distribution of real per capita expenditures, 2000-04



Notes: Per capita expenditures are in logs of 2004 rials. Source: Author's calculations using Household Expenditure and Income Surveys for 2000-04.

which account for an important part of the poor's expenditures. Subsidies are only partly reflected in my calculations of poverty rates because I deflate nominal expenditures with the Consumer Price Index, which is optimized for the basket of goods purchased by the average consumer. Since the poor spend a greater proportion of their incomes on subsidized goods, my calculations may under-estimate the decline in poverty. This is contrary to the usual argument that contends that inflation adjustments would show greater poverty (Amuzegar 2005).¹⁸ I checked for the sensitivity of the results by deflating instead with price indices for food and clothing, which may be closer to the inflation experienced by most poor families. Because the food and overall CPI are closely correlated, the results did not change.

Figure 4 shows the Head Count Ratio for the period 1977-2004 for households and individuals and for rural and urban areas (the actual numbers are in Tables 8 and 9 in Appendix B). The top two graphs show the proportion of households and the bottom graphs show the proportion of individuals below poverty according to each definition of poverty.¹⁹ The trends in all four graphs are similar, showing decline in poverty immediately after the Revolution, followed by a sharp rise in the latter half of the 1980s, and declining thereafter.²⁰

In 1977 about 28 percent of urban households and 25 percent of urban individuals were below poverty, according to both AP and \$2 poverty lines. For rural households the proportion was 43 percent according to AP and 66 percent according to the \$2 poverty line, and for rural individuals 43 and 60 percent, respectively. For the early years of the

¹⁸The argument that the poor have been squeezed hard by inflation is not supported by the evidence. In addition to direct evidence of rising incomes presented in this paper, we notice that rising real income has allowed the poor to diversify their expenditures, in particular to spend more on non-food items. For the lowest decile of per capita expenditures, the share of non-food expenditures in total household expenditures has increased steadily during the period under study, from 40 percent in 1984 to 44 percent in 1994 to 50 percent in 2004.

¹⁹As noted earlier, the household rates are directly taken from SCI publications. For example, in 1977, SCI reports 64 percent of households spent under 15,000 rials per year, which is about \$2 per day using the PPP rate of 46.5 rials per dollar and the reported average family of 5.43 for this expenditure group. The lower individual poverty rate of 59 percent for 1977 is because poorer households were smaller in size.

²⁰The \$2 poverty line yields higher rates in the 1970s compared to AP but lower in later years. The reversal has to do with the way the PPP exchange rate (which drives changes in rial value of the \$2 poverty line) varies relative to the Consumer Price Index (which drives changes in the AP line).

Revolution measurement of poverty rates is less precise because expenditure surveys were not conducted in some years (no urban survey in 1978, and 1981-83, and no rural surveys in 1979-81 and 1983), and the poverty rates reported here are reconstructed from tabulated rather than micro data. Household-level poverty rates show uniform decline between 1977-1982, but individual-level rates are less clear and less pronounced. According to the \$2 poverty line in 1982 individual-level rural poverty had declined to 40 percent from 59 percent in 1977, but according to the AP poverty line it was only 9 percentage points lower, and even slightly higher compared to 1978.

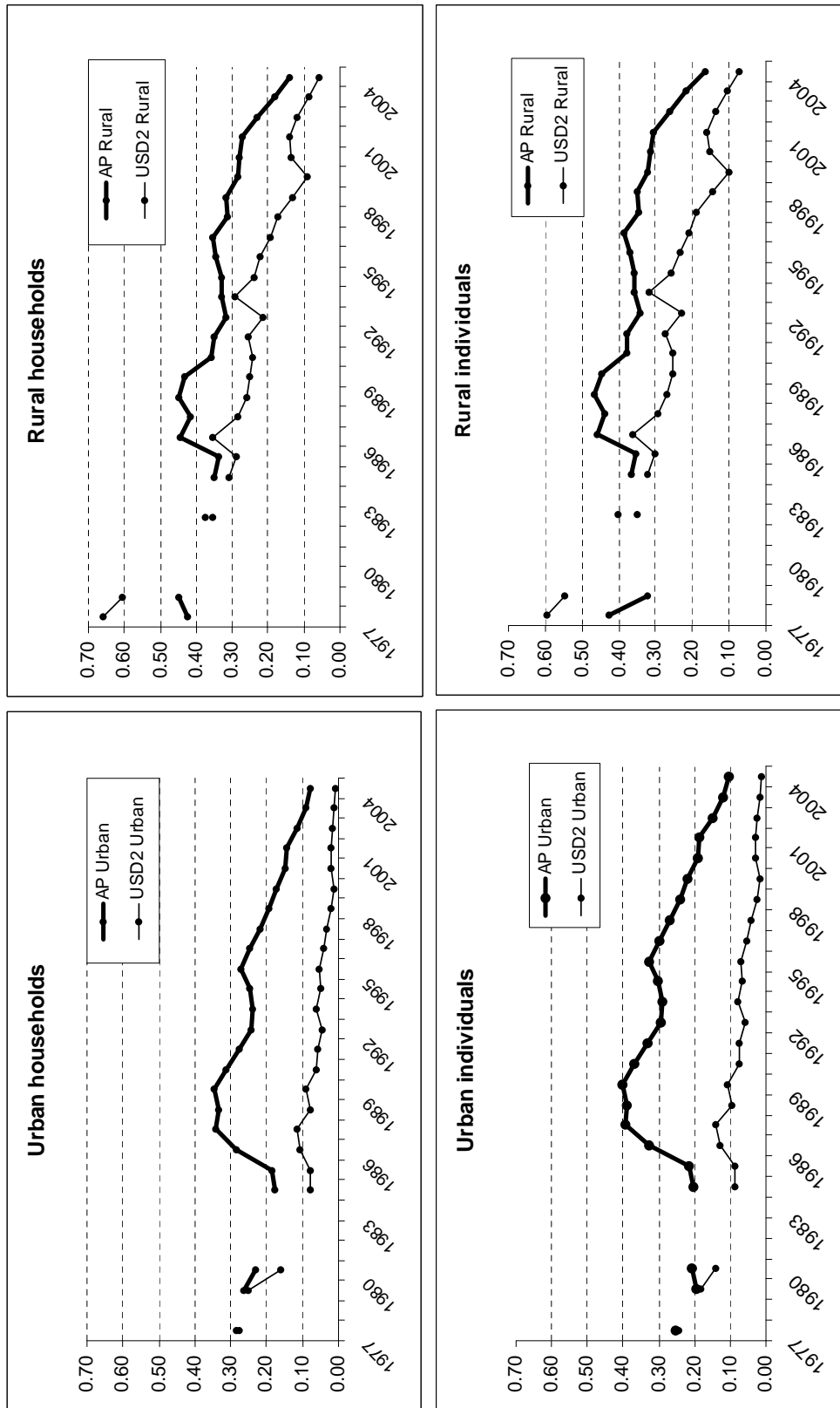
Poverty rates rose sharply in the mid 1980s as incomes plummeted with the intensification of the war with Iraq and the collapse of oil prices (see Figures 1 and 2). According to the AP poverty line the rural individual poverty rate peaked at 47 percent in 1988 and urban poverty rate at 40 percent in 1989. Evidently, the wide ranging system of rationing intended to shield the poor against price increases and shortages was not sufficient to keep poverty from rising in the face of diminished resources. During the war years the government had instituted a wide ranging system of rationing for basic goods, which was informally extended to most commodities from refrigerators to construction materials, some of which were procured from centers located in mosques. One possible reason for the rising level of poverty in the mid 1980s may be accelerating inflation, rising from 7 percent in 1985 to 24 percent in 1986, pushing up the estimated poverty line.²¹ Another reason is that because of the nation's focus on the war effort, delivery of goods and services to the poor was still not a priority. The delivery of key basic services (roads, electrification, and health) to rural areas did not really take off until the war had ended.

With the end of the war in July 1988, the rising price of oil in international markets during the first Persian Gulf war of 1990-91 and the start of reconstruction in 1989 poverty began to decline, falling by one quarter by 1993. This decline was briefly interrupted in the

²¹A shift in the poor's expenditures toward rationed goods might have protected them. But since we only focus on expenditures deflated with CPI, we do not know to what extent such substitution helped allay their falling incomes.

mid 1990s as a result of an economic crisis precipitated by an external debt crisis (Pesaran 2000). However, poverty soon resumed its decline, falling to single digits in 2004. According to the \$2 poverty line, in 2004 of only 1 percent of urban individuals and 7 percent of rural individuals were poor; the rates according to the AP poverty line were about 11 and 17 percent. Thus, in 2004, according to the higher AP poverty line (about \$3.3 per person per day) about 12.7 percent of the population—8.9 million individuals—were poor, while according to the lower \$2 line only 3.3 percent or 2 million individuals were poor.

Figure 4: Proportion of individuals below poverty, 1977-2004



Notes: The USD2.00 per day poverty rate is converted to rials using the purchasing power parity exchange rates), and the AP line is based on Assadzadeh and Paul (2004). Source: and Statistical Center of Iran, Household Expenditure and Income Surveys, for 1977-83 based on SCI publications, and 1984-2004, author's calculations.

The trend depicted in Figure 4 has important implications for the political economy questions I raised in the introduction to this paper. First, the large difference between poverty rates in 1977 and 2004 is an indication that the Revolution has had a profound impact on the welfare of Iran's poorest families. Since per capita incomes in 1977 and 2004 were about the same, the lower poverty rate must be due to the effect of significant improvement in equality, at least at the lower end of the distribution. Overall equality, to be discussed below, shows improvement between 1977 and 2004, but it is far more stable than poverty. To the extent that the reduction in poverty is attributed to the pro-poor and pro-rural policies after the Revolution, one would expect that the Islamic regime has its supporters. The quality of life for millions of people, especially in rural areas, has improved significantly thanks to large scale investments in rural electrification, rural health, family planning and education that took place in the 1980s and 1990s (Shakoori 2001). Agricultural support prices after the war also helped to increase farm incomes (Mojtahed and Esfahani 1989), and subsidies for basic commodities protected the poor in rural and urban areas.

Second, these results question the suggestion that pro-market reforms during the Rafsanjani and Khatami administrations left the poor behind, and thus contributed to the reformists' electoral defeat in June 2005. As it happens, the largest declines in poverty coincided with periods of reform, suggesting that, to the contrary, reforms may have been good for the poor. The critics often point to rise in poverty during the mid 1990s as evidence that the pro-market reforms (often labeled as structural adjustment to give it a neo-liberal twist) were anti-poor. But poverty actually fell during the first Rafsanjani administration in 1989-94 and only rose after market reforms stalled, in part in response to the external debt crisis in 1993. Oil revenues were falling during the second half of the 1990s (oil prices in 1998 were only one-third their level in 1991) and, more importantly, imports were cut by half to manage the balance of payments crisis (Pesaran 2000).

Finally, the trend in poverty highlights the role of oil income in fluctuations in the incidence of poverty. With the exception of the 1996-99 period, when oil prices actually

fell, all other periods of decline in poverty coincided with rising oil prices. This is true of the 1990-92 spell, as well as the most recent decline during 2000-04, when rising oil prices helped the economy grow by about 5 percent per year, bringing poverty down sharply. In theory, the idea that rising oil income, as distinct from other types of macroeconomic stimuli, tends to reduce poverty is rather straightforward. Higher government expenditures increase aggregate demand, which disproportionately benefits non-traded sectors such as services and construction, which employ a significant proportion of unskilled workers and raises their wages. At the same time, the inflow of foreign exchange helps increase supply of traded consumer goods, especially food, and thereby prevent the CPI from increasing at par with nominal wages. Government subsidies for food, energy, and medicine help further to prevent inflation from eroding the purchasing power of the poor. It is indeed difficult to imagine how, with the vast system of subsidies in place, rising oil revenues could have led to the ranks of the poor in Iran to swell. The well-known phenomenon of immiserizing growth (Bhagwati 1958), which is sometimes associated with increased poverty happens because economic growth is associated with deteriorating not improving terms of trade. Thus, the insistence of many Iranian observers that poverty has been on the rise is in some cases a mere extension of the immiserizing growth hypothesis to the case of oil-exporting countries, to which the theory does not apply.²² If there is any transfer away from the poor as a result of an oil boom, it is from the poor in oil importing countries to citizens of oil exporting countries.

In this section I have focused on absolute (commodity based) poverty. Falling poverty rates based on absolute poverty lines do not necessarily indicate that over time fewer people are feeling poor. The feeling of being poor is often relative. So people may feel poorer even if they are gaining in absolute terms as long as they fall behind others. People may also fail to notice a decrease in poverty if their expectations are increasing. This is the reason why absolute poverty lines are revised upwards over time and why richer countries have higher

²²This view is prevalent among the Iranian Left. See the papers in Raisdana et al. (2000) for a sample of writings on poverty.

absolute poverty lines. However, as an objective measure of how welfare has changed in Iran the results of this section serve their purpose. Certain aspects of the subjective comparisons of welfare are better captured by changes in inequality rather than poverty, to which I now turn.

5 Inequality

Poverty is only one half of the twin explanation for the return to populism in Iran, the other half being rising inequality. The same policies that have helped reduce poverty do not necessarily reduce inequality. In this section I examine the evolution of inequality in the last three decades using two standard measures of inequality, the Gini index and the relative shares of the top 10 to bottom 10 percent. These measures of inequality are available only at the household level for the 1970s, so in the pre- and post-Revolution comparison I work with household level data. For 1984-04, when unit record data exists, I can present the preferred individual level measures of inequality.

The findings show that the Islamic government's success in poverty reduction does not extend to inequality. Poverty reduction, while an important achievement, is unsurprising when oil prices are rising and the economy is growing. Reduction in inequality is more complicated for inequality may worsen at times of growth, as it happened in 1970s Iran, when rising oil revenues seem to have favored the rich over the poor. Since 1984 inequality has been quite stable. The oil boom of 2000-04 has actually reduced inequality somewhat, which is significant for the populism thesis, and as contrast to the oil boom of the 1970s.

Economic growth in China and India has reduced poverty but has also made the distribution of income less equal. This is in line with Kuznets' famous generalization (Kuznets 1955, Milanovic 1994, Deininger and Squire 1996) which suggests that during the early stages of economic growth inequality worsens before it improves. The dynamic of Kuznets' curve depends on economic structure. In oil exporting countries, in addition to changes in

the distribution of productivity, the dynamics is related to access to the oil rent, which is in turn Economic growth under these circumstance may cause inequality to rise if related to the distribution of political power. The Islamic Revolution brought about a large shift in political power in Iran but there is no evidence that the distribution of political power changed as much. Even the two presidential elections in 1997 and 2005, which seemed to entail significant shifts in political power, may have been more of a reshuffling of those in power than a different distribution of power. The remarkable stability of inequality of income and expenditures in the last twenty five years lends credence to these conjectures.

5.1 Inequality of household expenditures

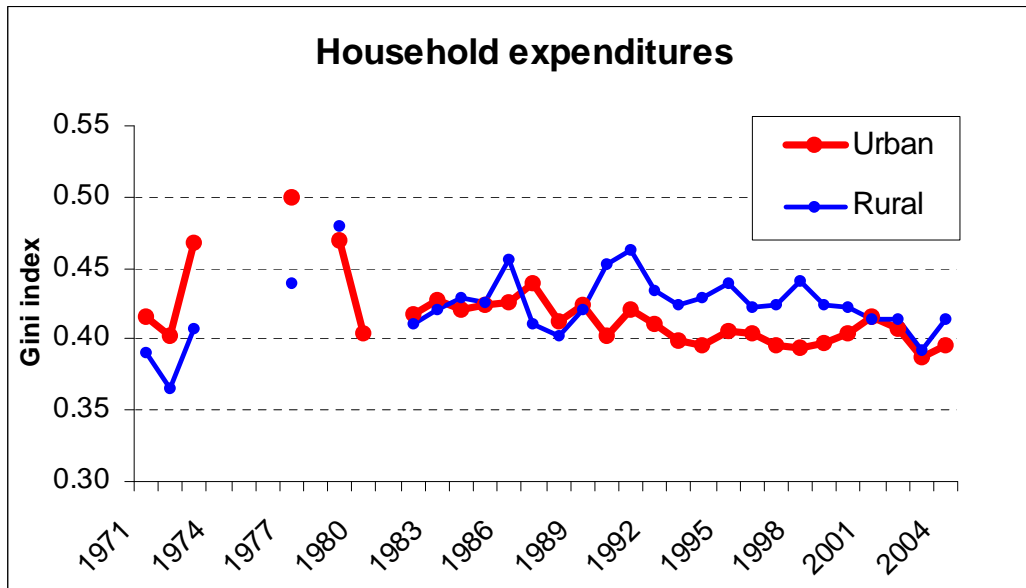
As just noted, to compare of pre- and post-Revolution inequality I have to rely on household-level measures because all published estimates of inequality for the years before 1984 are at the household level. A comparison based on expenditures per capita is preferable because it is not affected by changes in the distribution of household size by income.²³ After 1990 household composition in Iran started to change as fertility declined. A different demographic phenomenon may affect the accuracy of tracking inequality at the household level. Rural-urban migration in the 1970s added disproportionately to the number of younger and poorer families in urban areas, thereby reducing family size at the lower end of the urban expenditure distribution. This might explain why the distribution of expenditures is less equal at the household level than individual.

Figure 5 presents estimates of the Gini coefficient of inequality of household expenditures obtained from published studies for 1971-1983 and my own calculations from HEIS unit record data.²⁴ The largest shifts in the distribution of income in recent times took place

²³This difference seems particularly significant for rural areas: the estimated Gini coefficient for rural household expenditures in 1984, reported by Behdad (1989), is 0.43 which is significantly higher than what I have estimated from unit record data for *per capita* expenditures.

²⁴A frequent complaint against the use of HEIS data for measurement of inequality in Iran is that they underestimate income and expenditures at the higher end of the distribution. One could also think of the same happening at the lower end because the poor do not generally keep good records, so in balance the bias in inequality may not be that large. In any case, while estimates of inequality at a given point in time

Figure 5: The Gini index of inequality of household expenditures, 1971-04



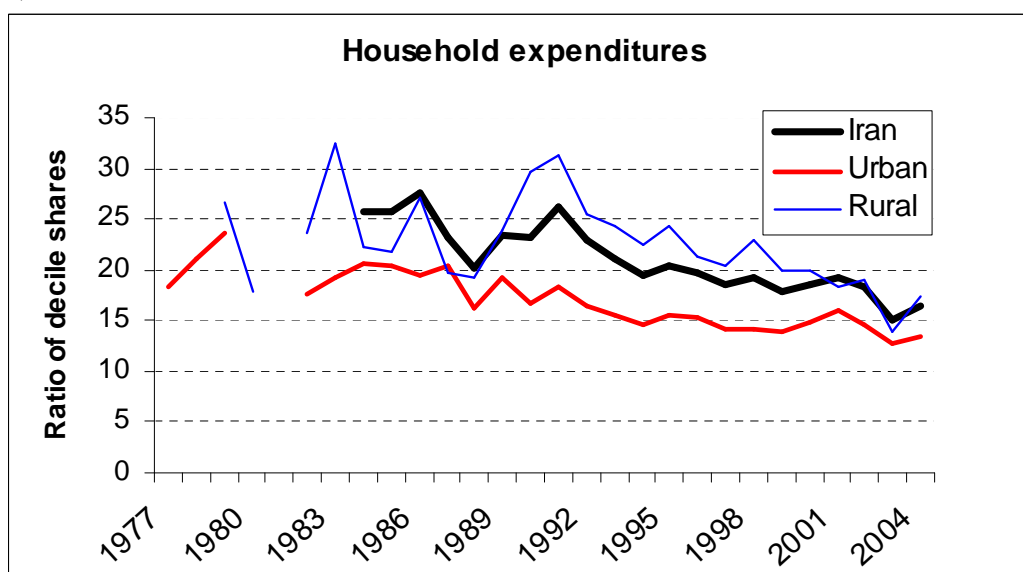
Source: 1971-73: Pesaran (1976); 1977-83: Behdad (1989); 1984-04: author's calculations using HEIS data files, various years.

before the Revolution, during the oil boom (Pesaran and Gahvary 1978). Between 1972 and 1977 the Gini index of inequality rose from 0.4 to 0.5 in urban areas and from 0.37 to 0.44 in rural areas. The Gini index declined immediately after the Revolution, to about 0.4 for both rural and urban areas (also noted in Behdad 1989 and Nowshirvani and Clawson 1994), but rose slightly in the 1980s. These changes in inequality mirror the fall and rise in poverty in the 1980s. Since the end of the war with Iraq household-level inequality has been relatively stable. Urban inequality which was higher than rural inequality before the Revolution, has been generally below rural inequality for the last twenty years. In contrast to the oil boom of the 1970s, which brought greater inequality, the latest oil-induced expansion of 2000-2004 did not change the level of inequality; if anything it seems to have lowered it.

A similar evolution of inequality at the household level is presented in Figure 6 which depicts the more intuitive measure of inequality, the ratio of the share of the top to the

 may be affected by measurement bias, the comparison over time is less affected because the method of HEIS data collection has remained the same over time.

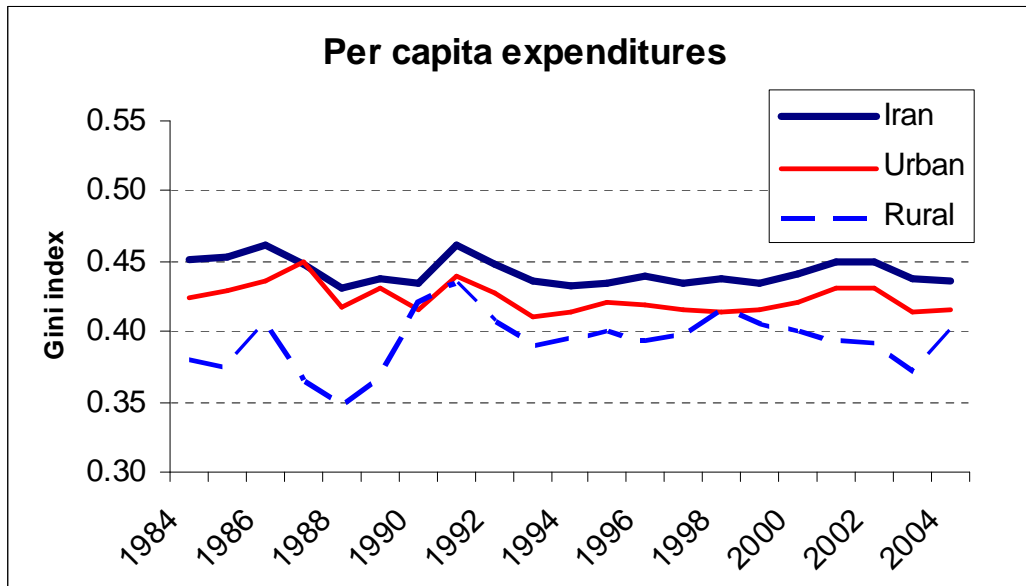
Figure 6: The share of the richest decile of household expenditures relative to the poorest decile, 1977-04



Source: 1977-83: Behdad (1989), 1984-04: author's calculations using HEIS data files, various years.

bottom 10 percent of the households (this measure is not available to push the comparison reliably to the early 1970s). The decile share ratio for urban households fell from over 28 to about 18 immediately after the Revolution, then rose to above 20 in the 1980s, before falling to below 15 in 2002. The ratio for rural households exhibits more variation compared to urban, fluctuating widely between 18 and 32 during 1977-1992, before declining to less than 20 in 2000. The rise of the ratio for rural households in the early reconstruction years, resulted in the largest contrast in inequality between the rural and urban areas in 1992, pushing the national ratio to over 25. The rise in rural inequality during the 1990-92, which is evident in both Figures 5 and 6, is consistent with the claims made by the critics of market reforms in Iran regarding the adverse consequences of reforms for inequality. However, other claims regarding increase in poverty and urban inequality in the later periods are contradicted by these data.

Figure 7: The Gini index of inequality of per capita expenditures



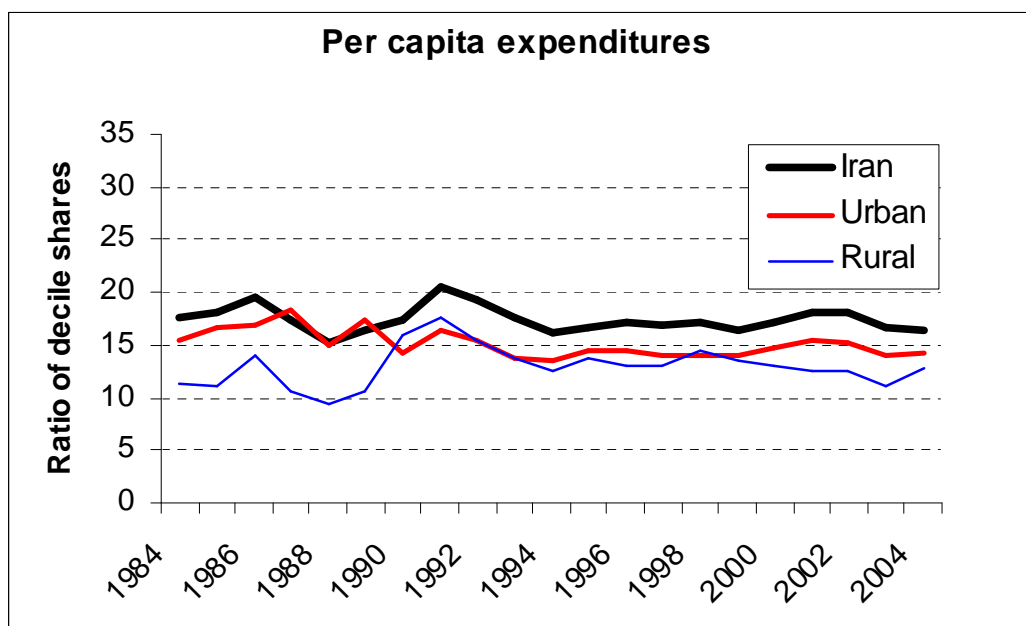
Source: Author's calculations using HEIS data files, various years.

5.2 Inequality of per capita expenditures

For reasons mentioned earlier, individual-level measures provide a more accurate picture of inequality. The Gini index of per capita expenditures for the 1984-04 period (Figure 7), is more stable than household-level expenditures seen above, showing little or no downward trend. The difference is consistent with the observation made earlier that in the last fifteen years poorer families have become smaller at a faster rate than richer families, resulting in lower inequality between individuals compared to households. The decile ratios for inequality of per capita expenditures also show more stability compared to household-level expenditures (Figure 8). Interestingly, in contrast to household-level inequality, individual level inequality indicates that urban inequality is *greater* than rural inequality for most of the period, especially in the last ten years.

A more direct way of showing how inequality among individuals has changed over time is to measure the growth rate of per capita expenditures (pce) for different deciles of pce.

Figure 8: The share of the richest decile of per capita expenditures relative to the poorest decile, 1984-04



Source: Author's calculations using HEIS data files, various years.

Table 4 shows that during 1984-2004 individuals in lower deciles have done well compared to those in higher deciles. Nationwide, the lowest deciles lost less in the downturn of 1984-89 and did no worse in the subsequent recovery of 1990-2004. However, the nationwide data hides divergent trends in urban and rural areas. For urban individuals, those in the lowest decile actually did much worse, losing nearly 9.3 percent per year during 1984-89, compared to the richer deciles. However, they did relatively better during the ensuing recovery, as well as in the entire 20 year period. In contrast, individuals in the lowest rural decile lost less than the average during the downturn (-2.2 percent per year) and gained significantly more during the next five years of recovery (4.4 percent). These observations conform to the point noted earlier that rural incomes have generally been more stable and more resistant to aggregate economic shocks. The very different consumption paths of the poorest decile in rural and urban areas during 1984-89 is an interesting observation that deserves further research.

Table 4: Average annual growth rates of real per capita expenditures (pce) by deciles of pce, 1984-2004

Decile	Iran					Urban					Rural				
	1984-89	1990-04	1984-04	1984-89	1990-04	1984-04	1984-89	1990-04	1984-04	1984-89	1990-04	1984-04	1984-89	1990-04	1984-04
1	-4.28	4.58	2.35	-9.27	4.71	2.02	-2.21	4.42	1.93						
2	-4.01	4.18	2.36	-8.16	4.58	1.70	-2.16	3.71	1.95						
3	-4.06	4.10	2.35	-7.94	4.56	1.60	-2.07	3.34	2.01						
4	-4.52	4.18	2.34	-7.71	4.68	1.55	-2.16	3.14	2.04						
5	-4.74	4.30	2.35	-7.43	4.71	1.55	-2.30	3.02	2.10						
6	-5.12	4.35	2.30	-7.59	4.75	1.49	-2.42	3.02	2.19						
7	-5.42	4.34	2.25	-7.79	4.68	1.43	-2.62	2.95	2.28						
8	-5.96	4.35	2.16	-7.90	4.57	1.31	-2.81	2.68	2.34						
9	-6.45	4.39	1.99	-7.95	4.63	1.31	-2.70	2.55	2.45						
10	-7.19	4.46	1.74	-7.67	4.46	1.29	-3.47	2.64	2.49						
Total	-6.03	4.37	2.05	-7.80	4.58	1.40	-2.79	2.86	2.31						

Source: Author's calculations using HEIS, various years.

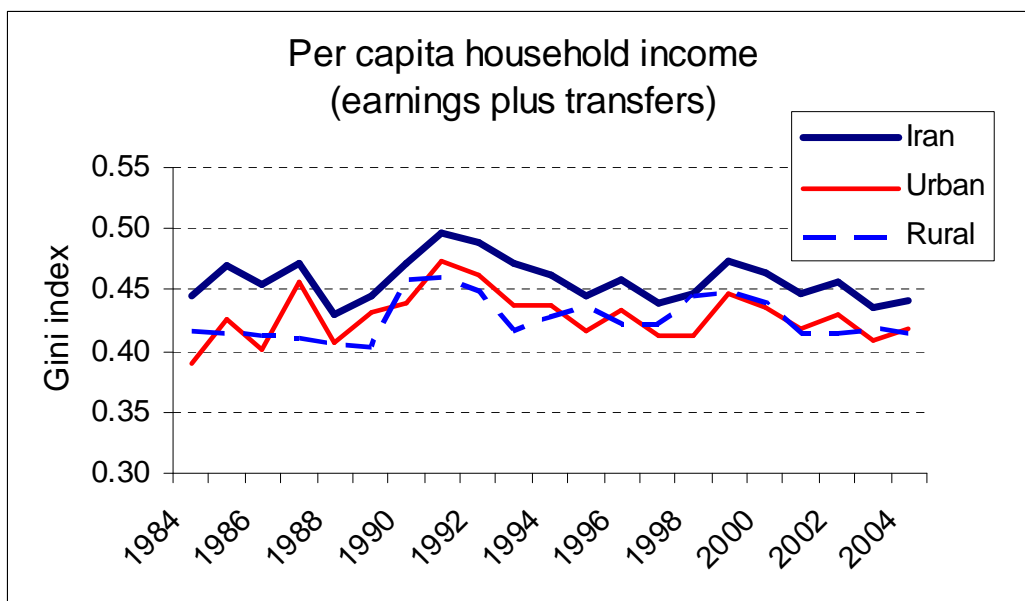
5.3 Income inequality

Poverty and income distribution measures based on consumption are generally preferred to measures based on income for a number of reasons. First, many individuals feel more comfortable providing information to interviewers about their expenditures than income, especially when they respond to questions about expenditures on detailed items as is the case with HEIS. Second, in developing countries income from self employment and farm operations are less accurately reported than wage and salary income because bookkeeping is rudimentary. As a result, estimates for the level of inequality in any given year may be less accurate than expenditures, but as with expenditures they are more reliable in determining the trend because the caveats just noted apply to all years equally. Working with income data is valuable because it allows us to distinguish between inequality of earnings and transfers and ask if the latter are equality-enhancing or not, and if increase in education in the last two decades has increased or decreased equality of earnings. The analysis of inequality of income and earnings is confined to the 1984-04 period, when unit record data is available. No estimates of inequality of income is available for the earlier years.

The trend as well as the level of inequality of per capita household incomes (earnings plus transfers) is surprisingly similar to expenditures (Figures 9 and Table 10). The short term variation of Gini indices for rural and urban incomes closely follow each other and the overall trend for both is constant. As with expenditures, the income inequality variations do not carry a particular message. There is a pronounced increase in inequality during the early 1990s, when oil incomes increased and the country engaged in heavy external borrowing, and also a (more moderate) rise in 1999, just after oil prices hit a twenty year low in 1998. But the oil boom of 2000-04 seems to have been good for equality.

Finally, consider the level of inequality in per capita household *earnings* depicted in Figures 10. Interestingly, inequality in earnings is significantly higher than for either incomes or expenditures. The Gini index for urban individuals in 2004 is 0.42 for per capita expenditures, 0.43 for per capita income, but 0.51 for per capita household earnings (Table

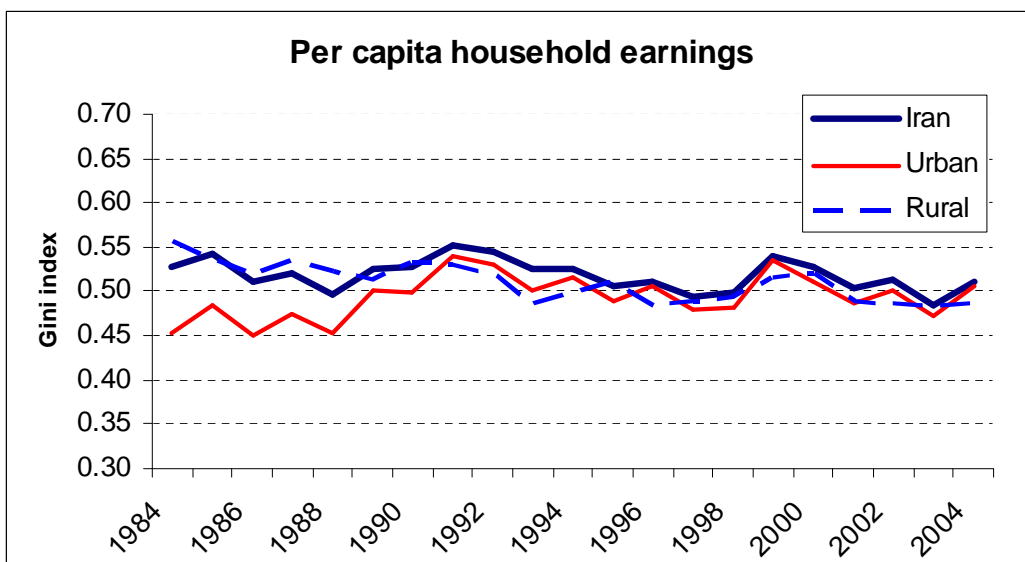
Figure 9: The Gini index of inequality of per capita household income, 1984-04



Note: Total household income, including monetary and in-kind transfers.

Source: Author's calculations using HEIS data files, various years.

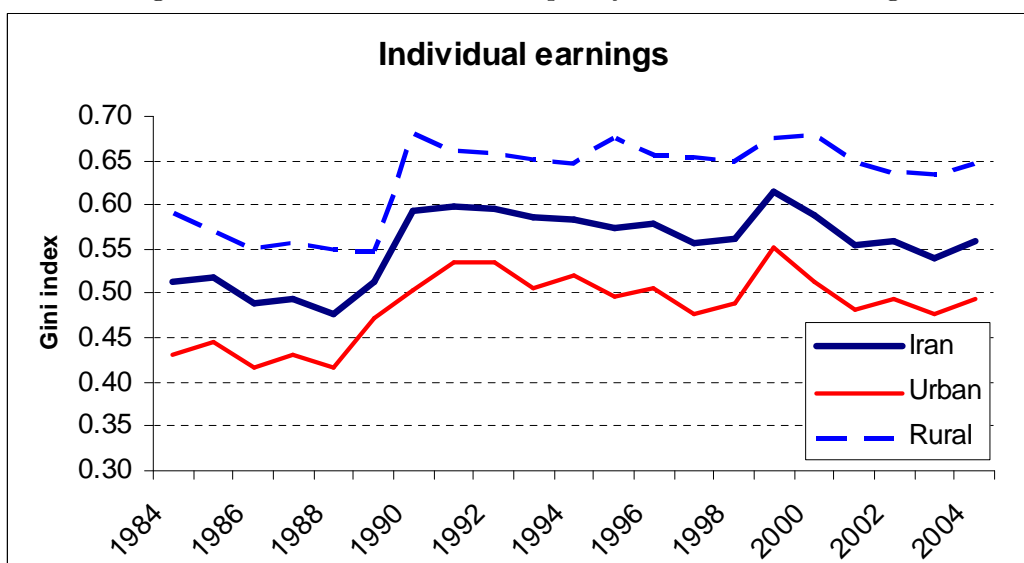
Figure 10: The Gini index of inequality of per capita household earnings



Note: Earnings include income from wage and salary work and self employment.

Source: Author's calculations using HEIS data files, various years.

Figure 11: The Gini index of inequality of individual earnings



Note: Earnings include income from wage and salary work and self employment.
 Source: Author's calculations using HEIS data files, various years.

10). The level of inequality in earnings is even higher if we confine our measure to inequality between individual earners (see Figure 11) rather than per capita household earnings. Earnings inequality between rural individuals is much greater than urban individuals (0.65 compared to 0.5 in 2004). In fact for urban areas inequality of incomes is roughly the same whether we measure it with per capita household earnings or individual earnings, but not so for rural areas. The increase in inequality of individual earnings after the end of the war in 1989 is quite remarkable. What is interesting is that the rise in inequality is much less pronounced in per expenditures and income than in individual earnings, implying that various transfers and unearned incomes helped temper the rise in inequality as market reforms in the 1990s created greater dispersion of earnings.

To summarize the results on inequality, the evidence presented in this section shows that on one hand the last ten years of economic growth, and even the oil boom in its latter half, have been good for equality as they have lifted all individuals more or less equally. On the other hand, in contrast to poverty, there has been little progress toward greater

equality in thirty years of revolutionary and redistributive policies. At the household level, the Gini index in 2004 is about the same as it was in 1971-72. At the individual level, too, we observe a fair degree of stability for the last 20 years for which we have micro data. The revolution's impact was merely to reverse the increase in inequality that occurred in the late 1970s. Apparently, overall inequality in Iran has not been only resilient to policy changes but also to the revolution itself. A possible lesson from this observation is that, unlike poverty, inequality is more structural and therefore more resilient; a social revolution could not affect it, much less incremental policy. There is no doubt that the Revolution displaced many from their place on the economic ladder, sometimes violently, but perhaps because the economic ladder on which individuals must in the end find their place remained the same, the distribution did not change. Different people stand on the higher rungs of the ladder but the ladder itself has changed little.

6 Access to services and home appliances

Improvements in living standards are only partially measured by changes in household incomes and expenditures. Neither include allowances for public investment, which shifted its focus to rural and poorer communities. Public investments have increased access by the poor, especially in rural areas, to basic services such as electricity, piped water, and natural gas. The value of these services are not fully reflected in household income or expenditures, in part because they are highly subsidized. In this section I provide evidence on how access to basic services has changed for different income groups. The effect of increased access to electricity and water on the quality of life is in part reflected in ownership of home appliances. I show that ownership of appliances that use electricity such as refrigerators and washing machines have increased even among the lowest expenditure quintile. I also show that despite rapid population growth the rate of home ownership has remained stable while living space has increased on average and for the poorest group.

Tables 5 shows changes in indicators of housing, appliance ownership and access to basic services for the average household over time as they are reflected in HEIS survey data. According to these indicators, there has been a significant increase in access to basic services and availability of household appliances. Home ownership has remained high despite rising urbanization which tends to promote rental housing, but living area per person has increased. The rural-urban gap in access to basic services has narrowed, which is in the opposite direction than per capita expenditures (compare with Figure 2), leaving the change in the overall welfare gap between rural and urban areas ambiguous. An ambitious program of rural electrification has increased access by rural households from 16.2 percent in 1977 to 98.3 percent in 2004. This change is responsible for other improvements recorded in Table 5. For example, ownership of refrigerators in rural areas increased from 7.6 percent to 92.4 percent during the same period. Among urban households, nearly all of whom had access to electricity by 1977, only 36.5 percent owned refrigerators; by 2004 it was 98.5 percent. Ownership of televisions increased in both urban and rural areas, from 22.6 percent to 97.5 percent in urban and 3.2 percent to 89.1 percent in rural areas. Interestingly, TV ownership in urban areas, where access to electricity already existed, jumped from 22.6 percent to 79.0 percent in just seven years, perhaps because it received the stamp of approval from religious leaders. Nearly half of rural homes had a fixed telephone line in 2004, up from less than one percent before the Revolution.

Access to piped water in rural areas increased from 11.7 to 89.0 percent of households, an impressive gain in view of the fact that rural families live in over 60,000 villages some of which are quite remote. Delivery of cheap piped natural gas to residential homes, which started after the Revolution, is now a reality for 80.1 percent of urban homes. The geographic dispersion of rural households makes it very costly to extend the same services to rural households, of whom only 14.1 percent have access to piped natural gas. In housing, despite rapidly increasing population, in the last two decades average living area per person increased for both rural and urban families.

Table 5: Home ownership, household appliances, and access to services, 1977-2004

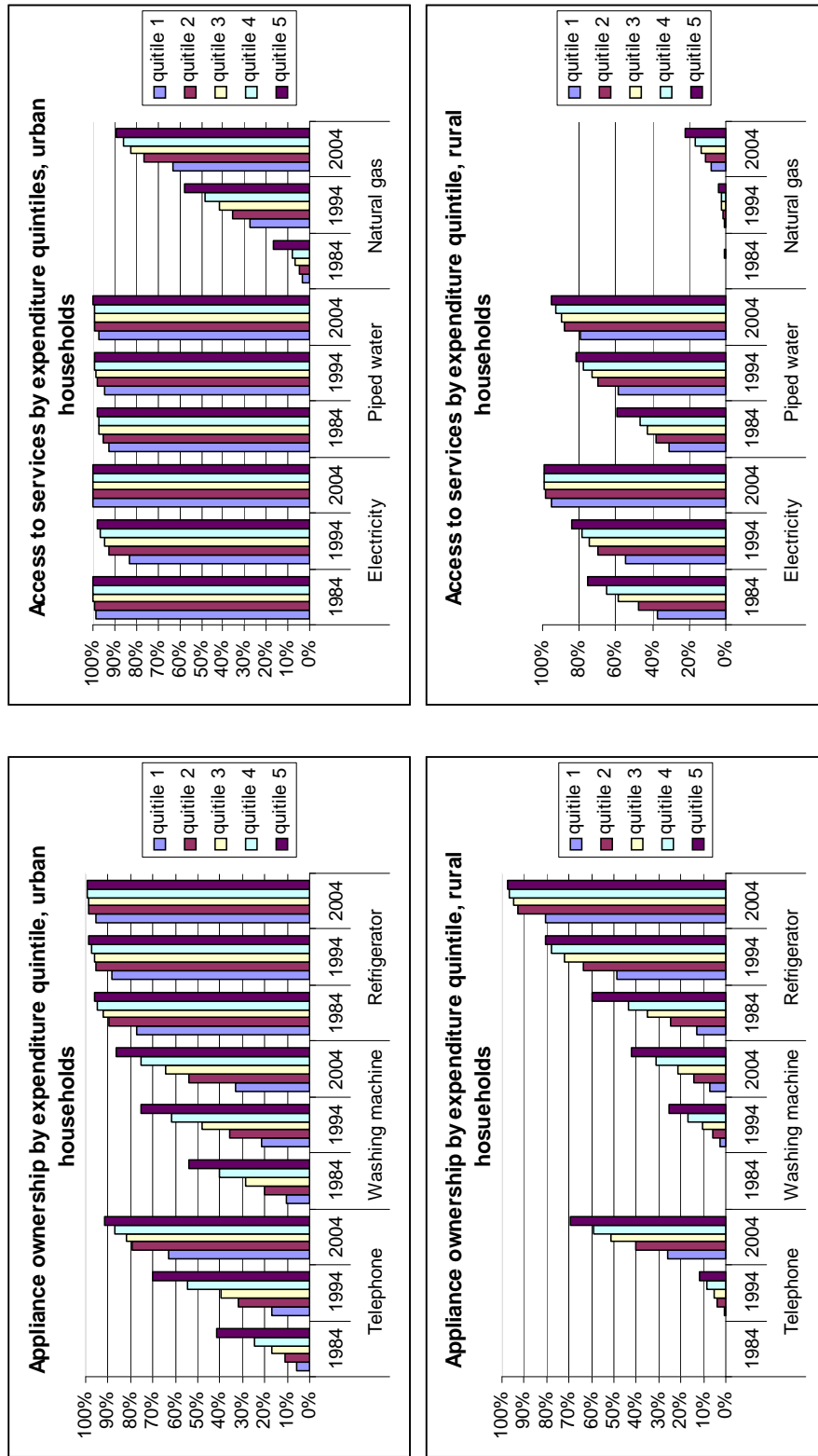
Year	Home owner	Living area	TV	Car	Phone	Washing machine	Refrig-ator	Gas stove	Elect-ricity	Water	Natural gas
Urban											
1977	-	-	22.6	5.9	-	2.4	36.5	40.1	-	-	-
1984	71.3	20.1	79.0	17.2	21.3	32.3	90.7	84.5	99.5	96.2	8.5
1989	73.6	17.9	83.9	17.2	27.4	38.4	92.4	88.7	99.6	96.0	16.7
1994	74.2	25.0	93.5	17.1	42.4	48.4	95.1	93.0	99.7	97.9	42.0
1999	74.2	26.4	95.3	17.4	53.7	52.4	97.0	95.6	98.9	99.9	60.0
2004	68.3	28.3	97.5	25.8	81.2	64.3	98.5	97.9	100.0	99.1	80.1
Rural											
1977	-	-	3.2	1.4	0.4	-	7.6	-	16.2	11.7	-
1984	89.4	-	25.6	2.8	-	-	35.5	45.5	57.1	43.9	0.2
1989	89.7	-	42.8	3.6	-	-	51.7	58.8	71.2	56.9	0.9
1994	87.6	16.3	68.1	4.2	6.0	12.3	69.0	72.6	83.6	72.2	2.3
1999	86.8	18.2	77.9	5.1	16.0	15.7	81.8	80.0	82.4	94.5	2.9
2004	86.0	21.3	89.1	9.3	49.4	23.4	92.4	89.5	98.3	89.0	14.1

Note: Homeowner is percent who own their home; living area is square meters per person; all other numbers are percents
Source: Author's calculations using HEIS, various years.

Have the poor experienced improvements in basic services and ownership of home appliances to the same extent as the average family? This question can be answered for the years after 1984 for which unit record data are available. Changes in the indicators of interest for different expenditure quintiles are presented in Figure 12 (and in Table 11 in Appendix B). Ownership of household appliances and access to basic services for poorer households (quintile 1) have increased at least as much as for richer households (quintile 5). In urban areas, by 2004 differences between the top and bottom quintiles had decreased considerably. The rich and poor households had about equal access to basic services, except for natural gas. Nearly two-third of households in all expenditure quintiles own their homes. The bottom quintile enjoyed an ownership rate of 63 percent for telephone, 93.4 percent for TV, 95.7 percent for refrigerators, and 33.4 percent for washing machines. Nearly all had access to electricity and piped water, and 62.8 percent were hooked up to the natural gas network.

In rural areas, too, except for natural gas, there is a high degree of basic service delivery to poorer homes. In 2004, 95 percent of the poorest quintile of households had access to electricity, 79.4 percent to water. Because of the wide dispersion of over 60,000 rural communities scattered across the country, only 7.7 percent had been hooked up to the natural gas network. In ownership of basic appliances, poorer households naturally lag behind, as they have less income to buy them with. Nevertheless they have made significant gains. TV ownership among the lowest quintile increased from 7 percent in 1984 to 76.7 percent in 2004, refrigerator from 12.7 percent to 80.4 percent, and gas stove from 21 percent to 75.8 percent.

Figure 12: Ownership of appliances and access to services by expenditure quintile, 1984-2004



Source: Author's calculations using HEIS, various years.

7 Concluding remarks

This paper describes the extent of poverty and inequality in Iran and how they have evolved in the last three decades. The comparison of economic welfare for the poor before and after the Revolution shows a general improvement with much lower poverty and no increase in inequality. The drastic economic losses of the first decade of the Revolution have been reversed by economic growth in the last 15 years, restoring average incomes to their pre-revolutionary level. However, for the poor, economic recovery has meant much more than restoration of prior living standards; they have gained in income, consumption, and access to basic services. Publicly provided basic services, such as electricity and safe water, have made it possible for the poor to own home appliances and for public health and family planning services to reach poorer rural and urban areas. Investments in public health have resulted in substantial decline in infant mortality and lower fertility. Whether these gains would have happened anyway or are considered the product of the Revolution is impossible to say, but the question goes to the heart of the issue raised at the beginning of this paper regarding the roots of economic dissatisfaction in Iran. This paper provides evidence about why they might think of the Revolution as something worth preserving.

The timing of declines in poverty, economic reform, and increases in oil income offer additional lessons. There is little evidence to support the thesis that economic reforms during the Rafsanjani and Khatami administrations have left the poor behind and have thereby contributed to a populist backlash in the 2005 presidential election. In fact, this period coincided with substantial decline in poverty. It is difficult, however, to decide on the extent to which reforms were actually responsible for decline in poverty. While a number of policies favored the poor, it may have been increases in oil incomes that played the critical role in poverty reduction. These policies ranged from subsidy for food, energy, and medicine, to investment in electricity and water, to health and family planning. More detailed analysis of the data is needed to evaluate the effects of specific programs or policies

on poverty.

If the rise of populism is not a reaction to rising poverty and inequality or economic reform, what political lessons can reformers derive from recent history? Immediately after the 2005 presidential election, many blamed reformers' electoral defeat on their focus on democratic reforms instead of economic justice. Michael Ignatieff described the dilemma felt by reformers in Iran as follows: "The political task ahead for the liberal thinkers of Iran is to find a program that links human rights and democracy to the poor's economic grievances."²⁵ If the assumption that neglect of the poor fueled popular discontent lacks empirical support, the change in focus suggested by Ignatieff may not be the cure. The right political strategy depends on a correct identification of the root causes of economic discontent in Iran. The experience of the last three decades provides several reasons why various segments of the society should feel disappointed and dissatisfied. One obvious reason is faulty subjective comparisons. Dissatisfied Iranians who complain to visitors and reporters conveying the impression of living in desperate times, are unaware of how Iran compares to other countries in terms of income and poverty. A very different impression was provided above in Table 1. Most Iranians now have but a foggy memory of life before the Revolution. Lacking objective criteria to compare the quality of life in present day Iran with that in the 1970s, many depress themselves by using for comparison either an imaginary pre-Revolutionary Iran or some present day advanced country which a distant relative calls home.

A more objective source of dissatisfaction is high youth unemployment. About one quarter of men and half of women in ages 20-24 were unemployed in 2004 (Salehi-Isfahani 2005). Since the burden of youth unemployment is borne by families who support their children well into their late twenties, economic dissatisfaction spreads to all ages. Another reason for youth dissatisfaction, demonstrated by Marku and Salehi-Isfahani (2006), is the decline in lifetime earnings relative to their predecessors of cohorts who entered adult life

²⁵"Iranian lessons", *New York Times*, July 17, 2005.

at the time of the Revolution. While average incomes have recovered their pre-Revolution level, not all cohorts experience it.

Increase in economic insecurity, even for social groups who have benefited from recent growth, may have caused individual anxiety to overcome collective gains. Lower poverty and stable inequality are compatible with increased insecurity. When the economic reforms began in the early 1990s, about 60 percent of wage and salary workers were employed in the public sector, compared to 40 percent in 2004 (Salehi-Isfahani 2005). Public sector jobs offered more security and were coveted often despite lower pay. Labor market regulations intended to make private sector jobs more secure have failed in practice as employers have shifted to offering short term contracts and part time work. Significantly, an early move by the Ahmadinejad government was to prevent short term employment contracts in state-owned companies. The reform of foreign trade in recent years, which ended non-tariff barriers and lowered the average tariff rate, have increased competitive pressures from East Asia on some sectors of Iran's economy, notably textiles, and reduced job security for lower skilled workers. These competitive pressures have worsened with increase in oil revenues which have opened the gates to cheap imports from East Asia.

There is also the interesting possibility, suggested by the polarization literature (Duclos, Esteban, and Ray 2004), that Iranian society may be more polarized even though it is more egalitarian. The poor are not only better off now but they are also more similar to each other—all have basic education, access to basic services, refrigerator and television. At the same time, as a group they still remain distinct from other social groups, perhaps on cultural grounds such as attachment to western ideas and way of life. Thus polarization may have increased along social lines while economically the society has become more equal.

Finally, economic growth in a distributive society relying on oil rents, especially one also imbued with a deep sense of economic justice, such as Iran's, may create envy and frustration. In such an economy individual incomes may increase not only with higher productivity but also as a result of better rent seeking. Lack of economic transparency, in part inherent

to the rent seeking process, exacerbates envy. Most Iranians who express dissatisfaction with their economic system seem to have exaggerated ideas about the size of oil income and are suspicious of how it is distributed. Wild speculations about accumulation of wealth by Iranians inside and outside Iran is indicative of how little information exists about the size and the distribution of the oil rent in Iran.²⁶ Not surprisingly, corruption rather than reliance on markets is the main reason why Iranians suspect the oil money has not found its way to their dinner table, to paraphrase Ahmadinejad's effective election slogan. For decades large oil rents have blurred the connection between individual productivity and income. Because rewards appear detached from productivity, individuals lack a firm basis on which to build their aspirations and expectations. The faster the rise in average incomes, the larger they infer must be the pie that is being divided, and greater the possibility that one's own share of the bounty is not large enough. Reduction in poverty would seem less impressive if the poor believed that their gains were small relative to others. Under these circumstances, economic growth, even when it lifts all incomes evenly, may create social envy and resentment and even lead to political instability. It is a remarkable but little noticed fact that significant popular political shifts in Iran, first in late 1970s and again in 2005, have taken place during economic booms. One possible explanation for such shifts toward populism is the understandable tendency of the lower classes to turn to a leader with a modest personal fortune (Khomeini in 1979 and Ahmadinejad in 2005) at times when the state is in a position to dispose of a large amount of oil money. Lack of transparency in the Iranian economy in general, and about how the oil rent is distributed in particular, thus fuels envy and complicates politics precisely at times when the economy is posed for rapid growth.

These possibilities suggest the need to examine and test more complex reasons for the recent shift to populism in Iran against data than widespread poverty and increasing inequality. Abandoning economic reform by going back to the policies of the 1980s—re-introducing

²⁶A recent article in the *New York Times* ("Young Iranians Follow Dreams to Dubai," December 4, 2005) reported claims by Iranians of \$200 billion invested by Iranian in Dubai.

price controls and spending even more on subsidies—may be the wrong lesson to learn from the setback suffered by reformists at the polls in 2005. At this point we simply do not know enough about the links between economic change and social and political change in Iran to draw such conclusions.

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A Data

Household Expenditure and Income Surveys (HEIS) have been conducted annually by the Statistical Center of Iran (SCI) since 1963 in rural areas and 1968 in urban areas. They are available in unit record form since 1984. All surveys are nationally representative but not all households have equal probability of selection. The sampling method is Probabilities Proportional to Size (PPS). The sample is stratified according to rural and urban residence which, in effect, treats the rural and urban surveys as separate surveys even though they have the same questionnaires and are collected on the same schedule. Sampled households are distributed evenly throughout the year with 1/12 of households surveyed each month. Both samples (rural and urban) are cluster based. First, the number of observations (households) for each province is determined based on the province population and variance of the variables of interest in the province. The latter consideration implies that not all households have the same probability of selection into the survey. Therefore sampling weights equal to the inverse of probability of selection must be used in all statistical calculations. Second, the number of primary sampling units (PSU) in each province is determined by dividing the sample size for the province by 5. PSU's correspond to census tracts, which are chosen randomly, and from each of which 5 households are randomly selected. Sample sizes vary from 5,759 households in 1986 to 36,591 in 1995. The total number of households in the combined data set is about 433,000 households and about 2.3 million individuals.

The survey questionnaires contain eight sections. Section 1 is the demographics module, which asks about age, sex, marital status, relationship to the head of the household, education, and employment status of individuals. Section 2 contains information on household ownership of assets and amenities. Section 3 records very detailed information on food expenditures; food expenditures can be aggregated into broader groups such as grains, meats, dairy, and so on. Section 4 reports on non-food expenditures, including non-durable and semi-durable goods such as clothing and other household goods, as well as rent and utilities. The recall period for these expenditures is the last 30 days, which is rather long for consumption (in some earlier surveys the recall period for food was only the last two days). Section 5 records expenditures on durables, which include appliances, furniture, vehicles, bikes, as well as expenditures on vacation travel, school tuition, or housing extension. Modules 6, 7, and 8 record individual information on wage and salary income, self-employment income, and other income from retirement, rent, or other sources, respectively. Expenditures include implied rent but not the value of services provided by consumer durable goods. However, expenditures on durables for each year are included, which provides a good approximation for the distribution of durable services for households in a given year.

B Tables

Table 6: Gross Domestic Production and Consumption Per Capita, 1955-2004

	GDPPC_Penn (1996 PPP\$)	GDPPC_CBI (1997 rialsx1000)	GDPPC_WDI (2000 PPP\$)	PrivateCPC (1997 rialsx1000)
1955	1,736.1	–	–	–
1956	1,769.2	–	–	–
1957	1,969.7	–	–	–
1958	2,091.0	–	–	–
1959	2,279.8	2,077.2	–	1,277.3
1960	2,668.3	2,232.0	–	1,220.2
1961	2,679.3	2,335.0	–	1,187.7
1962	2,938.1	2,417.6	–	1,174.8
1963	3,010.7	2,485.8	–	1,152.9
1964	3,053.0	2,599.1	–	1,078.4
1965	3,434.2	2,926.0	–	1,093.7
1966	3,567.2	3,109.5	–	1,157.4
1967	3,781.7	3,346.2	–	1,246.3
1968	4,129.1	3,644.2	–	1,196.0
1969	4,465.3	3,989.3	–	1,257.6
1970	5,225.0	4,255.8	–	1,350.6
1971	4,935.6	4,697.4	–	1,508.7
1972	5,433.5	5,326.3	–	1,551.4
1973	5,884.4	5,559.1	–	1,711.1
1974	5,606.6	6,075.0	–	2,035.7
1975	5,024.5	6,181.5	6,984.0	2,605.7
1976	5,899.1	7,051.2	7,976.0	2,528.2
1977	5,217.4	6,678.4	7,626.0	2,606.0
1978	5,132.8	5,991.1	6,547.0	2,558.9
1979	4,943.0	5,542.6	5,823.0	2,546.4
1980	4,028.6	4,529.6	4,897.0	2,339.1
1981	3,618.8	4,156.7	4,586.0	2,317.5
1982	4,211.2	4,482.9	5,097.0	2,392.8
1983	4,107.5	4,768.4	5,549.0	2,635.4
1984	4,206.4	4,479.3	5,377.0	2,672.7
1985	4,435.5	4,392.8	5,266.0	2,616.3
1986	4,080.0	3,847.4	4,620.0	2,262.9
1987	3,895.5	3,681.0	4,476.0	2,063.5
1988	3,769.7	3,371.0	4,156.0	2,019.5
1989	3,711.7	3,468.5	4,230.0	2,028.1
1990	3,881.7	3,856.1	4,598.0	2,031.1
1991	4,027.8	4,223.9	5,015.0	2,208.7
1992	4,301.3	4,302.5	5,236.0	2,292.8
1993	4,591.5	4,286.2	5,268.0	2,350.8
1994	4,963.3	4,235.4	5,251.0	2,379.6
1995	5,013.1	4,292.6	5,295.0	2,344.3
1996	5,333.2	4,487.8	5,402.0	2,247.2
1997	5,458.4	4,551.4	5,606.0	2,303.2
1998	5,538.5	4,623.4	5,641.0	2,418.8
1999	5,670.5	4,643.5	5,647.0	2,442.2
2000	5,994.6	4,822.9	5,576.0	2,572.6
2001	–	4,934.0	5,738.0	2,639.2
2002	–	5,257.6	6,277.0	2,895.9
2003	–	5,559.6	6,608.0	2,969.9
2004	–	5,774.5	6,983.0	3,168.3

Sources: Summers, Heston, and Aten (2002), World Bank (2005), Central Bank of Iran, *Annual Report*, various years.

Table 7: Per capita income and expenditures per day in 2004 rials, 1974-2004

	income		expenditures	
	Rural	Urban	Rural	Urban
1974	8525	18218	12775	22901
1975	9815	28948	13508	30075
1976	9098	28149	11448	28392
1977	10013	27350	12475	26709
1978	10231	–	12501	–
1979	10056	25189	13599	25862
1980	–	24133	–	21623
1981	–	–	–	–
1982	10210	19201	13169	23906
1983	10513	22064	13626	26742
1984	10145	22769	12970	27311
1985	10285	22508	13122	27779
1986	9366	20415	12545	23820
1987	9190	13505	11544	16479
1988	9134	13024	10639	17498
1989	9749	12215	12590	17365
1990	9720	15860	12643	18094
1991	10458	18550	12921	19972
1992	11045	19719	12925	21136
1993	10735	19948	12863	20791
1994	10530	18857	12437	20544
1995	9488	16319	12387	19666
1996	10155	18549	12097	20767
1997	11393	19542	13016	21526
1998	11582	20985	13357	23087
1999	11645	21304	13736	23757
2000	11667	23769	14015	25667
2001	12430	24833	14092	26937
2002	13639	27356	15356	28898
2003	15273	28099	16312	29380
2004	15687	30187	18871	32876

Sources: Statistical Center of Iran (<http://amar.sci.org.ir>)

Table 8: Poverty lines, Consumer Price Index, and PPP exchange rates

	Assadzadeh & Paul		USD2		CPI		PPP (rials per \$)
	Rural	Urban	Rural	Urban	Rural	Urban	
1975	46.3	65.6	76.7	76.7	0.60	0.60	38.4
1976	53.9	76.5	82.8	82.8	0.70	0.70	41.4
1977	67.4	95.6	93.1	93.1	0.88	0.88	46.5
1978	73.6	104.3	96.4	96.4	0.96	0.96	48.2
1979	82.6	117.1	113.2	113.2	1.08	1.08	56.6
1980	102.1	144.7	128.2	128.2	1.33	1.33	64.1
1981	125.4	177.7	145.9	145.9	1.63	1.63	72.9
1982	149.5	212.0	157.1	157.1	1.95	1.95	78.5
1983	171.7	243.4	169.8	169.8	2.24	2.24	84.9
1984	194.3	265.6	179.9	179.9	2.53	2.44	89.9
1985	201.2	276.5	182.6	182.6	2.62	2.54	91.3
1986	236.5	342.9	202.1	202.1	3.08	3.15	101.0
1987	301.0	437.6	241.5	241.5	3.92	4.02	120.8
1988	367.8	568.2	273.2	273.2	4.79	5.22	136.6
1989	430.0	676.0	314.2	314.2	5.60	6.21	157.1
1990	466.9	741.3	359.0	359.0	6.08	6.81	179.5
1991	537.5	885.0	428.0	428.0	7.00	8.13	214.0
1992	659.6	1073.3	508.0	508.0	8.59	9.86	254.0
1993	809.3	1353.1	757.1	757.1	10.54	12.43	378.5
1994	1162.5	1823.3	963.0	963.0	15.14	16.75	481.5
1995	1786.8	2698.6	1356.5	1356.5	23.27	24.79	678.2
1996	2185.3	3309.2	1559.1	1559.1	28.46	30.40	779.6
1997	2531.6	3892.7	1834.5	1834.5	32.97	35.76	917.3
1998	3133.6	4562.2	1948.6	1948.6	40.81	41.91	974.3
1999	3867.7	5454.8	2236.3	2236.3	50.37	50.11	1118.2
2000	4464.3	6214.6	3106.4	3106.4	58.14	57.09	1553.2
2001	4966.5	7050.6	3603.9	3603.9	64.68	64.77	1801.9
2002	5781.2	8183.8	4232.4	4232.4	75.29	75.18	2116.2
2003	6730.3	9456.4	4839.6	4839.6	87.65	86.87	2419.8
2004	7678.6	10885.7	5550.6	5550.6	100.00	100.00	2775.3

Sources: Assadzadeh and Paul (2004); CPI, the Central Bank of Iran; PPP, World Bank (2005).

Table 9: Poverty rates

	Household				Individual			
	Assadzadeh-Paul		USD2		Assadzadeh-Paul		USD2	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1977	0.426	0.283	0.657	0.275	0.426	0.251	0.595	0.244
1978	0.450		0.604		0.320		0.547	
1979		0.263		0.252		0.197		0.183
1980		0.230		0.160		0.208		0.142
1981								
1982	0.352		0.377		0.350		0.402	
1983								
1984	0.351	0.179	0.309	0.079	0.365	0.204	0.321	0.087
1985	0.339	0.187	0.288	0.078	0.356	0.214	0.301	0.089
1986	0.445	0.284	0.355	0.109	0.457	0.328	0.364	0.129
1987	0.416	0.341	0.283	0.117	0.438	0.395	0.294	0.141
1988	0.447	0.335	0.261	0.078	0.467	0.388	0.268	0.094
1989	0.432	0.347	0.252	0.090	0.445	0.400	0.254	0.107
1990	0.359	0.312	0.243	0.061	0.380	0.367	0.254	0.075
1991	0.352	0.275	0.254	0.058	0.377	0.333	0.272	0.073
1992	0.317	0.243	0.215	0.045	0.340	0.293	0.229	0.056
1993	0.331	0.237	0.294	0.060	0.357	0.290	0.317	0.079
1994	0.330	0.248	0.237	0.051	0.359	0.304	0.258	0.065
1995	0.347	0.271	0.223	0.055	0.371	0.326	0.235	0.070
1996	0.355	0.246	0.194	0.040	0.388	0.299	0.211	0.052
1997	0.315	0.220	0.173	0.031	0.344	0.270	0.191	0.041
1998	0.319	0.194	0.132	0.019	0.349	0.241	0.145	0.024
1999	0.285	0.174	0.090	0.011	0.320	0.219	0.101	0.015
2000	0.279	0.149	0.134	0.021	0.313	0.190	0.152	0.027
2001	0.272	0.146	0.142	0.020	0.306	0.187	0.161	0.029
2002	0.230	0.115	0.118	0.017	0.262	0.150	0.135	0.023
2003	0.183	0.092	0.086	0.012	0.216	0.122	0.103	0.017
2004	0.140	0.077	0.059	0.010	0.166	0.105	0.071	0.012

Note: Per capita income includes monetary and in-kind transfers; per capita earnings is wage and salary income plus income from self-employment.

Sources: 1971-73, Pesaran (1976); 1977-83, Behdad (1989); 1984-2004, author's calculations using HEIS, various years.

Table 10: The Gini index of inequality of income and expenditures, 1971-2004

	Per capita expenditures		Household expenditures		Per capita income		Per capita earnings	
	Iran	Rural	Iran	Urban	Iran	Urban	Iran	Rural
1971				0.415				
1972				0.403				
1973				0.467				
1977				0.500				
1978								
1979				0.470				
1980				0.404				
1984	0.452	0.424	0.380	0.453	0.430	0.451	0.432	0.529
1985	0.452	0.429	0.374	0.455	0.425	0.479	0.430	0.544
1986	0.461	0.436	0.406	0.459	0.425	0.462	0.428	0.511
1987	0.448	0.450	0.365	0.447	0.439	0.489	0.449	0.522
1988	0.430	0.418	0.348	0.431	0.412	0.431	0.425	0.497
1989	0.438	0.430	0.366	0.440	0.425	0.453	0.416	0.527
1990	0.435	0.416	0.422	0.430	0.403	0.483	0.481	0.528
1991	0.461	0.439	0.435	0.449	0.421	0.504	0.476	0.552
1992	0.448	0.428	0.407	0.434	0.410	0.503	0.468	0.546
1993	0.436	0.411	0.390	0.426	0.399	0.477	0.434	0.525
1994	0.433	0.413	0.395	0.421	0.395	0.476	0.448	0.524
1995	0.435	0.421	0.400	0.427	0.406	0.457	0.455	0.506
1996	0.439	0.420	0.393	0.425	0.404	0.465	0.439	0.512
1997	0.435	0.416	0.396	0.419	0.396	0.445	0.440	0.494
1998	0.438	0.414	0.416	0.421	0.394	0.447	0.446	0.498
1999	0.434	0.416	0.405	0.417	0.397	0.485	0.463	0.541
2000	0.441	0.421	0.400	0.422	0.403	0.465	0.439	0.529
2001	0.450	0.432	0.394	0.431	0.417	0.446	0.414	0.503
2002	0.449	0.430	0.392	0.424	0.407	0.456	0.429	0.513
2003	0.438	0.413	0.372	0.404	0.388	0.434	0.430	0.485
2004	0.436	0.416	0.400	0.413	0.395	0.443	0.427	0.511

Note: Per capita income includes monetary and in-kind transfers; per capita earnings is wage and salary income plus income from self-employment. Source: 1971-73, Pesaran (1976); 1977-83, Behdad (1989); 1984-2004, author's calculations using HEIS, various years.

Table 11: Ownership of home and appliances, and access to services by expenditure quintiles, 1984-2004

Quintile	Home owner	Living area	TV	Car	Phone	Washing machine	Refrig-ator	Gas stove	Elect-ricity	Water	Natural gas
Urban											
1984											
1	69.8	11.9	60.0	2.4	5.7	10.3	77.2	65.6	98.5	92.3	3.4
2	73.3	14.0	74.4	5.7	11.1	20.3	89.7	81.5	99.6	95.2	4.9
3	73.9	17.5	82.3	13.4	16.6	28.8	92.4	86.9	99.7	97.0	6.7
4	71.2	20.6	85.4	19.6	24.6	40.0	94.7	90.5	99.8	97.2	8.3
5	68.9	32.6	87.9	37.9	41.7	53.7	96.0	93.4	99.9	98.2	16.8
1994											
1	73.6	13.3	86.1	3.3	16.6	21.6	88.3	98.9	83.4	94.4	27.6
2	73.8	18.1	93.4	6.9	31.8	35.5	95.5	99.7	92.4	98.0	35.7
3	75.4	22.0	94.8	14.2	39.7	48.3	96.3	99.9	94.5	98.8	41.3
4	73.7	27.7	96.1	22.1	54.5	61.8	97.2	99.9	96.7	99.0	48.2
5	74.4	44.0	97.1	39.5	69.9	75.6	98.6	99.9	98.0	99.6	57.5
2004											
1	65.7	16.8	93.4	5.7	63.0	33.4	95.7	93.7	100.0	97.1	62.8
2	67.5	21.9	98.0	11.4	79.1	53.6	99.0	98.1	100.0	99.1	76.2
3	67.2	25.9	97.3	18.9	81.7	64.2	98.8	98.0	100.0	99.5	82.4
4	70.6	30.6	98.8	31.7	86.7	75.4	99.1	99.2	100.0	99.5	85.8
5	69.9	41.9	98.9	53.0	91.5	86.2	99.4	99.6	100.0	99.8	89.2
Rural											
1984											
1	88.3	.	7.1	0.2	.	.	12.7	21.0	37.0	31.0	0.1
2	91.2	.	15.0	0.5	.	.	24.5	36.5	47.8	38.3	0.2
3	90.6	.	23.5	1.1	.	.	35.1	44.9	58.8	42.6	0.2
4	90.3	.	32.2	2.0	.	.	43.3	54.2	64.8	47.1	0.4
5	86.8	.	48.2	10.0	.	.	59.5	68.5	75.2	59.2	0.3
1994											
1	87.6	12.0	49.2	0.8	0.8	2.6	49.0	74.6	54.5	58.5	0.9
2	89.4	13.3	64.8	1.6	3.6	6.0	63.9	82.1	69.5	69.5	1.6
3	88.0	15.5	70.6	3.3	5.5	10.1	72.1	84.0	74.9	72.7	2.6
4	87.0	17.6	76.6	4.0	8.2	16.8	78.0	88.0	78.9	77.4	2.4
5	86.2	22.8	78.1	11.0	11.6	25.3	80.7	88.9	84.2	81.9	3.6
2004											
1	84.7	14.0	76.7	1.7	26.0	6.9	80.4	75.8	95.1	79.4	7.7
2	88.4	17.6	88.2	3.5	40.4	14.3	92.6	88.7	98.3	88.1	11.0
3	86.0	20.2	90.9	5.2	51.0	21.5	94.6	92.0	99.0	89.4	13.3
4	86.2	23.5	93.5	9.7	59.3	31.1	96.5	94.3	99.3	92.8	16.4
5	84.6	30.8	95.9	25.2	69.3	42.2	97.5	96.6	99.6	94.9	21.9

Note: Homeowner in column 2 is percent who own their home; living area in column 3 is square meters per person; all other columns are percents.

Source: Author's calculations using HEIS, various years.