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ABSTRACT

In December 2010, Iran replaced its energy and bread subsidies with an unconditional and universal cash transfer (UCT). In the short-run, this shift away from generalized subsidies had a significant effect on poverty. Studies show that the direct effect of the reform was a reduction in the headcount ratio from 22.5% to 10.6%. However, since the introduction of the reform, inflation has severely eroded the real value of the transfer because adjustments to its nominal value have been minimal in comparison. We estimate that after five years, during which time there was a cumulative 136.5% increase in prices (since 2011/2012 or 1390 in the Iranian calendar), the real value of the transfer was cut nearly in half. As a result of this cut, the poverty-reducing effect of the transfer declined by about 40%, which translates into roughly a 5 percentage point increase in the headcount ratio. We find that this deleterious consequence of inflation is much higher in rural areas where the contribution of the transfer to the reduction in the incidence of poverty declines from 21.9 to 11.0 percentage points over the course of these five years. The only way for the UCT to recover the poverty-reducing results observed at the beginning, without increasing the budget, is by making it a more targeted program focused on the poorest 40% of the population.

Key Words: Inflation; incidence analysis; universal cash transfer; poverty; Iran.

JEL Codes: D31, D63, H22, I32, I38

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Background Information and Research Question

In December 2010, Iran replaced its energy and bread subsidies with an unconditional and universal cash transfer (UCT) (Guillaume et. al. 2011).[4] The transfer was set at 455,000 Rials or about US$40 (US$90 in 2011 Purchasing Power Parity) per person per month for all Iranians. Our estimates (based on the Iranian Household Expenditure and Income Survey) show that the majority of Iranian households (about 95%) signed up to receive the UCT (Enami et al. 2016).

The 2011/2012 round of Iranian household survey, which took place on the first full year of the implementation of this subsidy reform, found that the UCT reached the majority of both rural and urban households (Enami et al. 2016). Given the prevalence of poverty in rural areas and the relatively large size of the UCT, a number of studies reported that UCT had a significant effect of this program on reducing poverty during the initial year of its implementation (Salehi-Isfahani et al., 2015; Enami et al. 2016; Gahvari and Karimi 2016). For example, Enami et al. (2016) find poverty, measured by the headcount ratio and with respect to the 2005 US$4 Purchasing Power Parity poverty line, declined from 22.5% to 10.6% credited to switching from general subsidies to UCTs (as opposed to only eliminating the subsidies).[5]

The real value of the UCT, however, did not keep up with inflation. In this report we analyze changes in the effect of the UCT on poverty reduction. This change can be attributed to the inflation in years following 2011/2012.

In order to relate this work to our previous paper on this topic, we continue to use the Commitment to Equity framework used in Enami et al. (2016). A brief description of this framework is provided in the next section. Similar to our previous work, we continue to use data from the 2011/2012 round of household survey. In order to keep all other elements constant and only evaluate the effect of inflation on UCT, we use data from the 2012/2013 through 2015/2016 rounds of household survey as well as the Consumer Price Index for these years to scale the values of the UCT in year 2011/2012. More description of this simulation technique is discussed in the next section. Since all other elements, i.e. income sources, taxes, and transfers, are identical and unaffected by the inflation, our analysis cleanly identifies the effect of inflation on the power of the UCTs to reduce poverty.

Methodology

The Commitment to Equity method of analyzing the impact of taxes and transfers compares two fiscal systems, one with the tax or transfer of interest and one without it. The

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[4] Energy here refers to subsidies on electricity, water, natural gas, and oil-based fuels.
[5] This positive impact of UCT on the poor households was predicted more than a decade ago by Jensen and Tarr (2003) using a computable general equilibrium.

difference between these two systems (with respect to the poverty indicator of choice) is the contribution of that tax or transfer to reducing (or increasing) poverty.[6]

Following this methodology, we measure the contribution of the UCTs to the reduction of poverty by focusing on Disposable and Consumable Income concepts. Figure 1 along with Table 1 define different income concepts used in this brief.[7] We use the 2005 US$4 Purchasing Power Parity, a well-known international poverty line, in our study to identify the poor households.

Figure 1: Commitment to Equity framework to define income concepts and combine fiscal interventions.
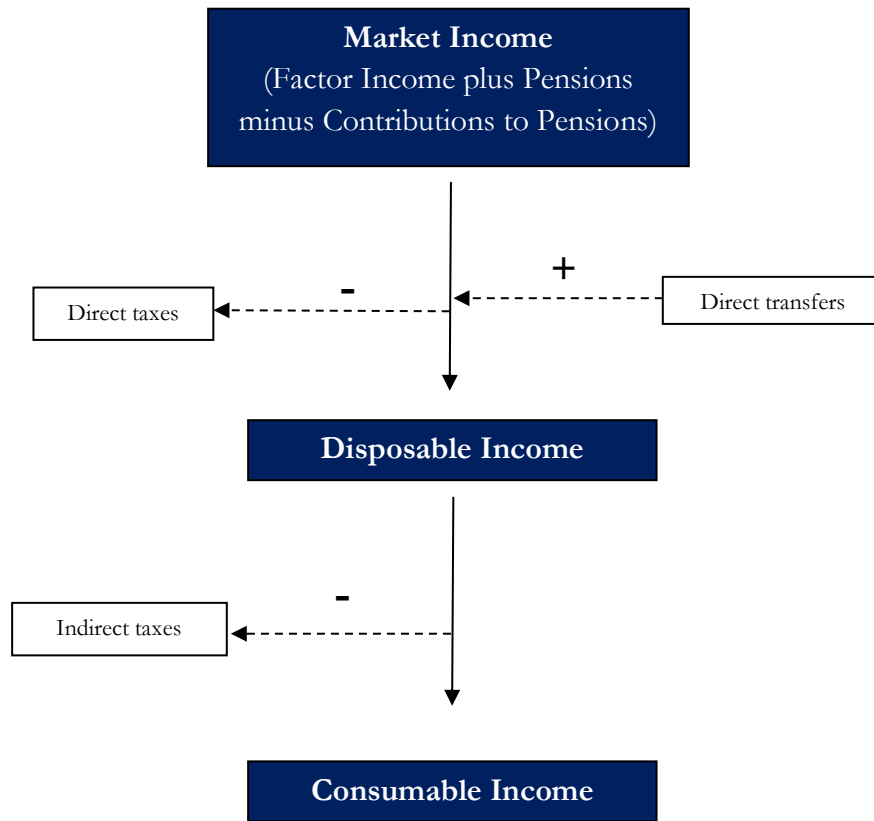
Source: Lustig (2018) with some adaptation.
Note: Core Income Concepts in dark blue background, Fiscal Interventions in white background.

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[6] The technical term in the literature is "Marginal Contribution (MC)" and is mathematically defined as:
$$MC^{\text{End Income}}_{A\ Tax\ or\ a\ Transfer} = Poverty_{End\ Income\ without\ a\ Tax\ or\ a\ Transfer} - Poverty_{End\ Income}$$
where End Income refers to a fiscal system with all relevant transfers and taxes. Whether a tax or transfer is relevant or not depends on our definition of an income concept. See Figure 1 and Table 1 for the definition of Disposable and Consumable Income that are used as the "End Income" in this analysis.
[7] For a more detailed description of the components of the Iran's fiscal system included in our analysis please see Enami et al. (2016).

Table 1. Description of Market Income and other income components

Main Categories	Sub Categories	Description
Market Income	Factor Income	All monetary and non-monetary income received as an employee or self-employed individual excluding any subsidy or social assistance and including imputed rent for home owners. All components are directly observed in the survey.
	Contributory Pensions	All pensions received through the retirement programs. The relevant information is observed directly in the survey.
	Employee contributions to the Social Security Insurance	The deductions from employees' paychecks that is paid for the social security insurance (i.e. pension) of an employee. The relevant information is observed directly in the survey.
	Employer contributions to the Social Security Insurance	The employers' payment toward the social security insurance (i.e. pension) of employees. Since this is a mandatory payment and we assume it results in lower payments to employees, we include it as a type of deduction. The relevant information is observed directly in the survey.
Direct Taxes and Contributions	Income Tax	Income tax for self-employed individuals (observed directly in the survey) and payroll tax for employees (imputed using the data about gross and net income as well as contributions to pensions).
	Employee contributions to the health insurance	The deductions from employees' paychecks that is paid toward the health insurance. The relevant information is observed directly in the survey.
	Employer contributions to the health insurance	The employers' payment toward the health insurance of employees. Since this is a mandatory payment and we assume it results in lower payments to employees, we include it as a type of deduction. The relevant information is observed directly in the survey.
Direct Transfers	Unconditional Cash Transfer (UCT)	The direct cash transfer program that is established by the government following the energy subsidy reform in Iran. The relevant information is observed directly in the survey.
	Social Assistance	Includes all cash transfers to low income individuals through public organizations. The relevant information is observed

		directly in the survey.
	Semi-cash Transfers (Food)	Include the monetary value of all edible items that a household receives for free. The values are imputed assuming all edible goods that are obtained "free but not from other households" are provided by the different public agencies.
Indirect Taxes	-	Sales taxes. Imputed using the 3% statutory rate (which is applicable to most of goods) and the information available in the survey about the consumption expenditure of each household)

In order to measure the effect of inflation on the UCTs, while keeping all other elements of the fiscal system constant, we base most of our analysis on only the first year of the reform. Therefore, we only adjust the value of the UCT using the ex-post information about other years. To do so, we use the Consumer Price Index and the average value of UCTs in future years. This provides us with a coefficient that we use to adjust the value of the UCT for each household in order to simulate the impact of inflation on UCTs in future years. However, this method includes not only the inflation, but also the adjustments that Iran's government made with respect to the nominal value of UCT and its coverage. Table 2 presents the coefficients that we use to adjust the value of the UCT for each year.

Table 2. Average UCT, Consumer Price Index, and adjustment factors for the first five years of the energy subsidy reform in Iran.

Year	Avg. UCT per Household per year (Nominal)		Consumer Price Index	Avg. UCT per Household per year (Real-2011/2012)		Adjustment Factor	
	Urban	Rural		Urban	Rural	Urban	Rural
2011/2012	14,167,607	16,142,077	120.6	14,167,607	16,142,077	1.00	1.00
2012/2013	19,963,514	22,243,974	153.6	15,675,191	17,465,790	1.11	1.08
2013/2014	20,939,612	23,431,052	214.0	11,805,877	13,210,566	0.83	0.82
2014/2015	18,007,000	20,147,060	250.9	8,659,890	9,689,083	0.61	0.60
2015/2016	17,695,402	19,750,094	285.2	7,484,260	8,353,290	0.53	0.52

Note: All average values are in Rials. Year 2011/12 corresponds to 1390 in Iranian calendar, the first year following the reform in December 2010 and the base year in our analysis.

Results

Table 3 presents the poverty headcount ratio for Disposable (Panel A) and Consumable (Panel B) Incomes, using the 2005 US$4 Purchasing Power Parity poverty line. The poverty rates are presented for the country as a whole, as well as the urban and rural areas separately. As previously mentioned, the poverty rates for year 2011/2012 are calculated using the survey data from the same year. For years 2012/2013 through 2015/2016, we use the 2011/2012 data, but adjust the value of each UCT using the ex-post information about the inflation-adjusted value of the cash transfers made to the families in the future years. This technique allows us to focus only on the effect of inflation on the UCT, while keeping every other component of Iran's fiscal system identical.

Panels A and B of Table 3 demonstrate a similar pattern in which the poverty headcount ratio of Disposable and Consumable Incomes remains relatively the same for 2011/2012 and 2012/2013, but increases by about 5 percentage points (pp) by the year 2015/2016 (to be about 14.3% and 15.8% respectively). The increase in poverty is much more severe in rural areas compared to urban areas. From 2011/2012 to 2015/2016 the poverty headcount ratio of Disposable Income (Consumable Income) in rural areas increases from 20.6% (22.8%) to 31.1% (33.7%). For the same period of time, the poverty headcount ratio of Disposable Income (Consumable Income) in urban areas only increases from 4.8% (5.6%) to 7.5% (8.5%). While the increase in poverty in urban areas is greater in percentage terms over the course of these five years (about 56.3% in urban areas comparing to 50.0% in rural areas based on the poverty headcount ratio of the Disposable Income), it only affects a relatively small fraction of households in the urban areas, about 1 in 12 households, as opposed to 1 in 3 households in rural areas that live in poverty in year 2015/2016.

Table 3. Poverty headcount ratio for different income concepts from 2011/2012 to 2015/2016. Poverty line is 2005 US$4 Purchasing Power Parity.

Panel A. Disposable Income

	Year				
	2011/2012	2012/2013	013/2014	2014/2015	2015/2016
Urban	4.8%	4.3%	5.7%	6.8%	7.5%
Rural	20.6%	18.8%	24.4%	29.2%	31.1%
Total	9.4%	8.5%	11.1%	13.3%	14.3%

Panel B. Consumable Income

	Year				
	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016
Urban	5.6%	4.9%	6.5%	7.9%	8.5%
Rural	22.8%	21.2%	26.9%	31.8%	33.7%
Total	10.6%	9.7%	12.4%	14.8%	15.8%

Source: Own calculations using the 2011/2012 through 2015/2016 rounds of Iranian household survey (2011/2012 is equivalent to 1390 in Iranian calendar).

Note: Year 2011/2012 values are from the household survey for that year while values for years 2012/2013 through 2015/2016 are simulated using 2011/2012 data and the relevant adjustment to the value of Unconditional Cash Transfer using ex-post information about the inflation-adjusted size of this program in those years. In calculating Purchasing Power Parity values, we use the 2005 round of ICP (International Comparison Program) as reported in the World Development Indicators published by the World Bank. To change monetary values from the year of survey to 2005, we use the Consumer Price Index from the World Development Indicators.

By fixing all elements of the fiscal system other than the UCT, the aforementioned increase in poverty is attributed solely to the impact of inflation on UCTs. To have a better understanding of the loss of the UCT's power in reducing poverty, Table 4 presents the

contribution of this program in different years with respect to Disposable (Panel A) and Consumable (Panel B) Incomes. The contribution values show how much higher the poverty headcount ratio would have been if the UCT did not exist. In other words, by combining corresponding values from Table 3 and 4, we have the poverty headcount ratio of a system without UCT. For example, Panel A of Table 3 reveals that the poverty headcount ratio for Disposable Income in 2011/2012 is 9.4%. The corresponding value of the UCT's contribution to the reduction of poverty in the same year is presented in Panel A of Table 4 and it is equal to 11.3pp. Combining these two values, if the UCT did not exist in year 2011/2012, the poverty headcount ratio would have been about 20.7% (as opposed to 9.4%). This shows that the UCT had a major impact on poverty and reduces it by about 50% in 2011/2012.

Table 4. The contribution of UCT to the reduction of Poverty headcount ratio for different income concepts from 2011/2012 to 2015/2016. Poverty line is 2005 US$4 Purchasing Power Parity.

Panel A. Disposable Income

	Year				
	2011/2012	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**
Urban	7.2pp	7.7pp	6.4pp	5.2pp	4.6pp
Rural	21.3pp	23.1pp	17.5pp	12.7pp	10.8pp
Total	11.3pp	12.2pp	9.6pp	7.4pp	6.4pp

Panel B. Consumable Income

	Year				
	2011/2012	**2012/2013**	**2013/2014**	**2014/2015**	**2015/2016**
Urban	7.8pp	8.4pp	6.9pp	5.5pp	4.9pp
Rural	21.9pp	23.5pp	17.8pp	12.9pp	11.0pp
Total	11.9pp	12.8pp	10.1pp	7.7pp	6.6pp

The UCT's power to reduce poverty decreases as it loses its real value due to inflation. Panel A of Table 4 shows that between 2011/2012 and 2015/2016, the contribution of UCTs to the reduction of poverty diminishes by about 40%, from 11.3pp to 6.4pp. A similar pattern is observed in Panel B of this table in which the contribution of UCT is calculated with respect to the Consumable Income.

The role of UCTs in reducing poverty is much more significant in rural areas of Iran in 2011/2012. As a result, the increase in poverty due to inflation is much greater in these areas. Specifically, in 2011/2012 the contribution of the UCT to the reduction of poverty for Disposable (Consumable) Income is about 21.3pp (21.9pp) in the rural areas, as opposed to only 7.2pp (7.8pp) in the urban areas. In 2015/2016, this contribution is reduced to be about 10.8pp (11.0pp) in the rural areas in comparison to 4.6pp (4.9pp) in the urban areas.

Policy Recommendation

The UCT component of the energy subsidy reform in Iran received a lot of credit for its role in creating a peaceful environment for eliminating energy subsidies as well as its initial impact on reducing poverty. Our analysis shows that inflation over the course of the five years following this reform reduced the effect of the UCTs significantly, by about 40% nationwide. Moreover, this loss in the contribution of UCTs to the reduction of poverty is felt more in rural areas of Iran where the UCT lost almost 50% of its 2011/2012 power by 2015/2016.

While UCTs still play an important role in fighting poverty in Iran, our findings highlight the detrimental impact of inflation and the need for policy reform in order to keep the UCT a relevant poverty-reduction factor. Over the past few years, Iran's government focused on eliminating UCTs to the top 20% of income distribution (i.e. making the cash transfer "conditional") to reduce the fiscal burden of the program. Our recommendation is to extend the elimination of UCTs to include the top 40%, but to reallocate the resulting freed-up resources from the additional two deciles to the bottom deciles of income distribution as a way of compensating for the effect of inflation over the past five years. Our analysis shows that the value of the UCT in 2015/2016 is almost half of its original value in 2011/2012 (based on Table 2). That means if the UCT of deciles 7 and 8 is divided between deciles 1 through 4

evenly, these bottom four deciles will be as well-off as they were in 2011/2012 (ignoring the impact of inflation on other components of the fiscal system in Iran). A better approach, although costlier from an administrative perspective, is to make the UCT more targeted toward the poor population, especially in the rural areas. Our analysis in Enami et al. (2016) shows that targeting resources will significantly increase the effectiveness of UCTs in reducing poverty and ensure that financial resources are properly spent on fighting poverty and reducing inequality.

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