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IRAN'S SUBSIDY REFORM FROM PROMISE TO DISAPPOINTMENT

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In December 2010, Iran implemented an ambitious subsidy reform program for energy and bread. Prices on these products were raised by factors of 2 to 9 and, in compensation, households were given a monthly cash transfer of about \$45 per person (about \$90 in Purchasing Power Parity dollars). The compensation scheme was essential to the initial success of the program and allowed the largest energy price reforms in history to go through without the social unrest that usually accompanies, and often derails, much smaller fuel price increases in other countries.

However, three years later, the program has stalled and energy prices are once again well below their global levels. Two factors explain the failure of the program to continue after its successful implementation. First, in its zest to redistribute income, the government set the level of cash transfers well above new revenues from the price increases, and printed money to pay for the deficit. The resulting inflation eroded public support for the program and caused the parliament to freeze further price adjustments.

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Second, about a year and a half after the program began, international sanctions targeting Iran's oil exports and the country's access to global trade tightened considerably caused oil exports to fall by half and disrupted industrial production. Iran's currency, the rial, collapsed and prices spiraled out of control. The resulting economic crisis eroded public support for the program and put further energy price increases on the back burner.

In 2014, the new Rouhani government has resumed price reform, though this time in much smaller scale and in calmer international and domestic environments, but distrust in energy price reform and cash transfers is deep and the fight to bring energy prices to international levels will remain tough.

The main lessons from Iran's experience with energy price reform are that cash transfers are an important part of the reform package—they can reduce poverty and inequality while increasing the reform's general acceptance—and that they must be self financing and not depend on the general budget.

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About the author



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Introduction

On December 19, 2010, Iran embarked on an ambitious reform of its extensive subsidies. Energy prices that had been kept well below international levels for decades were raised by a factor of 3 to 9 and bread prices were doubled. Energy price reform had been discussed for at least a decade, and the specific plan for this particular reform program was announced by president Ahmadinejad in 2008 and enacted into law in January 2010. This attempt at reform ended a huge government subsidy, estimated at upwards of \$70 billion per year, or nearly \$100 per person per year. It was distributed highly unequally and caused Iran's productive sectors to become the least efficient in the world (IEA 2010; Salehi-Isfahani et al 2012).

Unlike reforms in other countries, Iran's massive price reform went smoothly, without the type of social unrest that had plagued such reforms in other developing countries. However the initial success of the reform in getting underway and being able to maintain the initial price increases proved temporary. In the last three years since the reform, energy prices have remained fixed, declining in real terms by over 60%. Iran's experiment in energy price reform has important lessons for other MENA countries that currently subsidize energy and are contemplating price reform. This policy brief explains the essential features of Iran's reform, offers an evaluation of its performance, and suggests reasons why it has faltered.

1. Why the Reform

At the outset, it is important to understand that Iran's energy subsidy reform was not prompted by dire budgetary needs, as is the case with most developing countries. Governments in these countries undertake politically difficult subsidy reform because they are not able to pay for them. In Iran, the bulk of the subsidy for energy products is foregone government earnings because the government is the main producer and supplier of energy. As a result, reform is postponed and subsidies accumulate until their sheer inefficiency and inequity prompt the government to take action. Energy subsidies pollute; they encourage energy and capital-intensive technologies, and most of their benefits go to the rich.

The government of Iran delivers more than 4 millions oil-equivalent barrels of energy (gasoline, natural gas, and electricity) each day to consumers inside the country. The total value of this energy in the global market is more than \$100 billion, but even after the price increases of 2011 the government reports less than \$10 billion in profits. Given the great need for public investment and expenditures on social programs the budgetary pressures to end energy subsidies are considerable, even for a net energy-exporting country like Iran. But these pressures are nothing like having to borrow internationally, to tax, or to print money to pay for the subsidy. So as a result energy subsidies are larger and last longer in countries that are net energy exporters than in net importing countries.

Neither budgetary pressures nor economic efficiency was high on president Ahmadinejad's mind when he started his push for energy subsidy reform. Significantly, the discussion to end energy subsidies started in earnest in Iran around 2007 when oil

revenues were at their height. The fact that cheap energy had rendered the air in Iran's major cities unbreathable, or that during the past two decades Iran had doubled the amount of energy it used for \$1 of GDP while the rest of the world was cutting theirs were not the reasons why the government decided to act (Salehi-Isfahani et al. 2012). President Ahmadinejad was looking for ways to redistribute income and replacing energy subsidies with cash transfers seemed the most effective way to do it.

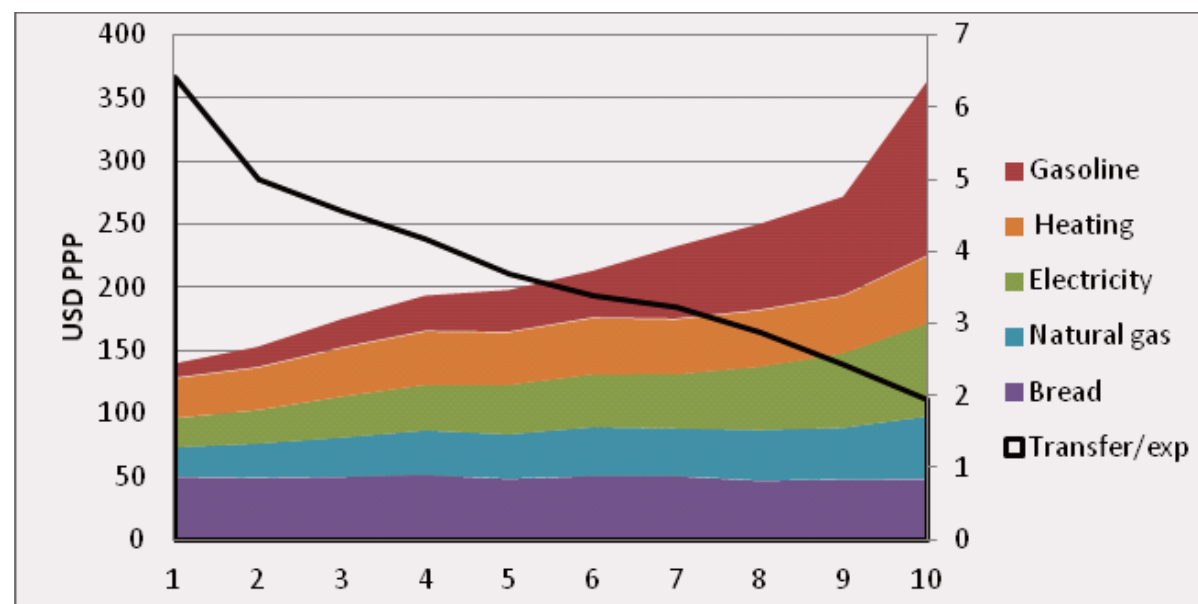
2. Political Economy

Given that energy subsidies are hugely inefficient, in principle, their elimination should garner wide social support. Furthermore, because they disproportionately benefit higher income groups who use more energy, one would expect the poor to be more supportive of energy price reforms. But, because the poor spend a larger proportion of their incomes on energy than the rich, and have less room to maneuver when energy prices go up, they are more

apprehensive and therefore more likely to resist them. As a result, peaceful implementation of energy subsidy reform depends heavily on a credible compensation mechanism that assures the poor that they will not lose in the bargain.

In Figure 1, data from the Household Expenditure and Income Survey (HEIS) for 2009/2010 (March 20, 2009 to March 20, 2010) show the inequality of benefits from energy subsidies as well as the higher share of energy in poor people's consumption. The shaded areas are expenditures per person per year on various energy products and bread by decile of per capita expenditures, measured in Purchasing Power Parity (PPP) dollars (left axis). Assuming that the subsidies that directly accrue to households (as distinct from the indirect benefits from, say, lower transportation costs) are proportional to expenditures, the shaded areas are proportional to the subsidies received. (Since some energy prices are non-linear they may be less than proportional.) These curves show that the individuals in the top

Figure 1: Expenditures Per Person Per Year on Subsidized Goods and Their Share in Total Expenditures (by decile of per capita expenditures, 2009/2010)



Source: Author's calculation using data from the Household Expenditure and Income Survey (HEIS) 1388 (2009/2010) collected by the Statistical Center of Iran.

decile, who spent on average \$350 per year on these subsidized products, received in total subsidies 2.5 times as much as a person in the bottom decile, who spent less than \$150 on average. Gasoline was the most regressive subsidy, with the richest benefitting about 15 times as much as the poor, while the bread subsidy was uniformly distributed.

The right axis shows that expenditures on these products accounted for more than 6% of the budget of a person in the bottom decile compared to 2% for a person in the top decile. Assuming linear prices, subsidies were three times as important for the poor than the rich. Given the poor's greater reliance on energy subsidies and their much lower ability to cut other expenditures, a three-fold increase in prices without compensation would have thrown millions into deep poverty. Peaceful implementation of the reform thus called for a scheme that compensated them for the price increases.

Iran's subsidy reform program both benefitted from and was harmed by the fact that its champion was a populist president, Mahmoud Ahmadinejad, who had considerable credibility among the poor but was also more keen on redistribution than price reform (Salehi-Isfahani 2009). Trust in his desire to redistribute helped calm the poor regarding the consequence the program for their pocketbook. Such fears were further allayed by allowing cash transfers to sit in people's accounts for weeks before simultaneously raising energy prices and allowing them to withdraw the money.

The downside of Ahmadinejad's redistributive view of the reform was that the cash payments were set too high and exceeded by about one-third what the government was able to recoup from higher prices. To make matters worse, the program's deficit was financed by printing money, which fueled inflation and alienated large sections of the population,

in particular the salaried middle class. In an attempt to maximize its redistributive impact, Mr. Ahmadinejad had undermined his own signature reform.

Another controversial decision was to increase prices in one step instead of gradually. Gradual increases soften the shock and are usually preferred, but only if they can be maintained over several years so prices can catch up with their intended targets. In Iran, the experience with gradual increases had not been encouraging as the government and the parliament had not seem capable of committing to increases beyond one year. Small increases in one year were rarely followed by increases the next year as the powerful lobbies of energy-using industries (such as petrochemicals and the auto industry) found ways to postpone further increases. This experience, in addition to Mr. Ahmadinejad's eagerness to generate revenue for redistribution, provided the impetus for shock therapy.

3. The Program

Except for gasoline, the actual size of the energy price increases are difficult to estimate because for natural gas, electricity, and water the rates increase with usage. There were also price variations to allow for differences in climate across the country. Gasoline had a two-tier price to begin with, 1000 rials per liter for rationed and 4000 rials per liter for free market gasoline; these were increased to 4000 and 7000 rials respectively. At the time, in 2010, the adjusted free market price was about \$0.70 per liter, close to its border price. In 2014, with the rial worth about one-third of its previous value, gasoline was being sold at about \$0.25 per liter, far below its border price. The price of gasoil, which had the highest subsidy, was set to increase by 22 times, but protests from truckers forced the government to keep the increase to 9 fold.

Initially, the government had a more ambitious redistributive goal, to pay cash transfers to the lower deciles only. Failing to come up with a dependable method to identify the poor, the government decided to pay everyone the same amount—455,000 rials per month. Several months before the program was to go into effect, households were asked to open a bank account and document the number of their members. Funds were electronically deposited into these accounts but could not be withdrawn. On December 19, 2010, when prices were increased, the funds became simultaneously available. In the political environment of the day in which people did not trust the government to keep its words, the early deposits helped assure most households of compensation.

According to the government, during the first 4 months of the program, about 62 million people (about 82% of the total population) started to receive cash transfers. This number increased quickly to cover about 95% of the population (over 70 million). Survey data indicates that coverage in rural areas where banks are less accessible was actually higher than in urban areas (Salehi-Isfahani et al. 2012).

4. Impact

Iran's subsidy reform program has come under criticism for a number of subsequent economic ills, many of which may have had other causes. A rigorous analysis of the causal impact of the reform package on any number of outcomes, such as inflation and unemployment, requires the construction of good counterfactuals that can help distinguish the impact of the subsidy program from other causes, in particular international sanctions. Sanctions tightened considerably in the months following the subsidy reform, culminating with the US decision in December 2011 to restrict Iran's oil exports and cut it off from the international financial markets.

A quick review of the evidence on inflation shows that not all the subsequent inflation can be attributed to the subsidy reform program, and survey data suggests that poverty and inequality improved in the two years after the reform.

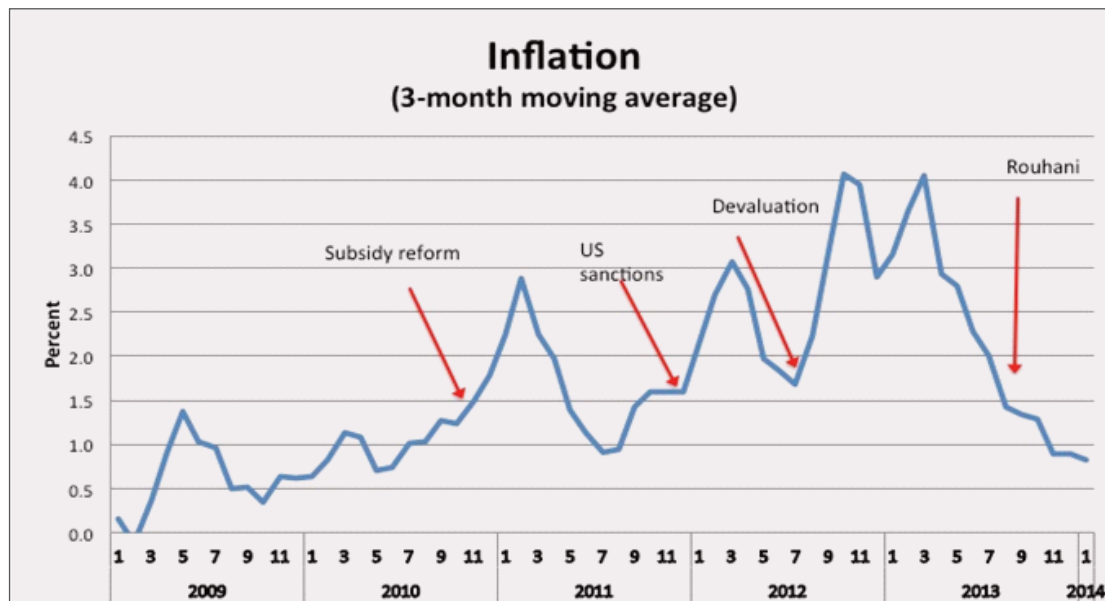
4.1 Inflation

Iran experienced unprecedented levels of inflation in the last three years, only part of which was due to the subsidy reform. There were two sources of inflation both entailing the growth of money supply. One source is change in relative prices caused by energy price increases and currency devaluation, both of which were accommodated by growth in money supply. The second source is government deficit arising from a general lack of fiscal discipline of the Ahmadinejad administration. The deficits in the subsidy reform program and a low-income housing program (Maskan Mehr) were financed by printing money.²

Figure 2, which plots the path of inflation for the last four years by month, demonstrates that the spurts of high inflation due to relative price shocks, each lasting a few months, were followed by a drop in the rate of inflation. The first spurt is caused by the sharp increase in energy prices, which in three months elevated the rate of inflation to 40% per annum. The timing of the next two surges in prices is clearly related to sanctions that restricted Iran's oil supply and reduced government revenues by one-third, and to the collapse of Iran's currency, the

²The deficit due to the subsidy reform program has been around 1-2% of the GDP. In 1391 (2012/2013), the program earned 302.8 trillion rials and spent 413.2 trillion on cash transfers, leaving it with a deficit of 111.6, which is about 1.1% of the GDP (Farzin 2014). According to the Minister of Housing, Maskan Mehr has cost the government 500 trillion rials, which is nearly twice the deficit of the subsidy reform in the last three years (<http://www.donya-e-qtasad.com/news/785310/>).

Figure 2: Inflation Rate, 2009-2013 (Percentage Increase by Month)



Source: Author's calculation based on monthly CPI reports of the Central Bank of Iran, <http://www.cbi.ir>.

rial, in late September 2012. Inflation picked up in pace each time before declining. From this graph it appears that once the relative price shocks were absorbed, inflation settled down to its chronic rate of about 15-20 percent, which was the average for the last two decades.

The election of the moderate president Rouhani on June 2013 raised hope that inflation will continue its recent downward trend, shown in this Figure. With fears of high inflation abating, the government is resuming energy price reforms in 2014/2015, though on a gradual pace and without additional compensation.

4.2 Poverty and inequality

In 2011, before inflation and devaluation had eroded the value of cash transfers, they were significant sums for poor households, especially those with many members. The average family of four could count on 1,820,000 rials per month (\$364 PPP),

which was about 60% of the minimum wage, 28% of the median per capita expenditures, and greater than the monthly expenditures of 2.8 million Iranians. Poor families' energy expenditures increased by less than the value of the cash transfers, so on balance the program reduced poverty and improved inequality.

Table 1 provides evidence on the change in poverty from surveys taken after the reform. According to both the Headcount Ratio and the Poverty Gap Index, during 2009-2012 poverty declined significantly. For the purpose of illustration, I set the poverty line at \$5 per person per day in 2012 international dollars (see also the note for Table 1). Because of the greater importance of cash transfers for the poorest individuals and the reach of the program to the poorest families, the Poverty Gap Index, which is sensitive to the extent of the income shortfall among the poor, registers a more significant decline in poverty than the Headcount Ratio. The Gap Index

Table 1: Poverty Rates [by Year and Region (Percent)]

Year	Headcount Ratio				Poverty Gap			
	Rural	Urban	Tehran	Total	Rural	Urban	Tehran	Total
2009	13.4	9.8	6.2	10.2	4.0	2.6	1.3	2.8
2010	10.3	7.2	5.6	7.8	2.9	1.8	1.1	2.0
2011	6.3	5.2	2.8	5.2	1.5	1.1	0.7	1.2
2012	5.0	5.4	4.4	5.1	1.0	1.1	0.8	1.0

Note: Headcount ratios are the percentage of individuals below the poverty line and the Poverty Gap Index is the average of poverty gaps as percentage of the poverty line. The poverty line is set at 36,520 rials per person per day (\$5 at the PPP exchange rate of 7,403 rials per dollar in 2012); to adjust for differences in the cost of living, it is lowered by one third for rural areas and raised by one-third for Tehran. Incomes and expenditures are in constant 2012 rials using the Consumer Price Index of the Central Bank of Iran.

Source: Author's calculations using HEIS data.

is four times lower in 2012 compared to 2009 for rural areas where poverty incidence is higher. Such a sharp decline in poverty at a time when Iran's economy was contracting under the weight of international sanctions and domestic economic mismanagement is difficult to explain without resort to the cash transfer program. In the absence of the subsidy reform and cash transfers, poverty would have surely increased as the economic crisis deepened after 2009.

The impact of cash transfers on the poor is also evident from a comparison of the growth of real per capita expenditure (PCE) between the poor and the rich during 2009-2012, when the economy stagnated.

In 2012, the median PCE was about the same as in 2009, while PCE for the 10th percentile was 30% higher and 7% lower for the 90th percentile.

Evidence on improvement in inequality is equally strong. Table 2 shows three indicators of inequity of expenditures and incomes, all falling significantly starting in 2011, the full year of the implementation of the reform. The decline in the General Entropy Index GE(-1), which is more sensitive to inequality in the lower part of the distribution, shows the largest decline for both per capita income and expenditures, indicating the importance of the cash transfer for lower income individuals.

Table 2: Inequality of Per Capita Expenditures and Incomes, 2009-2012

Year	Per capita Expenditures			Per capita Income		
	GE(-1)	GE(1)	Gini	GE(-1)	GE(1)	Gini
2009	0.432	0.313	0.421	0.470	0.306	0.414
2010	0.404	0.312	0.415	0.443	0.310	0.414
2011	0.309	0.262	0.382	0.284	0.239	0.367
2012	0.281	0.254	0.375	0.272	0.262	0.367

Note: Inequality measures are based on the distributions of expenditures and incomes of individuals, calculated by dividing household net incomes and gross expenditures by household size.

Source: Author's calculations using Household Expenditures and Incomes Surveys, Statistical Center of Iran.

5. The Reform Stalled

Although initially the law intended to raise energy prices to their border levels, once the economy went into the tailspin with inflation and devaluation, the parliament and popular sentiments prevented further price increases. So in practice prices remained fixed at their values of December 19, 2010. As other prices rose, energy prices declined in relative terms and once again energy was the least expensive item in the households' basket.

In the years since the start of the reform, the Ahmadinejad administration proved to be its worst enemy. Instead of finding a way to plug the hole in the finances of this and its other populist programs, the government continued with its reckless policy of inflationary finance. Instead of seeking the parliament's approval for further price increases that would bring revenues from the subsidy reform program closer to its outlays, President Ahmadinejad promised to increase cash transfers "five times". His evident lack of understanding of basic macroeconomics convinced many of his own supporters in the parliament that it would not be wise to allow further price increases. The populist president's desire for quick redistribution, which was the initial power behind the ambitious price reform, caused its undoing.

Despite these setbacks, Iran's subsidy reform program is not dead by any means. After months of hesitation, the new government of president Rouhani, has implemented another round of energy price increases, this time raising prices by a fraction of the increase that would have brought them to opportunity cost. Gasoline prices were raised to 7000 rials per liter for the rationed gasoline and 10,000 rials per liter for demand in excess of 60 liters per month per car. Even at the higher price, about \$0.30 per liter, gasoline in Iran is still priced at less than half its fob value and one-sixth of its price in neighboring Turkey. Other energy prices were raised by

20-30%, which is far below the 120% increase in the general price level since the reform went into effect in December 2010.

The Rouhani government's strong pro-market stance suggests that it is serious about making sure that Iranians use energy at market prices, but it is unwilling to increase the cash transfer at the same time. Its recent experiment with an alternative scheme to distribute a free basket of food to needy families -- which oddly included the armed forces, journalists, and other non-poor groups -- was a fiasco.³

6. Conclusions

Iran's subsidy reform program was unique in several ways: the government did not pay for much of the cheap energy it distributed so budgetary pressures were not as strong as in countries without abundant energy, the price increases to eliminate the subsidies were very large, and all consumers were (over) compensated by cash transfers. Despite its uniqueness, it does offer a few lessons for energy price reform in other countries.

The first lesson is that the longer the reform is postponed the more painful it will become. Had Iran's energy prices not been as low as they were, the price shock would have been more moderate and the adjustment less painful. The large size of the price increase necessitated a large cash transfer scheme, which proved too costly. Second, energy price reforms can reduce poverty and inequality provided that an appropriate mechanism is devised to use the savings from the reform to compensate the poor. Iran's cash transfer program had several

³See Salehi-Isfahani, Rouhani's spoiled food? An Iranian aid program raises questions. *Iran Matters*. February 14, 2014. <http://iranmatters.belfercenter.org/blog/rouhani's-spoiled-food-iranian-aid-program-raises-questions>.

advantages in this regard: it was simple to implement, had a wide reach, and avoided corruption. It also had one fatal flaw: it was too large relative to the price increases, fueling inflation and undermining the reform.

Third, the main benefit of energy price reform is to increase efficiency in the use of energy. To encourage investment by firms and households in energy-saving equipment, the government must commit to preventing the erosion of energy price in the long run. In Iran, the initial heroic increase in energy prices did not continue, so energy prices declined in relative terms by 30-40% per year, and with it the incentive to conserve energy.

As for Iran itself, mistakes in implementation have sharply reduced the appetite of the politicians and the public for further energy price reform, but the need to limit waste of energy is as strong as ever. The most important lesson for them is that the direct transfer of a small fraction of the nation's oil wealth in the form of cash transfers, can significantly improve poverty and equity.

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