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AN EVALUATION OF THE 2014 SUBSIDY REFORMS IN MOROCCO AND A SIMULATION OF FURTHER REFORMS

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ABSTRACT

Under increasing budget pressure, Morocco carried out an extensive set of subsidy reforms in 2014 and is planning for further reforms for 2015–2017, which will eliminate most consumers' subsidies. This paper evaluates (ex post) the 2014 reforms and simulates (ex ante) the impact on household welfare, poverty, and the government budget of the total elimination of subsidies. The paper considers food and energy subsidies and estimates direct and indirect effects using SUBSIM, a subsidies simulation model designed by the World Bank. It finds that the 2014 reforms have been a good mix of reforms from a distributional, welfare, poverty, and government budget perspectives. They are perhaps the most rational reforms undertaken in the Middle East and North Africa region in recent years. The analysis also finds further reforms costly for the poor and more complex from a political economy perspective, especially for liquefied petroleum gas.

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An Evaluation of the 2014 Subsidy Reforms in Morocco and a Simulation of Further Reforms

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1. Introduction

Morocco has a very long history with consumers' subsidies that predates World War II. This history has been characterized by different historical phases when subsidies fulfilled different functions from export promoting incentives, to price stabilization mechanisms, to social protection policies. Irrespective of their role, consumers' subsidies continue to exist 73 years after their first introduction. The past few years have, however, made consumers' subsidies more difficult to sustain. The global rise in commodities prices accompanied by the global rise in oil prices has turned consumers' subsidies in a major liability for the government's budget, becoming the main constraint to the current fiscal balance. This, in turn, has forced the government to reconsider subsidy policies, first by increasing prices of selected subsidized goods in 2012 and 2013, and then by undertaking a rather comprehensive reform in 2014, leading to a partial dismantling of the subsidy system.

This paper evaluates the 2014 subsidy reforms by simulating the impact of reforms on household welfare, poverty and the government budget. Using a household consumption survey and input-output tables, we estimate direct effects via changes in prices of subsidized products and indirect effects via changes in prices of non-subsidized products. We will also simulate the impact of the total elimination of subsidies to see the implications of completing the reforms initiated in 2014. In addition, we will consider the cost and benefits of possible compensation mechanisms in cash. Two sections of the paper set the framework for the reforms. The first is a section on the evolution of subsidies since their introduction and the second is a section on the political economy of reforms. This last section helps to understand what the major obstacles to further reforms may be.

The paper is organized as follows. The next section covers the evolution of subsidies since their first introduction. Section three explains the baseline data. Section four documents the distribution of subsidies as of October 2014. Section five describes the results of the simulations. Section six discusses the political economy of reforms and section seven concludes.

2. The evolution of subsidies

The subsidy system in Morocco was created in 1941[2] to stabilize prices of consumers' products that had been rising strongly because of the Second World War. To cope with the war effort, France was importing heavily from Morocco[3] and this contributed to raise domestic prices.[4] As a response, the kingdom introduced a stabilization fund called "Caisse de Compensation (CDC)". After the end of the war, the CDC continued to operate as an instrument to facilitate the entry of various French products in Morocco at competitive prices under the "Open Entry" regime.

After independence in 1956, the government continued to use the CDC[5] to stabilize prices of selected commodities while extending its mission to helping all troubled sectors, mostly industries of craft, charcoal, cement, and fertilizers, along selected firms exporting strategic products. Before 1974, the CDC was financially autonomous, with its resources coming from fees and taxes levied on sectors benefiting from its support, especially from the oil sector. Its financial balance was maintained through

[2] Before 1941, there were 6 equalization funds to stabilize prices of sugar, steel, fuels, eggs, timber, and vegetables.
[3] Morocco was a protectorate of France until 1956.
[4] The main basic commodities targeted by the CDC during WWII include flour, bread, edible oil, charcoal, sugar, barley, corn, and milk.
[5] In the rest of the text, CDC will be used to include also the ONICL created in 1973, the agency that administers subsidies for soft wheat and flour.

taxation and the proceeds were used to support troubled sectors and stabilize prices of selected commodities.

The second oil shock would lead the CDC into a fragile financial situation resulting in increasing budget transfers to cover its deficits. In 1986, the government introduced specific taxes on imported petroleum products but the proceeds of these taxes were directly allocated to the state budget. This decision deprived the CDC from its most important source of revenues. From a financially autonomous instrument of equalization, the CDC turned into a subsidy fund relying mostly on the state budget. Nonetheless, the CDC was able to stabilize the burden on the budget over the period 1986-1994 thanks to the removal of subsidies on selected commodities in the context of the deregulation policies applied within the framework of the implementation of the structural adjustment programs of the 1980s.

Between the 1980s and mid-1990s, the government gradually proceeded with the liberalization of prices of a number of subsidized products, including milk, butter, fertilizers, cement, packaging of oils, and jet fuel. For the remaining products, the government decided to gradually reform subsidies through their partial liberalization and simplification before their full liberalization. Among food products, after the liberalization of the edible oils sector in November 2000, only flour and sugar remained subsidized. For petroleum products, a new pricing system was put in place in 2013 for gasoline, diesel, and fuel oil, allowing the transmission of international price changes to the domestic market. In 2014, the government removed subsidies for gasoline and fuel oil, followed by diesel. As of January 2015, subsidies are only limited to flour, sugar, and liquefied petroleum gas (LPG). Annex 1 presents the main measures and reforms of the subsidy system since its creation. The following sections describe in more detail reforms for different sets of products.

Petroleum products. The first substantial attempt to reform the subsidy system was launched in 1995 for liquid petroleum products, through the establishment of a price indexation system that linked domestic price changes to the fluctuations of corresponding quotations on the Rotterdam market. The system did not apply to LPG, for which the subsidy system continued to support fully its price differential. The fixing of prices for liquid petroleum products at the producers/importers level complied with the elements of the acquisition price structure set up in agreement with the main national refinery (SAMIR). The selling price to the public was revised monthly on the basis of the above acquisition price and in accordance with the structure of the sale price agreed upon with the distributors (Tables 1 and 2).[6] In parallel to the implementation of the indexation system, other measures were taken, mostly consisting of the replacement of import duties paid on crude oil by a consumption tax and the exemption from taxes for certain sectors heavily dependent on fuel energy, such as fishing activities, air and maritime transport, and electricity production.

Table 1- Example of the Selling Price Structure of liquid petroleum products before the 2013 reform (MAD. per unit)

Item #	Items	MAD/Liter	MAD/Liter	MAD/tm
1	**FOB price**	5.90	6.64	4715.58
2	Transport	0.09	0.10	156.83
3	Port taxes	0.02	0.02	12.79
4	Access cost	0.12	0.14	104.30
5	Parafiscal tax	0.02	0.02	12.21

[6] Note that the retail price for gasoline and diesel in 2013 were higher than the CIF border price. The difference is mostly explained by taxes. Hence, subsidies are estimated net of taxes which is a common practice. See, for example, IMF (2013).

6	Stock cost	0.11	0.13	110.00
7	**CIF Border price (tax and port handling fees included)**	**6.26**	**7.04**	**5111.72**
8	CT (Domestic Consumption Tax)	3.76	2.42	182.40
9	VAT (Value Added Tax)	1.00	0.95	529.41
10	Duty Credit	0.02	0.01	2.92
11	**Acquisition price, including taxes**	**11.05**	**10.42**	**5826.45**
12	Fees and distribution margins	0.38	0.28	90.00
13	**Subtotal 1**	**11.42**	**10.70**	**5916.45**
14	**Subtotal 2 (excluding VAT)**	**10.42**	**9.76**	**5387.03**
15	Equalization	0.88	0.11	0.00
16	VAT (Value Added Tax)	1.13	0.99	538.70
17	**Price adjustment account (Unit Subsidy)**	**-0.85**	**-2.67**	**-849.11**
18	**Wholesale prices including VAT**	**11.59**	**8.19**	**5076.63**
19	Premium for evaporation losses	0.06	0.04	
20	Correction for thermal changes in inventories	0.02	0.02	
21	Retail margin	0.32	0.26	
22	**Retail price to the public (excluding VAT)**	10.85	7.52	
23	**VAT (Value Added Tax)**	1.17	1.02	
24	**Retail price to the public (regulated by the govt.)**	**12.02**	**8.54**	

Source: Caisse de Compensation, CDC

Table 2- Example of the Selling Price Structure of LPG (MAD/Kg)

Items	**Container> 5Kg**	**Container<= 5Kg**
Acquisition price, taxes not included	**8,299.3**	**8,299.3**
Domestic consumption tax	46.0	46.0
VAT	834.5	834.5
Duty credit	3.6	3.6
Price for filling stations	**9,183.4**	**9,183.4**
Losses of filling process	183.7	183.7
Filling margin and costs	318.0	318.0
Special premium for inventory financing	30.0	30.0
Bulk transport provision	50.0	50.0
Capping of bottles	20.0	50.0
VAT	60.2	63.2
Sale price to distribution companies	**9,845.3**	**9,878.3**
Costs and margins of distribution companies	538.0	604.0
Costs and margin for stocking	387.5	450.0
Deduct VAT	894.7	897.7
Subtotal excluding VAT	**9,876.1**	**10,034.6**
VAT (max)	987.6	1,003.5
Compensation fund balance	-7,726.2	-7,954.7
Wholesale prices VAT included	**3,137.5**	**3,083.3**
Retailers margin	195.8	250.0
Retail Price	**3,333.3**	**3,333.3**

Source: Caisse de Compensation, CDC

Against the backdrop of increasing global oil prices, the government decided to suspend the use of the price indexation system in 2000. This decision was due to the increasing political and social cost for the government to continue passing the full changes in the global prices through to the local markets, given its impact on transport services and hence on prices of basic commodities, and on competitiveness of the domestic enterprises.

Together with the suspension of the subsidy system, the government seized the opportunity of the relative easing of global prices between 2001 and mid-2004 to correct some cost items in the price structure of petroleum products that with time had been unduly favorable to the producers, importers and distributors of fuel products. Thus, the government revised in 2002 the price structure of petroleum products in order to simplify it and reduced the Coefficient of Adequacy of the local refinery from 6.5% to 2.5%. This coefficient was reduced in response to the performance of the processing of crude oil by the local refinery that managed to make the needed investment to enhance its production capacity and efficiency, especially for the production of diesel. Following the modernization of the local refinery in 2009, measures were taken to adapt further the price structure through indexing the freight costs and replacing the Coefficient of Adequacy by a lump-sum for the development of storage capacities. As the global oil price started to rise again strongly by mid-2004 and up until 2012, the government was forced to make several ad hoc partial upward adjustments to local prices of selected liquid petroleum products to reduce the growing pressure on the CDC and the budget. During this period, retail prices of LPG did not change (Table 3).

Table 3- Domestic annual average prices of main petroleum products

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Gasoline (MAD/L)	9.18	9.85	10.54	10.26	10.75	10.32	10.18	10.18	11.35	12.23
Diesel (MAD/L)	7.07	7.71	9.28	9.31	9.63	7.56	7.15	7.15	7.73	8.33
Fuel Oil (Industrial) (MAD/Ton)	2,302	2,595	3,233	2,887	3,124	3,032	3,358	3,678	4,254	4,666
LPG (MAD/12Kg container)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00

Source: Caisse de Compensation and staff calculation

As the global price remained high in 2013, the government decided to reform the subsidy system starting on September 16th by first reactivating the price indexation mechanism to help reverse the deteriorating fiscal trend. The indexation concerned the main liquid petroleum products, namely gasoline, diesel, and fuel oil. The new system imposed a cap on the unit subsidies for the three products to be managed by the CDC while the remaining price differential was to be passed through to domestic prices. The implementation of the price indexation system, helped by lower global oil prices, allowed reducing subsidies by almost 2 percentage points of GDP in 2013; as a result, the fiscal deficit narrowed to 6 percent of GDP (from 7.3 percent of GDP in 2012).

On February 1st 2014, the government stopped supporting prices of gasoline and industrial fuel oil. As a consequence, fuel oil used for the production of electricity has been included in the indexation system starting on June 1, 2014, with related subsidies replaced by a direct lump-sum transfer to the National Electricity Company (ONEE) for a three-year period (2014-2017). During this period, subsidies for fuel oil used to generate electricity are phased out as established by an agreement signed between the

government and the national office for electricity and water. The agreement provides for gradual retail price increases of electricity over three years to match production prices to the sale prices, which will entail operational cost savings in addition to price rises of about 3.5 percent annually. Only the price of the first consumption bracket is maintained unchanged for low-consumption households (less than 100 kWh per month).

Diesel has also been subjected to a gradual dismantling of its subsidies during 2014. To this end, the government decided to phase out unit subsidies to diesel from 2.15MAD/l in January to 0.80MAD/l in October 2014. Subsequently, the government removed diesel from its list of subsidized products as of January 2015. However, it decided to continue administering prices of liquid petroleum products through the implementation of the indexation mechanism up to end November 2015 when prices of all liquid petroleum products would be fully liberalized. Prices of these products would thereafter be subject to competition among the distributors. These actions have helped keep the subsidy outlays in line with their budgeted amounts while significantly reducing the vulnerability of the budget to international commodity price movements. These measures constitute major steps toward a comprehensive subsidy reform.

Sugar and edible oil. Before 1996, the CDC subsidized sugar on the basis of the difference between the unit cost and the selling price declared by each production unit. With this system, the state had been implicitly funding all other operating and capital expenses of the concerned firms. As for edible oil, the CDC used a different method based on the average unit costs of the producing firms. This has favored larger producers at the expense of smaller units. These systems simply led to inefficient use of public funds without necessarily benefiting consumers.

In 1996, the government launched the first phase of import liberalization for sugar and edible oil. To keep the consumer prices to their levels before liberalization while encouraging firms to rationalize their production costs, the government introduced a lump-sum subsidy mechanism for the two products in July 1996. The lump-sum subsidy to sugar concerned both local and imported sugar. Under this system, the importation of sugar and edible oil was subjected to tariffs, the proceeds of which allowed the CDC to cover 75% of edible oil subsidies and nearly 50% of sugar subsidies. The remaining price differential was borne by the state budget. In addition to customs duties, other taxes were imposed on imports of both products. Taxation on sugar and oil was meant to be an instrument of protection for domestic production, keeping the target border prices fixed. In 2000, prices of edible oil were totally liberalized, leading to the suppression of the related subsidy system.

In 1999, the government forced certain industries, such as biscuit and chocolate producers, and soft drinks producers, to refund the lump-sum subsidy benefiting the sugar used as input in the production process. In order to maintain competitiveness of sugar-intensive national industries, the refund was abandoned in 2006, except for the soft drinks industry, which benefitted from a reduced refund rate starting from 2008. In 2010, sugar exports under all its forms have been subject again to a refund of the allocated subsidy. However, the CDC continued to support sugar prices both directly through the consumer price, but also to the sugar industries through their main production inputs (beetroot and cane sugar). Hence, sugar subsidies were still in place at the end of 2014.

Wheat and flour. The government has been subsidizing flour since the creation of the CDC in 1941. It has also been protecting soft wheat produced locally for subsidized flour through high custom duties on imports. As consumption of flour and the associated subsidies started to increase rapidly, the government decided in 1988 to limit the subsidy allocated to soft wheat flour to a quota of 10 million tons per year. The 1996 liberalization phase also concerned soft wheat imports, but subjected them to an administered

pricing mechanism at the border as an instrument of protection of domestic production. However, due to the surge in the price of wheat on the international market in 2007 and the need to meet the increasing demand for bread, imports of soft wheat for the production of liberalized flours benefited from import subsidies when prices exceeded the target price.

The high burden of subsidies stemming from the widening gap between domestic and international prices of wheat urged the government to take measures to reduce, albeit marginally, subsidies benefiting the national flour. To this end, it reduced the quota of subsidized flour to 9 million tons annually, while strengthening the control of production and delivery of subsidized flour, and redeploying its distribution to targeted populations, mainly using poverty maps. The government further limited the subsidized-flour's annual quota to 8.5 million tons starting from the second half of 2013. The reduction of the quota was limited to urban areas with a poverty rate below 10%.

3. Baseline data

The distributional and simulation analyses that follow largely rely on household budget survey data. These data are collected occasionally in Morocco and the last available survey is the 2007 Living Standards Survey (LSS). The first exercise before undertaking the distributional and simulation analyses that follow is therefore to update the information available in the 2007 data to 2014, the year we consider for the analysis. The 2007-2014 extrapolations are based on demographic and economic estimates. Table 4 shows the reference statistics used for the extrapolation.

Table 4 - Reference statistics 2007-2013

Source	Indicator	2007	2008	2009	2010	2011	2012	2013
1	GDP (current prices, bn MAD)	616.3	688.8	732.4	764.3	804.2	850.6	909.4
1	GDP (real prices 1998, bn MAD)	554.0	584.9	613.9	636.6	663.8	688.3	718.0
3	GDP growth (base 2007=100)	100.0	105.6	110.8	114.9	119.8	124.3	129.6
1	Government spending (current prices, bn MAD)	185.2	219.2	227.7	243.8	277.4	277.0	294.9
2	Population (000)	30841.0	31177.0	31514.0	31851.0	32187.0	32522.0	32853.0
3	Population growth (base 2007)	100.0	101.1	102.2	103.3	104.4	105.5	106.5
1	CPI (base 2006)	102.0	106.0	107.0	108.1	109.1	111.3	114.0
3	CPI (base 2007)	100.0	103.9	104.9	105.9	106.9	109.0	111.8

Source: (1) IMF World Economic Outlook database; (2) HCP Morocco; (3) Our estimates. MAD=Moroccan Dirham.

Based on the data presented in Table 4 and the subsequent update of the information available in the household budget survey, we reconstructed population and expenditure figures for the year 2014. These are presented in Table 5. The population of Morocco is estimated at 33.3 million including about 7.1 million families. Total household expenditure is estimated at 580.2 bn. Moroccan Dirham equivalent to 81,743 Dirham per household and 17,420 Dirham per capita. The average household size is estimated

at 4.7 persons and this size is larger for poorer households. The first quintile (the poorest) spends about 12% of what the fifth quintile (the richer) spends on average. These extrapolations are not the exact figures available in macroeconomic statistics but they represent good approximations considering that they are derived from household data and a rather old data set.

Table 5 – Baseline Population and Expenditure data by Quintile

	Population (m)	Number of households (m)	Household size	Total expenditures (m)	Total expenditures per capita	Total expenditures per household
Quintile 1	6.66	0.98	6.8	34,789	5,223	35,362
Quintile 2	6.66	1.19	5.6	58,543	8,789	49,105
Quintile 3	6.66	1.36	4.9	82,599	12,398	60,946
Quintile 4	6.66	1.57	4.2	118,540	17,794	75,382
Quintile 5	6.66	1.99	3.3	285,699	42,913	143,304
Total	33.30	7.10	4.7	580,169	17,420	81,743

Source: Authors' estimations from household budget survey data

4. A distributional analysis of subsidies (October 2014)

The analysis presented in this paper covers food products (sugar and flour), petroleum products (gasoline, diesel and liquefied petroleum gas – LPG), and electricity. Water is not considered to be subsidized in Morocco but the 2014 reforms included a change in the price structure for household consumers and this change has implications for household welfare. We therefore included simulation for water when we assessed the 2014 reforms.

The prices of subsidized products in October 2014 are described in Table 6 together with the unit subsidies and the unsubsidized prices. LPG, flour and electricity are the products with the highest subsidies relative to the unsubsidized price with LPG reaching 66.6% of the unsubsidized price. Households spend over 47 bn. MAD on subsidized products, which represents 8.1% of total household expenditure. The largest expenditure item among subsidized products is electricity (16 bn.). However, the largest subsidies are, by far, on LPG which alone costs the government about 11.8 bn. MAD. This is followed by electricity (6.4 bn.) and flour (2.4 bn.).

Table 6 – Subsidized products (October, 1st 2014)

	Unit	Unit price	Unit subsidy	Unsubsidized unit price	Unit subsidy (% of unsub. price)	HH Exp. On Subs. Products (bn. MAD)	Total subsidies (bn. MAD)
Gas LPG	Kg	3.330	6.654	9.984	66.6	5.9	11.8
Gasoline	L	12.800	0.000	12.800	0.0	2.8	0
Diesel	L	9.890	0.800	10.690	7.5	3.7	0.4
Sugar-piece	Kg	5.820	2.850	8.670	32.9	2.5	1.2
Sugar-cube	Kg	5.820	2.850	8.670	32.9	0.4	0.2
Sugar-granul.	Kg	4.500	2.850	7.350	38.8	0.9	0.6

Flour-free	Kg	5.000	0.700	5.700	12.3	5.6	0.8
Flour-nat.	Kg	2.000	1.430	3.430	41.7	2.3	1.6
Electricity						16.0	6.4
0-100	kWh	0.9010	0.6600	1.5610	42.3	0.8	0.5
101-150	kWh	0.9689	0.5900	1.5589	37.8	0.8	0.5
151-200	kWh	0.9689	0.5900	1.5589	37.8	2.9	1.8
201-300	kWh	1.0541	0.5100	1.5641	32.6	4.6	2.2
301-500	kWh	1.2474	0.3167	1.5641	20.2	4.4	1.1
501 and more	kWh	1.4407	0.1200	1.5607	7.7	2.4	0.2

Source: Official Bulletins No. 6222, 16 January 2014 and No. 6288, 4 September 2014 and CDC.

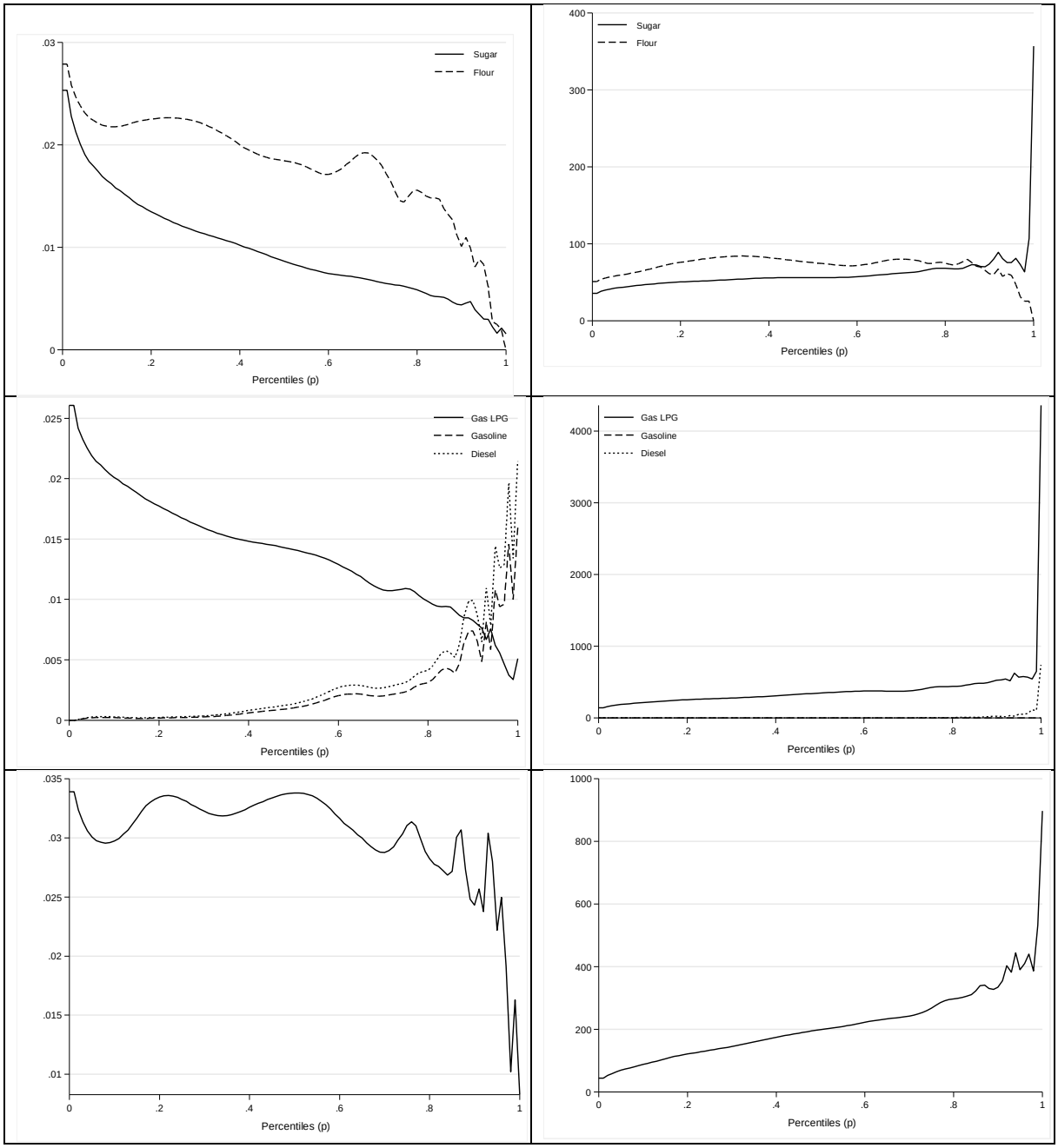
Figure 1 below shows how important subsidized products are for households (left-hand panels representing expenditure on subsidized products as a share of total expenditure) and how important are subsidies in per-capita terms (right-hand panels representing subsidies per capita). On the x-axis we have the household expenditure distribution in percentiles, the poorest percentiles are on the left and the richer percentiles are on the right of the figures. Each line in the graphs represents one product and we have divided products into three panels; food products (flour and sugar – top panel), petroleum products (LPG, gasoline and diesel – middle panel) and electricity (bottom panel).

Starting from the food products (top panels), we can see that sugar and flour are both more important for the poor than for the rich (both curves are downward sloped in the left-hand panel). The poorest percentiles consume between 2% and 3% of total expenditure on these products while the richest percentiles consume a tiny share of total expenditure. However, if we look at subsidies per capita (right-panel), flour subsidies per capita are larger for the middle class than for the poor or the rich while sugar subsidies are pro-rich with higher subsidies per capita going to richer households.

The pictures are different for petroleum products (middle-panels). Here we can see that LPG is a very important item for the very poor and declining in importance very quickly for richer households while gasoline and diesel are not very relevant for the poor but they become increasingly relevant for the rich (left-hand panel). In terms of subsidies per capita (right-hand panel) the only important product is LPG and this product is really pro-rich, meaning that richer households receive higher subsidies. Hence, LPG is the most important subsidized product for the poor but subsidies per capita are larger for the rich despite the fact that the poor have larger households. This is one example of inequitable distribution of subsidies.

The picture changes again if we look at electricity (bottom panels). The share of expenditure on electricity subsidies is declining with poorer households consuming larger shares than richer households (left-hand panel). Instead, in terms of subsidies per capita, electricity is pro-rich. Similarly to LPG, electricity is another product that strikes as particularly inequitable given the importance of this product for the poor and the pro-richness of subsidies per capita.

Figure 1 – The share of total expenditure on subsidized products (left-panels) and the amount of subsidies per capita (right-panels) by percentile.



Source: Authors' estimations from household budget survey data.

5. Simulation of subsidy reforms

This section will consider two sets of simulations. The first simulation focuses on the reforms carried out by the Government of Morocco between January and October 2014. This simulation can be considered as an *ex-post* evaluation of the 2014 subsidy reforms. These reforms include the elimination of subsidies on gasoline in January 2014, progressive increases in the price of diesel implemented between January and October 2014 and changes to the electricity and water tariffs introduced in August 2014.[7]

More precisely, the progressive increases in the price of diesel included four successive reductions of the unit subsidy from 2.15 MAD per liter in January 2014 to 0.8 MAD in October 2014. The August 2014 reforms of electricity and water included an increase of the number of blocks from four to six for electricity and an increase from four to five blocks for water. In both cases, tariffs have been adjusted and, starting from the third block, the tariffs' system has changed from Increasing Block Tariffs (IBT) to Volume Differentiated Tariffs (VDT).[8] Both electricity and water billing include a fixed cost for meter use and management. This cost is not included in the simulations for partially compensating underreporting of utilities' consumption and estimate quantities consumed from household data that are closer to reality.

Note that water has no overall subsidies in place. There are cross-subsidies across blocks but the water system as a whole does not require direct transfers from the central budget. Therefore, the simulations carried out for water are meant to estimate the impact of the change in the tariffs' structure on consumers. Tariffs vary from region to region and it was not possible to obtain water consumption by region while it would be unpractical to report results for all regions. Therefore, the simulations that follow use the tariffs applied to the small centers ("petit centres") as an illustrative example.

Table 7 provides the changes in prices and tariff blocks used for the evaluation of the direct effects of these reforms. Unit subsidies have been estimated using data on deficits published by the ONEE. For all simulations and products we use an own price-elasticity of 0.2.

The second set of simulations is the total elimination of subsidies based on October 2014 prices, the latest prices available at the time of writing. Data in Table 7 provide initial and final prices for these simulations (October, 1st, 2014, unit price and unsubsidized price respectively).

[7] The elimination of subsidies on gasoline is based on the unit subsidies estimated by the government at the time of the January 2014 reform. It should be noted that the retail price for gasoline was higher than the import price (see Table 1) and that the difference is mostly explained by taxes on gasoline. Hence, subsidies are estimated net of taxes, which is a common practice (IMF, 2013). Also, the share of taxes in Morocco is lower than in countries like Italy or Germany where this share is well above 50% (OPEC, 2014).

[8] IBT is when the tariff corresponding to a particular block applies only to the latest block of consumption while tariffs for the previous blocks of consumption apply to the previous blocks. VDT is when the tariffs corresponding to a particular block is applied to all quantities consumed up to that block.

Table 7 – Baseline data for the simulation of subsidies reforms (Direct effects)

		January 1st 2014				October 1st 2014			
	Unit	Type of tarificat ion	Unit price	Unit subsidy	Unsubsi dized unit price	Type of tarificat ion	Unit price	Unit subsidy	Unsubsi dized unit price
Gasoline	L	Linear	12.020	0.780	12.800	Linear	12.800	0.000	12.800
Diesel	L	Linear	8.540	2.150	10.690	Linear	9.890	0.800	10.690
Electricity						**Electricity**			
0-100	kWh	IBT	0.9010	0.6600	1.5610	0-100	IBT	0.9010	0.6600	1.561
101-200	kWh	IBT	0.9689	0.5900	1.5589	101-150	IBT	0.9689	0.5900	1.559
201-500	kWh	IBT	1.0541	0.5100	1.5641	151-200	VDT	0.9689	0.5900	1.559
501 and more	kWh	IBT	1.4407	0.1200	1.5607	201-300	VDT	1.0541	0.5100	1.564
						301-500	VDT	1.2474	0.3167	1.564
						501 and more	VDT	1.4407	0.1200	1.561
Water						**Water**			
0-6	M3	IBT	2.3700	0.0000	2.3700	0-6	IBT	2.3700	0.0000	2.370
7-20	M3	IBT	7.3900	0.0000	7.3900	7-12	IBT	7.3900	0.0000	7.390
21-40	M3	IBT	10.9800	0.0000	10.9800	13-20	VDT	7.3900	0.0000	7.390
40 and more	M3	IBT	11.0300	0.0000	11.0300	21-35	VDT	10.9800	0.0000	10.980
						36 and more	VDT	11.0300	0.0000	11.030

Source: Official Bulletins No. 6222, 16 January 2014 and No. 6288, 4 September 2014.

The poverty lines used for all simulations are 2,796 MAD/capita/year (316 USD) for rural areas and 4,266 MAD/capita/year (481 USD) for urban areas. These poverty lines have been estimated by updating the 2007 official poverty line for inflation. They are quite low for a country like Morocco today as they were in 2007 and they provide a pre-reform poverty rate of only 4.15%. Keeping this poverty line is important for interpreting our results using the official poverty line. However, what is of interest for the simulations is the relative percentage change in poverty which gives a better sense of the real impact of reforms on poverty. This percentage change will also be reported in the text.

5.1. Evaluation of the 2014 subsidy reforms

In this section, we simulate *ex-post* the impact of the subsidies reforms that Morocco has implemented between January and October 2014. These include the elimination of the subsidies on gasoline, the progressive increases on the price of diesel and the reforms of the electricity and water tariffs. Table 7 detailed the price increases and the restructuring of the electricity and water tariffs blocks relative to these reforms. These *ex-post* simulations are useful in that Morocco has no new available micro data that can be used to evaluate the actual impact of the reforms. Even if these data were available, it would be very difficult to isolate the impact of the reforms from the impact of other shocks. This makes *ex-post* simulations of this kind a useful tool to evaluate reforms.

We divide the analysis into direct and indirect effects. Direct effects are estimated using household budget data only. These are the effects on household welfare that are transmitted to households through price increases of subsidized products. Indirect effects are estimated by combining Input-output data with household budget data. These indirect effects capture the impact that price increases on subsidized products have on the prices of non-subsidized products and, through the latter, on household welfare.

5.1.1.Direct effects

The total impact of the 2014 subsidies reforms on households is estimated at 5.9 bn. MAD or 177 MAD per capita per year. The impact rises with income groups from 0.2 bn. for the poorest quintile to 3.1 bn. for the richest quintile. The largest contributor is water with 2.7 bn., followed by electricity with 2.4 bn. In terms of household welfare, the elimination of subsidies reduces welfare by about 1% on average with the impact being larger for the poorest quintile (-0.61%) as compared to the richest quintile (-1.07%).

It is interesting to note that water has a greater effect than electricity despite the fact that the water sector had no subsidies and that tariffs per block have not changed. This is due to the change in tariffs structure. The transformation of the upper three blocks in VDT tariffs determined a change in the tariffs applied to the consumers in these blocks relative to the quantities consumed under the first two blocks. This change has been much more significant for water than for electricity. Hence, the change in tariffs structure towards a VDT system can have an even greater impact on welfare than the simple increase in prices. This is an important consideration for household welfare and future reforms for water and electricity.

Table 8 – Welfare Effects of the 2014 Reforms (Direct effects, m. MAD.)

	Electricity	Water	Gasoline	Diesel	Total	Total (% of expend.)
Quintile 1	-118.0	-94.5	-0.3	-1.1	-213.9	-0.61
Quintile 2	-241.4	-263.7	-1.4	-4.5	-511.1	-0.87
Quintile 3	-366.5	-462.5	-6.3	-20.6	-855.9	-1.04
Quintile 4	-490.8	-677.8	-17.6	-57.1	-1,243.2	-1.05
Quintile 5	-1,182.0	-1,221.2	-154.1	-502.7	-3,060.0	-1.07
Total	-2,398.7	-2,719.8	-179.7	-586.0	-5,884.1	-1.01

Source: Authors' estimations using SUBSIM and household budget survey data.

This reduction in welfare does not have any significant impact on poverty given that the poor do not really consume gasoline and diesel while the tariffs of water and electricity for this group (structure and prices) have not changed. They also had an insignificant effect on inequality (Table 9). The 2014 reforms saved the government about 5.5 bn. MAD assuming that the benefits of the average increase in prices due to the change in tariffs structure accrues to the government and not to producers or distributors (this is an implicit assumption of the model used for simulations). These savings come for the most part from the richest quintile (52.6%) and progressively less from the other quintiles with the poorest quintile contributing by only 3.7%.

As there is no increase in poverty, there is also no need to provide a compensatory cash transfer. If the government would have provided a poverty offsetting universal cash transfer, this would have cost 0.54 bn. and most of these transfers would have gone to the non-poor. Hence, by removing subsidies on gasoline and increasing prices for diesel, electricity and water with no compensation, the government has chosen a good mix of reforms from a poverty and budget perspective.

Table 9 – Welfare and Budget Effects of the 2014 Subsidies Reforms (Direct effects)

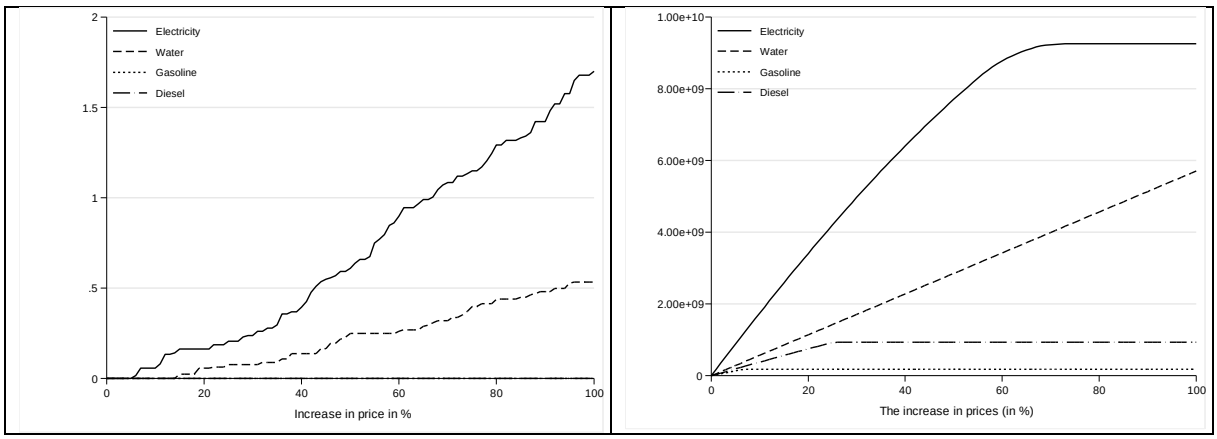
	Pre-Ref	Post-Ref	Change
Welfare (per capita)	17,420	17,244	-177
Poverty (%)	4.155	4.208	0.053
Inequality (%)	42.433	42.389	-0.044
Subsidies (in millions)	10,371	4,871	-5,500

Source: Authors' estimations using SUBSIM and household budget survey data.

In order to better understand the trade-offs between the gain in terms of government revenues and the losses in terms of poverty increases of subsidies reforms, Figure 2 shows the increase in poverty (left-panel) and the impact on government revenues (right-panel) of price increases between 1% and 100% for all products considered. From the standpoint of poverty (left-panel), the only products that would have a real impact on the poverty headcount are electricity and water for price increases above 30-40%. However, the reforms implemented in 2014 did not reach such price increases and did not affect the lower tariff block which concerns the poor the most.

From the standpoint of government revenues, the most promising product is electricity. This sector results in government savings higher than those resulting from increasing prices on other products. Water is the second sector in terms of promising government savings while gasoline follows. Hence, the government has taken the right choice in terms of increasing electricity and water tariffs for upper blocks and also increasing the number of blocks. In fact, by increasing the number of blocks, it is possible to achieve savings while respecting the household capacity to pay for electricity (consumer's demand). Moreover, prices were increased particularly for those products that are poverty neutral (in terms of direct effects) such as gasoline and diesel.

Figure 2 – Sensitivity of changes in Poverty and Government Revenues to Changes in Prices



Source: Authors' estimations using SUBSIM.

5.1.2. Indirect effects

We now turn to the simulation of direct and indirect effects using I/O and HBS data combined. The baseline data for the price shocks are in Table 10 below. With I/O tables it is not possible to simulate price increases by product or by tariff block given that the I/O tables are aggregated by sector. Therefore, we use averages across products belonging to the same sector or across tariffs blocks. As shown in Table

10, the shock to the petroleum sector is a price increase of 11.15% which is an average of the price shocks applied to diesel and gasoline. The assumption here is that gasoline and diesel have a similar weight in the I-O oil refining sector and that they represent the almost totality of the sector. The price shocks applied to electricity is 2.1%, which is an average price increase across tariffs blocks weighted by the number of households in each block.[9]

The most accurate estimates for direct effects remain those provided in the previous section and we will disregard estimates of direct effects using I/O data. What is of interest here is the relative share of indirect effects over total effects. Using this share, one can then derive a better approximation of the real value of indirect effects using the direct effects values of the previous section.

Table 10 - Reforms 2014: Baseline Data (Indirect Effects)

	Unit	Price January 1st, 2014	Price October 1st, 2014	Price increase (%)	Average price increase	HBS Sector	Corresponding I/O Sector
Gasoline	L	12.02	12.80	6.49	11.15	Petroleum	D23-Oil Refining
Diesel	L	8.54	9.89	15.81	11.15	Petroleum	D23-Oil Refining
Electricity	kWh	1.02	1.04	2.10	2.10		E001 Electric energy

Source: Official Bulletins No. 6222, 16 January 2014 and No. 6288, 4 September 2014 and authors' estimations based on average prices for electricity and water.

Results of the simulations show that the relation between direct and indirect effects varies significantly across products and across quintiles. If we simulate shocks for the two sectors independently we find indirect effects to be 87.79 of the total for petroleum products and 36.55% for electricity. The relative weight of indirect effects is also different across quintiles. Indirect effects on petroleum products are the quasi-totality of effects for the first (poorest) quintile while they become 81.33% for the upper quintile. This is understandable because the poor consume very little gasoline and diesel. Instead, for electricity, indirect effects represent 30.1% of total effects for the first quintile and this share increases to 42.17% for the fifth quintile. That is because the coverage of electricity is very large in Morocco and many if not most of the poor consume electricity.

Table 11 - Reforms 2014 – Indirect effects (% of total effects)

	Petroleum	**Electricity**
Quintile 1	99.55	30.10
Quintile 2	98.87	30.31
Quintile 3	96.48	30.52
Quintile 4	93.43	33.89
Quintile 5	81.33	42.17
Total	**87.79**	**36.55**

Source: Authors' estimations using SUBSIM.

[9] Note that the share of consumption in each block could also be used for weighting.

5.2. Complete elimination of subsidies

5.2.1. Direct effects

Recall that we are estimating the complete elimination of subsidies as of October 2014, after the 2014 reforms and when subsidies on gasoline had been already removed. Therefore, simulations concern petroleum products that still benefitted from some subsidies and the food products that were not affected by the 2014 reforms. The products considered are therefore LPG, diesel, sugar, flour and electricity.[10] The baseline data for these simulations are those in Table 6 (October, 1st, 2014).

The total impact of subsidies removal on households is estimated at 18.9 bn. MAD or 568 MAD per capita (Table 12). The impact rises with income groups from 2.3 bn. for the lowest quintile to 5.7 bn. for the upper quintile. By far, the largest contributor to this impact is LPG, which alone contributes for 11.8 bn., followed by electricity with 2.4 bn. In terms of household welfare, the elimination of subsidies reduces welfare by 3.3% on average with the impact being more than three times as large for the poorest quintile (-6.7%) as compared to the richest quintile (-2.0%).

Table 12 – Welfare Effects of Subsidies Elimination (Direct effects)

	Q1	Q2	Q3	Q4	Q5	Total
LPG	-1,405.9	-1,844.9	-2,321.1	-2,641.6	-3,619.3	-11,832.8
Diesel	-0.6	-2.3	-10.5	-29.2	-257.2	-299.8
Sugar-piece	-232.0	-253.4	-252.5	-254.5	-217.7	-1,210.2
Sugar-cube	-0.1	-2.9	-9.6	-36.2	-129.7	-178.6
Sugar-granul.	-70.0	-97.4	-112.0	-125.8	-160.1	-565.4
Flour-free	-33.6	-91.1	-138.0	-233.1	-291.9	-787.6
Flour-nat.	-397.2	-451.5	-363.1	-285.4	-123.4	-1,620.6
Electricity	-197.9	-328.6	-444.4	-560.7	-917.0	-2,448.6
Total	**-2,337.4**	**-3,072.1**	**-3,651.2**	**-4,166.6**	**-5,716.4**	**-18,943.7**

Source: Authors' estimations using SUBSIM.

This reduction in welfare results, in turn, in a significant increase in the poverty level from an estimated 4.1% before the reform to 5.2 % after the reform. It should be noted here that the low poverty level observed before the reform is a rough estimate of the true poverty level using the same poverty line used for the last available survey (2007) inflated to 2014 prices. Thus the actual poverty level is probably inaccurate. But what is of interest here is the relative change in poverty which is estimated at +27% (5.2/4.1*100). This is a very large increase as compared to the initial poverty level. Over 42% of this increase is explained by the removal of subsidies on LPG alone. We can also observe an increase in inequality estimated with the Gini coefficient, from 42.4 to 43.3, a relative increase of about 2%. The removals of subsidies on certain products which are particularly pro-rich such as diesel contribute to reduce inequality but, on aggregate, inequality increases.

The elimination of subsidies would naturally save to the government the equivalent of total subsidies or 18.9 bn. MAD. However, it is instructive to see what would be the cost to the government of providing a universal cash transfer to all households that would be able to maintain the pre-reform poverty level unaltered. This amount is estimated at 10.4 bn. and would result in a total government savings of 8.5 bn. (Table 13). This should be considered as an upper bound for transfers. If the government is able to target

[10] As discussed, the water sector does not receive water subsidies from the budget.

cash transfers to the poor to compensate for their losses in subsidies revenues, the cost for the government would be much lower.

Table 13 – Scenario I – Elimination of Subsidies, Main Results (Direct effects)

	Pre-Ref	Post-Ref	Change
Welfare (per capita)	17,420	16,852	-568.8
Poverty (%)	4.155	5.246	1.091
Inequality (%)	42.433	43.276	0.843
Subsidies (in millions)	18,944	0.000	-18,944
Transfers (in millions)	0.000	10,397	10,397
Total budget (in millions)	18,944	10,397	-8,547

Source: Authors' estimations from household budget survey data

In order to better understand the trade-offs between the gain in terms of government revenues and the losses in terms of poverty increases of subsidies reforms, Figure 3 shows the increase in poverty (left-panels) and the impact on government revenues (right-panels) of price increases between 1% and 100% for all products considered. Note that these price increases may not be realistic and even above the increases necessary to eliminate subsidies. The only purpose of this exercise is to show which product is the most promising in terms of positive impact on government finances while maintaining poverty low. The top panels illustrate food products, the middle-panels petroleum products and the bottom-panels water and electricity.

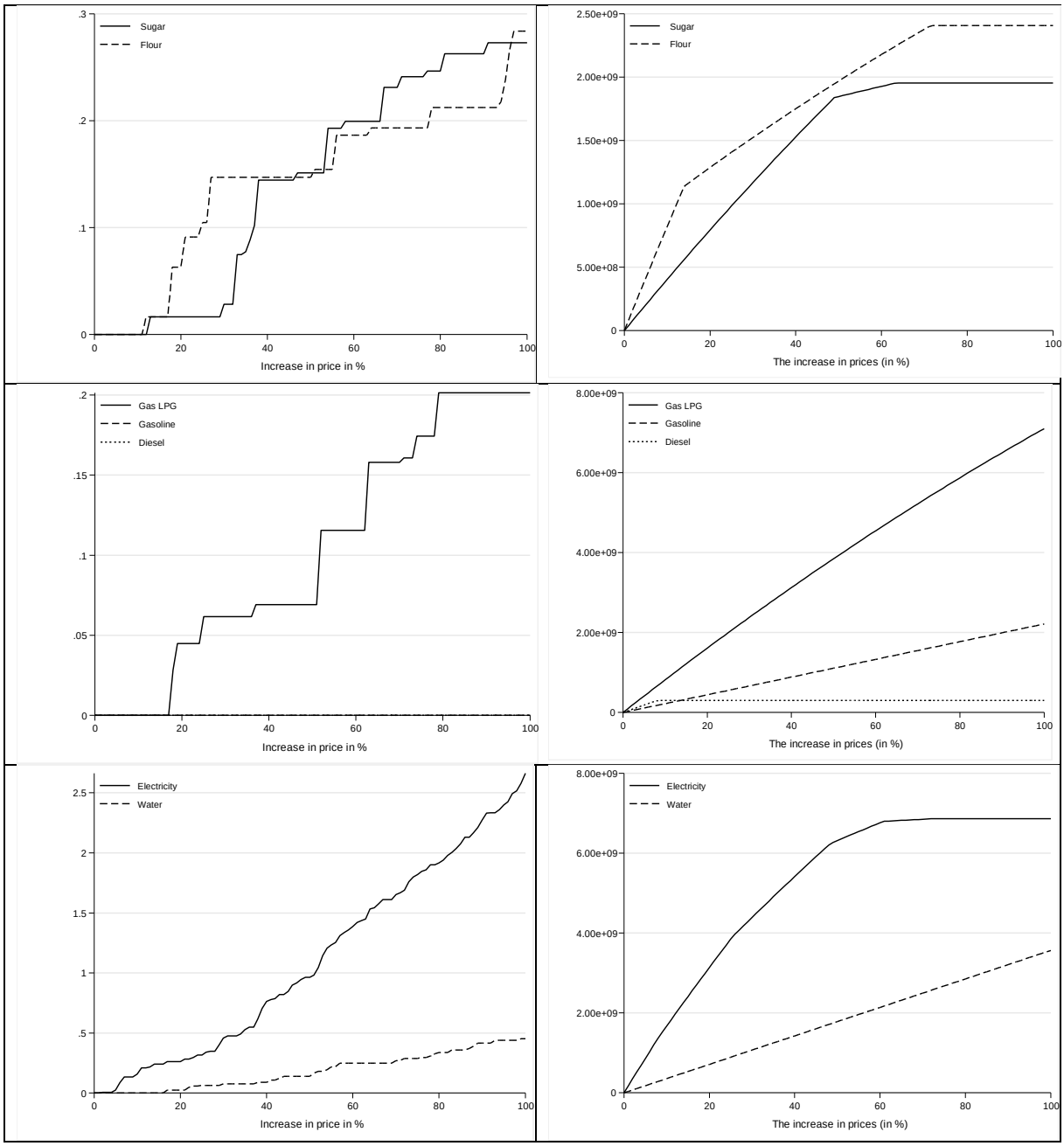
Concerning food products (top panels), increasing the prices of flour results in larger poverty increases as compared to sugar but this is true up to increases of about 40% (top-left panel). After this threshold, it is sugar that becomes more poverty increasing. In terms of government finances (top-right panel), increases in prices of flour provide more government savings than increases on sugar all along the price increasing spectrum. Hence, there is clearly a trade-off here. If the government increases prices of flour, it will gain more than increasing prices of sugar but the cost for poverty will also be higher than increasing prices for sugar. This is true up to price increases of 40%. After that, a good strategy is to continue increasing prices for flour while maintaining prices of sugar as sugar becomes more costly in terms of poverty increase while flour continues to be superior in terms of government savings.

Petroleum products are simpler to interpret (middle-panels). The only poverty increasing product is LPG given that diesel is not really consumed by households and given that gasoline has no subsidies (middle-left panel). However, increasing prices of gasoline and diesel further can increase government savings. Therefore, it would be a good strategy to keep LPG subsidies while financing these subsidies with further increases in gasoline and diesel prices (from a purely poverty-savings perspective). However, we saw that LPG is pro-rich while Figure 3 (middle-right panel) shows that the largest savings would be made with the increase in LPG prices. Thus, if we consider direct effects only as we do in this section, increasing gasoline and diesel prices alone is not sufficient to fix government finances and the government will have to address the large subsidies currently allocated to LPG.

The picture is even simpler with electricity and water (bottom-panels). Increases in electricity prices are much more promising for government savings than increases in water prices (bottom-right panel) but they also have a much greater incidence on poverty. What is noticeable here is that price increases of electricity beyond 60% bring very little additional government revenues (households start to consume much less) while poverty would continue to increase steadily. Hence, the reform of electricity subsidies is quite complex and needs to take into account the elasticity of consumption to price increases as well as the tariffs' brackets. Of course, the price increases that are considered in reality, for example the 2014

reform of electricity and water tariffs, are below 20%. This is the area of the graphs that is most of interest in Morocco today.

Figure 3 – Sensitivity of changes in Poverty and Government Revenues to Changes in Prices



Source: Authors' estimations using SUBSIM.

5.2.2. Indirect effects

As a reminder, the scenario we are considering is the elimination of subsidies in October 2014. In October 2014, subsidies for gasoline had been already removed and this product will not be considered here. We also do not consider LPG and flour, assuming that these products do not have indirect effects. This is not entirely true because there may be some enterprises using some LPG bottles while some

large industrial bakeries may use subsidized flour, but overall these effects are expected to be small. Household businesses such as small street restaurants and cafés and small bakeries run by households are captured in household consumption and therefore already accounted for in the direct effects. Instead, subsidized sugar, which is used as an intermediary product by the food industry, will be considered as well as diesel, which is used by commercial transport. In addition, we will consider the elimination of subsidies on electricity, as this sector functions as inputs to other sectors. Recall that water is not considered as a sector that is subsidized by the state and will not be considered here.

With input-output tables, price shocks can only be applied to sectors rather than individual products. For goods with linear pricing (gasoline and diesel), the price shock for the sector (petroleum) is estimated as an average of the price shocks of gasoline and diesel resulting from the elimination of subsidies. For goods with non-linear pricing (electricity and water), the price shock is estimated as the increase in average tariffs weighted by the number of households consuming in each block. Table 14 describes the price increases considered for the simulations.

Table 14 – Baseline information - Simulation of Subsidies Removal (Indirect Effects)

	Unit	Subsidized unit price	Unsubsidized unit price	Share in I/O sector (%)	Price increase (%)	HBS Sector	Corresponding I/O Sector
Diesel	L	9.89	10.69	38.6	3.12	Petroleum	D23-Oil Refining
Sugar	Kg	5.82	8.67	1.6	0.78	Food	A001-2 Agriculture
Electricity	kWh	1.04	1.56	100	49.95	Electricity	E001 Electric energy

Source: Estimated from baseline prices and household data.

Note that it is not possible to compare these simulations with the simulations on direct effects provided before for various reasons. The simulations in this section do not cover all products simulated in the direct effects section; they include both direct and indirect effects; they consider a joint shock to different sectors; the impact is estimated on consumption items that are more aggregated than individual products as in the direct effects section and, for goods like water and electricity, we cannot simulate price shocks for individual tariffs' blocks with an I/O table. However, it is possible to gauge the relative importance of indirect effects if simulations are run one at a time.

Consider diesel for example. This product is mostly consumed by commercial transport and only moderately by households. We should therefore expect shocks to this product to have large indirect effects and small direct effects. The elimination of subsidies on diesel would result in a price increase to the petroleum sector of 3.12% and this increase has indirect effects that account for 87.8% of the total effects (Table 15). As predicted, indirect effects are much greater than direct effects for a product like diesel. If we consider instead a product that is mostly consumed by households such as sugar and we repeat the exercise, we find direct effects for only 2% of the total (recall also that industries using sugar as a production input have to reimburse the equivalent of the government subsidy).

The ratio of direct and indirect welfare effects changes very significantly across products and also across quintiles (Table 15). For diesel, indirect effects are almost 88% of the total while for sugar they are only 2%. For electricity, indirect effects are estimated at 36.5% of total effects. There is also an important difference across quintiles. For diesel, the indirect effects are practically the only effects for the poorest quintile while they become 93.4% for the richest quintile. For sugar, these shares are 1.03% and 2.84%

respectively and for electricity they are 30.1% and 42.2%. These are, of course, very gross estimates based on the price shocks described in Table 14. If the government decides, for example, to change electricity tariffs for the production sector, the effects on household welfare may be very different.

Table 15 – Indirect Effects of Subsidies Elimination (%, selected products)

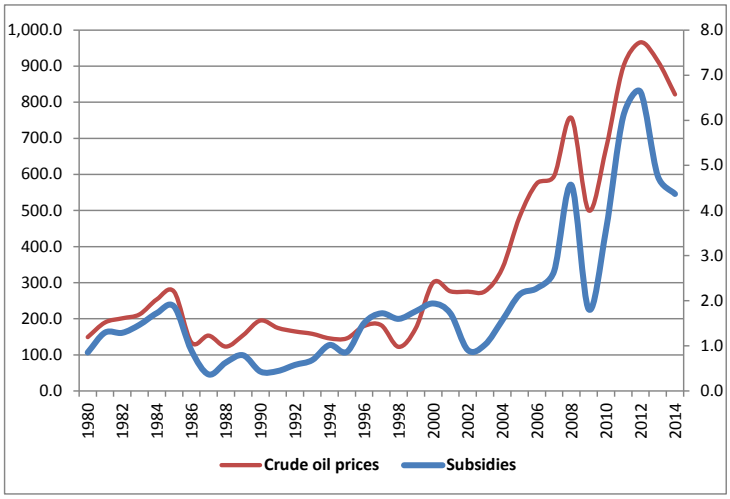
	Diesel	Sugar	Electricity
Quintile 1	99.55	1.03	30.10
Quintile 2	98.87	1.22	30.31
Quintile 3	96.48	1.48	30.52
Quintile 4	93.43	1.67	33.89
Quintile 5	81.33	2.84	42.17
Total	87.79	2.00	36.55

Source: Authors estimations using SUBSIM.

6. The political economy of reforms

The political economy of subsidy reforms in Morocco has largely been driven by the global prices of strategic commodities and by the increasing cost of subsidies to the state's budget. From an equalization fund with own resources sufficient to conduct its mission of stabilizing prices of basic commodities over short periods of time, the CDC transformed over the years into a permanent subsidy fund relying heavily on budget transfers. With rising world prices of basic commodities, especially of fuels, the burden on the budget of the subsidy system has been increasingly heavy. This has been particularly the case for fuels, given that Morocco depends totally on imports. While the share of fuels in total subsidies was relatively small before the first oil shock in 1974, it started to rise steadily over time to reach almost 90% in 2012. With respect to GDP, subsidy outlays rose from less than 0.5% over the first decades after independence to almost 2% by end of the 1990s. As shown in Figure 4, the trend in the amount of subsidies followed rather closely the international price of crude oil.

Figure 4 - Subsidies changes have been correlated with the variations of oil prices (Oil prices in MAD/bbl., and subsidies in % of GDP)

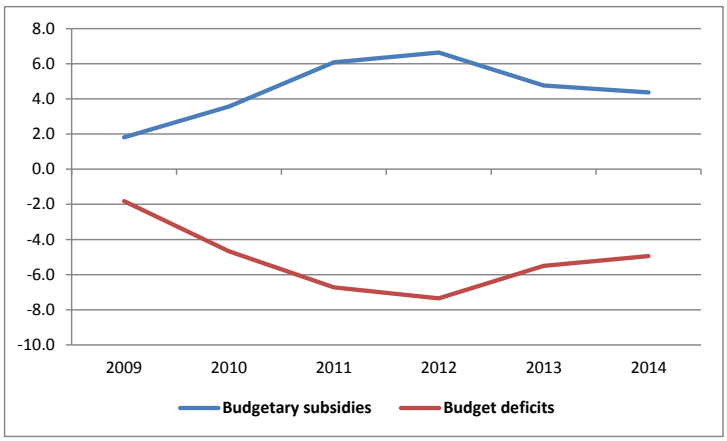


Source: The Ministry of Finance, the CDC, and WDI

The first experience with the reform of liquid fuel subsidies implemented in 1995 helped to stabilize subsidies around 1.7% of GDP until 2000, when the systematic use of the indexation system was suspended. The removal of subsidies on edible oil in 2000 and of jet fuel in 2005, together with the reform of the sugar subsidy system in 2006 and the price increases of liquid fuels, mitigated the impact on the budget between 2001 and 2007 but expenditure on subsidies continued to increase to reach 2.7% of GDP in 2007 because of the continued rise in oil prices over the period.

While the 2008 financial crisis had limited direct effects on Morocco's economy, the subsequent food and fuel price crisis had more serious repercussions. Subsidies reached a peak of 6.6% of GDP in 2012 when, for the first time, they became higher than budgetary investments. Over this period, subsidies explained most of the deterioration in the budget deficits (Figure 5). Indeed, after two years of surpluses in 2007 and 2008, the budget would experience rising deficits peaking at 7.4% of GDP in 2012, the highest deficit since the early 1980s. The high budget deficits eroded all the budget space accumulated over the years. The resulting rapid increase in public debt was worrisome, jeopardizing the stability of the macroeconomic stance. Over the period 2008-2012, public debt worsened by 13 percentage points of GDP, reaching 60.3% of GDP in 2012.

Figure 5 - Subsidies changes explain most of the changes in the budget deficits (in % of GDP)



Source: Ministry of Economy and Finance

It is the sharp fiscal crisis of 2012 that eventually forced the government to reform subsidies. The government reactivated the price indexation mechanism for fuel products, which helped cut subsidies by an impressive 24 percent (or almost 2 percentage points of GDP) in 2013. This, in turn, helped to reduce the budget deficit by 1.8 percentage points of GDP. The full implementation of the fuel price-indexation mechanism and the subsidies reforms in 2014 contributed to cut further subsidies by almost 20 percent (or 1 percentage point of GDP) by the end of the year. Moreover, subsidies reforms were complemented by other fiscal consolidation measures including the freezing of higher wages and limits to new hiring of civil servants to stop the rise of the public wage bill, and improvements to the tax collection system through the extension of the tax base, harmonization of tax rates and the fighting of tax evasion. As a result, the budget deficit for 2014 was less than 5 percent of GDP as targeted by the 2014 Budget Law. The central government debt stock increased in 2014, but at a slower pace than in earlier years (66.4 percent of GDP compared to 63.9 percent of GDP in 2013).

Despite the firm commitment of the government to deepen the subsidies reforms, reforming the remaining subsidies on LPG and flour seems uncertain over the short term, given the social and political cost of removing these subsidies. Indeed, unlike gasoline and diesel which are mostly consumed by the non-poor, the shares of LPG and flour are important in the consumption baskets of the poor and the

lower middle class. Over the medium term, the government might proceed with a progressive reform of LPG subsidies given the weight of these subsidies on the budget. Subsidies for LPG are also mostly benefiting the non-poor in absolute terms. To this end, the government is in the process of devising a targeting mechanism that could reduce the number of beneficiaries. In this case, the depth of the LPG reform would depend on the size of the targeted population. Until this reform takes place, the government is considering limiting the use of LPG to households only while excluding the agricultural sector. It is also trying to put in place a restitution mechanism like that for sugar to allow recovering the subsidy amounts received by some service activities, such as restaurants and hotels that are using LPG. As for flour, the government is trying to further improve its targeting to the poor, especially in rural areas.

The most recent decline in oil prices, which is being followed by price declines in major commodities, is both an opportunity and a constraint to further reforms. It is an opportunity because eliminating subsidies on the remaining subsidized petroleum products (LPG and diesel) results in a reduced impact on consumption prices given the low price of oil imports. It is a constraint because low oil prices reduce the amount of subsidies and the pressure on the budget, and therefore the political will to reduce subsidies further. The year 2015 will prove which of these two forces will prevail in Morocco.

7. Conclusion

The subsidy system has a long history in Morocco, dating back to World War II. The system went through several different phases, from an export supporting system, to a price stabilization mechanism to a pure subsidies system. The most recent evolution of oil and commodities prices has forced the government to push through subsidies reforms in 2013 and 2014 with the elimination of subsidies on most products and the increase in prices on the remaining products, with the notable exceptions of LPG, sugar, and flour.

The 2013 and 2014 reforms have been very effective in reducing the budget deficit while protecting the most vulnerable parts of the population. The evaluation of the 2014 subsidy reforms has shown that the government has made a set of proper choices from a distributional and budget perspective. Subsidies have been eliminated on those products that were more pro-rich and affected poverty the least like gasoline, while the reform of products that would hurt the poor the most, like LPG, has been delayed. Electricity tariffs have been increased in a sensible way by increasing the number of blocks (and therefore reducing the consumers' surplus) and by raising tariffs only on the upper blocks, protecting in this way the poorest consumers. The 2014 reforms had important indirect effects, particularly for gasoline and diesel, and these had an impact on poverty, although the reforms did not seem to have had a significant social backlash.

Further reforms, particularly for LPG, require more complex interventions that will probably imply some form of targeting mechanism to protect the poor. Starting from the situation that Morocco faced in October 2014, we modeled the total elimination of subsidies, which implied the removal of subsidies on LPG, electricity, flour and sugar. Our estimations showed that the government can save an additional 18.9 bn. MAD in direct subsidies, but also that this would result in a significant increase in poverty. Hence, some form of compensation to the poor may be necessary to push through the total elimination of all subsidies. This is indeed what the government is studying at the moment.

The latest global decline in oil prices has dramatically reduced the pressure for further reforms, but also provides an opportunity to lift subsidies during a period when lifting subsidies would result in minor price increases. Time will tell whether the Government of Morocco will continue to push through with

the announced gradual reforms for electricity, water and LPG, therefore exploiting the opportunity provided by low oil prices, or avoid taking any political risk linked to subsidies removal profiting from the decreased budget pressure.

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Annex 1: Major historical landmarks of the subsidy system

Date	Measures/reforms
Prior to 1941	6 equalization funds (sugar, iron, fuel, eggs, wood, vegetables)
1941	Creation of the subsidy fund (Caisse de Compensation, CDC)
1941	Subsidies for flour, bread, edible oils, fats
1942	Subsidies for Coal
1944	Subsidies for transportation of barley and corn
1945	Subsidies for sugar and canned milk, and for transportation of fresh milk
1946	• Removal of subsidies for transportation of barley and corn. • Subsidies for farm equipment, seeds and fertilizers.
1947	One-time Subsidies for cotton cultivation for one year
1948	One-time Subsidies for wheat seed for farmers
1949	One-time Subsidies for legume seeds
1949	Decision to cancel the CDC. But the decision was not applied.
1952	Introduction of a policy of encouraging milk production by Subsidizing cooperatives
1953	Creation of edible oils equalization Fund
1955	• Subsidies for petroleum products • Premiums paid to the freezing of lamb meat • Subsidies for industries of textiles, glassware, weaponry, tanneries, cold storage.
January 1959	Reimbursement of export costs carried by certain handicrafts: slippers, wool carpets hand-made carpets
1959	Subsidies to cover operating deficits of North African coal company
1961	
1965	
June 30, 1966	Removing subsidies to export of handicrafts
1967	Creation of the BARS (procurement office of the Sahara) to be responsible for the logistics of administering subsidies for oil, sugar and flour for the Saharan provinces
1971	Removing subsidies for operating imbalances of North African coal company
August 1972	Subsidies to butter
1 September 1973	Subsidy to milk producers
1st December 1973	Subsidies to edible oils
1974	• Subsidies to fertilizers • Subsidies to packaging of edible oils • Subsidies to jet fuel for charters and to the national air companies (RAM)
1975	Removing subsidies to the industries
April 28, 1975	Subsidies to cement
1977	Subsidies to jet fuel intended for cargo flights to transport perishable goods
1981	Subsidies on a year of diesel used by farmers
1982	Removing of subsidies for butter
1983	Removing subsidies for milk, except milk powder
1986	Liberalization of cement prices
June 1989	Suppression of subsidies for edible oil packaging
July 1, 1990	Liberalization of the fertilizer sector
December 1994	Suppression of subsidies to jet fuel for the RAM and air transport companies
January 1995	Introduction of a system of price indexation of petroleum products
1999	Introduction of a restitution system for sugar subsidies benefiting industries
1 November 2000	Removing subsidies for edible oils
2000	Suspension of the price indexation system for petroleum products
August 8, 2005	Suppression of subsidies allocated to jet fuel intended for cargo flights
February 28, 2006	Cancellation of the restitution system of sugar subsidies by industries of chocolate, biscuit, confectionery, ice cream and milk derivatives, and industrial pastries
March 7th, 2006	Introduction of a lump-sum subsidy for raw sugar import

Date	Measures/reforms
August 1, 2006	Suppression of the subsidies to kerosene
June 1st, 2008	Subsidies for diesel used by coastal fishing
December 31, 2008	Decrease in sugar refund rates for soft drink industries
2008	Subsidies to special fuel oil used in the generation of electricity by ONEE
July 2011	Subsidies for diesel used by high-sea fishing
1 July 2012	Removing of subsidies of high-sea fishing
1 January 2014	Subsidies to cover VAT on the cost of transportation of butane gas (LPG)
September 16, 2013	Resumption of the price indexation system for liquid petroleum products(gasoline, diesel 50 ppm, and industrial fuel oil)
1 February 2014	Removing subsidies to gasoline and industrial fuel oil
February 16, 2014	Progressive decrease each quarter of unit subsidy for diesel
May 29, 2014	Removing subsidies for fuel oil used for generating electricity
January 1st, 2015	Removing subsidies to diesel

Source: Caisse de Compensation

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