ECONOMIC IMPACT STUDY: DIRECT AND INDIRECT IMPACT OF THE WFP FOOD VOUCHER PROGRAMME IN JORDAN

Arif Husain,
Chief Economist, WFP

Jean-Martin Bauer
Food Security Analyst, WFP

Susanna Sandström
Economist, WFP

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Executive Summary

The response to the Syrian crisis in Jordan is becoming increasingly more sophisticated with the implementation at scale of WFP's food voucher programme. This study offers insights into the economics of the food voucher programme—documenting its direct and indirect effects on the Jordanian economy. Findings of this study rely on secondary data, field visits, and the implementation of an input-output model. Key sources of data include WFP's emergency operation office, retailers participating in the food voucher programme, academia, NGOs, Board of Commerce and the Ministry of Planning.

Jordan's economy has faced headwinds in recent years. GDP growth has dropped from an annual average of six percent during 2000-2008 to about 2-3 percent in the following years. Fiscal retrenchments since 2012 have led to fuel subsidy reform and the increase in domestic energy prices. The Syrian crisis has also triggered major demographic shifts; disrupted commerce; tested infrastructure and pressured social services in governorates with high refugee concentrations. The annual budgeted cost of the overall humanitarian response to the Syrian crisis is more than three percent of Jordan's GDP. The planned value of WFP's food voucher transfers alone is estimated at 0.7 percent of GDP in 2014 which is significant for the Jordanian economy.

In terms of direct economic effects, this study finds that for every dollar spent by a voucher beneficiary, participating stores spend 85 cents on wholesale food purchases, six cents on operational costs, three cents on wages, two cents on taxes and one cent on capital expenditure. The programme has also led to some US$2.5 million investment in physical infrastructure by the participating retailers; created over 350 jobs in the food retail sector; and generated about US$6 million in additional tax receipts for the Jordanian government.

In terms of indirect effects, this study finds a predictive multiplier ranging from 1.019 to 1.234. In other words, WFP's plan to distribute US$250 million in vouchers during 2014 would lead to some US$255-US$308 million of indirect benefits for the Jordanian economy. These indirect benefits are mostly concentrated in the agriculture, the manufacturing and the food products sectors. Had WFP opted for in-kind assistance, a larger share of these multipliers would have accrued outside of Jordan.

Like cash, "value" based vouchers are an income transfer. Yet they are more market friendly and they minimize uncertainty for the retailers and consumers alike. Vouchers give retailers the time and confidence to expand operations to ensure that excess refugee demand is met systematically with more choices, good quality and competitive prices and without creating inflationary pressures. Consequently, the prices of a standard food basket have declined both in participating and non-participating stores—an indication that the programme is leading towards positive outcomes for refugees and hosts communities alike.

In addition to saving lives, WFP's voucher programme is also providing substantial support for the Jordanian economy at a difficult time. The advantages of the programme are in line with the National Resilience Plan, which also aims to build national capacities. It is recommended that WFP continue fostering the sustainability of its voucher programme. Finally, the remittance-based economy that refugees represent both within and outside the camps merits better understanding to ensure appropriate and efficient humanitarian response plans for the future.

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Acronyms

CBO: Community-Based Organization
DoS: Department of Statistics, Ministry of Planning
EMOP: Emergency Operation
GDP: Gross Domestic Product
JOD: Jordanian Dinar
HCSP: Host Community Support Programmeme
NGO: Non-Governmental Organization
NRP: National Resilience Plan
RRP: Rapid Response Plan
UNHCR: United Nations High Commission for Refugees
WFP: World Food Programmeme

Assessment objectives and methodology

The intent of this study is to estimate the economic benefits of the food voucher programme implemented by the World Food Programmeme (WFP) for Syrian refugees in Jordan. A better understanding of indirect economic effects of the food voucher programme will enable WFP and its partners to make informed decisions about the design and implementation of such programmes in Jordan and beyond.

The study employs a two pronged approach whereby the first component provides an analysis of the supermarkets that participate in the food voucher programme. We estimate how the cash flow from the voucher programme is spent by participating retailers, allowing insights into direct effects of the food voucher programme on capital expenditures, the food sector, employment, and taxes. The second component is an input-output analysis to estimate the high-level indirect sectoral economic effects of the programme. Our analysis relies on the input-output tables produced by the Jordanian Department of Statistics in 2006 (see Annex 1). The two approaches used in this study allow for better triangulation and validation of the findings.

This study was jointly undertaken by WFP staff from headquarters, the regional coordination office and the Jordan EMOP office. The team met with refugees, NGO cooperating partners, supermarkets involved in the voucher programme, key ministries and WFP staff in order to gather data and understand their perspectives on the programme.

Context: a large, innovative response

As of 17 February 2014, UNHCR had registered more than 571,000 Syrian refugees in Jordan. Some 20 percent of these refugees live in camps while the rest reside in the cities. The refugee population is concentrated in the northern Governorates of Mafraq and Irbid, which border Syria. The refugee inflow has increased the population of Jordan by about 9 percent (REACH, 2014).

The latest interagency response plan calls for the provision of US$1.2 billion for multi-sector assistance in 2014. Indicative requirements for the food sector are US$322 million. In 2014, WFP plans to provide some US$250 million in food voucher assistance compared to US$100 million in 2013.

The economic weight of the assistance provided in response to the Syrian crisis is substantial. The estimated needs in the Regional Response Plan (RRP) 6 amount to 3.6 percent of nominal 2014 GDP which is about US$36.3 billion. The food sector requirements and the WFP voucher programme are 0.9 percent and 0.7 percent of the nominal GDP, respectively.

Figure 1: RRP6, food sector needs and WFP food voucher programme as a share of 2014 GDP
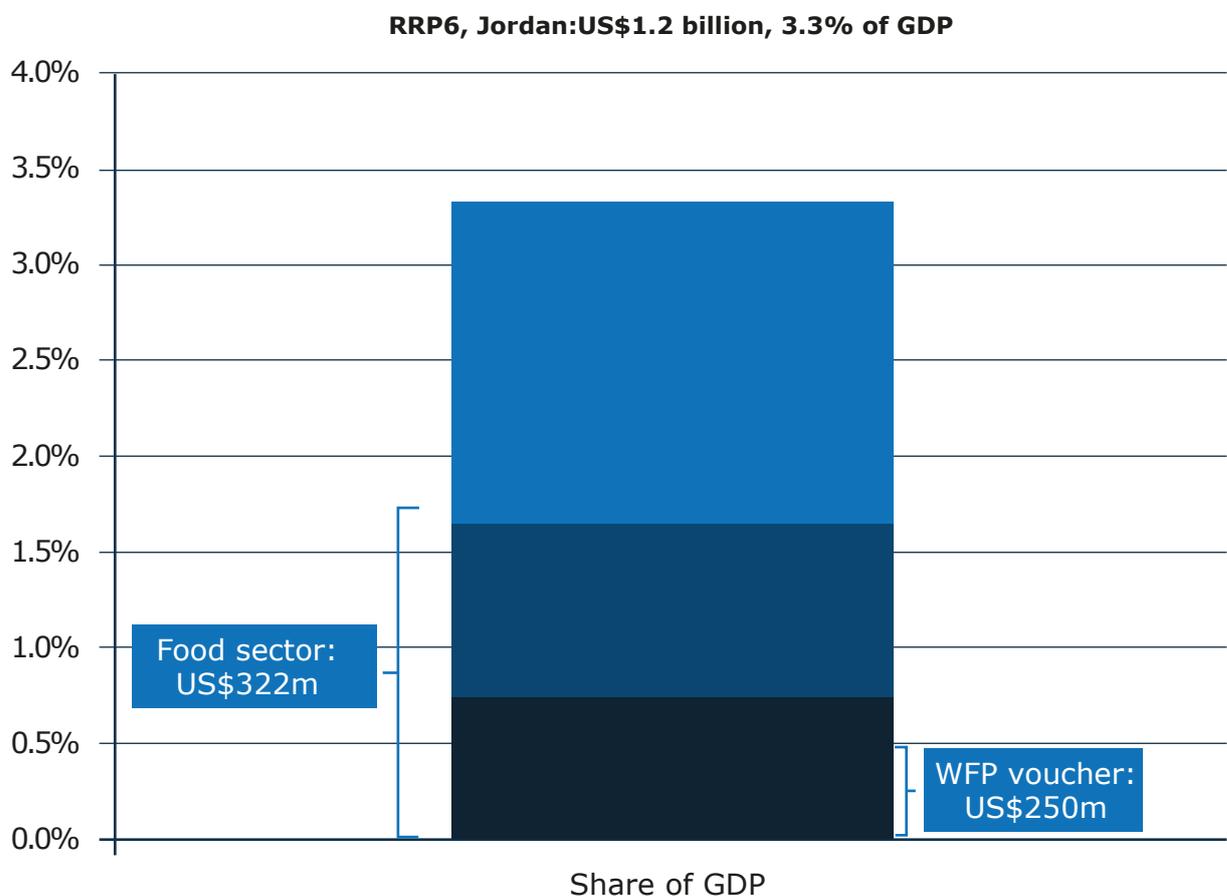
Source: EIU (2014) for Jordanian GDP, RRP6 for needs.

Box 1: Jordan's mounting economic challenges

According to the National Resilience Plan (UN/HCSP, 2014), the continuation of the Syrian crisis is seriously impacting the Jordanian economy. The GDP growth in 2012 was 2.7 percent, down from an average annual growth of 6.6 percent in the previous decade. Tourism and trade is seriously impacted. Trade disruptions including border closures has cost Jordan about two percent of its GDP in 2013. Foreign direct investment is at a five year low and trade deficit has increased by 50 percent between 2009 and 2012. The annual budget deficit now stands at 10.4 percent of GDP and public debt is now around 75 percent of GDP compared to 61 percent in 2010. Unemployment in Jordan officially stands at 14 percent.

The presence of the refugees has meant additional burden on social services, particularly in northern Governorates. Since 2012, Jordan has been scaling back expenditure on its social safety net programmes. Fuel prices were initially raised in November 2012 and they are now regularly adjusted in light of international prices. Electricity prices have also been raised to check losses at NEPCO, the national power company.

Jordan nonetheless receives substantial external assistance. The Gulf Cooperation Council has recently provided a US$5 billion grant to launch a series of projects in the country, while the US government renewed US$1 billion in sovereign loan guarantees in February 2014.

How does the WFP food voucher programme work?

WFP's food market assessments have shown that Jordan has a fully integrated market structure with the necessary infrastructure to meet increased consumer demand without negatively affecting supply or price formation. Furthermore, since Syrian families are accustomed to shopping in commercial market environments, vouchers contribute towards some sense of normalcy in their lives. Using vouchers, beneficiaries can select food items according to their preferences and individual consumption needs. This is especially important for children, the elderly and those with specific dietary requirements. Vouchers allow for access to a greater diversity of foods with higher nutritional value, including fresh fruits, dairy products, meat, chicken, fish and vegetables.

While it is acknowledged that the alternative of providing food in-kind is cheaper, the advantages outlined above supported the argument for the implementation of a voucher programme. The voucher programme is proving to be a very successful initiative for WFP and perhaps the humanitarian community at large. Previously, using supermarket chains to deliver food assistance has not been implemented at scale and this study is an effort to build evidence on the impacts of such an approach.

WFP's voucher programme in Jordan is implemented through three cooperating partners (Islamic Relief Worldwide, Human Relief Foundation and Save the Children International) who cover all 12 governorates in the country. Save the Children International is WFP's partner in Za'atri camp. ACTED has been selected as a partner for Azraq camp and will start voucher operations once the camp opens. Cooperating partners are responsible for all voucher distribution, redemption and reporting activities, monitored and verified by WFP.

In non-camp urban settings, the head of the refugee household receives two different coloured vouchers each month. Each voucher is valid for two weeks and cannot be redeemed after the expiry date. The total voucher value varies according to household size, equating to each beneficiary receiving vouchers valued at JOD 24 (USD 34) per month. With the two vouchers, households can shop twice per month. Refugees outside the camps can redeem their vouchers in 65[2] designated shops in all 12 governorates. Retailers are contracted by WFP's cooperating partners and are located in areas with significant concentrations of refugees. All selected retailers must meet WFP and partner criteria in terms of their capacity, liquidity, and range of products. In January 2014, some 440,000 refugees living in host communities received food vouchers from WFP.

In camps, refugees receive an in-kind daily allocation of bread and a food voucher valid for two weeks. The head of household receives as many vouchers as the number of individuals in the household. This allows beneficiaries to make purchases several times, given the limited storage facilities of camp refugees. Refugees in camps redeem their vouchers at community based organization (CBO) shops and supermarkets located inside the camp. Unlike in the host communities, the CBOs and the supermarkets are contracted directly by WFP. The profits from the CBO shops support charitable activities in Jordanian communities around the camp. Since January 2014, two commercial supermarkets operate within Al Za'atri camp, with the capacity to serve the entire camp population through vouchers. These supermarkets also support the local communities in Mafraq and Za'atri through local recruitment and food procurement to the extent possible. WFP supported some 96,000 refugees in camps in January 2014.

In both host communities and camps, all beneficiaries receive an itemized receipt showing the products they purchased and prices. Any unspent amount on the voucher is forfeited by the beneficiary and cannot be carried forward to the next month.

At the end of the month, partners are responsible for collecting all redeemed vouchers from participating shops. Shopkeepers are asked to attach copies of receipts to every voucher, showing a breakdown of commodities purchased by quantity and value. WFP scans all vouchers received to verify the values redeemed and conducts spot checks to ensure compliance with WFP policies. Once WFP has completed their verification, cooperating partners are responsible for making the payment to shops on behalf of WFP except in the camps where WFP make the payments directly to the shops. Payments are made within 10 days of the shop's submission of vouchers to the partner.

WFP launched a full rollout of smartcard-based e-vouchers in January 2014. This follows successful pilots in two locations in the Amman governorate, one location in the Mafraq governorate and one transit camp in November 2013. E-cards will allow beneficiaries to spend their monthly entitlements in multiple visits to shops. This will offer beneficiaries greater flexibility and a more discrete assistance modality. Beneficiary e-cards will be reloaded automatically and no longer require beneficiaries to visit distribution centres each month to collect their entitlement. Retailers are being equipped with point of sale equipment to allow them to process transactions. The e-vouchers are administratively simpler to implement and more secure than in-kind assistance or paper vouchers as they require a personal identification number (PIN) to access assistance and can be cancelled anytime if lost or stolen. This will further minimize voucher sales for cash or purchase of non-approved goods[3]. Moreover, the retailers will receive their payments 48 hours after the transaction.

[2]As of 1 February 2014, though this number is increasing as WFP and partners contract more shops to minimise beneficiary travel to the shops

[3]Zyck, A. and Armstrong, J. (2014) Humanitarian crises, emergency preparedness and response: the role of business and the private sector – Jordan case study. http://www.odi.org.uk/publications/8147-jordan-private-sector-humanitarian-aid-refugee

Direct economic impacts of the food voucher programme

The voucher programme has led to direct economic benefits that we successively document in this section. Direct impacts are channelled through the retail outlets that participate in the program. We therefore analyse their expenditure on the following items:

- Capital expenditure (construction of shops and purchase of durable goods)
- Employment and expenditure on salaries
- Cost of the goods covered by the voucher
- Operational expenses for the shops (rental, utilities, insurance)
- Taxes accruing to the government (sales tax on items covered by the voucher and
- corporate tax)

While other direct effects may exist, they are difficult to quantify. This analysis therefore focuses on the larger items.

Retail outlet typology

WFP's voucher programme works through 83[4] shops. In order to understand its economic impacts, we offer a brief description of the types of shops that participate in the programme.

- In Za'atri camp, the WFP voucher programme started with 16 shops run by 'community based organizations' (CBOs). These CBOs are charities from Mafraq governorate where the camp is located. CBO shops tend to be small, typically 100-120 square meters of floor space. Investments in these shops have been minimal given that CBO strategy is to turn a profit in the short-term. As of February 2014, four CBOs accounted for half of all voucher sales in Za'atri camp—an indication that the market is concentrated and may consolidate. A share of the revenue from the CBO shops are to be re-invested in charity projects in host communities.

- In early 2014, two supermarket chains, Safeway and Tazweed, opened new premises in Za'atri camp. These stores are larger, with 600-730 square meters of floor space. They rely on local and international supply chains and have invested considerable resources to establish themselves in the camp. Their strategy in the medium-term is to build market share and generate profits through economies of scale. Therefore, for many items, the supermarkets offer lower prices than the CBO shops.

- Outside Za'atri camp, WFP works with a variety of local shops and supermarkets that existed prior to the voucher programme. The larger supermarkets in Amman exceed 3,500 square meters of floor space.

[4]1st February 2014

Table 1 outlines the main characteristics of participating retail outlets.

Table 1: Typology of shops participating in the voucher programme in Jordan

Shop type	Characteristics
Community-based organization in Za'atri (16)	• Approximately 100 square meters of floor space • Initial investments of some JOD15,000 • Short supply chain • 2-3 full time employees • Voucher-only stores, few cash sales • Profit margins of about 20 percent • Some profits used for community based charity projects
Local supermarkets	• Voucher programme is an 'add-on' to their existing client base • Limited or no new capital expenditure • Market share dominated by large supermarkets, but smaller shops are also present • Efficient supply chain
Supermarket chains in Za'atri (2)	• International and local supply chain, foreign investors • 600-730 square meters of floor space • Up to 40 employees • Investments with 3-5 year planning horizon • Smaller profit, money is made on volume • More competitive than most CBOs

Source: WFP Jordan EMOP, mission observation.

The latest WFP price monitoring exercise shows that food prices in participating outlets are similar to those in the non-participating stores. In January 2014, a standard food basket cost JOD21.60 (US$ 30.24) in participating stores and JOD 21.80 (US$ 30.52) in the non-participating outlets[5]. Supermarket prices in Za'atri camp for rice, pasta, vegetable oil and fish were about 20 percent lower than in CBO shops. Nonetheless, some of the larger CBOs offered lower prices for a range of commodities including bulgur wheat, sugar and cheese. In general prices in the participating stores have continued to drop since September 2013 (Figure 2).

Figure 2: Trend in the price of a standard food basket

Source: WFP Jordan price monitoring system.
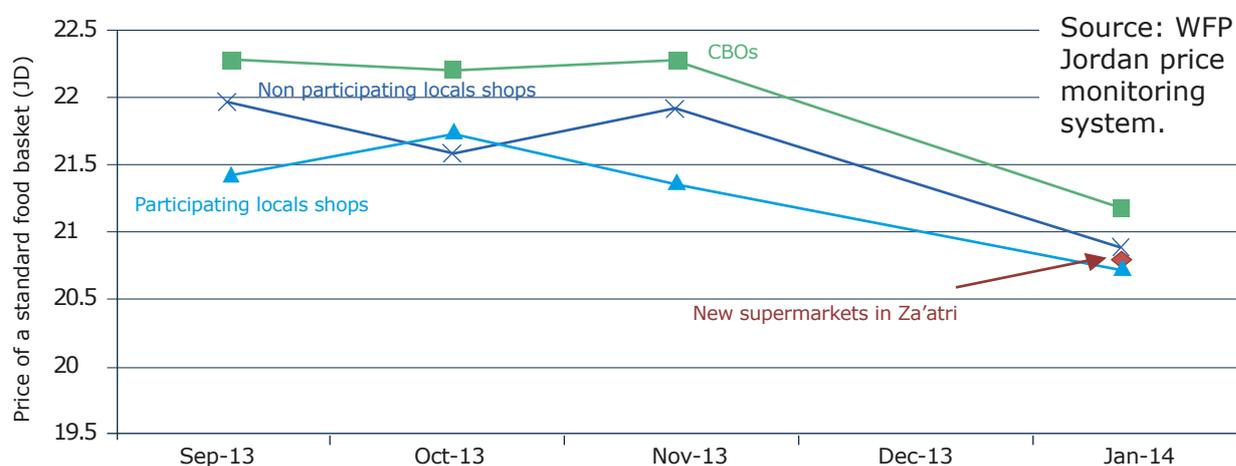
[5]Food basket composed of 1kg rice, 1kg bulgur Wheat, 400g pasta, 1kg pulses, 1kg sugar, 1.8ltr vegetable oil, 750g salt and 340g of canned meat.

In general the voucher market is highly concentrated with a few dominant players both within and outside the camps. Outside the camps, Sameh Mall has 44 percent of the voucher market share. In Za'atri camp, 4-5 larger CBO shops account for half of the voucher sales. It is likely, however, that many of the smaller CBOs will gradually lose their market share to the supermarkets since they are unable to compete given large economies of scale. It is expected that the larger CBOs will be able to align their prices in order to compete with the supermarkets. WFP data shows that the price of the typical food basket in CBOs has declined from JD 22.28 in September 2013 to JD 21.17 in January 2014, when the supermarkets opened (Figure 2). In the current analysis it is therefore assumed that the supermarket cost structure is the most representative of overall direct expenditures.

Figure 3: Estimated cost structure, supermarkets participating in WFP food voucher programme
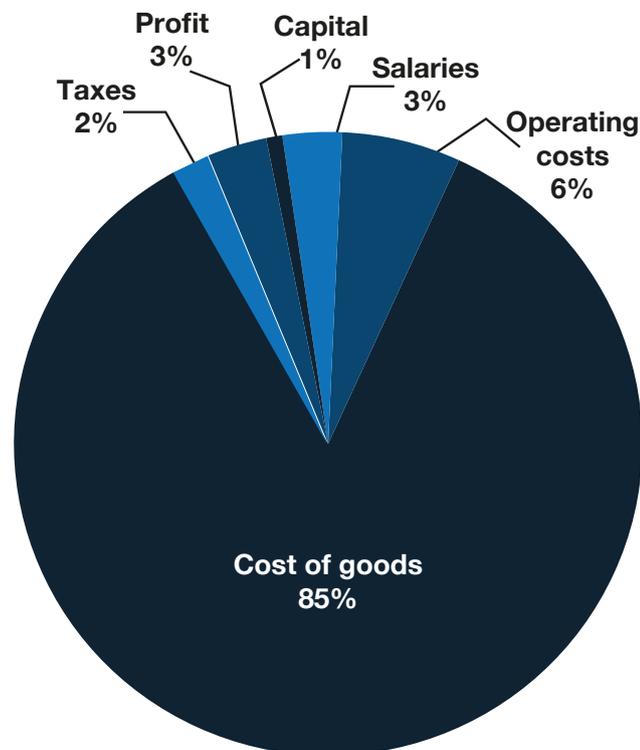
Source: Mission interviews with retailers.

Direct impacts[6]

Item 1 - Capital expenditure: Some US$ 2.45 million[7] of new investment

The retail outlets invested in the construction of shops and commodities to participate in the WFP voucher programme. It is estimated that CBO shops on average invested about JD 15,000 (US$ 21,000) in order to build and equip their premises since they first opened in mid-2013. These shops were built with minimal investments, as they were temporary solutions at the launch of the programme in mid-2013. The total capital expenditure for CBO shops is estimated at JD0.24 million or the equivalent of JD125 per square meter of floor space. By contrast, the supermarkets in Za'atri invested between JD 0.7 million to 0.8 million (US$1 million to 1.1 million) to construct new facilities that included tiled flooring, lighting, ventilation and refrigeration. For the two shops in Za'atri alone, capital investment costs were about JD 1.5 million (US$2.1 million), equivalent to JD 1,250 per square metre, ten times the amount invested by the CBOs.

Table 2: Estimated capital expenditure for shops participating in the WFP voucher programme

Shop type	Capital expenditure per shop (JOD)	Capital expenditure (JOD/m^2)	Total capital expenditure (JOD million)
CBOs, Za'atri	15,000	125	0.24
Supermarkets in Za'atri	700,000-800,000	1,250	1.5
Local shops	None	0	None

Source: Mission interviews and observation.

Overall, the voucher programme has led to additional capital expenditure of JOD1.75 million or US$2.45 million. It is assumed that these investments will be amortized over 3 years. Assuming an annual voucher volume of US$250 million, the direct capital expenditures represent 0.33 percent of total voucher transfer value over three years (capital expenditure of US$ 2.45 million compared to a total turnover of US$750 million). The two new supermarkets in Za'atri camp account for the lions' share of such investment.

Item 2 - Employment: Up to 400 jobs created and USD$7.5 million in annual wages

The voucher programme has led to new jobs in all participating retail outlets in Za'atri camp. Each CBO shop has hired two to three full time employees resulting in 30 to 45 jobs and the two supermarkets have hired about 70 staff. Overall it seems the voucher programme has created somewhere around 100 jobs in Za'atri camp alone.

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[6]The figures provided in the following paragraphs illustrate the types of cost that shops faced at the time of this assessment. Actual expenditure may vary considerably for specific shops. Modifications to the voucher programme, changes in international or local food or fuel prices, the cost of electricity wages or taxes would change the breakdown of direct impacts.

[7]Exchange rate used is 1US$ = 0.71 JD

In non-camp participating stores, managers chose to increase their staff in order to accommodate increased sales through the voucher programme. For instance, Sameh Mall, the leading chain with a 44 percent market share, increased its staffing count by 150, or 10 per cent. Also about 250-300 jobs were created in stores located in non-camp urban environments serving both refugees and the host communities. Overall the voucher programme has therefore created 350 to 400 jobs in Jordan.

According to information provided by the supermarkets, out of every dollar spent in the voucher programme three cents are for wages. This amounts to US$7.5 million annually in wages paid by the retailers.

Item 3 - Cost of goods sold in participating retail outlets: US$213 million/year

The commodity purchases made by the retail outlets constitute the largest secondary impact of the voucher programme. The cost of goods sold through the voucher programme represents 85 percent of total voucher revenue for the supermarkets. The wholesale costs of commodities for most super markets are relatively identical given the use of similar supply chains. The stocking costs for the smaller CBO shops are unclear but probably higher than the super markets due to economies of scale. Assuming a US$250 million voucher transfer plan, retailers would spend 85 percent of that amount—some US$213 million—to purchase wholesale food products from their suppliers.

Although Jordan imports virtually all of its cereal requirements, they are processed, milled, canned and packed locally. Much of the fresh foods that voucher recipients buy—such as poultry, eggs and vegetables—are produced locally. The indirect impacts of these purchases on the wider Jordanian economy are estimated in the following section of this report.

Item 4 – Variable operating costs: US$15 million/year

Retailers' operating costs include expenses such as rent, utilities and maintenance. For each dollar spent by a beneficiary in a retail store, on average six cents are spent for variable operating costs. We may assume that operating costs are somewhat higher for the CBO shops due to their smaller size. At planned transfer levels, these operating costs amount to US$ 15 million for 2014 (6 percent of US$ 250 million).

Item 5 – Additional sales tax and income taxes: US$5.9 million /year

Jordanian authorities are receiving more in tax revenues due to the voucher programme. While many voucher-eligible commodities are tax exempt, some are assessed sales tax at four percent or higher rates. Generally, goods purchased through the voucher programme are taxed at an average of two percent. Each dollar spent on vouchers therefore produces two cents of additional sales tax receipts for Jordan. This equates to US$5 million for 2014 (two percent of US$250 million). Corporate profits are subject to a 20 percent income tax. Since profits are around six percent in supermarkets, this equates to a 0.012 percent of total voucher sales or US$0.9 million for 2014. Overall, at its current size, the voucher programme is estimated to generate US$5.9 million annually in additional taxes for the Jordanian authorities.

Summary: Direct effects analysis

For every dollar spent by a voucher beneficiary, it is estimated that participating stores spend 85 cents on wholesale food purchases; six cents on operational costs; three cents on salaries for retail outlet staff; two cents on sales and income taxes and under one cent on capital expenditure.

Table 3: Estimated direct effects of the voucher programme, per dollar and in aggregate

Item	Rate per dollar (rounded)	Direct effect 2014 planned voucher transfer (US$250 million)
Capital expenditure	>0.01	2.5
Salaries	0.03	7.5
Operating costs	0.06	15
Cost of goods	0.85	213
Taxes	0.02	5.9

Source: Mission interviews with retailers.

Box 2: Za'atri Camp: A vibrant economy.

WFP's voucher programme is integrated with what has become an increasingly vibrant camp economy. The Champs-Elysees is the tongue-in-cheek term used to describe the main shopping thoroughfare in Za'atri camp. It's estimated that there are some 600 businesses, including shops, selling everything from food, fresh vegetables to bicycles and washing machines. Aid workers in the camp estimate that at least US$8 million circulates through the camp's economy every month.

Considering this volume of activity, it seems clear that refugees have access to more than food vouchers. The money changers in Za'atri camp explained that the resources sustaining the camp economy are remittances sent from the Gulf, Europe and elsewhere as well as saving brought by the refugees themselves. Money transfers take place outside official banking channels, through an informal hawala system that involves a network of agents at sending and receiving locations. Money is not physically moved. There are 10 or so large hawala brokers in Za'atri camp, and many smaller ones. Za'atri residents returning to Syria sustain a demand for the Syrian pound, which has depreciated from 125 to 210 per Jordanian Dinar since last summer. New arrivals bring their savings in Syrian pounds, and exchange when they need Jordanian currency.

As the camp economy becomes even more sophisticated and important for refugees, it will become necessary to monitor how its performance is changing humanitarian needs and thereby creating opportunities to adjust WFP's response.

Analysis of indirect effects: input-output model

The analysis of indirect effects of food vouchers relies on an input-output model of the Jordanian economy. We use input-output tables produced by the Jordanian Department of Statistics of the Ministry of Planning. These tables outline the relationship between different sectors of the Jordanian economy, showing how much of one good is needed to produce another. This allows for the analysis of links between industries and estimation of inter-industry effects. In case of the voucher programme, we focus on analysing the food sector and its links with other relevant sectors to determine the multiplier effects.

In order to enable a clearer description of the predictive multipliers for the sectors covered by the voucher programme the 81 by 81 matrix developed by the Jordan Department of Statistics is simplified to 23 sectors. As the input-output tables date back from 2006 some imprecision in the estimates is likely. The table below outlines the main contributors to the food sector in Jordan.

Table 4: Economic activity supplying the food sector (JOD, thousands)

Sector	Inputs to food products	Total industry output
Agriculture, Livestock & Fishing	466,654	1,179,026.47
Oil, Gas, Mining & Quarrying	21,371	540,398.22
Food Products – Manufacturing	215,625	1,550,715.90
Drinks – Manufacturing	-	109,667.27
Tobacco, Textiles, Wood & Other	10,946	1,496,327.11
Refinery & Refined products	30,885	1,643,709.37
Other Manufacturing Industries	52,544	2,520,312.82
Electricity & Water	13,200	598,452.32
Construction	1,325	3,098,974.89
Hotels & Restaurants	49,113	1,418,844.17
Road Transport	570	405,594.37
Road Transport	22,441	803,447.19
Rail, Pipeline, Sea Transport	460	192,907.74
Air Transport	-	530,232.76
Transport Services, & Storage	4,266	198,770.59
Travel, Tour Operators Services	-	55,292.47
Post, Telecoms and Computers	2,359	1,016,750.08
Banking, Finance & Business Services	12,363	1,172,236.57
Real estate	6,295	237,099.81
Ownership of Dwellings	-	975,408.63
Education & Health	349	1,480,980.73
Public Administration and Defense	1,074	1,554,154.01
Others Services	4,627	427,682.52
Total Intermediate Inputs	916,466	23,206,986.02

Source: Department of Statistics (2006).

The sectors that contribute the most inputs to the food products sector are 'agriculture, livestock and fishing' followed by the 'food products' sector itself. 'Other industries' and 'hotels and restaurants' are secondary sources of inputs to the food sector. The outputs of the food sector are inputs to itself and the 'hotels and restaurants' sector. Household consumption accounts for the bulk of final demand for the food sector.

3.1 Estimating the multipliers (Leontief inverse)

We calculate the Leontief coefficients in order to identify a predictive multiplier—in essence the cross-sector effect of an increase in a single sector's output. These vectors are estimated on the basis of the Department of Statistics input-output tables. The Leontief inverse matrix is:

$$X = (I-A)^{-1}$$

where X is the output vector, I is an identity matrix and A the matrix of coefficients calculated from the input-output inter-industry matrix. The coefficients in the matrix A represent individual outputs for each of the 23 sectors as a share of total sector output. Output tables for coefficient matrix A and $(I-A)^{-1}$ were calculated using Excel and STATA (Annexes 2 and 3).

In order to model the effect of the food voucher programme, we assume that the programme's effects are channelled through both the agriculture and the food products sector. On the basis of WFP monitoring data , which offers a breakdown of beneficiary spending by food item, it could be assumed that the 35% of the expenditure accrues to the 'agriculture, livestock and fisheries' sector, while 65% accrues to the 'food products' sector. It is acknowledged that consumption patterns vary substantially due to seasonal effects; the predictive multipliers presented therefore represent a range of values for indirect programme effects.

Table 6 presents the multipliers for both sectors. Total multipliers vary from 1.019 for the 'agriculture, livestock and fisheries sector' to 1.234 for the 'food products' sector. This suggests that a WFP transfer of US$ 250m in food vouchers would lead to indirect effects of US$ 255 to US$ 308m through the Jordanian economy.

As expected, the indirect effects of activity in the food sector – and therefore of the additional demand provided by the food voucher programme - mostly accrue to the 'agriculture, livestock and fishing', 'food products' and 'other manufacturing industries' sectors, which, combined, account for two-thirds of the estimated indirect effects.

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[8]A similar method is used in USAID (2013) Impact of Tourism in Jordan.
http://www.siyaha.org/sites/default/files/Documents/Report.pdf
[9]WFP monitoring data from July 2013.

Table 5: Multipliers for the agriculture, livestock and fishing sector and food products sector.

	Agriculture, Livestock & Fishingproducts	Food Products – Manufacturing
Agriculture, Livestock & Fishing	0.3423	0.4700
Oil, Gas, Mining & Quarrying	0.0956	0.1001
Food Products – Manufacturing	0.0515	0.1803
Drinks – Manufacturing	0.0001	0.0001
Tobacco, Textiles, Wood & Other	0.0124	0.0215
Refinery & Refined products	0.0815	0.0750
Other Manufacturing Industries	0.1982	0.1499
Electricity & Water	0.0450	0.0351
Construction	0.0283	0.0119
Trade	0.0411	0.0565
Hotels & restaurants	0.0008	0.0013
Road Transport	0.0280	0.0349
Rail, Pipeline, Sea Transport	0.0099	0.0080
Air Transport	0.0011	0.0011
Transport Services, & Storage	0.0182	0.0163
Travel, Tour Operators Services	0.0000	0.0000
Post, Telecoms and Computers	0.0072	0.0077
Banking, Finance & Business Services	0.0376	0.0345
Real estate	0.0065	0.0121
Ownership of Dwellings	0.0000	0.0000
Education & Health	0.0024	0.0017
Public Administration and Defense	0.0002	0.0009
Others Services	0.0120	0.0150
Total	**1.0199**	**1.2339**

Source: Derived from DoS tables.

Discussion: the food voucher programme in perspective

The results presented above offer estimates of the direct and indirect economic impacts of the food voucher programme. We continue the discussion by considering the programme's effects on supply responsiveness—an important issue considering the sheer size of the additional food demand generated by the arrival of large numbers of Syrian refugees.

Supply-side effects

The arrival of large number of Syrian refugees has led to an increase in aggregate demand for food in Jordan. The inflow amounts to a nine percent increase in the Jordanian population (REACH, 2014). It is possible to estimate aggregate quantities on the basis of per capita food consumption in Syria (Table 7).

Table 6: Per capita consumption, 2005-2009 (kg/person/year)

Country	Potatoes	Rice	Sugar	Wheat	Fruits	Pulses	Vegetable oil
Jordan	23.56	24.68	42.24	137.4	53.02	7.9	18.5
Syria	26.68	11.1	37.08	161.3	99.24	7.58	18.1

Source: FAOSTAT (FAO).

Assuming that Syrian refugees' per capita consumption has not changed, the additional demand for 571,000 refugees amounts to 206,000 tons of food. Wheat and rice alone account for the bulk of the increase in volume.

Table 7: Increase in food demand (tons/year)

Scenario	Potatoes	Rice	Sugar	Wheat	Fruits	Pulses	Vegetable oil	Total
571,000 refugees	15,234	6,338	21,173	92,102	56,666	4,328	10,335	**206,177**

Source: Derived from FAOSTAT (FAO).

Overall, the Jordanian economy has adjusted well to the increased demand. According to the World Bank, price inflation has varied from 4.4 to 5 percent over the past three years. Retailers and government officials interviewed during this study emphasized that the Jordanian market was generally able to meet the increased demand emanating from Syrian refugees. [10]Although the market's ability to respond well to increased demand is primarily due to well established supply chain and trading capacity, the choice to implement vouchers rather than cash assistance, also played a role in dampening inflationary pressures.

Arguably the arrival of international supermarkets with competitive prices and high quality standards was facilitated by the voucher programme. The voucher programme gave retailers the confidence to undertake substantial capital investments at their own risk in developing these markets (see section 1). The construction of two new large supermarket facilities in Za'atri camp was made possible potentially due to the guarantees associated with the food voucher programme ensuring direct customers for pre-identified, specific outlets for a set list of food items. Those who made these investments assume that the food voucher programme would be in place for at least three years with break-even point occurring only in the second year of the operation. Considering the large uncertainties associated with the conflict in Syria and consequent displacement and political risks, it is far from obvious that such investments would have taken place in the absence of a voucher based assistance programme.

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[10]The exception to the trend seems to have been eggs, with a shortage reported in early 2014. The existence of an import ban on eggs and the cold snap in December 2013 might have contributed to low supply responsiveness for this item.

In the counterfactual of a cash-based response, it is unlikely that the observed multi-million-dollar investments in dedicated retail capacity would have occurred. The markets would probably have looked very different to what they do today. Outlets such as the relatively more inefficient CBO shops, with shorter supply chains, less choices and higher prices would have dominated. The refugee purchasing power would have reduced particularly in the camp environment with restrictions on refugee movements outside the camp.

Value based food vouchers are essentially an income transfer with the additional benefit of ensuring that refugees have guaranteed access to appropriate food products in sufficient quantities and at reasonable prices.

The retail food prices outside the camps are the same between participating and non-participating stores. This is an indication that the voucher programme has not distorted prices and caused inflationary pressures that would have penalized both the refugees and resident populations.

Outlook and conclusions

As the assistance to the Syrian refugees in Jordan enters its fourth year, the debate about the response has evolved to cover economic, market and livelihood issues. The National Resilience Plan embodies each agency's willingness to anchor the crisis response in the broader context of the host country's economic and social fabric. As emphasized by REACH (2014), the response to the Syrian crisis should be considered 'as part of a wider agenda of addressing structural vulnerabilities in Jordan, to strengthen social cohesion and resilience of host communities'.

The primary objective of WFP's assistance to Syrian refugees is to save lives. This paper has shown that WFP can save lives through the provision of food voucher, while also creating substantial economic benefits to the Jordanian economy. The food voucher programme provides a boost at a time when the country faces headwinds due to muted global economic activity, regional uncertainties and lower demand in an overall context of fiscal retrenchment. Food vouchers are an especially attractive option due to their positive economic effects in relevant sectors. The additional investments that supermarkets have made under this programme would not have been possible had WFP opted for cash transfers. These findings support the move to food-voucher assistance in the Jordanian context, where markets are responsive to changes in demand. WFP's strategy is in line with the NRP.

It is also fair to ask whether the multipliers of an in-kind food assistance programme would be similar to a voucher programme. Although this question was not specifically addressed in this study it is clear that positive multiplier effects on the local economy would be limited in case of in-kind food assistance. While in-kind assistance would benefit the commerce and transport sector the secondary benefits for the local food and agriculture systems and the importers and distributors in the national food sector would be limited. It would also mean that beneficiaries have less control on their food choices. Therefore, the direct and indirect economic benefits of the food voucher programme are substantially more than in-kind food assistance.

Jordan has a history of welcoming refugees dating back several decades. It is clear that Syrian crisis has had a significant impact on the Jordanian economy and infrastructure. Yet substantial amounts of humanitarian assistance; resilience of the Syrian people in setting up new businesses and skilled employment opportunities; and substantial remittance inflows are some of the positives that may dampen the significant blow to the Jordanian economy. These factors merit serious discussion which is beyond the scope of the current study.

Recommendations

- Recommendation 1: Promote competition between retailers. Competition between different retail outlets, particularly in refugee camps, will lead to better products and lower prices for food voucher recipients. Refugees should therefore be encouraged to use their vouchers at the outlets of their choice without pressure from the CBO shops. As they seek the best bargains, we can expect the less competitive shops to lose market share for the benefit of the camp based refugee population. The full scale rollout of the e-voucher will simplify voucher distribution procedures for the beneficiaries and minimize administrative costs. Zyck and Armstrong (2014) also offer this recommendation to encourage competition among businesses operating in the camp.

- Recommendation 2: Minimize uncertainty whenever possible. The supermarkets have made capital investments that need to be recouped over 3 to 5 years. Ensuring a stable, predictable and transparent environment for retailers will allow them to continue providing refugees with quality goods at competitive prices, and continuing investing as required. It will be important for retailers to be appraised in advance of any changes in voucher transfer amounts or possible pipeline breaks.

- Recommendation 3: Negotiate a discount. WFP has paved the way for the supermarkets to access an entirely new clientele which goes beyond the voucher recipients. Therefore, WFP should negotiate a rebate on the face value of the vouchers. More specifically, WFP should pay less than the face value of the voucher given that the supermarkets also have access to the bustling remittance based camp population.

- Recommendation 4: Encourage competitiveness. WFP has expressed preference for more locally produced commodities which could sometimes mean higher prices for the beneficiaries. It may be prudent to not overly steer demand towards localized commodity origins and directly influence business supply chain decisions. If WFP places too many restrictions on the use of the vouchers, beneficiaries or retailers will have an incentive to monetize.

- Recommendation 5: Build knowledge. WFP should consider carrying out an evaluation of the community projects implemented by CBOs in order to better establish their impacts.

- Recommendation 6: Develop guidelines. The food voucher model implemented in Jordan has a much wider appeal for middle income countries with well-established market infrastructure. It is highly advisable to document and disseminate guidelines on establishing food voucher programmes embedded in the Jordanian experience.

- Recommendation 7: Promote understanding. Like cash, "value" based vouchers are an income transfer. Yet they are more market friendly and they minimize uncertainty for the retailers and consumers alike. Vouchers give retailers the time and confidence to expand operations to ensure that excess refugee demand is met systematically with more choices, good quality and competitive prices and without creating inflationary pressures for refugees and residents alike.

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Annex 1: 'A' coefficients matrix (simplified 23*23 inter-industry transactions matrix)

	1 Agricultu	2 Oil, Gas	3 Food Pr	4 Drinks	5 Tobacco	6 Refinery	7 Other M	8 Electricit	9 Construc	10 Trade	11 Hotels &	12 Road Tra	13 ail, Pipeli	14 Air Trans	15 Transpo	16 Travel, T	17 Post, Te	18 Banking	19 Real esta	20 Ownersh	21 Educatio	22 Public A	23 Others S
1 Agricultu	0.2431	0.0000	0.3009	0.0061	0.0032	0.0000	0.0013	0.0000	0.0000	0.0038	0.0243	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0001	0.0000	0.0014
2 Oil, Gas	0.0000	0.0056	0.0138	0.0003	0.0008	0.8733	0.0819	0.0209	0.0168	0.0014	0.0000	0.0026	0.5398	0.0000	0.0036	0.0000	0.0000	0.0000	0.0005	0.0000	0.0001	0.0000	0.0009
3 Food Pr	0.0321	0.0000	0.1390	0.3485	0.0005	0.0000	0.0046	0.0000	0.0000	0.0012	0.1394	0.0000	0.0000	0.0000	0.0008	0.0000	0.0004	0.0000	0.0021	0.0000	0.0024	0.0000	0.0061
4 Drinks	0.0000	0.0000	0.0000	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0001	0.0000	0.0011
5 Tobacco	0.0014	0.0020	0.0071	0.0418	0.3965	0.0005	0.0123	0.0014	0.0000	0.0083	0.0006	0.0017	0.0079	0.0067	0.0108	0.0050	0.0157	0.0029	0.0000	0.0000	0.0412	0.0000	0.0061
6 Refinery	0.0304	0.0829	0.0199	0.0230	0.0059	0.0406	0.0340	0.2423	0.0307	0.0170	0.0230	0.2563	0.0641	0.3115	0.0162	0.0045	0.0030	0.0043	0.0048	0.0000	0.0158	0.0000	0.0284
7 Other M	0.0712	0.0575	0.0339	0.0534	0.0672	0.0097	0.3781	0.0230	0.4696	0.0601	0.0166	0.0180	0.0018	0.0028	0.0164	0.0016	0.0102	0.0082	0.0042	0.0000	0.1387	0.0000	0.0306
8 Electricit	0.0207	0.0628	0.0085	0.0312	0.0089	0.0017	0.0307	0.0438	0.0139	0.0183	0.0282	0.0007	0.0013	0.0015	0.0319	0.0084	0.0072	0.0078	0.0060	0.0000	0.0189	0.0000	0.0246
9 Construc	0.0176	0.0004	0.0009	0.0043	0.0007	0.0008	0.0011	0.0053	0.1216	0.0062	0.0065	0.0001	0.0001	0.0010	0.0013	0.0012	0.0044	0.0049	0.0017	0.0498	0.0033	0.0000	0.0047
10 Trade	0.0217	0.0091	0.0317	0.0384	0.0509	0.0016	0.0286	0.0160	0.0384	0.0108	0.0259	0.0062	0.0063	0.0104	0.0089	0.0048	0.0158	0.0031	0.0014	0.0000	0.0171	0.0000	0.0070
11 Hotels &	0.0000	0.0003	0.0004	0.0009	0.0008	0.0000	0.0009	0.0004	0.0034	0.0058	0.0033	0.0006	0.0010	0.0004	0.0029	0.0041	0.0008	0.0030	0.0016	0.0000	0.0044	0.0000	0.0026
12 Road Tra	0.0101	0.0239	0.0145	0.0176	0.0154	0.0034	0.0190	0.0113	0.0175	0.0071	0.0065	0.0953	0.1007	0.0112	0.1089	0.5436	0.0034	0.0032	0.0015	0.0000	0.0073	0.0000	0.0082
13 Rail, Pipe	0.0000	0.0001	0.0003	0.0000	0.0000	0.0000	0.0009	0.2137	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0005
14 Air Trans	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0011	0.0002	0.0000	0.0044	0.0019	0.0000	0.0000	0.4149	0.0001	0.0000	0.0038	0.0043	0.0003	0.0000	0.0060	0.0000	0.0012
15 Transpo	0.0061	0.0556	0.0028	0.0108	0.0041	0.0039	0.0085	0.0000	0.0029	0.0361	0.0012	0.0005	0.0003	0.0000	0.0395	0.0016	0.0041	0.0029	0.0007	0.0000	0.0000	0.0000	0.0034
16 Travel, T	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006
17 Post, Te	0.0016	0.0019	0.0015	0.0052	0.0034	0.0002	0.0034	0.0035	0.0036	0.0179	0.0093	0.0010	0.0027	0.0137	0.0221	0.0356	0.2251	0.0206	0.0055	0.0000	0.0104	0.0000	0.0154
18 Banking	0.0135	0.0140	0.0080	0.0479	0.0145	0.0091	0.0172	0.0517	0.0388	0.0858	0.0366	0.0261	0.0122	0.0195	0.0345	0.0612	0.0736	0.0967	0.0412	0.0000	0.0304	0.0000	0.0386
19 Real esta	0.0001	0.0015	0.0041	0.0019	0.0085	0.0001	0.0042	0.0017	0.0018	0.0802	0.0273	0.0017	0.0033	0.0038	0.0121	0.0318	0.0108	0.0197	0.0134	0.0000	0.0100	0.0000	0.0277
20 Ownersh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21 Educatio	0.0009	0.0026	0.0002	0.0002	0.0007	0.0018	0.0011	0.0007	0.0036	0.0013	0.0008	0.0002	0.0006	0.0052	0.0026	0.0016	0.0014	0.0043	0.0003	0.0000	0.0270	0.0000	0.0005
22 Public A	0.0000	0.0001	0.0007	0.0002	0.0000	0.0000	0.0003	0.0006	0.0000	0.0002	0.0000	0.0001	0.0009	0.0000	0.0010	0.0000	0.0000	0.0001	0.0000	0.0000	0.0004	0.0000	0.0001
23 Others S	0.0004	0.0694	0.0030	0.0130	0.0084	0.0006	0.0097	0.0016	0.0019	0.0112	0.0246	0.0014	0.0143	0.0115	0.0122	0.0101	0.0158	0.0340	0.0054	0.0000	0.0136	0.0000	0.0113

Source: authors' calculations on the basis of DoS tables (2006).

Annex 2: (I-A)-1 Leontief inverse

(I-A)^-1

	1 Agricultu	2 Oil, Gas	3 Food Pr	4 Drinks	5 Tobacco	6 Refinery	7 Other M	8 Electricit	9 Construc	10 Trade	11 Hotels &	12 Road Tra	13 ail, Pipeli	14 Air Trans	15 Transpo	16 Travel, T	17 Post, Te	18 Banking	19 Real esta	20 Ownersh	21 Educatio	22 Public A	23 Others S
1 Agricultu	1.3423	0.0013	0.4700	0.1740	0.0093	0.0013	0.0076	0.0011	0.0055	0.0074	0.1067	0.0007	0.0011	0.0013	0.0013	0.0012	0.0010	0.0010	0.0022	0.0003	0.0036	0.0000	0.0058
2 Oil, Gas	0.0956	1.1557	0.1001	0.1029	0.0633	1.0575	0.2531	0.4690	0.2163	0.0585	0.0722	0.3097	0.7257	0.5769	0.0813	0.1823	0.0215	0.0216	0.0129	0.0108	0.0753	0.0000	0.0595
3 Food Pr	0.0515	0.0018	1.1803	0.4145	0.0033	0.0018	0.0101	0.0014	0.0067	0.0042	0.1850	0.0009	0.0015	0.0016	0.0022	0.0017	0.0014	0.0013	0.0033	0.0003	0.0058	0.0000	0.0090
4 Drinks	0.0001	0.0002	0.0001	1.0038	0.0002	0.0002	0.0002	0.0001	0.0003	0.0006	0.0433	0.0001	0.0002	0.0002	0.0002	0.0003	0.0001	0.0002	0.0007	0.0000	0.0004	0.0000	0.0013
5 Tobacco	0.0124	0.0103	0.0215	0.0834	1.6649	0.0114	0.0386	0.0117	0.1144	0.0187	0.0253	0.0062	0.0107	0.0320	0.0161	0.0250	0.0161	0.0318	0.0072	0.0057	0.0790	0.0000	0.0150
6 Refinery	0.0815	0.1447	0.0750	0.0844	0.0460	1.1780	0.1196	0.3539	0.0154	0.0072	0.0639	0.3380	0.1899	0.6396	0.0759	0.1962	0.0181	0.0191	0.0113	0.0063	0.0550	0.0000	0.0540
7 Other M	0.1982	0.1263	0.1499	0.1708	0.2047	0.1344	1.6561	0.1074	0.9154	0.1221	0.0823	0.0739	0.0904	0.0935	0.0509	0.0535	0.0383	0.0317	0.0136	0.0456	0.2587	0.0000	0.0693
8 Electricit	0.0450	0.0859	0.0351	0.0575	0.0304	0.0816	0.0747	1.0851	0.0665	0.0319	0.0459	0.0264	0.0569	0.0501	0.0443	0.0268	0.0154	0.0141	0.0088	0.0033	0.0372	0.0000	0.0345
9 Construc	0.0283	0.0024	0.0119	0.0108	0.0032	0.0034	0.0040	0.0084	1.1418	0.0090	0.0115	0.0015	0.0021	0.0046	0.0029	0.0033	0.0077	0.0070	0.0025	0.0569	0.0055	0.0000	0.0065
10 Trade	0.0411	0.0186	0.0565	0.0691	0.0942	0.0197	0.0557	0.0296	0.0283	1.0392	0.0431	0.0142	0.0197	0.0320	0.0154	0.0160	0.0244	0.0081	0.0033	0.0041	0.0324	0.0000	0.0129
11 Hotels &	0.0008	0.0012	0.0013	0.0022	0.0025	0.0013	0.0025	0.0017	0.0060	0.0068	1.0042	0.0012	0.0020	0.0018	0.0036	0.0053	0.0018	0.0037	0.0019	0.0003	0.0054	0.0000	0.0031
12 Road Tra	0.0280	0.0468	0.0349	0.0427	0.0392	0.0479	0.0509	0.0607	0.0572	0.0204	0.0207	1.1207	0.1420	0.0495	0.1325	0.6121	0.0094	0.0080	0.0036	0.0028	0.0210	0.0000	0.0163
13 Rail, Pipe	0.0099	0.0186	0.0080	0.0126	0.0068	0.0177	0.0176	0.2321	0.0154	0.0072	0.0100	0.0058	1.0124	0.0109	0.0096	0.0058	0.0034	0.0031	0.0021	0.0008	0.0082	0.0000	0.0080
14 Air Trans	0.0011	0.0010	0.0011	0.0017	0.0028	0.0011	0.0042	0.0016	0.0034	0.0090	0.0045	0.0007	0.0009	1.7105	0.0010	0.0013	0.0052	0.0086	0.0010	0.0002	0.0119	0.0000	0.0029
15 Transpo	0.0182	0.0699	0.0163	0.0248	0.0167	0.0685	0.0326	0.0313	0.0288	0.0437	0.0103	0.0213	0.0452	0.0388	1.0478	0.0152	0.0087	0.0058	0.0021	0.0014	0.0089	0.0000	0.0088
16 Travel, T	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006
17 Post, Te	0.0072	0.0093	0.0077	0.0150	0.0133	0.0095	0.0133	0.0126	0.0170	0.0303	0.0179	0.0056	0.0107	0.0380	0.0333	0.0523	1.2956	0.0318	0.0091	0.0008	0.0191	0.0000	0.0235
18 Banking	0.0376	0.0381	0.0345	0.0824	0.0485	0.0469	0.0539	0.0881	0.0918	0.1136	0.0631	0.0480	0.0445	0.0709	0.0561	0.1033	0.1136	1.1171	0.0495	0.0046	0.0531	0.0000	0.0549
19 Real esta	0.0065	0.0084	0.0121	0.0141	0.0252	0.0086	0.0155	0.0101	0.0179	0.0878	0.0356	0.0061	0.0106	0.0154	0.0172	0.0393	0.0198	0.0252	1.0155	0.0009	0.0174	0.0000	0.0320
20 Ownersh	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000
21 Educatio	0.0024	0.0040	0.0017	0.0018	0.0021	0.0057	0.0034	0.0036	0.0069	0.0026	0.0020	0.0021	0.0035	0.0127	0.0036	0.0033	0.0027	0.0052	0.0007	0.0003	1.0289	0.0000	0.0013
22 Public A	0.0002	0.0003	0.0009	0.0006	0.0002	0.0003	0.0007	0.0010	0.0005	0.0003	0.0002	0.0002	0.0011	0.0002	0.0012	0.0001	0.0001	0.0002	0.0001	0.0000	0.0006	1.0000	0.0002
23 Others S	0.0120	0.0856	0.0150	0.0288	0.0243	0.0797	0.0382	0.0436	0.0329	0.0230	0.0359	0.0266	0.0696	0.0665	0.0226	0.0300	0.0274	0.0417	0.0087	0.0016	0.0258	0.0000	1.0195

Source: authors' calculations on the basis of DoS tables (2006).