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The UN Refugee Agency

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IMPACT OF **HUMANITARIAN AID** ON THE **LEBANESE ECONOMY**

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2015

Acknowledgments

Consultation and Research Institute and the experts contracted by CRI

The Central Administration of Statistics

Members of the Steering Committee:

- United Nations Resident Coordinator's Office
- United Nations Development Program
- United Nations High Commissioner for Refugees
- Office for the Coordination of Humanitarian Affairs
- United Nations Children's Fund
- World Food Program
- World Bank
- The International Monetary Fund

PREFACE

Since the outbreak of the Syrian crisis in March 2011, more than three million people have fled from the suffering brought by the war, seeking refuge in neighboring countries. More than 1.2 million Syrians have come to Lebanon and registered with UNHCR. In response, the United Nations, in partnership with the Lebanese government and with the generous support of the international community, have established one of the largest and most complex crisis operations in the world, combining humanitarian assistance to the refugees with progressively increasing support to the Lebanese host communities. The Lebanese people, however, were the true first responders to the crisis, showing remarkable solidarity by providing welcome, shelter, services and support, even though in many cases their own needs were already high.

While the literature on the impact of the humanitarian aid to the Syrian refugees is extensive, given the wide array of assessment tools and reports available, much less attention has been given so far to the effects on the Lebanese economy. This is especially important considering the large volume of foreign aid that has been directed to Lebanon in response to the Syrian crisis (roughly US$ 2.2 billion since 2012); but also in light of the specific characteristics of the Lebanon response operation, which – unlike other humanitarian operations – is largely channeled through public institutions and makes extensive use of local human resources and national goods and services.

To provide a deeper understanding of the overall effects of the response operation, UNDP and UNHCR have commissioned a study to assess the impact on the Lebanese economy of the assistance provided by four major UN agencies (UNHCR, UNICEF, WFP, and UNDP) in response to the Syrian crisis. It was agreed to adopt two measures to reflect the direct and indirect impacts of the humanitarian funds: (1) A fiscal multiplier exercise which calculates the total effect of humanitarian expenditures on the aggregate demand and GDP of the pre-crisis Lebanese economy, disregarding all other economic and fiscal factors; and (2) A general equilibrium exercise which incorporates the various sources of production and consumption and the potential substitution among the various factors of production.

The present report presents the results of the first phase of the study, i.e. the multiplier exercise, which calculates the impact of an estimated annual aid package for four major UN humanitarian agencies of US$ 800 million. The second and final part of the study,which analyzes the impact of the Syrian crisis on the demand and supply of labor and capital within the Lebanese economy, will be presented at a later stage.

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Executive Summary

In view of the significant amount of funds being spent by international agencies on mitigation and relief efforts in response to the impact of the Syrian crisis on Lebanon's infrastructure, public services, and labor market, it became essential to measure the impact of the aid package on the Lebanese economy.To this end, UNDP and UNHCR have commissioned a study to assess the impact on the Lebanese economy of the humanitarian aid provided by some UN agencies to the Syrian Refugees in Lebanon.

The study adopts two measures to reflect the direct and indirect impacts of the humanitarian funds:

1) A fiscal multiplier exercise which calculates the total effect of humanitarian expenditures on the aggregate demand and GDP of the pre-crisis Lebanese economy, disregarding all other economic and fiscal factors;

2) A general equilibrium exercise which incorporates the various sources of production & consumption and the potential substitution among the various factors of production.

This report presents the results of the multiplier exercise (measure 1) which estimates the impact of an annual aid package of USD 800 million, spent according to a structure obtained from four major UN agencies (UNHCR, UNICEF, WFP, and UNDP) and covering the period spanning from quarter 4 2011 to quarter 2 2014. This exercise, conducted over 26 economic sectors,culminated in the following major findings:

- A timeline comparison of aid trends with total refugee number shows a rather close correlation between the increasing size of the refugee population and the amount of aid expenditure.

- Around 44% of the aid package was injected into the economy in the form of direct cash to beneficiaries (most of which in the form of WFP food cards); more than 40% was spent in the form of in-kind purchases;and 14% was spent on payroll of UN and implementing partner personnel[1] .

- The sectoral distribution of aid expenditures shows that the highest share of aid was allocated to food products (27%), followed by real estate, which includes rents (14%), chemicals, which includes pharmaceutical products (9%), and education services (7%).

- The injection of USD800 million (1,230 billion LBP) of aid during the year under consideration (in this case, 2014) implies that final demand was boosted by the same amount. This additional demand was met by increased supply equivalent to 2,068 billion LBP.

- The additional supply (2,068 billion LBP) was obtained partially through imports (456 billion LBP) and partially through increased production in the Lebanese economy, as reflected by increases in the labor, capital, and tariff outputs. All these increases were reflected by an additional growth of 1.3% in the Lebanese GDP.

1 The 14% spent on payroll was also injected into the Lebanese economy in the form of consumption expenditures of personnel households.

- In terms of the fiscal multiplier, the exercise shows that every USD 1 spent on humanitarian assistance has a multiplier value of USD 1.6 in the economic sectors. In other words, when the four UN agencies disburse USD 800 million of humanitarian assistance, it is as if they were actually injecting USD 1.28 billion in the Lebanese economy.

- While it helped mitigate the effects of the Syria crisis, the humanitarian package did not completely offset those effects. In fact, a simulation of the combined effect of a 23% decrease in tourism volume, a 7.5% decrease in exports, and the injection of the same aid package (USD 800 million) results in negative GDP growth of -0.3% instead of the initially obtained positive growth of 1.3%.

In conclusion, the exercise shows that the positive effects of the fiscal package exceed the strict amount spent by a factor of 1.6. However, the discourse on the effects of the Syria crisis and any mitigation efforts would largely benefit from a general equilibrium exercise that provides a more realistic portrayal of the effects of the refugee presence in Lebanon on the demand and supply of labor and capital within the Lebanese economy.

1. Objectives

The latest UNHCR estimate[2] places the size of the Syrian refugee population of Lebanon at 1,158,710, out of whom 1,140,036 are registered with the agency. In other words, the population of Lebanon has undergone an increase of 27% in the span of only three years. This massive demographic shock has widespread implications on all aspects of life in the country. Several attempts to assess the impact of the Syria crisis have been conducted to date, the most notable of which are the UNDP's "The Syrian Crisis: Implications for Development Indicators and Development Planning in Jordan and Lebanon" (October, 2013), the World Bank's Economic and Social Impact Assessment of the Syrian Conflict (September 2013), and the ILO's "Assessment of the Impact of Syrian Refugees in Lebanon and their Employment Profile" (2014). None of these studies however addressed the specific impact of the humanitarian aid that was injected into the Lebanese economy.

The UNDP and the UNHCR have commissioned a study to assess the impact on the Lebanese economy of the UN and International Humanitarian Aid provided to the Syrian Refugees in Lebanon. The project is overseen by a steering committee that includes the UNDP, UNHCR, UNRCO, UNICEF, and WFP, in addition to OCHA, and the World Bank. The IMF was also invited to attend the Steering Committee meeting which took place on November 14, 2014.This impact is reflected using two measures:

i. Fiscal multiplier impact on major branches of production; and

ii. Impact on total economic output through a general equilibrium model.

This report will present the findings of the multiplier effect exercise.

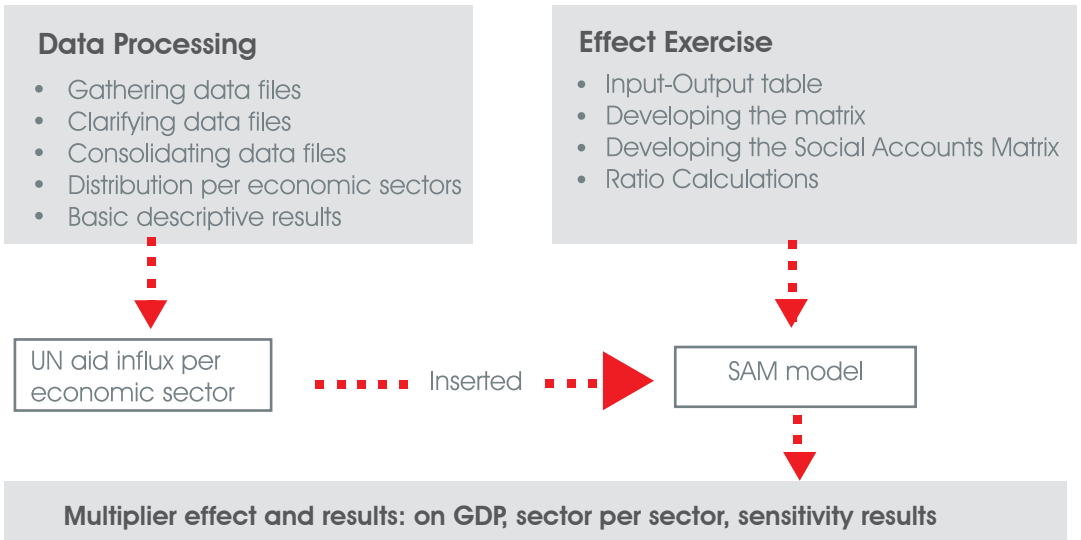
2. Methodology

The methodology of the multiplier exercise is subdivided into three major steps:

1. **Processing of the financial data** with the aim of classifying the expenditure transactions according to the 26-sector structure of the Central Administration for Statistics (CAS).

2. **Preparation of the Social Accounting Matrix (SAM)** from the input-output table of the CAS (2011).

3. **Conducting the multiplier exercise** by applying an annual influx of aid using the generated structure in step 1 into the generated SAM in step 2.



3. Data Processing

Data Gathering

A decision was taken to rely on actual expenditure and not on commitments in compiling aggregates. Expenditure data was received from the four UN agencies which account for at least 70% of total UN humanitarian aid within the context of the Syrian refugee presence.The data consisted of a total of 9 files containing around 26,500 records (table 1). The four agencies rely on different accounting classifications, which meant that the data files were essentially not compatible and could not be merged. The period covered by the data extends from quarter 4 2011 to quarter 2 2014 (table 2). Information on the social and demographic characteristics of the Syrian refugees was obtained from the UNHCR refugee database.

Table 1 Structure of the data files

Source	Number of received files	Number of records	Number of variables
UNHCR	2	20,022	24
UNICEF	4	5,902	8
UNDP[3]	1	808	14
WFP	2	One table per year	14

Table 2 Period covered by the data files

	2011				2012				2013				2014			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
UNHCR																
UNICEF																
UNDP																
WFP																

Data Consolidation

Once the data files were received, the first step consisted of understanding the accounting classifications and the logic behind the various reporting styles of the four involved agencies. This required meetings with accounting and program personnel during which clarifications were requested and received.

These clarifications allowed the consolidation of the various items of expenditure into four basic categories of expenditure, following which they were assigned to their relevant sectors based on the Central Administration of Statistics'(CAS) classification. The four expenditure categories are as follows:

2 As of February 13, 2015.

1. **In-kind transactions:** These reflect the purchase of equipment, furnishings, and supplies, either donated to Syrian refugees or as part of the operational expenditures of the various agencies and their local partners. These expenditures were directly classified into the relevant economic sectors.

2. **Payroll:** This category includes the salaries of national agency staff as well as the portion that remains in Lebanon out of the salaries disbursed to international staff. An estimation of the average annual salary of these employees placed them in the highest income quintile of the CAS's Household Expenditure Survey of 2011. Thus, payroll was assigned to the various sectors of the economy based on the expenditure structure of this highest quintile, as specified in the Household Expenditure Survey report (2011). It was assumed that the entirety of the payroll was spent, i.e. no savings were accumulated.

3. **Cash to Beneficiaries:** Funds that were given to beneficiaries were reclassified into their relevant sectors based on the expenditure structure of Syrian refugees provided by the Vulnerability Assessment of Syrian Refugees in Lebanon (VASyr, 2013) issued by WFP, UNICEF and UNHCR. The same assumption of zero savings was applied to Syrian refugees.

4. **Cash to NGOs:**These transactions reflect transfers made by the four main agencies to local partners which then spent them on refugee-related programs. As there was no way to ascertain the exact structure of expenditure of these items, the four main UN agencies were asked to provide assumptions based on which this category was reassigned into: in-kind transactions, payroll, and cash to beneficiaries. The resulting amounts were then allocated to the various sectors either based on agency recommendations or on a pro-rata basis.

Finally, it should be noted that two items remained unclassifiable even with the help of the agencies: 1) UNHCR's "service unclassified" amounting to 59.587 million USD and 2)UNDP's "In kind aid" amounting to 0.022 million USD. These were allocated to the following sectors on a pro-rata basis to the weights of these sectors for the same agencies: Transport, Accommodation and food service activities, Information and communication, Financial & insurance activities, Real estate activities, Professional, scientific and technical activities, Administrative and support service activities, Public administration & international, Education, Human health & social work activities.

Basic Descriptive Results

Distribution of aid by type

Out of the total $820MN spent during QIV 2011-QII 2014, 44% was allocated toward "cash to beneficiaries", mainly reflecting the cash vouchers dispensed by WFP. In addition, 42% were spent on "in-kind purchases" which consists both of contributions to Syrian refugees and the operational expenses of UN agency programs to deliver the assistance. The remainder 14% consists of payroll expenditures to central office and field staff (table 3).

3 The amount assigned to UNDP only reflects the UNDP's expenditures on programs related to the Syrian crisis and not to the entirety of the agency's operations.

Table 3 Consolidated results including all agencies (2011-2014)

	TOTAL (USD)	SHARE
Total In-kind	347,152,229	42%
Total payroll (NGO+UN)	114,368,311	14%
Total Cash Beneficiaries	358,518,371	44%
Grand total	**820,038,912**	**100%**

Distribution of aid by economic sector

The sectoral distribution of aid expenditures reveals that almost a quarter of the aid was spent on food, undoubtedly related to the WFP's pre-paid card system. The second most impacted sector was real estate, which includes rental subsidies, office and venue rental, etc. Manufacture of petroleum, chemicals, rubber, and plastics took up 9% of total aid expenditures. This is a broad category that includes gas, drugs, and medical supplies such as gloves and syringes, among other items. Finally, Education accounts for 7%, reflecting tuition subsidies, training services, and other educational service-related expenditures.

As expected, a breakdown of the sectoral distribution based on type of aid reveals that the highest share of in-kind contributions fell under the petroleum and chemicals category. Indeed, large amounts of drugs and medical supplies were donated to refugees. Finally, clear differences in the allocation of expenditures may be noted between the payroll and cash-to-beneficiaries categories. Thus, Syrian refugees spent almost half of the cash aid (cash to beneficiaries) on food because poorer households spend a larger share of their income on food and because purchases under the voucher system are restricted to food.In contrast, only 18% of payroll expenditures is spent on food.

Table 4 Consolidated results by sector of activity (2011-2014)

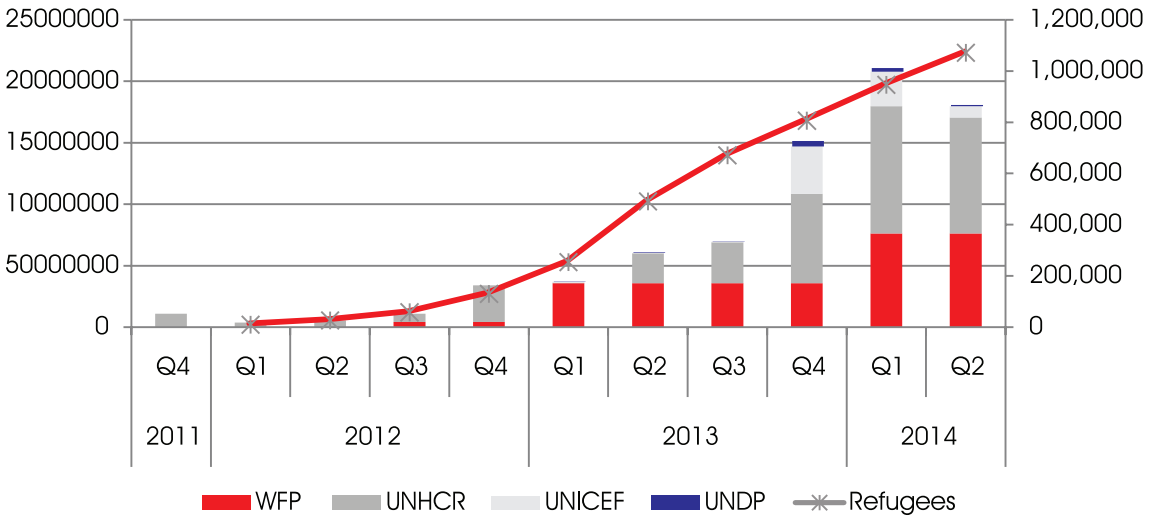
	Total	In kind	Payroll	Cash to beneficiaries
Agriculture and forestry A1	0%	0%	0%	0%
Livestock & livestock products; fishing A2	0%	0%	0%	0%
Mining and quarrying B	0%	0%	0%	0%
Manufacture of food products C1	27%	4%	18%	53%
Manufacture of beverages & tobacco C2	0%	0%	0%	0%
Manufacture of textiles, clothing & leather C3	5%	10%	6%	0%
Manufacture of wood & paper products; printing C4	1%	2%	1%	0%
Manufacture of petroleum, chemicals, rubber & plastics C5	9%	17%	7%	3%
Manufacture of other non-metallic mineral products C6	0%	0%	0%	0%
Manufacture of metal products, machinery and equipment C7	2%	4%	4%	0%
Furniture & other manufacturing C8	4%	6%	5%	1%
Electricity D	2%	0%	4%	3%
Water supply; sewerage, waste management, etc. E	1%	1%	1%	2%
Construction F	2%	4%	0%	0%
Commercial trade & motor vehicle repairs G	3%	8%	0%	0%
Transport H	5%	2%	18%	4%
Accommodation and food service activities I	1%	1%	4%	0%
Information and communication J	2%	3%	5%	0%
Financial & insurance activities K	2%	5%	1%	0%
Real estate activities L	14%	2%	15%	25%
Professional, scientific and technical activities M	1%	2%	1%	0%

Administrative and support service activities + Travel N	0%	0%	0%	0%
Public administration & international O	4%	9%	0%	0%
Education P	7%	15%	6%	1%
Human health & social work activities Q	5%	1%	2%	9%
Personal service activities V	0%	0%	2%	0%
Grand Total	**100%**	**100%**	**100%**	**100%**

Correlation between timing of refugees' inflow and aid expenditures

A timeline comparison of aid trends with total refugee number shows a rather close correlation between the increasing size of the refugee population and the amount of aid expenditure. Moreover, UNHCR was the first organization to intervene (starting in Q4 of 2011), followed by WFP (Q3 2012), then UNICEF and UNDP[4] in the beginning of 2013, when a significant spike in the number of refugees may be noted.

Figure 1 Comparison of aid expenditures (USD) with the total number of Syrian refugees



4. Social Accounts Matrix model

Gathering, Processing, Consolidation, Basic Results

After distributing the various forms of UN Aid into final uses of the products (sectors) as per the CAS's National Accounts classification, the Social Accounting Matrix (SAM) was developed.

It is fortunate that the Central Administration for Statistics (CAS) has recently published the National Accounts for 2011, i.e. the last year before the arrival of the displaced Syrians. A meeting was held with Ms. Maral Tutelian, General Director of the CAS, and Ms. Najwa Yacoub who lead the preparation of the accounts to discuss some technical issues, such as the distribution of tourism debits and credits to their respective uses.

The multiplier exercise requires a perfectly squared and balanced social accounting matrix (SAM) in which the sum of the sources of economic output is equal to the sum of the uses of that economic output (refer to figure 2). For that reason, two tasks had to be performed in order to convert the CAS's input-output table into a SAM: i) squaring the Input Output matrix (26x26) and ii) balancing the SAM matrix.

4 The amount assigned to UNDP only reflects the UNDP's expenditures on programs related to the Syrian crisis and not to the entirety of the agency's operations.

Squaring the Input Output Matrix

Two steps were taken in order to obtain a squared input-output matrix:

a. In the standardized system of national accounts, commercial margins appear as a separate line and therefore need to be integrated into the input-output table in order to obtain a squared matrix. For that purpose, commercial margins were added to "Commercial trade & motor vehicle repairs".

b. Considering the particular importance of tourism in the Lebanese economy, the National Accounts devoted a specific effort to assess its impact. The CAS report says: "Travel debits do not need to be classified by product. Travel credits (expenditure by non-residents visiting Lebanon), initially a single figure, have to be allocated between the products purchased in a special column. In the absence of a survey of departing visitors, the allocation was provisional and subject to adjustment at the balancing stage". Unfortunately this conservative attitude also had to be modified in order to reach a square and invertible matrix. For that purpose, non-resident tourist expenditure in Lebanon had to be allocated to products in a column next to the exports column on the basis of reasonable assumptions. On the other hand, resident firms spending outside Lebanon for business travel were considered as intermediate consumption under "Administrative and support service activities" and resident households spending outside Lebanon were considered as final consumption, both appearing as a supplementary row, adjacent to imports.

As a result of the above technical measures, the input-output table was transformed into a square 26x26 matrix.

Balancing the SAM

Balancing the SAM addresses fundamental macro aggregates such as savings, remittances, debt, and capital accounts. Based on the available data from the Government, Central Bank, and Commercial banks accounts for the relevant year, the exercise was performed with all possible care, keeping in mind the exceptional weight of these capital and financial aggregates in the Lebanese economy.

Figure 2 Diagram of the Social Accounting Matrix (SAM)

	Agriculture and forestry A1	Livestock & livestock products; fishing A2	Mining and quarrying B	Manufacture of food products C1	Manufacture of beverages & tobacco C2	Manufacture of textiles, clothing & leather C3	Manufacture of wood & paper products; printing C4	Manufacture of petroleum, chemicals, rubber & plastics C5	Manufacture of other non-metallic mineral products C6	Manufacture of metal products, machinery and equipment C7	Furniture & other manufacturing C8	Electricity D	Water supply; sewerage, waste management etc E	Construction F	Commercial trade & motor vehicle repairs G	Transport H	Accommodation and food service activities I	Information and communication J	Financial & insurance activities K	Real estate activities L	Professional, scientific and technical activities M	Administrative and support service activities N	Public administration & international O	Education P	Human health & social work activities Q	Personal service activities nec V	Labour	Capital	Households	Government	Capital acct	Taxes less subsidies on products	Rest of the World (Imports)	Total Ressources	Total Emplois	Rest of the World (Exports)	Tarifs	Gross capital formation	Govt final consmptn	Household net final consmptn	Capital	Labour		Emplois finaux
Agriculture and forestry A1	31	0	0	981	183	82	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,836	3,836	451	0	0	0	1,891	0	0		2,342
Livestock & livestock products; fishing A2	0	0	0	946	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,966	1,966	86	0	0	0	766	0	0		872
Mining and quarrying B	0	0	31	6	1	0	0	0	0	0	253	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,056	1,056	279	0	0	0	13	0	0		292
Manufacture of food products C1	0	204	0	471	22	6	3	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,163	8,163	1,016	0	0	0	5,920	0	0		6,936
Manufacture of beverages & tobacco C2	0	0	0	17	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,674	2,674	337	0	0	0	2,082	0	0		2,419
Manufacture of textiles, clothing & leather C3	0	0	0	1	0	416	22	4	1	3	38	2	0	3	2	1	18	1	1	1	1	13	4	1	13	0	0	0	0	0	0	0	0	4,570	4,570	288	0	0	0	3,736	0	0		4,024
Manufacture of wood & paper products; printing C4	6	3	3	36	8	3	479	31	19	70	115	30	15	608	344	31	31	180	149	12	50	28	14	124	62	31	675	46	18	0	0	0	0	3,262	3,262	255	0	0	0	470	0	0		725
Manufacture of petroleum, chemicals, rubber & plastics C5	314	10	9	132	161	25	121	869	191	148	63	3,631	121	601	900	483	65	46	37	61	34	62	124	93	675	46	0	0	0	0	0	0	0	16,610	16,610	1,899	0	0	0	5,619	0	0		7,588
Manufacture of other non-metallic mineral products C6	0	0	0	0	7	0	0	0	375	7	7	0	0	2,502	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,336	3,336	98	0	0	0	310	0	0		408
Manufacture of metal products, machinery and equipment C7	2	5	42	34	21	18	29	40	69	1,873	76	117	84	3,008	315	115	73	133	35	20	54	61	16	25	59	51	0	0	0	0	0	0	0	19,733	19,733	3,998	0	0	0	3,930	0	0		13,358
Furniture & other manufacturing C8	3	2	2	12	17	5	2	11	11	1	0	13	9	0	72	11	48	17	15	6	18	37	29	27	216	10	0	0	0	0	0	0	0	2,992	2,992	354	0	0	0	505	0	0		2,398
Electricity D	3	2	1	47	3	4	12	39	6	39	6	290	14	150	5	5	56	37	48	71	11	10	61	54	28	40	0	0	0	0	0	0	0	2,708	2,708	0	0	0	0	1,657	0	0		1,657
Water supply; sewerage, waste management etc E	30	1	1	9	4	1	4	14	6	4	2	20	6	39	14	6	9	23	11	4	6	6	8	6	7	4	0	0	0	0	0	0	0	1,217	1,217	556	0	0	0	501	0	0		1,057
Construction F	0	0	0	111	0	1	1	2	8	8	2	20	1	35	148	4	47	27	52	1,128	16	12	0	136	33	33	0	0	0	0	0	0	0	12,362	12,362	811	0	0	0	494	0	0		10,837
Commercial trade & motor vehicle repairs G	698	301	1	1,300	446	2,077	1,022	2,856	557	3,237	890	8	34	0	286	127	12	271	7	4	17	24	3	15	12	7	0	0	0	0	0	0	0	16,129	16,129	1,156	0	0	0	761	0	0		1,917
Transport H	19	16	45	35	18	7	20	25	32	75	19	18	12	57	431	426	28	37	58	34	40	578	21	34	29	20	0	0	0	0	0	0	0	4,553	4,553	1,563	0	0	0	856	0	0		2,419
Accommodation and food service activities I	1	0	0	4	4	1	4	4	2	5	2	6	8	16	63	33	11	23	111	4	19	128	1	14	32	9	0	0	0	0	0	0	0	3,952	3,952	1,657	0	0	0	1,890	0	0		3,547
Information and communication J	22	17	1	32	17	11	25	23	25	92	17	22	54	151	634	138	139	625	140	26	832	148	73	378	95	115	0	0	0	0	0	0	0	6,802	6,802	1,218	0	0	0	1,732	0	0		2,950
Financial & insurance activities K	40	30	6	113	29	11	31	58	61	109	22	23	46	507	926	167	105	133	308	366	104	69	10	68	96	59	0	0	0	0	0	0	0	6,814	6,814	1,248	0	0	0	2,049	0	0		3,297
Real estate activities L	0	0	0	117	3	6	9	12	11	47	22	0	40	43	703	25	110	165	363	70	429	190	50	177	70	142	0	0	0	0	0	0	0	10,179	10,179	331	0	0	0	6,528	0	0		7,749
Professional, scientific and technical activities M	19	8	2	71	60	8	33	100	45	50	27	23	11	388	701	68	110	165	363	70	429	190	50	177	70	142	0	0	0	0	0	0	0	7,034	7,034	3,593	0	0	0	61	0	0		3,654
Administrative and support service activities + Travel N	6	5	0	94	8	9	61	34	27	127	14	26	97	614	295	172	59	196	241	115	423	214	33	97	141	57	0	0	0	0	0	0	0	3,780	3,780	0	0	0	0	715	0	0		715
Public administration & international IO	0	0	0	2	0	0	1	7	7	1	0	0	0	4	143	2	4	4	0	1	9	2	0	2	10	1	0	0	0	0	0	0	0	6,256	6,256	77	0	0	0	5,979	0	0		6,056
Education P	0	0	0	1	1	0	2	1	1	2	1	0	0	5	11	2	2	9	0	0	13	3	0	48	5	2	0	0	0	0	0	0	0	5,213	5,213	0	0	0	0	4,051	1,053	0		5,104
Human health & social work activities Q	0	0	0	1	0	0	1	0	2	1	1	0	3	5	6	0	3	1	0	2	1	3	0	10	221	1	0	0	0	0	0	0	0	3,587	3,587	83	0	0	0	193	3,260	0		3,325
Personal service activities nec V	1	0	0	7	3	1	4	4	2	6	1	1	2	6	48	4	5	17	79	2	39	58	1	15	17	3	0	0	0	0	0	0	0	2,931	2,931	462	0	0	0	0	0	0		2,605
Labour	539	295	61	294	94	141	257	263	414	908	161	629	483	1,555	7,878	1,377	962	913	2,519	7,668	1,497	806	1,387	1,458	945	218	0	0	0	0	0	0	0	21,029	21,029									
Capital	942	515	243	597	316						161	629	483	1,555	7,878	1,377	962	913	2,519	7,668	1,497	806	1,387	1,458	945	218	0	0	0	0	0	0	0	34,485	34,485									
Households	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,309	34,229	0	4,807	0	0	18,501	77,846	77,846									
Government	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	7,080	0	4,106	0	11,292	11,292	11,292									
Capital acct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,725	-1,918	0	0	1,350	16,157	16,157									
Taxes less subsidies on products	39	3	0	275	599	303	67	1,283	191	1,488	152	-2,589	35	250	0	148	140	2,292	1	0	52	87	60	0	3	26	0	0	0	0	0	0	0	4,905	4,905									
Rest of the World (Imports)	1,121	549	608	2,517	585	1,364	868	10,843	666	10,981	990	260	21	753	398	721	0	843	754	0	2,124	445	29	0	0	192	720	150	1,589	848	0	799	0	41,738	41,738									

Intermediate consumption of economic sectors

Added value (Capital and Labour)

Taxes on Products

Balanced Supply = Uses

Final Consumption + Exports + Invest

Before going into the details of the multiplier exercise, it is important to clarify the issue of the amount of aid that was injected into the exercise to translate into additional demand and multiplier effects on total output. Indeed, because the multiplier exercise requires injecting a certain amount of aid in one single year, it was not possible to use the 820 million USD package which was spent between 2011 and 2014. Rather, the team had to choose between either to use the total amount spent during a full year (2013) or to estimate the amount that would be spent by the end of the 2014 fiscal year. The study team opted for the second option because of the escalating amount of aid throughout the study period. Indeed, estimations revealed that the year 2014 would involve an amount of aid close to 800 million USD (391 million in Q1 and Q2), which is similar to the total amount of aid spent over the three-year period (820 million USD). In comparison, only 319 million USD were spent in 2013. This annual aid injection of 800 million USD was distributed based on the structure of expenditure of the entire aid package (3 years) in order to smooth out any irregularities.

Multiplier Effect: Calculations

On these basis, the multiplier calculations could be performed as follows:

Global Demand (D) = Global Supply (S)

D = Final Consumption (FC) + Investment (I) + Intermediate Consumption (IC) + Exports (X)

S = Production (Y), including commercial margins (CM) + Taxes on products (T) + Imports (M)

$$D = FC + I + IC + X = Y + T + M = S$$

Constant ratios of production: $IC = [A]\,S$

Hence: $S = [I-A]^{-1}(FC + I + X)$

This allows the estimation of the total supply as a result of specific assumptions on the variations of final Consumption, investment, and exports (including non-resident tourist expenditure in the country).

More specifically:

- FC incorporates the variation in demand due to UN aid expenditures
- I is assumed to be constant
- X is affected (or not, depending on scenarios) by the closure of land routes and the decrease in the number of incoming tourists

Following that, once the total supply is known, production (Y), taxes on products (T),and imports (M) are derived from S on the basis of proportionality.

Results of the Multiplier Effect Exercise

It is estimated that final demand was boosted by 1,230 billion LBP or $800 million during the year under consideration as a result of the injection of humanitarian assistance. This additional demand was met by increased supply equivalent to 2,068 billion LBP. The additional supply was obtained partially through imports (456 billion LBP) and partially through increased production in the Lebanese economy, as reflected by increases in the labor, capital, and tariff outputs. All these increases were reflected by an additional growth of 1.3% in the Lebanese GDP (table 5). The table also shows a relatively higher effect on capital (0.8%) and imports (0.8%) than on labor (0.4%) and tariffs (0.1%).

Table 5 Impact on aggregates (billion LBP)

	Aggregate	Change	Distribution	Percentage Change	Weighted Change
Final Demand (FD)	98,051	1,230			
Supply	161,715	2,068			
GDP	**60,419**	**774**	**62.9%**	**1.3%**	**1.3%**
Of which Margins	14,212	202	16.4%	1.4%	0.3%
Labor	21,029	239	19.5%	1.1%	0.4%
Capital	34,485	495	40.3%	1.4%	0.8%
Tariffs	4,905	39	3.2%	0.8%	0.1%
Imports	37,632	456	37.1%	1.2%	0.8%
Exports	21,887	0	0.0%	0.0%	0.0%
Trade balance	-15,745	-456	-37.1%	2.9%	-0.8%

The distribution of the GDP impact (1.3%) across the economic sectors shows a significantly higher impact on food (4.47%), followed by livestock and livestock products (2.2%), then transport (2.03%), and real estate activities (2%). Education and human health are also significantly impacted, registering a growth rate of 1.79% and 1.76% respectively (table 6). Various types of aid have different impacts on the economic sectors. Thus, the two sectors that are most impacted by in-kind assistance are education (1.43%) and furniture (1.11%). Food was the single most impacted factor by cash assistance (3.73%) due to the WFP's card system which limits purchases to food items.

Table 6 Impact on the Economic Sectors

	Total	In-Kind	Cash to Beneficiaries	Payroll
Agriculture and forestry A1	**1.23%**	0.06%	0.97%	0.12%
Livestock & livestock products; fishing A2	**2.20%**	0.06%	1.80%	0.21%
Mining and quarrying B	**0.64%**	0.35%	0.16%	0.09%
Manufacture of food products C1	**4.47%**	0.08%	3.73%	0.41%
Manufacture of beverages & tobacco C2	**0.07%**	0.02%	0.03%	0.02%
Manufacture of textiles, clothing & leather C3	**1.56%**	0.91%	0.01%	0.26%
Manufacture of wood & paper products; printing C4	**1.35%**	0.81%	0.26%	0.20%
Manufacture of petroleum, chemicals, rubber & plastics C5	**1.45%**	0.58%	0.49%	0.22%
Manufacture of other non-metallic mineral products C6	**0.35%**	0.16%	0.13%	0.03%
Manufacture of metal products, machinery and equipment C7	**0.35%**	0.19%	0.07%	0.06%
Furniture & other manufacturing C8	**1.79%**	1.11%	0.32%	0.29%
Electricity D	**1.43%**	0.22%	0.83%	0.36%
Water supply; sewerage, waste management etc E	**1.65%**	0.32%	0.78%	0.17%
Construction F	**0.40%**	0.18%	0.15%	0.04%
Commercial trade & motor vehicle repairs G	**1.51%**	0.65%	0.54%	0.17%
Transport H	**2.03%**	0.18%	0.77%	0.80%
Accommodation and food service activities I	**0.49%**	0.23%	0.05%	0.19%
Information and communication J	**1.00%**	0.50%	0.20%	0.23%
Financial & insurance activities K	**1.11%**	0.58%	0.33%	0.13%
Real estate activities L	**2.00%**	0.20%	1.45%	0.30%
Professional, scientific and technical activities M	**0.74%**	0.36%	0.20%	0.09%
Administrative and support service activities + Travel N	**0.95%**	0.32%	0.38%	0.14%

Public administration & international O	**0.82%**	0.78%	0.02%	0.01%
Education P	**1.79%**	1.43%	0.07%	0.21%
Human health & social work activities Q	**1.76%**	0.18%	1.45%	0.12%
Personal service activities V	**0.22%**	0.05%	0.05%	0.11%
Total Sectors	**1.28%**	**0.47%**	**0.55%**	**0.17%**

Moreover, the aid package had a multiplier ratio of 1.6, i.e. every 1 USD of aid generated additional revenue of 0.6 USD. Another way to think of this is that for every 0.8 USD of benefits received by Syrian refugees, an equal amount of benefit (0.8 USD) was received by the resident population of Lebanon (including aid program employees) (table 7).

Table 7 Distribution of the multiplier effect by beneficiary type

Type of beneficiary	Number of beneficiaries	Accrued benefit (USD)
Syrian refugees	1.15 million	0.8
Aid program employees	3.9 million	0.2
Residents of Lebanon		0.6
Total		1.6

Sensitivity Analysis

Table 5 showed that the UN aid funds, injected in the Lebanese economy during one year, reaching around USD 800 million, had an impact on the GDP growth estimated at around +1.3%.

It is important to point out that this result has been calculated based on the baseline economic scenario that assumes that the Syrian crisis had no other impact on the Lebanese economy.

However, several exogenous factors to the model have impacted the Lebanese economy. Examples include the Impact on the labor market and the substitution effects between similarly skilled Lebanese and Syrian workers. It is expected that the third and final phase of this study consisting of the General Equilibrium Modelwill tackle these issues and estimate the global results.

Meanwhile, the SAM model allows for a partial simulation of certain economic effects of the Syrian crisis. The following two tables present the results of a sensitivity analysis which assumes a certain degree of impact by the Syrian crisis on tourism and exports.

Table 8 Sensitivity scenarios: Impact on GDP

SCENARIO		IMPACT ON GDP)
Baseline scenario	Aid impact only	+1.28%
Tourism Sector (-23%) General Security 2011-2013	Including Aid impact	+0.19%
Exports (-7.5%) MoF 2010-2013	Including Aid impact	+0.79%
Tourism (-23%) & Exports (-7.5%) combined	Including Aid impact	-0.30%

Table 8 presents a comparison of the economic impact of the aid package under various assumptions:

⇨ When the model assumes no other impacts by the crisis, the result is a 1.3% growth in GDP, as seen in the previous section.

⇨ When the model assumes a drop in tourism income of 23%, the result is only an additional growth in GDP of 0.19% due to the aid package.

⇨ A 7.5% drop in exports decreases the impact of the aid package from 1.3% to 0.8%.

⇨ Finally, when the combined effect of weakened tourism, decreased exports, and the aid package are all taken together, the result is a retraction of GDP growth by 0.3%. Clearly, without the aid package, the negative effect on the GDP would have been significantly higher than -0.3%.

Table 9 Sensitivity scenarios: Impact on aggregates (billion LBP)

	Aggregate	Change	Distribution	Percentage Change	Weighted Change
FD	98,051	-199			
Supply	161,715	-354			
GDP	60,419	-184	92.7%	-0.3%	-0.3%
Of which Margins	14,212	11	-5.3%	0.1%	0.0%
Labor	21,029	-71	35.6%	-0.3%	-0.1%
Capital	34,485	-61	30.5%	-0.2%	-0.1%
Tariffs	4,905	-53	26.6%	-1.1%	-0.1%
Imports	37,632	-15	7.3%	0.0%	0.0%
Exports	21,887	0	0.0%	0.0%	0.0%
Trade balance	-15,745	15	-7.3%	-0.1%	0.0%

The above table (table 9) shows a similar impact on the labor, capital, and tariff components of the GDP.

From an analytical perspective, it is important to look at the picture as resulting from three cumulative effects:

1. The Syrian crisis effects on exports, tourism, capital inflows, etc.
2. The Syrian crisis effects with the impact of the arrival of the Syrian displaced on the domestic economy at the level of production, consumption, external trade, and income distribution.
3. The Syrian crisis effects with the impact of the arrival of the Syrian displaced and the impact of external aid on the relevant aggregates

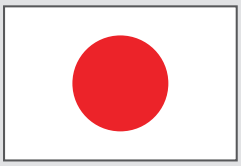
Finally, it is important to reiterate that the multiplier exercise required a number of assumptions, namely:

- Humanitarian aid is the only source of income for Syrian refugees, i.e. they have no other source of funding from work, savings, or debt.
- The coefficient of production is constant, thereby preventing any substitution among factors of production due to changes in their relative prices. In other words, the shares of capital and labor are maintained constant.

- The financing circuit outside of this source of aid is excluded, meaning that no other assistance provided by UN and other funding agencies was taken into account.

The above limitations will be addressed by the development of a general equilibrium model (next phase of the study) that allows a more accurate estimation of the impact of international aid on the total output of the Lebanese economy, taking into account all the various sources of production and consumption, and the interaction among the various factors of production.

It should be finally stressed that the presented results take only into account the amounts of aid channeled through four UN agencies. Aid through other UN agencies or through other international or foreign channels are considerable and should be estimated to obtain a more consistent and realistic picture.



من الشعب الياباني
From the People of Japan

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