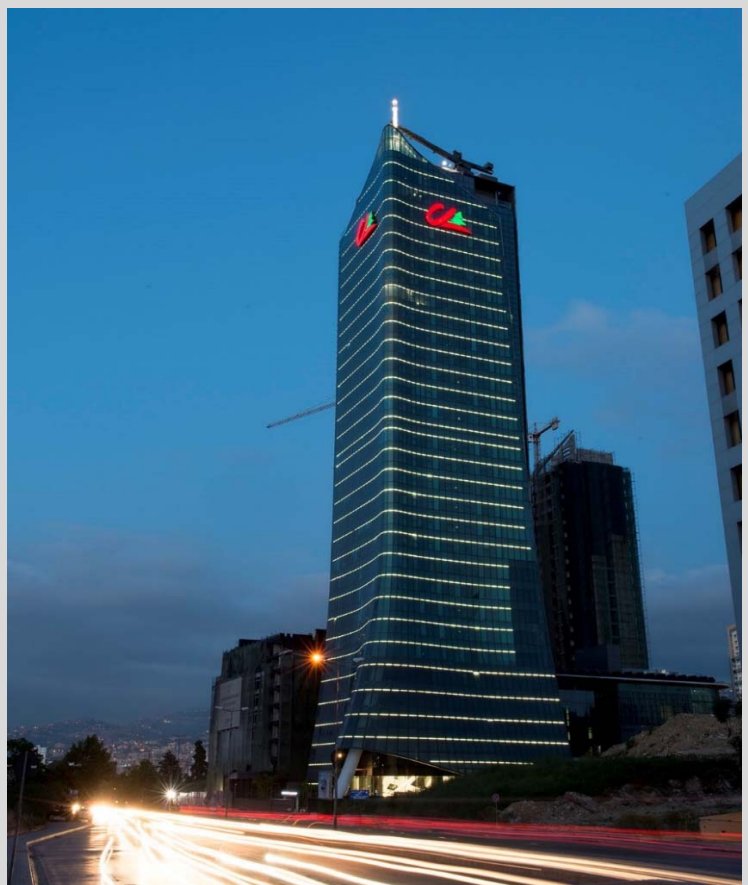# CREDIT LIBANAIS S.A.L.

THE IMPACT OF REMITTANCES ON ECONOMIC GROWTH

MAY 2017

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SYNOPSIS OF TERMS

"BBL"   Oil Barrel

"BDL"   Banque du Liban

''BOP''   Balance of Payments

"CAGR"   Compounded Annual Growth Rate

"CPI"   Consumer Price Index

"FDI"   Foreign Direct Investment

"GCC"   Gulf Cooperation Council

"GDP"   Gross Domestic Product

"HDI"   Human Development Index

"IMF"   International Monetary Fund

"KSA"   The Kingdom of Saudi Arabia

"LBP"   Lebanese Pound

"MENA"   The Middle East and North Africa

"MTO"   Money Transfer Operators

"ODA"   Official Development Assistance

"OECD"   Organization for Economic Cooperation and Development

"OLS"   Ordinary Least Squares (Estimation method)

"UAE"   The United Arab Emirates

"UK"   The United Kingdom

"UNESCO"   United Nations Educational, Scientific, and Cultural Organization

"UNESCAP"   United Nations Economic and Social Commission for Asia and the Pacific

''USA''   The United States of America

"USD"   The United States Dollar

"VIF"   Variance Inflation Factor

"WB"   The World Bank

"WWI"   World War 1

"WWII"   World War 2

I. EXECUTIVE SUMMARY

Migration has been a phenomenon plaguing the Lebanese society for more than a century. In recent years, remittances, a consequence and companion of migration, has been given special attention and has raised the interest of economists to study its possible impact on the economies and growth prospects of home countries. With respect to Lebanon, this interest heightens as the number of Lebanese emigrants reached 798,140 as at the end of 2015 with remittances nearing the $7.31 billion mark as at the end of 2016, representing 14.10% of GDP. In this context, Lebanon ranks among the top twenty receivers of remittances in the world and among the top three in the MENA region, outperforming all other countries on a per capita basis. It is worth noting, in this context, that Saudi Arabia is the major source of remittances to Lebanon, accounting alone for 20% of total remittances in 2015, also topping the list when it comes to remittance outflows per expatriate ($12,416).

This research report conducted by Credit Libanais' Economic Research Unit illustrates the dependence of the balance of payments on remittance inflows over the 2010-2015 period. In 2015, remittance inflows reached $7.48 billion, surpassing by far the capital and financial inflows to Lebanon, which stood at $6.27 billion. Such remittance inflows limited, to a large extent, the deficit in the net foreign assets of the Lebanese financial sector (which stood at $3.35 billion in 2015), which otherwise would have worsened to read $5.37 billion had incoming remittances channeled through local banks (estimated at 27% of total remittances according to the IMF) been excluded. Concurrently, and as proven in this research report, remittance inflows to Lebanon ($7.48 billion in 2015) clearly exceeded foreign direct investment (FDI) and official development assistance (ODA) levels combined ($3.32 billion in 2015). While FDIs exhibit a cyclical behavior depending on the state of the economy, remittance inflows seem to reflect a more stable pattern. Moreover, as ODA comes conditioned and accompanied by restrictions, remittances flow independent of any obligations towards any party or foreign agency. From another standpoint, our study proves the significant contribution of remittance inflows channeled through banks in maintaining a steady growth in deposits, whereby remittances seem to have fueled some 21.12% of the growth in deposits at banks over the 2002-2016 period.

This research publication also attempts to capture the potential effect of oil price corrections on remittance inflows to Lebanon, especially that a large proportion of remittances (around 25% as at the end of 2015) comes from expatriates residing in oil-producing Gulf Cooperation Council (GCC) countries. On the short term, no immediate and substantial effect of a drop in oil prices on remittance inflows has been noticed. The measures taken by GCC countries in response to the oil price crisis have helped maintain, to some extent, their government spending and therefore economic stability. Moreover, the diversity of sources of remittance inflows to Lebanon has as well helped limit the impact of oil price changes on the size of total remittance inflows. Nevertheless, concerns over the medium and long terms still prevail as two factors remain uncertain: oil price behavior from one side, and the ability of GCC countries to still employ fiscal buffers in order to sustain their spending, from the other.

Finally, Credit Libanais' Economic Research Unit conducted an empirical analysis to estimate the direct impact of remittances on economic growth. The model tested in the study depicted a positive yet statistically insignificant impact of remittances on GDP per capita growth. As far as other independent variables in the model are concerned, our regression analysis showed a negative and statistically significant impact of each of GDP per capita growth lag, trade, and population growth on GDP per capita growth, while it portrayed a positive and statistically significant impact of private consumption on growth. A possible explanation for the statistically insignificant coefficient of remittance inflows is that remittances may favor GDP growth indirectly through another major channel, namely, consumption. In particular, our analysis revealed a positive correlation (+0.55) between remittance inflows and private consumption,

where the latter was shown to have a positive and statistically significant impact (β=+0.38, i.e. a 1% growth in private consumption drives GDP per capita growth up by 0.38%) on GDP per capita growth. In fact, a sizeable portion of remittance inflows is allocated to household consumption, which in turn stimulates GDP per capita growth via the multiplier effect.

Last but not least, the research report gives a series of recommendations of which we mention: adopting policies and measures that incentivize emigrants to allocate their money in investment-oriented activities which would favor growth, while at the same time striving to reduce the very high cost of sending remittances to Lebanon (noting that Lebanon emerged as the most expensive country in the world in 2015 when it comes to receiving remittances) in order to encourage expatriates to send more money through formal channels to their home country.

II.   INTERNATIONAL MIGRATION

The significant and mounting disparities between countries, along with wars and conflicts erupting in different regions of the world, are considered among the major drivers of international migration. Although one can see migration trends executing rapidly growing rates at the present, the phenomenon of migration actually dates back to earlier centuries and has been ongoing since then. Migration movements fuel activity across a multiplicity of economic sectors in both host countries and countries of origin. For the purpose of this paper, special focus will be given to a produce of migration, namely remittances, with particular attention to the latter's impact on the Lebanese economy. Given the fact that Lebanon has been witnessing an increasing trend in emigration for a century and a half now amid prolonged political instability, an unbalanced economy, and escalating regional conflicts, it would be interesting to explore the economic outcomes of emigration in the home country amid the distribution of a large Lebanese diaspora around the globe.

A. Migration around the World

A quick statistical overview of the evolution of migration stocks across the globe over the 1990-2015 period shows a persistent growth in the total number of migrants, as well as an accelerating pace of growth in migration in four out of the five five-year lapses covered. For instance, the 1990-1995 period saw a 5.40% increase in the number of migrants worldwide from that recorded during the period ended at 1990. Said growth rate was further accentuated to reach 7.40% by end of 2000, 10.75% by end of 2005, and 15.92% as at end of year 2010. Only the five-year interval ending in 2015 is an exception to the previous trend, displaying a slower pace of growth of 9.92% in the total number of global migrants. All in all, over the course of 25 years, the stock of migrants has expanded by 91,137,024 to reach a total of 243,700,236 by 2015, an exponential rise equivalent to 59.74% between the years 1990 and 2015.

**Evolution of Migration Stocks on a Global Level
(1990-2015)**
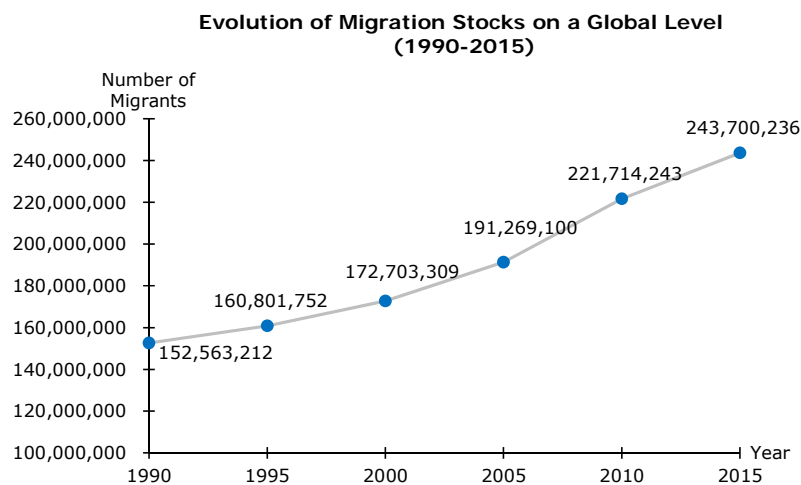
Source: United Nations (2017), Credit Libanais Economic Research Unit

B. Migration in Lebanon

i.   Historical Overview

As mentioned before, migration has been a widely preferred choice for Lebanese people for more than 150 years due to various reasons that have been varying over time with domestic instability remaining a major common factor through all.[1] In the 1860s, people left seeking better opportunities and fortunes in other lands amid a harsh economic environment. By the beginning of World War I, many people had already evacuated abroad. However, the period extending between WWI and WWII through the early 1960s witnessed a fall in emigration levels due to the said wars which erupted in the European continent and the territories that fell under the power of its major poles. Moreover, the Great Depression that hit the international economy and financial markets in the year 1929 constrained the opportunities and chances existing in foreign lands. Furthermore, the significant prosperity witnessed in Lebanon during the booming decade of 1950-1960 led to only a small number of Lebanese leaving their homeland. Nonetheless, the rise of the Arab-Israeli conflict crowned by a fierce war between the two parties in 1967, followed by a fifteen-year devastating and destructive civil war (1975-1990) propelled a large proportion of Lebanese families to flee out of the country in the quest of stability and progress abroad. Ever since the civil war ended, and despite the growth and development that Lebanon has experienced post it, the country continued to suffer from unending political battles, lack of stability and security, a Lebanese-Israeli 'July War' in 2006, and spillovers of neighboring countries' internal conflicts. Consequently, the tendency to emigrate sustained its rising momentum among the Lebanese youth resulting in an increasing number of individuals and families fleeing the country.

Migration in Lebanon	
Period	**Change in the Migration Trend and Reason**
1860s	Rise amid a harsh economic environment
WWI - 1929	Drop amid the eruption of WWI in Europe
1929 - WWII	Drop post the Great Depression
WWII - Early 1960s	Drop during a period of significant growth in the Lebanese economy
1967 - 1975	Rise amid the Arab-Israeli conflict which was crowned by a war in 1967
1975 - 1990	Rise amid a destructive and devastating civil war
1990 - Present	Rise amid various ongoing internal political conflicts and dire economic conditions, added to them the Lebanese-Israeli 'July War' in 2006

Source: Tabar P. (2009), Credit Libanais Economic Research Unit

The following chart sketches the evolution of the total number of Lebanese emigrants over the period 1990-2015. All ends of the five-year periods covered demonstrate a growth in the total number of Lebanese emigrants. The first period reflects an increase in the number of emigrants by 23,796 (4.71%). Similarly, the second, third, fourth, and fifth periods also saw successive increases in the total number of emigrants by 27,969 (5.28%), 59,723 (10.71%), 96,277 (15.60%), and 84,646 (11.86%). Overall, we notice an increase in the number of emigrants from 505,729 in 1990 to 798,140 in 2015, implying a 57.82% growth over a twenty five-year period, the equivalent of an average annual growth of 2.31%.

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[1] Tabar P. (2009)

**Evolution of Total Number of Emigrants from Lebanon
(1990-2015)**
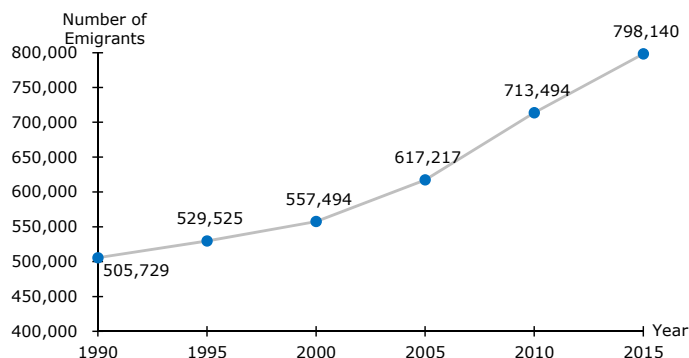
Source: United Nations (2017), Credit Libanais Economic Research Unit

ii.   Geographical Overview: Lebanese Diaspora Around the World

As at mid-2015, the United States topped the list of countries hosting Lebanese emigrants on their territories with a total of 123,000. Following the United States at a short distance was Saudi Arabia with 117,000 emigrants. Third on the list was Australia with 96,000 Lebanese emigrants, then Canada with 91,000 and Germany with 80,000, as further detailed below:

Lebanese Diaspora around the World as at Mid-2015
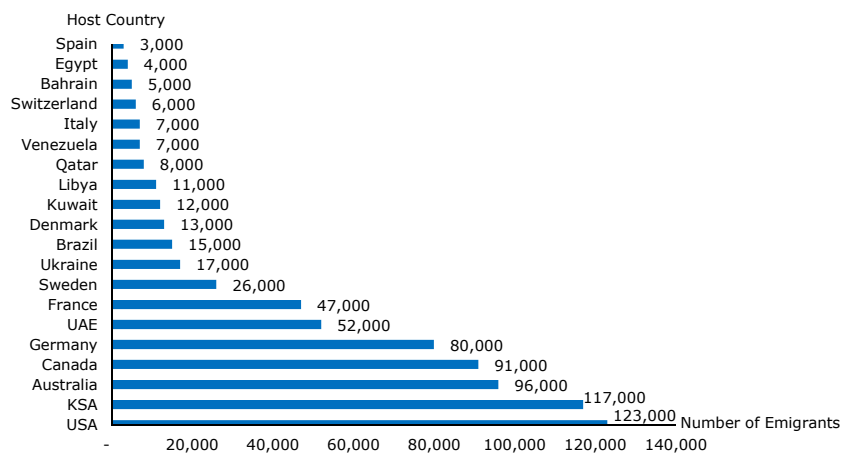
Source: Migration Policy Institute Data Hub (2017), Credit Libanais Economic Research Unit

Furthermore, the pie chart on the following page reflects the distribution of Lebanese emigrants around the six different continents. The trio Asia, Europe, and Northern America hosts in total the vast majority (81%) of Lebanese emigrants with each amassing around 27% of the overall count. Oceania comes fourth with 12%, followed by Africa (4%), and finally, Latin America and the Caribbean (3%).

Lebanese Diaspora by Continent as at Mid-2015
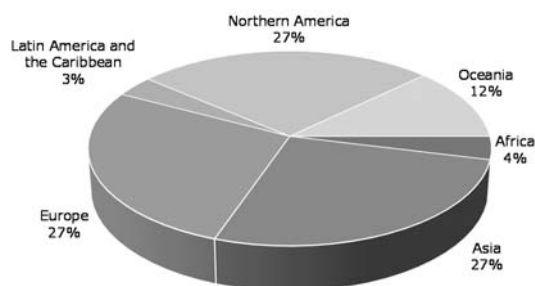
*Source: United Nations (2017), Credit Libanais Economic Research Unit*

III.   REMITTANCE INFLOWS

As defined by the World Bank, personal remittances is the sum of two basic elements: personal transfers and compensation of employees. Personal transfers represents a broader definition of worker remittances and include all current transfers in cash or in kind between resident and nonresident individuals, independent of the source of income of the sender and of the relationship between the households. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by non-resident entities. It has three main components: wages and salaries in cash, wages and salaries in kind, and employers' social contributions.[2]

A. Remittance Inflows Around the World

i.   Evolution of Remittance Inflows as a Stock

The charts below depict the evolution of remittance inflows in the world during the period 1990-2016. They demonstrate an increase in the value of remittances over the years at various rates and proportions. Overall, remittance inflows reached around $575.19 billion in the year 2016 up from almost $64.03 billion in the year 1990 with a compound annual growth rate (CAGR) equal to 8.81%. The significant increase in the values of remittances around the globe comes in line with the highly growing size of migration stocks globally over the years.
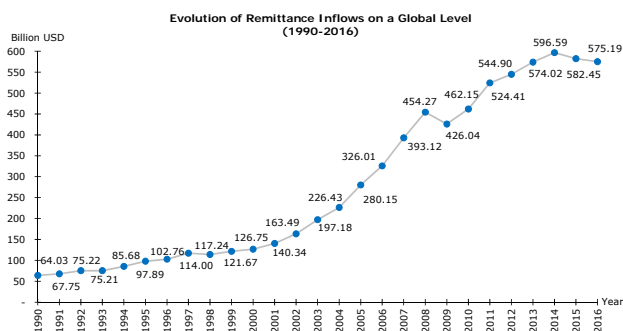
Source: World Bank (2017), Credit Libanais Economic Research Unit
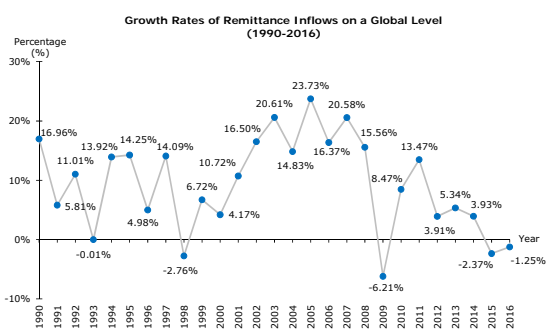
Source: World Bank (2017), Credit Libanais Economic Research Unit

The observed decrease in remittance inflows in the year 2000 goes back to the sharp decline in the global economy during the second half of the year 2000. Similarly, the drop in remittances during the year 2009 came as a result of the onset of the global financial crisis,

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[2] World Bank (2017)

bearing in mind that remittances remained somewhat resilient to the crisis due to their countercyclical nature as opposed to foreign direct investments which slumped by one-third during the crisis.[3] The decelerating growth rates in remittance flows in years 2015 and 2016 can be attributed to several factors such as the drop in oil prices, the depreciation of the Russian ruble value against the dollar (by 42% during the Q3 2014-Q3 2015 period), and that of the euro currency against the US Dollar (by 16% during the Q3 2014-Q3 2015 period), among others. In fact, and according to the World Bank, the depreciation of the euro currency has caused a 0.9% drop in the dollar value of the remittance inflows to the Middle East and North Africa (MENA) region. Moreover, the drop in oil prices has resulted in a 40% plunge in the value of remittance outflows from Russia in 2015. On the other hand, remittance outflows from Gulf Cooperation Council (GCC) oil-exporting countries were not affected by the contraction in oil prices up until the third quarter of 2015 since these nations have opted to use their ample reserves to cover their spending needs and their currencies were pegged to the US Dollar. Nevertheless, the World Bank commented that GCC oil-exporting countries have witnessed a drop in remittance outflows in the fourth quarter of 2015 and warned about the further slowdown in these remittance outflows if oil prices were to sustain their downturn.[4]

ii. Evolution of Remittance Inflows as a Percentage of Gross Domestic Product (GDP)

With respect to remittance inflows as a percentage of GDP, we notice in the graph below that an upward trend dominates the picture with only a few exceptions (years 1991, 2000, and 2010) which correspond to periods during which or before which the world experienced economic turmoil, as mentioned and elaborated previously. By the year 2015, world remittance inflows as a percentage of GDP recorded an all-time high of 0.76%.

Evolution of Remittance Inflows as a Percentage of GDP on a Global Level (1990-2015)

Source: World Bank (2017), Credit Libanais Economic Research Unit

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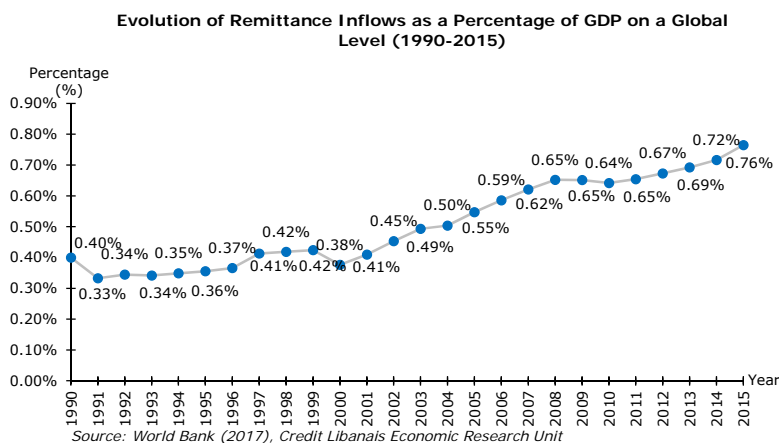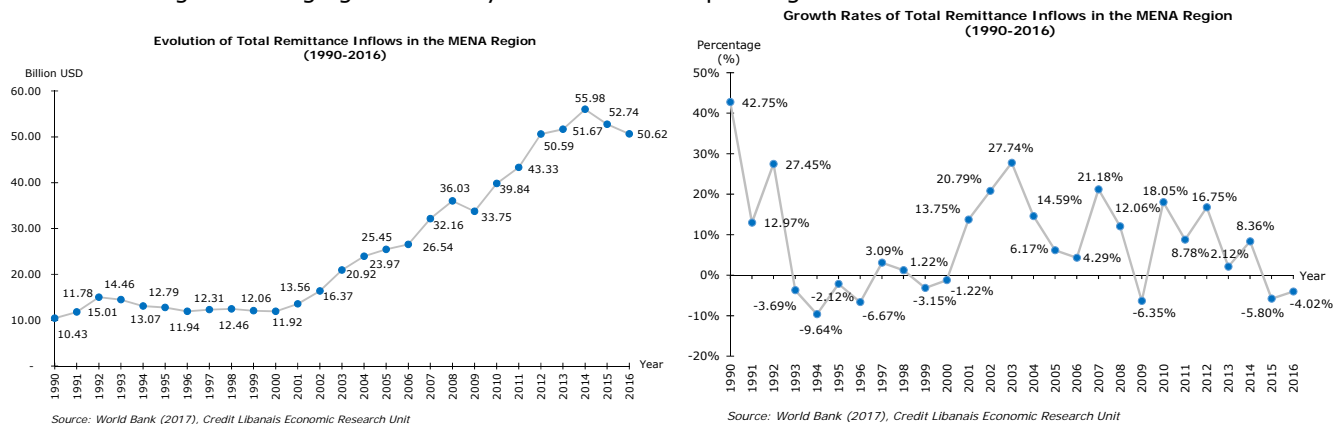[3] International Monetary Fund (2009)
[4] World Bank (2016)

B. Remittance Inflows in the MENA Region

i. Evolution of Remittance Inflows as a Stock

Over the 1990-2016 period, remittance inflows to the MENA region have followed an upward trend in the majority of years in line with the global trends discussed earlier and for identical reasons. The hike in total remittance inflows from $10.43 billion in 1990 to around $50.62 billion by the end of 2016 represents a CAGR equal to 6.26%. The second chart captures the rollercoaster in the growth rates of remittances in the MENA region over the same period, mimicking the changing business cycles of the corresponding economies.

Evolution of Total Remittance Inflows in the MENA Region (1990-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit

Growth Rates of Total Remittance Inflows in the MENA Region (1990-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit

ii. Evolution of Remittance Inflows as a Percentage of GDP

Remittance inflows measured as a percentage of the MENA region GDP reveal a fluctuating pattern, yet within a narrow band. Nevertheless, over the covered period which falls between 2005 and 2015, the year 2015 witnessed a record level of remittance inflows-to-GDP of 2.11%, compared to a low of 1.43% in 2011 at the onset of the Arab Spring revolutions.

Evolution of Remittance Inflows as a Percentage of GDP in MENA Region (2005-2015)

Source: World Bank (2017), Credit Libanais Economic Research Unit
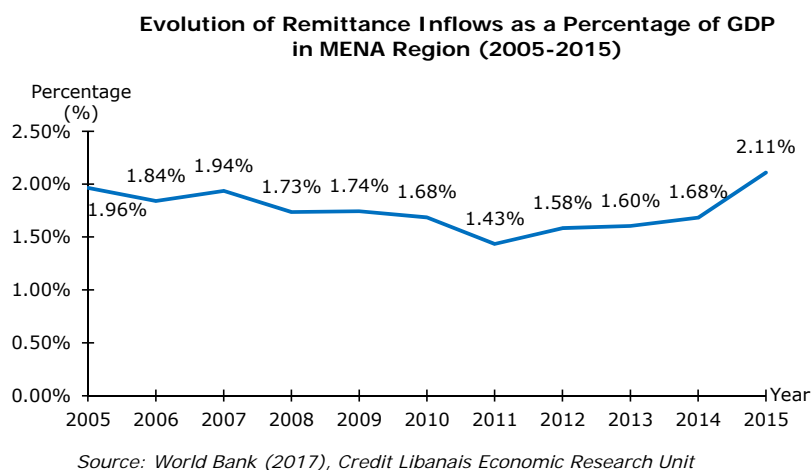
C. Remittance Inflows in Lebanon

i.   Evolution of Remittance Inflows as a Stock

Locally, and despite their fluctuating pattern, remittance inflows to Lebanon saw an exponential increase from $2.54 billion in 2002 to a peak of $7.57 billion in 2013 before easing slightly to $7.31 billion in 2016. The compounded annual growth rate (CAGR) in remittances stood at 7.84% over the 2002-2016 period. This positive trend in remittance inflows can be partially attributed to the increasing number of Lebanese emigrants over the years on the one hand, and their resilience towards the many periods of economic and political shocks (waves of assassinations, 2007 global financial crisis, Arab Spring and wars nearby, drop in oil prices…) on the other.

Evolution of Remittance Inflows in Lebanon (2002-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit

Growth Rates of Remittance Inflows in Lebanon (2002-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit
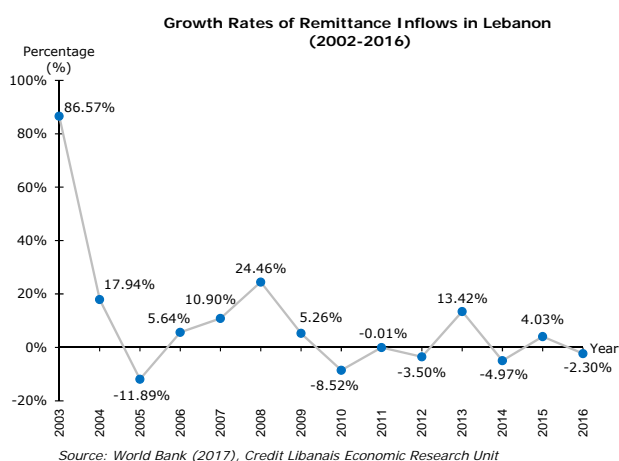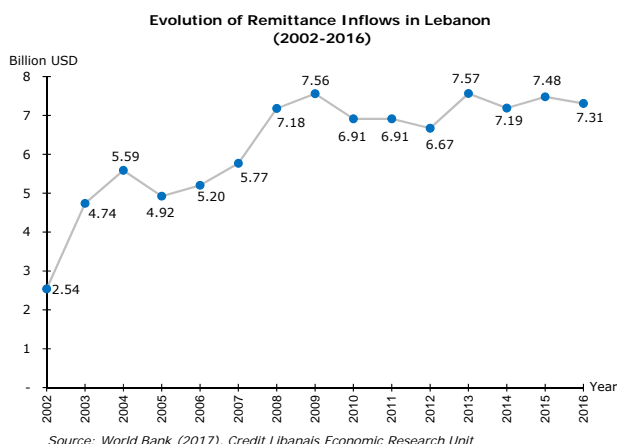
ii.   Evolution of Remittance Inflows as a Percentage of GDP

As portrayed in the following chart, Lebanon's remittance inflows as a percentage of GDP saw a series of troughs and peaks during the period extending between 2002 and 2016, with a high of 26.68% in the year 2004 before narrowing down gradually thereafter and reaching 14.10% in 2016. Nevertheless, the size of remittances to Lebanon is considered proportionately high when compared to the size of the economy (15.88% in 2015, compared to 0.76% for the global economy).

Evolution of Remittance Inflows as a Percentage of GDP in Lebanon (2002-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit
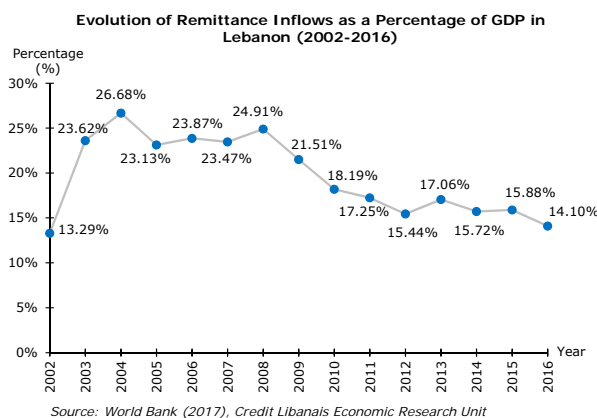
iii.   Lebanon with Respect to the World

Lebanon ranked 17th in the world in total remittance inflows in the year 2016 which reached $7.31 billion. In fact, India topped the list with $62.75 billion worth of remittance inflows in 2016 followed by China ($61.00 billion), the Philippines ($29.88 billion), Mexico ($28.54 billion), and France ($24.33 billion) in the top five rankings. Remarkably, and in per capita terms, Lebanon outperformed every other country among the top twenty countries in the world, recording an inflow of $1,220.57/capita in 2016. Belgium ($858.48/capita), Guatemala ($445.47/capita), France ($376.26/capita), and Sri Lanka ($348.45/capita) followed suit. Moving to remittance inflows as a percentage of GDP, Lebanon ranked 17th in the world, with this ratio standing at 14.10% in 2016. It is obvious that countries that dominate the top 20 spots are developing countries with relatively small economies. This partially explains the reliance of their GDP on remittances flowing from abroad. Kyrgyz Republic (34.50%), Nepal (29.70%), Liberia (29.60%), Haiti (27.80%), and Tonga (27.80%) led the rankings with the highest percentages of remittance inflows relative to GDP in the year 2016. Moreover, looking at the world averages in each of the three categories, Lebanon clearly surmounts all three, exceeding the $2.69 billion average remittance inflow per nation, the $77.39 per capita average global level, and the average of 4.42% of GDP (based on 2015 figures) when including all countries around the globe.

Country	Remittances Inflows in 2016 (Billion USD)	Country	Remittance Inflows (USD)/Capita in 2016	Country	Remittance Inflows in 2016 (Percentage of GDP)
India	62.75	Lebanon	1,220.57	Kyrgyz Republic	34.50%
China	61.00	Belgium	858.48	Nepal	29.70%
Philippines	29.88	Guatemala	445.47	Liberia	29.60%
Mexico	28.54	France	376.26	Haiti	27.80%
France	24.33	Sri Lanka	348.45	Tonga	27.80%
Pakistan	19.85	Philippines	292.21	Tajikistan	26.90%
Nigeria	18.96	Spain	224.73	Moldova	21.70%
Egypt	16.58	Mexico	221.89	Comoros	21.20%
Germany	15.72	Morocco	201.33	Gambia	20.40%
Bangladesh	13.68	Germany	194.78	Honduras	18.40%
Vietnam	13.38	Italy	178.40	Jamaica	17.60%
Italy	10.67	Egypt	177.59	Lesotho	17.50%
Spain	10.35	Vietnam	141.71	El Salvador	17.20%
Belgium	9.76	Pakistan	102.92	Samoa	15.10%
Indonesia	9.23	Nigeria	101.38	Kosovo	14.80%
Guatemala	7.43	Bangladesh	83.97	Marshall Islands	14.30%
Lebanon	**7.31**	**World Average**	**77.39**	**Lebanon**	**14.10%**
Sri Lanka	7.25	India	47.29	West Bank and Gaza	13.60%
United States	7.07	China	44.13	Senegal	13.50%
Morocco	7.01	Indonesia	35.44	Jordan	13.00%
World Average	**2.69**	United States	21.81	**World Average***	**4.42%**

Source: World Bank (2017), Credit Libanais Economic Research Unit

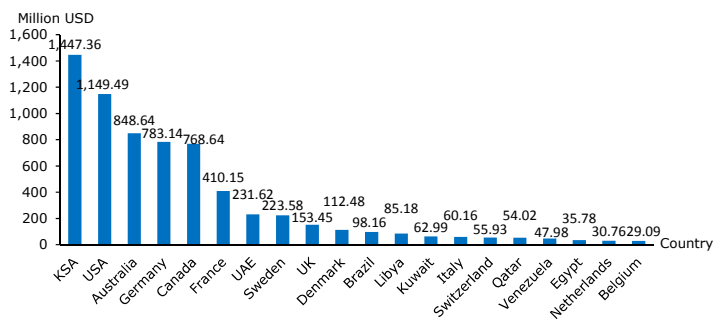Source: United Nations (2017), World Bank (2017), Credit Libanais Economic Research Unit

Source: World Bank (2017), Credit Libanais Economic Research Unit
*This figure is for the year 2015 as that of 2016 is not yet available

iv.   Lebanon with Respect to the MENA Region

Lebanon ranked 2nd among MENA countries in terms of remittance levels received in 2016 which amounted to $7.31 billion, only preceded by Egypt ($16.58 billion). After Lebanon came each of Morocco ($7.01 billion), Jordan ($5.13 billion), and Yemen ($3.35 billion). On a per capita basis however, Lebanon outperformed all other MENA countries, registering an inflow of $1,220.57/capita in 2016 followed, and at quite a distance, by Jordan ($662.74/capita), West Bank and Gaza ($389.60/capita), Morocco ($201.33/capita), and Qatar ($192.64/capita), only to name a few. When expressed as a percentage of GDP, Lebanon topped the list of countries in the region with a ratio 14.10% in 2016, outperforming the West Bank and Gaza (13.60%), Jordan, Yemen, and Morocco with respective values of 13.00%, 10.70%, and 6.70%. Lebanon outperformed the MENA region average remittance inflows of $2.98 billion, the per capita reading of $110.18 for that same region, and the average ratio of 4.88% of GDP (in 2015) for all MENA countries.

Country	Remittance Inflows in 2016 (Billion USD) in the MENA Region
Egypt	16.58
Lebanon	**7.31**
Morocco	7.01
Jordan	5.13
Yemen	3.35
Average	**2.98**
Algeria	2.05
Tunisia	1.79
West Bank and Gaza	1.72
Syria	1.62
Iran	1.36
Iraq	0.84
Qatar	0.44
Saudi Arabia	0.30
Djibouti	0.07
Oman	0.04
Kuwait	0.03
Bahrain	0.00
Libya	0.00
United Arab Emirates	0.00

Source: World Bank (2017), Credit Libanais Economic Research Unit

Country	Remittance Inflows (USD)/Capita in 2016 in the MENA Region
Lebanon	**1,220.57**
Jordan	662.74
West Bank and Gaza	389.60
Morocco	201.33
Qatar	192.64
Egypt	177.59
Tunisia	157.71
Yemen	121.93
Average	**110.18**
Syria	87.40
Djibouti	73.53
Algeria	50.67
Iraq	22.29
Iran	16.93
Saudi Arabia	9.25
Kuwait	8.66
Oman	8.31
Bahrain	0.00
Libya	0.00
United Arab Emirates	0.00

Source: United Nations (2017), World Bank (2017), Credit Libanais Economic Research Unit

Country	Remittance Inflows in the MENA Region (Percentage of GDP)	
	2015	2016
West Bank and Gaza	16.05	13.60%
Lebanon	**15.88**	**14.10%**
Jordan	14.26	13.00%
Yemen	9.32	10.70%
Morocco	7.04	6.70%
Egypt	5.54	4.80%
Tunisia	5.46	4.20%
Average	**4.88**	**N/A**
Djibouti	2.25	3.50%
Algeria	1.20	1.20%
Iran	0.32	0.50%
Qatar	0.26	N/A
Iraq	0.16	N/A
Oman	0.06	N/A
Saudi Arabia	0.05	N/A
Kuwait	0.03	N/A
Bahrain	0.00	N/A
Libya	0.00	N/A
United Arab Emirates	0.00	N/A
Syria	-	N/A

Source: World Bank (2017), Credit Libanais Economic Research Unit
* N/A stands for figures whose data is not available for 2016

v.   Remittance Inflows to Lebanon by Source Countries

As illustrated in the chart on the following page, and on a global level, the KSA emerged as the largest source of remittances to Lebanon, which aggregated to $1,447.36 million in 2015. The USA came second with total remittances to Lebanon amounting to $1,149.49 million, followed by Australia ($848.64 million), Germany ($783.14 million), and Canada ($768.64 million).
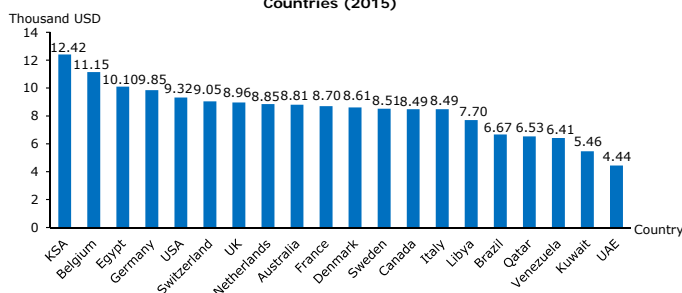
Remittance Inflows to Lebanon by Source Country (2015)

Source: World Bank (2017), Credit Libanais Economic Research Unit

On a per Lebanese expat basis, the KSA maintained its lead among the top twenty source countries with the highest amount of remittances sent for every Lebanese citizen living in the kingdom equivalent to $12,416. Belgium came second ($11,151/expat), followed by Egypt ($10,101/expat), Germany ($9,847/expat), and the USA ($9,320/expat).

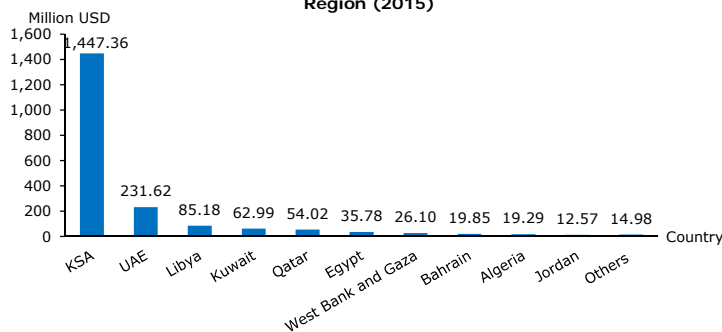**Remittance Outflows per Lebanese Expat in the Top Twenty Source Countries (2015)**

Source: United Nations (2017), World Bank (2017), Credit Libanais Economic Research Unit

Regionally, clearly Saudi Arabia topped MENA countries in the amount of remittances sent from Lebanese expats residing there, trailed by far by the United Arab Emirates, Libya, Kuwait, and Qatar with respective remittance outflows to Lebanon standing at $231.62 million, $85.18 million, $62.99 million, and $54.02 million in 2015.

Remittance Inflows to Lebanon by Source Country in MENA Region (2015)

Source: World Bank (2017), Credit Libanais Economic Research Unit

Regionally as well, the KSA led the list in terms of remittance outflows per Lebanese expat, which stood at around $12,416 in 2015, followed by Egypt ($10,101/expat), Algeria ($8,757/expat), the West Bank and Gaza ($7,882/expat), and Libya ($7,697/expat).

Remittance Outflows per Lebanese Expat in the Top Ten Source Countries in the MENA Region (2015)

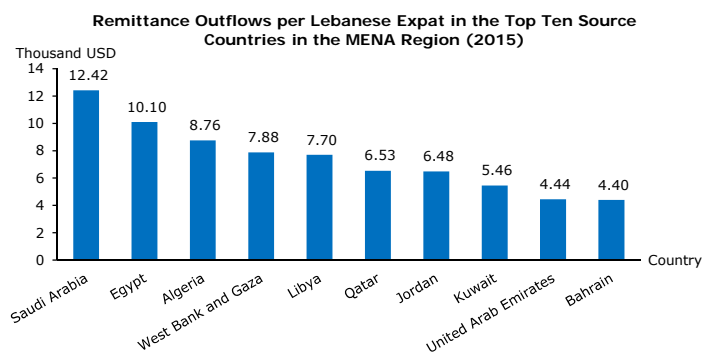*Source: United Nations (2017), World Bank (2017), Credit Libanais Economic Research Unit*

IV.   THE ROLE OF REMITTANCES IN THE LEBANESE ECONOMY

A. Remittance Inflows and the Balance of Payments

The balance of payments (BOP) includes a multiplicity of components of which items related to remittance inflows are part. In specific, remittance inflows appear twice in the BOP calculations. Firstly, among the "current account" entries, precisely in the "income" component, is found the "compensation of employees" element which mainly comprises salaries and other compensation as well as contributions paid by employers to social security systems. Also within the "current account" section, under the subsection titled "current transfers", and more specifically, listed under the current transfers originating from "other sectors", are included "workers' remittances", yet another constituent of the total remittance inflows into the country. This item includes all current transfers made from migrants working abroad to their country of origin.

The following section displays the evolution of each of remittance inflows, the capital and financial account inflows, and the net foreign assets of Lebanon's financial sector over the period extending between 2010 and 2015:

Billion USD	2010	2011	2012	2013	2014	2015
Remittance Inflows	6.91	6.91	6.67	7.57	7.19	7.48
Remittance Inflows Channeled through Banks (c.27%)	1.87	1.87	1.80	2.04	1.94	2.02
Capital & Financial Account Inflows	4.38	7.17	6.72	8.39	11.48	6.27
Remittance Inflows as a % of Capital & Financial Account Inflows	157.7%	96.5%	99.3%	90.2%	62.6%	119.3%
Net Foreign Assets at Banks & BDL	3.32	(2.00)	(1.54)	(1.13)	(1.41)	(3.35)
Net Foreign Assets at Banks & BDL Excluding Remittance Inflows Channeled through Banks	1.46	(3.86)	(3.34)	(3.17)	(3.35)	(5.37)

Source: BdL (2017), World Bank (2017), Credit Libanais Economic Research Unit

The figures in the table above reflect the significant size of remittance inflows when benchmarked to other sizeable components of the BOP, namely, inflows through the capital and financial account. For instance, remittance inflows in the years 2010 and 2015 outweighed by far capital and financial inflows to Lebanon, constituting 157.7% and 119.3% of the latter in each of the mentioned years respectively. Moreover, the table reveals the strong reliance of the BOP on remittance inflows and their significant contribution in narrowing the deficit in it. The lowermost row in the table clearly shows that if remittance inflows channeled through banks (c.27% of total remittances according to IMF data) were to be excluded, net foreign assets of the financial sector would have suffered a sharp drop in their values reducing existing surpluses and further widening already existing deficits.

Remittance Inflows, the Capital and Financial Account, and the Net Foreign Assets in Lebanon (2010-2015)
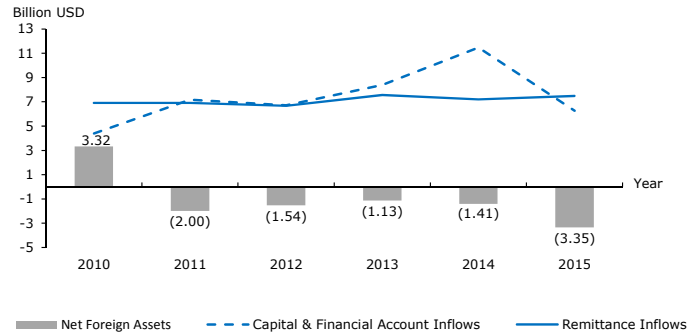
Source: BdL (2017), World Bank (2017), Credit Libanais Economic Research Unit

Furthermore, the graph, and despite it covering a relatively short period of time, depicts how remittance inflows exhibit stability and resiliency (an idea that will be further tackled and elaborated in the upcoming sections) while capital and financial account inflows to Lebanon tend to frequently fluctuate in tandem with the prevailing political and economic climates.
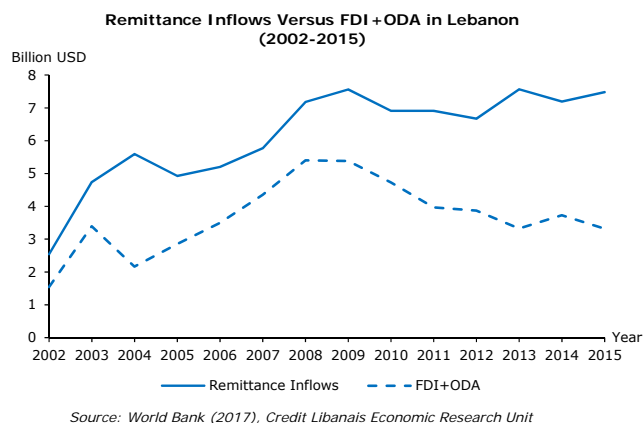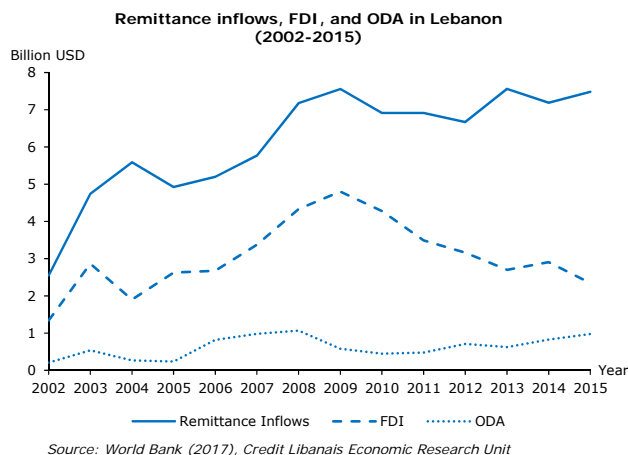
B. Remittances, Foreign Direct Investment, and Official Development Assistance

In this section of the paper, we conduct an interesting comparison between three of the major sources of international capital flows into the economy: remittances, foreign direct investment (FDI), and official development assistance (ODA). Having went over the definition of remittances on several earlier occasions, we will directly proceed by defining the two new concepts introduced in this section which are FDI and ODA. FDI reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor.[5] In simple terms, it is an investment made by an individual or a company operating in an economy of a certain country in business interests (which can be in the form of acquiring business assets or establishing business operations) in a foreign company in another economy or country. On the other hand, ODA is defined as the flow of funds or capital to countries or territories registered as legal recipients of such aid provided by official agencies, including state and local governments, of other countries (the donors or the funders) and administered with the promotion of the economic development and welfare of developing countries as a main objective.[6]

The charts below illustrate the evolution of remittance, FDI, and ODA inflow levels in Lebanon over the period extending between 2002 and 2015. The first clearly portrays how remittance inflows, by far, exceed each of FDI and ODA levels, and even both combined together (the second figure) at all instances of the covered period.

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[5] Organization for Economic Cooperation and Development (2008)
[6] Organization for Economic Cooperation and Development (1972)

**Remittance inflows, FDI, and ODA in Lebanon
(2002-2015)**

Source: World Bank (2017), Credit Libanais Economic Research Unit

**Remittance Inflows Versus FDI+ODA in Lebanon
(2002-2015)**

Source: World Bank (2017), Credit Libanais Economic Research Unit

Furthermore, the importance of remittances, as far as international capital flows to the Lebanese economy is concerned, lies in several facts that characterize each of the capital inflow channels and the Lebanese case itself. Not only is the value of remittances superior to FDI and ODA figures, remittance inflows have been as well growing at a faster pace than that of the other two. Over the period of interest, remittance inflows grew at a CAGR of 8.65% while FDI and ODA combined had a CAGR equivalent to 6.08%. To further shed light on the significance of remittances in the Lebanese case, we mention some advantages they exhibit over the two other components of the BOP.

i.   ODA

In the context of ODA, a few problems might arise, namely the allocation and utilization of aid and the set of constraints governing the offering of assistance and aid by donating parties. These problems do not develop when remittances are considered. For instance, remittances are sent to family members or related individuals directly whereas ODA passes through the hands of different agencies and authorities, which places this aid under the potential risks and threats of corruption, misdirection, and misallocation. In other words, the channel connecting remittance sources to remittance destinations is clear while that connecting aid sources to aid targets is complicated and can be subject to doubt. Moreover, ODA is often preceded and accompanied by a series of restrictions and conditions set and imposed by the assisting party while the recipient is expected to abide by these externally enforced rules and comply with all

obligations in order to receive the promised aid. Remittances, however, are independent of such agendas and tie no party to any regulations or obligations.

ii. FDI

FDI and remittance inflows are basically distinguished from each other in one major feature that is of great significance when dealing with economic and business cycles. Though one cannot certainly extract a fully deterministic rule, experience and trends show that FDIs tend to behave in a cyclical manner while remittance inflows tend, to a large extent, to be relatively stable, revealing more of a countercyclical behavior at many points in time. FDIs are highly volatile as they get very quickly and largely affected by economic shocks. When considering the portion of remittances used for investment purposes, diaspora investors can be a more stable source of funds than foreign investors since their familiarity with their home country and economy often provides them with a lower perception of risk.[7]

C. Remittance Inflows and Deposits in the Banking Sector

The section below sheds light on the role of remittance inflows to Lebanon in shaping deposits' growth. In fact, over the 2002-2016 period, total deposits in the Lebanese banking sector grew by c.$119.58 billion (276.68%) from c.$42.91 billion to c.$162.50 billion. During that same period, the accumulated interest income[8] was estimated at c.$52.29 billion, explaining as such 43.73% of the aforementioned deposit growth. In parallel, Banque du Liban (BDL) statistics which are cited in the International Monetary Fund's (IMF) January 2017 country report for Lebanon[9], revealed that almost 27% of total remittances sent to Lebanon flow directly through bank deposits[10-11]. This implies that out of the total remittances sent to the country over the 15-year period (which sum up to c.$93.56 billion), some $25.26 billion were channeled through banks, contributing as such by 21.12% to total deposit growth. This leaves 35.15% of the overall growth in deposits between years 2002 and 2016 untackled. From another standpoint, remittances that are not channeled through banks (that is, the remaining 73% portion) are estimated at c.$68.30 billion during the observed period - the equivalent of 162.50% of the remaining growth in customer deposits. In this perspective, it is estimated that 61.54% of these remittances are alone sufficient to cover the untackled deposit growth. It is worth noting that no statistics are available at hand concerning the allocation of incoming remittances over consumption, savings, and investment. Therefore, and disregarding the existence of other sources that spur deposit growth at Lebanese banks (savings, domiciliation of public and private sector salaries, etc..), remittances undoubtedly help maintain a steady growth in deposits and hence behave as a safety cushion for the banking sector.

Over the 2002-2016 period; in Billion USD	Growth in Total Deposits	Total Remittance Inflows
	119.58	93.56
Deduct: Interest	52.29 (43.73%)	-
Deduct: 27% of Total Remittances	25.26 (21.12%)	25.26 (27.00%)
Remaining:	42.03 (35.15%)	68.30 (73.00%)

Source: BdL (2017), IMF (2017), World Bank (2017), Credit Libanais Economic Research Unit

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[7] World Bank (2011)
[8] Interest is computed for "term saving and deposit" accounts only, using the weighted average applicable yearly interest rates on LBP accounts and USD accounts separately.
[9] IMF Lebanon Report No. 17/20 (2017)
[10] These estimates cover the 2010-2016 period; we choose to apply them though to the entire period of interest (2002-2016) for the sake of simplicity.
[11] BDL estimates reveal that as 27% of remittances flow through bank deposits, 14% come through money transfer operators (MTOs), and the remaining 59% come in kind.

**Remittance Inflows Versus Change in Total Deposits in Lebanon
(2002-2016)**

Billion USD
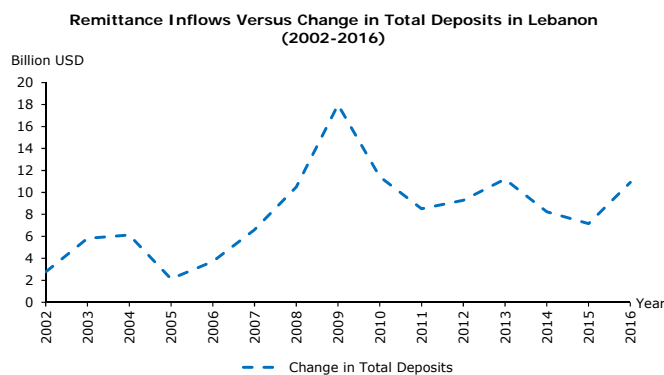
Source: World Bank (2017), BdL (2017), Credit Libanais Economic Research Unit

D. Remittance Inflows and Oil Prices

i.   Oil Prices and Remittance Outflows from GCC Countries

To better understand the impact of oil prices on remittance trends, it may be wise to focus on major oil-producing countries enjoying a high contribution of oil output to GDP and experiencing considerable remittance outflow levels over time. Consequently, our current discussion will revolve around GCC countries, namely, Bahrain, KSA, Kuwait, Oman, Qatar, and the UAE. The graph below displays the evolution of oil prices (per oil barrel) along with that of total remittance outflows from the mentioned countries (in million USD) over the period extending between 1971 and 2015.

**The Evolution of Oil Prices and Remittance Outflows from
Oil-producing GCC Countries (1971-2015)**
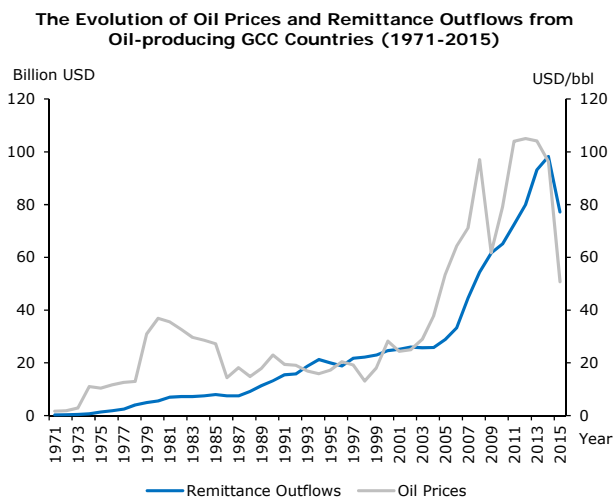
Source: World Bank (2017), Credit Libanais Economic Research Unit

The above chart reflects a relatively high degree of correlation between oil prices and remittance outflows from GCC countries, and overall, the two seem to have followed a somehow similar trend over time. However, this observation is not very informative and many limitations can be imposed on its reliability and accuracy in depicting the exact relation that holds between the two. First, the general trend of increasing remittance outflows from GCC countries over time represents nothing different than the trend perceived on the global level (a point previously covered in the paper). Oil plays an undoubtedly crucial role in generating remittance outflows from GCC countries; nevertheless, similar growth in remittance levels worldwide

suggests that the development of local, regional, and global economies and the growth in international markets accompanied with the increases in emigration rates and improved ease of movement around the world, have altogether contributed to this rally in remittance outflows from GCC countries over the years the same way they have accounted to it globally. Therefore, one cannot neglect the possible interference of other confounding factors when recording this observation, a fact that places the assumed positive collinearity which, by turn, implies a direct and proportional relation between oil prices and remittance outflows, in question. Second, the graph above also reveals characteristics of oil prices trends and remittance outflows trends that are worth pausing at. The former evidently shows frequent sharp drops and rises in its values indicating its high volatility and sensitivity to shocks in the market. Remittance outflows, however, have been historically less volatile than oil prices. Even at instances where prices of oil have significantly dropped, remittance outflows saw only modest declines, if any. Moreover, and even when this was the case, remittances have quickly recovered in line with oil price rebounds. This leads us to our third and most important point in this subsection. The recovery of remittance levels does not come by coincidence as GCC countries have managed to develop backup plans for when the needs arise. Despite oil GDP's large contribution to total GDP in GCC countries, non-oil GDP is as well a key determinant of remittance outflows and most migrant workers in these countries are employed in the non-oil sector (for instance, wholesale and retail trade and construction sector). Albeit one cannot deny that oil GDP is an important driver of non-oil GDP, oil prices' impact remains modest as non-oil GDP growth, and therefore subsequent remittances outflows, tend to decline very slightly in response to oil price plunges.[12] The primary reason for this immunity and resiliency to oil price fluctuations lies in the fact that GCC countries have accumulated large fiscal buffers that have allowed them to maintain their fiscal spending and to support the non-oil economic activity, mitigating the negative effects on remittances outflowing from the Gulf region.[13]

### ii.   Oil Prices and Remittance Inflows to Lebanon

Examining the relationship that holds between oil prices on the one hand and remittance inflows to Lebanon on the other, remains vital given that a substantial portion of remittance inflows to Lebanon originates from GCC countries. For instance, remittance inflows to Lebanon from GCC countries alone amounted to around $1,815.85 million in 2015, the equivalent of some 24.27% of total remittances received. The chart below illustrates the evolution of oil prices along with total remittance inflows to Lebanon over the period extending between 2002 and 2016:

The Evolution of Oil Prices and Remittance Inflows to Lebanon (2002-2016)

Source: World Bank (2017), Credit Libanais Economic Research Unit

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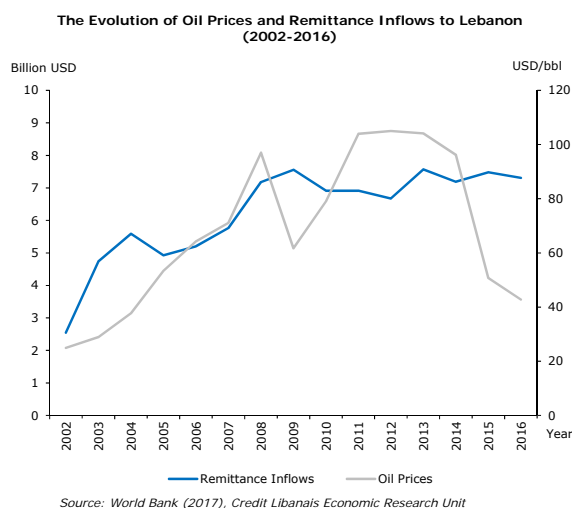
[12] International Monetary Fund (2015)
[13] World Bank (2016)

The graph demonstrates the lower volatility and gradual variations of remittance inflows to Lebanon over time compared to the much higher volatility of oil prices in spite of a direct positive correlation of 0.62. However, this positive correlation is questionable given again the possibility of the existence of multiple confounding factors in the picture. Do remittance inflows to Lebanon respond significantly and quickly to oil price fluctuations? Are fears of the effects of oil price changes on remittance inflows to Lebanon legitimate and justified? A more thorough discussion can reveal some different thoughts. To start off, and in reference to the above graph, one can observe that at instances where oil prices have seen severe rises or falls, the response of remittance inflows was shy. For instance, the drop in oil prices recorded in the year 2009 provoked no major reaction in the flow of remittances to Lebanon. Moreover, the recent fall in the prices of oil, which saw the price of a barrel of oil tumble by 47.26% from an average of $96.24 in 2014 to an average of $50.75 in 2015 was met by a 4.03% increase in total remittance inflows to Lebanon. The further decline in oil prices from an average of $50.75 in 2015 to an average of $42.81 in 2016, that is, by around 15.65%, triggered a mild decrease of 2.30% in total remittance inflows to Lebanon. This leads us to conclude that, on the short-term, oil prices do not really have any major direct impact on remittance inflows. Second, the conclusions of the previous section which indicated that remittance outflows from GCC countries and oil prices do not co-behave, coupled with the fact that Lebanese expatriates in these countries mostly engage in the non-oil sector, help explain why remittance inflows fail to respond to oil price oscillations as rapidly and intensely as one would expect and assume. A further demonstration of the fact that oil prices and remittance outflows from GCC countries do not necessarily co-behave is provided in the following chart, which sketches the evolution of oil prices and remittances outflows from the GCC to Lebanon. What is evident in the chart is that neither the trends of the two variables nor their magnitudes coincide in a manner that asserts any direct causality or perfect relation.

The Evolution of Oil Prices and Remittance Outflows from GCC Countries to Lebanon (2010-2015)

Source: World Bank (2017), Credit Libanais Economic Research Unit
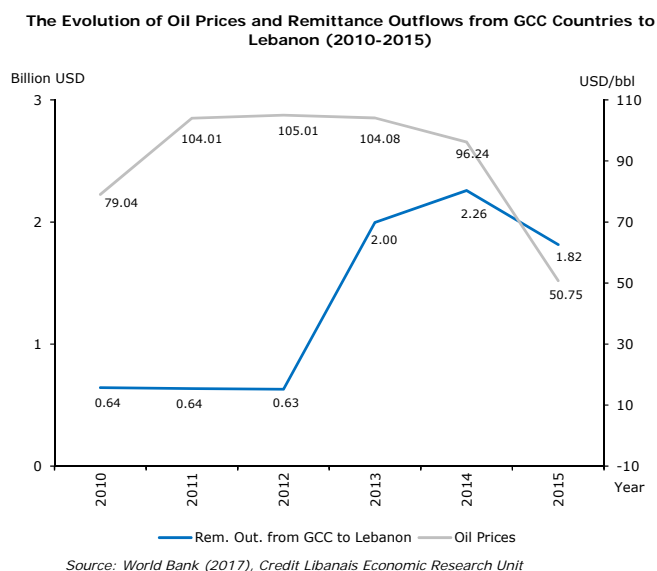
In addition, one cannot ignore another factor that further loosens the tie between the two variables which is the fact that Lebanon receives remittance inflows from diverse directions and sources in the world. For instance, and as previously covered in the paper, countries like the USA ($1.15 billion in year 2015), Australia ($848.64 million), Germany ($783.14 million), and Canada ($768.64 million) have sizeable contributions to total remittances sent to Lebanon. Hence, the global widespread of the Lebanese diaspora around the globe minimizes the actual effect, if any, of oil price fluctuations on remittance inflows to Lebanon.

iii.   Oil Prices and Remittances: More to the Picture

The discussion above, with all the positivity it carries, neglects many factors which, if taken into consideration, can change a lot in the picture. It was emphasized earlier how GCC countries have succeeded in coping with the fiscal challenges raised by plunges in oil prices, softening their impact through the large reserves built up during the booming years. Nonetheless, a question imposes itself here: for how long can GCC countries rely on their accumulated cash in order to sustain their spending and finance their budgets, especially amidst the uncertainty that surrounds the future of oil prices? It is true that fiscal buffers have been so far sufficient for weathering the period of low prices, but what if this period lasts longer? Clearly, an era of $50-a-barrel oil that utilizes cash accumulated during the $100-a-barrel oil era, requires considering the realization of fundamental changes in the policies of GCC countries aiming at taming the immense pressures exerted by oil prices on their economies in the medium and long terms. The GDP of GCC countries is highly dependent on the revenues generated from the oil sector. More specifically, oil rents accounted to around 2.56% of GDP (compared to 4.74% in 2014) in Bahrain in the year 2015, for instance, 5.85% (10.42% in 2014) in Qatar, 11.21% (21.37%) in the UAE, 20.45% (35.27%) in Oman, 22.50% (38.94%) in the KSA, and 38.48% (53.40%) in Kuwait.[14] Moreover, non-oil GDP, the major components of which are government services and the construction sector and which is most strongly associated with remittance outflows, also faces great risks as government spending is fueled by oil revenues. Therefore, growth in the non-oil sector, which has been historically driven by the oil sector, is at stake amid a potential prolonged oil price plunge.[15] The above facts which threaten fiscal sustainability and long-term economic growth, necessitate the immediate adoption and implementation of a diversification plan that minimizes the reliance of GCC countries on oil, rendering them less susceptible to fluctuations in its prices. GCC countries are expected to support the non-oil sectors and to engage in privatization plans of certain state-owned enterprises in which investor's confidence is vital. The mentioned, together with the possibility of introducing a special tax on remittance outflows (which has been proposed in the GCC),[16] raise serious questions on the fate of remittance outflows from GCC countries on the medium and long run.

V.   EMPIRICAL ANALYSIS OF THE IMPACT OF REMITTANCES ON ECONOMIC GROWTH

A. Methodology[17]

In our attempt to estimate the impact of remittances on economic growth, we use the Ordinary Least Squares (OLS) method in order to quantify the role of remittances and test for its significance. Within this framework, the growth equation can be expressed as follows:

$$G_t = \beta_0 + \beta_1 G_{t-1} + \beta_2 Rem_t + \beta_3 Inv_t + \beta_4 Cons_t + \beta_5 Hum_t + \beta_6 Trade_t + \beta_7 Pop_t + \beta_8 Debt_t + \epsilon_t$$

Where G_t is the dependent variable denoting the growth rate of output measured as the growth of the real per capita GDP in constant USD, G_{t-1} being the lagged value of GDP per capita growth.[18] Rem_t is remittance inflows equivalent to the summation of the two separate components of the BOP (previously discussed in this paper) as a share of GDP. Inv_t designates investment defined as the gross fixed capital formation as a percentage of GDP. $Cons_t$ is

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[14] World Bank (2017)
[15] CNBC.com (2014)
[16] International Monetary Fund (2015)
[17] Meyer D., Shera A. – EconomiA (2017)
[18] Data on GDP per capita growth, remittance inflows, investment, trade, consumption, and population growth is extracted from the World Development Indicators, World Bank (2017)

equivalent to the household final consumption expenditure as a share of GDP. Hum_t represents human capital computed as the percentage of total population enrolled in secondary schooling.[19] Trade is labeled as $Trade_t$ and is defined as the ratio of current account balance to GDP. Pop_t, which represents population growth, is simply the yearly percentage growth in the total population. $Debt_t$ symbolizes debt-to-GDP, that is, net government debt as a percentage of GDP.[20] Finally, ϵ_t is the error term associated with the growth equation. All data retrieved for these variables cover the period extending between the year 2002 and the year 2015.

B. Summary Statistics and Binary Correlations

The following table illustrates the descriptive statistics of the main regression variables. It is worth noting that the number of observations, which stands at 14, is a very small number given the limited availability of data, a matter that imposes a major restriction to our work, as will be clarified later.

Summary Statistics								
Variable	Number of Observations	Mean	Median	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
GDP/capita Growth (t)	14	0.00	-0.01	0.05	-0.06	0.09	0.62	2.02
GDP/capita Growth (t-1)	14	0.01	0.00	0.05	-0.06	0.09	0.54	2.04
Remittance Inflows	14	0.20	0.20	0.04	0.13	0.27	0.00	1.55
Investment	14	0.25	0.26	0.04	0.19	0.31	-0.08	1.83
Household Consumption	14	0.82	0.85	0.08	0.66	0.89	-1.10	2.63
Human Capital	14	0.09	0.09	0.01	0.07	0.10	-0.88	2.32
Trade	14	-0.02	-0.02	0.01	-0.03	-0.01	0.56	2.17
Population Growth	14	0.04	0.04	0.02	0.01	0.07	-0.17	1.92
Debt-to-GDP	14	0.15	0.14	0.02	0.12	0.18	0.25	1.44

In addition, the table below captures the bivariate correlations among the variables of interest:

Bivariate Correlations of Variables of Interest									
Variable	GDP/capita Growth (t)	GDP/capita Growth (t-1)	Remittance Inflows	Investment	Household Consumption	Human Capital	Trade	Population Growth	Debt-to-GDP
GDP/capita Growth (t)	1								
GDP/capita Growth (t-1)	0.73	1							
Remittance Inflows	0.58	0.31	1						
Investment	-0.21	-0.16	-0.40	1					
Household Consumption	0.61	0.74	0.55	-0.58	1				
Human Capital	0.54	0.53	0.61	-0.81	0.87	1			
Trade	0.44	0.31	0.45	-0.26	0.49	0.30	1		
Population Growth	-0.89	-0.60	-0.65	0.36	-0.55	-0.53	-0.70	1	
Debt-to-GDP	0.30	0.02	0.71	-0.82	0.48	0.73	0.49	-0.55	1

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[19] Data on enrollment in secondary schooling is extracted from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics (2017)
[20] Data on debt-to-GDP is extracted from the World Economic Outlook, International Monetary Fund (2017)

The bivariate correlations seek to provide an initial description of the interrelation among variables; however, we note that they neither control nor do they account for other characteristics and elements and they imply no causality in either direction.

C. Regression, Results, and Discussion

This section provides estimates of the parameters in the growth equation. The regression model reveals that the direct impact of remittances on growth is positive yet statistically insignificant. Specifically, computations yield the following result:[21]

$$G_t = 0.003 - 0.438G_{t-1} + 0.162Rem_t + 0.074Inv_t + 0.200Cons_t + 1.707Hum_t - 2.188Trade_t - 3.097Pop_t - 1.880Debt_t + 0.188$$

With $\beta_2 = +0.162$, a direct relation seems to hold between GDP per capita growth and remittance inflows, implying that a 1% rise in the latter leads to a 0.162% increase in GDP per capita growth. Hence, as far as the direct impact is considered, remittances and growth seem to co-move over the same period t. With respect to the other parameters, the coefficient of the lagged GDP per capita growth denoted G_{t-1} shows that a negative relation holds between G_t and its lag. Therefore, previous rates of growth in GDP per capita do not necessarily entail the occurrence of similar trends in the following respective periods. Moreover, and as economic theory predicts, increases in the levels of both investment and private consumption fuel the economy and favor growth; a fact captured by the positive coefficients of the variables Inv_t and $Cons_t$. Furthermore, the positive coefficient associated with human capital reflects the role of the development in human capital in promoting growth in the economy. By contrast, the coefficient of trade indicates how trade liberalization, although usually lobbied for, leaves the Lebanese economy at a disadvantage hampering its growth rather than promoting it, given the fact that Lebanon is a net importing country. In the same vein, an increase in population growth tends to retard economic growth and so does a higher debt-to-GDP ratio as debt services and debt expenses drain the resources of the state.

Despite its validity and rationality, the model above suffers from the threat of an existing multicollinearity among its independent variables, that which can influence the estimation process, leading to the overestimation of some variables and the underestimation of others. Adopting a common approach for detecting multicollinearity, the *Variance Inflation Factor (VIF)* for the model above is computed. Its result, equal to 14.38, and which exceeds the maximum value *(10)* above which a model becomes suspicious of risky multicollinearity, necessitates introducing a modification to this model. In reference to the results of the VIF and to the specification of our model, the variable human capital Hum_t is dropped from the growth equation given its embeddedness in household consumption $Cons_t$ as the latter is usually spent on consumer goods and on other ends among which education (which we use as a measure of human capital) is part. Therefore, the multicollinearity problem in our model above is sought to be dealt with by dropping the human capital variable from the equation. Accordingly, our revised growth equation becomes as follows:

$$G_t = \beta_0 + \beta_1 G_{t-1} + \beta_2 Rem_t + \beta_3 Inv_t + \beta_4 Cons_t + \beta_5 Trade_t + \beta_6 Pop_t + \beta_7 Debt_t + \upsilon_t$$

Where all variables retain their previous definitions. Estimation results yield the following:

$$G_t = 0.074 - 0.424G_{t-1} + 0.106Rem_t + 0.059Inv_t + 0.382Cons_t - 3.316Trade_t - 3.225Pop_t - 1.351Debt_t + 0.181$$

The same reasoning still applies to all variables as the sign of each does not change after introducing the modification (dropping Hum_t). However, and most importantly, the VIF of this

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[21] All estimations and significance tests are computed and conducted using Stata

model drops to 8.50 which is a quite acceptable value. Our variable of interest Rem_t still maintains a positive coefficient that implies that a 1% increase in remittance inflows to Lebanon drives GDP/capita growth up by around 0.106%. The mentioned coefficient though leaves the variable not statistically significant when significance testing is conducted at the 1%, 5%, and 10% levels.

As depicted earlier, our model resulted in a positive yet statistically insignificant impact of remittances on GDP per capita growth. This can be explained by the fact that remittances may significantly influence growth in GDP per capita via a major indirect channel, namely, consumption. In detail, our analysis shows a positive correlation (+0.55) between remittance inflows and private consumption, where the latter was shown to have a statistically significant positive impact (β=+0.38, i.e. a 1% growth in private consumption drives GDP per capita growth up by 0.38%) on our dependent variable being GDP growth per capita. In fact, a substantial chunk of remittance inflows is channeled towards household consumption in the home country to support families in their living expenses. This fuels GDP per capita growth via the multiplier effect which creates extra spending in the economy. In this context, the World Bank[22] anticipated that a 20% drop in remittances inflows translates into a drop in private consumption growth equivalent to 2.4 percentage points of GDP, bearing in mind that private consumption accounted for some 85% of Lebanon's GDP for the year 2015. On another hand, and as has been portrayed earlier in this paper, remittance inflows can be considered a key contributor to growth in total deposits. Therefore, it may be likely that, a study that focuses solely on the financial and banking sector in Lebanon, filtering from remittance inflows bank savings that favor growth in the deposit base at banks and financial institutions, might uncover an additional indirect channel through which remittances can spur activity in other sectors in the economy.

D. Conclusion and Recommendations

To sum this paper up, and in the aim of achieving a more efficient use and allocation of remittances and promoting a sustainable growth in remittance inflows, the government can build tangible policy schemes that emphasize the appropriate ways remittances can be deployed for more productive purposes that stimulate economic growth. It can thus develop suitable training and education programs to assist and encourage returning migrants or remittance recipients in making effective investment decisions. In addition, a proper infrastructure and a favorable investment climate must be created in order to complement the mentioned programs. Beyond that, once the allocation and utilization of remitted money is reconsidered and redirected, the government can play a role in reducing the very high cost of sending remittances to Lebanon through inking agreements with various bureaus and operators that specialize in money transfers to render transfer fees more competitive.[23] Lastly, it is required that data collection be improved in such a way that facilitates policymakers' task of precisely examining and evaluating the impact and role of remittances on and in the economy and hence their optimal allocation.

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[22] World Bank Lebanon Economic Monitor – Spring 2016
[23] The appendix provides a sample on the cost of sending remittances to Lebanon from two of the major source countries of remittance inflows – Germany and the USA

Limitations of the Work

Similar to any other study and regression analysis, our model is subject to a series of limitations which we try to summarize in what follows. To begin with, the model and estimations were based on our choice of a certain set of variables which can be modified according to other authors' desires. Therefore, other authors may decide to select and account for different, additional, or less variables which they find relevant to the study. Moreover, authors might employ other scales and measures based on which they determine the values of the variables of interest. For instance, some authors use the Human Development Index (HDI) as a proxy for human capital, others use the average years of secondary schooling per capita, while we chose to use the percentage population enrolled in secondary schooling as a measure for that. In addition, authors have a margin of freedom that allows them to adopt a different methodology and approach for estimating their regression equations than the ones we have followed. Furthermore, our model did not include all the indirect channels through which remittances may affect growth.
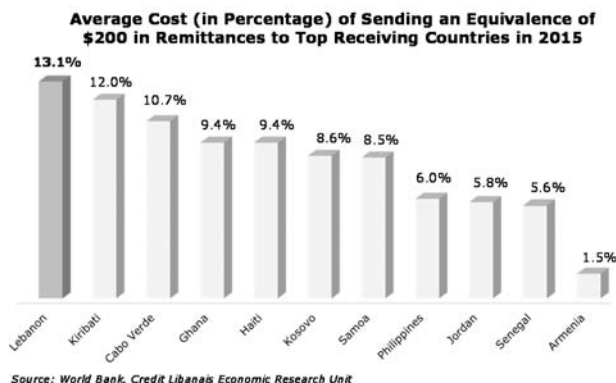
On another hand, objective limitations also arise, mainly pertaining to the quality and coverage scope of data. For instance, many types of formal remittance flows go unrecorded due to the weakness in data collection. Additionally, flows through informal channels such as family members who carry remittances and unregulated money transfer operators are rarely accounted for. Were these amounts calculated and added to the available figures, remittance figures would grow by as far as 50%.[24] Last but not least, the availability of data on remittances, which only covers the 2002-2015 period, imposes a major restriction on our regression model as this period is relatively short to assume a normal distribution of the variables and be able to accurately observe and evaluate trends and causalities over time.

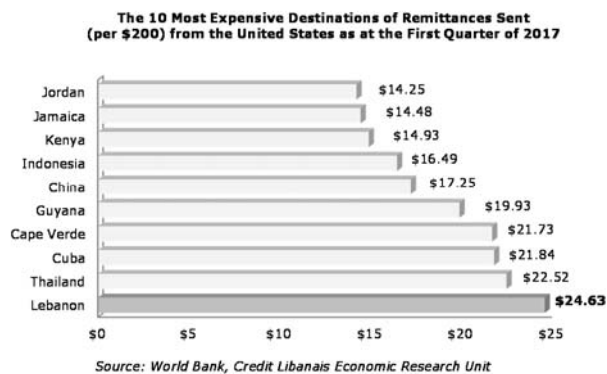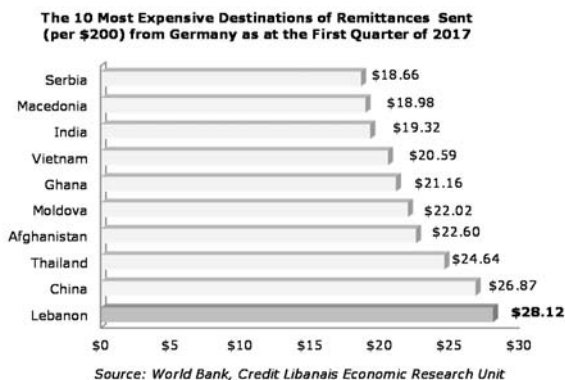[24] World Bank (2006)

Appendix

<u>Overview on the cost of sending remittances to Lebanon:</u>

According to the World Bank's *"Atlas of Sustainable Development Goals 2017 from World Development Indicators"*, Lebanon emerged as the most expensive country in terms of receiving remittances in 2015 with this cost estimated at 13.1% of every $200 sent. The diagram below captures the ten most expensive destinations for sending remittances in the year 2015.

Average Cost (in Percentage) of Sending an Equivalence of $200 in Remittances to Top Receiving Countries in 2015

Source: World Bank, Credit Libanais Economic Research Unit

Furthermore, a sample on the cost of sending remittances to the 10 most expensive destinations from two of the major source countries, namely, Germany and the USA, as at end of Q1-2017 is sketched below:

The 10 Most Expensive Destinations of Remittances Sent (per $200) from Germany as at the First Quarter of 2017

Source: World Bank, Credit Libanais Economic Research Unit

The 10 Most Expensive Destinations of Remittances Sent (per $200) from the United States as at the First Quarter of 2017

Source: World Bank, Credit Libanais Economic Research Unit

In detail, and according to the most recent statistics published by the World Bank on the cost of sending remittances around the world, Lebanon emerged as the most expensive destination for receiving remittances from both Germany and the USA during the first quarter of the year 2017. Precisely, the cost of sending $200 from Germany to Lebanon stood at $28.12, representing 14.06% of the total amount transferred. This qualifies the Germany-Lebanon corridor to be the most expensive among all money corridors emanating from Germany. In parallel, and when evaluating the cost of sending $200 worth of remittances from the USA to other countries, Lebanon again surfaced as the most expensive destination, with said cost standing at $24.63 (12.32%) in Q1-2017. The above reveals how expensive it is for a Lebanese expatriate to transfer money to his/her homeland, discouraging as such many emigrants to go through the formal transfer channels.

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