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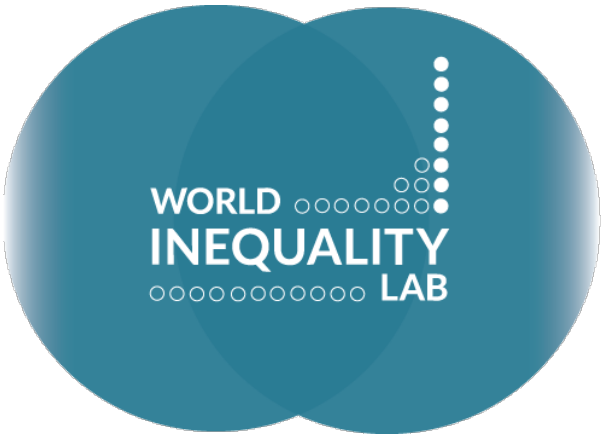

Rethinking the Lebanese Economic Miracle: The Extreme Concentration of Income and Wealth in Lebanon, 2005-2014

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Abstract

I combine household surveys, national accounts and unique personal income tax records to produce the first estimates of the national income distribution in an Arab country, Lebanon. I find that income is extremely concentrated over the 2005-2014 period: The top 1 and 10 percent of the adult population received almost 25 and 55 percent of national income on average, placing Lebanon among the countries with the highest levels of income inequality in the world. Results are robust to sensitivity analysis and suggest that one should not give up on tracking the dynamics of wealth and income concentration in a developing country, as long as the the assumptions made are clearly and systematically stated. The extreme level on inequality found question the long-lasting narrative of the "*Lebanese economic miracle*" that showcases the country as a paragon of economic success in the Middle East. They also confirm results from a large literature that emphasizes how the Lebanese sectarian-based mode of governance has allowed the ruling elite to extract large rents on most economic activities in the last decades at the expense of the majority of citizens.

JEL-Codes: D31, D63, E01, I32, P46, O15, O53.
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1 Introduction

How unequal are Arab countries? In the last decades, the Middle East has been characterized by an extreme predominance of violence, a rise of armed non-state actors and a consolidation of authoritarianism. In this context, it is important for policy makers and scholars alike to understand whether this extreme political instability is linked to the underlying distribution of economic resources and power. The popular uprisings that recently shook the region - from the 2011 "Arab Spring" to the 2019 protests - suggest that economic inequality might indeed be quite large. More social justice was among the main demands of the protesters, along with more civil and political rights. Yet, existing studies and official inequality estimates in the region suggest that income and wealth inequality levels are not that high by international standards. In 2011, the Lebanese or Egyptian official GINI indexes were below 0.35 for example, meaning that both countries were as egalitarian as the most egalitarian countries in history such as Scandinavian countries in the 1980s.[1] This somewhat surprising fact has been coined "*the Enigma of Inequality*" (UNDP, 2012) or the "*Arab Inequality Puzzle*" (World Bank, 2015).

The goal of this paper is to provide an answer to this puzzle, by studying the Lebanese case. To do so, I collected unique and novel fiscal micro-data for the 2005-2014 period from the Lebanese Ministry of Finance. I combine them with existing survey data, national accounts, billionaires' wealth data and government finance reports in a systematic manner in order to produce the first estimates of the national income distribution in a Middle Eastern country. I follow the standardized methodology of the "*Distributional National Accounts*", developed by Alvaredo et al. (2016) and which was first applied to the US (Piketty, Saez and Zucman, 2018). This method proposes to distribute total national income across individual adults and has recently been applied to a growing number of countries, as reviewed in the World Inequality Report 2018 (Alvaredo et al. 2018 and the World Inequality Database). This study is the first to apply it to a Middle Eastern country, where data quality and transparency is arguably of lower quality compared to other world regions.[2]

[1] Hlasny and Verme (2018) and the World Bank Povcalnet Database.

[2] See Bibi and Nabli (2009; 2010) for a review of existing data sources in the region and an assessment of their quality, and the "Inequality Transparency Index" at the WID.

The key feature of this methodology is to use fiscal data to correct survey-based estimates of inequality, as it is now widely acknowledged that surveys fail to capture the top tail of the income distribution. The problem is particularly acute in developing countries and in regions of the world where inequality might be particularly high.[3] By linking the corrected income distribution to national accounts, this method produces series that are consistent with macroeconomic figures, homogeneous over time and comparable across countries. It also allows researchers to look at the entire distribution and to study the distribution of growth among all income groups.

I find that the top 1 and 10 percent of the adult population receive almost 25 and 55 percent of total national income, which places Lebanon among the countries with the highest levels of income inequality in the world, alongside Brazil, Russia, South Africa and the United States (Alvaredo et al. 2018). The Lebanese income distribution appears to be extremely polarized. The top 10 percent richest individuals receives five times as much as the bottom 50 percent of the population. The middle 40 percent of the distribution, which broadly speaking represents the middle class, is left with close to 30 percent of the total national income, which is far less than the top 10 percent. This is quite different from what we observe in Europe or in the United States, where the middle class receives more or about the same income share as the richest 10 percent over the same period. My results are still subject to major shortcomings due to data limitations, which I describe in detail in the paper. I implement various robustness checks and produce variant series for on each hypothesis made during the estimation procedure. In order to get an overall "confidence interval" of the inequality estimates, I replicate my procedure and choose the most or the least conservative assumptions.[4] I find that my benchmark results are subject to a large uncertainty, with almost 10 percentage point of variation between the lower and upper bound estimates. Nevertheless, they remain robust: In all specifications, even in the most conservative one, the 10 percent richest adults receive more than 50 percent of total national income.

This paper makes two main contributions. First, it provides the only reliable estimates

[3] See Assouad, Chancel and Morgan (2018) for a detailed methodological discussion on the issue.

[4] I do so even when such assumptions are not empirically credible. This nevertheless enables me to produce a decision tree that highlights the lower and upper bound estimates of my results.

of the national income distribution in the Middle East, and therefore contributes to answer the so-called "*Arab Inequality Puzzle*".[5] In the case of Lebanon, the puzzle went as far as creating an opposite narrative, according to which Lebanon was the "Switzerland of the Middle East" and a paragon of economic success in the Middle East. According to this widespread narrative, sometimes coined the "*Lebanese economic miracle*", the country would economically perform better than its neighbors, despite numerous political shocks, and ensure a relatively high level of income per capita to its citizens.[6] This paper, by creating new data on inequality can inform public debates and shed new light on recent economic and political developments in the country, including the 2019 "October Revolution".[7]

The second contribution is methodological. Lebanon is a case where data quality is particularly low, despite the existence of micro-fiscal data. Yet, this study shows that even when data transparency and quality are very limited, it is possible to reach conclusion on inequality levels, as long as all hypotheses and data limitations are well-stated and their impact on the final series highlighted. I propose to complement the standardized DINA methodology by a systematic sensitivity analysis that consists in clarifying each assumption made during the procedure and how their combination impacts the level of inequality.

Related Literature This paper adds to the literature on the measurement of poverty and inequality in developing countries. There has recently been a growing interest for the study of income distribution, after a relative hiatus since Kuznet's seminal work in 1955. A first wave of this literature has constructed top income shares time series over the long run for more than twenty countries using fiscal data (Atkinson and Piketty 2007, 2010;

[5]This study is the first to use fiscal data to correct the top of the survey income distribution in an Arab country. To my knowledge, the only other study correcting official survey estimates in the region is Van der Weide et al. (2016), which uses housing price data to estimate the top tail of the income distribution in Egypt. They find that inequality levels are way higher than existing survey-based estimates. They however cannot recover the full distribution of national income in the absence of administrative fiscal data. Other studies have investigated the roots of the puzzle such as Devarajan and Ianchovichina (2018) who study complementary sources of dissatisfaction including dissatisfaction with the quality of public services, the shortage of formal-sector jobs, and corruption.

[6]The narrative lasted as there was actually no estimates of income inequality in the country before this study. The last income share figures published for Lebanon date back to 1960 (Ministry of Planning, 1968). The only recent study available is based on information on consumption from survey data and focuses on poverty (El Laithy et al., 2008).

[7]As other protests in the region, more social justice was among the main demands of the Lebanese who took the streets in October, 2019. It is significant that the trigger of the uprising was a new tax on WhatsApp and other mobile applications, adding to a long list of austerity measures announced earlier in the year and which disproportionately affected the most vulnerable among the population.

Atkinson, Piketty and Saez 2011). Recently, this literature has attempted to estimate the full distribution of national income, using fiscal data combined systematically with survey data and national accounts, in order to estimate "Distributional National Accounts".[8] These series follow a standardized methodology, described in Alvaredo et al. (2016), that however needs to be adjusted depending on the data quality and availability in each specific country. When exhaustive micro-data are available (as in the US or in France), it is possible to derive "sophisticated" and precise DINA (Piketty, Saez, Zucman, 2017 and Garbinti et al., 2017). However, when data sources are limited, as in China, Russia, Brazil or in the Middle East, one needs to make more assumptions to derive "simplified" DINA (Piketty et al. 2017, Novokmet et al. 2017, Morgan 2017, Assouad, Chancel and Morgan 2018). My results on Lebanon belongs to the second category, and offers "simplified DINA" for the first time in an Arab country. While estimates are highly uncertain, the results on inequality are robust. This demonstrates that the relative high income per capita in Lebanon, as in other countries in the region such as Egypt or Jordan, might be driven by a rich and small group of people at the top, and hide high poverty levels.[9]

Second, this paper contributes to a literature on crony capitalism and its distributional consequences. The results provide quantitative support to a large literature on the political economy of the Middle East as a whole and of Lebanon in particular. This literature has documented various mechanisms by which institutions contribute to develop a crony capitalism in most countries of the region, which feeds sectarian clientelism, blurs the lines between public and private capital and fosters rent seeking behaviors from the highly connected political and business elites (Diwan, Malik and Atiyas, 2019; Rijkers et al. 2017, Gaspard 2004, Corm 2012, Traboulsi 2014, Chaaban 2016, Baumann 2017, Diwan and Haidar 2020).[10]

The remainder of the paper is organized as follows. In Section 2, I describe the data sources and methodology used. Section 3 presents the results on the levels of income inequality in Lebanon between 2005 and 2014 and compares them to other countries. Section 4 concludes.

[8] All country specific studies and data can be found online at http://wid.world.

[9] The fact that most countries in the region are officially classified as "middle income countries" might partly explain why the region is relatively understudied in development economics. It is striking for example that the Middle Eastern J-PAL office opened in 2020.

[10] Alvaredo, Assouad and Piketty (2018) builds on the results for Lebanon to estimate inequality statistics at the regional level between 1990 and 2016.

2 Data and Methodology

This paper uses five main data sources: household surveys, national accounts, public finance reports, wealth rankings and importantly newly available fiscal micro data. I combine these sources in a systematic manner, following the "Distributional National Accounts" (DINA) guidelines (Alvaredo et al. 2016). This standardized methodology uses the same data-sources for all countries in order to produce estimates of the distribution of national income comparable across time and space. It broadly consists of three main steps: (1) estimating the country's income distribution using household survey data, (2) correcting the income levels at the top of the survey distribution with fiscal data and Pareto-Interpolation, (3) adjusting the final distribution to account for missing non-fiscal and tax-exempt incomes, using national accounts and rich lists published by magazines. The approach adopted for Lebanon follows the same structure, with some adaptations due to the data format and quality described in the following sections.[11]

2.1 First Step: Estimating a Survey Income Distribution

Lebanese survey data are scarce. Three nationally representative surveys have been undertaken recently, in 1997, 2004 and 2007.[12] The micro-data are difficult to access: The Lebanese statistical institute, the Lebanese Central Administration of Statistics (CAS) is not allowed to share data with researchers. Only El-Laithy et al. (2008) got access to micro-data on consumption and could estimate the bottom of the consumption distribution.[13] The only other existing figures on the entire income distribution date back from the first nationally representative survey conducted in 1960.[14] I unfortunately could not access micro-data on income. I therefore used two tables published in official report by the CAS and which indicate the household frequencies for thirteen income groups, for 2005 and 2007 (before and after the 2006 war). Using the generalized Pareto interpolation

[11] More details on the methodology is available in the Appendix below. An online appendix that includes all raw data sources and computer codes is available at https://wid.world/country/lebanon/.

[12] See Table 2.1 p29 in World Bank, 2016, for a review of existing survey-based studies.

[13] They document that nearly 8 percent of the population, that is 300,000 individuals, live under conditions of "extreme poverty" (less than US$ 2.40 per day) and are not able to meet most basic food and non-food needs. They however find a relatively low Gini coefficient of 0.37 for the consumption distribution.

[14] The 1960 study shows large income disparities, with the richest 4 percent receiving 32 percent of total income while the following 14 and 32 percent have respectively 28 and 22 percent. The remaining half of the population is left with 18 percent of the national income, including 2 percent for the poorest 9 percent (Ministry of Planning, 1968).

techniques developed by Blanchet et al., (2017), I estimate the full distribution of income expressed in generalized percentiles for the two years.[15]

Limits Four main limitations should be stressed. The first one is related to the unit of observation. In order to follow the DINA guidelines, I take the adult individual (i.e. aged 20 and more) as the basic unit. However, there is no information on the average number of adults in each household, by income bracket. I therefore take the average number of adults per household at the national level, and assume that income is equally split between adult household members. I apply the same adults/children ratio to all brackets if high earners have fewer children than average, inequality is slightly underestimated. Second, the survey tabulations do not provide detailed information on income categories. We therefore do not know which income type is included in the overall "household income" variable and how the income concept captured in the survey data matches the one from the fiscal data and from the national accounts. The third issue concerns the years without data. I only use the 2007 survey data. More specifically, I use the tabulation titled "before the war" to estimate the 2005 and 2006 distributions and the tabulation "after the war" for the following years. I then anchor all income distribution to the relevant annual average income, that is for every year, I proportionally upgrade income levels for all percentiles so that per adult average income coincides with per adult average national income observed in the WID macroeconomic database. By construction this has no impact on income shares (inequality levels are the same for the 2005-2014 period). This means that I cannot draw robust conclusions on the evolution of inequality, but only on the levels. In particular, the effect of the large Syrian refugees influx after 2011 on inequality is not taken into account (except through their aggregate effect on average income).[16] Finally, the ratio between total survey income and national income equals 37 percent in Lebanon, which is quite low. In many developing countries and in particular in regions with extreme levels of inequality, this ratio typically varies between

[15] Generalized percentiles (or g-percentiles) are 127 income groups along the income distribution: 99 for the bottom 99 percentiles, 9 for the bottom 9 tenth-of-percentiles of the top percentile, 9 for the bottom 9 one-hundredth-of-percentiles of the top tenth-of-percentile, and 10 for the 10 one-thousandth-of-percentile of the top one-hundredth- of-percentile. The interpolation code is available at http://wid.world/gpinter/. This method allows the estimation of income distribution using tables with even few income groups.

[16] Household tabulations are also available in 2004. See section 3.5 for robustness checks of the impact of the choice of the survey year.

40%-50% (Assouad, Chancel and Morgan, 2018). Lebanon has also a relatively lower coverage compared to other Middle Eastern countries.[17]

2.2 Second step: Fiscal Correction of the Survey Distributions

The second step consists in correcting the top of the survey distribution using fiscal data. We now know that inequality statistics based on surveys are seriously downward biased, due to under-reporting, truncations and top coding problems at the top (Bourguignon and Morrisson, 2002, Dowrick and Akmal, 2005, Lakner and Milanovic, 2016, Burkhauser et al., 2012, Jordá, and Niño-Zarazúa, 2019). Besides, survey data often only covers a small share of total national income, especially in developing countries. To the extent that this missing income generally accrues to relatively small groups of the population, this implies that survey-based statistics may severely underestimate income inequality. To tackle this issue, some studies attribute all missing income to the top 10 percent income recipients, or use Pareto-type imputations to distribute the missing income (Lakner and Milanovic, 2013; Burkhauser et al. 2016; Jenkins, 2017). My strategy is to merge the survey and fiscal data using the "generalized Pareto interpolation" method developed by Blanchet, Fournier and Piketty (2017). This strategy has the advantage to rely on additional data and on better estimation techniques for the very top of the income distribution. It is particularly suitable to the Lebanese case, as fiscal data are of much quality than the survey data, which is rarely the case in other contexts. In the rest of this section, I briefly present the Lebanese personal income tax data and describe the correction procedure.

2.2.1 The Lebanese micro-fiscal data

The Lebanese Personal Income Tax (PIT) created in 1959 is a schedular, progressive and individual tax which taxes separately: (1) some business incomes (profits made by self-employed individuals, partners in partnerships and individuals in small corporations) at marginal rates ranging from 4 to 21 percent, (2) labor income (salaries, wages, bonuses, allowances, life annuities, pension payments, and other benefits in cash and kind) at rates ranging from 2 to 20 percent and, finally, (3) rental revenues from built property at rates

[17] See Table 2, p6 in Alvaredo, Assouad and Piketty (2018), which displays the average ratio (total survey income)/(national income) for all countries in the Middle East with survey data.

ranging from 4 to 14 percent. Next to the personal income tax, incomes from movable capital (dividends incomes, board member appropriations from profits and interest incomes, including interest on bonds and treasury bills) are taxed at flat rates. I do not observe those incomes, as I could only access tax records of the PIT. The database shared by the Ministry of Finance is an unbalanced panel. Each observation corresponds to the annual declaration of one taxpayer and the three sources of income listed above are reported separately. For business income and wages, gross income (before any deduction and gross of expenses) and taxable income (after deductions of charges and benefits). For rental revenues, only taxable income is reported. The data is reliable for the top 1 percent of the adult population, although it covers a greater share of the adult population.[18]

2.2.2 Correcting the top of the distribution

Given that the tax records only provide information on the total gross income of an individual or on its taxable income, I need to make assumptions to obtain the actual individual fiscal income (pre-tax, pre-deductions fiscal income but net of expenses). In my benchmark series, I assume that taxable income equals 80 percent of total fiscal income.[19] Next, I consider that the survey distribution estimated in step 1 is reliable for the bottom 80 percent of the distribution (below the 80th percentile, $p_1 = 0.8$) and that the fiscal data are reliable for the 99th percentile and above ($p_2 = 0.99$). In order to link the two distributions, I assume that the quantile ratio upgrade factor $f(p)$ rises piecewise-linearly from $f(p_1) = 1$ to the observed fiscal/survey ratio between p_1 and p_2, $f(p_2)$, so as to generate a smooth and convex Pareto curve (Blanchet et al., 2017). I then apply generalized Pareto interpolation techniques to the corrected tabulations to obtain the full distribution of fiscal income among equal-split adults, by g-percentiles, between 2005 and 2014.[20] While recent research has shown that survey and tax data seem to start diverging at $p = 0.90$, I choose to use the survey data up to the 80th percentile as it yields to more

[18]The database covers up to 15 percent of adult individuals in some years. However, due to the schedular form of the tax, individuals in lower income groups, receiving low wages, are included in the database even if they do no belong to the top 1 percent income group.

[19]Total taxable income is the sum of taxable business income, wages and housing rents. See Section 3.5 for robustness checks on the impact of these two assumptions.

[20]I also provide several variants based upon different piecewise-linear profiles for the upgrade factor between $f(p_1)$ and $f(p_2)$, and the share of the total distribution covered by the survey data (see Section 3.5).

conservative estimates (Yonzan et al. 2020).[21]

Limits Most capital incomes (imputed rental revenues of persons living in their own dwelling, dividends, interests, or profits made by individuals in limited partnerships, joint stock or limited liability companies) are not reported in the fiscal data. More generally the personal tax records miss income which evades from taxation and income from the informal sector. The third step of the correction procedure, presented in the following section 2.3, partially accounts for these issues.

2.3 Third step: correcting for missing capital incomes

The last and final step of my estimation procedure corrects for missing capital incomes, that is tax-exempt and non-reported capital incomes. This third steps itself contains three main sub-steps described in the rest of this section.

2.3.1 Estimating and reallocating the amount of income missing

First, I estimate the size of the missing capital income in terms of national income. A natural way to recover the macroeconomic amount of capital income not taxed under the PIT data is to look at national accounts. However, in Lebanon, national accounts are of very poor quality and are not disaggregated enough. I therefore look at Public Finance reports, which give for each year the amount of tax revenues collected for each tax.[22] I recover the missing amount by dividing the revenues collected from the different income sources by the corresponding tax rate in force in the legislation. I find that non-reported and tax-exempt capital incomes represent approximately 20 percent of national income. Then, to estimate the final distribution of total personal income (y_p), the sum of fiscal income (y_f) and missing income (y_m), I first assume that y_m follows the same distribution as wealth below for the estimation of the wealth distribution. As for the correlation structure between y_f and y_m, I use the family of Gumbel copulas, with Gumbel parameter $\theta = 2$ (Piketty et al., 2017, and Novokmet et al., 2017).[23] In order to compute the joint

[21] This study is based on data from the United States, Germany, and France. See section A.2.2 in Appendix for a more detailed discussion on this step, and for sensitivity analysis.

[22] The Public Finance Reports are available online, on the website of the Lebanese Ministry of Finance, http://www.finance.gov.lb/en-us/Finance/Rep-Pub/DRI-MOF/PFR

[23] See the detailed computations in the Appendix and section 3.5 for variant series depending on the total amount of missing capital income reallocated and the Gumbel parameter chosen.

distribution of fiscal and non fiscal income, I therefore need to estimate the distribution of wealth in Lebanon as I assume that (y_m) follows the same distribution.

2.3.2 Estimating the Lebanese Wealth Distribution

Wealth data are scarcer than income data in Lebanon. Only billionaires' lists, published by Forbes and the magazine Arabian Business, are available. I nevertheless take advantage of these sources of information, and compute the ratio of billionaires' wealth to national income. I use this as a proxy to compare the "weight" of billionaires in various countries' economies. As displayed in Figure 1, billionaires' wealth represents 30 percent of total national income on average over 1990-2016, surpassing by far what we observe in other countries using the same data. The conclusion is similar if we look at the average between 1990 and 2005 or 2005 and 2016. This relative important "size" or weight of billionaires' wealth, expressed as a function of national income, suggests that wealth is more concentrated in Lebanon. Then, given that there is no survey on wealth for Lebanon, I proceed as follows. I compute an average standardized distribution of wealth for the US, France and China, for which we have reliable estimates of wealth inequality. More precisely, I divide all thresholds and bracket averages for all percentiles by the average wealth, and compute the arithmetic average for the three countries.[24] Variations across countries and over time in these standardized wealth distributions mostly happen above p0=0.99, that is, for the bottom 99 percent of the distribution, average wealth is relatively stable. Therefore, I take the same normalized distribution for Lebanon below p0=0.99 as the average US-France-China normalized distribution, hereby assuming that wealth is at least as concentrated in Lebanon as in countries with available data. To estimate the Lebanese average wealth, necessary to derive the final wealth distribution, I also compute an annual average wealth/income ratio for all countries with available data on WID.world. I find that, on average, wealth represent at least 300 percent of total national income in countries for which we have data. I therefore consider that the average wealth in Lebanon for a given year t equals $\frac{Wealth/Income_{wid} \times NationalIncome_{Leb,t}}{AdultPopulation_{Leb,t}}$. Once the average normalized wealth distribution computed and adjusted to match the estimate average wealth in Lebanon, I need to take into account the weight of Lebanese billionaires at the top. This is not obvious, as I need to link the 99th percentile to the few billionaires at

[24] I take the data from WID.world, using the "*wid*" STATA command.

the very top, making also assumption on their family size (to know how many individuals benefits from the Lebanese billionaires' wealth). I therefore need to make an assumption about the average number n of adults per billionaire family (sometime Forbes includes very large family groups in the same billionaire family; sometime it is just one individual or one married couple) and on the correction profiles to link the normalized wealth distribution until the 99th percentiles towards the billionaires.

To summarize, this procedure consists in assuming that the Lebanese total wealth and wealth distribution are similar to what we observe in other countries on average, and to correct the top of the distribution by taking into account the relative importance of the Lebanese billionaires' wealth.[25]

2.3.3 Adjusting the final series to macroeconomic average income

Figure 2 shows the share of the total national income covered by each data source. At the end of the three corrections, there are still 30 percent of the total national income missing, which is quite large but similar to other developing countries with relatively high levels of inequality.[26] The remaining 30 percent contains a combination of incomes that evaded taxation and incomes made in the informal sector. The latter are partly taken into account in the bottom on the distribution by the survey data, so a large share of this 30 percent should probably accrue to the top groups. I nevertheless chose in my benchmark to proportionally upgrade all income levels at all percentiles so that per adult average income always coincides with per adult average national income (therefore keeping the income distribution and shares constant).[27]

Limits My estimates of wealth inequality used in this step are highly uncertain. I simply assume that Lebanon should have a total amount and a concentration of wealth that are at least as high as what we observe in other countries. The only data used are the billionaires' worth list, which are particularly fragile and volatile in Lebanon (only

[25] See section 3.5 for robustness check on the assumption made to estimate the Lebanese wealth inequality. This methodology is also used for other Middle Eastern countries in Alvaredo, Assouad and Piketty (2017) and for Russia (Novokmet, Piketty, Zucman, 2018).

[26] See Figure 1 in Assouad, Chancel and Morgan (2018).

[27] An alternative would be to allocate proportionally the 30 percent toward the bottom 50 percent income group. This implicitly assumes that this amounts mostly come from the informal sector and/or goes to the poorest, which is not credible. Doing so nevertheless does not affect much the main conclusions (Results available upon request).

7 billionaires are reported, and some years do no have data). Using this data source to identify a trend in wealth concentration is impossible. Nevertheless, the stable and high concentration revealed in the rich lists reflects something real about the Lebanese wealth distribution and the method might at least give a good first approximation of the concentration of wealth in the country. Given the political economy of the country, this assumption is credible and the high levels of inequality found not so surprising. The Lebanese economy lies mostly on the banking and real-estate sectors. The Bank Secrecy Law of 1956 made Lebanon the "Switzerland of the Middle East". Most importantly, the country is characterized by a crony capitalism where political elites and business elites are highly connected (see the discussion section 3.6). They share between themselves the main sectors of activities and companies of the country and extract large rents on any income generated in the country (Gaspard, 2004; Diwan and Haidar, 2020; Chaaban, 2016). Reassuringly, estimates on wealth inequality are only used in the third step, which has a limited impact on the final income distribution, compared to the fiscal correction (see Section 3.5 for the decomposition of the effect of each correction).

3 Results

3.1 Levels of income inequality

The main results of the paper are summarized in Figure 3. Income is extremely concentrated in Lebanon, with the richest 10 and 1 percent adults accounting for almost 55 and 25 percent of total national income, on average throughout the period. In contrast, the bottom 50 percent of the Lebanese population is left with approximately half of what is accruing to the top 1 percent. Figure 4 gives a sense of the extent of the concentration: the top 0.1 percent of the adult population, that is approximately 3000 individuals receives approximately the same amount of national income as the bottom 50 percent, that is 1,5 million individuals. Finally, the middle 40 percent of the Lebanese adult population receives one third of the total national income. My estimates are consistent with the high levels of poverty reported in El Laithy et al. (2008), although we do not use the same welfare concept and unit of observation. I find a higher Gini coefficient, mostly due to the fiscal correction. It should be emphasized that given the lack of yearly survey data, results on the evolution and dynamics of inequality levels are uncertain. Besides, the

Lebanese income distribution appears to be extremely polarized. The middle 40 percent of the distribution, which broadly speaking represents the middle class, is left with close to 30 percent of the total national income, which is far less than the top 10 percent. This is quite different from what we observe in Europe or in the United States, where the middle class receives more or about the same income share as the richest 10 percent over the same period (see Figure 5).

3.2 The distribution of economic growth

Between 2005 and 2014, real national income increased steadily, with a cumulated growth rate of almost 50 percent (Figure 6). However, if we look at the per adult national income, it follows a bell-shaped curve, increasing between 2005 and 2010 and then decreasing due a sharp population growth of 50 percent, mostly following the major inflow of Syrian refugees. We therefore observe a slight impoverishment of the Lebanese population after 2011, which lost on average 2 percent of its yearly real income. The series computed in this paper allow me to go further and to determine which income groups did or did not benefit from growth. Figure 7 shows that the bottom 90 percent of the adult population experiences a negative growth, far below the average, while the top 10 percent enjoyed very large growth rates.[28] In order to understand the driving forces behind these high growth rates at the top, I examine the respective role of business income, labor income and rental revenues using the fiscal micro-data. Figure 8 decomposes top groups by income categories for the years 2005 and 2014. This figure should be interpreted with caution as it only captures capital incomes subject to the PIT tax.[29] Several remarks can be made. First, the negative growth rate of the top 0.01 percent seems to come from a sharp decline in rental revenues over the period, which translated into an increase in the share of wages. A first explanation for this is the major property destructions that happened during the Israeli war.[30] However, as early as 2007, a massive reconstruction effort was made and demand on housing kept increasing while real-estate prices and rental income skyrocketed. The variation we observe at the very top may simply reflect a change

[28] Except for the top 0.001 percent (that is between 25 and 37 adults over the period), for which the rate becomes negative again.

[29] This probably means that the micro-files might not exactly represent the top 1 percent but rather fractions of individuals in top groups (perhaps within the top 10 percent).

[30] The Israeli war indeed damaged more than 210,000 housings and destroyed 25,000, leaving more than 300,000 people homeless (Verdeil, 2007).

in tax evasion behaviors due to the political instability that began in 2005.

3.3 International comparisons

Figure 9 compares the top 10 and 1 percent income share in Lebanon with series for Brazil, China, France, Russia and the United States. The conclusion is clear: Lebanon has one of the highest records of income concentration in the world. Tables 1 and 2 present the income thresholds and averages within the different income groups, in 2016 Euro PPP in Lebanon and in other regions of the world. To be among the 1 percent richest Lebanese, one needs to make at least 123,651€ per year in 2016, for an average income of 335,930€, levels comparable to Western Europe. The magnitude of concentration however increases drastically within top groups, with an average income for the top 0.1 percent of 1,593,622€. To get a sense of the skewness of the Lebanese distribution, it is interesting to compare the average income within each group in Lebanon and in Western Europe. Until the top 1 percent, the average income is systematically smaller in Lebanon, representing 40 percent of the corresponding average in Western Europe for the bottom 50 percent and 90 percent for the top 1 percent. Within top groups, the ratio reverses to reach 140 percent within the top 0.01 percent and even 190 percent within the top 0.001 percent. In other words, in Lebanon the richest are as rich or richer than their counterparts in Western Europe, while the poorest are way poorer. The average income of individuals at the very top of the distribution in Lebanon is broadly comparable to average levels observed in Brazil or South Africa, other extremely unequal countries. Lebanon is therefore characterized by a polarized income structure, without a broad "middle class" comparable in size to the one in high-income countries.

3.4 Wealth inequalities

Figure 10 (a) reports statistics on the average concentration of wealth for the 1990-2016 period, obtained using data from the annual Forbes and Arabian business rankings that cover the wealthiest Lebanese individuals.[31] According to my benchmark estimates, wealth is on average extremely concentrated with the top 10 and 1 percent of the Lebanese

[31] The only other existing estimates of wealth inequality in Lebanon are the one by Davies et al. (2010-2016), which also use rich list and Pareto interpolation techniques. Unfortunately, as emphasized in Novokmet et al. (2017), their estimation technique is not explicit (one cannot replicate their results, and there is no online code available).

adult population gathering almost 45 and 70 percent of total personal wealth respectively.[32] These levels are substantially higher than in China and France and slightly higher than in Russia and the United States in the recent period (Figure 10, b).

3.5 "Simplified" but informative DINA: sensitivity analysis and checks

The previous sections underline that the series derived in this paper are subject to high uncertainty. In most developing countries, one can only derive "simplified" DINA, given the difficulty to access administrative data and to track income in a satisfactory manner. This seems to be particularly true in regions considered to be extremely unequal.[33] I argue that despite data limitations, it is still important to attempt to measure income inequality in these regions, as long and only if the assumptions made and their implications are clearly stated. Figures A1 to A7 show the impact of each hypothesis on the final estimates, from the first to the third step. While these figures show that the estimation choices are rather conservative, they do not provide information on the overall impact of each of them. This is why I replicated the entire procedure, by taking at each step either the most conservative or the least conservative choice in order to see how they cumulatively affect my results. Figure 11 shows the decision tree of this procedure. Two facts stand out. First, there is a large uncertainty in the estimation procedure, with a difference of 10 percentage point between the lower bound and the upper bound estimate, which is not surprising given the data limitation. Second, despite this high uncertainty, the main conclusions of the paper remain unchanged, with lower bound estimates that show extreme levels of inequality (on average, the top 10 percent and 1 percent richest receive 50 percent and 19 percent of total national income).[34]

[32] Given the uncertainty surrounding the use of billionaires data, I only present averaged statistics over the period as the trends may not be reliable. In any case, the wealth share stay extremely high throughout the period, with a minimum for of 35 percent and 67 percent for the top 1 and 10 percent of the adult population (see Appendix A).

[33] See Assouad et al. (2018). Derenoncourt (2018) interestingly say that a lack of transparency and data is itself a form of data, as the production of tax records depends on state capacity, fiscal infrastructures and therefore on the actual level of inequality in a society.

[34] I should emphasize that the upper and lower bound estimates are not realistic. For an example, the lower bound estimates assume that there is only 10 percent of capital income missing, while government reports on tax revenues suggest that they should be at least as high as 15 percent.

3.6 Discussion : What are the drivers of such extreme levels of inequality?

How can we explain such extreme levels of inequality ? The results presented in this paper are consistent with scholarships in economics, political science and history that have highlighted various mechanisms amplifying inequality in Lebanon or in the region as a whole. This section briefly describes some features of the Lebanese political economy studied in the literature which can explain the extreme levels of income and wealth inequality we observe in the country.

The roots of such high levels of inequality can first be found in the Taif Agreement of 1989, which sealed the end Lebanese Civil War and reinforced the Lebanese "consociational democracy". This political arrangement, in which each sect is represented in national institutions and can influence policy seems attractive at first: Its announced goal is to guarantee that power is equitably shared among sects in order to prevent civil conflict (Lijphart 1969). Research has shown however that such a political arrangement is has various perverse effects and is associated with bad governance outcome (Spears 2000; Miguel 2004). In Lebanon, the consociational democracy has enabled the formation of a "Party Cartel", a coalition of elites and parties that are ideologically opposed, but who have to share power. Such governments do not manage to implement cohesive and consistent public policies (Parreira 2020). Another adverse outcome of a party cartel is that, despite their ideological opposition, party leaders manage to collude and prevent political competition. As a consequence, it is difficult for new political actors and parties to emerge, offer citizens alternatives, and make the cartel accountable. This has allowed the ruling elite to pass laws and policies favoring their economic and political privileges. The country has for example consistently opted for laissez-faire economic policies, resulting in the absence of welfare state and large-scaled redistributive policies but also major tax breaks for the wealthiest in following decades (Gaspard, 2004).[35] This is striking when we look at the tax system and the PIT in particular. Top marginal tax rates in

[35]This however is not new: Lebanon has the oldest liberal market system in the region and its governance is characterized by minimal state interventions (Jawad 2009). The only attempt to build strong public institutions and to create a welfare state occurred during Fouad Chehab's presidency between 1958 and 1964, contrasting with the liberal tendency prevailing since the independence, and which prevailed again afterwards. Since then, social welfare and state reforms have constantly been relegated to the background, while the Hezbollah ensures basic solidarity and redistributive functions and became a large clientelistic network if not a state within the state (Daher, 2014; Cammett 2015).

Lebanon are quite low by international standards: Lebanon imposes its top earners much more lightly than France, Germany, the United Kingdom, and the United States, as well as countries from the Global South from 1979 to today (see Figure 12 Panel (A) and (B)). Similar conclusions can be reached for other taxes on capital income. This system also allowed the ruling elites to create mutually advantageous relationships with business elites. For instance, as many as eighteen of the country's twenty top banks have major shareholders linked to political elites, and that 43 percent of bank assets are subject to political control (Chaaban 2016). This is significant because, historically, economic sectors dominated by a concentration of politically connected firms proved less competitive (Diwan and Haidar, 2020). As a consequence, a limited group of families has been able to share between themselves most sectors and enterprises of the country and extract large rents on virtually all economic activity at the expense of the majority, which makes the results on the distribution of income and wealth not surprising.

4 Conclusion

In this paper, I combine national accounts, survey, fiscal data and wealth ranking to estimate the national income distribution in Lebanon between 2005-2014. To the best of my knowledge, this paper is the first to use personal income tax records to study income inequality in a Middle Eastern country. I find that income and wealth are extremely concentrated and that the richest Lebanese caught the bulk of the national income growth under the period of study. These results put in perspective the so-called Lebanese economic miracle.

The main contribution of this study is to review available data sources on income and wealth and to combine them in a transparent manner to produce novel estimates of income inequality in Lebanon. To my knowledge, this paper provides the first reliable inequality statistics in the Middle East, to the extent that it uses administrative fiscal data to correct survey based estimates. It therefore contributes to answering the so-called "Arab Inequality Puzzle" and to shed light on the unequal concentration of economic resources that might be otherwise hidden by relatively high per capita average income. This study is however limited given the data at hand. In particular, it is at this stage difficult to reach robust conclusion on the dynamics of inequality and their roots. Yet, despite these data

shortcomings, as there often exists in developing countries, one can still reach credible conclusions on income concentration, by indicating all the assumptions made and their effects on the final series.

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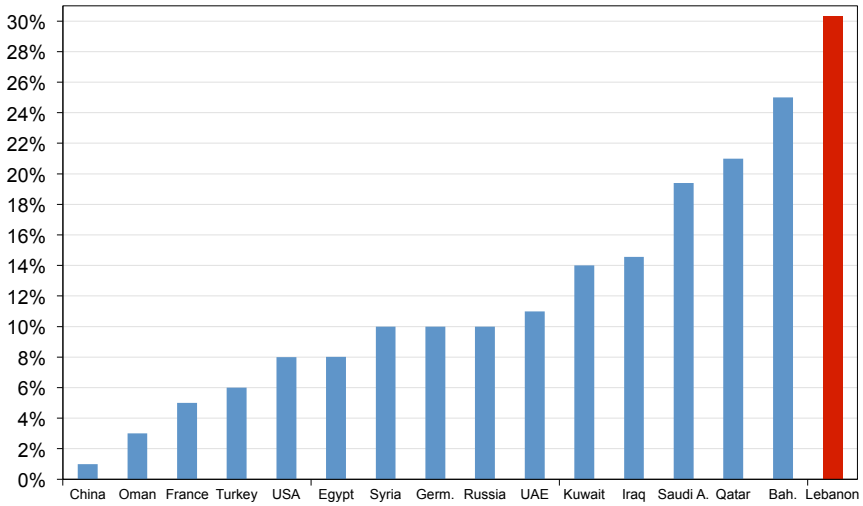
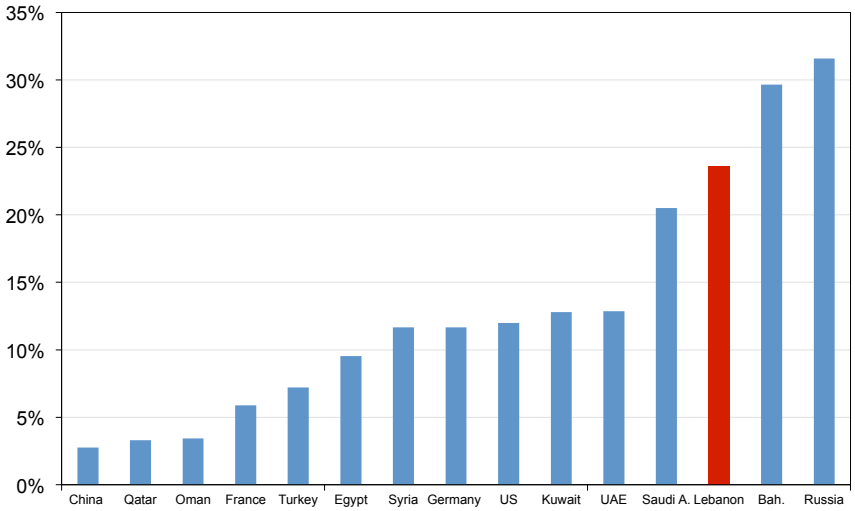
Figure 1: Billionaires' wealth as Share of National Income



(a) Average over 1990-2016 in selected countries



(b) Average over 2005-2016 in selected countries

Total billionaire wealth as a share of total national income (measured at market exchange rates), average over for 1990-2016 (a) and for 2005-2016 (b). For 1990-2005 Lebanon is ranked second below Qatar, with an average of 33 %. Author's computation using rich lists from Forbes and Arabian Business magazines, for Middle Eastern countries.

Figure 2: From Survey to Taxable and Total National Income, 2005-2014

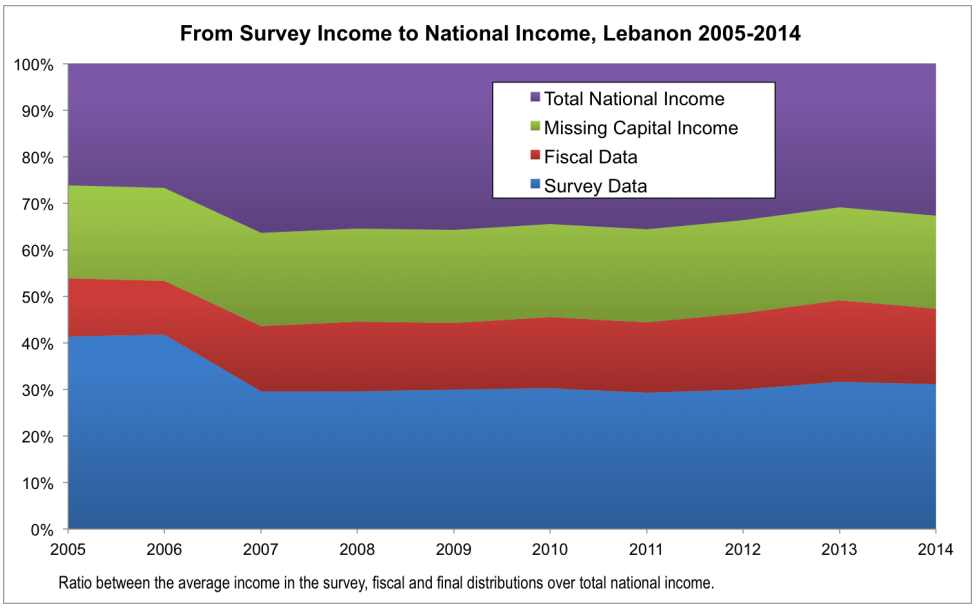
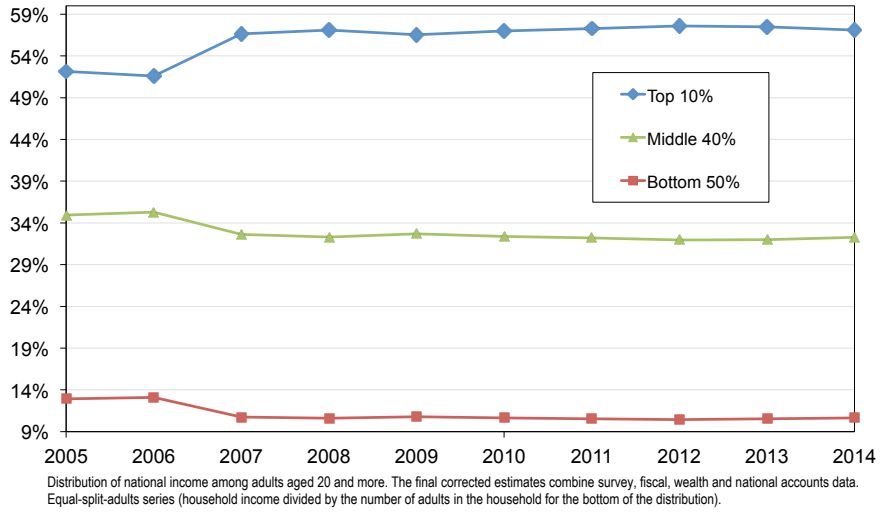
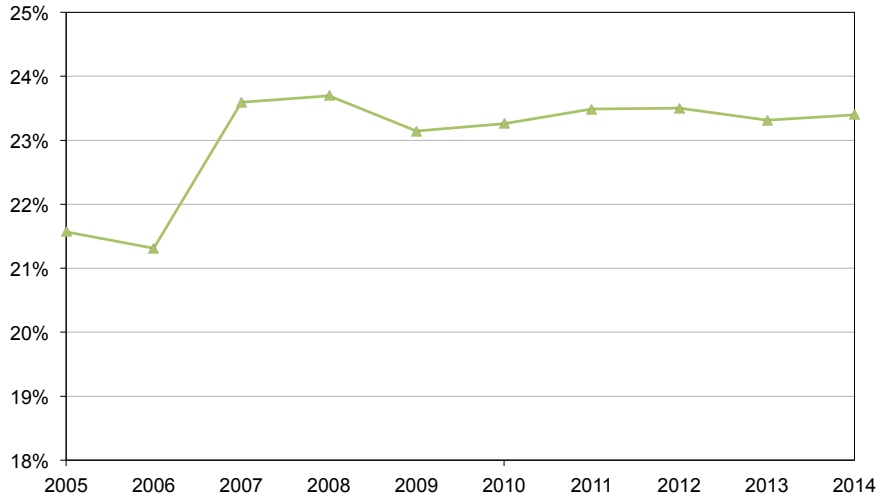


Figure 3: Income Shares in Lebanon, 2005-2014



(a) Top 10%, Middle 40% and Bottom 50% income shares



(b) Top 1% income share

Distribution of national income among adults aged 20 and more. The final corrected estimates combine survey, fiscal, wealth and national accounts data. Equal-split-adults series (household income divided by the number of adults in the household for the bottom of the distribution).

Figure 4: Income Shares in Lebanon, 2005-2014: Top 0.1% vs. Bottom 50%

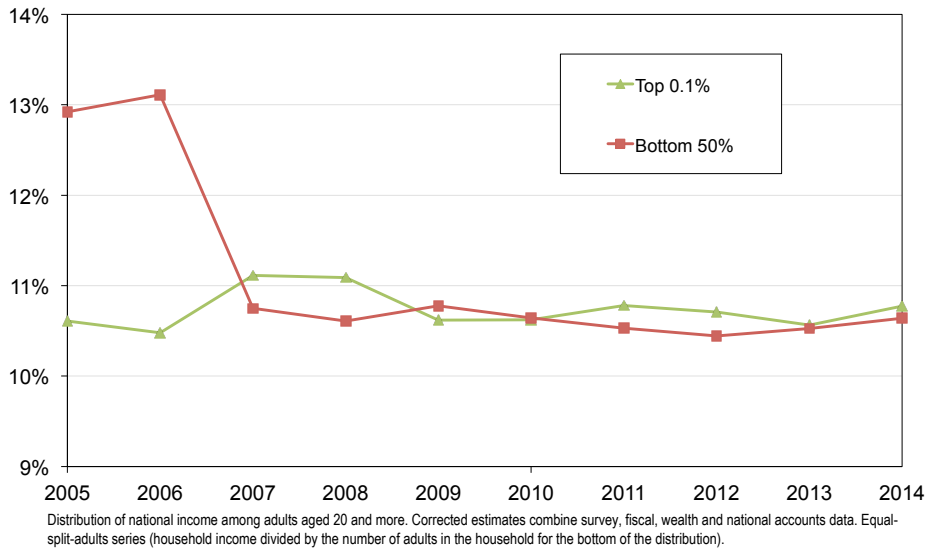
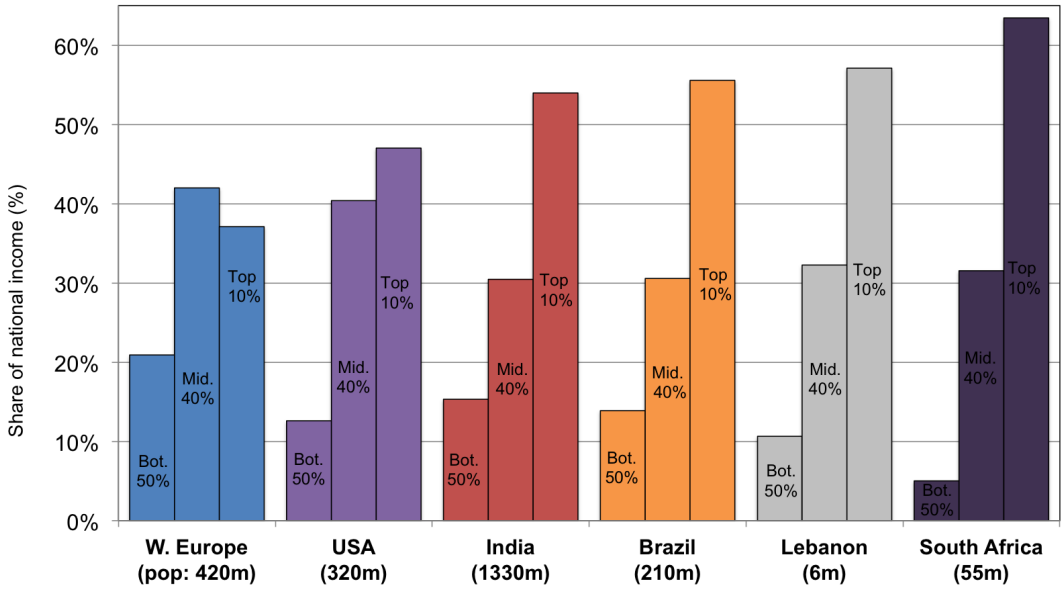
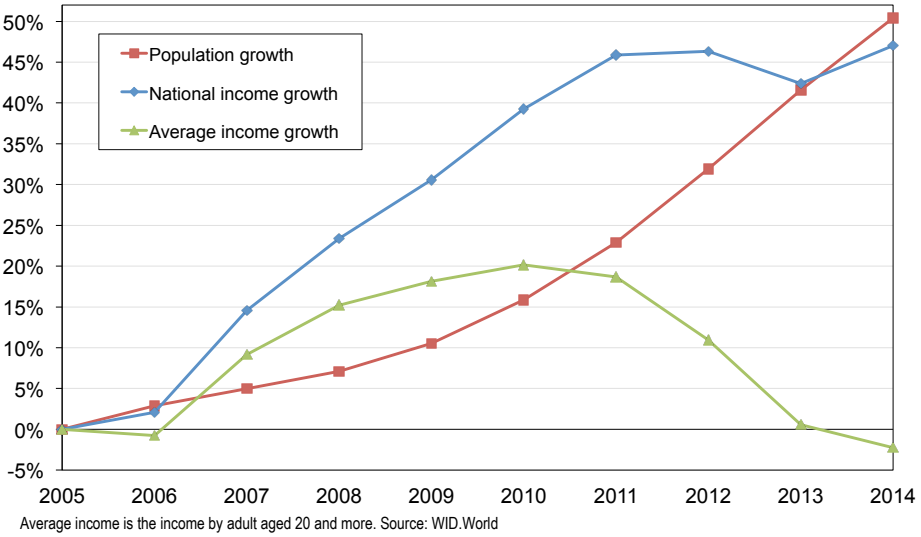


Figure 5: Income Shares in Lebanon, 2005-2014: Top 0.1% vs. Bottom 50%



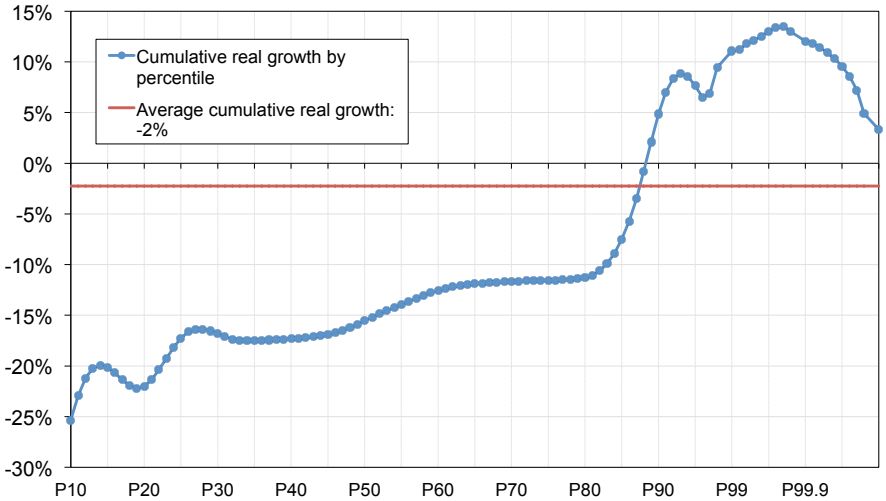
Source: World Inequality Database. For Lebanon: Distribution of national income among adults aged 20 and more. The final corrected estimates combine survey, fiscal, wealth and national accounts data. Equal-split-adults series (household income divided by the number of adults in the household for the bottom of the distribution).

Figure 6: Population vs. income cumulative growth since 2005



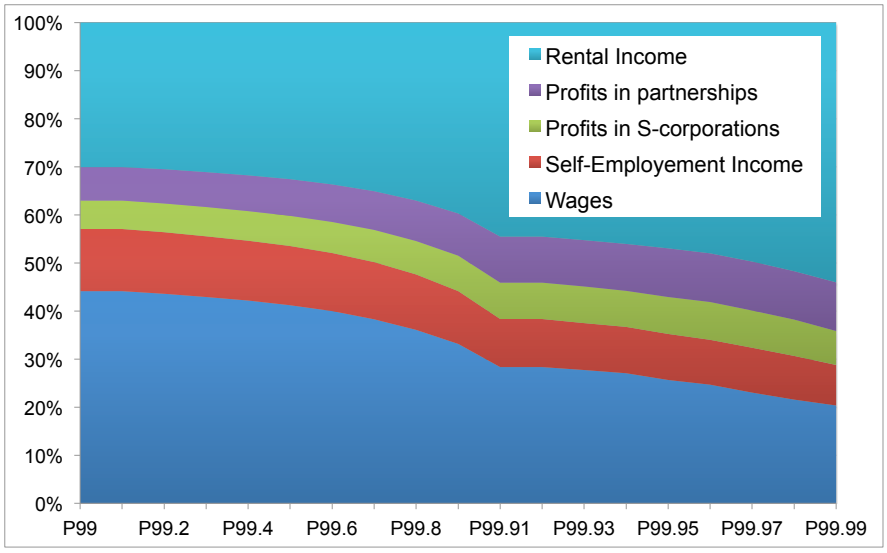
Average income is the income by adult aged 20 and more. Source: WID.World

Figure 7: Cumulative real growth by percentile, Lebanon 2005-2014

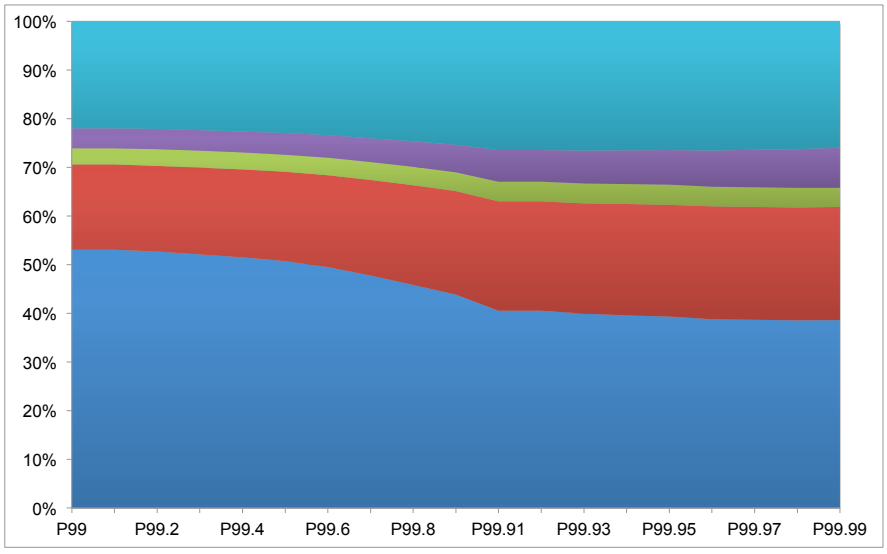


Distribution of national income among equal-split adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). The final corrected estimates combine survey, fiscal, wealth and national accounts data. Equal-split-adults series

Figure 8: Composition of top income by income categories: 2005, 2014



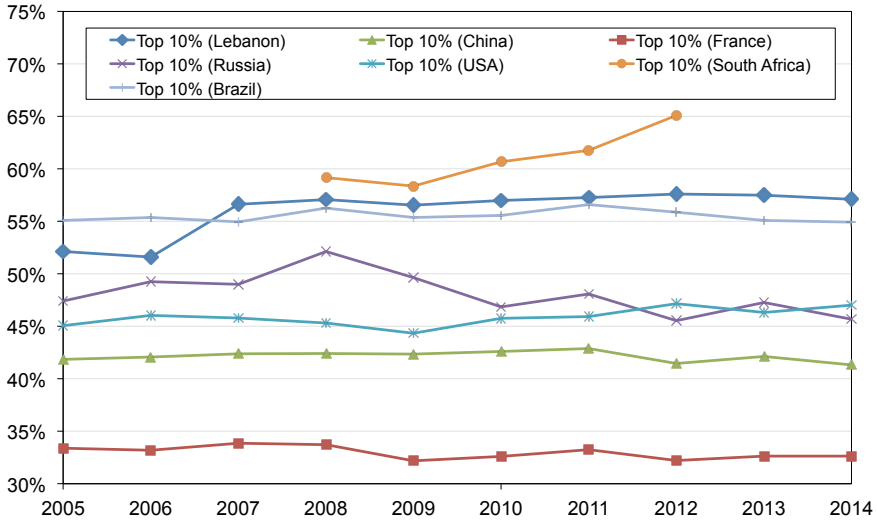
(a) 2005



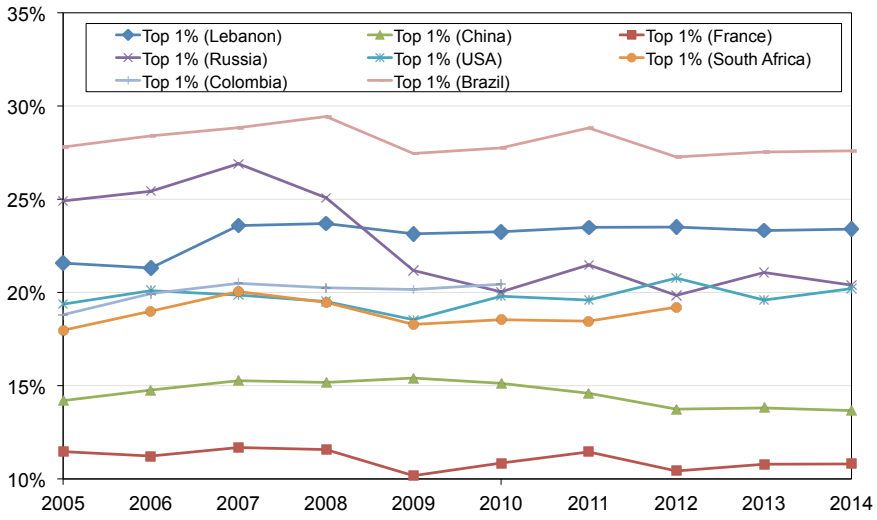
(b) 2014

Source: Author's computation using the fiscal micro files.

Figure 9: Top income shares: Lebanon vs. Selected countries, 2005-2014



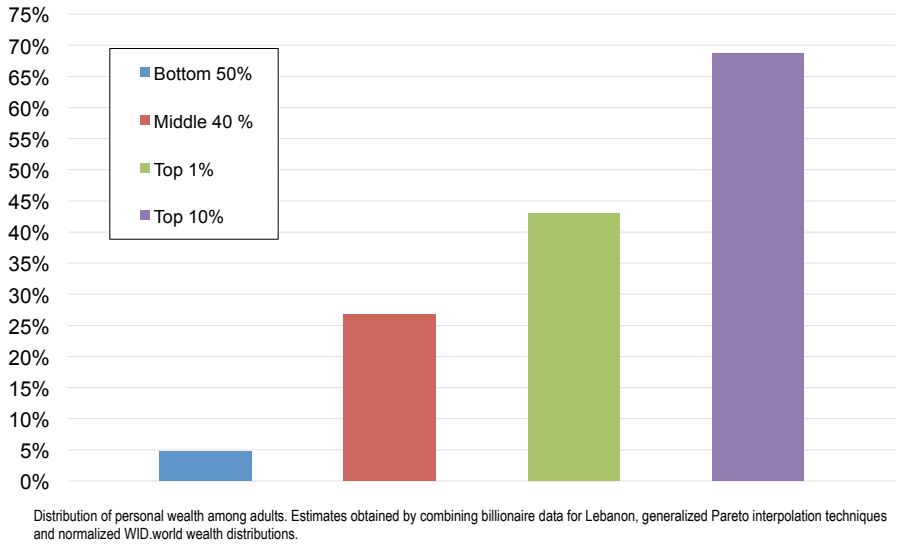
(a) Top 10% income share



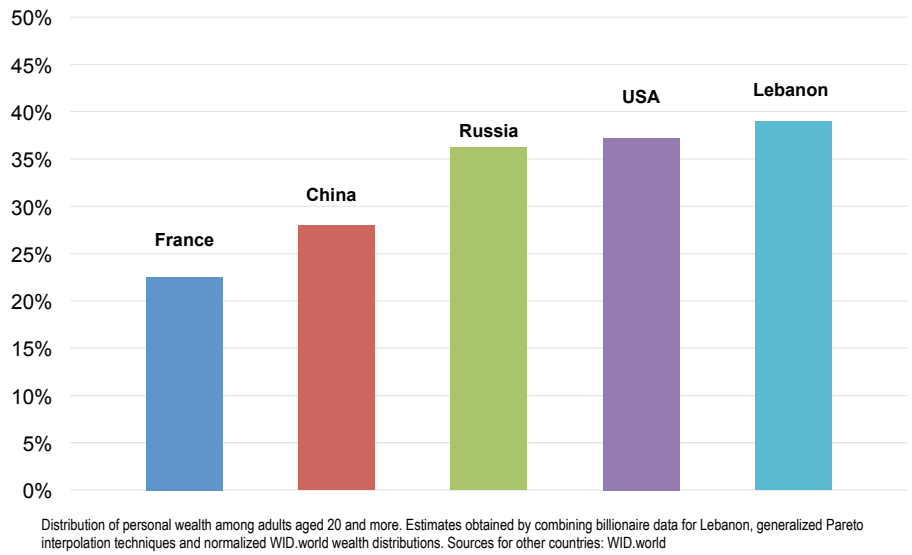
(b) Top 1% income share

Distribution of pretax national income (before taxes and transfers, except pensions and unempl. insurance) among equal-split adults (income of married couples divided by two) for all countries except South Africa. For South Africa, distribution of fiscal income. Sources for Brazil, China, Colombia, France, Russia, South Africa and USA: WID.world.

Figure 10: Wealth inequality in Lebanon and in selected countries

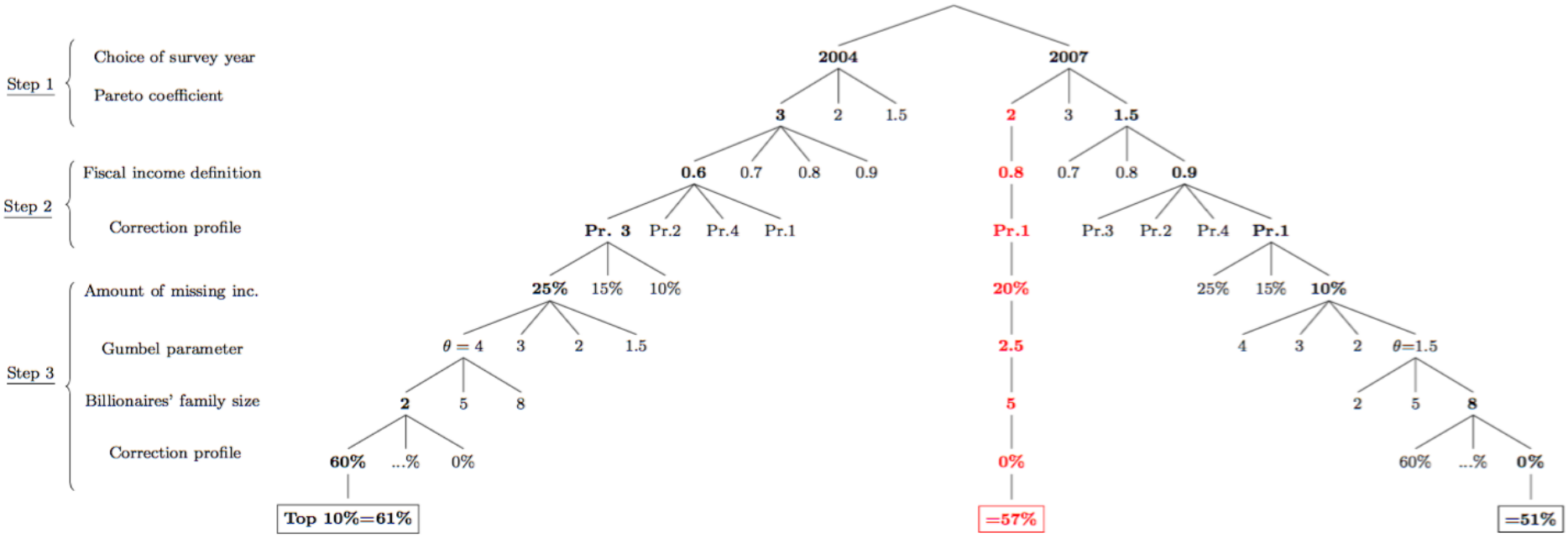


(a) Distribution of Wealth in Lebanon: average over 1990-2016



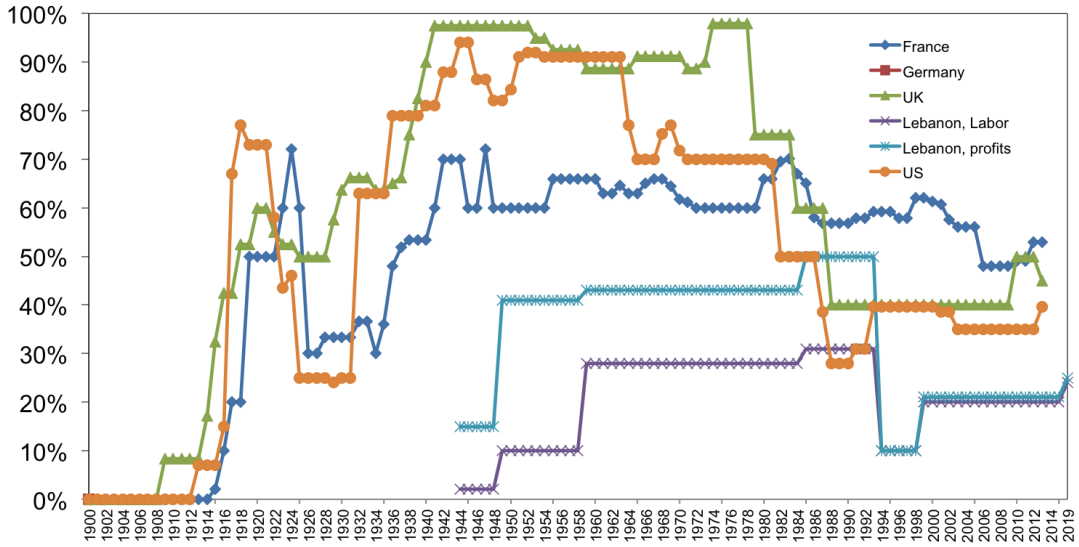
(b) Top 1% wealth share: Lebanon vs. Selected countries, Average over 2005-2014

Figure 11: Decision tree of the estimation procedure and implications for inequality, average for the 2005-2014 period



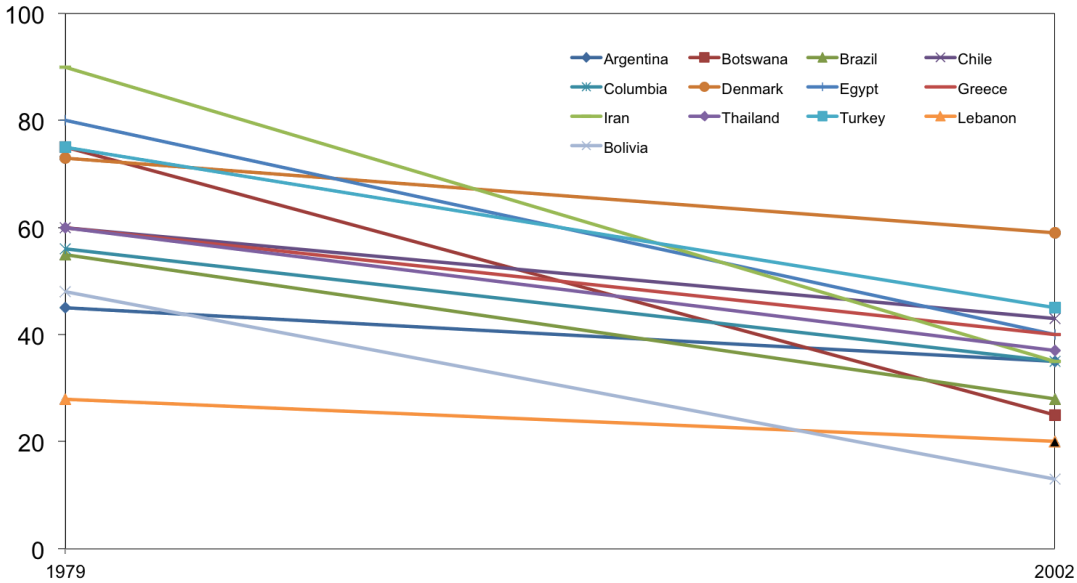
Source: Author's computations. The decision tree explicits the main hypotheses made in the estimation procedure: (1) Choice of the survey year; (2) Choice of the Pareto coefficient in the last income bracket of the survey tabulation to estimate the survey distribution with gpinter; (3) Fiscal income definition ($taxableincome = 0.8 * fiscalincome$ etc.); (4) Correction profile used to link the survey data (at the bottom) to the fiscal data (at the top of the distribution); (5) Amount of missing capital income to reallocate; (6) Gumbel parameter, that defines the correlation structure between fiscal and non-fiscal income; (7) Billionaires' family size; (8) The weight of billionaires' wealth in the distribution: 20% means 20% of the correction factor adjustment is achieved at P99.9 etc. See appendix A for details on each hypothesis. At each node, the options on the left corresponds to the most unequal hypothesis. The branch on the left corresponds to the upper bond estimate, on the right to the lower bound estimate. The assumptions in red define my benchmark specification.

Figure 12: Evolution of Top marginal tax rates in Lebanon versus Selected countries



Source: Lebanon: Dagher, 1995; Himadeh, 1953; UNDP, 2000; Daher, 2002; Corm 2012. For other countries: Piketty (2014), dowloaded in OurWorldinData
https://ourworldindata.org/grapher/top-income-tax-rates-piketty

(a) France, UK, US



Sources: Lebanon: Dagher, 1995; Himadeh, 1953; UNDP, 2000; Daher, 2002; Corm 2012. For other countries: Our World in Data, Top marginal income tax rates, selected countries (1979, 1990, 2002), available at: https://ourworldindata.org/taxation

(b) Other countries from the Global South

Sources: Lebanon: Dagher, 1995; Himadeh, 1953; UNDP, 2000; Daher, 2002; Corm 2012. For other countries in Panel A: Piketty (2014), downloaded in OurWorldinData. For countries in Panel B: "Top marginal income tax rates, selected countries" (1979, 1990, 2002), downloaded in OurWorldinData.

Table 1: Income thresholds and income shares in Lebanon, 2016

Income groups	Number of adults	Income thresholds	Average income	Income share
Full population	3,717,891	0 €	14,356 €	100.0%
Bottom 50%	1,858,946	0 €	3,055 €	10.6%
Middle 40%	1,487,156	5,977 €	11,577 €	32.3%
Top 10%	371,789	29,373 €	81,978 €	57.1%
incl. Top 1%	37,179	123,651 €	335,930 €	23.4%
incl. Top 0.1%	3,718	453,700 €	1,593,622 €	11.1%
incl. Top 0.01%	372	2,224,880 €	8,593,634 €	6.0%
incl. Top 0.001%	37	11,782,820 €	47,365,937 €	3.3%

Notes: Statistics on the distribution of income expressed in PPP €2016. Adult individual aged 20 and more; Equal-split assumption among adult members of a household. In 2016, 1 euro = 1641 LBP (market exchange rate) or 172.7 pound (PPP). Income corresponds to pre-tax national income. Fractiles are defined relative to the total number of adult individuals in the population. Corrected estimates (combining survey, fiscal, wealth and national accounts data), from 2014 adjusted for the price change between 2014-2016 (shares are not affected).

Table 2: Average incomes in Western Europe, USA, Brazil, India and South Africa: 2016 Euros (PPP)

Income groups	USA	Western Europe	Brazil	South Africa	India
Full population	**61,795€**	**34,214€**	**9,115€**	**8,439€**	**4,391€**
Bottom 50%	15,572€	14,308€	2,233€	848€	1,345€
Middle 40 %	62,387€	35,916€	7,387€	6,654€	3,343€
Top 10%	290,542€	126,938€	50,432€	53,538€	23,808€
incl. Top 1%	1,248,259€	417,501€	253,759€	154,877€	95,388€
incl. Top 0.1%	5,759,294€	1,553,248€	1,313,729€	486,861€	378,319€
incl. Top 0.01%	26,899,363€	6,143,396€	6,817,909€	1,457,794€	1,684,895€
incl. Top 0.001%	117,410,496€	24,494,358€	35,399,859€	4,286,839€	17,278,335€

Notes: Statistics on the distribution of income expressed in PPP €2016. Adult individual aged 20 and more; income of married couples is split into two. Income corresponds to pre-tax national income. Fractiles are defined relative to the total number of adult individuals in the population. Corrected estimates (combining survey, fiscal, wealth and national accounts data).
Source: Assouad et al. (2018)

Online Appendix

Rethinking the Lebanese Economic Miracle:
The Extreme Concentration of Income and Wealth in Lebanon, 2005-2014

A Data sources and Methodology

This section provides details on the data, method and assumptions made at each step of the estimation procedure, as already summarized in Section 2 of the main paper. An online appendix that includes all raw data sources and computer codes is available at https://wid.world/country/lebanon/.

A.1 Step 1: Household Survey Series

The first step consists in generating a first "raw" income distributions using survey data. There are three nationally representative surveys in Lebanon, in 1997, 2004 and 2007. As discussed in the paper, I could not access data for the 1997 survey, either in the form of tabulations by range of income, or in the form of micro data. For the 2004 and 2007 surveys, micro-data are also inaccessible. The Lebanese Central Administration of Statistics however publishes survey reports including tabulations for the 2004 and 2007 survey. The raw tabulations are available in the directory "/HouseholdSurveyData/" in the data files online.

I use two tables from the 2007 survey reports, giving the number of households in 13 income groups "before" and "after the Israeli 2006 war" (2005 and 2007). The DINA guidelines recommends to use the same unit of observation across country: the "adult" individual (aged 20 and more). To express income in terms of adults, I assume income is equally split between adult household members, that is I divide household income by the number of adults in each household. As no additional information is available, I apply households have the same size across income group, and I take the average adults/children ratio in the country: if high earners have fewer children than average, inequality is slightly underestimated. I then apply the generalized Pareto interpolation techniques developed by Blanchet, Fournier and Piketty (2017) to both tables, to estimate the full distribution

of income expressed in generalized percentiles (or g-percentiles) between for 2005 and 2007.

The generalized Pareto interpolation technique can be applied to tabulations providing three pieces of information: income thresholds, household frequencies and the average income per group. Unfortunately, the latter was not available in the Lebanese tabulations. To perform the estimation, I need to make an assumption on the form of the tail of the distribution at the top. In the benchmark estimates, I assume that the last group (approximately the top 0.5 percent in both tables) is characterized by an inverted Pareto coefficient of 2 . This assumption has no impact on the final series (this is why I do not display them). Most importantly, given that the top will be corrected with the fiscal data, this assumption has little effect. I nevertheless highlighted this step in the decision tree (Figure 11).

Finally, I simply upgrade the 2007 distribution by the ratio of per adult national income of a given year between 2008 and 2014 (divide by the average per adult national income and multiply by the average per adult national income in a given year), and get the 2005-2014 survey series. I use the 2005 distribution for the years 2005 and 2006, in a similar way. By definition, inequality is constant between 2005 and 2006 and between 2007-2014. Figure A1 shows the effect of using only the 2007 survey versus the 2004 and 2007 survey.

A.2 Step 2: Fiscal Series

To estimate the fiscal series, I need to make two additional assumptions: the first concerns the definition of income; the second concerns the choice of correction profile to link the fiscal data to the survey distribtion.

A.2.1 Definition of income

As explained in the DINA guidelines, it is critical to be precise about the income concepts when combining survey, fiscal data and national accounts. Unfortunately, the survey data do not enable me to precisely define income. As for the fiscal data, they only provide information on the "taxable income" (i.e. income subject to income tax, after a number of deductions allowed by the tax legislation). The deductions are very extensive in the Lebanese case (see Section B.2 below). In particular, there are large lump-sum

deductions for professional expenses of self-employment income. Additionally, taxable income, from which benefits and allowances are deduced, is significantly smaller than the fiscal income, defined as the sum of all income items legally subject to taxation, before any deduction (Alvaredo et al. (2016). I therefore assume for my benchmark estimates that the ratio between taxable income and fiscal income is equal to r=80 percent. I also estimate as robustness checks a number of variant using other ratios (r=70 and r=90 percent). Figure A2 shows the impact of the choice of the income definition on the final series. This assumption has a relatively sizable effect on the final series, mainly due to the small share of survey income in total national income. This is why I take a relatively conservative hypothesis (80 percent) given the deductions allowed in the Lebanese tax law.

A.2.2 Correction profiles

To correct the top of the survey distribution with fiscal data, I first need to make an assumption on the "ratio" of the national income distribution each source can reliably cover. Then, I need to make an assumption on how to link both sources. My benchmark correction is based upon the following assumption: the survey data is reliable below percentile p1 = 0.8, the fiscal data is reliable above p2 = 0.99 and I assume that the quantile ratio upgrade factor f(p) rises piecewise-linearly from f(p1) = 1 to the observed fiscal/survey ratio f(p2) between p1 and p2, with a small and rising slope between p1 = 0.8 and p=0.9 and a constant linear slope between p=0.9 and p2 = 0.99. I also consider other profiles: one where I assume the survey data to be reliable below percentile p1 = 0.9, the fiscal data to be reliable above p2 = 0.99, and a linear profile of f(p) between p1 and p2 (profile 2). In other profiles, I assume a concave (declining slope) and a convex (increasing slope) of f(p) between p1 and p2 (profile 3 and 4). As shown in Figure A3, the variants have also a non-negligible impact on the results, especially for the top 1 percent.[36] In any case, two remarks should be made: (1) the fiscal correction is the largest in magnitude and leads to a large upward correction of the survey-based distributions (see Figure A4 for

[36]For the detailed definition of the four profiles and the corresponding factors, see the excel file "CompCorrectionCoeffLeb.xlsx", sheet "CompUpFactorLeb", in the online appendix. Unsurprisingly, the more the rising part of the f(p) profile is pushed toward p2, the smaller the total upgrade to the top 10 percent share; and the more the rising part of f(p) is pushed toward p1, the larger the total upgrade to the top 10 percent share. As long as there is no income tax data covering the entire top 10 percent, there is no way to be sure about this.

the decomposition of the effect of each correction) (2) the variants on the fiscal correction can have a strong effect.[37]

A.3 Missing Capital income

Finally, I proceed to the last correction, which attempts to account for non-reported and tax-exempt capital income. There are two steps.

A.3.1 Estimating the amount of missing capital income

The first step consists in estimating the amount of missing capital income. Here again, important differences with Piketty, Yang and Zucman (2017) and Novokmet, Piketty and Zucman (2017), which use a similar methodology for China and Russia, should be noted. First, the amount of capital income absent from the Lebanese fiscal data are significantly higher. My correction needs to account for both tax-exempt and movable capital income, which are taxed but not reported in my datasource. Hence the denomination "missing" capital income as opposed to solely "non-fiscal". Second, national accounts are not disaggregated enough to estimate the missing amounts and do not display detailed enough subcomponents of national income. Only the generation and allocation of primary income accounts of the national economy (S1) are displayed, without details for the different sectors . The only sub-sectors present are the general government (S13) and Banks (S122). The amounts recorded are themselves not disaggregated enough to identify each income source. This is why I complement them with government reports on tax revenues and recover proxies for the amounts of income missing, by dividing the amount of taxes collected by the corresponding tax rates applied in the law. The idea is to recover the amounts of capital income generated in the economy by dividing the amount of taxes collected by the tax rates defined in the fiscal law. More precisely, I derive from the government reports: (1) the amount of capital gains and dividends accruing to the households, and taxed at flat tax rate of 10 percent under the third title of the personal income tax law (2) the amount of interest income received in the private sector in the total economy and hit by a rate of 5 percent (3) the imputed rents from housing taxed at 4 percent (4) undistributed profits of privately owned corporations. I find that they respectively represent 3, 8, 3 and

[37] Recent research by Yonzan et al. (2020) suggests that the appropriate cutoff might be 0.90,using data from the US, France and Germany. This corresponds to my profile 2. Given the impact of this hypothesis on the final estimates, I chose a more conservative hypothesis.

8 percent of national income on average over the period.[38] While I find that the missing income should represent approximately 22 percent of national income. If we recall Figure 2, this means that there remains uncertainty for 8 percent of total national income that are re-allocated proportionally. Table A1 sums up incomes the total amounts of income that can be inferred from the fiscal data, the national accounts or the finance reports. It also displays the amounts left (that encompass tax evasion, deductions and exemptions and other non-fiscal income and finally income from the informal sector, in part captured by the survey data). Figure A5 shows how the amount of missing capital income impacts the final estimates.

A.3.2 Estimating the joint distributions of fiscal and non-fiscal income

Next, in order to estimate the final distribution of total personal income (y_p), I need to make an assumption about the distribution of missing capital income (y_m) and about the structure of correlation between the fiscal income distribution (y_f) and the missing income distribution (y_m). Regarding the distribution of (y_m), I assume it follows the same distribution as the distribution of wealth which is standard in the literature.[39] Finally, I apply a proportional upgrade factor to transform the distribution of personal income $(y_p) = (y_f) + (y_m)$ into the distribution of national income y. By construction this has no impact on income shares (the objective is to make income levels comparable across countries and over time). Regarding the correlation structure between (y_f) and (y_m), I use the family of Gumbel copulas, characterized by the following functional form:

$$F(u,v) = exp[-((-logu)^{\theta} + (-logv)^{\theta})^{\frac{1}{\theta}}] \tag{1}$$

where $0 \leq u, v \leq 1$ are the ranks in the two distributions and $F(u,v)$ is the two-dimensional cumulative distribution, that is the fraction of the population with ranks below u in the first dimension and below v in the second dimension. If $\theta = 1$ then

[38] Raw data from the reports and all computations can be found in the file "EstimatingMissingCapitalIncome.xlsx", in the directory GpinterIncome. In particular, as the total taxes on profits (taxed under the PIT and the corporate tax) are put together, I subtract from the aggregate tax revenues from profits the total amount reported in the fiscal data and divide by the corporate tax rate (of 15 percent) the remaining amount to get the total amount of profits subject to the corporate tax. Likewise, the taxes on property and on rental income are reported together, so I also remove first the total amount of taxes collected from build property revenues from my fiscal data and then apply the tax rate (of 4 percent) to the remaining amount.

[39] Capital income and incomes which evade taxes, tend to more unequally distributed than labor income. See Section A.3.3 for the estimation of the wealth distribution

$F(u, v) = uv$, i.e. the two distributions are entirely independent. Conversely if $\theta = +\infty$ then both dimensions are perfectly correlated. On the basis of observed two-dimensional distributions in countries with high-quality fiscal data (such as the United States or France), it appears that the Gumbel parameters are typically in the 2.5-3.5 range. I use $\theta = 2$ for my benchmark estimates as a conservative assumption. The choice of the parameter has a relatively small impact on the final series (see Figure A6 for sensitivity checks).

A.3.3 Wealth Series

As explained in the main paper, the methodology used to obtain the Lebanese wealth distribution is similar to the one used by Novokmet, Piketty and Zucman (2017) for Russia. The data sources available to estimate wealth inequality in Lebanon are very limited and at this stage I only have billionaire data. I proceed as follows. First, I compute average standardized distributions of wealth for the US, France and China from WID.world series (that is, I divide all thresholds and bracket averages for all 127 generalized percentiles by average wealth, and I compute the arithmetic average for the three countries). Variations across countries and over time in these standardized wealth distributions mostly happen above $p_0 = 0.99$. Below p_0, the ratios of the different percentile thresholds to average wealth are relatively stable. Therefore I choose to use this average US-France-China normalized distribution for Lebanon below p_0. Second, I need to determine the Lebanese total personal wealth per adult, so as to adapt this average US-France-China normalized distribution to Lebanon. Contrarily to the Russian case, there is for the moment no estimate of the total stock of personal wealth in Lebanon. I therefore take the average wealth/income ratios available in WID.world (which equals to 300 percent of national income), and apply it to the Lebanese national income. I hereby assume that (1) wealth is as concentrated in Lebanon as what is currently observable in other countries with adequate data and (2) that if, on average, countries own a stock of capital equals to 300 % of their national income, Lebanon owns as least as much. Finally, I use information on Lebanese billionaires to adjust the top of the distribution and to take into account the extremely high share of billionaires' wealth, compared to the total national income. The difficult question is to know how to link the distribution from p_0 to the billionaire level, and also to make an assumption about the average number n of adults per billionaire

family (sometime Forbes includes very large family groups in the same billionaire family, sometime it is just one individual or one married couple). I first re-estimate 127 generalized percentile within the top 1 percent of the normalized distribution in order to reach billionaire level. In the benchmark series I assume n=5 and a linear correction factor f(p) from p0=0.99 up to billionaire level (because this seems to work relatively well for the US, France and China). Figure A7 shows variant series based upon alternative assumptions for billionaires' family size: n=2,4,6,8 instead of n=5. The assumptions lead to relatively large differences in the wealth distribution (up to 2 percentage points). In any case, even the most conservative series lead to high wealth shares.

B Lebanese Income Tax

B.1 Presentation of the Personal Income Tax Law

The Lebanese Income Tax was created in 1944 (Law 12/4/1944) and amended in 1959 (Decree-Law 144, 6/12/1959). The text of 1959 is still the basis of the current fiscal system. The 1959 income tax is a schedular, progressive and individual tax which taxes the different sources of income separately. It is divided into three main categories: a tax on profits from industrial, commercial and non-commercial activities levied according to a real or lump sum scheme (Title I), a tax on wages and salaries (Title II) and a tax on built property revenues (Title III). Next to the PIT, incomes from movable capital including interests and dividends are taxed according to a flat rate. This section draws extensively from Daher (2002).

1. **Title I: tax on profits from industrial, commercial and non-commercial activities**: This concerns only the business income made by a sole proprietor (professional, individual company, individuals in Small corportation. These profits are taxed at progressive rates between 4 percent and 21 percent. Business incomes made by a limited partnership (joint stock companies and limited liability companies are either put in reserve and serve for the company self-financing (in this case, they are not taxed) or they are distributed as interests or dividends to the partners (in this case they are not taxed under the PIT, but subject to a flat tax rates for revenues from moveable capital).

2. **Title II: Salaries and wages and pension salaries**: this tax concerns all types of labor income: wages and salaries, including bonuses, commissions, compensation, allowances, grants, benefits in cash and kind, overtime hours, pensions and annuities (Article 46 of D.L. no. 144/1959), after deductions of the allowances and charges. The tax is levied at source and declared annually by the employers, at progressive rates between 2 percent and 20 percent (personal income, reported in the database).

3. **Title III: Built property revenues**: It is charged on the flow of income generated by the ownership of a built property, according to a progressive tax scale (4-14 percent), on built property (personal income, reported in the database). There exist also a tax on built property, which is charged on the stock (4 percent of the value of the real-estate, non reported in the database).

B.2 Income definition and deductions

In this section, I present in further detail the variables reported in the fiscal database, by referring to the Lebanese Income tax Law and the 2010 tax forms.[40] As explained in the main paper, three variables are reported for labor income, and business income:

1. **Salaries and wages**

   - **The labor gross income**, which comprises the main salary/daily wages, representation remuneration, bonuses, commissions and overtime, family compensation for the spouse, family compensation for the children, allowances given to bear the expenses of the activity (transportation compensation, car allowance, residence allowance, food allowance, clothing allowance), fund compensations, health insurances of all types, educational grants, marriage grants, birth grants, assistance in case of illness, assistance in case of death, other grants and benefits.

   - **The labor income subject to tax**, obtained after deducing from the gross labor income the compulsory social contributions, the allowances covering expenses linked with the professional activity and all the grants and benefits.[41]

[40] See Figure A8 for the general tax form.

[41] Article 50, Law 144 (06/12/1959) modified by Laws 27 (07/19/1980), 7 (08/10/1985) and 89 (09/07/1991). See Tax form R6, Figure A9.

- **Total amount of tax paid**

2. **Self-employment income**

   - **Total turnover** made in a given year
   - **The corresponding profit subject to tax**, equal to the turnover multiplied by a given rate in order to take into account charges and expenses endured during the activity.[42] Self-employment incomes are taxed according to a lump-sum scheme. The rate applied varies between 3 percent and 65 percent depending on the activity.[43] In the database, the effective coefficient applied is on average 30 percent for all years.

3. **Other business incomes**. For partners in partnerships and individuals in S-corporations:

   - **The actual total revenue**, defined as the turnover plus the overall financial and non-financial investment revenues.[44]
   - **The corresponding profit subject to tax**, which is equal to actual total revenue minus the expenses and costs incurred during the activity[45], minus the exonerated incomes (grants and donations). The non-deducible revenues are capital interests, investments and expenses made to earn capital gains, taxes paid to a foreign government, losses incurred by branches settled abroad, representation remuneration distributed to employees and exceeding 10 percent of there wages

4. **Built property revenues**, excluding persons living in their own dwelling: the taxable income after deduction and amount of tax paid are available.

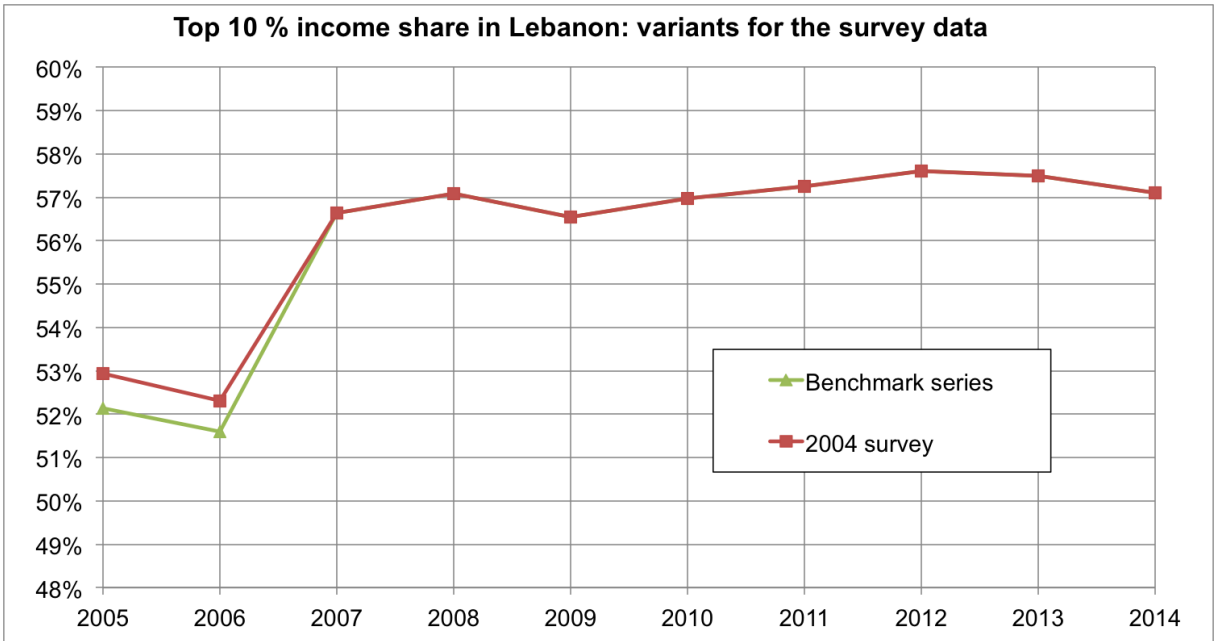
[42] The charges are "Sales of merchandise, consumption material, wages, salaries and other benefits, employees and wage-earners insurance, social security subscriptions, commissions paid to third parties, car and transportation expenses, banking commissions, interests and expenses, legal expenses, consultancies and similar expenses, maintenance and repair expenses, rent or investment, other office expenses, taxes, fees, and permits, accommodation, traveling expenses, promotion and advertisement, institution/profession activity insurance expenses, amortization" (see tax form F3, Figure A10).

[43] Decree 4169/1 (8/16/1993) modified by the Decree 5/1 (11/1/2000).

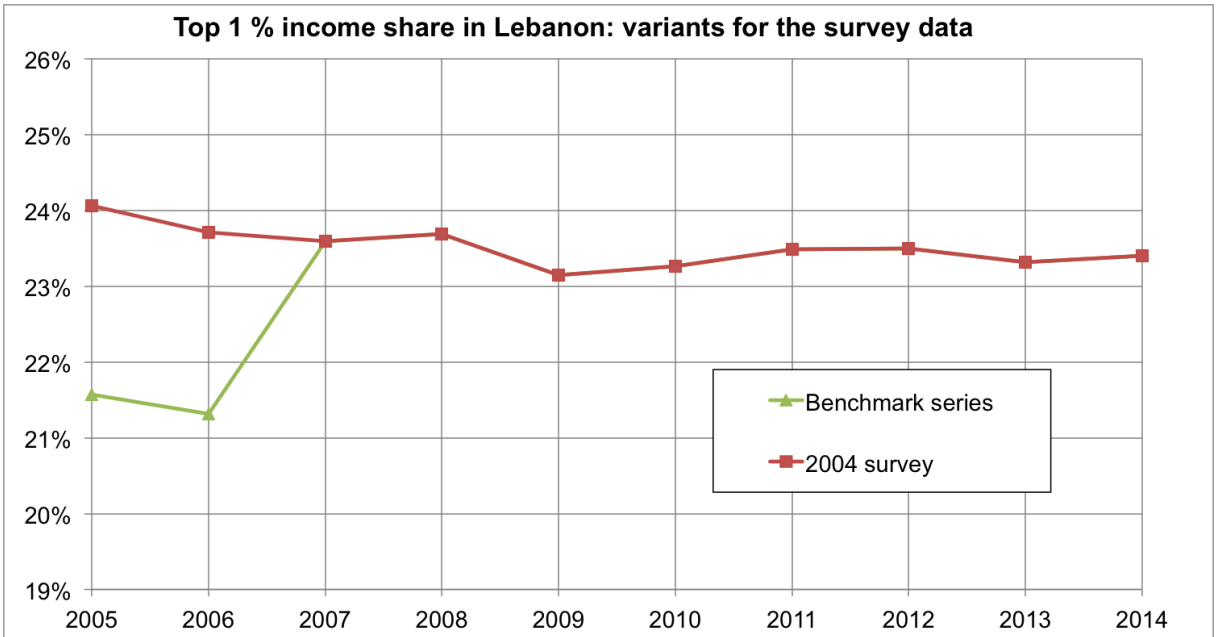
[44] Common operations dividends, placement and participation bonds revenues, net profit from placement bonds wavering, revenues from other movables, similar interests and revenues, positive exchange rate differences, recoveries from financial provisions (tax forms F16-1 and F16-2, Figures A11 and A12).

[45] The costs comprise: "the overall cost (sold merchandise, sold production, work and services provision cost), external services (royalties, rents etc.), employees charges (including social security contributions), tax fees and charges, the depreciation and investment provision allocations, interests on loans for the company's needs".

Figure A1: Variants for the Step 1: Effect of the Survey Source

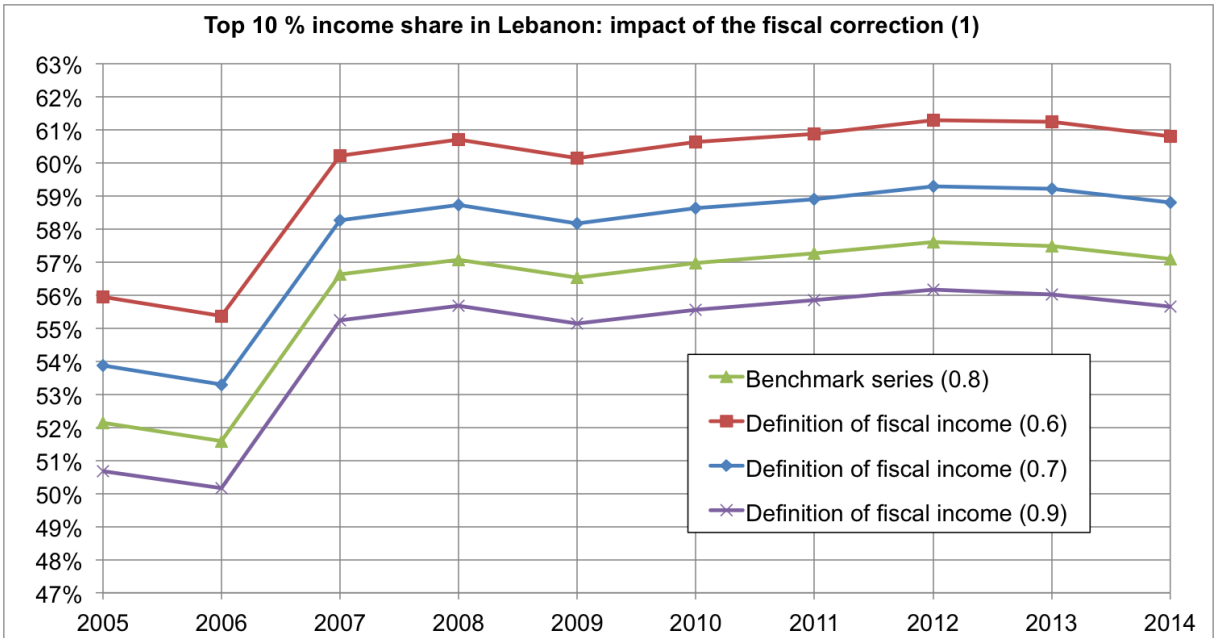


Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variants is on the survey used in the first step of the estimation procedure (the 2004 or the 2007 survey) for the years 2005-2007 in the benchmark estimate.

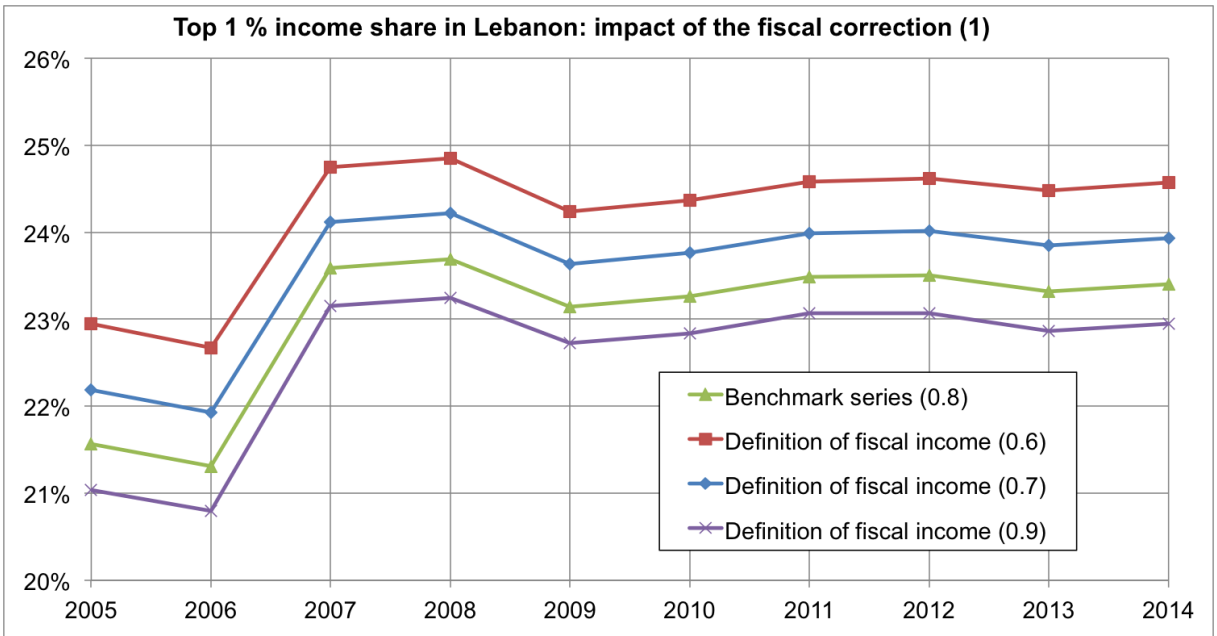


Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variants is on the survey used in the first step of the estimation procedure (the 2004 or the 2007 survey) for the years 2005-2007 in the benchmark estimate.

Figure A2: Variants for the Step 2: Effect of the Fiscal Income Definition

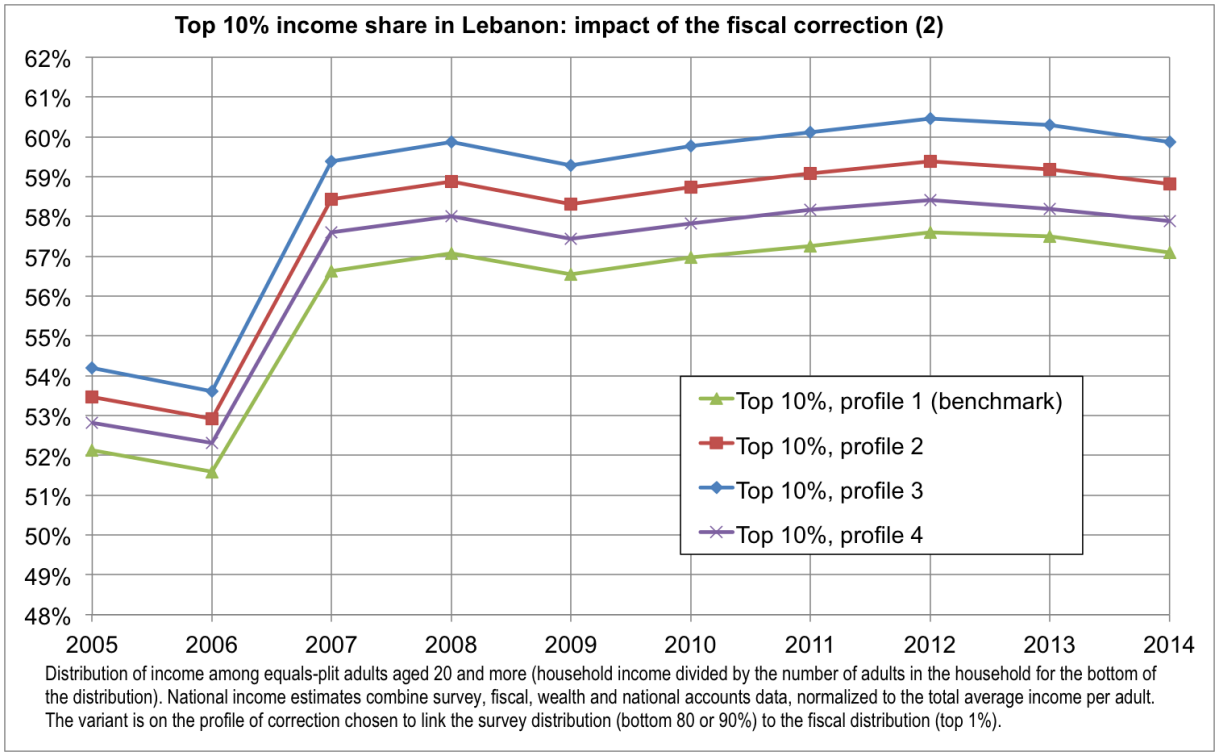


Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the definition of fiscal income chosen (whether taxable income equals 60, 70, 80 or 90 % of fiscal income- 80% is the benchmark assumption).

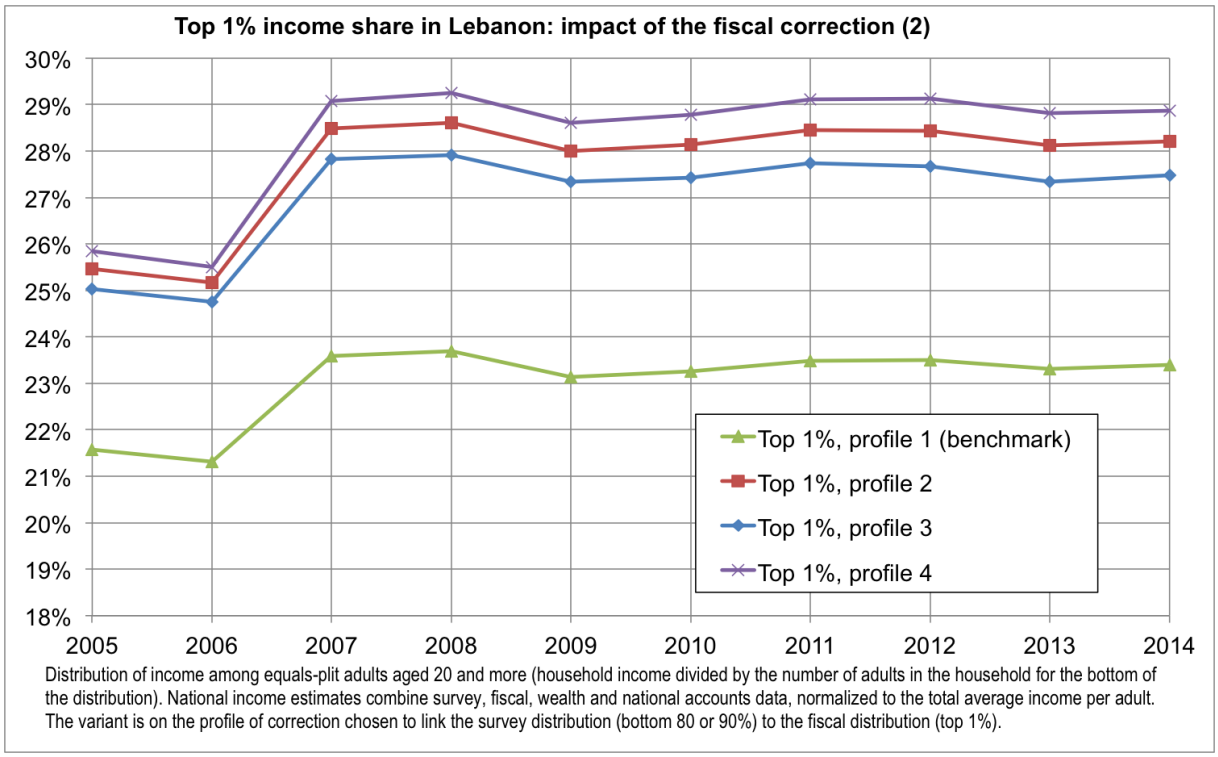


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the definition of fiscal income chosen (whether taxable income equals 60, 70, 80 or 90 % of fiscal income- 80% is the benchmark assumption).

Figure A3: Variants for the Step 2: Effect of the Correction Profile

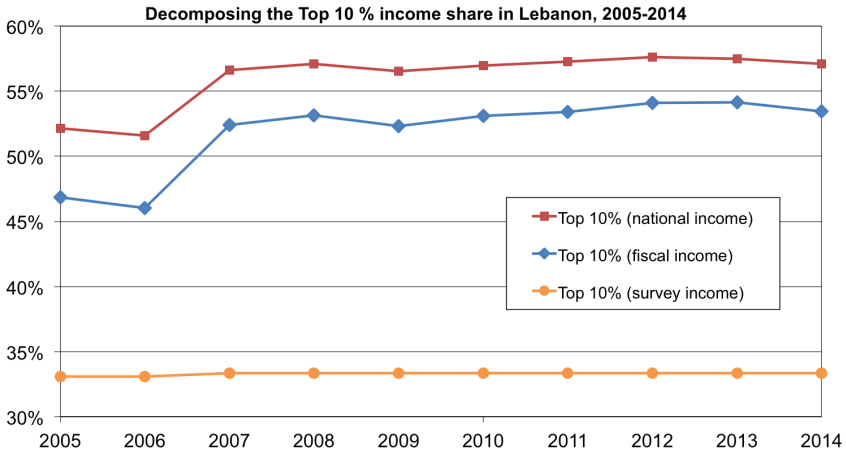


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the profile of correction chosen to link the survey distribution (bottom 80 or 90%) to the fiscal distribution (top 1%).

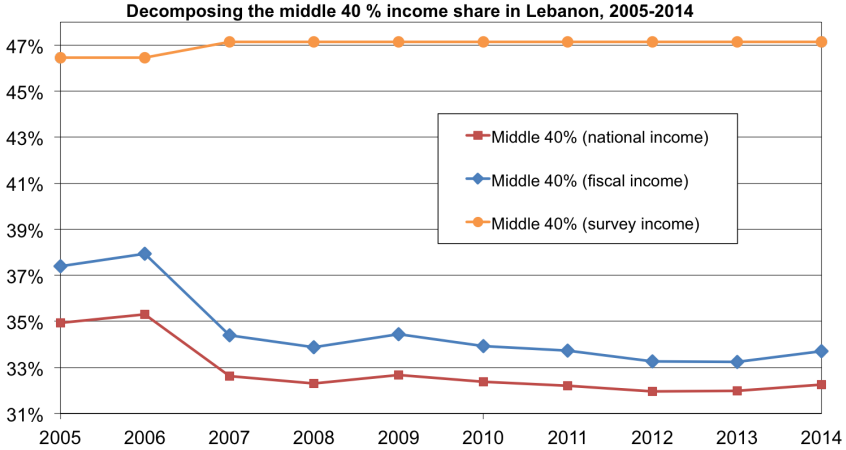


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the profile of correction chosen to link the survey distribution (bottom 80 or 90%) to the fiscal distribution (top 1%).

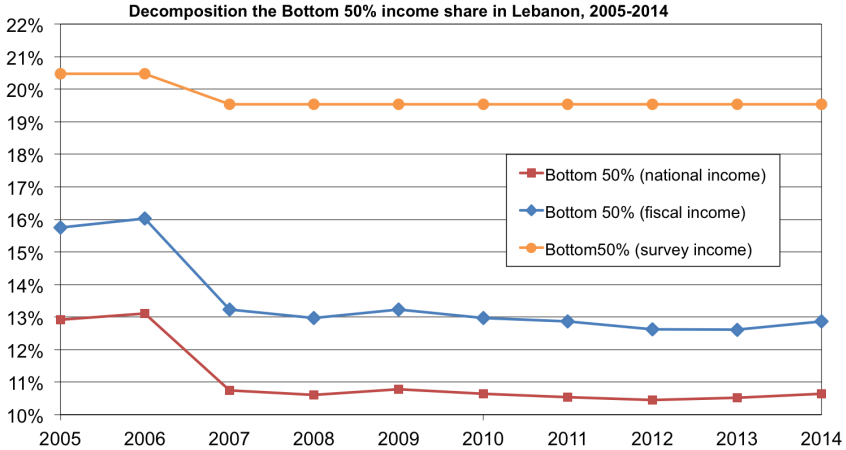
Figure A4: Impact of each correction on the Lebanese income share, 2005-2014



Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. Fiscal income estimates combine survey and income tax data (but do not use wealth data to allocate tax-exempt capital income). Survey income series solely use self-reported survey data.

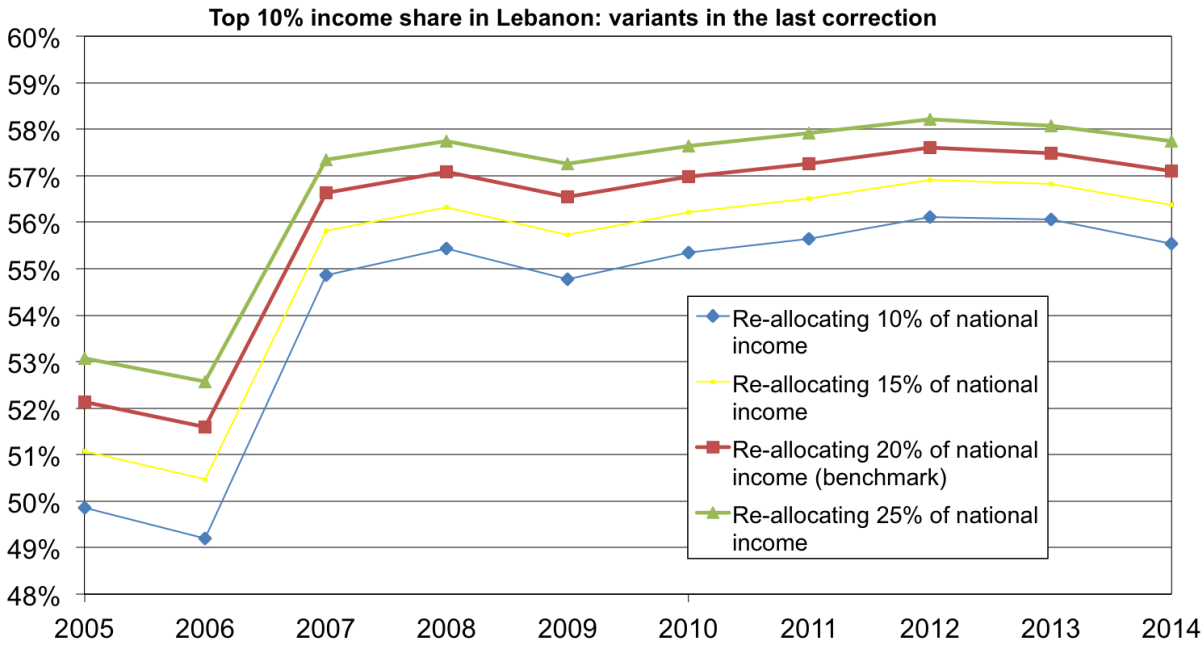


Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. Fiscal income estimates combine survey and income tax data (but do not use wealth data to allocate tax-exempt capital income). Survey income series solely use self-reported survey data.

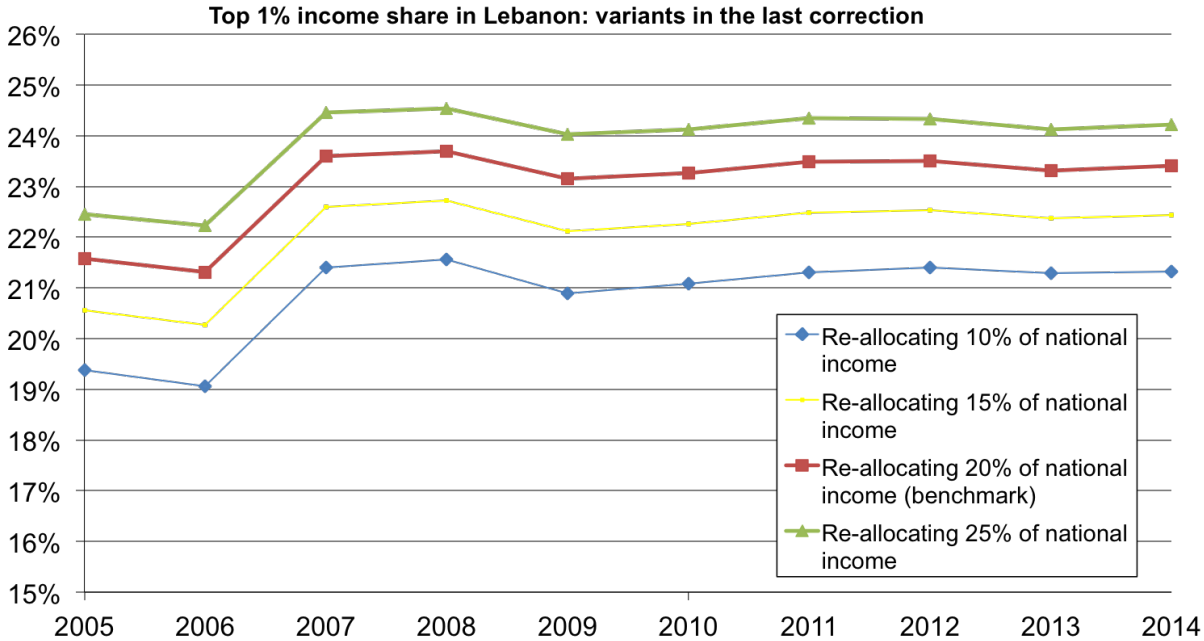


Distribution of income among equals-plit adults, aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. Fiscal income estimates combine survey and income tax data (but do not use wealth data to allocate tax-exempt capital income). Survey income series solely use self-reported survey data.

Figure A5: Variants for the Step 3: Effect of the size of the missing amount of re-allocate

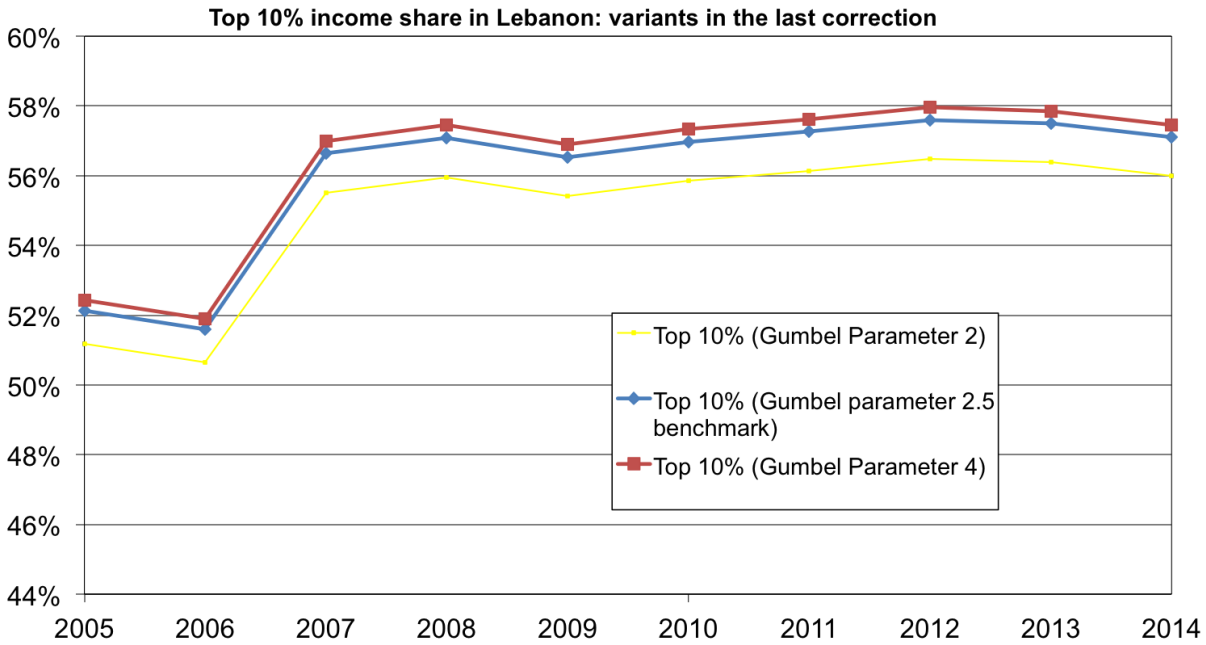


Distribution of income among equals-plit adults (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on amount of missing capital income re-allocated in the last correction.

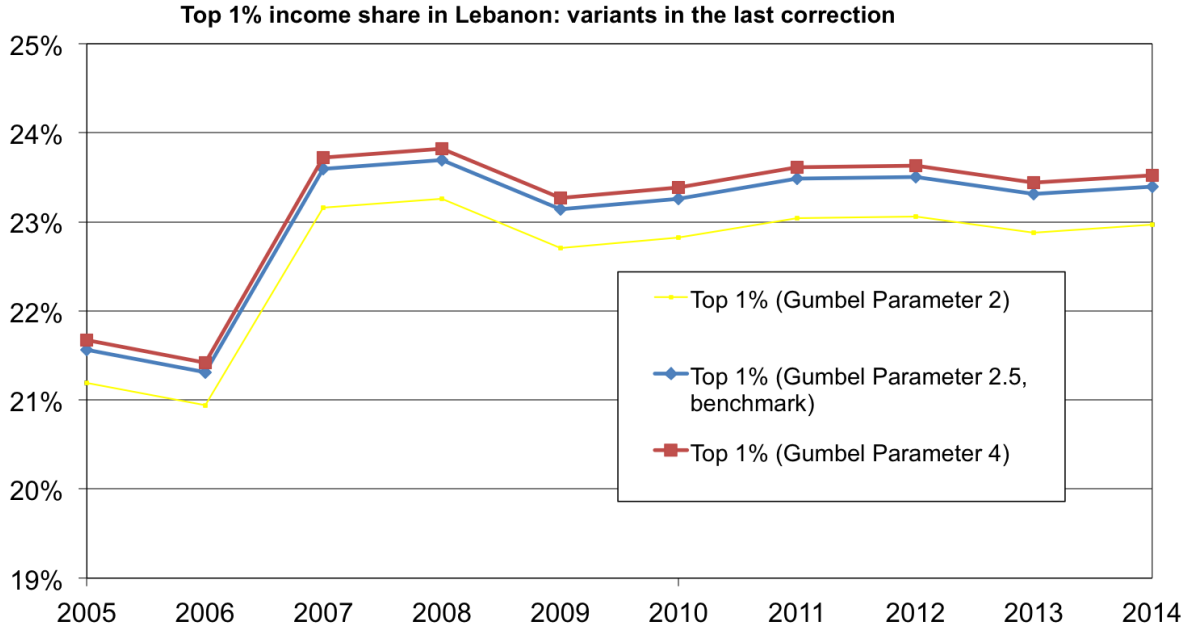


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on amount of missing capital income re-allocated in the last correction.

Figure A6: Variants for the Step 3: Effect of the size of the missing amount of re-allocate

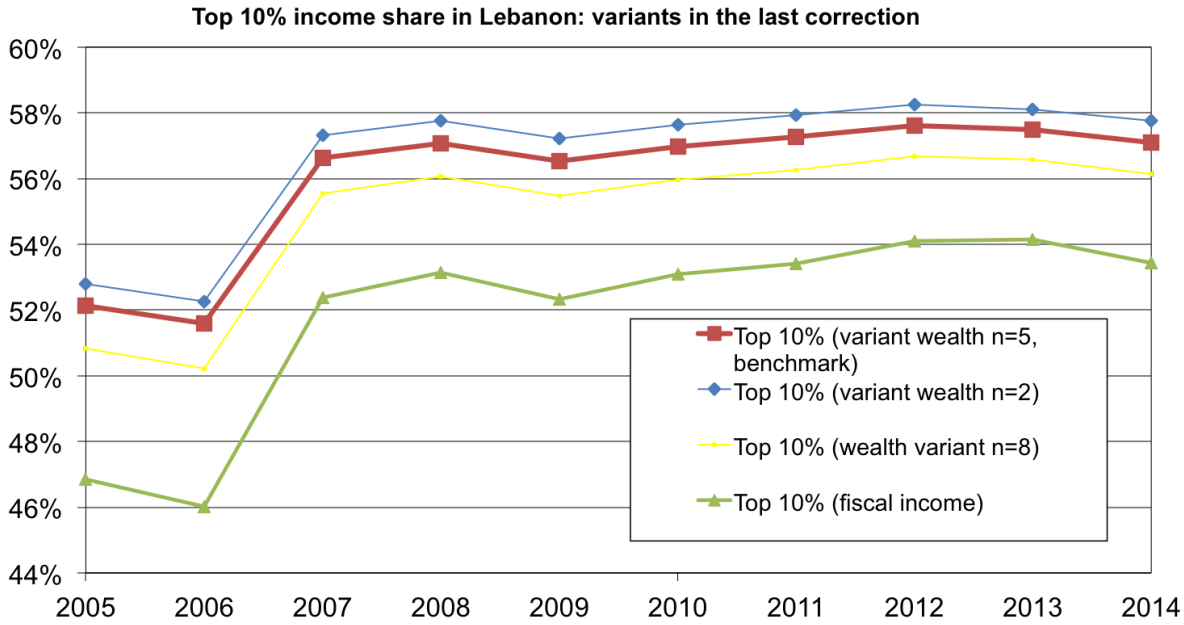


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the Gumble Parameter that determines the joint distribution of fiscal and missing capital income.

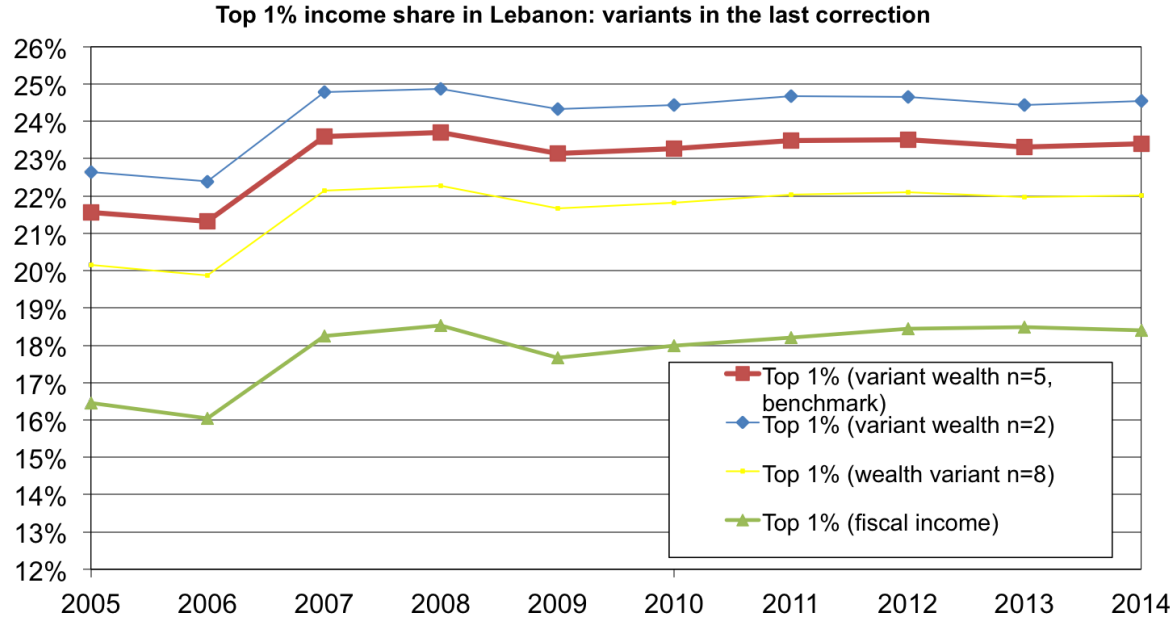


Distribution of income among equals-plit adults aged 20 and more (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. The variant is on the Gumble Parameter that determines the joint distribution of fiscal and missing capital income that is the final series.

Figure A7: Variants for the Step 3: Effect of the billionaires' family size



Distribution of income among equals-plit adults (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. Fiscal income estimates combine survey and income tax data (but do not use wealth data to allocate tax-exempt capital income). The variant is on the size of billionaires' families (2 or 8 adults), that defines different wealth distributions, used to re-reallocate missing capital in the last correction.



Distribution of income among equals-plit adults (household income divided by the number of adults in the household for the bottom of the distribution). National income estimates combine survey, fiscal, wealth and national accounts data, normalized to the total average income per adult. Fiscal income estimates combine survey and income tax data (but do not use wealth data to allocate tax-exempt capital income). The variant is on the size of billionaires' families (2 or 8 adults), that defines different wealth distributions, used to re-reallocate missing capital in the last correction.

Figure A8: Main Tax form, Personal Income Tax

Republic of Lebanon F1
Ministry of Finance (Individual)
Directorate General of Finance
Directorate of Revenues – Income Tax Page 1/4

Personal Declaration – Income Tax

Full Name of taxpayer: …….. (name) …….. (father's name) …….. (family name)

Position: Please tick the appropriate case

- ☐ Lump-sum profit individual taxpayer
- ☐ Real profit individual taxpayer
- ☐ Partner taxpayer in a partnership

Personal registration number (at the Ministry of Finance) … … … … … … … … …
Region of Activity: ……..
For the year: …….

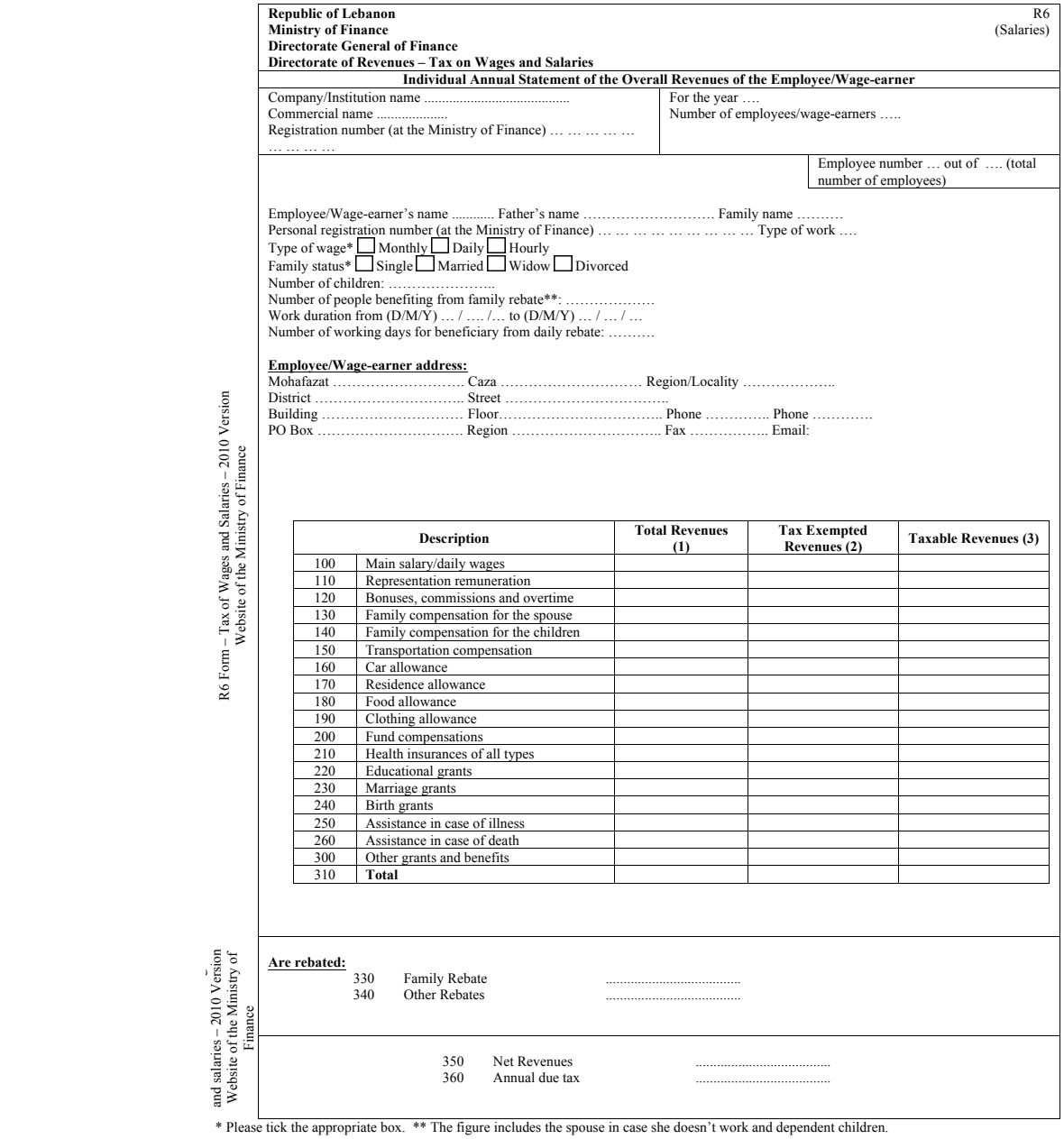
Is it the first declaration of the taxpayer? Yes No
Is it the last declaration of the taxpayer? Yes No. If yes, please mention the reason:

Marital status: ☐ Single ☐ Married ☐ Divorced ☐ Widow Number of dependent children:	Spouse: S/He works ☐ Yes ☐ No In case s/he works, personal registration number (at the Ministry of Finance): … … … … … … … … …
Personal Address Mohafazat …….. Caza …… Region-Locality …. Real Estate Region …… District ……..… Street ……. Building …… No of Lot/Section ……. Floor ……..… Phone ……. Fax ……..… Phone …… PO Box: ……. Region …….. Email: ……	Correspondence Address Mohafazat …….. Caza …… Region-Locality …. Real Estate Region …… District ……..… Street ……. Building …… No of Lot/Section ……. Floor ……..… Phone ……. Fax ……..… Phone …… PO Box: ……. Region …….. Email: ……
The person who contributed to filling the declaration: Full name: ……..... …….. …… Phone: ……	Registration number (at the Ministry of Finance): ..... Fax: ……

Declaration contents:	Yes	No
* Profit (or Loss) from partnerships	☐	☐
* Profit (or Loss) from individual institutions and professions- Real profit	☐	☐
* Profit from individual institutions and professions – lump sum profit	☐	☐
* Estimated profit	☐	☐
* Salaries and wages revenues	☐	☐
* Statement of the institution/the profession's revenues and expenses F3 Form (obligatory for lump-sum profit)	☐	☐
* Statement of amounts paid to experts, accountants, consultants, lawyers, engineers, etc. (lump-sum profit taxpayers-F4 Form)	☐	☐
*Statement of deficit to be carried forward – for real profit taxpayers (F21)	☐	☐
*Statement of paid amounts to non-residents according to Articles 41, 42 and 43 for taxpayers on the basis of real profit and on the basis of lump-sum profit (F26)	☐	☐

(*) The natural or moral person is notified at the correspondence address given to the Tax Department. Therefore, read carefully Articles 27 and 28 of the tax procedures law No 44, dated 11/11/2008.

Figure A9: Tax form for labor income, Personal Income Tax



Republic of Lebanon R6
Ministry of Finance (Salaries)
Directorate General of Finance
Directorate of Revenues – Tax on Wages and Salaries

Individual Annual Statement of the Overall Revenues of the Employee/Wage-earner

Company/Institution name .....
Commercial name .....
Registration number (at the Ministry of Finance) … … … … … … … … … …

For the year ….
Number of employees/wage-earners …..

Employee number … out of …. (total number of employees)

Employee/Wage-earner's name ..... Father's name …… Family name …….
Personal registration number (at the Ministry of Finance) … … … … … … … … … Type of work ….
Type of wage* ☐ Monthly ☐ Daily ☐ Hourly
Family status* ☐ Single ☐ Married ☐ Widow ☐ Divorced
Number of children: ……..
Number of people benefiting from family rebate**: ……
Work duration from (D/M/Y) … / …. /… to (D/M/Y) … / … / …
Number of working days for beneficiary from daily rebate: …….

Employee/Wage-earner address:
Mohafazat …… Caza …… Region/Locality ……..
District …….. Street ……..
Building …… Floor…….. Phone …….. Phone ……
PO Box …….. Region …….. Fax …….. Email:

	Description	Total Revenues (1)	Tax Exempted Revenues (2)	Taxable Revenues (3)
100	Main salary/daily wages			
110	Representation remuneration			
120	Bonuses, commissions and overtime			
130	Family compensation for the spouse			
140	Family compensation for the children			
150	Transportation compensation			
160	Car allowance			
170	Residence allowance			
180	Food allowance			
190	Clothing allowance			
200	Fund compensations			
210	Health insurances of all types			
220	Educational grants			
230	Marriage grants			
240	Birth grants			
250	Assistance in case of illness			
260	Assistance in case of death			
300	Other grants and benefits			
310	**Total**			

Are rebated:
330 Family Rebate .....
340 Other Rebates .....

350 Net Revenues .....
360 Annual due tax .....

R6 Form – Tax of Wages and Salaries – 2010 Version
Website of the Ministry of Finance

and salaries – 2010 Version
Website of the Ministry of Finance

* Please tick the appropriate box. ** The figure includes the spouse in case she doesn't work and dependent children.

Figure A10: Tax form for self-employed individuals, liberal and independent professions

Republic of Lebanon F3
Ministry of Finance (Individual)
Directorate General of Finance
Directorate of Revenues – Income Tax

Statement of Revenues and Expenses of the Institution/the Profession
For lump-sum profit taxpayers

Name of the Taxpayer: ……..	Institution/Profession's registration number (at the Ministry of Finance): ……..
Commercial Name: ……	Personal registration number (At the Ministry of Finance): ……..
	For the year: …….

Address of the institution/the profession:
Mohafazat …… Caza …… Region-Locality ……
District …… Street ……
Real Estate Region …….. No of Lot/Section ……
Building …….. Floor …… Phone …… Phone ……..
PO Box ……Region…… Fax
Email ……

Activity type	Revenues (*)		Profit rate		Net lump-sum profit	
1	90		95		100	
2	91		96		110	
3	92		97		120	
4	93		98		130	
Total	94		99		140	

Details of charges and expenses

Sales of merchandise and raw and consumption material	150	
Wages, salaries and other benefits	160	
Employees and wage-earners insurance	170	
Social security subscriptions	180	
Commissions paid to third parties	190	
Car and transportation expenses	200	
Banking commissions, interests and expenses	210	
Legal expenses, consultancies and similar expenses	220	
Maintenance and repair expenses	230	
Rent or investment	240	
Other office expenses	250	
Taxes, fees, and permits	260	
Accomodation	270	
Travelling expenses	280	
Promotion and advertisement	290	
Institution/Profession activity insurance expenses	300	
Amortization**	310	
Other expenses	320	
Overall charges and expenses	330	
Fixed assets buyouts	340	
Amounts paid to non-residents	350	

*** If the taxpayer practices several activities within the same institution and did not separate the revenues of each activity, the highest rate applies to the lump-sum profit among these activities and on the overall revenues.**

**** For machinery, equipment, and furniture used in the institution in the first year, plus any addition and minus any wavering, the result is multiplied by the depreciation rate of each type of them.**

Signature: ……

Figure A11: Tax form for other business incomes (1)

Republic of Lebanon
Ministry of Finance
Directorate General of Finance
Directorate of Revenues – Income Tax

	Income Statement			F16 (Individual) Page 1/2
Line Number	Account description (1)	Current Financial Cycle		Previous Financial Cycle (4)
		Details (2)	Total (3)	
200	Goods sales			
210	Production sales			
220	Works sales			
230	Services sales			
240	**Turnover**			
250	Sold merchandise cost			
260	Sold production cost			
270	Works cost			
280	Services provision cost			
290	**Overall cost**			
300	**Profit**			
310	**Consumer supplies cost**			
	External services			
320	Royalties			
330	Maintenance and repair			
340	Promotion and advertisement			
350	Transportation			
360	Rent			
370	Representation expenses			
380	Supervision expenses			
390	Travelling expenses			
400	Experts and consultants wages			
410	Insurance			
415	Paid commissions			
420	Other external services			
430	**Total external services**			
	Employees wages/charges			
440	Salaries and wages			
450	Commissions			
460	Social security			
470	Transportation			
480	Employees meals			
490	Training expenses			
500	Insurances/Guarantees to users			
510	Other expenses			
520	Total employees wages/charges			
	Corresponding taxes, fees and charges			
530	Corresponding taxes, fees and charges			
540	Fines			
550	Other administrative charges			
560	**Total corresponding taxes, fees and charges**			
	Depreciation and investment provisions allocations			
570	Depreciation allocations			
580	Provisions allocations			
590	**Total consumption and investment provisions allocations**			
600	**Total charges**			

Figure A12: Tax form for other business incomes (2)

Republic of Lebanon
Ministry of Finance
Directorate General of Finance
Directorate of Revenues – Income Tax

	Income Statement			F16 (Individual) Page 2/2
Line Number	Account description (1)	Current Financial Cycle		Previous Financial Cycle (4)
		Details (2)	Total (3)	
610	Recoveries from non-financial provisions			
620	Products with a fixed assets nature			
630	Other revenues			
640	**Overall non-financial investment revenues**			
650	**Investment profit or loss**			
660	Common operations dividends			
670	Placement and participation bonds revenues			
680	Net profit from placement bonds wavering			
690	Revenues from other movables			
700	Similar interests and revenues			
710	Positive exchange rate differences			
720	Recoveries from financial provisions			
730	Other financial revenues			
740	**Overall financial revenues**			
750	Institution's share out of the losses from joint operations			
760	Negative exchange rate differences			
770	Net charges on operation of placement bonds wavering			
780	Consumption and financial provisions allocations			
790	Financial institutions interests			
800	Financial institutions expenses			
810	Other interests			
820	**Overall financial charges**			
830	**Net financial charges and revenues**			
840	Losses resulting from wavering of fixed assets			
850	Grants and donations			
860	Other charges			
870	**Overall other charges**			
880	Profit resulting from wavering of fixed assets			
890	Other revenues			
900	Total other revenues			
910	Revenues of exceptional events			
920	Losses of exceptional events			
930	Differences due to changes in accounting policies			
940	**Income before tax on profits**			
950	**Tax on profit**			
960	**Net income after tax** (profit and loss)			

Table A1: From fiscal income to national income

	Type of income	Data sources
Labor Income	Mixed income	Fiscal micro-files
	(Self-employment income by independent)	
	Non filers (including informal sector)	N.A
	Tax evasion	N.A
	Employer fringe benefits & payroll taxes	N.A
Capital Income	Other mixed income*	Fiscal micro-files
	Corporated profits	
	incl. Undistributed profits (retained earnings)	Government tax reports
	incl. Distributed profits	Government tax reports
	Interest incomes	National accounts
	Rental Income	
	incl. built property revenues	Fiscal micro-files
	incl imputed rents and property tax	Government tax reports
	incl. royalties	N.A
	Non filers and others	N.A

Notes: Statistics on the distribution of income expressed in PPP €2016. Adult individual aged 20 and more; Equal-split assumption among adult members of a household. In 2016, 1 euro = 1641 LBP (market exchange rate) or 172.7 pound (PPP). Income corresponds to pre-tax national income. Fractiles are defined relative to the total number of adult individuals in the population. Corrected estimates (combining survey, fiscal, wealth and national accounts data), from 2014 adjusted for the price change between 2014-2016 (shares are not affected).
**Made by partners in partnerships and individuals in S-corporations.*