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A Mixed Methods Inquiry into the Political Economy of Agriculture and Rural Areas in Lebanon

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TO SONYA E. MEYERSON-KNOX AND AHMAD T. HAMADE

MIRRORS OF THE SELF I COULD NOT BE

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Transliteration

English transliteration of Arabic terms follows the *International Journal of Middle East Studies.* With the exception of some places and people names.

1 Introduction

The scope of research

There are several, often opposing, (mis)understandings which predominate academic studies on Lebanon. In particular, it is common to find both discussions of the contradictions of a system that appears to function but fails to produce, and – often in the same study – an incomprehension of this very system's mechanisms which simultaneously lead to economic growth and also to the unexpected, but frequent, manifestations of violent civil unrest - the latter reaching its apex during the Lebanese 17-year civil war(s)[1].Although these discussions are often merely a rhetorical position leading to a deeper understanding and well-defined analysis and theory, they still reflect an important feature of the Lebanese system, and how it is narrated. The socio-economic reality of Lebanon is often treated by academics as quite distant from the official discourse. Separating from this discourse, and challenging it intellectually, is the domain of many Lebanese scholars[2].

Nevertheless, few studies have tackled these contradictions from the perspective of agriculture and territorial development: the present work, then, is concerned with these *forgotten* elements of the Lebanese economy. This dissertation will investigate the main problematics which arose from these forgotten components, in particular the structure of the agricultural sector, production technology, income distribution, poverty, food security, territorial development and local livelihood strategies. It will do so using quantitative Computable General Equilibrium (CGE) modeling and a qualitative phenomenological case study analysis, both embedded in a critical review of the historical development of the political economy of Lebanon, and a structural analysis of its economy.

[1] As examples: Owen (1976, eds), Shehadi and Mills (1998, eds), Debié and Pieter (2003

[2] As examples: Within the Marxist tradition: 'Amil (1986), Traboulsi (1999, 2007); Post-Keynesians: Makdessi (2004) , Gaspar (2005).

On Lebanese economic choice(s)

A crucial choice was made by the newly independent Lebanese state soon after World War II. At that time, the main economic concerns of developing countries focused on production and the national terms of trade in the now post-colonial international market. Development economists have seen agrarian reform, the mechanization of agriculture, industrialization and state activism as critical preconditions for growth. Although primary export in a post-colonial model of production remained widespread, the restructuring and industrialization of the economy were also occurring, either through policies of import substitution or export-oriented manufacturing. Relative success depended on the country's initial endowments, its comparative advantage and its position on the Cold War chessboard, as well as its cultural and historical background. Another important factor was the capacity of its ruling class in building state institutions able to support, supervise and even plan development strategies. Lebanon stood against the trend of increasing productivity and state activism, and chose a very specific outward-looking strategy (Gates, 1998): the commodity offered was neither raw materials nor manufactured goods, but rather trade and financial services. This strategy determined the economic policies of what became known as the *Merchant Republic of Lebanon* (1943-1958), the country's first period of economic growth.

During that period, the Lebanese elite constructed a state corresponding to the chosen economic orientation. The country was seen as a link between the West and the East, an "*entrepôt"* for commodities transit and a safe place for capital. The minimalist – intentionally weak – state role was the preservation of a free market economy. Goods, currency and capital were free to move; economic agents would evolve and benefit from the state *laissez-faire*. In a region where interventionist totalitarian Arab governments and planned economies were the rule, Lebanon's consensual, multi-religious and multi-sect democracy appeared as a haven of political and economic freedom, modernity and growth.

This political economy orientation *per se* appeared also to be the right choice for the Lebanese elite who were successful in forecasting and benefiting from the changes that occurred in the Middle East in the late 50's early 60's – mainly the creation of the state of Israel, which resulted in the Arab boycott of the Haifa port, to the benefit of Beirut and the transfer of Palestinian capital to Lebanon. Even more important, however, was the boom of the oil economy in the Arab Gulf that created a considerable capital surplus in search of safe

financial institutions. Nevertheless, the almost complete neglect of agriculture and rural development, the forgoing of several opportunities to undertake an industrialization process, and the rent-seeking and clientelist behavior of this *laissez-faire à la libanaise* were also all elements of a state ideology that became the source of both income inequality and unequal territorial economic development, creating economic bases for social unrest.

Following political crisis and social unrest in 1958, the newly elected president, Fouad Chehab, introduced a series of reforms to the *Merchant Republic* system. These reforms were directed toward building state institutions and the strengthening of the state apparatus – including the army, the secret service(s) and the police. Although what became known as the *Chehabist period* (1958-1973) left the basis and foundations of the economic system mostly untouched, it did introduce some forms of socio-economic development. However, these changes were not able to withstand the growing social inequality, which, in addition to the geopolitical situation in the Middle East, led to the Lebanese civil war(s) of 1975-1990. Although the civil war altered the political equilibrium within the ruling class and brought forth a new territorial political economy, the post-war governments reproduced an economic orientation similar to that of the *Merchant Republic*. The policies of the *"successive Hariri governments"* (1992-2005) exacerbated the country's pre-existing regional disparities through a process of inequitable development, leading to the marginalization of certain regions, which have witnessed increasing levels of poverty.

The absence of agricultural policy

Within the process of the *Chehabist* reforms, issues relating to agriculture and rural development were tackled for the first time in 1959. This year constituted a single and unique year of policies for these sectors, including the advent of the *Regie libanaise des tabacs et tombacs*, the Office of Wheat and Sugar Beet, and the Green Plan Directorate.

The first entity, supervised by the Ministry of Finance, was the nationalized modern form of the prior Ottoman monopoly on tobacco, established in 1876, which was leased as a concession to a French company in 1884. The *Regie libanaise des tabacs et tombacs* was established to issue exclusive production licenses to farmers with predetermined quantities and prices. These licenses are not only used to control the supply of tobacco leaves, but also as electoral and clientelist tools by political elites. Meanwhile, the Office of Wheat and Sugar Beet, dependent on the Ministry of Economy, managed the stock and purchase of farmers'

production at subsidized prices. In 2005, subsidies for sugar beet production were stopped, and support for wheat production now requires an annual ministerial decree, and is thus dependant on political decisions.

The Green Plan Directorate, under the tutelage of the Ministry of Agriculture, was created to fight desertification. Together with the Litani River Authority (LRA), dependent on the Ministry of Water and Energy, they can be considered as the entity in charge of rural development. As such, the major state infrastructure investments in agriculture and rural development included a series of irrigation projects supervised by the LRA – the most important being the creation of a dam on the Litani river – in 1959. The Green Plan and the LRA are still active administrations, however, their budget is low and therefore their impact on rural development is limited.

Although a well-defined policy cannot be extracted from this sudden bourgeoning of administrations distributed across different ministries, the *Chehabist* reforms should not be discounted, especially when contrasted to the previous period. The little that was done nevertheless had an important effect on the rural areas left behind from the process of economic growth and development. Nevertheless, they were hampered by a ruling class of merchant and landlords who were possessive of their privileges and strove to maintain a certain financial stability indispensable for the attraction of capital. Furthermore, the *Chehabist* period was limited by what Debié and Pieter (2003:45) called *"les effets d'annonce"*, whereby announcements of important development projects were regularly issued which were never actually implemented, due to the lack of funds and the absence of real political will – a phenomena still present today.

Government spending on agriculture and rural development has remained limited, and public financing has focused on different priorities at different time. In the 60's, the share of agriculture in the national budget was around an average of 2.5%, while people working in the sector amounted for 50% of the working force (representing 11.6% of the GDP in 1964-66)[3]. This contrast becomes even more striking given that the Lebanese government had a constant surplus budget since 1943. The surplus was used to buy gold and hard currency in order to protect and to maintain a strong Lebanese Pound (LBP). In the period 1992 to 2010,

[3]Source: Report published by the Lebanese ministry of Planning 1962, cited by Gaspar (2005:221)

public finance showed a constant deficit, where most resources were used to repay the government debt and maintain the parity of the LBP versus the US dollar, one of the untouchable priorities of the government. During these years, the average share of agriculture in the national budget was of around 0.4%[4], while the sector employed 7.5% of the working force in 2005 (representing only 5.2% of the GDP)[5].

Such a minimal share of the total budget clearly does not help in implementing the agriculture policy master plan published in cooperation with the European Union in 2003, or the local development plans prepared under the OMSAR[6] project in 2005, or the 2009 Ministerial Agricultural Strategy[7]. It is highly likely that, together with other initiatives, they will be categorized with those projects whose only effect was that of their *"effets d'annonce".* At present, agricultural policy at best takes the form of sporadic cooperation projects with external donors, and oscillates between the agenda of international organizations and the political will of the Lebanese government.

The research hypothesis

Against this background, the research hypothesizes that under-development in Lebanese rural areas is not due to lack of resources, but rather is the consequence of political choices. This research further suggests that agriculture – in both its mainstream conventional and its innovative locally initiated forms of production – still represents important potential for inducing economic growth and development. In order to do so, Lebanon has to take full advantage of its human and territorial capital, by developing a rural development strategy based on two parallel sets of actions: one directed toward the support of local rural development initiatives, and the other directed toward intensive form of production. In addition to its economic returns, such a strategy would promote social and political stability.

4Source: Author's calculation from the Budget law and budget law proposal published by the Lebanese Ministry of Finance (2006)

5Source: MOSA and UNDP (2006).

[6] Office of the Minister of state for Administrative Reform. www.omsar.gov.lb

7References: Franklin – AHT consortium (2003), OMSAR (2005) and Lebanese Ministry of Agriculture (2009)

A mixed methodology approach: four lines of analysis

This research encapsulates a relatively wide range of issues: It presents an analysis of the mechanisms that led to the formation of the Lebanese ruling class and its policies, as well as the specific economic structure they induced; and it assesses the effect of these policies on agricultural production, on farmers' livelihood strategies and their adaptation to policy change. Therefore, the investigation strategy is built around four lines of analysis:

1. A historical review of the political economy of Lebanon.

2. A structural analysis of the Lebanese economy and agriculture based on a Social Accounting Matrix (SAM)

3. A Computable General Equilibrium (CGE) applied to Lebanon, which evaluates the impact of different agricultural trade policies and technical change scenarios on the overall economy, with a specific focus on household income.

4. A quantitative phenomenological case study, investigating farmers' livelihood strategies in the Hermel region.

Each line of analysis is presented as an independent Chapter, where the methodology is presented together with a review of the literature and the results of the analysis. Each Chapter will present part of the answer to this hypothesis, gradually building the overall picture.

Chapters' outline: Constructing an answer to the hypothesis

Chapter 2 corresponds to the first axis of analysis. It starts by describing the rise of Beirut as a trade center and the integration of Mount Lebanon into the world commodities market and capital flows – through the development of the silk industry and the penetration of European capital during the end of the Ottoman period. The role of economic development as a catalyst of the agrarian revolts in 1840 and 1860 is discussed. The review then focuses on the formation of the Lebanese elite during the French Mandate of 1920-1943, especially within the newly annexed rural areas. A description of the recent history of Lebanon, including the *Merchant Republic* 1943-1958, the *Chehabist* period 1958-1973, the new territorial political economy that emerged after the civil war, and the post-war period 1990-2010 is also provided. The Chapter concludes with a review of the specific political economy of the Hermel region.

This analysis will present insights into the historical and present bases for uneven regional development in Lebanon. The role of imperialism and foreign capital in accelerating or delaying the transition to capitalism, and the parallel agrarian changes which occurred, are highlighted. The mechanisms through which the modern Lebanese political economic system generates rural under-development and inequalities are described and evaluated.

Chapters 3 and 4 constitute the quantitative core of the research.

Chapter 3 presents a structural analysis of Lebanese capitalism premised on conclusions from the historical review of Chapter 2, on additional quantitative data, and on the overview of the economy as represented by a Lebanon Social Accounting Matrix of 2005 (LEBSAM05). The construction of this matrix is described in detail, and its results analyzed. It presents a detailed analysis of the Lebanese industrial and agricultural sector at the national and regional levels, as well as a structural analysis of income and national and regional inequalities.

This Chapter plays a key function for this dissertation, as the structural analysis links the political economy review and the CGE model. It shows how the political and economic choices of the Lebanese ruling class are translated into the economy's structure. The SAM also serves as a benchmark for the CGE modeling, which studies alternative policies and development paths.

Chapter 4 presents and reviews the application of the International Food Policy Research Institute (IFPRI) CGE model developed by Lofgren *et al.* (2002), based on the neoclassical-structuralist approach adopted by Devis *et al.* (1982). The model is then used to simulate different policies and economics scenarios including: an increase of international food prices, an increase of the value-added tax, a change in tariffs, technical changes in agriculture production, and the combination of two or more scenarios. The analysis of the model's variables enables the drawing of policy conclusion in terms of growth, trade, agricultural output, labor, regional development, poverty and food security. The role that agriculture could play (both the conventional and the local initiatives) in Lebanon's economic development is emphasized, and the impact of different policies on different households groups is assessed.

Chapter 5 presents a qualitative study of the Hermel region – a marginal rural area. After describing the local context and the case study's methodology, it reports findings with regard to historical changes in local agricultural production paradigms, including: subsistence farming of the 1950s and stone fruits' production for export prior to the civil war, drug production during the disruption of the civil war period of 1975-1990, the subsequent intensification of horticulture production using drip irrigation and input intensification, and the recent emergence of local development initiatives and a partial abandonment of input intensification. Production strategies from the perspective of farmers' discourses are described, highlighting their experiences and the reasons behind their choices. These are analyzed within the Sustainable Livelihood Analytical Framework developed by Scoones (1998) in terms of relations with public and private extension services, as well as the problems faced in terms of marketing and agriculture policies. The case study results are contrasted with the results obtained from the simulated scenarios of the CGE model. Finally the Chapter demonstrates how the Lebanese political economic system has hampered the development of well-resourced rural areas.

The case study can be read independently of the rest of the dissertation, however, its findings mirror many issues discussed previously. The contrast between farmers' perception(s) of their reality and the results of the political economy, structural and CGE analysis will constitute the basis of the answers to this dissertation's problematic.

Chapter 6 syntheses and discusses the research hypothesis on the bases of the findings of the four lines of analysis.

Note: Facts about Lebanon

Geography

Lebanon's total area[8] is 10,452 km^2. It is bordered by Syria from the north and east, and by Israel from the south, and has a coastal line of 225 km along the Mediterranean Sea from the west. Its terrain is mostly mountainous, with the exception of a narrow coastal plain and the Bekaa valley, located between Mount Lebanon and the Anti-Lebanon Mountains. The Bekaa area is home to most of the agricultural activity in the country. Water covers 170 km^2 of the country's area, where the two major rivers are the Litani River and the Orontes River. Arable land covers 16.4% of the total area and permanent crops cover 14%. Irrigated land amounts to 1,040 km^2.

Lebanon enjoys a moderate Mediterranean climate, especially along its coastal areas where winters are cool and rainy, and the summers hot and humid. The more elevated mountainous areas witness sharp drops in temperature during winter and heavy snowfall, while summers are generally dry. The wide range of existing micro-climates allow for the cultivation of a large variety of crops.

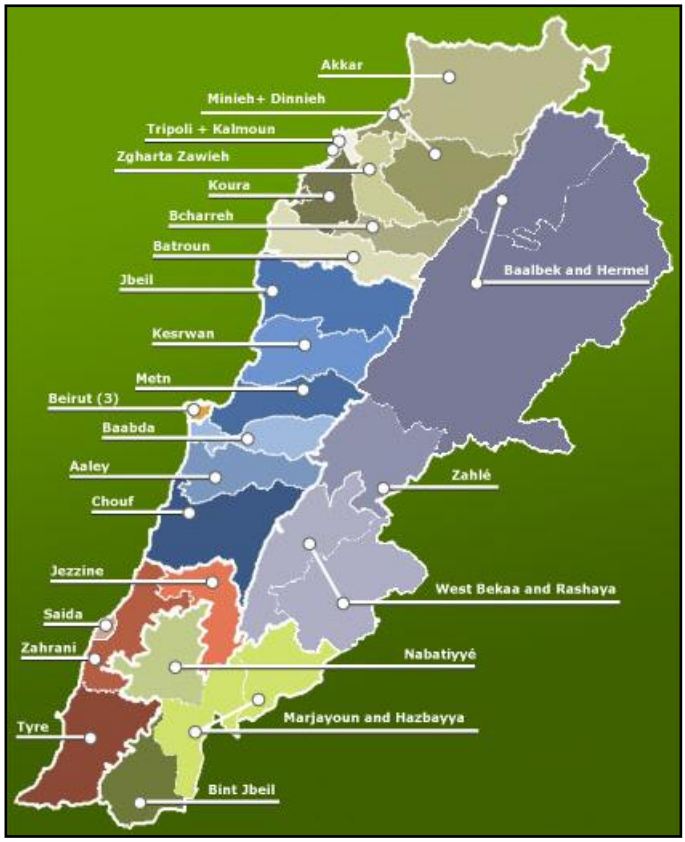
Administrative division

Lebanon is divided into 6 governorates (*mohafazat*): (1) Beirut, (2) Bekaa, (3) Mount Lebanon, (4) North Lebanon, (5) South Lebanon, and (6) Nabatiyyeh. Two additional governorates, Akkar and Baalbeck-Hermel, were legislated in 2003, but they have not yet been implemented. The governorates, with the exception of Beirut, are further divided into *Cazas* (see Figure 1.1 below):

- Mount Lebanon: Maten, Keserwan, Jbeil, Baabda, Shouf, and Aley
- North Lebanon: Akkar, Minieh-Dennieh, Tripoli, Koura, Zgharta Batroun, and Bsharre
- South Lebanon: Saida, Sour, and Jezzine
- Nabatieh: Bint Jbeil, Marjaayoun, and Hasbaya
- Bekaa: Hermel, Baalbeck, Zahle, West Bekaa, and Rashaya

[8] The source of all data in this Section is the Central Administration for Statistics (CAS) www.cas.gov.lb

Figure 1-1: Lebanon Administrative map



Map Source: www.beirutspring.com

The Household Living Conditions Survey HLCS (United Nations Development Program (UNDP), Ministry of Social Affairs (MOSA) and Central Administration for Statistics (CAS), 2006a) has divided Lebanon into 15 strata based on socio-economical similar aspects. In the present research use the HLCS division. However, results of the CGE simulation are reported for marginal and central areas in addition to Beirut and to the strata of the qualitative case study. This division are report here by in Table 1-1:

Table 1-1: Socio-economic division of Lebanese regions according to the HLCS

Division used to report some of the CGE results	The 15 HLCS strata
Beirut	**1 strata**
	Beirut (BRT)
Central	**9 strata**
	Tripoli city (TRI) Koura, Zgharta Batroun, and Bsharre (KZGB) Keserwan and Jbeil (KSJB) Maten (MATN) Baabda (BBDA) Chouf and Aley (CHAL) Saida and Jezzine (SDJZ) Nabatieh (NABA) Sour (SOUR)
Marginal	**4 strata**
	Akkar /Mennieh-Dennieh (AKMD) Zahle (ZHLE) West Bekaa and Rashaya (WBRA) Bent Jbeil / Marjayyoun / Hasbayya (BJMR)
Case Study	**1 strata**
	Hermel/Baalbak (HERBA)

Hermel Caza

Hermel *Caza* is situated in the Lebanese inland, Norh-East of the Bekaa, at an altitude ranging from 607m to 1350 m for the main populated areas, reaching altitude above 2000 m for the more remote areas. The Orontes River rises in the area and crosses it for a distance of 42 kilometers before reaching the Syrian borders. Hermel *Caza* can be divided into three main geographic and social entities: 1- Hermel city, which is the administrative capital and main populated center, 2- other small villages around Hermel city, 3- the mountainous region known as the *Jerd*[9].

Population

Lebanon has a population of 3,759,137 residents (2007 estimation). It is a generally young population, with 26% under the age of 14, 67% between 15 and 64 years of age, and 7.2% are above 65 years. The population growth rate is estimated at 0.621% and the birth rate is 15.1/1000 population. Net migration rate stands at -2.43/1,000 population, where net

[9] In the Lebanese Arabic dialect the word "*Jerd*" refers to the remote mountainous areas – the valleys and plains that exist between the mountains at relatively high altitude.

migration is calculated as the difference between the number of persons entering and leaving a country during the year per 1,000 persons. The negative figure for Lebanon indicates that the number of people emigrating out of Lebanon is high. The majority of the population (87%) is concentrated in urban areas, where the urbanization rate, i.e. the projected average rate of change of the size of the urban population, has been estimated at 1.2% annually between the period of 2005 and 2010.

There are 18 officially recognized religious sects in Lebanon. According to estimates based on electoral lists, Muslims represent approximately 60% of the population, mainly Shiites, Sunnis and Druze. The Latter form a minority in terms of their numbers, but constitute a politically powerful group. The Christian represent the remaining 40% of the population, mainly the Maronite Catholics and the Greek Orthodox. Several Armenian Christian churches are also present.

Government

Lebanon follows a particular form parliamentary democracy known as confessionalist democracy, established under the French Mandate. This system aims at ensuring a balance of power through the representation of the various religious (sectarian) groups in the government. The national legislature is the unicameral Lebanese Parliament, which consists of 128 seats divided equally between Muslims and Christians, and further divided according to specific quotas between the various sects of each religion. This type of division is also applied to the high-ranking civil servants, and army and security forces officers. The three highest-ranking offices in the state are also divided on a religious base, whereby the President of the state is allocated to Christian Maronites, the Head of Parliament to Muslim Shiites, and the Prime Minister to Muslim Sunnis.

2 The Political Economy of Lebanon

Chapter's outline

This Chapter reviews the political economy of Lebanon, focusing on the political and economic choices of the ruling class, and their implementation. The first part offers an analysis at the national level, and is divided into four main Sections: Section 2.1 describes the creation of Lebanon as a political economic entity; Section 2.3 discusses the Mandate period and the "elite formation" process undertaken by the French Mandatory power; Section 2.4 draws comparisons and identifies similarities with Sicily; and Sections 2.5 and 2.6 review the pre- and post-civil war periods, respectively. The second part of the Chapter focuses on this dissertation's case study, the Hermel region.

"The fate of a ruling class rests mainly in its own hands, i.e., the elite beneficiaries of a social order lose their privileged positions through conflicts with one another rather than through challenges from oppressed classes. By analyzing the ways in which conflicts among elites affect their capacity to rule, it becomes possible to determine when and how elites acquire an interest in transforming the relations of production, whether that be a transformation from feudalism to capitalism, or between other modes of productions".

Lachmann, (1990:398) on Mosca and Pareto Theories on the Ruling class

2.2 Creating Lebanon

2.2.1 The rise of Beirut

The Emirate of Mount Lebanon (1523-1840) was a relatively autonomous political entity within the Ottoman Empire and, in addition to Beirut, represented the core of what later became the Lebanese Republic. It grew in economic and political importance within the Empire through the development of the production and export of silk to Europe. This early colonial mode of production induced dynamics that still shape the political economy of Lebanon today. Thus, the Emirate's economic development was based on trade, its society was highly influenced by the wide cultural exposure to Europe, and its internal affairs were highly influenced by foreign powers and shaped within a context of competing interests between regional and international powers (Traboulsi, 2007).

In 1832, eight years before its collapse, the Emirate fell under direct Egyptian administration. During these eight years, Muhammad Ali Pasha introduced a series of economic reforms that significantly impacted the social and economic structure of Mount Lebanon, and the region as a whole. With the aim of neutralizing European discontent about his Levantine conquests, the Egyptian ruler opened the markets of the region that were under his control to European commodities and investments. This led to a large increase in European investment in the silk industry, which grew rapidly in the mid-nineteenth century. According to Labaki (1984) and Gates (1998), this growth resulted in the integration of Mount Lebanon into the international commodities market, and the development of Beirut as an intermediary trade port between Europe and the Levantine hinterland. Beirut bourgeoisie started investing in agriculture for export, while life in the rural areas changed due to the specialization in silk and the consequential decrease of self-subsistence production. At the same time, urban manufacturers and traditional craftsmen suffered greatly from the competition of European imports.

These processes strengthened the political power of traders in the cities and landlords in Mount Lebanon at the expense of middle class manufactures; this increased wealth and power of the merchant class was crucial in determining the future evolution of the country. Merchants prospered in close connection with European interests, gradually improving the diversification of their activities. This diversification allowed them to sustain their role and

influence; gradually the share of silk trade decreased and Beirut's intermediary function became more evident. Local merchants took advantage of new opportunities in re-exporting, becoming distributors of European merchandise to the hinterland. Beirut became an administrative, political and cultural center in which foreign institutions were established. "Simultaneously, the foundations of its future role were laid, and its westernization first became evident in the customs and habits of its bourgeoisie" (Gates, 1998:15).

2.2.2 Peasant revolts and change in the agrarian structures in Mount Lebanon

Industrialization in Europe, trade opportunities, and the integration of the Mediterranean countries into the world commodities market highly impacted the production structure and social relations in rural areas. The inability of Artisans and peasantry to adapt to the economic changes often erupted in the form of violent revolts that reshaped the political order. During a period of important increases in silk production, the consecutive commoners' revolts of 1821, 1840 and 1861 brought an end to the Emirate of Mount Lebanon and to the previous agrarian system.

According to Burke (1993), the course of these agrarian changes defined the structure of the present modern state structures and the balance of power that sustains it. In general, he points out, looking at agrarian and/or social revolts is looking at society in action. Furthermore, he argues that in the Middle Eastern context, imperialism worked in two opposite directions: it undermined the legitimacy of local elites while, at the same time, it increased their power. In what follows, these arguments are illustrated by the review of the pre-French mandate period agrarian revolts. Section 2.2 sheds light on the role played by imperialism in shaping/creating Lebanese rural elites and strengthening their political power.

The 'Amiyat of 1821 and 1840 and Tanious Chahine revolt of 1860

Rural life in the Emirate of Mount Lebanon was based on the *iqta'*[10] feudal system, whereby the Ottoman Empire authorities gave *muqata'ji* families relative autonomy over the administration of their *iqta'*, in exchange for the implementation of Ottoman tax collection, of which they would keep a share, and military order. Over time, a series of rural actions

[10] *iqta'* refers to the unit on which the feudal system of the Ottoman Empire was based. The Empire authorities will grant administrative and military power to a *muqata'ji* family over an *iqta'* of land. In principle subjects are free men and the *muqata'ji* do not own the land.

gradually broke this system. They are well described in Burke (1993), Traboulsi (2007), Saba (1976), Khatter (2001) and Labaki, (1984); their main dynamics are reviewed in the following discussion.

The first modern rural action occurred in 1821, when Maronite and Druze commoners revolted against tax increases. It was known as the *'Amiyat Antelias*. However, capitalism – i.e., the silk industry – had not yet destabilized the old system and the agrarian structures remain unchanged. It was only after the reforms of Muhammad Ali Pasha that the social rural structure witnessed a series of accelerated changes. The effect of a closer integration to world markets sharply increased taxation. Taxes were now directed to a larger part of society, provoking the discontent of the peasantry, as well as the local elites. In 1839, the authorities had already withstood and repressed a Druze revolt with the help of the Maronite *muqata'ji*. In 1840 the next rural action, the *'Amiyat* revolt, brought an end to the Egyptian rule and introduced private ownership of land. Private property was a farmer and a bourgeoisie demand, as silk trade had created a new class of wealthy farmers able to buy their own land and of Beirut traders who invested in agriculture and emerged as a new class of absentee landlords. The bases of the old agrarian system were destabilized as peasants and urban merchants started challenging the *muqata'ji* authorities. Feudal leaders used sectarianism and intercommunity tensions in an attempt to retain power: Peasant revolts emerging from one community were presented as a threat to the other. Inter-religious violence clashes erupted and were stopped by the intervention of an Anglo-Austrian-Turkish expeditionary force in 1841.

The 1860-61 revolt, known as the *Tanious Chahine* revolt, was a return of the 1840 revolt, but one where all factors were amplified. Silk production and trade continued to grow; more farmers got wealthier, and absentee landlords investments in land increased, all of which lead to a bloody breakdown of the *iqta'* system as Druze *muqata'ji*, in an effort to preserve their privileges, presented the revolt as a threat to the community. Bloody inter-communal fighting was stopped once more by European and Ottoman military intervention.

The Hinterland

With the increase of the Beirut port's trade, and the construction of roads and infrastructure by French companies, the hinterland was in turn incorporated to international markets. Similarly to Mount Lebanon, the changes included the export of agricultural

commodities (wheat, in this case) and the import of European manufactured goods. Rural revolts erupted in 1889-90, in parallel with the Ottoman Empire's attempt to consolidate its control – at the extent of local landlords – as capitalism initiated its spread in these areas. However, the First World War interrupted this dynamic of transition to capitalism, and the post-war period of the French mandate in Syria and Lebanon would re-enforce the power of local landlords in the hinterland, creating different political and economic dynamics within the different regions of Lebanon.

2.3 The French mandate: Elite and discourse creation

The modern state of Lebanon within its present borders was created at the Versailles Conference in 1920, by a common accord between the French and the Maronite church. It added to the *Mutasarrifiya*[11] the city of Beirut – which had not administratively belong to the *Mutasarrifiya* although it de-facto served as its economic and political capital – the Bekaa Valley, the region of Akkar and Tripoli in the North and Jabal Amal in the South.

The French institutionalized the confessional power sharing system that emerged in 1840 with the division of the *qa'am maqamiya*[12] between the Druze and Maronites, and the French and Ottoman agreement on the Maronite administration of the *Mutasarrifiya*. They confirmed the hegemony of Beirut over the mountains and the hinterland, and "strengthened a pattern of economic activity in which agriculture and industry had become more and more subordinate to banking and trade" (Owen 1976:24). However, if Mount Lebanon and Beirut had very closed social and economic relations, the other regions that were added to the new state had long-standing ties with the cities of the Syrian vicinity (Damascus and Homs) and the city of Haifa in Northern Palestine. The people of these regions did not have a sense of belonging to the new Lebanese entity. The French and the Christian elite were faced with strong opposition from the Muslims and Druze elite. The confessional power sharing system was instrumentalized by the French to gain the support of the urban Sunni elite which as well benefit from the trade economic orientation of the country. In doing so, the French gave power to a small class of landowner merchants and bankers whose position was further reinforced by the leadership of their respective religious communities" (Owen, 1976).

[11] Name given to the autonomous administration of Mount Lebanon between 1861 and 1914, which translates roughly into "the autonomous (area)"

[12] Name given to the autonomous administration that divided Mount Lebanon into two political autonomous entity – *de facto* one was under Druze and the other under Maronite *muqata'ji's* juridiction

Moreover, the new state found support from rural landlords by preserving their privileges. By failing to encourage rural economy, the French maintained the political and power structure in the Bekaa, north and south of Lebanon. This had the effect of widening the economic gap already present between that of Lebanon and Beirut and that of rest of the country (Firro, 2003). The French mandate period and the processes of power sharing between an elite of urban merchants and rural landlords, as well as the duality and contrast of the politics and economics of cities and rural areas in Lebanon, is well reported in Hourani (1976) Zamir (1985) and Firro (2003). This period witnessed the creation of the political fields of the new state: increased rule of traders and bankers, confessionalism, patron-client relationships, especially in the rural areas, and an economic gap between the core of Beirut and Mount Lebanon and the peripheries of Akkar, Jabal Amal and the Bekaa region.

The social structures and the relations between landlords and peasants that prevailed at this time outside of Mount Lebanon were studied by a critical school of Lebanese and regional historians. For instance, Salih (1973) argues that the political power of landlords in south Lebanon remained intact until the 1970s, even throughout a period of rapid economic transition. Qbaysi (1986), describes how during the French rule, rural leaders who had negotiated their positions with French authority manipulated the cadastral survey - which they lobbied to introduce - to annex large part of *m*ašā'[13] land to their own estates. He also described additional unofficial taxes imposed by landlords *(khawa)* and the violence and humiliation that accompanied *khawa* collection.

2.4 Understanding rural Lebanon through a Sicilian lens

The processes that governed the development of Lebanon during the nineteenth-century are similar to the path taken by Sicily during the same period. The political economy of Sicily during that time has been analyzed by Schneider and Schneider (1976), who identified the following themes described below.

Trade terms: Wheat for manufactured goods

Bourbon Sicily exported wheat to continental Italy and Spain in exchange for manufactured goods. This mode of production, similar to the Lebanese silk industry, offered important power to local landlords and traders, and hampered the development of industry.

[13] Public / common land.

The Island, although it was part of a larger monarchy, was ruled through autonomously – as was the Emirate of Mount Lebanon. "Grain barons considered themselves Sicilian. (…) They did not think of rebelling against Spain, mainly because their power in the local arena, roughly equivalent to that of their Spanish governors, made revolt unnecessary" (Scheinder and Schenider 1976:42).

Resilience of social structures in rural area to economic changes

The local elite preserved power by impeding change in the countryside social structure though violent means, and they continued to do also in more advanced periods of development. Like in Lebanon (after 1920), the newly unified Italian state (after 1861) needed the support of rural landlords, and supplied them with protection and patronage, which increased their power in the countryside. In the presence of a deliberately weak state, strong local elites were able to preserve their local powers regardless of the economic development in the continent. Like their Lebanese counterparts, they controlled means of violence and the working forces in rural areas, and organized parallel un-official tax collection. Violent political middlemen prospered in the space left between the weak state and peasantry; in both cases (Lebanon and Sicily), social structures in rural areas were maintained by violence and by the availability of emigration as a safety exit. Sicilian and Lebanese emigration was either internal migration Beirut/ North Italy or external to South America and the USA, (for example countries like Argentina and Venezuela both have important Lebanese and Italian communities that settled there at the end of the nineteenth century).

"The term mafia [initially] refers to the leaseholders (*Gabelloto*) and field guard (*campiere*) who controlled rural estates on behalf of their absentee landowners. If we look at Lebanon through the Sicilian spectacles, the extent to which the countryside was controlled by similar social forces is striking: the Lebanese *zu'ama* (leaders) and *qabadayat* ('tough men'). In Lebanon as in Sicily, the remedy for peasant insurgency was political violence by estate managers and their agents" (Burke, 1993:25, original emphasis).

Of course these are elements of similarity, but not identical development paths. After the Second World War, Beirut and Mount Lebanon witnessed significant economic growth and began playing an important role in the Middle East regional economy. However, rural peripheral Lebanon was under-developed when compared to the core of the country. Rural landlords remained powerful, using violence and illegal economic activity. These regions

have been modernized without real economic development and despite persistently high unemployment. Their features remain similar to Sicily, although in a very different social, economical and historical context.

2.5 The Political Economy of the independent state 1943-1973

2.5.1 Transfer of capital, trade and growth

Lebanon did not witness changes to its ruling class following its independence in 1943. The same elite of merchants, bankers and landlords who were in control during the French mandate remained in power. Bchara Al-khoury (a Maronite leader from Mount Lebanon) and Riad As-Soleh (from the City of Saida) agreed upon what became known as the National Pact[14]. The non-written agreement divided power between the various Lebanese communities. The choice for an outward oriented open economy based on financial and trade services was in continuity with the country's historic development (Gates, 1998). After 1943, Beirut's role as a trade platform between Europe and the Arab hinterland continued to grow, while its financial role started to emerge. However, ties with France and Syria were obstacles for the expansion of trade and financial activities as intended by the political leadership. The years between 1943 and 1958, known as the "*Merchant Republic"* period, would draw and implement the main economic reforms on which the Lebanese economic system is based (for a full description of this period, see Gates (1998)).

Therefore, the first important economic reforms undergone after independence were the cutting of monetary and financial links with France in 1948, and the dissolution of the Syrian-Lebanese customs and monetary union in 1950. These ruptures permitted the Lebanese state to design economic policies based on the free movement of goods and capital. Furthermore, it allowed Lebanon to adopt an independent orthodox monetary policy. National budgets showed a surplus from 1943 to 1975, with the exception of 1967, which would be used to accumulate gold reserves and to maintain a strong currency. These reforms were

[14] The distribution of state leadership between communities such that the Presidency of the Republic went to the Maronites, who held much of the power, while the Presidency of the Council of Ministers went to the Muslim Sunni's, and the Speaker of the House to a Shiite. Members of parliament were to be divided according to a 6 Christians/ 5 Muslim members ratio. In this division, based on a demographic and political balance of power, the role of the Shiite Speaker was very limited.

complemented by the bank secrecy law of 1950, and the bilateral and multilateral trade agreements with the Arab countries of the Beirut hinterland. These policies helped in attracting capital from the Arab countries and from the Lebanese Diaspora, as well as increasing trade and service exports.

The economy of Lebanon witnessed notable growth since 1943. It was aided by a series of regional political events that asserted and promoted Beirut role as a financial and trade platform. The creation of the state of Israel in 1948 and the exile of thousands of refugees to Lebanon led to an influx of Palestinian bourgeoisie capital and competences, while businesses and economic activity took advantage of the Palestinian workers' conditions and readiness to work for low wages. A similar transfer of capital occurred with the change in political regimes and the establishment of quasi-socialist economies in Egypt, Syria and Iraq in the 1960's. However, the largest capital transfers were made by the emerging oil economies in the Gulf, and the openness of their markets to Lebanese agriculture and industrial exports and re-export. Finally, Beirut's role as a trade platform was enhanced with the Arab boycott of the Haifa port after 1948, and the closure of the Suez Canal between 1967 and 1976, following the occupation of the Sinai by the Israeli Army. Thus, most of the trade with the Middle East was transited through Lebanon. All these elements induced fast growth, based on the tertiary sector, extraverted and therefore fragile (Labaki 1998). If regional events played in favor of Lebanon from 1943 to 1975, this trend would be reversed and, together with social internal tensions, would form the factors that led to the 1975-1990 civil war(s).

2.5.2 Inequality and the Chehabist reforms

Growth in Lebanon was distributed unequally between regions, and economic sectors of activity (Labaki, 1998). In addition to industry, agriculture and rural development have been neglected, thus deepening the gap between Beirut and Mount Lebanon and the rest of the country. In terms of household income, the country exhibited a high Gini index reflecting the high levels of inequality. Inequality increased between 1960 (Gini index of 0.51) and 1971 (Gini index of 0.55)[15]. These figures do not represent the income inequality from the "real economy", as unequal distribution has been mitigated by dynamics for redistribution coming

[15] Figures reported by Gaspar (2004:96)

from both the state and from civil society (as well as by considerable remittances) (Labaki, 1998); in fact, these dynamics are still present today (see Chapter 3 Section 3.2).

After a political and social crisis in 1958, the newly elected president, Former Chief of the Lebanese Army General Fouad Chehab, enacted a series of reforms aiming at the redistribution of wealth and the re-enforcement of the state's administration (social security, Lebanese university, central bank), regulation (on the banking sectors and labor) and services (infrastructures, roads, schools). According to Debié and Pieter (2003:45), the Chehabist period was characterized by three political economy aspects that are still present nowadays:

- *"l'inflation administrative au service de la transition politique":* a political process in which the multiplication of public administrations was used by the ruling class to provide employment to their followers, further asserting the dynamics of patron relations. This hampered the effectiveness of the Chehabist reforms by creating a complex distribution of jurisdiction that overloaded the administration with employees. However, this particular aspect was seen as a form of wealth redistribution in a system incapable of providing job opportunities within its productive sectors.
- *"la concentration des investissements sur les infrascructures"*: in 1970, 70% of public expenses where directed towards main infrastructures: roads, electricity, and other types of construction.
- *"les effets d'annonces"*: an important number of development projects would be announced but never implemented.

The Chehabist reforms had important impacts on the economy and the building of state administration. Nevertheless, they were hampered by the political system and by the prerogative of keeping a surplus budget and a strong currency. The country was modernized in terms of institutions and infrastructure, but the overall economic policy was kept the same. Therefore the distribution role that was played by the Lebanese state under Fouad Chehab – and instrumentalized by the Lebanese ruling class in the form of patron-client relationship – was not able to stop the aggravation of the social and economic factors that - in addition to the change in the political and military conjecture in the Middle East – led to the 1975-1991 civil war.

2.6 The Political Economy of the Second Republic 1991-2011

2.6.1 Hariri rise to power: reconstruction and new power sharing balance

A detailed discussion of the political and economic dynamics of the Lebanese civil war is beyond the scope of this research. However, its consequences are of particular interest, and they can be divided into four main points: (i) the change in the balance of power between the community, which did not alter the basic mechanism of the state; (ii) the re-production of a similar economic system based on finance and trade; (iii) the Syrian hegemony and interference in state affairs up to 2005; and (iv) the growing power of *Hezbollah*. The combination of these factors led to a change in the political economy of the Lebanese territories, namely, the dynamics between the city and the rural areas.

The Khoury-Soleh National Pact of 1943 created the basis of the political contract between the Lebanese elite. The civil war was stopped when the Lebanese Parliament, in a meeting in the Saudi city of Taef, ratified a new constitution and set the outlines of future political reforms for what became known as the second Lebanese Republic. This time, the new political contract was made under Saudi hospice and with Syrian accord; two countries that continued to highly interfere in and influence the politics of Lebanon. The Taef Accord (1989) led to a redistribution of power between the Lebanese communities[16], which benefited Muslims in general and Sunnis in particular, as much of the institutional power and jurisdiction was redirected towards the Sunni Prime Minister. It is within this new institutional context, and after a second monetary crisis in 1992[17], that Rafic Hariri came to power.

[16] In institutional terms: the powers of the President, Prime Minister and the Speaker of the House where changed, and the Parliament was elected on a 1/1 ratio between Christians and Muslims members.

[17] A strong currency was at the base of the financial policy of the Lebanese government after independence, the pillar of an economy based on finance and trade. The Lebanese Lira (LBP) was seen as a secure devise and Arab capital transfers to Lebanon were kept in LBP. In 1972 and 1973, the central banks of India, and Algeria and the Word Bank issued securities in LBP. The Lebanese currency was able to withstand the civil war up to 1986, when private bank speculation – against the opinion of the Central Bank and with the support of political leaders and warlords – devaluated the LBP in several shocks. Since then, the country's economy became highly dollarized. In 1992, the government injected important liquidity into the economy under the form public salaries, public works, ect. The LBP crashed from 900 LBP per US dollar in January to 3000 in August, at the benefit of dollar capital holders, e.g. warlords – an ultimate compensation for the disarming of the militias?

A close friend of the Saudi royal family, Rafic Hariri was a prominent businessman with a multi-billion fortune, and an international network of political and business connections. He was acknowledged for his charitable work and investments in Lebanon's human capital, especially through the provision of scholarships to a large number of students. The majority of the Lebanese welcomed his appointment as Prime Minister, for he represented hope for better economic prospects after the civil war and the crisis of 1992 (Najem, 2000). He served as prime minister from 1992 to 2004 (with a two-year interruption between 1998 and 2000); these years are often referred to as the "successive Hariri governments" period. He was assassinated on February 14th of 2005.

The main goals of Hariri – and the aspirations of the Lebanese – were, the reconstruction of the country and the improvement of living standards. If the achievement of these goals was to be considered as a measure for the success of the Hariri governments, then indeed he did succeed. However, these accomplishments came at a high cost, for the policies he followed led to an accumulation of a huge public debt, a further reassertion of the previously existing state patron-client relations, and the persistence of an inequitable development of the Lebanese regions.

2.6.2 Hariri neo-liberal policies

Hariri's policies were primarily based on the protection of the Lebanese currency, the reduction of tariffs, the opening of the market, and the heavy reliance on debt to finance reconstruction projects, mainly in Beirut. The rebuilding of the Beirut downtown area was financed through a private company, in which Hariri himself was a major shareholder, while public infrastructure and spending were financed through debt issued by national commercial banks, rendering bankers as the main beneficiaries from these policies.

Hariri's plan was often criticized as being overly ambitious. It was argued that the newly appointed decision makers were highly influenced by a neoliberal orthodoxy, which was receiving acceptance and gaining support worldwide, and which advocated a minimal intervention of the government in adjusting economic imbalances[18] and redistributing wealth

[18] The Central Bank was adjusting the LBP stocks, and preserving a fixed exchange rate of 1500 LBP/USD. It managed the public debt and issued T-Bills to finance it. On several occasions, the Central Bank issued securities despite the opposing opinion of the Minister of Finance (1998 and 2004).

across the different regions (Corm 1994). Public investment was primarily dedicated to rebuilding physical infrastructure such as roads, the airport, and the Beirut business and tourist district (downtown area). The government practices were aligned with the criteria of the neoliberal state as defined by David Harvey (2005), where it applied a regressive taxation system through the introduction of a Valued Added Tax of 10% (to compensate the tariff reductions of 2000 and 2003), encouraged rentier-based economic activities, financed economic activities through implementing restrictive financial and monetary policies (such as pegging the LBP with to the USD), promoted privatization of public institutions (postal services, telecommunication, ongoing effort to privatize Electricity), and weakened independent syndicates through limiting the liberty of action of the General Workers Union in 1996, and resulted in the political fracturing of the Unions by the Ministry of Labor.

Neo-liberal policies concentrate wealth in a small part of the population, thus increasing inequality (Harvey, 2005). In Lebanon, the Hariri policies have exacerbated the existing regional disparities between the various regions through a process of inequitable development, leading to the marginalization of certain regions that witnessed increasing levels of poverty. Poor households suffered from a 4% annual decrease in their purchasing power between 1992 and 1999 (Debié and Pieter, 2003). The negative effects of the Hariri policies were mitigated to a certain extent through continued emigration. The mismatch between the demand and supply of certain labor specializations led many young professionals to leave the country in search for better work opportunities. The increased wages abroad, especially in the sectors of telecommunication, engineering, computer technology and finance, led to a continued "brain drain" from Lebanon, thus easing the pressure of increased unemployment in the country

2.6.3 Exacerbation of inequality and new political economy of the territories

Hariri also re-produced a similar economic choice based on trade and finance. In 1920 and 1943 the country's economical choices were led by traders, bankers and rural landlords; In 1992, landlords were substituted by warlords and the political parties emerging from the civil war – Amal and *Hezbollah*. However, the specificity of Lebanon did not allow for a full implementation of a neo-liberal state, for the state in its structure had to play a re-distributive role through its historical patron-client relationship dynamics. In addition to the economic and

social pressures coming from the streets, Hariri had to share power with political players who had interests in maintaining a large administration for their protégés.

Furthermore, development was focused on Beirut – even the role of Mount Lebanon had regressed, as the country had inherited from the war of a new territorial political economy. Regions like Akkar and Baalback-Hermel were underdeveloped before the war, and did not witness any investment during the *successive Hariri governments'* period, apart from very limited infrastructure construction. The situation differed in the regions of the south, where the effects of this inequitable development were not as detrimental because local political leaders had made large investments in the infrastructure of those regions, which were also receiving significant transfers of capital from Diaspora in Africa.

The civil war divided the Lebanese territory into regional cultural and political blocks under the control of the different militias / parties / religious communities. The territorial division went beyond the division of the mandate or that of independence, i.e. between Beirut and Mount Lebanon and the other regions. The civil war produced a mosaic of small territories and social spaces, in each of which the power of the state and the influences of the local political elite is relative. According to Debié and Pieter (2003:225), the state has gradually fought for its territory, bargaining and negotiating with powerful and less powerful political elites. However, today the state has to accept in several places the coexistence and the superposition of several political spaces ("*espaces politiques*"), and several systems of power, decision-making and legitimacy. One of these political space is the Hermel region.

2.7 Introduction to the political economy of Hermel

2.7.1 The muqata'ji resilience to political changes

The city of Hermel[19], although located in the Bekaa region, belonged administratively to the *mutasarrifiya.* This administrative status is explained by the presence of the *muqata'ji Hamada* family, which ruled over part of Mount Lebanon and fled after conflicts with the Maronite church (see Winter, 2010). However, they maintained good relation with the Ottoman High Porte and ruled Hermel in the same system of autonomy that prevailed in the *mutasarriifya*. Moreover, in addition to tax collection, the Ottoman regime used the *Hamada*

[19] See Chapter 1 Sub-section 1.6.3 for a geographical description of the Hermel *Caza*

for military control and thus ensured the repression of revolt in the *Jerd* and in the neighboring Christian villages, in the same function they had played in Mount Lebanon.

Silk production was present in Hermel, but the distance of the city from the Beirut port did not allow for a large development. As a consequence, agricultural cultivation remained very traditional, with pulses, cereals and vegetables for home consumption. In this lightly monetized economy, there was very little surplus for re-investment in land, and most farmers were not able to buy land, unlike in Mount Lebanon after 1840, following the capitalization of production that emerged with the silk industry (see Khater, 2001). In Hermel, the power relations between the *muqata'ji* –who later became landlord - and the farmers remained the same throughout the nineteenth century. In fact, at present, sharecropping agreements between the *Hamada* and other family landlords and farmers still exist in Hermel, and on the family's land that became part of Syria after 1920[20]. However, most agreements have evolved into informal leasing contracts, whereby sharecropper households take leasing contracts on the same parcels of land from the heirs of the landlords. The patron-client relations from the feudal system remain prevailing.

The French mandate – which was in need of a support from a Shiite leader – entered the city in 1926 with a previous agreement with the *Hamada*. The French mandate authorities wanted to extend state power to the rural areas; as such, they worked at empowering the *Hamada* by integrating them to the state institutions. They nominated Sabri Hamada as a Member of Parliament, and several members of the family became officers in the French Army (*Jendarma*). In exchange for these political power and privileges, the *Hamada* continued to play a military role in helping to repress successive rural revolts in the *Jerd* (Hamada, 1982 and Khalil 1990). Taha (2006) report how the cadastral census undertaken by the Mandatory authorities was instrumentalized by feudal families – including the *Hamada* – to enlarge their land estate, in a similar manner to the that described by Qbaysi (1986) in the Shiite rural regions in South Lebanon.

The *Hamada* family remained present in the Lebanese Parliament from 1925 to 1976. Sabri Hamada was elected Speaker of the House 21 times, holding the position for a

[20] The frontier of the Lebanese state as drawn by the French in 1920 divided the family estate into two parts, one in Lebanon and the other in Syria. In the latter, land reforms in the 1970's expropriated and redistributed a large part of this land to farmers.

discontinuous 21 years between 1943 and 1973. This highest position of power within the state for Shiites alternated between Hamada and Kamel Al-Assad, another feudal leader from South of Lebanon. Both stayed in power through their patron-client network, using state administrations to provide employment to their protégés. Just as the French needed support from the rural Shiite elite, the Maronite-Sunni National Pact also sought support from the same groups. To ensure the continuity of the existing coalition with the city merchants and bankers, as well as with the rural landlords, very little effort was made to develop rural areas. As such, rural landlords maintained their power and control over agricultural labor and farmers, as well as over their access to state service and employment. The rise of leftist and Arab nationalist political parties in Hermel and other rural areas did not succeed in totally breaking this dynamic, although they helped in raising the level of higher education through providing a large number of scholarships to students who studied in the Soviet Union and East Europe. The collapse of feudal political power within the Shiite community only came about during the civil war, with the rise of the Amal and *Hezbollah* political parties.

2.7.2 The A'shayer

The *A'shayer* [21] (clans) gradually moved to the *Jerd* area with the gradual exile of the *Hamada* from Mount Lebanon. Although there were tribal bonds between them, their power relations changed when they moved to the Hermel areas. The *A'shayer* were not farmers, and therefore not part of the sharecropping system on which the *Hamada* power and influences were based. Production relations in the *Jerd* were based on goat shepherding, which was the main economic activity of the *A'shayer*, with its own system of relations between the shepherds and the owners of the goats (the different types of goat shepherding agreements are reported in detail in Khalil, 1990). Under the protection of the *Hamada*, and because of transhumance, the *A'shayer* controlled large parcels of grazing land between the *Jerd* and the hills around Hermel city. They gradually started to farm part of this land as well.

In 1926, the French supported to the traditional leadership of the *Hamada* rather than the growing power of the *A'shayer*, resulting in the *A'shayer* revolt, whereby the French Army entered Hermel and repressed the *A'shayer*. According to Khalil (1990), the major difference between these two potential leaderships lay in the fact that the *Hamada* would form

[21] Correct transliteration: Al-'šā'r however A'shayer is used for simplified reading

a loyal ally to the Mandatory power, while the *A'shayer* would pose serious threats due to its inherent tribal nature. However, what Khalil failed to observe is the incapability of the *A'shayer* to control local labor forces and thus reassure their allegiance to the newly formed Lebanese state. As a consequence, the French failed to obtain the allegiance of the *A'shayer*. Moreover, since the 1926 failed revolution, relations between the *A'shayer* in Hermel's *Jerd* and the Lebanese state have witnessed regular violent clashes.

After a major armed clash between the Lebanese Army and the *A'shayer* in 1948, the state-*A'shayer* relations became instrumented by Fouad Chehab and Army intelligence. Their aims were to control the *A'shayer* and to create a power balance with Sabri Hamada leadership. Special relations were implemented, whereby the Ministry of Defense was directly responsible to solve the *A'shayer* demands. Nevertheless, the issues tackled were not related to developmental matters, but rather were restricted to the exoneration of prisoners and outlaws, as well as requests for state employment. Backed by Chehab, the *A'shayer* – through the election of their candidate to the Parliament – were thus integrated into the state institutions and to its patron-client mechanisms.

During the civil war, the role of the *A'shayer* in the economy of the Hermel region grew rapidly, and illegal economic activity was an important source of income for the region. The *A'shayer* leaders were able to accumulate wealth from the cultivation of illegal drugs in the *Jerd*. Their links and influences with the Syrian and Lebanese Army officers – indispensable for drug smuggling – also helped them to grow in political power. Although this power growth is not comparable to the rise of *Hezbollah* – with whom they militarily clashed in 1986 – the *A'shayer*. The post-war period elections have witnessed a competition between the *Hezbollah* and the *A'shayer* electoral lists. However, the former has largely imposed itself on the political scene. Its dominance grew with time, and by 2009 the *A'shayer*'s electoral power was marginal and did not constitute a real threat to *Hezbollah* dominancy.

2.7.3 The Rise of *Hezbollah* in Hermel

Post 2005 Hariri Hezbollah relationship

Hariri's first government occurred during the dynamic of the peace process launched by the Madrid conference in 1991, in which Syria was participating. Many political and economical analysts considered that Hariri's political agenda speculated on the success of the Madrid equation, whereby the normalization of relations between the Arabs states and Israel was a key factor. As a consequence, relations between *Hezbollah* – opposed to the peace process and defined by its armed resistance against Israel – and Hariri became increasingly conflicting and tense. On September 13, 1993, the Lebanese Army open fired on a *Hezbollah* demonstration against the Oslo peace process. However, with the collapse of Madrid process, and the Syrian change in position, relations between the two Lebanese power brokers slowly normalized. During the 1996 Lebanon-Israeli war, and Hariri's successful efforts to stop it and to obtain an accord in favor of Lebanon, which de-facto recognized the right of the Lebanese resistance to fight and bear arms, relations improved further.

Consensus between the two parties, premised on a construction-resistance slogan, was based on a mutual will for denial / cooperation. *Hezbollah* would keep a low profile on Hariri's economic reforms, and Hariri would accept the Shiite movement's armed resistance in the south. This equation held even after the Liberation of the South in 2000. However, "victorious" *Hezbollah* did not claim additional powers, and kept "denying" Hariri's economic actions, whereas Hariri would not raise the issues of the party's weapons. The priority of *Hezbollah* was focused on the preservation of the weapons of its resistance forces. Its strength was based in its popular support in the Bekaa region, in the South and the southern suburbs of Beirut, and its Syrian and Iranian affiliations.

The rise of Hezbollah in Hermel

As a matter of fact, *Hezbollah* grew independently of the state apparatus, creating its own social institutions – including agricultural extension services – and charity networks, financed by Iran and wealthy Shiite community members. The party offered a political and social structure parallel to the one of the state (Charara, 2006), and an alternative to traditional Shiite leadership that was weakened by the war. It is through these institutions and its national-resistance discourse that the power of *Hezbollah* has been growing in Hermel since

1982 till the present. However, the priority given to the resistance against the Israeli occupation and the consequent accords with Hariri required from the party to put aside the socio-economic and developmental needs of the regions under its political influence.

Since 1998 – date of the first municipal election after the civil war – *Hezbollah* controls the Hermel *Caza* municipalities. The role played by the party – through its social network and through the municipalities – in rural development in Hermel is discussed in Chapter 5.

2.8 Synthesis

It is worth noting two important characteristics of the political economy of Lebanon explored by this review:

- The first is related to the different "intensities" of capital penetration between that of the core of the country – Beirut and Mount Lebanon – and that of the periphery of the country, mainly the areas added in 1920 by the French Mandate. The differences in capital penetration created a still-present disparity in economic development between these two regions.
- The second characteristic is the re-production and deepening of territorial disparities with time and with the changes in ruling elite(s).

Changes to the ruling class in Lebanon have followed the patterns described by Lachman (1990), mainly through violent confessional confrontations of elites, during which non-elite demands were delegitimized and confessional/religious minority fears were instrumentalized. This pattern of behavior was witnessed in 1841, 1861, 1958, and during the civil war(s) between 1975 and 1990. In post-war Lebanon, similar patterns of elite-elite conflict resolution are still present, as in the Sunni-Shiite clashes of May 2008.

However, these violent changes have all kept intact the confessional system and the patron-client relations that characterize both that between citizens and their political leadership and that between the political leadership and the state. The confessional system and the patron-client relationships thereby allow successions of rulings elites (traders, bankers and rural landlords) to preserve a mode of production that serves their interests: a political economic

model based on the development of the country's core and at the expense of the rural periphery. This pattern of development has been repeated since 1943. Moreover, subsequent policies designed to challenge the status quo through implementing a more equal distribution of wealth were appropriated by the political leadership and used to maintain their power.

Within this context, the rise of *Hezbollah* as a political force – despite its roots in the oppressed Shiite classes and its dethroning of the traditional landlord elites of the Shiite community – did not change the system. The party's particular organizational structure and the services is provides – independent and parallel to that of the state – as well as its prioritization of military issues, did not promote or allow for a dynamic of change to the socio-economic realities in the region under its influence, e.g. Hermel.

The following Chapter discusses the issues of territorial inequalities apropos structural economics, together with an analysis of the main economic characteristics of the Lebanese model.

3 Structural Analysis of Lebanon's Economy

Chapter's outline

The present Chapter proposes a structural analysis of the Lebanese economy and agricultural sector using a Social Accounting Matrix (SAM) based on the **National Economic Account (NEA)** 2005 (PCM, 2007) and the **Household Living Condition Survey (HLCS)** of the same year. The resulting 202x202 Social Accounting Matrix for Lebanon 2005 (SAMLEB05) is the first estimation of a disaggregated accounting framework of that type for the country. It was constructed in order to highlights three elements: labor structure, income distribution and food consumption. (SAMLEB05 is fully annexed)

The Chapter is divided into two main parts the first one condensed in a unique Section (3.1) present the methodology used for the estimation and the results organized in a meaningful manner in order to help in the analysis that is carried out on income distribution (Section 3.2), the service sector (3.3) on the labor and capital productivity n the industrial sector (Section 3.3); and the Features of the Lebanese agriculture in Section (3.5) and constitute the second part of the Chapter.

"They oppressed you, they made you hungry.
They said 'you are good for a minibus driver
or a gasoil smuggler.'
In Baalbak there are no job opportunities
Cultivate a piece of land, you get broke
Go to Beirut to work
Kiss people's hands to get work with the Army or the Police
Or work in a private security company as a statue
[Or] in a restaurant as a servant.
If you eat from the Sultan's bread, you get killed by his sword."

Toffar rap group from Hermel – expressing the *"malaise"* of youth in rural area

Toffar (2010: CD track 01, author's translation)

3.1 Methodology: construction of a SAM for Lebanon 2005

3.1.1 From the Macro to the Micro SAM

A Social Accounting Matrix is a comprehensive framework, registering all transaction flows within a national, or regional economy. It is constructed from input-output tables and expands the view of the economy by including households, government and saving-investments, through integrating data from national accounts and household surveys in a comprehensive manner. It was first proposed by Stone (1966) and Pyatt and Round (1985).

The SAM is a map of the economy at a certain point in time (usually a specific year). It shows the "transformation" and distribution of specific economic variables such as, the transformation of production costs into payments to factors of production and their redistribution as income to specific institutions - households, the government and the rest of the world. Then this income is transformed into household expenditures, savings and taxes. The SAM framework is flexible as it can be constructed at various disaggregation levels.

Starting from a Macro-SAM and perform further disaggregation has been the methodology used by most IFPRI CGE modeling project (Round, 2003). However, disaggregation methodology is based on a series of assumption, especially in regard to distribution of income, as most data available are related to input-output tables and to consumptions. The assumptions are based on the specific structure of the economy and therefore the disaggregation process is country specific, although it follows a similar logic. Thiele and Piazolo (2002), Yusef (2006), Dorosh and Niazi (2006) describe in details the methodology used for the construction of a SAM for Bolivia, Indonesia and Pakistan respectively. The SAM presented in this research is the first disaggregated SAM done for Lebanon. Then it was not possible to contrast the matrix obtain with other studies, or apply an estimation approach already use in the literature. However several indicators show the accuracy of the estimation. The first one is the Gini index calculate based on income, which came out similar to the poverty index estimate based on consumption by the 2008 UNDP, MOSA poverty report (see Sub-section 3.3.1). The second indicator is the similar results obtained for the abolition of tariffs simulation, and the VAT increase simulation with previous literature (see Chapter 4 Section 4.4.3 and 4.4.4). The estimation methodology and the assumptions used for the construction of SAMLEB05 are described in the following.

3.1.2 Macro-SAM for Lebanon 2005

Table 3-1 is the macro-SAM for Lebanon 2005. It has been elaborated using the Lebanese National Economic Accounts (NEA) 2005 (PCM, 2007), which constitutes the starting point for the construction of the 202x202 micro-SAM (see annex). However, some values in the Macro-SAM differ from the NEA values. These differences are due to: (1) Updates in tax figures and administration accounts in further publications by the Ministry of Finance (2006); (2) Updates to the input-output Table made after the publication of the NAE by the Office of the President of the Council of Ministers, which were communicated to the author personally; (3) Elaboration of the data in order to calculate GDP at factor cost using an income approach, and obtaining a different breakdown of tax accounts.

The major change is in relation to the energy and water sector, which shows a negative added value in the NAE, to the budget deficit of Electricitè du Liban (EDL) and accounted for 974 Billion LBP in 2005, this deficit is compensated by direct transfer from the Government - mostly the gas oil bills of EDL[22]. In SAMLEB05 they are considered as a direct subsidy to the sector. Another important difference from NAE is related to the government asset depreciation which has been removed from government expenditure has it does not represent an income flow.

As a matter of fact, the macro-SAM working draft extracted from the NAE data was refined in parallel with the disaggregation process, which consisted of three main steps: (1) the disaggregation of the input-output table; (2) the disaggregation of income,(3) the disaggregation of the household account.

Finally the matrix obtained was balanced using a cross entropy method as included in the IFPRI model in GAMS. All data presented in this Chapter (including Table 1.1) is compiled from the final balanced SAM that was used as a benchmark for the CGE model presented in Chapter 4. The micro-SAM has 201 accounts (plus a TOTAL account), presented in Table 3-2 hereby:

[22] Personal communication ministry of finance

Table 3-1: Lebanon Macro-SAM 2005

in LBP billions	**Activities**	**Commodities**	**Factors**	**Households**	**Government**	**Capital**	**ROW**	**Total**
Activities		Sales **45.558**						Total domestic Production **45.558**
Commodities	Intermediate outputs **17,157**	Marketing margins **5,226**		Private consumption **28,801**	Gov. consumption **3,426**	Investment expenditures **7,074**	Exports **5,335**	Total marketed supply **61,793**
Factors	Value added **27,964**							Total factor income **27,964**
Households			Income **24,464**		Transfers from gov. **3,605**		Remittances **7,849**	Total househ. income **35,918**
Government	Indirect taxes **437**	Imports tariffs **2,642**	Gov income from factors **2,166**	Income taxes and other **2,635**				Total gov. income **7,880**
Capital				Households saving **4,482**	Government saving **-926**		Foreign savings **3,519**	Total savings **7,074**
ROW		Imports **13,593**	Factors income paid to ROW **1,334**		Gov. income paid to ROW **1,776**			Foreign ex.outlays **16,702**
Total	Total cost of production **45,558**	Total absorption **61,793**	Total value added **27,964**	Total household expenditure **35,918**	Total gov. expenditure **7,880**	Total investment **7,074**	For. exchange earnings **16,702**	

Source: NEA and SAMLEB05

Table 3-2: The SAMLEB05 202 accounts

Macro SAM accounts	Micro SAM accounts
Activities	**9 accounts**
	Agriculture (AGR), agro-industry (AGIND), industry (IND), construction (CONS), energy and water (ENW), Transport and telecommunication (TTCOM), services (SER), trade (TRADE), public administration (ADMIN)
Commodities	**24 accounts + 3 accounts for trade margins**
	Agricultural commodities (7): cereals (CRL), fruits (FRT), industrial crops (INDCRP), vegetables (VEGT), livestock (LIVES), livestock products (LIVESPR), and fish (FISH). **Agro-industrial commodities (10):** fresh meat (FRMT), food preserves (FPR), dairy products (DAIRY), fat and oil (FATOL), pasta (PASTA), sugar-chocolate- sweets (SGCHS), alcoholic beverages (ALBVRG), non-alcoholic beverages (NALBVRG), other food products (OTHER) and tobacco (TABAC). **Each of the other 7 sectors produces one commodity respectively:** CIND, CCONS, CENW, CTTCOM, CSER, CTRADE and CADMIN. **Trade margins are divided into three accounts:** domestic (TRNCSTDOM), on import (TRNCSTIMP) and on export (TRNCSTEXP)
Factors	**8 accounts**
	Capital (1): (CAP), **mixed income (2):** Farm unit: (FARM) and self-employment (SELF). Labor (5): high skilled labor (HGSK), white collar (WHCL), blue collar (BLCL), armed forces (ARMED) and foreign labor (FGNLAB)
Households	**150 accounts**
	Households are divided across 10 equals consumption deciles, which are in turn divided across 15 strata.
Government	**4 accounts**
	The government account (GOV) and **three tax accounts:** direct taxes on households (YTAX), taxes on activities (ATAX) and tariffs (TAR)
Capital	**2 accounts**
	Investments and savings (S-I) and changes in stocks (DSTK)
ROW	**1 account**
	Rest of the world (ROW)

3.1.3 Disaggregation of the input-output table

The output-input table allows to disaggregate the following cells of the macro-SAM: sales, intermediate inputs, trade margins (on domestic, imported and exported commodities assuming a constant ratio between total good value and trade margins), imports tariffs, imports, exports, investment expenditure (further disaggregated into GFCF and changes in stocks), and indirect taxes after correcting the value added data of the NAE in order to obtain factors cost values.

The disaggregation of the input-output available in the NAE follows from the data obtained through personal communication with the Office of the President of the Council of Ministers (PCM). The original table published in the NAE takes into consideration eight sectors of economic activity; however, for the purpose of this research the industrial sector has been disaggregated into industry and agro-industry, resulting in a nine-sector output-input table that contains nine sectors of production, and 22 commodities.

Tables 3-3 and 3-4 shows the structure of use of goods in Lebanon in 2005

Table 3-3: Structure of commodities uses and resources as percentage of total (2005)

		USES					RESOURCES			
	Commodities	Intermediate uses	Final consumption (private + Gov)	GFCF and DSTK	Exports	Total uses = resources	Output	Imports	Taxes on Imports	Trade Margins
AGR	CRL	1.84	0.16	-0.57	0.02	0.53	0.21	1.48		0.65
	FRT	1.71	2.31		3.34	1.97	1.76	0.65	0.76	5.82
	INDCRP	1.01	0.11		1.69	0.49	0.23	0.98	0.45	1.00
	VEGT	0.76	2.51		0.97	1.60	1.37	1.04	2.42	3.06
	LIVES	3.02	0.00	0.28		0.87	0.67	1.64		0.23
	LIVESPR	0.02	0.91		0.36	0.51	0.49	0.04	0.04	1.72
	FISH	0.01	0.79		0.05	0.42	0.13	0.45	0.08	2.66
	TOTAL AGR	**8.38**	**6.80**	**-0.28**	**6.42**	**6.39**	**4.84**	**6.28**	**3.75**	**15.13**
AGIND	FRMT	0.00	3.54		0.13	1.86	1.80	0.68	0.19	4.42
	FPR	0.23	0.75		1.65	0.60	0.32	1.04	2.16	0.52
	DAIRY	0.38	2.23	-1.00	0.09	1.16	0.60	1.93	1.21	2.85
	FATOL	0.51	1.35		0.64	0.90	0.57	1.10	0.42	2.64
	PASTA	0.05	2.71		0.71	1.49	1.45	0.90	0.79	2.22
	SGCHS	0.92	0.59		1.48	0.69	0.50	1.11	0.98	0.44
	ALBVRG		0.41		0.43	0.25	0.11	0.40	0.87	0.54
	NALBVRG		1.15		0.62	0.66	0.76	0.07	0.11	0.92
	OTHER	0.37	1.46		0.81	0.93	0.73	0.93	0.72	1.88
	TABAC		1.75		0.06	0.92	0.05	1.35	8.97	2.39
	TOTAL AGIND	**2.46**	**15.93**	**-1.00**	**6.62**	**9.45**	**6.87**	**9.50**	**16.43**	**18.81**
OTHER SECTORS	CIND	37.76	21.22	33.46	58.62	30.44	13.38	60.61	52.23	59.27
	CCONS			68.67		7.86	10.66			
	CENW	21.28	6.28	-0.85	0.19	9.10	2.92	23.61	27.59	6.79
	CTTCOM	13.34	7.61		3.81	8.00	10.85			
	CSER	16.78	31.54		7.18	21.73	29.47			
	CTRADE				17.17	1.48	13.48			**-100**
	CADMIN		10.63			5.54	7.52			
TOTAL		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	

Source: author's elaboration of National economic account data (PCM, 2007)

Table 3-4: Structure of uses and resources as percent of total uses for each commodity (2005)

		USES					RESOURCES			
	Commodities	Intermediate uses	Final consumption (private + Gov)	GFCF and DSTK	Exports	Total uses = resources	Output	Imports	Taxes on Imports	Trade Margins
AGR	CRL	95.95	15.85	-12.17	0.36	100	28.59	61.13	0.00	10.27
	FRT	24.16	61.22		14.63	100	66.06	7.31	1.64	24.98
	INDCRP	58.00	12.00		30.00	100	34.33	44.33	4.00	17.33
	VEGT	13.12	81.63		5.25	100	63.07	14.33	6.46	16.15
	LIVES	96.28		3.72		100	56.32	41.45		2.23
	LIVESPR	1.26	92.74		5.99	100	69.72	1.58	0.32	28.39
	FISH	0.96	98.07		0.97	100	22.01	23.55	0.77	53.67
	TOTAL AGR	**36.40**	**55.43**	**-0.51**	**8.67**	**100**	**55.86**	**21.62**	**2.51**	**20.02**
AGIND	FRMT		99.39		0.61	100	71.43	8.01	0.43	20.12
	FPR	10.57	65.58		23.85	100	39.02	38.21	15.45	7.32
	DAIRY	9.05	100.14	-9.89	0.70	100	38.30	36.49	4.46	20.75
	FATOL	15.80	78.10		6.10	100	46.50	26.75	1.97	24.78
	PASTA	0.98	94.88		4.13	100	71.71	13.38	2.29	12.62
	SGCHS	37.09	44.37		18.54	100	53.05	35.45	6.10	5.40
	ALBVRG		85.06		14.94	100	31.17	35.72	14.94	18.18
	NALBVRG		91.85		8.15	100	85.19	2.22	0.74	11.85
	OTHER	10.94	81.60		7.47	100	57.81	21.88	3.30	17.01
	TABAC		99.45		0.55	100	3.88	32.28	41.80	22.04
	TOTAL AGIND	**7.23**	**87.94**	**-1.22**	**6.05**	**100**	**53.62**	**22.11**	**7.43**	**16.83**
OTHER SECTORS	CIND	34.44	36.35	12.58	16.62	100	32.40	43.80	7.34	16.47
	CCONS			100		100	100			
	CENW	64.92	35.97	-1.07	0.18	100	23.67	57.06	12.96	6.31
	CTTCOM	46.30	49.60		4.11	100	100			
	CSER	21.44	75.71		2.85	100	100			
	CTRADE				100	100	670.52			-570.52
	CADMIN		100			100	100			
TOTAL		**27.77**	**52.15**	**11.45**	**8.63**	**100**	**73.73**	**22.00**	**4.28**	

Source: author's elaboration of National economic account data (PCM, 2007)

3.1.4 The disaggregation of value added

In the absence of data from household surveys, income is desegregated using estimation calculations based on variables of the Household Living Condition Survey 2004-05 (HLCS) – average wages, expenditure per capita – and on data from various studies. For each activity, value added at factor cost has been disaggregated following the rationale of income distribution between the main agents in the economy: the government, the enterprises and the workers. As shown in equation 1, value added is the sum of government return on capital, profit and mixed income of enterprises, and workers' wages. In the process, three types of enterprises are considered:

Equation 1: Disaggregation of value added

$$\overline{VA_a} = \overline{incCGov_a} + \sum_{c \in C} incC_{ca} + \sum_{l \in L} incL_{la} \qquad a \in A$$

$Set\ A: activities\ \{AGR, AGIND, IND, CONS, ENW, TTCOM, SER, TRADE, ADMIN\}$
$Set\ C: capital\ and\ mixed\ income\ factors\ \{CAP, FARM, SELF\}$
$Set\ L: Labor\ factors\ \{HGSKL, WHTcl, BLUcl, ARMED, FNGLAB\}$
$\overline{VA_a}: value\ added\ from\ activity\ a$
$\overline{incCGov_a}: governement\ return\ on\ capital\ from\ activity\ a$
$incC_{ca}: capital\ and\ mixed\ income\ return\ from\ factor\ c\ in\ activity\ a$
$incL_{la}: waged\ income\ of\ factor\ l\ in\ activity\ a$

Companies owned by employers and having waged workers. In that case employers receive profit from capital: (factor of production CAP).

Farms, exploited by farmers and their households or by landowners employing farm tenants. In that case, farmers receive mixed income from their labor and from land, while landowners receive profits, (both under the factor of production FARM). Note that tenants receive wages.

Self-employed agents who receive mixed income from their labor and form their returns on investment (factor of production: SELF).

Lebanese workers receive wages from four categories of labor:

- High skilled labor (HGSKL) which includes specialists and corporate managers according to the household living condition (HLCS) survey categories (MOSA; 2004), (HGSKL)
- White colt labor (WHTcl) which includes intermediate professionals, and office employees HLCS categories
- Blue colt labor (BLUct) which includes service/sales labor, skilled labor, and unskilled labor HLCS categories
- Armed forces labor (ARMED) which includes the same category in the HLCS
- Foreign workers receive wages that are then paid to the rest of the world (ROW) from the FGNLAB factors of production.

The total income for each labor factor is determined through a two-step process synthesized in equation 2. First total labor income for each activity is determined by multiplying the total number of workers by the average wage in the sector of activity (data extracted and adapted from the HLCS). Then this total amount is distributed across different factors of production used by the activity and weighted by the specific wage of the labor type, as shown in equation 2.

Equation 2: Estimation of Labor factor income for activity a and labor l

$$\boldsymbol{incL_{la} = n_a . w_a . \left[\frac{m_{la}}{n_a} \times w_l\right]}$$

n_a: $total\ number\ of\ workers\ in\ activity\ a$
m_{la}: $number\ of\ workers\ l\ in\ activity\ a$
w_a: $average\ wage\ in\ activity\ a$
w_l: $national\ avera\ wage\ of\ labor\ l$

Government income from capital factors of production being given (NAE data), enterprise profits are determined by first calculating the total amount for each activity by subtracting government and workers' income from total value added. As no data on the income of employers, self-employed, and farmers were made available by public institutions, the share of each enterprise was estimated simultaneously with the distribution of – CAP,

FARM, SELF – factors income to household groups. Each household receives a share of total capital income as a weighted average of the number of employers and self-employed within each household group (Unpublished elaborated data from HLCS). The weight used for this average is the value added per region for each type of enterprise, (see the small and medium enterprise survey Hamdan (2005) and per household consumption (HLCS unpublished elaborated data). Equation 3 synthesizes this process.

Equation 3: Distribution of household capital and mixed income.

$$\boldsymbol{incC_{ca} = \left[\overline{VA_a} - \overline{incGOV_a} - \sum_{l \in L} incL_{la}\right]\left[\frac{\sum_{h \in H} q_{cah} \cdot R_{cr} \cdot E_h}{\sum_{h \in H}\sum_{c \in C} q_{cah} \cdot R_{cr} \cdot E_h}\right] \quad r \in R}$$

$Set\ H: Households\ \{h_1, \ldots., h_{150}\}$

$Set\ R \subset H: Lebanese\ regions\ \{Beirut, Mtlebanon, South, North, Bekaa\}$

$q_{cah}: number\ of\ entreprise\ c\ in\ activity\ a\ for\ household\ type\ h$

$R_{crh}: Average\ added\ value\ per\ workers\ for\ factor\ c\ in\ region\ r$

$E_h: Expenditure\ per\ household\ of\ household\ type\ h$

Hereby, Table 3-5 show distribution of production cost, and Tables 3-6 and 3-7 present the result of the disaggregation of value added across factors of production.

Table 3-5: Distribution of production cost across inputs, factors and taxes as percentage of total cost (2005)

	AGR	AGIND	IND	CONS	ENW	TTCOM	SER	TRADE	ADMIN	TOTAL
Intermediate inputs	22.47	52.89	60.42	45.06	114.05	52.27	18.63	20.37	37.36	**37.66**
Factors of production	77.48	45.23	37.86	53.19	58.38	46.22	77.36	70.87	62.64	**61.38**
Taxes	0.05	1.88	1.72	1.75	-72.43	1.52	4.01	8.76		**0.96**
Total output value	100	100	100	100	100	100	100	100	100	**100**

Source: author's elaboration of National economic account data (PCM, 2007)

Note on **Table: 3-5** In theory, taxes on activities - apart from agriculture - should be more/around 10%, which is the VAT tax rate, to which several administrative taxes are added. However, tax rates are lower because enterprises with turnover rates under a certain level are exempted from taxes, and the government, despite some recent improvements, still faces difficulties in collecting taxes. The very low tax rate for industry is indicative of the significantly large informal sector, and the burgeoning of very small entrepreneurship. This situation is similar in the other sectors where the level of self-employment is high; an example could be the large number of self-employed taxis and mini-bus drivers in private transportation. The state ownership of telecommunication creates a situation government income from the TTCOM sector is not considered as a tax but as a payment from CAP factor of production to the government.

Table 3-6: Disaggregation of value added across factors of production aspercentage share of total for each sector (2005)

		AGR	AGIND	IND	CONS	ENW	TTCOM	SER	TRADE	ADMIN	TOTAL
Capital			**71.59**	**41.47**	**43.30**	**91.44**	**63.75**	**41.02**	**44.16**		**40.90**
Mixed income	Farm	**73.85**									**4.52**
	Self-empl.		**10.79**	**24.16**	**22.07**		**22.99**	**25.59**	**26.25**		**20.05**
Labor	HGSKL		0.76	1.48	0.61	0.42	0.82	6.23	1.27	39.59	5.84
	WHTcl		3.95	7.79	2.30	2.22	8.82	14.73	7.64	10.01	9.27
	BLUcl	10.70	11.92	23.18	12.26	5.91	3.63	8.60	18.16	13.27	11.80
	ARMED									37.13	2.85
	FNGLAB	15.45	0.99	1.92	19.46			3.84	2.52		4.77
Total Labor		**26.15**	**17.62**	**34.38**	**34.63**	**8.56**	**13.27**	**33.39**	**29.59**	**100**	**35.53**
Total		100	100	100	100	100	100	100	100	100	100

Source: SAMLEB05

Table 3-7: Disaggregation of value added across factors of production as percentage share of total for each factor (2005)

		AGR	AGIND	IND	CONS	ENW	TTCOM	SER	TRADE	ADMIN	TOTAL
Capital			**8.86**	**8.36**	**9.78**	**6.21**	**12.73**	**37.25**	**16.81**		100
Mixed income	Farm	**100**									100
	Self-empl.		**2.72**	**9.94**	**10.17**	**0.00**	**9.36**	**47.42**	**20.38**		100
Labor	HGSKL		0.66	2.09	0.96	0.20	1.14	39.58	3.38	51.99	100
	WHTcl		2.16	6.94	2.30	0.67	7.77	59.04	12.83	8.29	100
	BLUcl	5.54	5.11	16.20	9.60	1.39	2.51	27.06	23.95	8.63	100
	ARMED									100	100
	FNGLAB	19.81	1.05	3.32	37.71			29.87	8.24		100
Total Labor		**4.63**	**2.58**	**8.21**	**9.27**	**0.69**	**3.14**	**35.92**	**13.34**	**22.22**	100
Total GDP SHARE		**6.12**	**5.06**	**8.25**	**9.24**	**2.78**	**8.17**	**37.14**	**15.57**	**7.67**	100

Source: SAMLEB05

3.1.5 Disaggregation of the household account

The household account of the Macro-SAM has been disaggregated into 150 household types in a two-step process. First the household survey raw data were elaborated to obtain 15 household groups according to geographical distribution, or strata. Then from the first disaggregation households were distributed into deciles of equal size, based on their per-capita consumption, Table 3-8 shows the distribution of the deciles groups across the different strata.

Household income is the sum of the household share of each of the factor income, transfers from the government (to employees and as interest payment of government securities), and remittances from the rest of the world. Government transfers to employees (other than wages) are directly extracted from national accounts and distributed proportionally according to the number of government employees in each household group. Households are assumed to invest their savings in government securities; therefore, each household group receives a share of government interest domestic payment proportional to its savings prior to the interest payment. The latter assumption holds because of the important borrowing policies undertaken by the government starting from 1992.

Equation 4 below shows the estimation method used for the distribution of factor income across different households.

Equation 4: Household income

$$\boldsymbol{Hinc_h = \sum_{a\in A}\sum_{c\in C} incC_{ca}\cdot \frac{q_{cah}\cdot R_{cr}\cdot E_h}{\sum_{h\in H}\sum_{c\in C} q_{cah}\cdot R_{cr}\cdot E_h}}$$

$$\boldsymbol{+\sum_{a\in A}\sum_{l\in L} incL_{la}\cdot \frac{mh_{hla}}{m_{la}} + \overline{GOVemp}\frac{nh_{h\ ADMIN}}{n_{ADMIN}}}$$

$$\boldsymbol{+\overline{GOVint}\frac{S^{int}{}_h}{\sum_{h\in H} S^{int}{}_h} + REMT_h}$$

$Hinc_h$: *income of household h*

mh_{hla}: *number of workers l in activity a in household h*

$\overline{GOVemp}$: *governement transfer to employees*

$\overline{GOVint}$: *governement interest paid to households*

$nh_{h\ ADMIN}$: *number of workers in the public administatrion in household h*

$S^{int}{}_h$: *saving of household h before recieved governement interest*

$REMT_h$: *remittances recieved by household h*

The result of the disaggregation of the households account into consumption deciles is presented in Tables 3-9 and 3-10, and in Tables 3-11 and 3-13 by strata. Table 3-14 shows households deciles consumptions shares. Data on income and consumption of the 150 households groups can be extracted from SAMLEB05 (see annex).

Table 3-8: Distribution of household deciles across strata (2005)

		HHD_1	HHD_2	HHD_3	HHD_4	HHD_5	HHD_6	HHD_7	HHD_8	HHD_9	HHD_10	Total
North Lebanon	Akkar/minieh-dennieh	28.82	22.04	12.88	12.03	6.41	4.84	3.06	1.88	1.05	0.71	9.95
	Tripoly city	14.36	7.95	4.48	4.97	4.01	2.28	2.35	1.94	3.46	0.93	5.00
	Koura/Zgharta/Batroun/Bsharre	1.45	1.60	2.35	1.51	3.21	2.74	3.24	2.13	2.28	4.20	3.57
	Total	**44.64**	**31.60**	**19.70**	**18.51**	**13.63**	**9.86**	**8.64**	**5.95**	**6.79**	**5.84**	**18.52**
Mont Lebanon	Keserwan/jbeil	0.22	0.22	1.27	2.50	4.01	4.50	5.53	9.53	7.65	14.67	5.41
	Maten	0.59	0.89	2.19	3.42	4.50	7.31	9.12	10.79	11.00	11.34	9.87
	Baabda	8.20	9.93	14.64	15.12	15.60	14.57	18.22	14.16	13.14	9.97	14.71
	Shouf/Aley	5.15	10.57	9.42	9.29	12.43	12.32	11.05	11.32	11.91	10.31	12.30
	Total	**14.15**	**21.61**	**27.51**	**30.33**	**36.54**	**38.70**	**43.92**	**45.80**	**43.71**	**46.29**	**42.29**
Beirut city		**0,34**	**1.48**	**3.03**	**2.68**	**4.66**	**6.96**	**6.73**	**8.88**	**15.12**	**20.75**	**11.40**
South Lebanon	Jezzine/Saida	13.50	15.94	11.92	6.39	7.52	5.39	4.88	5.24	4.38	4.94	7.29
	Sour	5.52	5.80	8.09	7.62	4.90	4.74	4.08	3.33	2.59	1.76	2.85
	Total	**19.02**	**21.73**	**20.01**	**14.01**	**12.43**	**10.14**	**8.95**	**8.57**	**6.97**	**6.70**	**10.14**
Nabatieh Administration	Nabatieh	0.80	3.70	4.57	5.06	4.87	8.13	8.89	9.16	6.20	6.11	3.18
	Bent Jbeil/Marjaayoun/Hasbayya	1.91	3.67	5.31	6.85	5.61	5.02	5.31	4.23	3.67	1.85	2.73
	Total	**2.71**	**7.37**	**9.88**	**11.91**	**10.48**	**13.15**	**14.20**	**13.39**	**9.87**	**7.97**	**5.91**
Bekaa	West Bekaa/Rashayya	5.92	6.23	6.55	8.27	8.70	6.72	6.45	8.42	8.33	4.35	4.47
	Zahle	3.85	2.68	3.77	4.41	5.67	5.88	5.40	5.09	6.70	6.70	3.28
	Hermel/Baalbek	9.37	7.31	9.54	9.87	7.89	8.60	5.68	3.89	2.50	1.39	5.03
	Total	**19.14**	**16.21**	**19.86**	**22.55**	**22.26**	**21.20**	**17.54**	**17.40**	**17.53**	**12.44**	**12.78**
TOTAL HHD		100	100	100	100	100	100	100	100	100	100	100

Source: SAMLEB05

Table 3-9: Distribution of income across household deciles as percentage of total factors income (2005)

	Factors of production								Factors	Gov Transfers	Remittances	Grand Total
	CAP	FARM	SELFempl.	HGSKL	WHTcl	BLUcl	ARMED	**TOTAL**				
HHD_1	0.16	8.56	2.14	1.12	2.27	12.18	3.58	**3.07**	3.07	2.33	7.29	**3.92**
HHD_2	0.63	7.80	3.65	1.34	2.61	11.33	6.76	**3.59**	3.59	3.45	9.07	**4.77**
HHD_3	0.70	11.73	4.22	2.04	3.86	11.18	6.85	**4.11**	4.11	3.41	9.72	**5.27**
HHD_4	1.15	10.45	5.49	2.86	6.41	8.68	9.85	**4.59**	4.59	4.32	10.36	**5.83**
HHD_5	2.25	11.38	6.21	5.94	7.44	10.60	12.97	**5.90**	5.90	6.31	9.79	**6.79**
HHD_6	3.26	9.38	7.06	7.65	9.61	9.53	12.12	**6.54**	6.54	6.53	11.76	**7.68**
HHD_7	6.14	10.02	9.33	10.45	12.32	9.07	14.99	**8.70**	8.70	8.08	10.12	**8.94**
HHD_8	9.59	10.65	10.75	13.09	14.04	10.29	14.80	**10.88**	10.88	9.49	9.84	**10.51**
HHD_9	11.81	10.60	16.08	18.59	18.53	8.26	11.43	**13.40**	13.40	10.40	14.19	**13.27**
HHD_10	64.31	9.43	35.09	36.92	22.91	8.87	6.66	**39.22**	39.22	45.67	7.87	**33.01**
TOTAL HHD	100	100	100	100	100	100	100	100	100	100	100	100
Households	81.07	100	100	100	100	71.22	100	87.49				
GOV	18.93							7.75				
ROW						28.78		4.77				
TOTAL	100	100	100	100	100	100	100	100				

Source: SAMLEB05

Table 3-10: Distribution of income across household deciles as percentage of total deciles income (2005)

	Factors of production								Factors	Gov Transfers	Remittances	Grand Total
	CAP	FARM	SELFempl.	HGSKL	WHTcl	BLUcl	ARMED	TOTAL				
HHD_1	2.00	14.40	16.01	2.44	7.83	53.53	3.80	100	53.38	5.96	40.66	100
HHD_2	6.96	11.20	23.27	2.49	7.69	42.54	6.12	100	51.26	7.25	41.50	100
HHD_3	6.41	14.72	23.52	3.32	9.94	36.66	5.42	100	53.18	6.50	40.32	100
HHD_4	9.52	11.73	27.36	4.16	14.76	25.48	6.98	100	53.71	7.45	38.84	100
HHD_5	14.44	9.96	24.11	6.73	13.36	24.24	7.16	100	59.16	9.33	31.51	100
HHD_6	18.87	7.40	24.71	7.81	15.54	19.65	6.03	100	58.03	8.54	33.43	100
HHD_7	26.79	5.94	24.57	8.02	15.00	14.06	5.61	100	66.23	9.06	24.71	100
HHD_8	33.42	5.05	22.63	8.03	13.66	12.76	4.43	100	70.48	9.08	20..40	100
HHD_9	33.43	4.08	27.49	9.26	14.65	8.32	2.78	100	68.77	7.87	23.36	100
HHD_10	62.19	1.24	20.50	6.29	6.18	3.05	0.55	100	80.91	13.88	5.21	100
TOTAL HHD	**37.92**	**5.16**	**22.91**	**6.68**	**10.59**	**13.49**	**3.26**	100	**68.12**	**10.04**	**21.85**	100
Households	37.92	5.16	22.91	6.68	10.59	13.49	3.26	100				
GOV	100							100				
ROW						100		100				
TOTAL	**40.92**	**4.51**	**20.04**	**5.84**	**9.26**	**16.57**	**2.85**	100				

Source: SAMLEB05

Table 3-11: Distribution of income across strata as percentage of total strata income (2005)

		Factors of production								Factors	Gov transfers	Remittances	Grand total
		CAP	FARM	SELFempl.	HGSKL	WHTcl	BLUcl	ARMED	TOTAL				
North Lebanon	Akkar/minieh-dennieh	11.18	14.22	20.44	6.38	10.28	24.11	13.39	100	56.61	12.05	31.33	100
	Tripoly city	11.83	4.25	21.82	14.06	16.09	26.54	5.41	100	61.88	11.70	26.43	100
	Koura/Zgharta/Batroun/Bsharre	27.58	16.44	14.55	8.17	10.87	17.21	5.17	100	59.11	16.18	24.70	100
	Total	**15.61**	**11.88**	**19.32**	**9.09**	**12.13**	**23.04**	**8.93**	**100**	**58.72**	**13.01**	**28.27**	100
Mont Lebanon	Keserwan/Jbeil	45.28	2.69	28.57	5.10	9.51	7.84	1.02	100	78.18	11.90	9.92	100
	Maten	45.57	0.99	19.85	5.72	12.35	12.96	2.57	100	74.09	10.06	15.85	100
	Baabda	27.73	0.21	25.55	8.51	14.87	19.63	3.49	100	63.82	5.60	30.58	100
	Shouf/Aley	45.35	1.85	19.21	5.40	11.49	13.30	3.41	100	73.15	9.28	17.58	100
	Total	**40.49**	**1.39**	**23.29**	**6.27**	**12.16**	**13.71**	**2.68**	**100**	**71.52**	**8.86**	**19.61**	100
Beirut city		**56,89**		**22.48**	**5.69**	**7.38**	**7.12**	**0.44**	**100**	**78.27**	**11.38**	**10.09**	100
South Lebanon	Jezzine/Saida	19.22	3.49	30.11	7.37	12.75	24.15	2.91	100	65.28	8.13	26.60	100
	Sour	13.62	14.08	34.01	9.22	11.27	16.38	1.42	100	60.90	8.26	30.84	100
	Total	**17.02**	**7.65**	**31.64**	**8.09**	**12.17**	**21.10**	**2.33**	**100**	**63.48**	**8.18**	**28.33**	100
Nabatieh Administration	Nabatieh	16.27	4.20	43.82	11.71	10.45	10.88	2.67	100	54.42	9.85	35.73	100
	Bent Jbeil/Marjaayoun/Hasbayya	24.58	20.15	28.74	3.61	9.43	11.54	1.95	100	60.76	12.75	26.49	100
	Total	**19.78**	**10.94**	**37.45**	**8.29**	**10.02**	**11.16**	**2.37**	**100**	**56.93**	**11.00**	**32.07**	100
Bekaa	West Bekaa/Rashayya	38.52	15.50	11.25	6.37	8.01	11.44	8.91	100	57.12	10.16	37.81	100
	Zahle	41.50	17.73	13.32	5.38	8.93	8.83	4.31	100	62.68	8.42	22.85	100
	Hermel/Baalbek	23.49	36.35	12.34	5.98	5.26	10.11	6.46	100	54.60	9.06	36.34	100
	Total	**35.69**	**21.90**	**12.34**	**5.88**	**7.63**	**10.08**	**6.48**	**100**	**58.23**	**9.28**	**32.49**	100
TOTAL HHD		**37,92**	**5.16**	**22.91**	**6.68**	**10.59**	**13.49**	**3.26**	**100**	**68.12**	**10.04**	**21.85**	100

Source: SAMLEB05

Table 3-12: Distribution of income across strata as percentage of total factor income (2005)

		Factors of production								Factors	Gov transfers	Remittances	Grand total
		CAP	FARM	SELFempl.	HGSKL	WHTcl	BLUcl	ARMED	TOTAL				
North Lebanon	Akkar/minieh-dennieh	1.61	15.05	4.87	5.22	5.30	9.76	22.45	5.46	5.46	7.89	9.42	6.57
	Tripoly city	1.11	2.93	3.39	7.50	5.42	7.01	5.93	3.56	3.56	4.57	4.75	3.92
	Koura/Zgharta/Batroun/Bsharre	2.29	10.01	2.00	3.85	3.23	4.01	4.99	3.14	3.14	5.84	4.10	3.62
	Total	**15.61**	**28.01**	**10.26**	**16.57**	**13.94**	**20.79**	**33.37**	**12.17**	**12.17**	**18.31**	**18.26**	**14.12**
Mont Lebanon	Keserwan/Jbeil	12.34	5.38	12.89	7.89	9.28	6.01	3.24	10.33	10.33	10.68	4.09	9.00
	Maten	12.16	1.94	8.77	8.67	11.80	9.73	7.98	10.12	10.12	9.33	6.75	9.31
	Baabda	9.02	0.50	13.76	15.72	17.33	17.96	13.21	12.34	12.34	7.34	18.43	13.17
	Shouf/Aley	13.94	4.18	9.77	9.42	12.64	11.49	12.21	11.66	11.66	10.03	8.73	10.85
	Total	**47.46**	**12.00**	**45.19**	**41.71**	**51.06**	**45.18**	**36.64**	**44.45**	**44.45**	**37.38**	**38.01**	**42.33**
Beirut city		**33,09**		**21.64**	**18.78**	**15.38**	**11.65**	**2.95**	**22.06**	**22.06**	**21.69**	**9.13**	19.20
South Lebanon	Jezzine/Saida	2.28	3.05	5.92	4.97	5.43	8.07	4.03	4.51	4.51	3.81	5.72	4.70
	Sour	1.05	7.95	4.33	4.02	3.10	3.54	1.27	2.91	2.91	2.68	4.60	3.26
	Total	**3.33**	**11.00**	**10.25**	**9.00**	**8.53**	**11.61**	**5.31**	**7.42**	**7.42**	**6.49**	**10.33**	**7.96**
Nabatieh Administration	Nabatieh	1.17	2.22	5.21	4.78	2.69	2.20	2.24	2.73	2.73	3.35	5.58	3.41
	Bent Jbeil/Marjaayoun/Hasbayya	1.29	7.78	2.50	1.08	1.77	1.70	1.19	1.99	1.99	2.84	2.71	2.23
	Total	**2.46**	**10.00**	**7.71**	**5.86**	**4.46**	**3.90**	**3.43**	**4.72**	**4.72**	**6.19**	**8.29**	**5.65**
Bekaa	West Bekaa/Rashayya	3.25	9.60	1.57	3.05	2.42	2.71	8.75	3.20	3.20	4.23	7.24	4.18
	Zahle	3.89	12.22	2.07	2.86	3.00	2.33	4.71	3.56	3.56	2.96	3.69	3.52
	Hermel/Baalbak	1.51	17.18	1.31	2.18	1.21	1.83	4.84	2.44	2.44	2.75	5.06	3.04
	Total	**8.65**	**38.99**	**4.95**	**8.09**	**6.63**	**6.87**	**18.30**	**9.19**	**9.19**	**9.94**	**15.99**	**10.75**
TOTAL HHD		100	100	100	100	100	100	100	100	100	100	100	100

Source: SAMLEB05

Table 3-13: Households deciles consumption shares (2005)

		HHD_1	HHD_2	HHD_3	HHD_4	HHD_5	HHD_6	HHD_7	HHD_8	HHD_9	HHD_10	Lebanon
Total Food		**40.34**	**36.49**	**34.22**	**32.41**	**30.28**	**28.53**	**26.70**	**25.12**	**22.38**	**16.38**	**25.43**
of which:	*Cereals. breads. pasta*	*19.52*	*16.13*	*14.94*	*14.34*	*13.54*	*12.65*	*12.25*	*11.81*	*11.25*	*10.54*	*13.11*
	Fruits and vegetables	*21.03*	*20.04*	*20.78*	*20.66*	*20.72*	*21.29*	*21.17*	*21.50*	*22.09*	*21.68*	*21.22*
	Dairy and livestock prd	*12.14*	*13.17*	*13.56*	*13.91*	*13.72*	*13.98*	*14.71*	*14.70*	*14.74*	*13.13*	*13.83*
	Fish	*2.93*	*2.59*	*2.25*	*2.61*	*2.91*	*2.74*	*3.11*	*3.24*	*4.00*	*5.64*	*3.47*
	Meat	*11.80*	*15.00*	*15.54*	*15.68*	*15.15*	*15.95*	*16.75*	*16.30*	*16.35*	*15.61*	*15.58*
	Fats and oil	*4.54*	*5.16*	*4.95*	*5.02*	*5.94*	*5.98*	*5.13*	*6.51*	*6.08*	*7.68*	*5.94*
	Food conserves	*12.53*	*11.77*	*11.23*	*10.79*	*10.82*	*9.61*	*9.61*	*9.34*	*8.32*	*7.36*	*9.72*
	Sweets	*2.86*	*2.65*	*2.32*	*2.55*	*2.42*	*2.49*	*2.46*	*2.59*	*2.55*	*2.79*	*2.58*
	Alcoholic beverages	*0.14*	*0.48*	*0.18*	*0.56*	*1.29*	*1.15*	*1.43*	*1.96*	*2.72*	*4.32*	*1.79*
	Beverages	*4.11*	*4.34*	*4.78*	*4.59*	*4.87*	*5.11*	*5.27*	*5.35*	*5.38*	*5.73*	*5.08*
	Tabacco	*8.40*	*8.67*	*9.46*	*9.29*	*8.62*	*9.06*	*8.10*	*6.70*	*6.53*	*5.50*	*7.70*
	Total Food	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Manufactured goods		**16.73**	**19.25**	**19.67**	**19.44**	**20.43**	**20.82**	**21.36**	**22.97**	**23.98**	**30.45**	**23.74**
Energy and water		**10.12**	**9.13**	**8.66**	**8.54**	**8.29**	**7.82**	**7.50**	**6.88**	**6.40**	**5.04**	**7.02**
Transport and telecom.		**3.83**	**5.16**	**6.01**	**7.41**	**7.94**	**9.20**	**9.90**	**9.87**	**10.04**	**8.79**	**8.51**
Services		**28.97**	**29.97**	**31.45**	**32.19**	**33.05**	**33.62**	**34.55**	**35.15**	**37.20**	**39.34**	**35.29**
Total HHD consumption		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

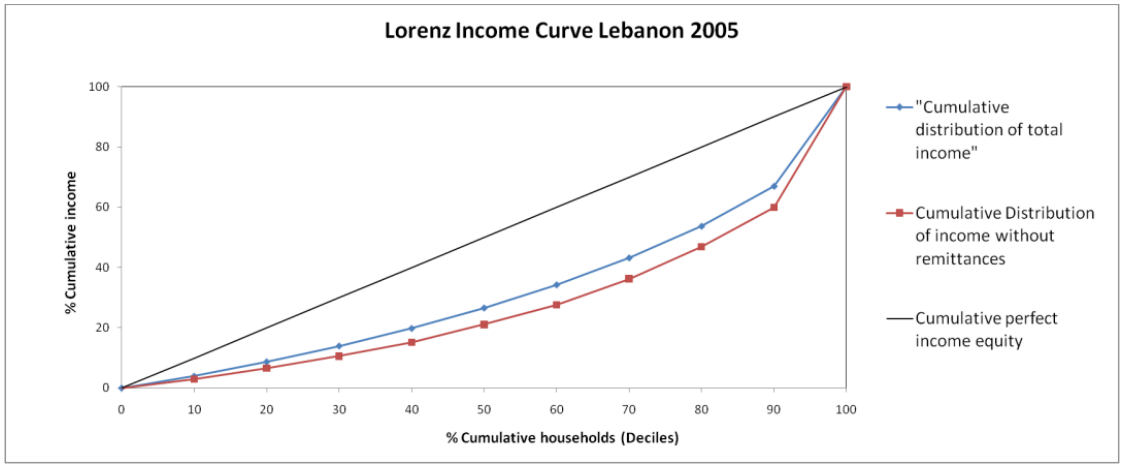
Source: Household Living conditions survey HLCS raw data elaborated by the author

3.2 Inequality in wealth distribution

3.2.1 Household income inequality

The Lebanese economy is an economy that consumes more than it produces. It relies on significant capital transfers from abroad, which form up to 21.85% of total households income, at least around 40% for the bottom four deciles, and more than 30% of total income for all marginal areas (refers to Tables 3-9 and 3-10). This data not only demonstrates the gravity of the inequality generated by Lebanese capitalism - the richest deciles concentrate 64.31% of total capital return, 35.09% of SELF and 36.92% of HGSKL, 39.21% of total factor income and 33.01% of total income (see Table 3-11). Furthermore 68% of savings are concentrated within the richest deciles (data extracted from SAMLEB05) - but also reflects the mechanism of capital transfer through which the system is able to sustain itself. As a matter of fact, remittances are not just money sent by expatriates in order to remediate to the basic needs of their families back home, they represent an important source of savings, non-subsistence and/or luxury consumption for middle and upper-class households. As shown in Figure 3-1 capital transfers from abroad help in reducing inequality reflected in the adjustment the Lorenz curve caused by reduction in the Gini index from 0.445 to 0.358[23].

Figure 3-1: Lorenz income curve for Lebanon 2005



Source: author's calculation based on SAMLEB05

[23] Respectively calculated with and without considering remittances, own estimation based **on income distribution** resulting from the SAM estimation. The UNDP, MOSA 2008 poverty report, based **on consumption data** from the households survey, estimate Gini index at 0.375 and at 0.361 when deflated for specific households price index.

Household consumption has been extracted from the elaborated data of the household survey. Table 3.12 below presents the consumption budget share of each of the commodity types, with a specific focus on food commodities, it shows clearly than half of the Lebanese population (deciles 1 to 5) used more than 30% of their income on food consumption, up to 30.34% for the poorest deciles.

3.2.2 Regional inequalities

Table 3-10 and 3-11 clearly show the inequality in regional development. 80.85% of return on capital is concentrated in Beirut and Mount Lebanon (respectively 33.09% and 47.46%), and 66.51% of total factor income (respectively 22.06% and 44.45%).

As a matter of fact, Table 3-10, who shows that 44.64 of poor deciles (HHD_1) is concentrated in the north of the country. Furthermore the table shows distribution of poverty into 2 main groups:

- Urban poverty (14.36%, and 14.15% of HHD_1 live in Tripoli city, and Mount Lebanon respectively (concentrate in Beirut Suburbs that administratively belong to Mount Lebanon)
- Rural Poverty 28.82% of HHD_1 lives in Akkar and 9.37% in Baalbak and Hermel strata. In these region income from FARM factor of production still represent 14.22% and 36.35% of total income of households (Table 3-10). The high percentage of income from agriculture in Baalbak and Hermel Strata explained the choice for the case study.

3.3 The service economy

The share of the tertiary sector accounts for 66.52% of total GDP at factor cost, and constitutes up to 77.26% when including construction. The share of agriculture is still relatively large (6.12%) compared to the share of agro-industry (5.06%) and of industry (8.15%,), summing to a share of 19.33% of GDP for the primary and the secondary sectors – construction excluded (Table 3-7).

Furthermore, Table 3-4 shows that the output value of agriculture, agro-industry and industry represent only 55.86%, 53.62% and 32.40% of the total value uses and resources in the respective sectors, thus creating an economy that is highly dependent on import of commodities. Looking at the data, an important question arises: how is the system able to create economic growth while not producing? Nahas (2000) offers a caricatured but meaningful answer. He pictures Lebanon as a country where households receive capital from the rest of the word (28.15% of total income Table 3-11) without any counterpart. Even if the country does not produce, economic necessity will impose the provision of a large range of services, of which the management of the capital flow, and therefore the development of the banking and financial sector will flourish the most (25.6% of total marketed service (SER) valued added (PCM; 2007). Consequently, capital and people will invest in the economic activity created by the flows of remittances. A part of this capital will be invested in real estate, on which the commercial and entertainment centers, and offices that are necessary for the services' domestic activity will be constructed. This will generate important fixed capital (CONS sector represents 66.67% of total investments Table 3-3). Services that cannot be imported will be dependent on domestic economic equilibrium. Demand will raise prices and quantities followed by a raise in the price of factors[24], consequently capital and labor will be redirected towards services.

Flow of capital has maintained the growth of the Lebanese economy based on the tertiary sector. In the following Section the effect of the availability of capital on the industrial sector is discussed.

[24] Elaborating on the data of the HLCS, using the wage of agricultural workers (not farmers) as index equal to one, the following figures for wages distortion between sectors are obtain: agriculture: 1, industry:1.99, construction:1.46, Trade:1.89, transport and telecommunication: 2.98, services: 2.641

3.4 Lebanon Industrial development

3.4.1 Low productivity of labor insights from Pasinetti

Several left-wing Lebanese scholars have criticized Lebanon's trade-based economic orientation, e.g. Corm (1994), Trabousli (1999), Gaspar, (2004). They argue that the country had several possibility to undergo an industrialization process, either during the increase in silk production in the mid-eighteenth-century or just after independence as the industry had shown an important growth during World War II. Liberal policies have not created a growth much higher than the growth witnessed in developing countries that have opted for an industrial development. As Lebanon elites moved toward liberal policies, the Lebanese industry was not able to compete with imports. Thus the development of this sector was based on agro-industrial commodities that were preferred by local consumer and in the Arab Gulf market (Gates, 1998).

The negligence of the industrial sector in Lebanon was mirrored in the incapacity of the Lebanese capitalism to generate employment for waged skilled workers. These labor structural problems are clear in the distribution of the labor force represented by the high percentage of self-employment (1959: 32%, 1970:24%, and 1997:25%, 2005:28.5%) and of state employment (1959:7%, 1970:8% and 1997:14%, 2005:12.9%[25]. Furthermore in 2005, income from self-employment[26] constituted 20.05% of total factors income (24.57% if farmers income is added) while return on capital represented 40.90% of income and waged labor only 35.53% (Table 3-6).

In his book "Structural Change and Economic Growth", Pasinetti (1981) analyses the long-term growth of economies within a structural dynamic based on the processes of capital intensification and mechanization[27]. In this context, Pasinetti presents the capital to labor ratio

[25] Data reported by Gaspar (2004) except 2005 data form HLCS

[26] Recall that SELF and FARM factor of production are mixed (labor and return on capital) income.

[27] In his analysis, Pasinetti studies the economy within an alternative paradigm based on the "pure production model" as opposed to the paradigm of pure exchange, within which mainstream economic analysis operates, and is based on the Walrasian theory of utility maximization. The technological process of production built around the division and specialization of labor lies at the heart of the production paradigm. In this model there is no automatic mechanism that can lead to achievement of equilibrium in the economic system, where prices carry all the information needed for the achievement of such equilibrium. Instead, in the pure production model, prices are not the only factor at play, but there is a mechanism of "effective demand" through which physical quantities rather than prices adapt to imbalances between the demand and productive capacity. Therefore, the production model requires the study of additional institutional relations to analyze the inter-

(K/L) as an indicator of mechanization, and uses it to explain issues related to employment. He presents the capital to output ratio (K/Q) as an indicator of capital intensity, and uses it to interpret issues related to prices and trade. This framework of analysis illustrates that the high levels of capital intensity observed in industries of developing countries, which may even be utilizing the same levels of mechanization and capital as developed countries, are mainly due to their low levels of labor productivity and lower wages. One of the main conclusions of Pasinetti's model is that technological progress, and the development of knowledge and learning are the pillars of growth of an economy. In other words, it is the rise in levels of labor productivity that instigates growth as opposed to capital intensification processes.

Table 3-6 above showed the distribution of value added between factors of production, the ratio capital / mixed income (self employment) / labor is for agro-industry: 71.59% / 10.79% / 17.62%, for industry 41.47% / 24.16% / 34.63%. The low productivity of industrial labor has hampered growth in the industrial sector.

3.4.2 Historical development based on Capital

Gaspard (2004) uses these concepts of capital intensity and mechanization to analyze the process of industrialization in Lebanon. The low cost of capital, and the high demand for Lebanese goods at the Arab markets favored the process of industrialization in the country. Up until the mid 1980's, capital in Lebanon was readily available, loans in foreign currency were given without restrictions, and thus capital could be obtained at low cost. This facilitated the process of industrial mechanization during that period, which compensated for the shortage in skilled labor and the overall low levels of productivity. Therefore, capital accumulation helped in the development of the industrial sector when skilled productive labor was lacking, and enhanced the competitive power of local production, especially at the Arab markets for agro-industrial products.

Until the mid 1960's, the industrial sector witnessed significant growth in capital accumulation levels of 9.3% annually, in mechanization (5.8% annually), while labor

relations between prices and quantities of output. In Chapter 4, the CGE model is based on a Walrasian equilibrium. Nevertheless, as it is a structural model (based on a SAM), its output will be analysis within the structural dynamics described by Pasinetti, assuming equilibrium as given.

productivity growth lagged behind with an increase of 2.5% annually. However, this growth gradually slowed down in the following period until 1998, where labor productivity kept moving at a slower rate than the rest of the indicators.

Gaspard argues that a deeper understanding of the reasons behind the fact that Lebanon did not make use of the opportunities it had to undergo a true industrialization process, but followed a different economic path centered around trade and services, requires an analysis of behavioral issues pertaining to the strategic investment choices and decisions of Lebanese business owners.

Industrial investment remained low despite the high levels of profit and access to export markets. profit levels in 1975 reached up to 35%. However, wage rates remained quite low[28] in comparison with the services and trade sectors or the public sector. However, industrial investment never exceeded one third of profits, and reached at most 11% of net industrial capital stock. This type of investment behavior could not, and cannot, lead to the creation of a well developed and prospering industrial sector. Within the existing liberal economic system, Lebanese industrialists did not have the proper incentives or willingness to take risks and invest in their industries, but rather preferred to use the larger parts of their profits for reinvestment in the service sector or simply for consumption purposes. As much as the process of mechanization and capital accumulation played a major role in sustaining industry in Lebanon, it could not lead to its further development without an accompanying process of increasing productivity, for it is namely productivity and skill enhancement that are at the core of industrial growth.

[28] Recall that Lebanese industrial profited from the presence of Palestinian refugees and Lebanese that had migrated from rural areas and were ready to work for a low wage.

3.5 The Lebanese agriculture

3.5.1 Commodities uses and resources and structure of the agricultural production

The structure of the Lebanese agricultural trade is typical of that of developing countries. It is characterized by a significant deficit in cereals, industrial crops and livestock. This deficit is due to a combination of increasing local demand, weak competitiveness of national agriculture and low prices of origin-subsidized imports. Furthermore, surplus in agricultural export of fruits (and vegetables) is shrinking (Pingali, 2006)[29]. In addition to being essential food requirements, these commodities are used as intermediate inputs either for agriculture or for agro-industry (95.95% of CRL, 58.00% of INDCRP and 96.28% of LIVES uses). The dependence of these sectors on imported inputs constitutes one of their major structural problems. A pertinent example to illustrate this problem is the large investments made recently in the dairy sector that relies on imported livestock , and whose price constitutes a large entry cost for most small holders willing to engage in dairy production. Choosing local breeds is not economically sustainable due to their lower productivity; however, this remains a choice for subsistence farmers willing to invest in local breed livestock as a capital asset working as a safety net.

As a matter of fact, agro-industry faces serious problems regarding the supply of inputs, as contract farming exists only in well developed sectors like poultry and winery. Apart from that, there is a gap between what agriculture produces and what agro-industry requires. This situation arises mainly from a lack of public policy, a deficiency in management and coordination, the pre-dominance of small agro-industrial businesses (self employed constitute 30% of the working force in agro-industry[30] received 10.79% of total factor income (Table 3-6), and from the fact that agriculture has followed an export-led development where raw products (fruits and vegetables) constitute its main comparative advantage.

[29] Note that in relation to the reduction of export of fruits the Lebanese situation is coherent with Pingali conclusion, although the reasons (breakdown of the postwar export infrastructure) and the export market (Europe and North America for most developing countries and the Arab gulf for Lebanon) are different.

[30] HLCS data 2005

The second important characteristic of agricultural markets is the high trade margins compared to those of agro-industry and industry. This is mainly due to farmers' weak marketing skills, the absence of functioning cooperatives, and the archaic organization of farmer wholesale markets. Direct sales contracts are rare and agricultural products have to pass through several intermediaries and middle-men before reaching the final retailer.

3.5.2 The heterogeneity of the Lebanese agriculture

The agricultural sector in Lebanon is characterized by a high heterogeneity and by the penetration of capital downstream the supply chain (large agro-industry, trade) and in subsectors like poultry, diary production and wine, as well as large fruits and vegetables cultivations. This part of agriculture is highly competitive, but still represent a minority of agricultural holdings. Large investments in the sector were – and still are – a source of important return and capital accumulation. The regional comparative advantage of Lebanese production allowed a high return in trade investment in export of fruits and vegetables to the Arab Gulf (Gates 1998). In agro-industry and in subsectors, high returns because of high entry cost of competitors. As pointed out by Debiè and Petier (2003) entrepreneurs need to invest their own-capital, to have an important social network and political connections in order to reduce costs and be protected from competitors.

The political economy orientation of the Lebanese state created inter-governorate disparities in economic development and permitted the control of much of the economic life in rural areas - including large agricultural, agro-industrial and agro-trade holdings – by a small minority of local elites. According to the 2008 poverty report on Lebanon, "inequality within governorates accounted for most of the inequality in Lebanon", about 87% of inequalities is due to with-in region inequality (UNDP and MOSA 2008:34). In other words, the spatial distribution of inequality is not a simple dichotomy between a rich core and a poor periphery, but a more complex structure were the core and rural local elites share political power and economic wealth. Poverty is spatially distributed between rural areas and their corresponding urban suburbs.

As a matter of fact, the major part of agriculture holdings remain undercapitalized small family exploitations with no access to credit and/or limited access to informal forms of money lending. They are highly impacted by price fluctuations, high margins of middlemen and

traders, high costs of production, low capitalization, and lack of functioning cooperative structures. Many of these are still very traditional, especially in olive productions (representing 21.5% planted surface area and an average of 4.2% of total agricultural output[31], a ratio yield/hectare equivalent to 23.5% of that of the Italian production[32]). In recent years, many local initiatives – which might be compare to the European LEADER type initiatives – have been successful in enhancing the livelihoods of agricultural households; however, the impact of such projects remains limited and the sector is in need of significant support, innovations and structural changes.

3.5.3 Agriculture from the lens of farmers' income

Distribution of farm income and holders

Table 3-14 below show the distribution FARM income within central and marginal areas of Lebanon. This table is the starting point of a further breakdown of the agricultural sector. In Sub-section 3.61, elements of analysis have been presented in terms of trade and production structure. In what follows, the focal point is the different types of production systems within each of the Lebanese regions.

Table 3-14: Distribution of FARM income and holders across consumption quintiles, for selected regions (2005)

	Central		Akkar		Bent Jbeil/ Marjaayoun/ Hasbayya		West Bekaa/ Rashayya		Zahle		Hermel/ Baalbek	
	Holders	Income	Holders	Income	Holders	Income	Holders	Income	Holders	Income	Holders	Income
Q_1	9.62	5.46	66.21	57.05	13.64	6.82	19.70	10.05	18.52	8.37	27.18	18.46
Q_2	26.92	21.20	20.01	22.26	27.27	22.67	27.27	18.74	18.52	11.41	36.89	33.64
Q_3	26.92	22.74	5.95	7.88	34.09	35.21	13.64	12.17	22.22	19.49	23.30	26.77
Q_4	23.08	26.34	6.04	9.09	17.05	21.57	13.64	15.96	25.93	30.06	8.74	13.79
Q_5	13.46	24.27	1.79	3.71	7.95	13.72	25.76	43.08	14.81	30.68	3.88	7.33
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100

Source: SAMLEB05 and Household living conditions survey raw data elaborated by the author.

[31]Source: PCM (2007). Data of the National Economic Accounts 2005. Share of olives output of agriculture 5.6% in 2004 and 2.7% in 2005. Change are due to the natural seasonality cycle of the olive tree.
[32]Source: FAOSTAT 2007

Central areas

In terms of agricultural production, central areas of Lebanon have been divided into 17 agricultural homogenous zones by the ministry of agriculture (MOA, 2006). However, The analysis of the region can be synthesized through the study of three main types of farming systems: mountainous apple and stone fruit production, medium altitude intensive olive production[33] and coastal citrus and banana farming systems. Because of the specificity of micro-climates distributed across the Mount Lebanon region, these farming systems have benefited from an important regional comparative advantage. Farmers have accumulated both know-how and capital. And apart from the diminution of farmed land due to growing urbanization in the area, few changes have occurred in these production systems. Furthermore, mountainous and medium altitude regions have witnessed the introduction of green house vegetable production. As a result, farmers in these areas are middle class or rich farmers; poor farmers (Q_1) represent 9.62%[34] of holders in these regions.

Akkar / Minieh-dennieh

Income from FARM factor represents 8.05%[35] of total income of the Akkar / Minieh-Dennieh Strata. It corresponds to 15.05% of total payments to FARM. Poor farmers represent 66.21% of total holders in Akkar. In addition, data suggests the absence of a dynamic of agricultural accumulation, as the percentage of farmers in rich deciles is low. This reflects the overall economic situation in these areas, which have the highest poverty rate in the country (see UNDP and MOSA 2008). Akkar and Minieh-Dennieh have been neglected by state economic policy and development projects. A FAO MAO report (MOA, 2006) lists the main constraints to agricultural development of which are, the high level of illiterate holders (28%), the weakness of extension services, and the lack of resources of public institutions (laboratory for the agricultural research institute, staff for vocational agricultural schools). Although there is a clear lack of adequate public support to farmers, the region has favorable conditions for agricultural production, including green houses production[36]. Akkar's fertile plain is rich with water, where 43% of agricultural land is irrigated. Its central part convenient for non-irrigated

[33] Olive production is relatively more intensive in the Northern part of Lebanon (Koura/Zghrata/Batroun/Bchare strata) in comparison to the system of production present in the South of the country (Sour, Nabatieh strata) although planted area are greater in the latter.

[34] Data on distribution of farmers across households quintiles within specific areas, have been compiled by the author based on HLCS

[35] Figures calculated based on SAMLEB 2005. Correspond to 14.22% of income of the strata from factors of production alone, i.e. without taking in consideration government transfer and remittances (see Table 3-11)

[36] Represent 22% of total Lebanese under protective covers production

crops –olives and cereals - and starting from 800m of altitude, apples and stone fruits are wide spread. The interrelationship between poverty and agriculture is not a dynamic of low land productivity leading to low farmer income, but is rather related to a poor supply chain organization from one side and the lack of other employment alternatives for agricultural households. Instead of undergoing a process of capital accumulation, farmers have to use farm income to support larger families in the presence of high unemployment levels.

Bent Jbeil / Marjayyoun / Hasbayya

Bent Jbeil / Marjayyoun / Hasbayya farmers are concentrated within the middle class quintiles (34.09% of holders belong to Q_3). Olive trees are spread over around 50% of the agricultural land. The other main crop is tobacco, in addition to stone fruits on higher altitudes, while vegetable production is limited. Here also, dynamics of farmer capital accumulation are limited as only 7.95% of farmers in the region belong to the richest quintiles. Distribution of farmers across national quintiles of consumption seems to be related to the produced crop. Tobacco farmers tend to be poor, olive farmers belong to the middle class, and fruits and vegetables farmers tend to show a dynamic of capital and land accumulation, especially in the region of Marjayyoun. As a matter of fact, this division is highly related to the availability of other forms of income. Olive orchards are managed in a very extensive traditional way, where few inputs are added and owners of these orchards usually rely on other sources of income and remittances. Gain from the olive season comes as an additional income and is relatively high considering that very limited inputs had been added. Tobacco production is very traditional as well, but it involves most family members in the different stages of production – usually, the man would manage the field, while his wife and children would take care of the post-harvest handling of the tobacco leaves. Often income from the *Regie of tobacco and tombac* is the main significant income of the family and is received on an annual basis. Although limited compared to other crops, the main advantage of tobacco farming is that it provides a secure income.

West Bekaa / Rashayya Zahle

West Bekaa / Rashayya and Zahle strata show the most significant level of capital and land accumulation, where 25.76% of farmers in WBRA and 14.81% in Zahle fall within the richest quintile, catching 43.08% and 30.68% of the regions' farming income. The average size of individual holdings is the highest in Lebanon (4.65 ha for Zahle and 5.86 ha for West

Bekaa[37]). Besides the citrus and banana farming system of the coastal zones, central Bekaa is the most intensive agricultural area in the country. The agricultural supply chain has an adequate infrastructure- inputs suppliers, marketing outlets, warehouses, as well as academic centers (public and private university agricultural campuses and research facilities); in addition, agricultural credit facilities are present in these strata. The dam on the Litani River built in 1969 is the most important irrigation project undertaken by the Lebanese government, from which a large number of agricultural holdings benefit. Moreover, the link between agriculture and agro-industry is stronger in these areas than in the other region in Lebanon. It could be argued that it is the only place where this link does indeed exist. The most well coordinated subsector is that of grapes and wineries, with two leading companies Ksara (Zahle) and Kefraya (West Bekaa). However, better performance in terms of output and export levels is depicted in the food conserves industry. Nevertheless, the "agricultural economy" of these regions still generates poverty, where19.70% (West Bekaa /Rashayya) and 18.52% (Zahle) of farmers belong to the poorest quintile. This state of poverty is not caused by the presence of more extensive systems of production like fruits trees in Zahle mountainous regions and olive systems in Rashayya – much similar to the Bent Jbeil / Marjayyoun / Hasbayya mode of production. In this context, the inability of farmers to rise above poverty lines is due to problems related to the high prices of imported inputs and to the absence of cooperatives and other forms of farmers' groups marketing strategy resulting in a much high bargaining power of agro-industrials and traders in price negotiations. Farmers suffer from the other side of the medial from intensive agriculture; for example, potatoes are produced in high quantities, but secure export outlets are lacking. Due to weaknesses in the organization of the exports channels and sanitary requirements, production output is absorbed by the agro-industry and local markets at very low prices. Crises in potato production repeat themselves almost every year, where reasons alternate between problems in inputs and problems in marketing outlets. Often political intervention is needed to satisfy voters, knowing that these areas form very sensitive electoral districts[38].

[37] 1.78 ha for Rashayya, where agriculture become more extensive and rely on honey and olive production. However number of holders are low and the analysis of the West Bekaa / Rashayya can be focused on intensive agriculture without losing accuracy.

[38] Refer to marketing study Salibi (2006) and newspaper review like the Daily Star articles on Jan, 21st; May 14th 2010; As-Safir news paper article Jan, 11th 2011

Baalbak/ Al-Hermel

In the Baalbak/ Al-Hermel strata, farmers are concentrated in the lower middle class (36.89% of farmers in Q_2 and 23.30% in Q_3) and poor quintiles (27.18% for Q_1). Rich and upper middle class farmers represent a small percentage of total holders. Income from farming remains relatively low in these areas because of the high cost of inputs especially those of irrigation . In the absence of adequate infrastructure, such as the dam on the Orontes River, irrigation relies on expensive and energy consuming pumping from artesian wells (100 to 400 meter depth). In addition, supply chain infrastructure to support agriculture is almost nonexistent in the area. Agriculture in Hermel will be discussed in more details in Chapter 5 Section 5.3.1 when presenting the context of the case study

3.6 Synthesis

This Chapter developed an estimation methodology for the construction of Social Accounting Matrix for Lebanon. The methodology is less specific to Lebanon than indicative of the data available in Lebanon, i.e., the National Economic Account (NEA) and the Household Living Condition Survey (HLCS). The disaggregated SAM for Lebanon (SAMLEB05) has an income distribution distributional purpose, and the accuracy of the estimation methodology was confirmed by the calculation of the Gini index[39] in terms of income distribution. Moreover, the disaggregation of the value-added reflects the data of the NEA, and is confirmed in the relevant literature. Finally, the estimation methodology used in this dissertation allows for the construction of differently organized SAMs for Lebanon. SAMLEB05 represents the first attempt to engage in this specific type of macro-economic accounting; particularly given the limitations of the available data, further research will certainly improve the estimation methodology.

The analysis of the data extracted from the SAM describes the economic structure generated by the political choices of the Lebanese elite – an economy that consumes more than it produces and which perpetuates inequalities. The disaggregation of the households' accounts demonstrates a clear inequality in income and in consumption between the different household deciles and in terms of regional strata, as well as an inequality within strata and between farmers.

[39] Findings similar to that of the UNDP, MOSA (2008) poverty report, which used a different methodology

The analysis also emphasizes the role played by capital flows in structuring economic activity, boosting the services and trade sectors while hampering productive activities. Such an economic system can only beneficiate the classes of people who have access to capital and/or are highly skilled – in essence, the richer deciles. Lower deciles remain dependent on low-waged industrial labor, and precarious forms of unskilled labor and self-employment with relatively low entry cost (taxi / minibus drivers, small trade retailers). Against that background, public administration employment becomes, both a good, waged opportunity for many people and a powerful tool for the political elites. This economic system thus allows the political elites to control a large part of the labor force through the mechanism of a patron-client relationship that informally "regulates" the public function.

As was shown in this Chapter, in an economy that provides low wages and high returns on capital, agriculture represents both an important source of income for poor rural households and an opportunity for capital accumulation for rich farmer landlords and entrepreneurs willing to invest in competitive subsectors. Lebanon's agricultural sector mirrors the overall political system, then, with high capital accumulation in intensive production agri-businesses, versus low inputs in small-parcel family farms with limited revenues.

SAMs offer a picture of an economy at a certain moment of time, at its equilibrium point. In the following Chapter, the CGE model will analyze the effects of changes in production, trade and policies "shocks" to that equilibrium.

4 The Lebanese Agriculture in the Framework of a Computable General Equilibrium

Chapter's outline

This Chapter presents the International Food policy Research Institute (IFPRI) Computable General Equilibrium (CGE) model framework and its application to Lebanon. The first Section (4.1) presents a review of the literature and focuses on the application of the CGE model to issues related to agriculture and income distribution. Relevant research undertaken by the IFPRI and the World Bank is reviewed, as well as several publications of specific relevance to the research are outlined. This Section also addresses the application of CGE modeling to Lebanon is also discussed. Section 4.2 then presents the main characteristic of the IFPRI model.

Following these introductory Sections different scenarios are simulated and their results are analyzed. Section 4.3, which constitutes the core of the present Chapter, analyzes the structural dynamics (as defined by Pasinetti, 1981) induced by both the technological changes in agriculture production and the variation in domestic and international terms of trade. Section 4.4 investigates the potential impact of tariffs and taxes policies currently on the agenda of Lebanese policy makers. Section 4.5 discusses the effects of an increase in international prices of food on household welfare. Finally, Section 4.6 synthesizes the results.

In the analysis, specific attention is paid to households in the Baalbak Al-Hermel strata, as the results of these simulations will subsequently be contrasted with the findings of the qualitative case study carried out in the Hermel region

"Policy relevance requires modelers to address issues of interest in the policy debate. An academic perspective might lead to a focus on indicators of aggregate welfare, such as equivalent or compensating variation. Policy debates, however, are rarely concerned with such aggregate measures and tend, instead, to focus on identifying the winners and losers from proposed policy changes. Political reality, not to mention good welfare economics, requires us to identify who is affected by policy changes in order to determine if compensation schemes are feasible to generate ex post Pareto improvements and, if not, to understand the tradeoffs between distributional and aggregate impacts. For policy analysis, tracing out the impact of shocks on changes in the structure of production, trade, and employment is at least as important as generating aggregate welfare measures."

Derejavan and Robinson (2002:2)

4.1 Review of the Literature

4.1.1 The IFPRI modeling framework

Computable General Equilibrium (CGE) is a class of models that builds on the tradition of multi-sector input-output models, which were first developed by Leontief (1951) and [1966]. It is based on the Walrasian general equilibrium theory [1874] presented in Walker (2006) and derives its conceptualization from the works of Arrow and Debreu (1954) on the modern modeling framework of equilibrium theory. In mathematical terms, CGE consists of a system of simultaneous non-linear equations that model the overall economy of a country based on the assumptions of neo-classical theory. Today these models have become a standard tool for empirical economic analysis and have been used by the IFPRI and the World Bank (WB) to study agricultural issues from the perspective of trade liberalization, poverty alleviation and food security. Both institutions have developed specific recent research lines based on CGE analysis, in cooperation with the World Bank research line on Distortions to Agricultural Incentives see Anderson (2009, ed. and 2010, ed.). According to Devarajan and Robinson (2002), CGE models have stepped outside the strict academic sphere to reach such institutions thanks to their potential capacity to analyze the impact of policies and provide insights for the design of more adequate ones. Furthermore, the structural base of these models allows policy makers to identify winners and losers from certain policy schemes, and anticipate possible compensation schemes that would generate ex-post Pareto improvements. Thus CGE modeling has been used with the aim of analyzing and debating policy measures – with a specific focus on international trade.

CGE modeling strategies have been developed either through a direct application of a static CGE model, e.g. Samuel *et al.* (2008) on agricultural growth and poverty reduction in Uganda; Dorosh and Thurlow (2009) on similar issues. Or by linking it to global economic models like the LINKAGE model (van der Mensbrugghe, 2005), e.g. Cororaton (2006) for the Philippines, Ardnt and Thrulow (2009) for Mozambique, and Warr (2010) who used both approaches to analyze the effect of trade liberalization on the Indonesian economy. The originally static model has been modified to allow dynamic analysis, e.g. Thurlow (2004) for South Africa and Breisinger *et al.* (2008) for Ghana. The framework has also been applied in combination with micro-simulations based on household surveys; for instance, Jansen *et al.*

(2007) used this approach to study the impact of the Central American Free Trade Agreement on the textile industry. In most cases, these researches have concluded with results showing a positive impact of trade liberalization on poverty alleviation, poor households' income and food consumption, thus reflecting the pro-trade liberalization discourse of international economic institutions.

4.1.2 CGE application to MENA

It is beyond the scope of this Chapter to review the significant amount of literature on CGE model analysis done by the IFPRI and the World Bank. However, Minot *et al*. (2010) is particularly pertinent with respect to the Lebanese context, as it focuses on trade liberalization and poverty in the Middle East and North Africa (MENA) region, including case studies of Egypt, Tunisia, Syria and Morocco. These countries are characterized by their high levels of tariffs and highly protected economies. It was established that, for the case of Egypt, an increase in the international price of wheat, sugar and cotton would raise the income of growers of these commodities but would have a limited impact on overall poverty. For Tunisia, the study concludes that higher levels of trade liberalization would lead to more significant reductions in poverty. In Syria removal of government wheat subsidies would be beneficial to high income households, while low income groups would be negatively affected –although at absolute levels lower than 1% and at -1.3% for wheat farmers. Nevertheless, the macro-balance of the Syrian economy including government saving will be positively affected. The study encourages abolition of subsidies and proposes to remediate losses of wheat farmers through time-limited income support programs funded by the additional government savings. In Morocco both a static and a dynamic CGE model have been used to affirm the positive impact of global trade liberalization on exports, and the national income increase that would be large enough to compensate the negative effect on unskilled agricultural labor. However, according to Minot *et al.* (2010) a partial liberalization would not sufficiently raise national income to offset the decrease of unskilled agricultural labor income. In January of 2011, one month after the publication of Minot *et al.* (2010), people in Tunisia and Egypt demonstrated and over threw the existing regimes. Regardless of the results of the IFPRI study, these events show that in an unstable political context, economic models cannot be used as a single tool of analysis, for they need to be coupled with sufficient understanding of the political economy of the country and be analyzed within that context.

4.1.3 CGE application to technical changes and middle income countries

CGE models have also been used as policy analysis tools outside the circle of international institutions. The following is a review of a limited selection of articles of specific interest to this research in terms of their relevance to the topics discussed, or the similarities of economic structures between Lebanon and the countries under study, or the presence of qualitative analysis that allows for contrasting the results of the model.

Annabi *et al.* (2005) used a micro-simulation dynamic CGE analysis to study the effect of trade liberalization on growth and poverty in Senegal. The authors conclude that in the short run, trade liberalization would lead to small increases in poverty and contraction in the originally protected sectors (industry and agriculture). However, on the long run it would enhance capital accumulation, increase welfare and reduce poverty, even though it would create more inequalities as the accumulation process benefits the non-poor. The particular interest in Annabi *et al.* (2005) arises from the possibility to compare it to a qualitative study carried out by Oya (2001) on groundnut farmers' strategy to adapt to the context of liberalization. Of one Oya's focus was the accumulation process, where he found that the context of liberalization has "offered opportunities of accumulation and success to a *small* group (…), whereas the bulk of small-and middle-scale farmers become more marginalized and force to look for alternatives to farming, or are otherwise doomed to produce at ever-decreasing levels of productivity" (Oya 2001: 155 author emphasis).

Salami *et al.* (1998) used a CGE model to study the effects of a change in production technology in the Iranian agricultural sector. They differentiate between labor-saving and capital-saving technical changes. Their findings illustrate a positive impact on the overall Iranian economy, although conditioned by an increase in output, which if unchanged will lead to negative effects. They highlight that a policy designed to limit the expansion of urban population could see labor-intensive technology as a potential strategy for the development of rural areas. Within the same line of research Salami (2006) studied the impact of land productivity improvement in a context of trade liberalization. He shows that enhancing agricultural productivity while implementing trade policy reforms would expand the output of the agricultural sector, leading to growth and reduction of unemployment.

IFPRI publications focus on agriculture in countries where this sector still represents an important share of GDP, employment and trade. However, CGE analysis can also be applied to middle income countries, in which the economic structure is similar to the one in Lebanon. Raúl O'Ryan and Sebastián Miller (2003) applied a CGE analysis to study the role of the Chilean agriculture in economic development and income distribution on 10 deciles of households groups. They showed that an increase in labor productivity in agriculture has a positive impact on the poorest deciles; however the increase in labor productivity needs to be high in order to alleviate poverty. They found that in the CGE framework, agriculture and agro-industry generate few linkages towards the rest of the economy – lower than linkage coefficients calculated using traditional linkage measures (Hirshman and Hazell Linkages coefficients). Furthermore, they show that an increase in agricultural output has a higher impact on the growth of the agro-industrial sector than does an increase in agro-industrial output on the growth of the agricultural sector.

4.1.4 The Lebanese economy through the lens of CGE analysis

Two recent studies have been conducted on Lebanon using CGE modeling methods; a Word bank discussion paper by Dessus and Ghaleb in 2006 and a scientific journal article by Lucke *et al.* in *2007.* They both address issues related to public fiscal reforms, public debt service and trade issues from the perspective of a forthcoming WTO membership. Their models factored in and analyzed some key elements that are known to have a significant impact on the Lebanese economy, namely, dependence of the government revenues on tariffs, non-competitive domestic markets, and political stability.

Dessus and Ghaleb (2006) suggest that a reduction in the number of monopolistic firms position, through raising national competition, would be more effective than a tariff reduction policy, and would result in higher investment opportunities and would benefit the working force. They argue that such policy efforts geared towards enhancing domestic competition "would provide Lebanon greater chances to successfully address its macroeconomic imbalance" (Dessus and Ghaleb, 2006: 14).

Lucke *et al.* (2007), working within a dynamic framework, looked at a scenario of fiscal reforms (through simulating a change in tariff rates) that could be adopted by the Lebanese government in response to imbalances caused by trade liberalization. They argue

that the "urgency of Fiscal reforms (…) depends decisively on the speed of adjustment in the economy – that is, on the speed by which new capital is accumulated" (Lucke *et al.* 2007:37). The authors suggest that this itself depends on the integration of the economy in the capital world market and therefore on its capacity to lend and borrow; this is closely related to the fraction of actual capital stock that can be used as the required collateral for external debt . They conclude that "trade liberalization brings about no more than moderate effects on GDP, though it heavily affects public revenue" (Lucke *et al.* 2007:54). On the other hand, political stability was shown to have a significant effect on the economy as it leads the way to higher levels of investment.

In what follows, the IFPRI CGE modeling framework is applied to Lebanon in order to simulate and analyze a number of development and policy scenarios related to agriculture in Lebanon .

4.2 Presentation of the Model

Lebanon is modeled as a small open economy structured in 9 sectors of activities: Agriculture (AGR), agro-industry (AGIND), industry (IND), construction (CONS), energy and water (ENW), transport and telecommunication (TTCOM), services (SER), trade (TRADE) and public administration (ADMIN).

Producers are assumed to maximize profits subject to a two level production technology. On the bottom level, a Constant Elasticity of Substitution (CES) function models the added value in relation to primary factors of production[40]. Each sector uses a set of factors until the marginal revenue product of each factor is equal to its wage. On the other hand, a Leontief function relates demand for intermediate input to total composite commodities (import and domestic). On the top level, a CES function links final output to intermediate input and value added[41].

All commodities enter markets. The first stage in modeling commodity flows is to generate aggregated domestic output; this stage also models the amount/share of output of different commodities coming from one single activity (which is the case for agriculture and agro-industry). In the next stage, aggregated domestic output is allocated between export and domestic sales, assuming that suppliers maximize sales revenues for any given aggregate output level. This stage is expressed by a constant elasticity of transformation (CET[42]) function. Domestic sales and imports constitute the composite commodity. The demand for domestic output versus imports is derived on the assumption that domestic demanders minimize expenditures subject to imperfect substitutability. This is expressed by a CES function (Armington function[43]).

Institutions are represented by households (150 household groups), government (tax accounts are separated from the main government accounts), and the Rest Of the World (ROW).

Households receive income payments from labor factors of production, transfers from the government and remittances from the ROW. They use their income to pay direct taxes –

[40] CES elasticity bottom of technology nest is set to 0.75 for agriculture and to 0.9 for the other sectors
[41] CES elasticity top of technology nest is set to 0.9
[42] CET elasticity is set to 1.1 for all commodities
[43] Armington elasticity is set to 2

activities accounts pay indirect taxes, and commodities accounts pay taxes on imports – save and consume. Household consumption is allocated across commodities according to a linear expenditure system (LES[44]) derived from maximization of a Stone-Geary utility function. The Government collects taxes and receives transfers from activities (publicly owned companies in the telecommunication and the energy sectors). It transfers its income to other institutions; Government savings are a flexible residual (a deficit in the case of Lebanon).

The CGE model includes three macroeconomic balances: the (current) government balance, the external balance (the current account of the balance of payments, which includes the trade balance), and the savings investment balance. The framework allows for different closure models. In our analysis, government savings are flexible and direct tax rates are fixed, exchange rate is fixed and ROW savings flexible, capital formation is flexible, and we assume a fixed marginal propensity to save for all non-governmental institutions.

Mathematically, the model is formulated as a system of 48 simultaneous non-linear equation blocks defined over 4 main sets (activities, factors of production, commodities, and institutions), which are in turn divided into 13 subsets. There are 43 aggregated endogenous variables, 9 exogenous aggregated variables and 47 aggregated parameters. The detailed equations can be found in (Lofgren *et al., 2002).* The model is run using the General Algebraic Modeling System (GAMS) version 23.3.All variables and most parameters are extracted and initialized from the Social Accounting Matrix (SAM).

[44] Frisch parameter is set to -1.75. Elasticity of market demand for commodity C by households H are set as follow respectively for households deciles 1;2;3 / deciles 4;5;6;7 / deciles 8;9;10: cereals, bread and pasta: 0.55 / 0.41 / 0.2 ; fruits and vegetables: 0.6 / 0.33 / 0.13 ; dairy and livestock products: 0.8 / 0.65 / 0.35 ; fish: 0.84 / 0.68 / 0.37 ; meat: 0.77 / 0.63 / 0.37 ; fats and oils: 0.6 / 0.49 / 0.26 ; food conserves and sweets: 0.77 / 0.63 / 0.34 : beverages and tobacco: 1.18 / 0.82 / 0.442. For manufactured goods: 1.01 for all households, Services: 1.7 / 1.38 / 1.27 ; transport and communication: 1.21 / 1.17 / 1.15 ; energy and water: 1.25 / 1.19 / 1.16. choice on elasticity were based on Seale *et al.* (2003)

4.3 Changes in production technology

4.3.1 What role for agriculture in Lebanon

Since Kuznets (1955) and Johnston and Mellor (1961), the impact of agriculture on the overall economy has been widely discussed by economists. Up to the present, the decline GDP share of agriculture is taken as a – rough – indicator of economic growth. The specificities of the underlying causes for this decline are of great importance. Lower shares of agriculture in GDP can result from policies biased against agriculture or the promotion of increases in productivity and structural transformation , and this could arguably represent the difference between growth and development. The 60-70's Green Revolution was pushed primarily by the fear of a Malthusian Catastrophe and the increased need to produce more food for a rapidly growing world population, as well as the economic opportunity that the technological innovation in agriculture offered for both developed and developing countries[45]. If technological innovation made the Green revolution possible, the acceleration of its pace is largely due to the rise of a worldwide sense of crisis in food, especially after the bad harvest of rice in Pakistan and India (Saito, 1971).

Nowadays, agricultural paradigms are changing, where maximizing and optimizing output is not viewed as essential anymore, and different paradigms of sustainability, quality, and alternative food networks have emerged. More significantly, globalization has presented developing countries with subsidized-staple-food at price levels lower than tariffs-unprotected-local production. This has forced local farmers to adjust and made consumers and national food security contingent on speculations on the prices of main food commodities and volatilities in the international financial markets

Within this context of globalization and the changing of agricultural paradigms, the following Section discusses development scenarios and their effect the Lebanese economy. The question of agriculture is discussed around three main axes: technological changes in production, tariffs policy, and food security.

[45] Recalling some of the first objectives of the CAP set in the Rome Treaty 1957: increasing productivity by promoting technical progress and ensuring the rational development of agriculture production; to guarantee a secure supply of foods.

4.3.2 The production technology and trade scenarios

With the aim of looking at the effect of a "late" rise in agricultural productivity of the Lebanese economy, three types of technical changes in agricultural production are simulated. They refer to possible development paths for agricultural production in terms of the potential efficiency of public projects and extension services. They also represent possible farmer strategies.

The first scenario assumes an equal increase in productivity of all factors of production (neutral technical change NTC) leading to a 10% rise in agricultural output. It presumes the implementation of projects leading to a rise in land productivity, e.g. irrigation projects and a more efficient knowledge transfer from the part of extension services - without promoting intensification of input use. It does not presume changes in farmers' conception of the management of their farms in terms of maximizing their output or enhancing the quality of their products

The second scenario, factor use intensification (FUI), simulates a shift in production technology leading to a more intensive use of factors of production with regards to intermediate inputs, while keeping agricultural output value constant. It presumes a change in farmers' perceptions towards the valorization of local resources, and closed-cycle management. It requires land rehabilitation and small-scale irrigation projects to mitigate possible productivity losses. In terms of *savoir-faire* there is need for a redirection and adaptation of the "innovation package" promoted by extension services towards a more rational use of inputs, and specific support to integrated pest management (IPM) and organic modes of production.

The third Inputs Use Intensification (IUI) scenario is the "mainstream" intensification and mechanization development of agricultural production leading to a 10% increase in agricultural output due to an intensification of input utilization. It necessitates an enhanced financial and credit institutional support to farming activities, and more efficient supply chain management.

In addition to technological changes, simulations involving changes in trade policies and international prices are analyzed. These scenarios introduce direct changes in the price

and demand structure. They hypothesize action directed towards increasing the quality of agricultural production together with institutional efforts supporting the re-organization of the export marketing channels (with the aim of getting access to different export markets along with the assumption of a 10% premium on the actual price). The potential impact of the re-organization of domestic markets for agricultural products, leading to a reduction of trade margins and the consequent redistribution of value added to the advantage of farmers is investigated as well.

Trade scenarios include a 30% reduction in domestic trade margins on agricultural commodities and a 10% rise in export prices received by Lebanese producers. They are studied individually and then linked to the technology scenarios. The reduction of domestic trade margins simulation (TRM) is linked to the FUI scenario following the rationale that these changes are both related to the re-organization of the agriculture supply chain. While changes in received export price (EXP) – assumed to result from a better organization of the export channels and an increased attention to quality schemes and standards – is linked the NTC scenario. It is hypothesized that changes in foreign and domestic terms of trade could help in balancing the effects of technical changes in agricultural production. These effects include a reduction in returns on land and on agricultural labor which in turn would lead to the reduction of farmers' income and favor migration towards urban centers in search for employment.

Parameters of simulated scenarios are summarized in Table 4-1[46].

Table 4-1: Technical changes scenario parameters

	NTC	FUI	IUI	EXP	NTCexp	TRM	FUItrm
Change in agricultural output	+10%		+10%		+10%		
Ration of intermediate inputs / value added for agriculture	0.25	0.2	0.4	0.25	0.25	0.25	0.25
Agricultural commodities export prices				+10%	+10%		
Domestic trade margins on agricultural commodities						-30%	-30%

[46] Note that in the following simulations, agricultural output is a fixed endogenous variable (either at base output level or at a 10% rise from base).

4.3.3 Pasinetti structural dynamics

The analysis focuses on the structural dynamics induced by a change in agricultural production technology. The simulations are run on a short-medium term framework. It is assumed that all agricultural producers undertake the technological innovations and possess the underlying required knowledge. Labor is mobile across sectors of activities in a context of unemployment, while capital is activity-specific, setting back growth and structural changes for the purpose of a medium term analysis. According to Pasinetti (1981), production innovations– i.e. producing more using less labor[47] induces changes in the structure of prices, demand and employment.

The relative price of a commodity is related to the relative cost of producing it in relation to the cost of other commodities. If relative production costs are changing, relative prices should change as well. As the economy grows income per capita rises, and demand changes, behaving differently for each commodity. As a consequence, each sector of production grows at a different rate. Although, less striking in terms of amplitude, changes in the structure of the labor force remain an important indicator of the functioning of the economy. Technological innovation will necessarily lead to unemployment, "full employment will be maintained, only if the economic system is able to carry out successfully a continuous process of structural redistribution of employment from one sector to another, in accordance with the pattern shaped by the structural dynamics of technology and demand" (Pasinetti 1981: 227). It is this ability of the Lebanese economic system that was already questioned in Chapter 3 Section 3.4, and will be further analyzed in the framework of the CGE.

[47] Producing more with less labor, but the specific context of agriculture and rural development things are different and therefore the second scenario assume a reduction of cost through the reduction of intermediate input.

4.3.4 Results of Simulations NTC, FUI and IUI

The following tables present the results of the NTC, FUI and IUI simulations. **All figures represent percentage change from base equilibrium (e.g. from SAMLEB05).**

Table 4-2 presents changes in production

Table 4-3 presents changes in the prices structure and Table 4-4 changes in demand

Table 4-6 presents changes in factor income and Table 4-7 changes in labor demand

Tables 4-7 presents changes in real income for regions, national deciles and case study deciles.

Changes in production

Table 4-2: Changes in activity output and added value - production technology scenarios

Commodities	Intermediate uses			Added Value (nominal GDP at f.c.)			Output		
	NTC	FUI	IUI	NTC	FUI	IUI	NTC	FUI	IUI
CAGR	**-2.01**	**-18.35**	37.74	**-3.77**	4.13	**-12.88**	10.00		10.00
CAGIND	3.95	0.52	2.88	0.25	0.05	0.15	2.23	0.31	1.61
CIND	**-0.10**	**-0.07**	0.07	0.25	**-0.03**	0.33	0.04	**-0.06**	0.17
CCONS	2.33	0.32	1.70	1.64	0.19	1.27	1.95	0.25	1.47
CENW	1.61	0.16	1.31	0.17	0.02	0.14	1.12	0.11	0.91
CTTCOM	3.23	0.30	2.66	1.57	0.14	1.30	2.44	0.23	2.02
CSER	3.09	0.28	2.57	2.51	0.22	2.11	2.62	0.23	2.20
CTRADE	1.85	**-0.12**	2.12	1.88	0.01	1.89	1.87	**-0.02**	1.94
CADMIN	1.36	0.20	0.96	2.82	0.32	2.20	2.27	0.28	1.74
TOTAL	**1.95**	**-0.32**	**2.69**	**3.02**	**0.50**	**2.00**	**2.34**	**0.16**	**2.06**
Real GDP				***1.53***	***0.39***	***0.72***			

Changes in the structures of prices and demand

Table 4-3: Changes in demand prices - production technology scenarios

	Commodities demand prices		
	NTC	FUI	IUI
CRL	**-4.63**	**-2.35**	0.07
FRT	**-12.34**	**-1.45**	**-9.92**
INDCRP	**-2.69**	**-0.87**	**-0.92**
VEGT	**-10.95**	**-0.64**	**-9.79**
LIVES	**-6.88**	**-0.36**	**-6.13**
LIVESPR	**-15.84**	**-0.10**	**-15.82**
FISH	**-5.89**	0.03	**-5.94**
FRMT	**-1.47**	**-0.18**	**-1.11**
FPR	**-0.15**	**-0.01**	**-0.12**
DAIRY	**-0.10**	**-0.04**	
FATOL	**-0.32**	**-0.06**	**-0.19**
PASTA	**-1.97**	**-0.23**	**-1.54**
SGCHS	0.20	0.02	0.17
ALBVRG	**-0.02**	**-0.07**	0.13
NALBVRG	**-0.60**	**-0.05**	**-0.50**
OTHER	**-0.39**	**-0.04**	**-0.30**
TABAC	0.08	0.02	0.04
CIND	1.20	0.01	1.20
CCONS	1.05	0.10	0.86
CENW	1.00	0.07	0.87
CTTCOM	2.20	0.20	1.84
CSER	1.87	0.16	1.57
CTRADE	1.94	0.04	1.89
CADMIN	0.60	0.05	0.51

Table 4-4: Changes in commodity market – production technology scenarios

Commodities	Domestic aggregate demand			Exports			Imports		
	NTC	FUI	IUI	NTC	FUI	IUI	NTC	FUI	IUI
CRL	9.93	**-0.02**	10.02	16.81	2.94	10.19	**-0.41**	**-4.68**	9.73
FRT	6.49	**-0.30**	7.34	28.86	1.82	24.67	**-18.85**	**-3.19**	**-13.61**
INDCRP	7.88	**-0.70**	9.49	10.99	0.34	10.26	1.50	**-2.44**	6.80
VEGT	8.74	**-0.04**	8.90	26.91	0.81	24.91	**-14.19**	**-1.32**	**-11.81**
LIVES	10.01	0.01	10.02				**-4.71**	**-0.71**	**-3.16**
LIVESPR	8.07	0.01	8.08	41.34	0.144	41.33	**-24.19**	**-0.21**	**-24.14**
FISH	10.06	0.02	10.07				**-4.50**	0.03	**-4.56**
TOTAL AGR	**8.16**	**-0.13**	**8.54**	**23.86**	**1.15**	**21.23**	**-6.38**	**-2.18**	**-1.93**
FRMT	2.21	0.30	1.60	4.13	0.56	2.99	**-1.51**	**-0.08**	**-1.37**
FPR	2.15	0.30	1.55	2.28	0.31	1.65	1.60	0.26	1.07
DAIRY	2.23	0.31	1.61	1.76	0.36	1.02	0.98	0.20	0.59
FATOL	2.19	0.30	1.59	2.53	0.38	1.76	1.01	0.16	0.70
PASTA	2.10	0.29	1.51	4.65	0.58	3.46	**-2.32**	**-0.18**	**-2.00**
SGCHS	2.31	0.31	1.68	2.06	0.29	1.47	2.51	0.34	1.82
ALBVRG	2.34	0.28	1.79	2.00	0.36	1.25	1.68	0.12	1.46
NALBVRG	2.17	0.30	1.56	2.89	0.36	2.15	0.58	0.20	0.20
OTHER	2.19	0.30	1.58	2.57	0.35	1.84	0.78	0.20	0.37
TABAC	2.34	0.31	1.72	0.26	0.23	-0.23	1.68	0.34	1.00
TOTAL AGIND	**2.18**	**0.30**	**1.58**	**2.59**	**0.36**	**1.86**	**0.95**	**0.19**	**0.55**
CIND	0.74	**-0.05**	0.88	**-1.02**	**-0.07**	**-0.88**	2.56	**-0.04**	2.71
CCONS	1.95	0.25	1.47						
CENW	1.13	0.11	0.92	**-0.08**	0.02	-0.13	2.92	0.26	2.45
CTTCOM	2.54	0.24	2.10	0.11	0.02	0.08			
CSER	2.68	0.24	2.24	0.61	0.06	0.51			
CTRADE	2.30	**-0.01**	2.36	**-0.61**	**-0.07**	**-0.47**			
CADMIN	2.27	0.28	1.74						
TOTAL	**2.50**	**0.17**	**2.20**	**0.83**	**0.04**	**0.73**	**1.95**	**-0.07**	**2.16**

Changes in labor structure and in income

Table 4-5: Changes in factor income - production technology scenarios

Scenarios	Factor income		
	NTC	**FUI**	**IUI**
CAP	3.62	0.28	3.11
FARM	**-3.77**	4.13	**-12.88**
SELF	3.50	0.25	3.04
HGHSK	3.38	0.33	2.76
WHTcl	3.68	0.29	3.14
BLUcl	2.37	0.59	1.13
ARMED	2.82	0.32	2.20

Table 4-6: Changes in labor demand by activities – production technology scenarios

	Labor demand by activities		
	NTC	**FUI**	**IUI**
AGR	**-3.77**	4.13	**-12.88**
AGIND	0.87	0.18	0.51
IND	0.42	**-0.06**	0.57
CONS	2.91	0.34	2.25
ENW	1.96	0.18	1.62
TTCOM	4.39	0.40	3.64
SER	4.30	0.38	3.60
TRADE	3.39	0.01	3.42
ADMIN	2.82	0.32	2.20
TOTAL	**2.42**	**0.68**	**1.00**

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Table 4-7: Changes in households real income by region - production technology scenarios

		Real income		
		NTC	**FUI**	**IUI**
Areas	Marginal	0.70	0.53	**-0.44**
	Central	1.22	0.24	0,71
	Beirut	1.64	0.16	1,34
	Case study	**-0.16**	0.90	**-2.11**
Deciles (all Lebanon)	HHD_1	0.92	0.57	**-0.31**
	HHD_2	0.91	0.47	**-0.05**
	HHD_3	0.75	0.52	**-0.33**
	HHD_4	0.76	0.40	**-0.13**
	HHD_5	0.95	0.40	0.08
	HHD_6	0.97	0.31	0.25
	HHD_7	1.14	0.30	0.50
	HHD_8	1.09	0.27	0.47
	HHD_9	1.00	0.25	0.49
	HHD_10	1.59	0.16	1.26
Deciles Baalbak Al Hermel	HERBA_HHD_1	**-0.36**	0.88	**-2.48**
	HERBA_HHD_2	**-0.80**	1.33	**-3.62**
	HERBA_HHD_3	**-0.72**	1.38	**-3.63**
	HERBA_HHD_4	**-0.38**	1.23	**-2.97**
	HERBA_HHD_5	**-0.15**	1.03	**-2.29**
	HERBA_HHD_6	**-0.37**	0.87	**-2.35**
	HERBA_HHD_7	0.28	0.85	**-1.46**
	HERBA_HHD_8	**-0.16**	0.29	**-0.87**
	HERBA_HHD_9	0.54	0.61	**-0.75**
	HERBA_HHD_10	0.81	0.32	0.06

4.3.5 Analysis of the results of simulations NTC, FUI and IUI

For each of the NTC, FUI and IUI scenarios, the results of the simulation show an increase of real GDP of 1.53%, 0.39% and 0.72% respectively as shown in Table 4-2.

Growth and value added

In IUI the increase in GDP is inferior to unity as the rise in output is offset by the significant increase in demand for intermediate inputs (2.69% for aggregate demand and 37.74% for agriculture). This high increase in the demand for agricultural inputs is not to be looked at as unrealistic. Lebanese agricultural production technology remains traditional in many of the cases; intermediate input utilization and mechanization use is low but expensive. In that context, the development scenario of increasing productivity through a large increase of input use and/or its diminution of 18.35%, as in the case of FUI, are both realistic scenarios for Lebanese farmers.

Among the three production technology scenarios only FUI helps in increasing agricultural added value by 4.13%. NTC reduces added value by 3.77% and IUI by 12.88%, once again due to the important reliance on inputs. However, FUI has a very low impact on other sectors in terms of output and value added creation – even negative or close to zero, for industry and trade. In contrast, the increase in output generated by NTC and IUI has an important effect on the other sectors of the economy.

Prices and demand

Looking at the change in price structures shown in table 4-3 and change in the structure of demand in Table 4-4 helps in illustrating the mechanisms that hamper or facilitate growth in other sectors.

FUI scenario induces a relatively low decrease in demand prices of agricultural commodities, and has a direct effect on the price of agro-industrial commodities – the largest and most substantial decrease being for CRL (-2.35%) and FRT (-1.45%). In the FUI scenario, the decrease in prices of agricultural commodities is due to a decrease in the demand for agricultural intermediate inputs. It does not induce a real change in consumption from the part of households and therefore has a limited effect on overall demand (a decrease of 0.13% for CAGR and an overall increase of 0.17%). The latter is met by an increase in domestic

output by 0.16%; while imports and exports remain almost constant, -0.07% and +0.04% respectively. On the other hand, the important price reduction in agricultural and agro-industrial commodities resulting from the NTC and IUI scenarios has significantly pushed demand and stimulatingly increased prices of other commodities. These scenarios increase demand by 2.50% and 2.20% respectively, an increase of demand met by the increase of both domestic output, 1.94% and 1.63% (Table 4-2); and import, 2.34% and 2.06% (Table 4-4).

An important emerging issue from the structural dynamic induced by the scenarios analyzed is related to the industrial sector. In all simulations it shows a relatively low ability to capture the opportunity and to expand both in terms of output and of added value. This is caused by the redistribution of the working forces toward other sectors, the tertiary sector and the main fixed capital formation sector, i.e. construction (refer to Table 4-5 and Table 4-6, which show change in factor income and labor demand). This is explained by low wages in the industrial sector and therefore the tendency of the labor force to go toward the tertiary sector, mainly trade and transport[48]. The significant increase in demand for manufactured goods is met by a similarly significant increase in imports, and by a decrease in exports. Industry is not able to increase output because it is able to cope with the cost of labor; it redirects part of its output toward the local market. Agro-industry witnesses the same dynamic, although a bit less evident as it is mitigated by the decrease in the price of agricultural commodities used as intermediate inputs, which in turn translate into a decrease in the output price of agro-industry. Nevertheless, this is not sufficient and increased demand remains to be met by imports.

Income

In terms of factor income, the three scenarios witness an overall increase, with the exception of farmers' income, which shows important differences. The 4.13% increase in FUI is clearly understandable as the scenario itself aimed at increasing farmers' income through a production technology that relies more on labor and on land productivity than on input use. The issue in discussion was whether a more labor demanding agriculture would negatively

[48] The ability of sector like TRADE and TTCOM to attract excessive agricultural labor and farmers is explained by the model by the important wage premium in those sectors. It is furthermore confirmed by qualitative analysis. The relatively low entry cost and investment needed to work as a - self-employed - taxi or minibus driver or as a small shop manager, make it an important exit door for many farmers for which the agricultural exploitation is no longer sustainable.

impact the other sectors. The results shows that - apart from industry and for reasons related to the archaic structure of the sector - the overall impact is positive.

As for NTC, results change and show a decrease of farmers' income of 3.77% due to the important increase of output and the subsequent decrease in price. While the dramatic 12.88% decrease income of the IUI scenario is explained by the important use of input and the decrease in prices (which in that case of a lower magnitude than the NTC scenarios).

A well functioning economy would be able to compensate the loss of farmers' income by creating new job opportunities in other sectors. Agriculture would employ less labor and fewer farmers, while other sectors would absorb this "technological unemployment". Tables 4-7 shows that for both NTC and IUI overall household income in Lebanon increases by 1.18% and 0.54% respectively

Nevertheless, disaggregated data for the IUI scenario gives another picture. Real income of **marginal areas**[49] decreases (-0.44%) especially in the region of the case study - Baalbek- Al-Hermel (-2.11%) , which is very sensitive to the change in income of farmers. A similar dependency on farm income is found for poor and lower middle-classes, i.e. deciles 1 to 4, which shows a fall in real income at the national level and a significant decrease, from (-0.75%) for HERBA_HHD_1 to (-3.63%) for HERBA_HHD_3 (-1.26%), in the case study for all deciles except HERBA_HHD_1. Furthermore the data from the simulation shows that the beneficiary of the increase of agricultural output will be the richer deciles at the national level (+ 1.59% in NTC and + 1.26% in IUI) and Beirut (+1.64% in NTC and +1.34% in IUI). As a matter of fact an improvement of technology based on a the improvement of productivity of both agriculture labor and land would be the most efficient in terms of increasing real income at the national level– although it shows a slight decrease for some deciles of the case study region.

As a matter of fact, the concentration of economic activities and jobs in Beirut and central Lebanon creates a situation where most job opportunities are within the TRADE, TTCOM and CONS sectors-. Although the model simulation suggests that the economy is able to create an amount of jobs higher that the jobs lost due to technological improvement in

[49] Refer to Section 1.6.2 for the Administrative division of Lebanon, and the Household living conditions survey division into 15 strata, as well as the research division into marginal and central area, in addition to Beirut and the Case study.

agriculture, (+2.42% for NTC and + 1.00% for IUI, see Table 4-6) it is creating those jobs in sectors and regions away from the rural marginal areas. In turn, this is leading people to migrate to the city in search for employment. Although the model framework used is not an adequate tool for showing the dynamics of internal migration of labor, the results of Table 4-6 give us a clear idea of how growth in the economy is directed.

The results of the model simulations indicate that intensification of agricultural production, through the intensification of input use – IUI scenario – has a positive effect on the overall economy. The effects on rural households and the income of farmers are negative. These effects are mitigated if the choice is made toward a NTC development. However, in the absence of political intervention and large irrigation as well as land remediation towards projects that would increase productivity and reduce farmer costs, the NTC scenario is hardly feasible. Up till now extension services have promoted intensification and better use of input as a way for increasing production – new seeds varieties, drip irrigation, chemical based soil management and pest control techniques.

4.3.6 Results of simulations EXP, NTCexp, TRM, and FUItrm

The following tables present the results of the NTC, FUI and IUI simulations. **All figures represent percentage change from base equilibrium (e.g. from SAMLEB05).**

Table 4-8 presents changes in production

Table 4-9 presents changes in the prices structure and Table 4-10 changes in demand

Table 4-11 presents changes in factor income and Table 4-12 changes in labor demand

Tables 4-13 present changes in real income for regions, national deciles and case study deciles respectively

Changes in production

Table 4-8: Changes in activity output and added value - trade and mixed scenarios

Commodities	Intermediate uses				Added Value (nominal GDP at f.c.)				Output			
	EXP	NTCexp	TRM	FUItrm	EXP	NTCexp	TRM	FUItrm	EXP	NTCexp	TRM	FUItrm
CAGR	3.55	2.35	6.85	**-12.77**	3.99	**-8.76**	6.70	11.06		10		
CAGIND	**-0.61**	3.23	0.52	1.09	**-0.05**	0.08	0.15	0.20	**-0.35**	1.19	0.35	0.68
CIND	**-0.14**	**-0.25**	1.34	1.26	**-0.13**	0.19	0.70	0.67	**-0.14**	**-0.12**	1.09	1.03
CCONS	**-0.55**	1.70	0.91	1.26	**-0.36**	0.82	0.44	0.65	**-0.44**	1.45	0.65	0.93
CENW	**-0.35**	1.22	0.74	0.91	**-0.04**	0.10	0.06	0.08	**-0.24**	0.85	0.51	0.63
CTTCOM	**-0.65**	2.48	0.34	0.67	**-0.32**	0.91	0.16	0.32	**-0.50**	1.88	0.26	0.51
CSER	**-0.68**	2.32	0.71	1.02	**-0.54**	1.45	0.47	0.71	**-0.56**	1.99	0.51	0.77
CTRADE	0.11	1.95	**-2.93**	**-3.05**	**-0.11**	1.74	**-1.57**	**-1.56**	**-0.06**	1.79	**-1.88**	**-1.89**
CADMIN	**-0.30**	1.01	0.47	0.69	**-0.60**	1.44	0.67	1.03	**-0.49**	1.71	0.60	0.90
TOTAL	**-0.31**	**1.60**	**0.66**	**0.32**	**-0.36**	**2.61**	**0.58**	**1.13**	**-0.36**	**1.93**	**0.23**	**0.40**
Real GDP					***-0.09***	***1.44***	***0.51***	***0.93***				

Changes in the structure of prices and demand

Table 4-9: Changes in demand prices - trade and mixed scenarios

	Commodities demand prices			
	EXP	**NTCexp**	**TRM**	**FUItrm**
CRL	0.24	**-4.34**	1.14	**-1.36**
FRT	4.10	**-8.01**	**-1.23**	**-2.87**
INDCRP	3.78	1.08	**-0.29**	**-1.22**
VEGT	1.25	**-9.48**	0.08	**-0.62**
LIVES	**-0.51**	**-7.43**	0.88	0.51
LIVESPR	1.86	**-13.68**	**-0.23**	**-0.34**
FISH	0.52	**-5.32**	**-0.14**	**-0.10**
FRMT	0.21	**-1.24**	**-0.03**	**-0.23**
FPR	0.02	**-0.12**	0.01	**-0.01**
DAIRY	0.03	**-0.07**	**-0.20**	**-0.24**
FATOL	0.03	**-0.29**	**-0.07**	**-0.14**
PASTA	0.35	**-1.59**	**-0.19**	**-0.44**
SGCHS	**-0.05**	0.15	0.05	0.07
ALBVRG	**-0.07**	**-0.10**	**-0.06**	**-0.13**
NALBVRG	0.05	**-0.55**	0.24	0.19
OTHER	0.06	**-0.32**		**-0.05**
TABAC	0.01	0.10	**-0.05**	**-0.03**
CIND	**-0.18**	1.00	**-0.20**	**-0.19**
CCONS	**-0.21**	0.81	0.13	0.24
CENW	**-0.18**	0.80	0.11	0.20
CTTCOM	**-0.44**	1.70	0.22	0.44
CSER	**-0.39**	1.43	0.32	0.50
CTRADE	**-0.18**	1.73	**-1.22**	**-1.17**
CADMIN	**-0.12**	0.46	0.09	0.14

Table 4-10: Changes in commodity markets - trade and mixed scenarios

Commodities	Aggregated domestic demand				Exports				Imports			
	EXP	NTCexp	TRM	FUItrm	EXP	NTCexp	TRM	FUItrm	EXP	NTCexp	TRM	FUItrm
CRL	**-0.13**	9.76	0.07	0.06	10.57	29.01	**-4.92**	**-2.08**	0.39	0.10	2.62	**-2.39**
FRT	**-1.54**	4.61	1.08	0.81	8.63	37.78	**-6.44**	**-4.61**	6.79	**-12.14**	**-0.85**	**-4.40**
INDCRP	**-6.01**	1.31	1.52	0.81	2.71	13.87	**-0.69**	**-0.32**	1.29	**2.90**	1.35	**-1.25**
VEGT	**-0.83**	7.61	0.42	0.39	11.28	40.20	**-5.83**	**-5.05**	1.70	**-12.22**	0.88	**-0.56**
LIVES	0.01	10.01	0.02	0.04					**-1.01**	**-5.82**	1.86	1.11
LIVESPR	**-0.83**	6.76	0.54	0.56	14.27	58.98	**-10.04**	**-9.90**	2.98	**-21.14**	0.70	0.45
FISH	**-0.95**	8.86	0.04	0.07					0.26	**-4.18**	1.08	1.12
TOTAL AGR	**-1.00**	**6.87**	**0.59**	**0.48**	**7.75**	**32.32**	**-4.83**	**-3.68**	**0.26**	**-4.18**	**1.08**	**1.12**
FRMT	**-0.35**	1.81	0.35	0.68	**-0.62**	3.41	0.51	1.11	0.14	**-1.36**	0.76	0.67
FPR	**-0.34**	1.76	0.34	0.66	**-0.36**	1.86	0.36	0.70	**-0.27**	1.29	0.50	0.79
DAIRY	**-0.35**	1.82	0.34	0.67	**-0.34**	1.38	1.03	1.42	**-0.21**	0.75	0.60	0.82
FATOL	**-0.35**	1.78	0.33	0.66	**-0.38**	2.09	0.47	0.88	**-0.24**	0.74	0.52	0.69
PASTA	**-0.33**	1.72	0.34	0.65	**-0.76**	3.75	0.62	1.25	0.40	**-1.88**	0.23	0.03
SGCHS	**-0.37**	1.88	0.37	0.71	**-0.32**	1.69	0.31	0.63	**-0.44**	2.00	0.59	0.97
ALBVRG	**-0.40**	1.88	0.24	0.54	**-0.27**	1.69	0.55	0.94	**-0.48**	1.13	0.51	0.65
NALBVRG	**-0.35**	1.76	0.37	0.70	**-0.40**	2.42	0.10	0.49	**-0.23**	0.34	1.09	1.30
OTHER	**-0.35**	1.79	0.34	0.67	**-0.41**	2.09	0.43	0.82	**-0.17**	0.60	0.72	0.94
TABAC	**-0.36**	1.93	0.28	0.61	**-0.22**	0.03	1.54	1.79	**-0.26**	1.39	0.69	1.06
TOTAL AGIND	**-0.35**	**1.78**	**0.34**	**0.67**	**-0.40**	**2.13**	**0.39**	**0.78**	**-0.19**	**0.73**	**0.59**	**0.80**
CIND	**-0.24**	0.48	0.93	0.88	0.01	**-1.00**	1.33	1.25	**-0.54**	1.94	0.91	0.88
CCONS	**-0.44**	1.45	0.65	0.93								
CENW	**-0.25**	0.86	0.51	0.63		**-0.11**	0.38	0.41	**-0.59**	2.26	0.87	1.14
CTTCOM	**-0.52**	1.96	0.27	0.53	**-0.03**	0.08	0.03	0.05				
CSER	**-0.58**	2.03	0.52	0.79	**-0.14**	0.46	0.17	0.24				
CTRADE	**-0.10**	2.17	**-2.15**	**-2.15**	0.16	**-0.43**	**-0.33**	**-0.42**				
CADMIN	**-0.49**	1.71	0.60	0.90								
TOTAL	**-0.45**	**1.98**	**0.20**	**0.39**	**0.41**	**1.28**	**0.44**	**0.48**	**-0.41**	**1.48**	**0.90**	**0.83**

Change in income and labor structure

Table 4-11: Changes in factor income - trade and mixed scenarios

	Factor income			
	EXP	**NTCexp**	**TRM**	**FUItrm**
CAP	**-0.67**	2.84	0.17	0.47
FARM	3.99	0.99	6.70	11.06
SELF	**-0.64**	2.76	0.06	0.34
HGHSK	**-0.70**	2.57	0.61	0.97
WHTcl	**-0.71**	2.85	0.32	0.64
BLUcl	**-0.11**	2.26	0.69	1.33
ARMED	**-0.60**	2.13	0.67	1.03

Table 4-12: Changes in labor demand -trade and mixed scenarios

	Labor demand by activities			
	EXP	**NTCexp**	**TRM**	**FUItrm**
AGR	3.99	0.99	6.70	11.06
AGIND	**-0.17**	0.68	0.52	0.71
IND	**-0.22**	0.18	1.20	1.14
CONS	**-0.63**	2.18	0.77	1.14
ENW	**-0.40**	1.50	0.70	0.90
TTCOM	**-0.87**	3.38	0.45	0.89
SER	**-0.90**	3.26	0.79	1.21
TRADE	**-0.19**	3.14	**-2.79**	**-2.77**
ADMIN	**-0.60**	2.13	0.674	1.027
TOTAL	**-0.06**	**2.37**	**0.75**	**1.48**

Table 4-13: Changes in household income and consumption - trade and mixed scenarios

		Real income			
		EXP	**NTCexp**	**TRM**	**FUItrm**
Areas	Marginal	0.25	0.98	0.77	1.33
	Central	**-0.10**	1.11	0.25	0.53
	Beirut	**-0.25**	1.33	0.07	0.25
	Case study	0.71	0.68	1.40	2.34
Deciles (all Lebanon)	HHD_1	0.25	1.22	0.76	1.38
	HHD_2	0.18	1.08	0.58	1.07
	HHD_3	0.25	1.03	0.71	1.23
	HHD_4	0.13	0.92	0.55	0.98
	HHD_5	0.08	1.04	0.50	0.95
	HHD_6	0.01	0.98	0.41	0.77
	HHD_7	**-0.03**	1.11	0.36	0.70
	HHD_8	**-0.03**	1.01	0.32	0.63
	HHD_9	**-0.08**	0.96	0.27	0.55
	HHD_10	**-0.24**	1.31	0.13	0.33
Deciles Baalbak Al Hermel	HERBA_HHD_1	0.82	0.60	1.41	2.44
	HERBA_HHD_2	1.19	0.61	2.09	3.40
	HERBA_HHD_3	1.20	0.70	2.17	3.54
	HERBA_HHD_4	0.99	0.78	1.91	3.13
	HERBA_HHD_5	0.77	0.76	1.51	2.59
	HERBA_HHD_6	0.73	0.58	1.42	2.44
	HERBA_HHD_7	0.58	0.85	1.32	2.14
	HERBA_HHD_8	0.26	0.12	0.45	0.76
	HERBA_HHD_9	0.32	1.00	0.91	1.56
	HERBA_HHD_10	0.04	0.83	0.43	0.77

4.3.7 Analysis of the results of simulations EXP, NTCexp, TRM, and FUItrm

Farmers strategy and economic growth

This farmer strategy is also linked to local rural development action that promotes a shorter supply chain and as a consequence reduces trade margins and redistributes value added toward producers. Such private initiatives have been done in parallel with development projects organized by the ministry. As previously discussed in Chapter 1 Section 1.3, government action in the agricultural sectors is comprised of a mixture of funds from international projects with goals ranging from the promotion of small animal husbandry holdings to the improvement of quality products for export markets. In the following, the results of the trade and mixed scenarios are discussed

An export-orientated development for Lebanese agriculture, at the current level of output, would have a neutral impact on the overall economy (slightly negative -0.09% decrease in real GDP, see Table 4-8). The effect is significantly improved if the export market development is done in parallel with an increase in output. The NTCexp simulation shows a raise of 1.44% in real GDP.

Changes in prices and factor income

For The EXP scenario, the increase in exported quantities will raise the prices of most agricultural commodities and as a consequence the prices of food products in general, leading to a slight diminution of agro-industrial output by 0.35%. This increase in prices of food leads to lower demand, which nevertheless is met only through increasing imports. The increase in food prices lowers the demand for other commodities, reducing their relative prices and therefore payments to factors of production. The decrease in real income affects principally Beirut and central regions. In marginal areas, the decrease in income of HIGHsk and WHTcl labor is mitigated – but not completely set off – by the increase in farmers' income and the increased demand of agriculture for BLUct labor. Lower deciles in the case study areas witness an increase in real income. The results of the EXP simulation show that public policies aiming at the re-organization of the export channels of agricultural commodities should take into consideration the possible negative impacts resulting from the rise of domestic food prices. The results obtained for NTCexp demonstrate that on one hand, the increase in agricultural output decreases supply prices and largely compensates for the

opening of export markets on domestic prices. On the other hand, the increase in the income of farmers obtained thanks to exports compensates the losses that might accompany an output growth. The NTCexp follows a structural dynamic similar to the NTC, with the difference that the negative effect on farmers' income is overcome by the – hypothetical – better price found in export markets. It shows that the main problems of agricultural output in Lebanon remain to be its marketing channels.

Resources transfer?

For farmers to benefit from an increase in output or a change in the typology of production – toward more local channels, differentiation of production and resource transfers from rich urban to poor rural – efforts in finding market output should be found. The TRM and FUItrm results show that, at a fixed level of output, a re-organization of the domestic supply chain channel has a positive impact - although limited - on the economy (an increase of 0.51% and 0.92% in real GDP respectively for each scenario simulation). However, their effect on agriculture value added and on farmers' income is significant, +6.67% and +11.02% respectively. Both scenarios, within a framework similar to FUI, introduce very little change to the structure of relative prices – apart from CTRADE prices. Consumption increases by 0.65% and 0.99% respectively, mainly due to the increase in real income in the marginal and Baalbak Al-Hermel areas. The economic dynamic of these scenarios – considering constant agricultural output – is of relatively moderate amplitude at the national level. In their cores they represent a redistribution of resources within the economy between traders and producers of food products in terms of value added, and between inputs and labor in term of production technology. The results show that trader losses are compensated for all deciles and in all regions.

4.4 Trade liberalization and protection policies

4.4.1 Background on Lebanese trade policies

The Lebanese economy is a free open economy benefiting from a particular advantage in trade due to its location, and its historical development. Before 1975, low tariffs were sufficient to create an almost constant state budget surplus and to buy gold in order to fix a strong currency. Political elites have not changed the conception of the economic role of the country, but at present, they are faced with a new international and national context. From one side, reconstruction efforts – together with ruling class interest – have created a large public debt and a consequential public deficit. Form the other side tariffs, which are already insufficient to balance state revenues, should be abolished if Lebanon is to respect its trade agreements, which within the discourse logic of the Lebanese ruling class is a crucial condition for the enhancement and development of the Lebanese economic role as a regional trade platform.

Nowadays, the aggregate rate of taxes on import was of 16.8% in 2005 (PCM,2007) inclusive of tariffs, administrative tax and Value Added Tax (VAT). In order to restore the country's economic "role" as a trade center in the region, the Lebanese government has signed a series multilateral and bilateral trade agreements, the most important being, the EuroMEd partnership agreement with the EU (2002)[50], and the "Taysir" - Great Arab Free Trade Area (2005) agreement - with 17 other Arab countries[51]. Although it has one of the most open economies of the Middle East and North Africa (MENA) region, Lebanon is not a member of the World Trade Organization (WTO).

It has been granted observer status in 1999 and adhesion negotiations have been going on since 2001. It is in the perspective of this adhesion that Lebanon unilaterally reduced tariff rates in the period between 2000 and 2003,which were almost instantly replaced with a 10% VAT applied to both domestically produced and imported commodities alike. This policy – total abolition of tariffs and introduction of a VAT has been only partially implemented, and tariff reductions has been held back. As a matter of fact, the debt burden and budget deficit

[50] The agreement specified the progressive abolition (to be completed in 2015) of tariffs on imported European manufactured goods, and grants Lebanese industrial exports duty-free access to EU markets.

[51] In addition to the "Taysir", Lebanon has signed bilateral free trade agreements with Iraq, Egypt, Kuwait, Syria, Jordan and the United Arab Emirates.

have been the main problem of state finance, and the Ministry of Finance has proposed an increase of the VAT to 16% as a possible means of mitigation

Agriculture and food product trade policies were treated due to the sensibility of these products in terms of food security, and because of the existence of a significant deficit for certain food commodities. Import taxes on food items vary from zero on cereals to 3.3% on fish up to 22.5% for fruits and 45.1% on vegetables. Lebanon does not apply any kind of trade quota, with the exception of potato seeds, which are fixed by the Ministry of Agriculture on a yearly base. Table 4-14, in sub-Section 4.4.2, below shows the import tax rates for food commodities in 2005. It results that relatively competitive subsectors are highly protected, e.g. (fruits, vegetables, foor products (conserves), while commodities like cereals, livestock that enter mainly as intermediate inputs and for which Lebanon witness a high deficit are freed of tariffs. These commodities are also exempt from the 10% VAT .

4.4.2 Presentation of the scenarios

Against this background, and in order to assess the effects of different policies, the following four scenarios are simulated. Two liberalization scenarios: first, abolition of tariffs on agricultural commodities (AGRlib), and second, abolition of all tariffs (LIB). One protection scenario: a raise of 50% in existing tariffs on agricultural products (AGRpro). Finally, a scenario with the abolition of all trade barriers and the increase of VAT (VATinc) from 10 to 16% is simulated[52]. This last scenario have been envisaged as the main fiscal reform of the Lebanese government over the medium term; however, it has been delaying its implementation due to disagreements on its political and economic viability. The different scenarios parameters are presented in Table 4-14[53], below.

[52] Representing an estimate 18% rise on activity tax, (see note on taxes table 3-5)

[53] Note that taxes on CENW, ALBVRG, and TABAC have been kept constant during the simulations, as they do not represent tariffs but specific taxes on these commodities.

Table 4-14: Imports tariffs for base and simulation scenarios

	BASE	AGRlib	AGRpro	LIB	VATinc
CRL					
FRT	22.5%	10.0%	33.8%	10.0%	16.0%
INDCRP	9.0%	10.0%	13.5%	10.0%	16.0%
VEGT	45.1%	10.0%	67.7%	10.0%	16.0%
LIVES					
LIVESPR	20.0%	10.0%	30.0%	10.0%	16.0%
FISH	3.3%		5.0%		
FRMT	5.4%	5.4%	5.4%		
FPR	40.4%	40.4%	40.4%	10.0%	16.0%
DAIRY	12.2%	12.2%	12.2%	10.0%	16.0%
FATOL	7.4%	7.4%	7.4%		
PASTA	17.1%	17.1%	17.1%	10.0%	16.0%
SGCHS	17.2%	17.2%	17.2%	10.0%	16.0%
ALBVRG	41.8%	41.8%	41.8%	41.8%	41.8%
NALBVRG	33.3%	33.3%	33.3%	10.0%	16.0%
OTHER	15.1%	15.1%	15.1%	10.0%	16.0%
TABAC	129.5%	129.5%	129.5%	129.5%	129.5%
CIND	16.8%	16.8%	16.8%	10.0%	16.0%
CENW	22.7%	22.7%	22.7%	22.7%	26.8%

4.4.3 Results of simulations AGRLib, AGRpro, LIB and VATinc

The following tables present the results of the AGRLib, AGRpro, LIB and VATinc simulations. **All figures represent percentage change from base equilibrium (e.g. from SAMLEB05).**

Table 4-15 presents changes in macro-economic variables and Table 4-16 present changes in production

Table 4-17 presents changes in the prices structure and Table 4-18 changes in demand

Table 4-19 presents changes in factor income and Table 4-20 changes in labor demand

Table 4-21 presents changes in household real income for regions, national deciles and case study deciles, and Table 4-22 presents changes in households welfare (Equivalent Variation EV) for regions, national deciles and case study deciles.

Changes in macro variables and in production

Table 4-15: Changes in macro variables – liberalization and protection scenarios

	Macro variables			
	AGRlib	**AGRpro**	**LIB**	**VATinc**
Real GDP	0.26	-0.12	2.87	-0.50
Total Output	0.34	-0.17	3.53	-0.70
Total Real Investment	0.65	-0.33	6.01	-0.16
Government Savings	-5.31	1.77	-49.52	8.36
Total Real Private Consumption	0.91	-0.46	4.94	0.15
Total Import	1.47	-0.69	7.62	0.44
Total Export	-0.35	0.18	1.62	-2.12

Table 4-16: Changes in commodities output– liberalization and protection scenarios

	Commodities output			
	AGRlib	**AGRpro**	**LIB**	**VATinc**
CAGR	**-4.4**	2.2	**-2.4**	**-3.2**
CAGIND	0.3	**-0.2**	0.5	**-0.9**
CIND	0.1	**-0.1**	2.1	**-1.6**
CCONS	0.6	**-0.3**	6	**-0.1**
CENW	0.4	**-0.2**	2.6	**-0.3**
CTTCOM	0.8	**-0.4**	4.4	**-0.4**
CSER	0.9	**-0.4**	4.6	**-0.4**
CTRADE	0.3	**-0.1**	3.5	**-1**
CADMIN	0.7	**-0.4**	4.2	**-0.1**

Changes in the structure of prices and demand

Table 4-17: Changes in demand prices – liberalization and protection scenarios

	Commodities demand prices			
	AGRlib	**AGRpro**	**LIB**	**VATinc**
CRL	3.06	**-1.48**	2.47	1.27
FRT	2.05	**-0.96**	2.35	3.01
INDCRP	**-2.39**	1.36	1.96	4.36
VEGT	**-10.90**	5.02	**-9.16**	**-7.70**
LIVES	5.75	**-2.80**	3.95	2.22
LIVESPR	10.98	**-4.87**	11.10	8.00
FISH	3.16	**-1.54**	4.17	2.22
FRMT	0.23	**-0.10**	2.43	0.45
FPR	0.07	**-0.03**	**-11.18**	**-9.31**
DAIRY	0.18	**-0.08**	1.14	2.87
FATOL	0.13	**-0.06**	**-2.37**	**-3.32**
PASTA	**-0.09**	0.05	**-1.07**	1.14
SGCHS	0.15	**-0.07**	**-2.47**	**-0.31**
ALBVRG	0.19	**-0.10**	1.53	0.68
NALBVRG	0.45	**-0.21**	2.74	0.37
OTHER	0.17	**-0.08**	0.14	1.40
TABAC	0.16	**-0.07**	1.72	0.64
CIND	0.31	**-0.15**	**-1.27**	0.43
CCONS	0.31	**-0.15**	0.15	0.44
CENW	0.30	**-0.15**	1.64	0.02
CTTCOM	0.70	**-0.35**	3.78	0.45
CSER	0.61	**-0.30**	2.88	0.54
CTRADE	0.39	**-0.18**	3.07	1.45
CADMIN	0.19	**-0.10**	0.73	0.16

Table 4-18: Changes in commodity markets – liberalization and protection scenarios

Commodities	Aggregated domestic demand				Exports				Imports			
	AGRlib	AGRpro	LIB	VATinc	AGRlib	AGRpro	LIB	VATinc	AGRlib	AGRpro	LIB	VATinc
CRL	**-0.13**	9.76	0.07	0.06	10.57	29.01	**-4.92**	**-2.08**	0.39	0.10	2.62	**-2.39**
FRT	**-1.54**	4.61	1.08	0.81	8.63	37.78	**-6.44**	**-4.61**	6.79	**-12.14**	-0.85	**-4.40**
INDCRP	**-6.01**	1.31	1.52	0.81	2.71	13.87	**-0.69**	**-0.32**	1.29	**2.90**	1.35	**-1.25**
VEGT	**-0.83**	7.61	0.42	0.39	11.28	40.20	**-5.83**	**-5.05**	1.70	**-12.22**	0.88	**-0.56**
LIVES	0.01	10.01	0.02	0.04					**-1.01**	**-5.82**	1.86	1.11
LIVESPR	**-0.83**	6.76	0.54	0.56	14.27	58.98	**-10.04**	**-9.90**	2.98	**-21.14**	0.70	0.45
FISH	**-0.95**	8.86	0.04	0.07					0.26	**-4.18**	1.08	1.12
TOTAL AGR	**-1.00**	**6.87**	**0.59**	**0.48**	**7.75**	**32.32**	**-4.83**	**-3.68**	**0.26**	**-4.18**	**1.08**	**1.12**
FRMT	**-0.35**	1.81	0.35	0.68	**-0.62**	3.41	0.51	1.11	0.14	**-1.36**	0.76	0.67
FPR	**-0.34**	1.76	0.34	0.66	**-0.36**	1.86	0.36	0.70	**-0.27**	1.29	0.50	0.79
DAIRY	**-0.35**	1.82	0.34	0.67	**-0.34**	1.38	1.03	1.42	**-0.21**	0.75	0.60	0.82
FATOL	**-0.35**	1.78	0.33	0.66	**-0.38**	2.09	0.47	0.88	**-0.24**	0.74	0.52	0.69
PASTA	**-0.33**	1.72	0.34	0.65	**-0.76**	3.75	0.62	1.25	0.40	**-1.88**	0.23	0.03
SGCHS	**-0.37**	1.88	0.37	0.71	**-0.32**	1.69	0.31	0.63	**-0.44**	2.00	0.59	0.97
ALBVRG	**-0.40**	1.88	0.24	0.54	**-0.27**	1.69	0.55	0.94	**-0.48**	1.13	0.51	0.65
NALBVRG	**-0.35**	1.76	0.37	0.70	**-0.40**	2.42	0.10	0.49	**-0.23**	0.34	1.09	1.30
OTHER	**-0.35**	1.79	0.34	0.67	**-0.41**	2.09	0.43	0.82	**-0.17**	0.60	0.72	0.94
TABAC	**-0.36**	1.93	0.28	0.61	**-0.22**	0.03	1.54	1.79	**-0.26**	1.39	0.69	1.06
TOTAL AGIND	**-0.35**	**1.78**	**0.34**	**0.67**	**-0.40**	**2.13**	**0.39**	**0.78**	**-0.19**	**0.73**	**0.59**	**0.80**
CIND	**-0.24**	0.48	0.93	0.88	0.01	**-1.00**	1.33	1.25	**-0.54**	1.94	0.91	0.88
CCONS	**-0.44**	1.45	0.65	0.93								
CENW	**-0.25**	0.86	0.51	0.63		**-0.11**	0.38	0.41	**-0.59**	2.26	0.87	1.14
CTTCOM	**-0.52**	1.96	0.27	0.53	**-0.03**	0.08	0.03	0.05				
CSER	**-0.58**	2.03	0.52	0.79	**-0.14**	0.46	0.17	0.24				
CTRADE	**-0.10**	2.17	**-2.15**	**-2.15**	0.16	-0.43	-0.33	-0.42				
CADMIN	**-0.49**	1.71	0.60	0.90								
TOTAL	**-0.45**	**1.98**	**0.20**	**0.39**	**0.41**	**1.28**	**0.44**	**0.48**	**-0.41**	**1.48**	**0.90**	**0.83**

Changes in income and labor structure

Table 4-19: Changes in Factor income - liberalization and protection scenarios

	Factor income			
	AGRlib	**AGRpro**	**LIB**	**VATinc**
CAP	1.10	**-0.54**	6.27	**-0.86**
FARM	**-4.53**	2.31	**-2.69**	**-3.22**
SELF	1.04	**-0.51**	6.07	**-0.80**
HGHSK	1.07	**-0.54**	5.77	**-0.28**
WHTcl	1.14	**-0.56**	6.26	**-0.67**
BLUcl	0.37	**-0.17**	4.57	**-1.05**
ARMED	0.90	**-0.45**	4.87	0.04
Total	**0.71**	**-0.34**	**5.47**	**-0.91**

Table 4-20: Change in labor demand - liberalization and protection scenarios

	Labor Demand by activities			
	AGRlib	**AGRpro**	**LIB**	**VATinc**
AGR	**-4.53**	2.31	**-2.69**	**-3.22**
AGIND	0.44	**-0.22**	0.34	**-1.09**
IND	0.26	**-0.14**	0.62	**-1.91**
CONS	0.93	**-0.47**	6.15	**-0.18**
ENW	0.65	**-0.33**	4.02	**-0.44**
TTCOM	1.37	**-0.68**	7.76	**-0.43**
SER	1.40	**-0.70**	7.24	**-0.50**
TRADE	0.58	**-0.25**	5.95	**-1.41**
ADMIN	0.90	**-0.45**	4.87	0.04
Total	**0.53**	**-0.26**	**4.83**	**-0.85**

Table 4-21: Changes in households real income - liberalization and protection scenarios

		Real Income			
		AGRlib	**AGRpro**	**LIB**	**VATinc**
Areas	Marginal	**-0.12**	0.09	2.42	**-0.70**
	Central	0.21	**-0.10**	3.18	**-0.78**
	Beirut	0.44	**-0.16**	3.90	**-0.85**
	Case study	**-0.74**	0.41	1.18	**-0.96**
Deciles (all Lebanon)	HHD_1	0.05	0.04	2.28	**-0.64**
	HHD_2	0.02	0.02	2.15	**-0.61**
	HHD_3	**-0.07**	0.10	1.98	**-0.70**
	HHD_4	**-0.05**	0.02	2.05	**-0.70**
	HHD_5	0.04		2.40	**-0.71**
	HHD_6	0.07	**-0.04**	2.37	**-0.70**
	HHD_7	0.12	**-0.03**	2.79	**-0.76**
	HHD_8	0.12	**-0.04**	3.12	**-0.85**
	HHD_9	0.11	**-0.06**	3.00	**-0.83**
	HHD_10	0.41	**-0.17**	4.23	**-0.86**
Deciles Baalbak Al Hermel	HERBA_HHD_1	**-0.84**	0.39	0.58	**-0.88**
	HERBA_HHD_2	**-1.28**	0.70	0.07	**-1.15**
	HERBA_HHD_3	**-1.28**	0.70	0.24	**-1.16**
	HERBA_HHD_4	**-1.01**	0.57	1.00	**-1.18**
	HERBA_HHD_5	**-0.77**	0.44	0.93	**-1.00**
	HERBA_HHD_6	**-0.81**	0.42	0.81	**-0.90**
	HERBA_HHD_7	**-0.49**	0.35	1.79	**-0.87**
	HERBA_HHD_8	**-0.35**	0.18	1.11	**-0.62**
	HERBA_HHD_9	**-0.34**	0.18	2.64	**-0.99**
	HERBA_HHD_10	**-0.02**	0.02	3.20	**-0.76**

Table 4-22: Changes in households Welfare (EV) - liberalization and protection scenarios

		EV			
		AGRlib	**AGRpro**	**LIB**	**VATinc**
Areas	Marginal	0.58	**-0.26**	3.98	0.17
	Central	0.81	**-0.40**	4.59	**-0.03**
	Beirut	1.73	**-0.92**	7.10	1.08
	Case study	**-0.06**	0.04	2.77	**-0.06**
Deciles (all Lebanon)	HHD_1	0.68	**-0.28**	3.69	**-0.02**
	HHD_2	0.59	**-0.26**	3.52	**-0.01**
	HHD_3	0.47	**-0.20**	3.29	**-0.10**
	HHD_4	0.49	**-0.20**	3.27	**-0.11**
	HHD_5	0.55	**-0.25**	3.61	**-0.14**
	HHD_6	0.55	**-0.25**	3.54	**-0.10**
	HHD_7	0.67	**-0.34**	4.09	**-0.14**
	HHD_8	0.72	**-0.36**	4.44	**-0.14**
	HHD_9	0.62	**-0.32**	4.14	**-0.28**
	HHD_10	1.66	**-0.87**	7.47	1.04
Deciles Baalbak Al Hermel	HERBA_HHD_1	**-0.20**	0.10	2.00	**-0.20**
	HERBA_HHD_2	**-0.70**	0.40	1.40	**-0.50**
	HERBA_HHD_3	**-0.70**	0.40	1.50	**-0.60**
	HERBA_HHD_4	**-0.60**	0.30	2.00	**-0.60**
	HERBA_HHD_5	**-0.20**	0.10	2.30	**-0.30**
	HERBA_HHD_6	**-0.30**	0.20	2.00	**-0.30**
	HERBA_HHD_7	0.20	**-0.10**	3.30	**-0.10**
	HERBA_HHD_8	0.50	**-0.30**	3.10	0.50
	HERBA_HHD_9	1.10	**-0.60**	6.20	1.10
	HERBA_HHD_10	2.20	**-1.20**	9.00	2.80

4.4.4 Analysis of the results of simulations AGRLib, AGRpro, LIB and VATinc

Scenarios limited to agricultural commodities show slight changes in aggregate variables. Raising import taxes on agricultural products would lower real GDP by -0.12% and raise agricultural output by 2.2%, while having a negative impact on the other sectors of the economy. The Liberalization scenario works in the opposite direction, and the amplitude of change is higher as agricultural output would decrease by 4.4%. This fall is a direct consequence of the significant increase in agricultural imports, 12.26%. The agricultural liberalization process has a significant impact on all households deciles of the case study (see Table 4-17). With a fall in real income reaching -1.28% for translating the fall of farmers' income by -4.53% induced by the opening of the national market. As a matter of fact, many farmers stopped their vegetable production in response to the unilateral reduction of tariffs of 2003 and the opening of the Lebanese market to Syrian and Jordanian production following the "Tayssir" agreements.

Results of the LIB scenario show that the opening of the market would induce a 2.87% growth in real GDP, and increase real consumption and savings. It increases welfare of all households, although deepening inequality as richer household deciles' consumption and therefore income increase significantly more that poorer ones. the results show the tendency of a neo-liberal free market policy to create inequality in growth and accumulation of resources within the richer deciles. As shown in Table 4-22, at both the national and HERBA level, HHD_10-households' welfare has a significantly greater increase than other deciles. These results are in line with other observations made in the literature (Annabi (2005) in Senegal, Vos and de Jong (2003) in Ecuador (macro simulation), Cockburn (2003) in Nepal (micro simulation) and others). Furthermore, the political economy of Lebanon suggests that free-market policies would benefit mostly the richest as Lebanese importers and traders historically supported and formed a political elite biased against productive sectors. Against that background, a protection of agricultural production, which would keep the current structure of import taxes, could be considered as a pro-poor / pro-marginal areas policies

Nevertheless, government savings would be reduced by 49.65%, i.e. in the actual financial context, this translated to an increase of public deficit by almost 50%. These figures are in line with the results of other studies, Dessus and Ghaleb (2004) and Lucke *et al.* (2007),

where the latter (based on a 1997 SAM) reported a 2.7% increase in GDP in case of trade liberalization, and diminution of public revenues by 9.3%. In LIB simulation, the increase in government deficit is caused by a 10.27% fall in public revenues.

The LIB scenario is not a sustainable policy option for the country. Actual trust in the Lebanese economy stems from the ability of the central bank to maintain parity between the LBP and the USD and to repay internal and foreign public debt. Modeling of this trust aspect, and debt constraint is beyond the limits of the model used for this analysis. Still, in a changing unstable political and social environment, at both national and regional level, the risk of deepening budget deficit with the hope that growth could be sustained by the continuous ability of the government to borrow is definitely too high to make of the LIB scenario a real political option. In fact, successive governments have kept delaying total abolition of tariffs, a step that seems conceivable to policy makers only if it is accompanied by an increase in VAT. The results of simulating such a policy scenario are analyzed in what follows.

The simulations results for the VATinc scenario show a slight decrease of 0.56% of real GDP, together with a very small increase in real consumption, and a significant increase in government savings. The macro data suggests that an increase in VAT rate, together with the abolition of tariffs might represent an acceptable policy for reducing government deficit, while not interfering with economical growth, for reduction in growth obtained through the simulation could be corrected by other economic measures or simply by a minor increase in VAT. However, household data show (Table 4-21) that the increase in aggregate total real consumption is in fact due to increase in the consumption of the richest. This result reflects the tendency of trade liberation policy to further deepen income inequality between rich and poor households. The change in welfare is Pareto efficient when the policy is limited to reduction of tariffs. In the Lebanese context, an additional tax such as. VAT applied to both domestic and imported goods would lead to a Pareto inefficient change as consumption increases for the richest deciles by 1.04% while real consumption of the poorest deciles decrease by 0.38%[54].

[54] This result are in line with Salti and Chaaban (2010), whom regardless of tariffs reduction using a micro-simulation showed that the VAT system is regressive, impacting more the poor than rich households.

4.5 Food Security

4.5.1 MENA's economy vulnerability to international price of food

In early 2011, popular uprisings in Tunisia and Egypt led to the fall of those governments and instilled a prominent change in the political institutions of both countries. These protests have created a wave across the Arab world, in particular in Algeria, Bahrain, Jordan and Yemen, where people have taken to the streets in protest against their governments and regimes. Unlike the sporadic and often violent demonstrations that were common in the Arab world, the recent protests are mainly driven by the rising prices of food and basic commodities (like oil and sugar in Tunisia), and a middle class "malaise". Popular slogans were: "Freedom, food and socio-economic justice".

The issue of food security in the MENA region is not grave in comparison to the situation of poor areas of Asia and Africa. Most Arab countries are classified as low and upper middle-income countries (which is the case for Lebanon), and the oil economies of the Gulf witness very high levels of income. The main issue is not that of extreme poverty, then, but rather of vulnerability, especially of the urban poor and lower middle classes. It is this vulnerability which is further exacerbated during this period of international food price crises. A working paper by the Socio-Economic Council of the Arab League highlighted the risk that the poor in the Arab world may not be able to guarantee their minimum food requirements in the case of a sharp increase in international prices (Arab League, 2009).

4.5.2 Presentation of the food security scenario

In order to study the vulnerability of the Lebanese economy, the following simulation looks at the economic changes induced by a 20% increase in agricultural imports' prices, while agricultural output is kept constant at base level. In this scenario, all factors of production (labor and capital) are considered sector specific and fully employed, with the exception of BLUct labor . Investment and government consumption are fixed. These closures intend to model the rise of very volatile international food prices, as with a short-term shock. The aim is to gage the Lebanese economy's reaction to a food price crisis in a condensed period of time, where the ability of the economy to respond is limited and the elasticity of the agricultural supply is zero.

4.5.3 Results of the Fdsec scenario

The following presents the results of Fdsec simulations. **All figures represent the percentage change from base equilibrium (e.g., from SAMLEB05)**. Table 4-23 depicts the changes in household groups' welfare. Table 4-24 investigates more specific details and shows those household groups witnessing an increase in welfare and those witnessing the highest negative changes. Other results are presented in the text.

Table 4-23: Changes in Welfare EV - food security scenario

		Changes in EV Fdsec			
Regions	Marginal	**-0.90**			
	Central	**-1.29**			
	Beirut	**-1.75**			
	Baalbak / Al-Hermel	0.50			
	Lebanon	**-1.20**			
Deciles (all Lebanon)	HHD_1	**-1.37**	**Deciles Baalbak Al Hermel**	HERBA_HHD_1	0.55
	HHD_2	**-1.28**		HERBA_HHD_2	1.47
	HHD_3	**-0.90**		HERBA_HHD_3	1.42
	HHD_4	**-1.00**		HERBA_HHD_4	1.04
	HHD_5	**-1.08**		HERBA_HHD_5	0.49
	HHD_6	**-1.11**		HERBA_HHD_6	0.66
	HHD_7	**-1.17**		HERBA_HHD_7	**-0.05**
	HHD_8	**-1.16**		HERBA_HHD_8	**-0.32**
	HHD_9	**-1.02**		HERBA_HHD_9	**-0.59**
	HHD_10	**-1.24**		HERBA_HHD_10	**-0.95**

Table 4-24: Changes in welfare EV for selected households – Food security scenario

EV changes – Fdsec scenario			
Largest negative changes		**Positive changes**	
BRT_7	-2.34	**SOUR_10**	0.02
KSJB_2	-2.32	**BJMR_5**	0.06
NABA_2	-2.28	**ZHLE_2**	0.20
SDJZ_1	-2.25	**KSJB_3**	0.21
KZGB_1	-2.08	**WBRA_2**	0.22
TRIP_6	-2.06	**KZGB_8**	0.40
AKMD_8	-1.98	**HERBA_5**	0.49
AKMD_6	-1.96	**HERBA_1**	0.55
BRT_3	-1.95	**HERBA_6**	0.66
BBDA_1	-1.94	**WBRA_3**	0.72
TRIP_1	-1.92	**KZGB_6**	0.87
SDJZ_3	-1.82	**HERBA_4**	1.04
SDJZ_2	-1.80	**WBRA_9**	1.32
SOUR_1	-1.80	**HERBA_3**	1.42
SDJZ_7	-1.78	**HERBA_2**	1.47
SOUR_9	-1.77	**KZGB_3**	1.89

See Table 1-1 for acronyms spelling., the number refer to the deciles

4.5.4 Analysis of the results of the Fdsec scenario

The 20% rise in the price of agricultural imports induces a 9.5% increase in output prices in the agriculture sector and a 6.6% increase in that of agro-industry; however, other activities witness a decrease in output prices, reaching a 3.1% decrease for services. These changes in prices lead to a reduction in real total absorption by 0.89% and a reduction of real consumption by 1.22%. Real GDP decreases by 0.22%, and overall welfare (EV) is reduced by 1.20%.

Each household aggregate (deciles at national and regional levels) reacts to the increase in prices according to the share of FARM income within the total income of the household. Analysis of the household aggregate response sheds light on the role played by agriculture in the different Lebanese regions and household consumption deciles. It should be kept in mind that an increase in welfare of a household aggregate is due to the increase in FARM income. A positive change is thus explained by the higher value of the welfare gain

for agricultural households compared to the welfare lost for the non-agricultural ones, within a single consumption decile.

In addition to the households deciles of the case study (HERBA_1 to 6), several other groups witness an increase in welfare. Although this data does not permit generalized conclusions – because groups are aggregates of farmers and non-farmer households – it gives insights into the importance of agriculture for specific social groups. Furthermore, it reflects the heterogeneity of the sector (see Chapter 3, Section 3.6.2), as the welfare of rich deciles shows positive changes with the increase in international prices of food (Sour (SOUR) HHD_10, West Bekaa / Rashayya (WBRA) HHD_9, Koura/ Zgharta / Batroun/ Bsharre (KZGB) HHD_8). It is important to note that those regions witness intensive agricultural production (see Chapter 3, Section 3.7.2 and 3.7.5).

Aggregate results show that a decrease in welfare affects all deciles and regions, with the exception of the case study region, where welfare increases by 0.50%. The most concerned groups are HHD_1 and HHD_2 with respectively -1.37% and -1.28%. These household groups represent 20% of the population, e.g. the population already living under the poverty line (UNDP and MOSA, 2008). A decrease in welfare (e.g. real consumption) of higher that 1% (at base level agricultural output) represents a significant decrease in consumption that was already limited to basic needs.

The data in Table 4-24, on the largest negative changes, identify the more vulnerable groups in the adevent of a food security crisis. Large negative welfare changes concern upper-middle class and poor households. Indeed, policy makers should be primarily concerned with poor households, as decreases in welfare, e.g. real consumption, are highly correlated with food consumption (see Table 3-13). The most important priority appears to be the Beirut southern suburbs (BBDA_1) and the poor neighborhoods of the cities of Saida and Tripoli (SDJZ_1 and TRI_1). They show a decrease in welfare of -1.94%, -2.25% and -1.92%, and represent 14.36%, 13.5% and 8.2% of the poorest deciles respectively (see Table 3-8).

If the most vulnerable groups – in terms of the absolute value of welfare decrease and in terms of the number of individuals – appear to be the poor urban and rural poor households (already highly vulnerable groups), then Lebanon, like other MENA countries, is susceptible to political and social problems should the international prices of food increase.

4.6 Synthesis

This Chapter studied economic scenarios resulting from changes in policy, trade and production technology, in direct relation with farmers' livelihoods strategies. It looked at the structural dynamics, welfare and income distribution induced by the different scenarios. As pointed out by Derejan and Robinson (2002), CGE models have both academic and policy purposes. In particular, the models can be used by policymakers to evaluate the impact of political and economic decisions, allowing them to distinguish between "loser and winner" options.

The results of the CGE models tested in this Chapter show that several simulations induce *non Pareto efficient*[55] changes in regards to Equivalent Variation (EV) and/or to real income, either at the level of households deciles, at the regional level or both, thereby highlighting the conflicting economic interests between the richer and poorer deciles and between regions.

In regards to the trade liberalization scenarios, the abolition of agricultural tariffs was shown to have negative effects on the Baalbak Al Hermel strata HHD_1 to HHD_5 deciles. However, abolition of all tariffs, but keeping the VAT tax of 10%, is *Pareto efficient*, although it increases inequality. Conversely the envisaged policy of increasing the VAT (to 16%), together with the abolition of tariffs is *non Pareto efficient,* and only the richest deciles will witness an increase in welfare. The Lebanese government suffers from an important budget deficit and is in need of creating new revenue, however, the neo-liberal policies of abolishing tariffs and raising VAT taxes benefits only the richest part of the population, without creating sufficient additional revenue.

[55] "An allocation that is Pareto optimal uses society's initial resources and technological possibility efficiently in the sense that there is no alternative way to organize the production and distribution of goods that makes some consumer better off without making some other consumer worse off." (Mascollel *et al*. 1995:313).

Therefore, when the economy given its set of technological and resource constraints, is moving from a situation where it is wasting some of these resources to a situation where there is no waste in the allocation of its resources is in fact making a Pareto efficient change. In microeconomic terms, if the equilibrium reached can be moved to another allocation where one of the consumers can be strictly better off, i.e. have a higher utility level, while the others have at least the same utility level (or higher), then this is a Pareto improvement of the equilibrium reached. Note that a Pareto optimal change need not be in the direction of a more equitable change for society. For example, "using all of society's resources and technological capabilities to make a single consumer as well off as possible, subject to all other consumers receiving a subsistence level utility, results in an allocation that is Pareto optimal but not in one that is very desirable on distributional grounds" (p:313).

In regards to the agricultural production scenarios, Neutral Technical Changes (NTC) induce losses in real income for the poorer deciles households in Baalbak Al Hermel (HERBA), and theses losses are greater with Input Use Intensification (IUI) and concern HERBA, marginal areas and poorer deciles at the national level. Moreover, the growth and wealth produced by an increase in agricultural output is redirected toward the trade and the tertiary sectors – concentrated in Beirut and Mount Lebanon – benefiting self-employed, highly skilled labor, and most particularly the capital holders concentrated in the richest deciles. The Factor Use Intensification Scenario (FUI) creates a *Pareto efficient* change in term of real income, which remains consistent even when FUI is linked to reductions in domestic trade margins. The domestic trade margins reduction (Trm), FUI and FUItrm scenarios induce a mechanism of "resources transfer" between traders and farmers in terms of value added, and between inputs and labor in terms of production technology.

5 Rural development and Agricultural Livelihood Strategies in Hermel

Chapter's outline

The qualitative case study presented in this Chapter investigates the strategies of Hermel's farmers and rural development activists, either as individuals or as an association. It uses a phenomenology approach imbedded in the Institute of Development Studies (IDS) livelihood strategy analytical framework (Scoones, 1998), to answer the following research question:

- **What are the main dynamics of change in farming praxis in Hermel?**
- **What are the main factors influencing farmers and rural activists choices on their agricultural and rural development praxis, i.e. their livelihood strategies?**

The Chapter is organized as follows: Section 5.1 presents a review of the literature focusing on the change in the rural development paradigm and different frameworks used to study and analyze regional economies, both in Europe and in Lebanon. Section 5.2 presents the research questions, approach and methodology. This Section is intentionally written in a narrative / personal manner to better reflect the role of researcher-research interplay. Sections 5.3 and 5.4 present the findings of the research. The former analyses the region's capital assets, and the latter investigates and reports farmers' strategies using their own narratives. Section 5.6 concludes and returns to the research questions.

"Identifying what livelihood resources (or combinations of capital) are required for different strategy combinations is a key step in the process of analysis. (...)Understanding, in a dynamic and historical context, how different livelihood resources are sequenced and combined in the pursuit of different livelihood strategies is therefore critical".

(Scoones 1998:9)

5.1 Review of rural development paradigms

5.1.1 Alternative food networks reshaping Rural Europe

Europe's rural areas and food markets are witnessing a revival of typical and local food networks. These "alternative food networks" (Marsden *et al.* 2000) are described as endogenous rural development practices, which are creating a new rural development paradigm (van der Ploeg *et al.* 2000) and locally based cultural economies (Ray 1998). A key characteristic of these "new supply chains" is their capacity to re-socialize and re-spatialize food - a "counter tendency" to the predominant forces of globalization (Murdoch *et al.* 2000) - thus creating new linkages between agriculture and society (Renting *et al*. 2003). Typical and local products have set in motion alternative producer-consumer interactions, an answer to both: (i) consumers' "quality turn" (Murdoch *et al*. 2000) and the resulting rise in demand for quality products that followed the 1980's European food scandals; and (ii) the need of agricultural households to develop their livelihood strategies and increase their income (van der Ploeg *et al.* 2000).

Watcher (1987) defines local development as a process aiming "at bringing together all local actors in a geographically limited area to merge their individual determination and strategic skills in order to serve a new dynamic economy characterized by a general interest in quality". Furthermore, he considers that the presence of a local identity is an essential pre-requisite for the success of this process.

Rural areas, in response to neo-liberal globalization, are increasingly resorting to "culture" as a key element in their local economic development. This "culture economy" is primarily concerned with the territory, its resources and its various networks of actors. It aims at reorganizing certain economic activities into the geographical scale of local territories in order to maximize the economic benefit from locally based industries. Since typical food products carry the identity of the territory, they illustrate how "culture economy" is operationalized through the commoditization of local and regional culture (Ray 1998). Ray also emphasizes the fact that both locals and extra-locals (rural and urban citizens) have agency with regards to the development of a "culture economy".

According to van der Ploeg *et al.* (2000), rural development, is an array of practices, a "multi-leveled" bottom-up mechanism born from "global interrelation between agriculture and society" (p.352), and accumulating to define "a new agricultural development model operationalized at the level of the individual farm" (p.392). The paper explores "rural development understood as everyday practices, rather than as a policy or a social scientific paradigm". However, this raises concerns about how the notion of resisting the modernisationist development of paradigms and creating new livelihood practices can be introduced as a realistic alternative among rural localities, especially among those that have been marginalised and demoralized by the collapse of farming under agricultural development policies over the past thirty years. It is when the strength, scope and impact of its practices (e.g. organic, agro-tourism, high-quality region-specific foods) become clear that the core and essence of rural development will emerge .

This perception of rural development presents itself as a consequence of economic pressures on farm households that have led them to elaborate and implement new innovative methods of cost reductions. These farm-native innovations are creating a "new rural development paradigm", which is emerging in both policy and practice through a two–way mechanism where practices tend to influence the EU and national policy making decisions in as much as they are being influenced by it. The creation, operation, and evolution of "new" or "alternative" food supply chains are taking place within this context. Alternative food supply chains "by their nature, employ different social constructions and equations with ecology, locality, region, and quality convention and consumer cultures", as such they are one of the pillars of emerging rural development patterns. They are a translation of the "public consumer pressure for a larger variety of distinctive quality food" (Renting *et al.* 2003).

Goodman (2004) points out that the sited above scholars fail to critically analyze farm-level innovation and alternative food networks centered strategies in sociological terms. He argues that rural problems, such as income inequality, social exclusion, low wages and the "more general question of uneven development receive negligible attention". Goodman echoes previous similar critics who warned that cultural political economy occludes exploitive capitalist processes and relations of domination (Sayer 2001).

In turn, Shucksmith (2000 and 2004) raises an important issue related to social inclusion and exclusion within endogenous development processes in rural areas. His major

concern was "whether collective capacity-building through territorially based endogenous development is compatible with building the capacities of excluded individuals and redistributing power towards the less powerful" (Shuckmith, 2000:208). He argues that opposing globalization by means of local agency based on "cultural-territorial identity carries with it several dangers"(p.210) including social exclusion. Using Bourdieu's notion of capitals (social, symbolic and cultural), he explains that the social "construction of endogenous rural development may be a means of not only furthering the interest of locally dominant class, but also of masking the power relation implicit in this process and making it appear legitimate" (p.214).

5.1.2 Theorical and Analytical frameworks

Amin Ash's "the wealth of regions"

The previous Section presented the literature analysis of social and economic phenomena in rural Europe. In what follows I discuss three theoretical and analytical frameworks, which allow for the understanding of the dynamics of rural economics and highlight possible plans for intervention. The first two, "the wealth of regions" (Ash, 1999:370) and/or the "territorial accumulation of capital" (Ray, 2002:225), have a European focus, while the third, Sustainable Livelihood (Scoones 1998), focuses on developing countries.

Ash suggests four areas of action for building regional wealth: clustering, knowledge, the broadening of local institutional base and the mobilization of the social economy. According to him, economic clustering programs – because of the advantage they bring in terms of regional competitiveness (see Becatini 2004) – have been standardized, where " most regions seem to have a cluster program of some sort" (Ash, 1999:371). The possible failure of these programs mainly emerges from overlooking the influence of the other three areas of action. Ash cites Hudson's (1999) argument that knowledge and strength stems from the ability of "learning to learn", which itself depends on the density of " 'intelligent' people and institutions" (p.371) mirrored in the labor market level of skills. Knowledge and learning not only depend on the links between different education and research institutions, but also their interaction with industries and other sectors of economic activity Institutions should be able to adapt and change, but above all they should be open and democratic. Present experience

shows that the governance of institutions "has always been in the hands of elite coalitions, and the resulting institutional sclerosis has been a source of economic failure by acting as a block on innovation and the wider distribution of resources and opportunity" (p.373). The broadening of the institutional base will enhance "social inclusion and empowerment [which are] likely to encourage economic creativity by allowing diverse social groups and individuals to realize their potential" (p.374). Finally, Ash highlights the importance of macroeconomic policy aspects for the success of policies based on these four areas of action. "In the absence of a conducive macro-economic framework, it seems irresponsible to ask the regions to embark upon a long-term and comprehensive overhaul in pursuit of an endogenous pathway to prosperity" (p.376).

Ray's territorial accumulation of capital

Ray starts by a discussion of the Marxist modes of production theory, especially because the existence of non-capitalism form of production together with capitalism demonstrates that modes of production – including capitalism - are social constructions[56]. He suggests "a neo-endogenous mode of production" (Ray, 2002:228), for rural Europe, a model based on territorial capital accumulation, producer-consumer relations and regulations. It is the specific form of producer-consumer relationship that delimited this mode of production to Europe or in more general terms to advanced societies, in which the individual is a consumer-citizen with an enhanced capacity for agency (Lash and Urry, 1994). These consumer-producer relations, conducted with the framework of alternative food networks previously discussed, produce sign[57] commodities, thus "de-fetishising" [58] (Ray, 2002:230) territorial products and services. The concept of sign commodities has been developed by Baudrillard (1972) in one of the major post-modernist works on consumer theory, where he identifies a value in symbolic exchange and the exchange value "sign" in addition to the classical political

[56] In Chapter 1 and 2 discussed the Lebanese mode of production and what academics have called the "Lebanese capitalism", i.e. the Lebanese specific social construction of capitalism.

[57] Baudrillard (2007) [1972] in one of the major post-modernist works on consumer theory, identifies, in addition to classical political economy value in use and value in exchange of a commodity, a value in symbolic exchange and the exchange value "sign" (*la valeur d'échange signe*). According to Baudrillard "la marchandise est immediatement produite comme signe, comme valeur/signe, et les signes (la culture) comme marchandise" (Baudrillard 2007) This concept was as well discussed by Lash and Ury (1994) who argue that global capitalism has replace material and labor with 'design value'.

[58] According to Marx, in a capitalist market based society there is in eternal need to secure competitive advantage by way of labor reduction innovation - reducing production costs - or by way of working on the social relationship between people and things through commodity fetishism. Where a commodity is believed to contain value *per se*; a value not added by labor but given to it by the dominant ideology. Commodity fetishism hides the real social relation that exist in the production sphere

economy value in use and value in exchange of a commodity. As for de-fetishisim, it derives from the concept of commodity fetishism, which was defined by Marx as an alternative means of securing comparative advantage for goods through working on the social relationship between people and things. According to Marx, commodity fetishism hides the real social relations that exist in the production sphere.

In alternative food network commodities "consumption and production become imbued with the culture of the producing territory. Thus culture becomes a commodity but in the form of territorial (common), intellectual property" (Ray, 2002:230). Regulations such as protected Designation of Origin (PDO), Protected Geographical Indication (PGI) standards protect this common territorial resource. The sphere of production is not hidden to the consumer, and economic relations between consumers and producers are relatively transparent. They are regulated by standards and labels, and hence commodities are "de-fetishised". The two axes, the producer-consumer axis and the regulations axis, on which Ray built his analysis of "culture economy" (Ray, 1998) need to be complemented by "both individual and collective reflexive action to build a pool of territorial common resources)" (Ray, 2002:228). These common resources are forms of capital manifested in interconnected cultural, educational, financial and social capitals.

Sustainable Livelihood Assets framework of analysis

Some scholars, like Korf and Oughton, suggested a "transfer of methodology from the South" (Korf and Oughton, 2006:278), i.e. rural analytical framework used in developing countries – to look at issues of rural development, poverty and social exclusion. They argue that livelihood approaches are adaptable –with some limitation - to the European and North American context. They could help in "understanding households and the individuals within it as being embedded in a broader social and economical context" (Korf and Oughton, 2006:279).

The sustainable livelihood approach was first promoted by Chambers and Conway (1992). The rationale behind it was to define a framework of analysis that is compatible with the rural realities in developing countries. The authors define a livelihood as comprised of " the capabilities, assets (stores, resources, claims and access) and activities required for a means of living (Chambers and Conway 1992:6). This livelihood is sustainable if it can cope and recover from shocks, maintaining and enhancing itself " both now and in the future"

(Carney, 1998:4), "while not undermining the natural bases" (Scoones, 1998:5). It is only with Scoones (1998) - and later on Carney (1999) - that the livelihood approach became an analysis framework. The present research analysis is closer to the framework proposed by Scoones, as it focuses on the case study's political historical and social background rather than its vulnerability context – which is a central element in Carney (1999). Scoones describes the elements of the Institute of Development Study (IDS) framework as the answer to the following key issues:

"Given a particular ***context*** (of policy setting, politics, history, agroecology and socio-economic conditions), what combination of ***livelihood resources*** (different types of 'capital') result in the ability to follow what combination of ***livelihood strategies*** (agricultural intensification/extensification, livelihood diversification and migration) with what ***outcomes***? Of particular interest in this framework are the ***institutional processes*** (…) which mediate the ability to carry out such strategies and achieve (or not) such outcomes" (Scoones, 1998:3, author emphasis).

Although the approaches – institutional geographic economy, social sciences and development economics – and the focus – Europe and developing countries – are different, the three frameworks have a common analytical ground. They give importance to the specific context – culture, social relations and politics –, to the resources – forms of capitals - and to the institutional environment in which the local economy is embedded. As pointed out by Korf and Oughton , methodology born from development economics in the South could be transferred and used with analytical purposes in the North, while the contrary may not be feasible. The density of public institutions and policies present in the EU cannot be compared to the situation in developing countries; therefore, the IDS framework remains more appropriate to study rural Lebanon. Nevertheless, the issues of social empowerment and the importance of macro-economic policies raised by Ash, as well as the notion of cultural economy and change in consumer-producer present in Ray's neo-endogenous model of growth, should be kept in mind as well during the analysis of rural Lebanon, as the country witnesses the development of alternative food supply chain.

Next, I present some experiences from rural Lebanon studied by the literature.

5.1.3 Research in Rural Lebanon

In addition to the political economy studies carried out by the new wave of Lebanese historians, that "wrote" the history of rural Lebanon, especially the *Cazas* that were joined in 1920 (see Chapter 2 Section 2.2 and Sub-section 2.6.1) Research on rural Lebanon – in relation to agriculture and development – can be divided into three types based on whether it: (i) looks at the actors of development in terms of their role views and dynamics, (ii) adopts a participatory approach, (iii) investigates alternative food networks.

The actors of development: people's views and civil society structures

The main actors of rural development are: (i) local people either excluded or empowered; (ii) local associations with varying degrees of impact; (iii) large private profit and non-profit organizations, that are often playing the role of the state in providing needs and services in most marginal rural areas where the state is mostly absent, e.g. Jihad Al-Bina association.

Makhoul and Harrisson (2002) used participant observation and interviews in an ethnographic research to look at local perception of rural development in two case studies in North Lebanon. Specific focus was given to the role of local NGOs in a patriarchal context, and where patron-client relationships are strong. The study showed that the success of local initiatives is highly dependent on the involvement of socially marginalized people- women and men outside the clientelism circle - in the decision making process. These social groups have been disregarded by NGOs who still rely on village leaders, assuming they represent the overall community views and interests. According to the authors this assumption does not stand. The research demonstrates that development initiatives in Lebanon are constrained by social structures.

It is common in Lebanon to differentiate between civil society institutions *al mujtama' al-madanī* and community institutions *al mujtama' al-āhlī* These two categories of institutions resemble each other in their associative forms and fields of activity, but vary with regards to their target members and thus have different membership criteria. In principle, any citizen can become part of a civil society institution, but only members of a specific community can be part of the community institutions it has established. Civil society institutions promoting different types of social linkages and relations face difficulties in penetrating rural

environments, for with often limited resources and influence, they have to rely on local leadership opinions, and benediction, in order to be able to work with the members of these communities. On the other hand, community institutions do not face such obstacles since their presence and activity is already endorsed by the leading figures of the communities from which they emerge.

A comparative case study of two NGOs and their role in rural development was carried out by Bissat (2002). The associations under study were Jihad Al-Bina and Arsal rural development association (ARDA).

Jihad al Bina is the Lebanese twin of the Iranian association carrying the same name. It is managed by *Hezbollah* party and receives large funds from The Islamic Republic of Iran. This organization is of particular interest to this research as it is the main provider of agricultural extension services in the Hermel-Baalbak region; an association that stands at the limit between *al mujtama' al-madanī* and *al mujtama' al-āhlī*, as its membership is not open to outsiders and staffing is restricted to people with specific religious and political affiliations, i.e. *Hezbollah*. The association does not provide services to its members, but rather to specific target groups distributed in specific regions in South Lebanon, the Bekaa and the southern Suburbs of Beirut. It enjoys a remarkable model of organization and structure - mixing leadership and participatory management- and operational efficiency.

ARDA is a volunteer-based association. Its activities are limited to the village of Arsal[59], and are structured around four main axes: environment, agriculture, human resources development, and youth. According to Bissat (2002) ARDA has been a model of best practices in rural community development in Lebanon. Its success stems from its ability to guarantee participation of all the community and in the active participation of women in decision-making.

Participatory approaches in rural Lebanon

The specific situation of Arsal village has transformed it into a laboratory for research on local development. In addition to Obeid (2010) who looked at the local understanding of the state, two studies using participatory approaches were carried out by Hamadeh *et al.*(2001) and Zurayk *et al.* (2001).

[59] Distant 143Km from Beirut and 30Km from Hermel.

Relying on the participation of the farmers for his study, Hamadeh *et al*. explored the feasibility of different types of ruminant productions (ranging from semi-nomadic to settled). The results showed that only a settled system was profitable. Rent of pasture was a significant contributor to overall cost of the other systems. In turn, Zurayk *et al.* studied the conflicts emerging between growers and pastoralists on land use. The authors used both advanced technology (Geographic Information System) and indigenous knowledge to determine land characteristics. The research opened the opportunity for local stakeholders to debate on issues related to land use, and it identified sustainable land management options.

Several research studies followed an objective-oriented approach, where their main purpose was to plan and promote development in rural areas. Two have been conducted for the Hermel region. The first has been implemented within the framework of a cooperation project (OMSAR) between the EU and Lebanon (Moussawi and Yazji, 2005). It was directed specifically to Hermel, and used a Participatory Rural Appraisal (PRA) methodology. The second study has been published in the proceedings of the Consultative Center For Studies and Documentation[60] (2001) conference on the development of North Bekaa.

AUB and MAI-Bari research line on Lebanon alternative food Network

In Sub-section 5.1.1, I have described alternative food networks as being born from important social changes in societies. Organic agriculture, as an alternative way of producing food, and as a social movement is characterized by being wider than just being a farmers' movement (Tovey, 1997). It includes professors, students, environmental activists, etc. given the broad social basis of organic farming, its development is strongly influenced by developments in society at large (Michelsen, 2001). Professors at the American University of Beirut (AUB) have been promoting the development of organic and alternative food networks in Lebanon, through direct action and research. Zurayk and Touma (2006) assessed the experience of community supported agriculture initiatives and their positive impact on poor farmers. In recent years, moving beyond organic agriculture, a return to the land movement has emerged. Shops selling traditional products are becoming more widespread and producers' markets are emerging in the major cities. The local food phenomenon in Lebanon, the parallel political effort to introduce geographical denomination and traditional food regulations, as well as the economic opportunities arising from such a development are well

[60] Beirut based think-tank close to *Hezbollah*.

reported and documented in (Zurayk and Abdul Rahman (2008), Zurayk and Abu Ghyda (2009) and Atallah (2010))

In that respect, the Mediterranean agricultural institute of Bari (MAIB), has developed a line of research on alternative food networks in the Mediterranean region. Three studies were carried out on Lebanon, where first Bteich (2000) looks at the possible strategies and prospects for organic production at its early stages of development. With the development of the sector, issues became more specific; Fawaz (2008) studied the role of social capital in empowering local women organic cooperatives, while Atallah (2010) investigated both production and consumption spheres, looking at consumers' perception of organic and local traditional food, as well as the interaction between the two alternative food networks at the level of the producers.

5.2 Methodology

"Qualitative designs follow a completely different logic than quantitative research. Completely different."(Patton, 2002)

5.2.1 Creswell's (2007) interacting circles

According to Creswell (2007), good qualitative research includes three interacting theoretical circles: the research philosophical assumptions, the approach to the research and the research design procedures. It is the interplay of these three factors that contributes to a complex rigorous study. Philosophical assumptions consist of the answers to ontological (what is the nature of reality?), epistemological (what is the relationship between the researcher and the research subject?) and, axiological (what is the role of values?) questions. After determining the subject of interest, qualitative research opts for an approach to the research (narrative, phenomenology, grounded theory, ethnography, and case studies are the most commonly used). The approach to the study follows a logical sequence, connecting the empirical data to the research question(s), and ultimately to the study's findings and conclusions Yin (2003). Finally, the researcher designs an investigation strategy. As pointed out by Creswell (2007), the theoretical circles' elements are interacting and interconnected. Qualitative research transforms data into findings, and it does this while following a logical sequence; however, "there is no formula for this transformation" (Patton, 2002). In the following, I describe the sequence that I have followed in my research.

5.2.2 The philosophical assumptions

What is the nature of reality?

The choice for a qualitative inquiry emerged from both the nature of the research and my personal academic conviction. I strongly believe in the necessity for agricultural economic research to incorporate modeling methods with social sciences approaches and findings, and as such be able to compare and contrast the results and observations emerging from this fan of varying methodologies and research perspectives. In a context of globalization and change in agricultural paradigms, understanding farmers, and rural grass roots' leadership discourses and perceptions is essential for the study of the dynamics of development in rural areas. As discussed above, in the European context a large amount of literature describes the role of

social movement and culture in shaping realities in rural areas. However, in developing countries, innovation, creativity and empowerment through local social capital are acting as the major tools for the improvement of livelihoods in rural communities.

In that matter qualitative research is an adequate tool of analysis as it allows for the understanding and description of social phenomena as experienced by people in their own terms. Critical issues are explored in detail, in the way they are perceived by those whose livelihoods' are most affected by and dependent on the questions and problematic at hand (Ritchie & Lewis, 2007). Qualitative research puts aside the rationale of utility and profit maximization and optimization of agricultural output, and tries to understand the reality of rural areas.

What is the relationship between the researcher and the case study? And what is the role of values?

Being from the region myself, I had facilitated access to interviewees and much of the "ice breaking" part of the interview process was not a difficult task. At the same time, not living there and not sharing the same daily pre-occupations as the research participant, helped me maintain the distance and objectivity necessary for the accomplishment of the research. Furthermore, this personal connection with the case study allowed me to have a better perception and understanding of narratives, explanations, descriptions of social processes and norms as well as personal and societal contexts. Although I do stand by the side of farmers in their struggles and on the side of the regions residents in their latent conflicted relations with the central state, I did not intervene nor express my personal opinions and positions during the interviews. When asked about my family's farm I would delay my answers till the end of the interview. Then after turning the recorder off, I would answer the questions of the interviewees.

5.2.3 The research approach

The Hermel area has been the subject of research conducted by academic and public institutions. These studies have mainly focused on assessing the needs of the region, exploring its socio-economic situation, and presenting possible choices for development paths that the region can follow. The main aim of my study was to gain a deeper insight into the lives and motivations of farmers and local grassroots leaders in Hermel. I set out to describe

their experiences, and understand their decision-making strategies. I wanted to highlight the underlying processes of change in the region. I deliberately excluded the point of view of local and national elites in order to focus on and try to understand some of the reasons behind the pronounced lack of agency within the community. The research is grounded in a phenomenological case study approach that tries to identify people's experiences and the social interactions that give rise to their reality.

The research questions

My research questions -

- **What are the main dynamics of change in farming praxis in Hermel?**
- **What are the main factors influencing farmers and rural activists choices on their agricultural and rural development praxis, i.e. their livelihood strategies?**

- are best answered using this approach. More specifically, I conducted in-depth interviews, participant observations and desk study to explore:

How do farmers respond to innovation introduction and to policy change?

What type of relation do they have with local extension services, cooperatives and other institutions whose actions revolve around the farmers.

How do they perceive their relationships with local and national political institutions?

How do they perceive the role of the local political elite and their own agency?

As in any qualitative research, there are some inherent limitations to this study. In particular, it cannot address the incidence or prevalence of a phenomenon or social action, and, as it does not use sampling techniques grounded in probability, it cannot claim that its findings are representative of the whole population under study (Bryman, 2004). Unfortunately, at the time I conducted the fieldwork, a new agricultural survey was being conducted, the results of which were not yet available. A new data system was also being instituted at the Ministry of Agriculture, which when available in the future, would allow for a year to year monitoring and updating of all (registered) Lebanese farmers' production. This

data would allow future researches – qualitative and/or quantitative – to study in more detail phenomena of change in agricultural praxis.

5.2.4 The research design

Data collection

I carried out my fieldwork between April and August 2010. The first period in the field was dedicated to the collection and review of available documents (reports, books, and articles) and to the design of the research tools. I used semi-structured open-ended interview questions as a tool for data collection in addition to observations and desk study. Interviews best reflect the actors' perceptions and visions, their actions and interactions, as well as their influences (Patton, 2002). I carried out the interviews in June and July, at the end of the watermelon and vegetable harvesting period. Most of the interviews were recorded and transcribed (in Arabic[61]). In cases where I was not given permission to record, I took notes in both Arabic and English. Interviewees were selected to represent most of the agricultural livelihoods in the Hermel region; however, the sample (33 interviews) did not aim to be statistically representative (see Table 5-1). Interview length varied between 27 minutes and 1 hour and 22 minutes. Two interviews that were less than 25 minutes long were excluded from the database. I decided to stop data collection and end the interview when saturation was reached, i.e. when the information provided by the interviewee started to become redundant.

I have classified farmers according to the predominant crop and/or characteristics; however, many farmers in fact belong to several categories.

The interview transcripts, my personal notes and the documents collected during the first phase of the research constituted the data-base that was then analyzed.

[61] Quotes from the interviews appearing in the text, have been translated from Arabic to English in a way they preserve as much as possible their meaning, slightly overlooking grammatical English structure.

Table 5-1. List of interviewees

	Interviewee	Nb	Notes
Farmers	Watermelon growers	4	One was not recorded.
	Olive growers	3	One was not recorded
	Ex-cannabis growers	2	
	Current cannabis growers	1	Not recorded
	Dairy farmers	3	
	Aquaculture	1	Discarded because too short
	Others	2	
Cooperatives and local initiatives leaders	Cooperatives leaders	3	Olive and dairy cooperatives
	Local initiatives *Jerd*	2	
	Local initiatives Hermel plain	1	
Extension services	Private non profit	2	Not recorded
	Private profit oriented	1	
	Public	1	
Decision makers	Municipality	1	
	Ministry official	2	One was not recorded
Others	Agricultural workers	1	
	Non agricultural Local NGOs	3	One was discarded because too short
	Local opinion leader	1	Not recorded

Data analysis

Qualitative data is analyzed by first developing a manageable classification or coding scheme (Patton, 2002) and then grouping it into homogeneous categories. It is a process of breaking down data and putting it together in a meaning full way (Creswell, 2007). I created three databases based on the three forms of data collection – i.e. interviews, observation notes, and documents.

I coded data following Scoones' (1998) analytic framework. The codes were the following: context, livelihood resources, livelihood strategies, outcomes – and possible changes in strategies resulting from unexpected outcomes – and finally the institutional process. In addition, a second stage coding separated descriptive and interpretative data. The coding was completed separately for each database in order to allow for triangulation between each source of data.

According to Patton (2002), triangulation strengthens qualitative research by diversifying sources and/or data collection methods. There are several basic types of data triangulation: (i) data triangulation using a variety of data sources in a study; (ii) investigators' triangulation, (iii) theory triangulation; and (iv) methodological triangulation. In the present study I used the first type of triangulation; however, in the overall research I used a triangulation of theories and methods. Results emerging from the qualitative study are contrasted with the results of the theoretical analysis and the CGE modeling throughout the reporting and in the conclusions.

In what follows, I report the findings of the data analysis in two Sections. The first focuses on Hermel's rural livelihood assets (different forms of capital) and the second on farmers' and rural leaders' experiences and narratives, their livelihood strategies and outcomes as well as their perceptions of the institutions – their roles and impacts on local development.

5.3 Hermel's Rural livelihood Assets

5.3.1 Natural capital and agriculture in Hermel

Land use

The total area of the region is 56,535 ha. According to the 1996 agricultural census, 11,194 ha were characterized as cultivated agricultural land, while by the 2004 census this figure had dropped to 8,123 ha, representing a significant diminution of 27.43%. In part this reflects better survey and data collection methods, but more importantly implies a socio-economic dynamic in which people in the *Jerd* and Hermel plain are suspending their farming activity and relying on other sources of income. These figures mirror the low economic viability of certain forms of agricultural production.

The Average size of holdings is 2.7 ha (Bekaa 2.9 ha and Lebanon 1.3 ha MOA (2006)) . The main cultivations are perennial crops such as apricot and newly re-introduced olive and dwarf apple trees in the plain, and almonds, pears and cherries in the *Jerd*. As for annual crops, winter cultivations remain traditional: barley, wheat, fava beans and peas. The main summer vegetable is watermelon and, to a lesser extent, melon, cucumber and tomato. Cultivation of corn is in increase because of the rise in demand for animal feed. In the *Jerd* fava beans, peas, chickpeas and potatoes are produced out of season, while cannabis, which was the main crop during the civil-war period, is now cultivated in very marginal areas only.

Forest

The region has important forest resources totaling 11,730 ha, or 27% of its entire area. This represents a share much higher than the national average of approximately 7% (Mousawi and Yazji 2005). Most of these forests are located in the *Jerd* area and used to constitute a source of income and heating for people there (wood charcoal making). Today, with the growth of environmental awareness, these resources have become protected. Eco-tourism projects in the *Jerd* have benefited from the protection and revalorization of local forests, using them as their main attractive feature, and as the symbol around which they have built their image. In addition, the revalorization of local wild edible herbs present in the plain and on the region's hills has facilitated the emergence of local rural development initiatives.

Water and aquaculture

Hermel is considered to be a region relatively rich in water resources. In addition to the Orontes River, water flowing from the mountains has formed a number of springs in Hermel city and the *Jerd*. Although located in a semi arid-area – yearly precipitation ranges from 250mm in the plain (the lowest rate in Lebanon), to between 400 and 600 mm on the hills, to above 1,000 mm in the mountainous region. Near its spring, the Orontes river has cold and oxygenated water, which allows for trout rearing, and thus significant aquaculture production can be witnessed. Trout production is a main source of income for more than 120 families. Approximately 300 tons of annual production is sold either to restaurants or through direct sale. In addition, some of the production is exported to the Syrian city of Homs.

Many lower-middle class households in the region rely on consumption of trout, the price of which has remained at stable low levels, even during periods when chicken and/or meat prices have increased. It is worth noting that Hermel's production of trout constitutes 5% of the total demand for fish in Lebanon (Moussawi and Yazgi, 2005). Lebanese demand for lake and river water fish is low, especially in the coastal areas where sea fish is preferred and readily available. Trout production faces marketing difficulties outside the inlands, although a supply push marketing strategy could help in promoting it. As such, it could help in the growth of the production, which suffers from low national demand and still relies on imported eggs (due to lack of local know-how on trout egg production).

Animal husbandry

Animal husbandry was limited to goats (local protected breed and mixed breed) in the *Jerd* and sheep in the Hermel plain, both of which are used for meat and dairy production. Shepherds do not face significant obstacles with regard to marketing. Nevertheless, production and grazing still relies on traditional techniques and no important increases in output have been observed.

The major problem is related to grazing areas, which are neglected by local authorities and by the MOA There is a high potential for opportunities of cooperation between Lebanon and Syria with regards to this issue since important *savoir faire* in sheep husbandry and grazing area management is present in Syria (including the near region of Homs); however, such possibilities are not being exploited Dairy cow husbandry, which was supported and promoted by national authorities is discussed in detail in Section 5.4.3. The region also allows

for beekeeping due to the different microclimates existing in the region and the possibility to move the bees to the *Jerd*. There is an active cooperative of honey producers; however, apiculture remains a hobby and a source of additional income, and does not constitute an economic activity in and of itself.

5.3.2 Poverty

Poverty in the Hermel region is very high therefore entitling this Section "financial capital" would be simply inadequate. The UNDP MOSA (2008) poverty report estimates that in Baalbek Hermel region 32.54% of the population lives below the national the poverty line, while 13.40% lives under conditions of extreme poverty. This would approximately correspond to the consumption deciles HHD_1 for extreme poverty (14%), and HHD_1 to HHD_3 for poverty (total of 39%), of the household desegregation I proposed for the SAM and the CGE model (refer to Chapter 3 and 4) and considering that HHD_3 represents the vulnerable households that are likely to fall below the poverty line if subject to even minor shocks.

Table 5-2: Distribution of Baalbak Al-Hermel Population across national consumption deciles

Households deciles	**HHD_1**	**HHD_2**	**HHD_3**	**HH_D4**	**HHD_5**	**HHD_6**	**HHD_7**	**HHD_8**	**HHD_9**	**HHD_10**
Population	14%	11%	14%	15%	12%	13%	9%	6%	4%	2%

The household survey classified 50.02% of Hermel's households as poor and 5.80% as extremely poor, where 24.76% of households had an income lower than 500 USD in the month that preceded the survey (see Table 5-4 and 5-5 below).

In the absence of financial credit – today there is only two branches of medium size Lebanese bank operating in Hermel, the first one opened in 2001 – households' capacity to invest in agricultural or other types of businesses is limited. Local moneylenders offer informal forms of credits with very high interest rates and land hypothetical as collateral. Often moneylenders use intimidations and pressure to assure repayment. This scarcity in

credit and the incapacity to invest in long-term business plans and/or to enlarge existing investments is holding back economic activities.

Table 5-3: Classification of Hermel households (source raw data HLCS)

Households classification	Rich	Financially comfortable	Middle class	Middle class to poor	Poor	Extremely poor
Percentage population Hermel area	0.42%	2.59%	15.23%	25.95%	50.02%	5.80%

Table 5-4: Last month income of hermel households (source HLCS)

Income in USD Last month	less than 150	150-299	300-499	500-649	650-799	800-999	1000-1199	1200-1599	1600-2399	2400-3199	more than 3200
Percentage households	2.65%	7.19%	14.92%	20.01%	11.14%	15.83%	9.26%	10.59%	5.83%	1.85%	0.74%

Data from the households (1995 and 2004) were elaborated using the unsatisfied basic needs approach. Results show that 66% of the population of Hermel had low levels of satisfied basic needs – 26% had very low levels[62]. This report used a methodology that estimates the satisfaction of needs of households not only in terms of expenditure but also in terms of access to basic such as roads, waters, electricity and others. The following Section discusses the situation of the case study area with respect to these issues.

5.3.3 Physical capital

Roads

Hermel city is at a distance of 145 km (road) from Beirut. The road linking both cities, and passing through baalback and Zahle, is the main road used by farmers for trade purposes . The state of the road is good, apart from the Baalbak-hermel junction, where enlargement works had been initiated after the Lebanese Israeli war of July 2006, but were held back due to conflicts pertaining to land expropriation issues. The road linking Hermel to Tripoli has

[62]1997 figures, figures for 2004 where published for aggregating Baalbak and Hermel regions and showed limited changes from 1997 (UNDP, MOSA and CAS, 2006b)

been modernized; however, because of its mountainous topography and the existence of stronger social relations and linkages to the city of Baalbek, farmers do not rely on this road as a trade route since they do not trade as much at the Tripoli market. Internal roads suffer from lack of maintenance, especially outside Hermel city, and many newly established agricultural holdings are not connected to the road network.

Electricity

"Down there, the holdings are not connected to the electricity network, they steal it. I am connected, but I still steal. During the day I put it on the bill, when I irrigate at night I steal it. You can't steal it during the day, you do it at night"

The vast majority of houses and establishments (99.7% of households [63]) in the Hermel *Caza* have access to electricity, including those in the *Jerd*. Agricultural exploitations[64] however are often not connected to electrical power. Requests can be made to obtain an agricultural electrical transformer, which benefits from price reductions. The connection to the network is free for holdings distant at most one km from the network, and additional distance is at the expense of the farmer. Larger holdings can ask for a private transformer, which allows for the generation of additional power. However, the fixed monthly cost of such an installation is high, which make it financially unsustainable.

Availability of electricity is a major problem in Lebanon, where it is continuously available only in Beirut. Other regions are subject to a rationing that ranges between 3 and 12 hours a day. A system of private generators distributing electricity to the various neighborhoods is a common practice all over the country (49.17% of household in Hermel, 79.58% in Zahle (highest), 14.54% in Beirut (lowest), 61.6% for Lebanon[65]). In Hermel, electricity is rationed 12 hours a day in summer and between 6 and 12 hours a day in winter. Some households – and agricultural holdings – illegally connect to the network and do not pay electricity bills. The national electricity company has been suffering from high losses, and its debts constitute a large part of the state deficit. These internal financial and management problems, in addition to the company's inability to provide regular electrical supply reflect

[63] Hermel sample data, elaborated from the HLCS survey.
[64] Electricity in mainly used to generate water pumps (see Section 5.4.1).
[65] Sample data, elaborated from the HLCS survey, the percentage include both subscription to a private generate providing electricity for the neighborhood and the owning of a small electrical generator (providing electricity for the house).

grave problems of governance in the country. The shorfall of electric supply is also due to the numerous Israeli bombardments that have led to partial, and at times complete, destruction of electric plants[66].

The privileges that Beirut enjoys are a reflection of the unbalanced development and inequality between the capital and the rest of the county.

The illegal connections to the network show the weakness of the state in certain areas. Finally this problem is the main source of daily life frustration of the Lebanese citizens and a reason of regular anti-government protests.

Water

"The land is generous, it gives. But water, we do not have water, and water is here near us. We are like the Al-Imam Hussein[67] and his followers; they died thirsty near the Euphrates . We are on the Orontes and we are dying thirsty".

The most striking fact about the management of resources in Hermel is the great contrast between the presence of important water resources and the lack of adequate water networks, for both agriculture and domestic uses. The problem of water management remains the main obstacle for development in Hermel. Public network is the primary source of water for 67.47% of the households (in 89.3% of the cases with daily interruptions and 9.5% with weekly), 26.17% use private artesian well[68], and 7.26% water tanks[69]. Agricultural holdings use underground water (through artesian wells) for irrigation (50.7% of the holdings). Old open air irrigation canals (used by 49.3% of the holdings) originating from springs in Hermel city and in the *Jerd* are still used to irrigate orchards and low water demanding crops. Drip irrigation is used by 36.2%[70] of the agricultural holdings.

[66] The Israeli army bombed Lebanese Electrical plant in 1993, 1996, 2000 and 2006.

[67] Al Imam Hussein (grandson of the Prophet Mohammad) is the third Imam in Muslim Shiite theology. He was killed in a battle for the Islamic Khalifa in 680 In Karbala (Iraq). Him and his followers where outnumber and encircled near the Euphrates River. They were not allowed access to water. The commemoration of Hussein Martyrdom is deeply rooted in common consciences of the Shiite people.

[68] 83.46% of the household use sanitary pits for domestic water drainage. On the long term they could become a source of pollution of the artesian waters.

[69] Hermel sample data, elaborated from the HLCS

[70] MAO, FAO Atlas of Lebanon agriculture 2006

A plan to build a dam on the Orontes River has existed in the agenda since the *Chehabist* period in the 1960's, one of the "*effets d'annonces"* (debiè and Pieter 2003) that characterized this period (see Chapter 2 section 2.4.2). The dam would gather the Lebanese part of the Orontes water, which would be enough to provide water for the Hermel region and the neighboring villages of Qaa and Rass Baalbak, and for irrigation and electricity. *"As people from Hermel, our dream is to see the large dam on the Orontes . The large dam means than all the area you see here will be covered by water. It would be a great resource for aquaculture, and a great resource for agriculture. It has been 15 years we ask for it. And money is spent, and money is stolen, and politicians get divided and the project is lost".* The expropriation of the land that would be covered by the artificial lake has been done and work has started, but was halted by the Lebanese Israeli July war in 2006, and the contracted Chinese company left. The projected capacity of the dam was reduced for: ecological reasons, opposition from the Syrian side to a large dam that could gather a quantity higher than the Lebanese share, and finally for lack of funding. These arguments were rejected by local civil society and a series of campaigning for a *"large dam"* have been launched and revitalized after the works had stopped in 2006, and a return to the old project became possible. *"The small dam, is useless. All specialists say that it cannot produce electricity. The restaurants on the river make more money in one year than the possible return of the small dam in 50 years. It is useless"*. However, local civil society campaigns are weak and have not been able to force changes at the political level yet.

The inability of local actors, and regional political leaders to advocate the execution of the dam is striking. It raises questions on the political and power relations between the people, their local representatives and the central state. Why are people unable to pressure for what they perceive as a right and a necessity? Why are powerful political parties – like *Hezbollah* and Amal – incapable to obtain from the government – to which they participate – the execution of the project?

5.3.4 Social Capital

The literature differentiates between three types of social capital: the bonding social capital (within social groups), the bridging social capital (with similar groups), and the linking social capital (with public institutions).

Bonding social capital

Families and clans remain to be the main bonding social links in Hermel, especially in the *Jerd*. These social links constitute the dominant form of solidarity, and bonds between individuals from the same extended family are strong. Clans are also political institutions , although much of the families' political power has been weakened with the rise of *Hezbollah*. The other form of bonding capital revolves around people's belonging to the Shiite community, and falls within the larger context of Lebanon, where sectarian solidarity forms the basis of an entire system of social and political norms that regulate, formally and informally, the relations between the community and the state. In that system, such links are mediated through the leaderships of the community, both traditional authority figures and representatives of the predominant Shiite political parties, namely *Hezbollah*. At many instances, this type of mediation also forms the means through which members of the community gain access to services such as health and education, to work opportunities, and other similar social and economic services.

Thus, people raise their demands to the local representatives of the community/region, and in turn, they present these demands to the state. Then, based on the practice of "sharing" and division of resources between the different communities and regions, political decisions are made accordingly. Today, *Hezbollah* plays the role that used to be played in the past by local politicians and landlords. The fighting between Israel and the resistance in the south between 1990- 2000, and the following issue of *Hezbollah*'s weapons pushed economic and social issues to the background. The Shiite priorities were directed towards the consolidation of the community power share and to the safeguarding of the resistance arms (see Chapter 2 Section 2.6.2).

Both forms of strong bonding capital did not contribute to the enhancement of people's agency in terms of rural development. They rather hampered the improvement of bridging and linking forms of social relations.

Bridging social capital

Clan bonds and to a certain extent bonds between different political groups stand as an obstacle for the creation of associations or other forms of social actions that link the citizens of the region. As a matter of fact, local initiatives where participation and cooperation between members of the community is a key factor for success, are not being able to penetrate through the strong familial bonds on one side and the political power of the dominant party(ies) on the other side. For example, public and private rural development initiatives are still divided according to clans in the *Jerd* region, and membership to cooperatives in these areas is often restricted to clan members. Armed clashes between clans, as well as acts of vendetta, in the *Jerd* are still common today. Issues of trust between different social groups are highly affected by these social norms and resulting conducts, creating an overall climate of latent mistrust among people in Hermel. And so, while strong bonds of trust and solidarity exist between members of the same clans and families, they tend to be missing at other levels of social relations such as those between different clans, between *Hezbollah* and other political parties, and between the municipality and local associations. The relation with the *Hezbollah* association Jihad Al-bina is however an exception to this general phenomenon, where it is generally trusted by farmers.

Linking social capital

Before 2005, several factors hindered the liberty of association in the region. On one hand, the Syrian army[71] and intelligence services, up to their withdrawal in 2005, used to intervene in internal elections and actions of cooperatives and rural development associations. On the other hand, the Lebanese Ministry of interior applied its own interpretation of the association law, where it required permits for the formation of associations, which is not in line with the existing laws [72]. Today associative life is freer, but social forms of actions still need to be "legitimized" by local political powers, that will in turn determine The relations of the associations with local institutions, e.g. the municipality. Conflicts between dominant political forces, i.e. *Hezbollah*, and local associations tend to emerge when the political agenda of the association, if any, or the connections of the association with other political

[71] The Syrian army was present in Lebanon from 1996 to 2005.

[72] The association law in Lebanon date form Ottoman period (1909). In order to be legal an association does not ask for a permit but simply inform the ministry of interior of its existence. In no case the ministry has the right to refuse the formation of the association. Between 1990-and 2005, a de-facto process of permit obtaining has been implemented. Civil society considered it as illegal, and always refused any amendment to the law.

parties or foreign cooperation agencies. The most problematic issues are connections with American public cooperation agencies, whether directly or through Beirut-based NGOs that are funded by these agencies. *"They first asked us from where are you getting your funds from? the Americans? But we take it from the OTI*[73]*. And the OTI worked with everybody including their [Hezbollah] association and their schools and with the municipality".* Local political leadership monopolizes linkages with the government and state institutions. It also desires to monopolize potential funds from international development agencies.

Relation with the state

The historical political economy of the region has led to conflicting relations between Hermel and the state. Basic public administration institutions such as, a social security office, and cadastral offices, are absent in Hermel. This relation has regularly culminated to violent clashes. *Hezbollah* has, in many occasions, played a mediating role in negotiating conflict resolution initiatives between the people and the army and state police. Institutionalized political and social norms have given this role to local political leaders and dominant parties since 1943.

People in the region suffer from a lack of state socio-economical and development interventions, while unable to surpass strong local political power. This aspect is highly influential in determining livelihood strategies and will be further discussed in the following Sections.

[73] The United states Agency For International Development's (USAID) office for transitional initiatives (OTI)

5.4 The changes in agricultural paradigms Farmers experiences

5.4.1 The watermelon lottery

"It's just like a lottery ticket, an agricultural gambling. I would be lucky if my neighbor planted tomatoes instead."

Large-scale production of watermelon, as well as tomatoes and other vegetables was introduced to Hermel areas in the beginning of the 90's with the introduction of drip irrigation that led to reductions in the previously existing water constraints. Agricultural households looked at this as an opportunity to gain good profit from this quick cash crop, and many employees working outside the agricultural sector considered it as a source of extra income. *"I saw these people getting into these drip irrigated exploitations. I saw they were making profits. A dounoum of watermelon would give a net return of 400-500 dollars".* Farmers were ready to cope with relatively expensive inputs – even before the rise in the price of fuel, seeds and fertilizers – as suppliers were ready to lend and be paid after harvest. The diffusion of drip irrigation took place right after the civil war, which helped in the acceleration of adoption by farmers. The return of economic activity to "normal" – especially regarding liberty of movement between Lebanese regions – allowed input supplier companies based outside the areas to expand their business activities. They encouraged intensive cultivation in a kind of supply push marketing strategy, in which inputs were available on credit together with free technical advice and supervision.

"We were making profits, the agricultural calendar protected us from there, prices were good. Things changed and people started losing". Problems with intensive vegetable production started with the significant increases in domestic output accompanied by the opening of the Lebanese market to the Syrian, Jordanian, Egyptian and Saudi production. Market liberalization followed the implementation of the multilateral and bilateral trade agreements with other Arab countries and the unilateral reduction of tariffs in 2003. The combination of these factors led to a large decrease in domestic supply prices. The outcome of the season and the farmers' ability to repay their debts became dependent on a dynamic that was out of their control. *"You sell for 500LBP a kilo at the beginning of the season and at 150LBP a kilo at the end of the season, because the Jordanian import would of be in the*

market. The farmers who harvest at the end of the season cannot repay their debt"[74]. Volatility in the domestic agricultural prices depending on the early, middle and late season time is a mechanism well known to Lebanese farmers. They were used to cope with it when competition was limited to domestic production and to some "smuggled vegetable pick-ups form Syria". However, they are hardly able to sustain competition from abroad because of their higher costs of production. *"The cost of a dounoum of tomatoes is around 500-600 USD, this year I had an overall cost of 28,000 USD, this money would of build me a house".* Paradoxically the main burden is irrigation, the problem that drip irrigation was supposed to solve.

"Electricity is supplied only 12 hours a day sometimes 6. You can't stop from irrigating the watermelons 3 to 4 hours a day, every day just like prayers. If you don't your season is dead. You have to get the fuel for the water pump, the money, you have to". The problem of course is not the drip irrigation technology but the lack of water supply infrastructure in the region. The great majority of farmers use artesian wells. Water pumps are powered either by electricity or by diesel, and at times both. Electricity is the less expensive but not always available.

Watermelon farming is mainly done on leased land by landless farmers or farm owners leasing additional plots for watermelon production. Although the yearly cycle of production incorporates the use of a winter legume like fava beans or peas, it is never used as green manure but sold at the market. Since watermelon farming cannot be performed on the same parcel of land for more than a few years, as the land needs to relax from intensive production, leasing watermelon farmers tend to transfer their activities to different parcels . As planned crop rotation and soil fertility management is not a common practice, land that ceases to be used for watermelon production is often left fallow.

Often returns from fava beans compensate for the losses accumulated during the summer cash crop season – as a matter of fact, winter irrigation costs are limited.

[74] Facing competition from the Jordanian and the Syria production and the fluctuation of prices within the season is in an important concern for many farmers, regardless of the region and the type of crop. In their study of Dayr al Lawz village in Northen Lebanon, Makhoul and Harrison (2002:614) reported a very similar quote from an almond farmer: "A kilo of almonds is sold at 1500 LL (US$1), but when the Syrian and Jordanian [almonds] hit the market, the price goes down to 500 (US$0.35)." (Fifty-year-old farmer in Dar el Lawz).

Watermelon – or tomato – intensive production remains to be attractive as there is hope that *"this year will be a good one"*. In some case farmers are the victims of a vicious circle of "agricultural gambling" and debt. *"Grow something else? Like what? Persil? It does not pay back the debt. Lettuce? It does not pay back the debt. But if I get a good watermelon season, I could. You cannot pay back 40-50 million LBP of debt if you do not get a good payment. Barley, wheat and whatsoever do not pay back"*. Nevertheless, many farmers have completely abandoned this form of production or at least stopped relying on it as the main / unique aspect of their farming praxis. *"I planted Watermelon two years, the first year I made money the second I lost. People sold their houses because of Watermelons. I stopped".* The main concern is to secure the season's income. Farmers in Hermel have expressed their interest in acquiring licenses to grow tobacco – which was primarily directed towards farmers in the south of Lebanon. As previously discussed in Chapter 1 Section 1.3, distribution of tobacco licenses is highly supervised by political leaders and is used as a means for political control. It is not necessarily given to farmers and a black market for license reselling exists. Even with this extra cost, and the overall low returns, it is still a secure crop to grow. Some farmers will grow tobacco - still cultivated using low inputs and traditional methods - and use the license as a collateral in order to get credit to grow intensive crops in parallel. This unofficial financial agreement is commonly done with national banks or inputs providers. Within that context, the re-introduction of olive and olive oil production by some extension services and cooperation projects has been widely accepted and adopted.

5.4.2 Olive oil: Low cost and secure income

Public policies

"Farmers are looking for an output that they can control, they don't want to be controlled by their output. The olive tree gives you and does not take from you"

Olive production is promoted by most of the actors in the region: the ministry of agriculture[75], Jihad Al-binaa, foreign donors and local grass-roots initiatives. Olive orchards are either promoted as a single crop with winter production of legumes, or within an olive-nectarine system for the first years, in both cases for oil production. The MOA and private

[75] Public action is carried out in the framework of a cooperation project (Oil Lebanon), funded by the Italian cooperation agency and implemented by the MAI-B. The target group is olive oil cooperatives.

extension services, especially Jihad al-binaa promoted the introduction of olive orchards as an alternative for small and medium size farmers who are unable to sustain high input productions. Public action is carried out in the framework of a cooperation project (Oil Lebanon) and is incorporating the participation of local stakeholders in the process. The project, targeting olive oil cooperatives, is funded by the Italian cooperation agency and implemented by the MAI-B.

Lessons from the apricot

Policy makers in the region want to re-introduce a production similar to the apricot system; low utilization of fertilizers, low water requirements, and low pest control requirements due to specific natural conditions (high change in temperature between day and night). However, securing output markets remains the prominent issue and attention is given to quality and marketing strategies. In the 1960's and up to the 1980's, marketing of apricot was secured through export to the Arab gulf, but export channels were gradually closed because of the ongoing civil war. Marketing of apricot became a very difficult task because of the short-life of the fruits after ripening, *"you have 5 days, to sell it. If it is not sold it falls form the trees".* It is striking that although apricot production was flourishing in the pre-civil war period, not a single processing and post harvesting industry for apricot was build; processing of apricot in Hermel was done only for home consumption. This raises the issue of the importance of financial capital from one side and the absence of the state form the other side. Apricot-farmers in Hermel did not have the capacity to accumulate capital and build processing plants. Furthermore, the export of apricot was monopolized by high-powered traders who were able to influence the policy-making process at the state level. Thus policies were directed towards trade and no credit was given/facilitated to entrepreneurs who wanted to establish processing plants or similar industrial activities. When traders lost economic interest in export, farmers faced large difficulties in marketing the production and prices collapsed. It became more profitable to subcontract the harvest to Syrian middlemen who would sell it at the Syrian market, than to directly sell at the Lebanese market. Farmers would agree with the middlemen on a lump sum payment after observing the orchards and estimating the volume of production. The middlemen would take care of the rest, harvesting and marketing. This mechanism is obviously not at the advantage of the farmers, but the lump sum received had the advantage or being secure. Although this could be technically considered as export, in the context of open borders between both countries, and the important

losses borne by the farmers in terms of added-value share, prices received were definitely not comparable to those received when the production would be exported to the Arab gulf. Thus, farmers gradually abandoned apricot production. *"We had different varieties of apricot. When one of the varieties started to ripen and fall you could not even go to the orchard to irrigate or spray the other trees because of the odor. We were forced to sell at any price; we did not want to see it fall. We found that the olive trees allowed us to sustain. You can wait to harvest, you can sell it green, and you can make oil. You control it, it doesn't control you."*

With this background, specific attention is given to the marketing planning capacity building and quality focus on the production of high quality oil. "*Our oil was chosen as the best extra virgin olive oil in Lebanon by the Italians* [oil Lebanon cooperation project]". These marketing strategies aim at mitigating the relative lower income from olive production compared to other crops. However, many farmers prefer securing a relatively lower income that to risk losses, "*We do not have choice, many people stopped farming, this year a part of the watermelon production was not even sold. At least with olives we get 10,000-12,000 USD.*" Nowadays, marketing of olives and olive oil are done through traditional channels either green at the wholesale markets or through middlemen, or as olive oil in plastic containers of 20 liters. A local initiative has led to the formation of olive oil producers cooperative that owns a modern olive oil press.

In addition to olive pressing services, the cooperative is providing support to farmers on innovative production techniques. These innovations focus on close-cycled management of the olive orchards and the use of olive oil by-products such as the use of pressing residues for fertilization, which replaces conventional forms of chemical fertilizer use, and substitute green manure as most Hermel's farmers would rather benefit from the additional income from winter crops.

The cooperative is also building a marketing strategy based on the valorization of the products through both quality and packaging, and introducing a bottling line to its olive processing unit. Nevertheless, some farmers – that use the cooperative facilities for processing without being members – are still perplexed regarding the quality policy adopted by the cooperative, as the *"quantity obtained is low"*. The cooperative's ability to sustain production on high quality olive oil depends primarily on its ability to market it and compete at the local

market with the production from Lebanese regions where olive oil production is historically well established and better known by the local consumers.

The olive oil cooperative as a social expression

The founders of the olive oil cooperative are middle-aged men with a leftist and Arab nationalist political background. Although their political action was never partisan and limited to socio-economic and cultural issues, they have been faced by pressure and inference, or simply lack of attention or support from public institutions and political forces. The experience of this group of activists allows for a comparison and understanding of the social processes in which dominant forces perceived the formation of associations beyond their control, as marginal as they can be, as a direct political threat. It in the pre-civil war and the Syrian hegemony period (pre-1975 and 1992-2005), it was common for local political leaders and intelligence officers to pressure and/or intervene directly in the internal affairs of citizen associations.

Nowadays, *Hezbollah*, being the dominant political player in a region where state and other political forces are weak, does not pressure or interfere in associative issues. Nevertheless, it works on marginalizing local initiatives that carry a political and social discourses that differ from his. This process of marginalization often takes place through the public institutions under the control of the party, such as the municipality, by simply disregarding their actions and refraining from providing help and access to public funds. *"We asked* [the municipality] *for a parcels of land to build the olive pressing unit. They said submit an official demand, we did. We waited for two years and they said no. After we found a piece of land and started building we asked them to fund the quality control lab. They said submit an official demand. Several months passed before they finally told us they stop funding associations."* As a matter of fact, support from the Hermel municipality to local associations is very selective. It depends on the social values carried by the association (e.g. secularism, gender mixed, and in general anything that comes in contradiction with local traditional social norms is not accepted) more that on its specific political stances on issues at the national level. However, this marginalization of associations by the municipality is not transformed into social exclusion because of the strong bonding social capital present in the region.

This process is not limited to the olive cooperative, but to all associations. Many of them have short-cut municipality support through gaining access to funds from foreign donors

and Beirut-based NGOs. Others have succeeded in finding support from the municipalities (like the Sindyana cooperative in Khwakh, see Section 5.4.5).

The olive cooperative has been able to break local socio-political dynamic with the municipality through access to funds from Beirut-based donors, and has achieved success through this sustainable self-management. The latter helps the cooperative and the activists behind it in imposing themselves as main players in the Oil Lebanon project, and in rural development in Hermel.

5.4.3 Dairy production: the randomness of public policies

The policies of the ministry of agriculture regarding small and medium scale dairy production is a clear example of the ministry's lack of vision and planning, its dependence on international institutions, but most importantly of the political power of large enterprises in influencing the decisions of the government.

A ministerial program supported by the International Fund for Agricultural Development (IFAD) was implemented from 1998 to 2004 in order to provide support to small-scale dairy producers. The project established 12 milk collecting centers throughout the country, and one of them was in Hermel. These centers are fully equipped for milk conservation and quality control and administrative operation. *"They have been closed by a ministerial decision I don't know why. They say it is not economically viable, but the accord with IFAD stated that in order to sustain themselves the center could take up to 2% on sales. If they had done it would of worked*".

These centers secured milk market for smallholders and controlled supply prices to processing units. *"We were optimistic at the beginning with the opening of the center, because we could sell with good prices. When it closed 80% of dairy farmers sold their cows".* This center played an important role for both small-scale and medium scale farmers. Small-scale farmers could market the production of two or three cows. Then, the introduction of animal husbandry to their farming practices allowed them to have a weekly cash flow from milk sales, while the calves constituted additional income[76]. With the fall in milk prices they

[76] This is a specific condition of Hermel plain farmers. In the *Jerd* goat and sheep dairy production do not witness significant problems in marketing.

could not sustain high feed and veterinary costs, so they sold their cows. Medium-scale farmers faced a different problem. With the increase of their production they had to look for contracts with bigger dairy producers, especially large producers like Liban Lait or Tanayal farms in the Zahleh and Baalbak areas. In order to fulfill the quality requirements, large investments needed to be made (milk refrigerators, automatic milkers, more infrastructure with the increased number of animal). When prices fell after the shutdown of the center, they were not able to accumulated the financial capital needed for these investments (in addition to the absence of agricultural credits see Section 5.3.3). "*I had 85 heads, I sold them, now I just have 3, just for fun. I am losing I sale for 550LBP while in Zahle they sale for 850LBP".* The higher prices offered to Zahleh dairy farmers is due to their ability to supply a larger quantity of milk and to the closeness of large dairy industrial plants. Hermel medium scale farmers relied on the center for conservation and transport of the milk to Zahleh and Baalbak.

The crawl in prices of milk was due to two factors that were directly related to the shutdown of the centers: the transfer of control over supply prices to the single cheese-maker in the region, and with the absence of an entity that guarantees quality control, lower quality milk came from Syria at lower prices. *"Our biggest problem is milk coming from Syria, their it cost 400LBP, plus 100LBP transport. For us each Liter of milk cost us 700 LBP. This milk enters illegally and is not of good quality"*. The center was the *"dynamo of dairy production in Hermel".*

The official reason for the shutdown of the milk centers was that they were said to be economically nonviable. Nevertheless, it seems that agro-industries, including large investors played an important lobbying role with the government in order to take this decision. Recently the MOA in cooperation with the FAO launched a new program to support re-introduction of animal husbandry for smallholders, leaving the Hermel milk collecting center *"fully equipped, including the quality control labs, fully equipped but closed"*.

5.4.4 The *Jerd*: from drug cultivation to Organic farming and eco-tourism.

"We planted hashish, it was common knowledge. Everybody planted it, especially people from the Jerd".

Drugs, cannabis mainly but also opium poppy tears, was historically cultivated in *Jerd* Al-hermel under the Ottoman Empires and the French mandate rules. It became a common agricultural practice in the late 1970's and early 1980's, covering almost all the *Jerd* agricultural land as well as a large part of the Baalbeck and Hermel plain. The cannabis "sub-sector" of the Lebanese agriculture developed under the eyes of the Lebanese and Syrian armies, benefiting from the climate of civil unrest and the laxity of a weakened public administration caused by the ongoing civil-war. *"The state wasn't in a condition that allowed it to come here, there was the Syrian army. But they were busy with politics and nobody would ask. On the contrary, Lebanese and Syrian officers were invited to lunch, they would come and wander around in the Hashish field and enjoy the Jerd's weather. They didn't have orders to stop us".* Cannabis growing was a source of important income for farmers of the region. It was also a source of wealth and capital accumulation for local elites – and clan leaders – who would seek –and bribe – protection from the Syrian army at the level of the Bekaa region and from Lebanese authorities and militia at Beirut airport and the illegal sea ports that were at that time spread along the Lebanese coast.

The cannabis production created an economic cycle in the region, supplying large amounts of money to farming households. "*One year we made we made 20,000 LBP*[77] *it was a lot of money at that time. We bought a car and additional land, we married my brother and we furnished his house and got him a car, and my father still had money left. At that time we got a lot of money and prices*[78] *would go up every year. We would do everything at harvest, it was known in Hermel that at harvest people will buy things, pay workers, furnish or build houses, and everybody will benefit indirectly form the hashish cultivation".* Production was labor intensive and it involved all the family members. Most of the time it was the unique source of income. Of course cannabis production did not make farming households rich, but it

[77] As discussed in Chapter 2 Section 2.5.2 the Lebanese currency witness a great devaluation in the late 1980's. Late 1979 early 1980's which is time the interviewee is referring to, 20,000LBP would be equivalent to 6,664 USD at 1979 exchange rate and purchasing power (1USD = 3.01 LBP).

[78] The interviewee is referring to sale prices of cannabis.

allowed relative wealth and capital accumulation. The main beneficiaries were the local elite and family clan leaders, who enjoyed a substantial increase in their wealth and political power.

The change came in the early 1990's with the end of the civil war and the increasing European and American pressure on the Lebanese and the Syrian government to stop drug production. The action against drugs in the Bekaa was fast, it came in a double conjuncture of return to peace in Lebanon, improvement of the Syrian and American relations, and the US "war on drugs". The process was fast, the production stopped almost instantly in the Bekaa valley after the Syrian army did a onetime plow of the cannabis field there, while production in the *Jerd* became marginal. *"Now people stopped, although some still do plant it. Because the state started to get stronger, and every year they come and plow the crops and prosecute the famers who plant it. Now that there is a state we decided to not cultivate it anymore, we don't want to be humiliated; we don't want to be "toffar[79]". We leave our land fallow because with potatoes we will lose and not make money. Some years we lease it out for 200-300 thousands LBP[80]".*

The UNDP program for alternative cultivation operated from 1996 to 2000, when it tried to introduce new crops and alternative production in the area. The program encouraged the development and valorization of local resources and varieties of fruits - especially pears, almonds and cherries. However, very few farmers had been organized in cooperatives and marketing remained as the main problem. Potatoes, fava beans and fruits production from the *Jerd* area received a premium price because they grow out of season and/or because of the specific variety of fruits such as pears, almonds and cherries. However, the main problem was not in the received prices, but in transportation, first from the *Jerd* to Hermel and then from Hermel to other market outlets. Most small holders cannot bear the transportation costs and use door to door and other forms of direct sales channels especially for fruits, which did not contribute much to increasing their income levels. *"Some people take cherries to Zahle, they would have 20 boxes of cherries, in Zahle they will get a better price. But they are people who have a "van[81]". They will take their cherries with them and come back with bananas from*

[79] Outlaws

[80] Between 133-200 USD at 2010 Exchange rate and purchasing power (1 USD =1,500 LBP).

[81] Refer to mini-buses (10 to 15 passengers), they are used for private transport services and have become an important source of income in the region. . A person retired from the army would invest a part of its indemnities

Zahle". Cooperatives present in the *Jerd* are restricted to families and close relatives. They were not able – and unwilling – to move across clan rivalries and power relations within the families. *"They tear them down. They are relatives but then go into conflicts. One takes the tractor, one takes the pick-up, one takes the plow. They tear it down. There is no real agreement."*

With the implementation of the political decision to stop drug cultivation and the failure of the UNDP project to provide a long-term sustainable alternative, the region has witnessed a significant decline in revenues and many people have left it. Many familites in the *Jerd* have gone from being relatively wealthy farming households, to families struggling to provide their basing needs. *"Marjḥīn and sawāḥ used to be full of people now there is no one there. I swear to you without the hashish, nobody would of live here, and nobody would be educated, and nobody would of know how to read and write. This is the truth. Now people have to choose between food and school"*. Those who had the possibility to accumulate wealth and land during the 1980's have moved to Hermel. Those who stayed are farming for a little bit less than subsistence; *"if I plant potatoes and some vegetables, I can guarantee a little income and the family mūnat[82]". It is better that leaving the land fallow. People stopped planting hashish and now they farm just to not die of hunger".*

Within that context, several local eco-tourism initiatives have succeeded in "*bringing life to the area"*. Paradoxically, in a region known for being marginal, clients of the *Jerd* eco-tourism holdings are mainly European and north American expatriate living and working in Lebanon, in addition to occasional foreign tourists[83]. "*We started in 2004, with two rooms. And people started coming and encouraged us. 80% of my clients are foreigners. And I am*

in a mini-bus and a licenses to use it for taxi services. He would rent it to a second person, and register it in the name of a family relative so the latter can beneficiate from the health insurance that comes with the license (the real owner of the mini-van beneficiating already from the army veteran social security). In Hermel 6.5% of the households own a mini-van, and 11.36% own a pick-up truck (sample data from the HLCS 2005 not mutually exclusive)

[82] Traditional Lebanese food prepared after autumn harvest and traditional preserved and consumed during winter

[83] The demand for typical, regional and local identity and culture is primarily a social phenomenon present in European and North American countries. According to Murdoch and Miele (1999) it is primarily instigated by an urban middle and upper class trend for "going back to nature". According to Bessiere (1998), nowadays rural space is seen as a place that compensates for a lost peasant identity. The return to the countryside is an unspoken desire for landscape appropriation and a life in valorized space where proximity, social recognition and participation are combined. This trend is growing with in Beirut's upper middle class, but still limited, as the majority of Lebanese who already migrated from the rural areas to the city in recent year, still go back to their own villages during week-end and/or holiday. Eco-tourism in Lebanon still mostly attract foreign expatriates.

getting more clients from word of mouth. I have a capacity to receive 60 people and I am often full, even during the week" Eco-tourism in the *Jerd* emerged from local initiatives supported by Beirut-based environmental activists and NGOs. These initiatives have faced difficulties to attract both Lebanese tourists and gain the support of public institutions (MOA and Ministry of Tourism) *"We do not exist on their map. They don't want us to. They need people to live in misery so they can keep giving them fish without teaching them how to catch.. For the other regions it is different, we feel it".* Attracting foreign tourists was easier than trying to overcome Lebanese prejudice about the region as well as local skepticism on the chance of success of such initiatives. *"The eco-tourism projects are good. But not everybody benefits from it, just one or two families. The mentality in the Jerd does not help, if two people got into a fight and start shooting at each other, tourists will pack up and leave. People will do it on purpose, out of envy".* In the absence of public institutions at the national and local level – there is no municipalities or any kind of local elected authorities in the *Jerd* –, local initiatives dynamism could create a situation of social exclusion, where such activities would be limited to local people who are able to guarantee both security and protection to tourists, while others would remain dependent on subsistence. As a matter of fact, security and freedom of initiatives is guaranteed, but is fragile in a context of latent clan-clan and clan-state conflicts. The ability of these initiatives to grow and create a local economic dynamic depends on the environment of security prevailing in the *Jerd* – and people's perception of the region. More importantly, it is essential to rely on the local population's ability to build capacity and strengthen social linakges. Local activists see organic agriculture as a possible way to link eco-tourism projects, *Jerd* and Hermel farmers and Beirut consumers. Helped by the dynamic created through direct contacts with foreign and Lebanese clients interested and aware of environmental and rural issues, eco-tourism holders are already going in that direction *" I want to have an organic eco-tourism place. I want to give organic food. I opened a small processing plant for labneh, for organic goat labneh from the Jerd. I collect milk from people here, but I have to use organic olive oil and that is expensive".*

5.4.5 Social capital at work: transfer of resources, women empowerment

"Help us by hiring us for your receptions 'catering need. Instead of your usual 'petits fours' and concentrate juice, we will make you wild herbs healthy snacks. It is something new and people are going back to it now" (Kwakh cooperative member discussing her talks with the Hermel municipality).

Just like in the *Jerd*, in Kwakh, a remote village north of Hermel city, a grass-roots initiative based on innovation -*"something new"* - and on people's return to nature -*"back to it"*- has emerged. The initiative, per se, consists on the preparation of food products using local wild herbs. This production was later on linked to an eco-tourism lodge that revalorized and restored old traditional houses in the village. The project was called sīndyānat (oak) *"because we have* sīndyānat *in the hills of our village, and because* sīndyānat *is female and is strong"*. It has succeeded in improving the livelihoods of involved households. What characterized this particular initiative was on the one hand, its capacity to: (i) involve all interested women in the village; (ii) have an independent start-up; and (iii) succeed in linking with local, Beirut-based and international actors alike; in other words, it was able to fully utilize all forms of social capital. On the other hand, the initiative is imbued in the social and institutional local context and based on local resources.

Democratic participation, Capacity building

"There is no one who doesn't have anything, all people have capabilities, they have aptitudes, but you have to program them, to prepare them so they can succeed".

The creation of a municipality in Kwakh was a critical turn, for it opened the door for local initiatives through the municipality's participative committees. It was also an official contact for Beirut-based institutions seeking to be active in the region. The founding of the Khwakh women's cooperative was spearheaded by a female local activist who was involved in the municipal committee. She initiated work with The Faculty of Agriculture Food and Nutrition of AUB on the valorization and sustainable management of *"more than 350"* local edible and medicinal wild herbs as well as *mūnat. "We announced it through the mosque minaret, and we had the meeting, the next day we re-announced it, to be sure everybody knew about it"*. The project idea was simple, women were trained to sustainably collect wild herbs,

and learn about the characteristics of the main ones. "*We were taught how to sterilize, pack, increase quality of what we had always cooked for our children*".

Women empowerment and national small scale transfer of resources

"Each one of us had to pay 100 Thousand lira[84]*, but we delayed it, until we made some money. We wanted to pay it from the money we made. We didn't want to take it from our husbands or away from our children. From our work yes, from our houses no"*

The cooperative management was able to fund itself and be independent from both, male households heads, and from other sources of funding. The cooperative managed through its sales to sustain and grow. The marketing strategy could be described as a national small-scale transfer of resources strategy. It relies on the direct sale of food products carrying a sign value from rural poor farmers to rich urban consumers within national boundaries. In contrast to fair trade, where the transfer of resources is made between developing country farmers and rich European consumers, in the Khwakh cooperative case the exchange is made directly and within the country. It differs from the European alternative supply chain in two elements: the concepts of local, traditional or quality are not regulated or standardized. Moreover, by escaping the processes of regulation this supply chain does not fall into the social process described by Shucksmith (2000 and 2004) - where territorial and cultural forms of rural economic development mask power relation processes and further the interest of the dominant class. As a matter of fact, the Kwakh cooperative as a form of endogenous rural development practice was able to redistribute (small scale) resources and (small scale) political power toward the less powerful: women living in marginal rural zones, changing everyday life and social habits and norms.

"In the villages, if someone died their women relatives would stay home and not go out for two weeks (…) we said that we have to be done with this. If it were a man that had a work meeting he wouldn't cancel. But us because we are women we have to cancel it? And stay home and be sad. But we have work. So that day we went and buried the woman in the morning and we went to work. You can say that there was a change in work and social life in Khwakh". Women's leadership and their ability to enhance their social condition have been

[84] 66.66 USD (1USD=1500LBP)

also translated in the local political sphere by the election of the cooperative leader to the municipal council – the only one in the region.

Social capital at work

Analysis of the different types of social capital provides insight into the process of development of the Kwakh Cooperative.

The strong bonding social capital within social groups is a characteristic of the region, and was at the base of the strength of the Kwakh cooperative. Nevertheless, it differs from the usual relation present in the community that bond men together in a form of local solidarity that never became common action. Only when transformed into direct action, bonding social capital resulted in agency and empowerment.

The Kwakh cooperative was able to progress through continuous learning, capacity building and common action. "*After we started, NGOs started to come to us"*. From that point, it became easier to bridge with similar rural development groups in Lebanon. Although these groups were Beirut or internationally-based, the Khwakh cooperative was able to negotiate and use the help provided by other Lebanese action groups. Building trust with local and international donors was an essential element for the growth of the cooperative, while the ongoing capacity building allowed for sustainability. *"They would give a certain number of food packaging. When they would come back, they would find that we had twice as much. We accept their donations, but we cannot rely on them all the time. We did get our own l from our work"*. Further linkages with the municipality and with international NGOs allowed the cooperative to capture funds for the renovation of all the old houses in the center of the village and transform them into eco-lodges.

The Khwakh cooperative was born from grass-roots initiatives and succeeded in growing through good relations with the dominant political parties in the region as well as with the municipalities of both Khwakh and Hermel. The challenge however remains to be the ability to sustain growth and development within a difficult environment, where conflicts between the municipality and the leadership of the association are emerging, local men are showing *"envy and jealousy"*, and public institutions might wish to take control of the cooperative.

5.5 Answers to the research question

This case study investigated the dynamics of change and the main factors influencing the choices of farmers and rural activists on their agricultural and rural development praxis, i.e. their livelihood strategies.

Sharecropping was predominant up to the 1950's, and is still present. It was characterized by the production of cereals and pulses in the summer, and by legumes as winter crops. Animal farming was limited to sheep and goat husbandry. This mode of production became gradually replaced by the export-oriented production of apricot fruits. Such export-oriented production was encouraged by the rising demand for Lebanese agricultural production from the emerging oil economies in the Arab gulf and the organization of the exporting channels by Lebanese traders. In 1975, with the start of the civil war, Hermel witnessed an increase in illegal drug cultivation and the war-economy of the region was influenced by the money flow resulting from this production. At the end of the civil war, increasing pressure from the state stopped the cultivation of illegal drugs, although it is still present in remote areas of the *Jerd*. .

In the early 1990's, with the introduction of irrigation, the intensive production of summer vegetables – especially watermelon – was intensified. Output increase, price reduction and the lowering of agricultural tariffs in 2000 and 2003 all compelled farmers to look for alternative forms of production – ones that are less input intensive and more market secured. It was from this point, then, that form of collection rural action started to emerge. In parallel with the joint actions of the Ministry of Agriculture and international non-governmental organizations, local rural activist have promoted the re-introduction of olive oil production and new forms of rural development practices that revalorize local resources.

From the above system of production, four different type of strategies can be distinguished. These strategies differs by the production technology and the marketing channels. As a matter of fact, the changes in the market is the main factors that influenced farmers decisions. Markets structure have been changing with change in the political and institutional environment.

Hereby the strategies are presented

1. Export-oriented production: relatively low inputs production, with specific export or "illegal smuggling" marketing channels, apricots and illegal drugs (Section 5.4.2).

2. Input uses intensification[85]: intensive production marketed domestically and suffering from volatile prices, watermelon and dairy cow production (Section 5.4.1 and 5.4.3)

3. Low input production[86]: door to door marketing, in the phases of develop a specific marketing strategy, olive oil (Section 5.4.2)

4. Transfer of resources[87]: rural development practices based on the valorization of local resources, and alternative modes of marketing (see Sections 5.4.4 and 5.4.5).

In choosing their strategies, farmers were influenced by the dynamic interplay of changes in the political and economic environment, changes in institutional processes and organizational structures, and changes in capital assets, presented in Table 5-5 below:

[85] Correspond to the IUI simulation, see Chapter 4 Sub-section 4.3.6 and 4.3.5.
[86] Correspond to the FUI simulation, as it changes the ration between labor and input use toward the use of less inputs and more labor, see Chapter 4 Sub-Section 4.3.4 and 4.3.5.
[87] Correspond to the simulations FUI, Trm and FUItrm, see Chapter 4 Sub-section 4.3.6 and 5.3.5.

Table 5-5: Hermel farmer's strategies and their outcome

Strategies		Influencing factors			Outcome
		Changes in the political and economic environment	**Changes in institutional processes and organizational structures (including market)**	**Changes in capital assets**	
Export-oriented apricot production	Started in the early 1950s in Hermel Plains with:	Increase demand for Lebanese agricultural products from the Arab Gulf economy. Trade and services-oriented economic development of Lebanon	Organization of efficient export marketing channels from the Bekaa to the Arab Gulf		Rise in farmers' income
	Gradually ended with changes in:	Start of the civil war in 1975	Breakdown of marketing export channels, leading to a fall of prices through the difficulty in marketing		Gradual abandonment of apricot production by local farmers
Export-oriented illegal drugs production	Started in the early 1980's in the *Jerd* by:	The civil war and the weakening of State authority	Illegal export channels		Important capital flow to the region Rise of political power and influence of the A'sheyr leadership
	Ended in 1992 with changes in:	Return of State authority	Difficulty in smuggling production. Introduction of a UNDP-funded program for alternative crops		Fall in politic power and influence of the A'shayer leadership Marginalization of the production
Input intensification: Watermelon	Started in 1992 in Hermel Plains with:		Promoting by extension services and input providers	Innovation in resources management technology (drip irrigation)	Important profits for farmers
	Regressed with changes in:	Unilateral abolition of tariffs in 2000 and 2003			Farmers' debt accumulation because of losses due to fall of prices with increase of output

Strategies		Influencing factors			Outcome
		Changes in the political and economic environment	**Changes in institutional processes and organizational structures (including market)**	**Changes in capital assets**	
Input intensification: Dairy production	Started in mid 1990's with:	Promoted by MOA and international donors projects	Encouraged by important investment in the sector in Baalbak and Zahle region Creation of milk collection center		Daily cash income for small farmers Good return for middle size investment
	Regressed in 2004 with changes in:	End of support programs Randomness of policies	Closure of the milk collection center Support by international and local NGOs		Incapability to re-invest and to sustain production Farmers losses
Low input production: Olive oil	Boosted with:	Promotion of this innovation by MOA and international donors' projects			Secure income for farmers and low cost of production
	Increasing with changes in:		Support by international and local NGOs	Increase in social capital and the creation of a well managed producer cooperative	Increase in the adoption of the innovation
Resources transfer Rural development initiative	Started with:		Grassroots local initiatives Support by international and local NGOs Functioning marketing channels in Beirut	Increase in social capital Valorization of local resources	Improvement of farmers livelihood
	Sustained with changes in:			Increase in social capital Increase in human capital, know-how and capacity building	Improvement of farmers livelihood

6 Conclusion

Using a mixed methodology approach based on a Computable General Equilibrium model and a qualitative case study, imbued in a political-economy and structural analysis of the Lebanese system, this research demonstrates that under-development in Lebanese rural areas is not due to a lack of resources, but rather is the consequence of political choices. It further suggests that agriculture – in both its mainstream conventional and its innovative locally initiated forms of production – still represents important potential for inducing economic growth and development.

Chapter 2, on the Lebanese political economy, reviewed how the historical and political development of the country has created and deepened inequality between the different regions. It demonstrated that the pattern of uneven development has been repeated since 1943, to the advantage of the political elite who instrumentalize state institutions to perpetuate their political power. This inequality was confirmed by the structural analysis based on the Social Accounting Matrix for Lebanon 2005 (SAMLEB05) of Chapter 3, which also highlighted the labor structure, as well as the characteristics of the Lebanese industrial and agricultural sectors. It showed how important amounts of capital flows into the country have induced growth in the tertiary sector, while wages were kept low.

The Computable General Equilibrium (CGE) model, (Chapter 4), studied the resulting alterations to the economy equilibrium induced by changes in agricultural production technology, in trade, and in taxes and tariffs polices. Finally, a qualitative case study (Chapter 5) looked at the variations in farmers' livelihood strategies compelled by similar changes.

The findings of the four lines of analysis presented in this dissertation triangulate an answer to the research's hypothesis.

Underdevelopment is not due to lack of resources

The Lebanese agricultural sector was discussed in Chapter 3 Section 3.5 at the national level and Chapter 5 Section 5.3 in regard to the case study. The main issue that emerged from this analysis is the extent of the heterogeneity of the Lebanese agriculture, with high capital accumulation in competitive subsectors on one side and small-scale poor farmers' holdings on the other side. Although it does exist between regions, the heterogeneity is predominantly intra-regional. Farmers of areas marginalized by the Lebanese economic system – especially Akkar and Baalbak Al-Hermel – are poor. Indeed, factors related to land productivity and the lack of natural resources in these regions are a constraint to development, nevertheless, these are not the key issues for the region of Akkar. Moreover, the case study has shown that farmers in Hermel do not witness problems of production, but rather suffer from price falls due to the inability to market a large output. Finally, although water is definitely a constraint for agricultural production in Hermel, the obstacle was partially remedied by the farmers, as they have largely adopted – and invested in – drip irrigation networks and have since produced important quantities of highly demanding water crops, like watermelons and other vegetables.

Intensification of agricultural production

The CGE simulation of the scenario of an increase in agricultural output through intensification of production – Neutral Technical Change (NTC) and Intensification of Input Uses (IUI) – shows that an increase of agricultural production would have a positive impact on the national economy, in terms of both real growth and employment. The economic growth created by the increase in agricultural output would have positive repercussions on the tertiary sectors, benefiting Beirut and Mount Lebanon and holders of capital and highly skilled labor, but would impact farmers and rural areas negatively. However, such a negative impact – due to the inability of the Lebanese economy to create jobs opportunity in rural areas – could be anticipated and thus responded to by the government, especially in terms of better linkages between agriculture and the agro-industry. However, the prior experience of agricultural intensification has shown that government policies are at present biased against farmers and rural areas.

Intensive production in Hermel is hampered by the high cost of irrigation – mainly an energy-related cost, as irrigation is done through artesian wells. The government has not yet undertaken a single irrigation infrastructure project in Hermel – including a dam on the Oronte river that has been a local economic demand since the 1950s. Local elite have not advocated for its execution, although according to local farmers a public irrigation network would increase agricultural activities and significantly reduce farmers' irrigation costs. There are no policies to support investment in agro-industry in the region, vegetable production has been hampered by the reduction of tariffs, and moreover, farmers have to competed with the state-supported Jordanian and Syrian production. The unilateral reduction of tariffs of 2000 and 2003 has forced a significant number of farmers to begin high-cost intensive production; a further reduction in tarrifs would have a negative impact on the welfare of poor households in Baalbak al Hermel. In the same manner, investment in the dairy production agri-businesses was penalized by the inconsistence and randomness of public policies, as well as the lack of agricultural credits.

Furthermore, Hermel's development of exporting fruits between 1950 and 1975 shows that region is also able to produce agricultural output with low water requirements in exportable quantities. The existence of this export channel helped the growth of production and brought about a positive change in welfare in Hermel. A similar NTC development, with an increase in export prices due to policies such as quality improvement (NTCexp), would have similar effect today.

Rural development initiatives and mechanisms of resources transfer

All of the above has led farmers to look for lower input forms of production and innovative rural development practices. Relying on their human and social capital, they are able to increase their livelihood independently of state intervention. These models of production allow the empowerment of farmers and women by increasing their human, social and financial capital. The results of the simulations on the factor of use intensification, the decrease in domestic trade margins and the combination of both scenarios (FUI, TRM and FUItrm) show a slight economic growth at the national level. These scenarios induce a different allocation of added value between farmers and traders to the benefit of the all households groups represented in the CGE model, leading to a *Pareto efficient* change.

Furthermore, these models of production are developed and structured in a way similar to the growing alternative food network present in Europe. They act as a mechanism of resources transfer between poor rural areas and rich urban consumers. They are the expression of an upper class urban need for nature and authenticity, and the need of the rural poor revalorization of their local resources. This social and economic phenomenon is growing in Lebanon in a context of the absence of public intervention and the presence of a large number of rural activist and civil society organization.

Nevertheless, these initiatives do have to confront the local elite, which often acts as barriers hampering such initiatives. Political dominant powers and institutions try to monopolize the management of donor flow and cooperation projects. Moreover, local development initiatives create changes in social relationships that challenge the patron-client relations that characterize Lebanese society. Grassroots initiatives must draw their own paths, often without public local and national support, relying on their own capacity and the sporadic support of International and Beirut-based NGOs.

Policy recommendations

Based on the triangulation of the main findings of the research's four lines of analysis, and the independent synthesis of each Chapter (Sections 2.8, 3.6, 4.6 and 5.5), this research has shown that agriculture can play an important role in economic development. However, such a development needs a change in the political-economy discourse and its biases against agriculture and other productive sectors. Under development in rural areas is the result of the very functioning of the state and its economic choices.

Even if it is acknowledged that Lebanon’s comparative advantage in terms of trade and financial services provides strong motivations for the economic choices of the state, the resulting biases against agriculture as well as agro-industry – and industry in general – cannot be economically justified and are socially unsound. Despite the many social and political changes that Lebanon has witnessed since its creation as a modern state in 1920, the underlying causes for the continued negligence of agricultural development remains the perpetuation of the political power of the national elite. The economic-dominant discourse has but slightly altered with changes in the ruling class, and the neo-liberal economic policies promoted by successive governments since 1992 closely resemble those of the *Merchant*

Republic (1943-1958). Within the same logic, post-war reconstruction efforts have focused on Beirut, hampering any opportunity to develop rural areas and thus preventing them from fulfilling their economic potential. These policies have impoverished a significant numbers of people, creating a highly vulnerable population with regard to food security. The fact that no serious political efforts have been made to alleviate this issue is cause for concern. Remedies occur as intermittent actions – often relying on local and international NGOs, and on associations linked to significant political interests. All of this seems set to continue as is, despite a growing academic and civil society movement advocating for a state-led policy.

In order to create growth in rural area and to reduce national inequalities, Lebanon has to take full advantage of its human and territorial capital, by developing a rural development strategy based on two parallel sets of actions: one directed toward the support of local rural development initiatives, and the other directed toward intensive form of production. In addition to its economic returns, such a strategy would promote social and political stability.

7 Bibliography

Amil, M. (1986). *Fī al-Dawla al- Tā'iffiyya (On Confessional state).* Beirut, Lebanon: dār al-Fārabī.

Anderson, K. (ed.) (2010). *Political Economy of Distortions to Agricultural Incentives*. Washington DC, USA: Work Bank.

Anderson, K. (ed.) (2009). *Distortions to Agricultural Incentives: A Global Perspective, 1955 to 2007*, London, UK: Palgrave Macmillan.

Annabi, N., Cissé, F., Cockburn, J., and Decaluwe, B. (2005). Trade liberalization, growth and poverty in Senegal: a dynamic microsimulation CGE model analysis. Centre interuniversitaire sur le risque, les politique économiques et l'emploi (CIRPEE) working paper 05-12. Ste-Foy, Quebec: CIRPEE.

Arab League (2009). Effect of food international food price rise on Arab citizens standard of living. Report to the 83 session of the socio-economic council of the Arab League. Khartoum, Soudan: Arab League.

Arndt, C. and Thurlow, J. (2010). Inequality and poverty impacts of trade distortions in Mozambique. In Anderson, K. and Martin, W. (eds). *Agricultural Price Distortions, Inequality and Poverty*. Washington DC, USA: World Bank.

Arrow, K. J. and Debreu, G. (1954). Existence of an equilibrium for a competitive economy. *Econometria* 22(3):265-290.

Ash, A. (1999). An institutional perspective on regional economic development. *International Journal of Urban and Regional Research* 23 (4): 365-378

Attalah, H. (2010). Organic agriculture and local foods in Lebanon: the consumers' perspective on scope and opportunities for their interaction. Mediterranean Agronomic Insitute Bari (MAI-Bari) M.A thesis in Mediterranean Organic Agriculture 602. Valenzano, Italy: MAI-Bari

Baudrillard J. [1972] (2007). *Pour une Critique de l'Economie Politique du Signe*. Paris, France: Gallimard.

Becattini, G. (2004). *Industrial districts a New Approach to Industrial Changes.* North Hampton, USA: Edward Elgar Publishing Limited.

Bessière, J. (1998). Local development and heritage: traditional food and cuisine as tourist attractions in rural areas. *Sociologia Ruralis*, 38(1): 21-34.

Bissat, L. (2002). The role of civil society in rural community development: two case studies from Lebanon. Paper presented at the ESCWA-World Bank Capacity Building Workshop on Rural Development in the Middle East, June2-3, 2002. Beirut, Lebanon.

Breisinger, C., Diao, X. and Thurlow, J. (2008). Modeling growth options and structural change to reach middle income country status: the case of Ghana. *Economic Modeling* 26(2):514-525

Bryman, A. (2004). *Social Resarch Methods.* Oxford, UK: Oxford university Press.

Btiech M.R.,(2000) Towards a strategy for organic agriculture development in Lebanon. Mediterranean Agronomic Insitute Bari (MAI-Bari) M.A thesis in Mediterranean Organic Agriculture 275. Valenzano, Italy: MAI-Bari

Burke, E. (1993). Rural Collective Action and the Emergence of Modern Lebanon. In Shehadi, N. and Haffar-Mills, D. (eds.) (1993). *Lebanon a History of Conflicts and Consensus.* London, UK: Tauris, 14-30.

Carney, D. (1999). *Approaches to Sustainable Livelihoods for the Rural Poor.* London, UK: Department for International Development.

Carney, D. (ed.) (1998) *Sustainable Rural Livelihoods: What contribution can we make?* London, UK: Department for International Development.

Chambers, R. and Conway, G.R. (1992). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. Institute for Development Studies (IDS) Discussion Paper 296. Brighton, UK: IDS.

Charara, W.(2006). *Dawlat ḥizbullah* (*The state of Hezbollah).* Beirut, Lebanon: Al-Nahar Publishers.

Cokburn, J. (2002). Trade Liberalization and Poverty Reduction in Nepal: A Computable General Equilibrium Micro Simulation Analysis. The Center for the Study of African Economies (CSAE) WPS/2002-11. Hosted online by Berkeley Electronic Press. www.bepress.com/case/paper170 (last consultation on March 1st 2011).

Corm, G. (1994). Al-ʿimar w al-masla ḥa al ʿama. Beirut, Lebanon: dar al-jadīd.

Cororaton, C.B.(2006). Philippine rice and Rural Poverty: An Impact Analysis of Market Reform Using CGE. International Food Policy Research (IFPRI) MTID Discussion paper 96. Washigton DC, USA: IFPRI.

Consultative Center for Studies and Documentation (CCSD) (eds) (2001). *'inma' al-biqā` al-šimālī (The Devolopment of The Northern Beka).* Beirut, Lebanon: CCSD

Creswell J.W. (2007). *Qualitative Inquiry and Research Design Choosing Among Five Approaches*. London, UK: Sage.

Debié, F. and Pieter, D. (2003). *La Paix et la Crise: le Liban Reconstruit?*. Paris, France: PUF.

Dervis, K., de Melo, J., and Robinsonm S. (1982). *General Equilibrium Models for Development Policy.* New York, USA: Cambridge University Press.

Dessus, S. and Ghaleb, J. (2006). Lebanon Trade and Competition Policies for Growth: A General Equilibrium analysis. Middle East and North Africa working papers, 43. World Bank. Washington DC: USA, World Bank.

Devarajan, S. and Robinson, S. (2002). The Influence of Computable General Equilibrium Models on Policy. Trade and Macroeconomic Division discussion paper 98, International Food Policy Research Institute (IFPRI). Washington DC, USA: IFPRI.

Dorosh, P. and Niazi, M.K. (2006). Social Accounting Matrix for Pakistan 2001-02: Methodology and Results. Munich Personal RePEc Archive (MPRA) paper 2242. Munich, Germany: MPRA.

Dorosh, P. and Thurlow, J. (2009). Implication of Accelerated Agricultural Growth on household Incomes and Poverty in Ethiopia: A General Equilibrium. International Food Policy Research (IFPRI) Ethiopia Strategy Support program discussion paper 002. Washigton DC, USA: IFPRI.

FAO (2007). FAOstat data base (2005). Rome, Italy: FAO. Available online at http://faostat.fao.org (last consultation on March 1st 2011).

Fawaz, H. (2008). Social capital in the organic sector of Lebanon: case studies from women cooperatives. Mediterranean Agronomic Insitute Bari (MAI-Bari) MA thesis in Mediterranean Organic Agriculture 524. Valenzano, Italy: MAI-Bari

Firro, K.M. (2003). *Inventing Lebanon: Nationalism and the State under the Mandate.* London, UK: Tauris.

Franklin-AHT consortium (2003). Elements of Agriculture Policy and Their Master Plan. Agriculture Planning and Policy preparation Lebanon Project SEM/04/604/002A. Beirut, Lebanon: Ministry of Agriculture.

Gaspar, T. (2004). *A political Economy of Lebanon, 1948-2002: The Limits of Laissez-faire.* Leiden, Holland: Brill.

Gates, C.L. (1998). *The Merchant Republic of Lebanon: Rise of an Open Economy.* London, UK: Tauris.

Goodman, D. (2004). Rural Europe redux? Reflections on alternative agro-food networks and paradigm change. *Sociologia Ruralis*, 44(1): 3-16.

Hamada, M. (1982). *Tārīkh 'ilāqat al-biqā'iyyn w al-sūriyyn (the History of the Relation Between the Bekaa Inhabitant and the Syrian).* Bekaa, Lebanon.

Hamadeh, S., Bistanji, G.N., Darwish, M.R., Abi Said, M. and Abi Ghanem, D. (2001). Economic sustainability of small ruminants production semi-arid areas of Lebanon. *Small Ruminant Research* 40:41-49.

Hamdan, K. (2005). Micro and Small Enterprises in Lebanon. Economic Research Forum (ERF). Research report series 0417. Cairo, Egypt: ERF.

Harvey, D. (2005). *A Brief History of Neoliberalism.* Oxford, UK: Oxford University Press.

Hourani, A. (1976). Ideologies of the Mountain and the City. In Owen, R. (ed.) (1976). *Essays on the Crisis in Lebanon*. London, UK: Ithaca Press, 33-41.

Hudson, R. (1999). The learning economy, the learning firm and the learning region: a sympathetic critique of the limits of learning. *European Urban and Regional Studies* 6:59-72.

Jansen, H., Morley, S., Kessler, G., Pineiro, V. and Sanchez, M. (2007). The impact of the Central America free trade agreement on the Central American textile Maquila Industry. International Food Policy Research (IFPRI) Discussion paper 00720. Washigton DC, USA:IFPRI.

Johnston, B.F. and Mellor, J.W. (1961). The role of agriculture in economic development. *American Economic Review 51(4):566-93*

Khalil, F. (1990). *Al al-'ašīrat dawlat al-mūjtama' al-maḥalī.* (*the Clans as the state of local society*. Beirut, Lebanon: dar al-fikr al-Lubnānī.

Khater, A.F. (2001). *Inventing Home. Emigration, Gender and the Middle Class in Lebanon 1870-1920*. Berkeley, USA: University of California Press.

Korf, B. and Oughton, L. (2006). Rethinking the European countryside: Can we learn from the South?. *Journal of Rural Studies* 22: 278-289.

Kuznets, S. (1955). Economic growth and income inequality. *American Economic Review* 45(1):1-28.

Labaki, B. (1984). *Introduction à l'Histoire Economique du Liban. Soie et Commerce Exterieur en Fin de Période Ottomane (1840-1914).* Beirut, Lebanon: Publication de l'Université Libanaise.

Labaki, B. (1993). L'Economie Politique du Liban Indépendant, 1943-1975. In Shehadi, N. and Haffar-Mills, D. (eds.) (1993). *Lebanon a History of Conflicts and Consensus*. London, UK: Tauris, 166-180.

Lachmann, R. (1990). Class formation without class struggle: an elite conflict theory of the transition to capitalism. *American Sociological Review* 55:398-414.

Lash, S. and Urry, J. (1994) *Economies of Signs and Space*. London, UK: Sage.

Leontief, W.W. (1951). Input-output economics. *Scientific American* October:15-21.

Leontief, W.W. [1966] (1986). *Input-output Economics*. New York USA: Oxford University Press.

Lofgren, H., Lee Harris, R., Robinson, S., Thomas, M., and El-Said, M. (2002). A Standard Computable General Equilibrium model in GAMS. Microcomputers in Policy Research 5, International Food Research Insitute (IFPRI). Washington DC, USA: IFPRI.

Lucke, B., Soto, B.G. and Zotti, J. (2007). Assessing Economic Fiscal Reforms in Lebanon: A dynamic CGE analysis with Debt Constraints. *Emerging Markets Finance and Trade* 43:1 35-63.

Makdessi, S. (2004). *Al-'ibrā min tajribat lubnān (On the Lebanese experience).* Beirut, Lebanon: Al-Nahar Publishers.

Makhoul, J. and Harrison, L. (2002). Development perspectives: views from rural Lebanon. *Development in Practic*e 12 (5): 613-623.

Mardsen T., Banks J. and Bristow G. (2000). Food supply chain approaches: exploring their role in rural development. *Sociologia Ruralis*, 40(4): 424-438.

Mas-colell, A., Whinston, M.D., and Green, J.R. (19959. *Microeconomic Theory. Oxford*, UK: Oxford University Press.

Michelsen, J. (2001). Recent development and political acceptance of organic farming in Europe. *Sociologia ruralis* 41(1): 3-20.

Ministry of Agriculture (2006).Agricultural Homogeneous Zones. Ministry of Agriculture (MOA) and FAO Project: Support to the Agricultural Census Report. Beirut, Lebanon: MOA.

Ministry of Agriculture (2007). The Lebanese agricultural Atlas. Ministry of Agriculture and FAO census project report. Beirut, Lebanon: MOA.

Ministry of Agriculture (2009). al-Istrātījīat al-Zirāiya (the Agriculture Strategy). Ministry of Agriculture. Beirut, Lebanon: MOA.

Ministry of Finance (2006). Fiscal reports 2005. Beirut, Lebanon: Ministry of Finance. Available online at www.finance.gov.lb (last consultation on March 1st 2011).

Minot, M., Chemingui, M.A., Thomas, M., Dewina, R. and Orden, D. (2010). *Trade Liberalization and Poverty in the Middle East and North Africa.* Washington DC, USA: IFPRI.

Moussawi, A. and Yazgi, S. (2005). The simplified plan for local development, Hermel. OMSAR Project, Lebanese Ministry for Administrative Reform. Beirut, Lebanon: OMSAR.

Murdoch, J. and Miele, M. (1999). "Back to nature": changing "worlds of production" in the food sector. *Sociologia Ruralis*, 394: 465-483.

Murdoch J., Mardsen, T., and Banks, J. (2000). Quality, nature, and embeddedness: some theoretical considerations in the context of food sector. *Economic Geography*, 76(2): 107-125.

Nahas, C. (2000). L'économie libanaise et ces déséquilibres. In Rougier, B. and Picard, E. (eds) *Le Liban Dix Ans Après la Guerre.* Numero special *Maghreb-Mashrek.* Paris, France: La Documentation Francaise.

Najem, T. (2000). *Lebanon's Renaissance, the Political Economy of Reconstruction.* London, UK: Garmer Publishing United.

O'Rayn, R. and Miller, S. (2003). The role of agriculture in poverty alleviation, income distribution and economic development: a CGE analysis for Chile. Paper presented at the Roles of Agriculture International Conference, 20-22 October 2003, Rome, Italy. Available online at ftp://ftp.fao.org/es/esa/roa/pdf/3_Poverty/Poverty_Chile2.pdf (Last consultation on March 8th, 2011).

Obeid, M. (2010). Searching for the 'ideal face of the state' in a Lebanese border town. *Journal of the Royal Anthropological Institute* 16:330-346.

Owen, R. (1976). The political economy of Grand Liban, 1920-70. In Owen, R. (ed.) (1976). *Essays on the Crisis in Lebanon*. London, UK: Ithaca Press, 23-32.

Owen, R. (ed.) (1976). *Essays on the Crisis in Lebanon*. London, UK: Ithaca Press.

Oya, C. (2001). Large- and middle-scale farmers in the groundnut sector in Senegal in the context of liberalization and structural adjustment. *Journal of Agrarian Changes* 1 (1): 124-163.

Pasinetti, L. (1981). *Structural Change and Economic Growth: a Theoretical Essay on the Dynamics of the Wealth of Nations.* Cambridge, UK: Cambridge University Press.

Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods*. London, UK: Sage.

Pingali, P. (2006). Agricultural Growth and Economic Development: A View Through the Globalization Lens. International Association of Agricultural Economists in its series 2006 Annual Meeting, August 12-18, 2006, Queensland, Australia: 25429.

Presidency of the Council of Minister PCM (2007). Economics Account of Lebanon 2005. Presidency of the council of ministers (PCM). Beirut, Lebanon: PCM.

Pyatt, G. and Round, J.(eds) (1985). *Social Accounting Matrices: a Basis for Planning.*Washington DC: USA: World Bank

Qbaysi H. (1986*). Tatawr Madīnat Sūr 1900-1975 (The development of the city of Tyre, 1900-1975).* Beirut, Lebanon: Al-Nahar Publishers.

Ray, R. (1998). Culture, intellectual property and territorial rural development. *Sociologia Ruralis*, 38(1): 3-20.

Ray, C. (2002). A mode of production for fragile economies: the territorial accumulation of forms of capital. *Journal of Rural Studies* 18: 225-231.

Renting, H., Mardsen, T. and Banks, J. (2003). Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and Planning 35*: 393-411.

Ritchie, J., and Lewis, J. (eds) (2007). *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London, UK: Sage.

Round, J.(2003). Constructing SAMs for development policy analysis: lessons learned and challenges ahead. *Economic System Research* 15(2):161-183.

Saba, P. (1976). The Creation of the Lebanese Economy – Economic Growth in The Nineteenth and Twentieth Centuries. In Owen, R. (ed.) (1976). *Essays on the Crisis in Lebanon*. London, UK: Ithaca Press, 1-22.

Saito, K. (1971). On the green revolution. *Developing Economy* 9 (1): 16-30.

Salami, H. (2006). Agricultural land productivity improvement and trade liberalization in Iran: A CGE Analysis. *Journal of Agricultural sciences and Technology* 8:93-106.

Salami, H., Alavalpati, J.R.R., Veeman, T.S. (1998). Effect of tecnica change in the Iranian agricultural sector: a computable general equilibirum analysis. *Journal of Economic Development* 23(2):205-222.

Salibi, A. (2006). Marketing Study for Table Grapes and Potatoes in Lebanon. Studies of the Ministry of Agriculture (MOA). Beirut, Lebanon:MOA.

Salih, F.(1973). Janūb Lubnān, Wāqiʿhu wa-Qadāyāhu (South Lebanon, its reality and Causes), Beirut, Lebnon: unknown Publisher.

Salti, N. and Chaaban, J. (2010). The poverty and equity implications of a rise in the value added tax. *Middle East Development Journal* 2(1):121-138.

Samuel, B., Thurlow, J., Diao, X., Kebba, A. and Ofwono, N. (2008). Agricultural Growth and Investment Options for Poverty Reduction in Uganda. International Food Policy Research (IFPRI) Discussion paper 00790. Washigton DC, USA:IFPRI.

Schneider, J. and Schneider P. (1976). *Culture and Political Economy in Western Sicily*. New York, USA: Academic Press.

Scoones, I. (1998). Sustainable Rural Livelihoods A Framework For Analysis. Institute of Development Study (IDS), working paper 72. Brighton, UK: IDS.

Seale, J., Regmi, A., and Bernstein, J. (2003) International Evidence on consumption Patterns. Economic Research Service of the United states Department of Agriculture (USDA) technical bulletin 1904. Washington Dc, USA: USDA.

Shehadi, N. and Haffar-Mills, D. (eds.) (1993). *Lebanon a History of Conflicts and Consensus.* London, UK: Tauris.

Shucksmith M. (2000). Endogenous development, social capital and social inclusion: perspectives from LEADER in the UK. *Sociologia Ruralis*, 40(2): 208-218.

Shucksmith M. (2004). Young people and social exclusion in rural areas. *Sociologia Ruralis*, 44(1): 43-59.

Stone, J.R.N.(1966). The social accounts from consumer point of view. *Review of Income of Wealth* 12(1):1-33.

Taha, G.F. (2006). šīʿ*at* Lubnān *al-ʿa*šīrat al- ḥzb w al-dawlat. *(the Chiites in Lebanon: the Clans the Party and the state).* Haret Hreik, Lebanon: The Sapiental Knowledge Institute.

Thiele, R., and Piazolo, D. (2002). Constructing a Social Accounting Matrix With a Distributional Focus – The Case of Bolivia. Kiel Institute of World Economics working paper 1094. Kiel, Germany: Kiel Institute of World Economics.

Thurlow, J. (2004) A dynamic Computable General Equilibrium (CGE) Model for South Africa: Extending the Static IFPRI Model. Trade and Industry Policy Strategies (TIPS) working paper 1-2004. Pretoria, South Africa: TIPS.

Tovey, H. (1997). Food, environmentalism and rural sociology: on the organic movement in Ireland. *Sociologia ruralis* 37(1): 21-37.

Traboulsi, F. (1999). *ṣilāt Bilā Waṣl, Mishāl Shī ḥā w al-īdūlūjiā al-Lubnānīā* (*Michel Chiha and the Lebanese Ideology).* Beirut, Lebanon: Riad El-Rayyes Books.

Traboulsi, F.(2007). *A History of Modern Lebanon*. London, UK: Pluto Press.

UNDP and MOSA (2008). *Poverty, Growth, and Income Distribution in Lebanon*. Beirut, Lebanon: UNDP.

UNDP, MOSA and CAS (2006a). *The National Survey of Household living Conditions 2004*. Beirut, Lebanon: UNDP.

UNDP, MOSA and CAS (2006b). *Mapping of Living Conditions in Lebanon between 1995 and 2004*. Beirut, Lebanon: UNDP.

Van der Mensbrugghe, D. (2005). LINKAGE Technical Reference Document: Version 6.0. Word Bank prospects. Unpublished. Available online at www.worldbank.org/prospects/linkagemodel (Last consultation on March 4th, 2011).

Van der Ploeg, J.D., Renting, H., Brunori, G., Knickel, K., Mannion J., Marsden, T., de Roest, K., Sevilla-Guzmán, E. and Ventura, F. (2000). Rural development: from practices and policies towards theory. *Sociologia Ruralis*, 40(4): 391-408.

Vos, R. and de Jong, N. (2003). Trade liberalization and poverty in Ecuador: a CGE Macro-simulation analysis. *Economic Systems Research* 15(2):211-232.

Wachter, S. (1987). *Etat, Décentralization et Territories*. L' Harmattan, Paris.

Walker, D.A. (2006). *Walrasian Economics*. Cambridge, Uk: Cambridge University Press.

Warr, P. (2010). Agriculture protection and poverty analysis in Indonesia: a general equilibrium analysis. In Anderson, K. and Martin, W. (eds). *Agricultural Price Distortions, Inequality and Poverty*. Washington DC, USA: World Bank.

Winter, S. (2010). The Shiites Of Lebanon under Ottoman Rule, 1516-1788. Cambridge, Uk: Cambridge University Press.

Yin, K. (2003). *Case study research: design and methods*. London, UK: Sage.

Yusuf, A. (2006). Constructing Indonesian Social Accounting Matrix for Distridbutional Analysis in the CGE Modeling Framework. Munich Personal RePEc Archive (MPRA) paper 1730. Munich, Germany: MPRA.

Zamir, M. (1985). *The Formation of Modern Lebanon*. London, UK: Croom Helm.

Zurayk, R. and Abdelrahman, S. (2008). *From Akkar to Amel. Lebanon's Slow Food Trail.* Beirut, Lebanon: Slow food Beirut.

Zurayk, R. and Abu Ghyda, T. (2009). The Lebanese Terroir: a challenge of quality. Paper presented at the UNESCO International Symposium on Localizing products: a sustainable approach for natural and local diversity in the south. 9th -11th June, 2001 Paris, France. Available online at http://www.mnhn.fr/colloque/localiserlesproduits/com.php (Last consultation on Mach 7th, 2011).

Zurayk, R. and Touma, R. (2006). Business for the poor: Healthy Basket a socially responsible company trading in organic produce in Lebanon and the middle East. Paper presented at The International Conference on Sharing Innovative Agribusiness Solutions. Jan 29th- Feb 2nd 2006, Cairo, Egypt. Available online at http://www.globalfoodchainpartnerships.org/cairo/presenters.html (Last consultation on March 8th , 2011).

Zurayk, R., el-Awar, F., Hamadeh, S., Talhouk, S., Sayegh, C., Chehab, A., and al-Shab, K. (2001). Using indigenous knowledge in land use investigations: a participatory study in a semi-arid mountainous region of Lebanon. *Agriculture, Ecosystems and Environment* 86:247-262.

ANNEX A:

The Social Accounting Matrix for Lebanon 2005

All figures are in Billions of LBP

Part 1: Sector of Activities

	AGR	AGIND	IND	CONS	ENW	TTCOM	SER	TRADE	ADMIN
CRL	65.494	249.984							
FRT	59.997	227.000					7.002		
INDCRP	29.013	140.000		4.990					
VEGT	33.006	90.000					7.000		
LIVES	23.000	495.000							
LIVESPR	4.004								
FISH	2.496								
FPR		29.004					10.000		
DAIRY		49.991					15.000		
FATOL		59.996					28.000		
PASTA		6.007					3.000		
SGCHS		107.997					50.000		
OTHER		35.002					28.000		
TABAC									
CIND	222.989	100.000	2996.000	2000.000	131.000	20.991	576.000	279.000	153.016
CCONS									
CENW	21.999	25.000	526.000	28.000	1368.000	1214.000	361.000	15.000	92.000
CTTCOM		8.002	25.000			889.000	903.000	439.000	24.000
CSER	34.000	33.000	135.000	156.000	19.000	459.000	514.000	518.000	1011.000
CAP		1013.733	956.640	1118.890	710.497	1456.000	4260.488	1922.367	
FARM	1262.809								
SELF		152.734	557.317	570.209		525.000	2658.473	1142.729	
HGSK		10.766	34.115	15.649	3.252	18.640	646.835	55.245	849.566
WHCL		56.000	179.806	59.481	17.287	201.434	1529.657	332.456	214.876
BLCL	182.915	168.795	534.790	316.838	45.955	82.935	893.100	790.358	284.827
ARMED									796.715
FGNLAB	264.279	14.000	44.322	502.943	0.000	0.000	398.445	109.845	
TOTAL	**2206.001**	**3072.011**	**5988.990**	**4773.000**	**2294.991**	**4867.000**	**12889.000**	**5604.000**	**3426.000**

Part 2.1: Agricultural commodities

	CRL	FRT	INDCRP	VEGT	LIVES	LIVESPR	FISH
AGR	94.001	804.000	103.000	625.000	303.000	221.000	57.000
TRNCSTDOM	10.542	212.800	2.860	118.770	6.220	80.440	64.780
TRNCSTEXP		60.800	19.830	11.050		7.570	2.360
TRNCSIMP	23.240	30.400	29.310	30.180	5.780	1.990	71.860
TAR		20.000	12.000	64.000		1.000	2.000
ROW	201.000	89.000	133.000	142.000	223.000	5.000	61.000
TOTAL	**328.783**	**1217.000**	**300.000**	**991.000**	**538.000**	**317.000**	**259.000**

Part 2.2: Agro-industrial commodities

	FRMT	FPR	DAIRY	FATOL	PASTA	SGCHS	ALBVRG	NALBVRG	OTHER	TABAC
AGIND	820.013	144.000	275.000	259.000	659.000	226.000	47.998	345.000	333.000	22.000
TRNCSTDOM	205.820	5.300	110.610	36.950	92.110	8.970	7.030	42.310	61.680	11.560
TRNCSTEXP	1.780	8.340	2.040	5.580	5.640	4.820	6.480	4.470	9.240	1.830
TRNCSIMP	23.400	13.360	107.340	24.470	18.250	9.210	14.490	1.220	27.080	111.590
TAR	4.987	57.000	32.000	11.000	21.000	26.000	23.000	3.000	19.000	237.000
ROW	92.000	141.000	262.000	149.000	123.000	151.000	55.000	9.000	126.000	183.000
TOTAL	**1148.000**	**369.000**	**788.990**	**486.000**	**919.000**	**426.000**	**153.998**	**405.000**	**576.000**	**566.980**

Part 2.3: Other commodities

	CIND	CCONS	CENW	CTTCOM	CSER	CTRADE	CADMIN
IND	6093.990						
CONS		4858.000					
ENW			1330.991				
TTCOM				4942.000			
SER					13427.000		
TRADE						6142.000	
ADMIN							3426.000
TRNCSTDOM	641.058		103.880				
TRNCSTEXP	675.850		0.790				
TRNCSIMP	1780.330		250.330				
TAR	1380.013		729.000				
ROW	8238.759		3209.009				
TOTAL	**18810.000**	**4858.000**	**5624.000**	**4942.000**	**13427.000**	**6142.000**	**3426.000**

Part 3: Factors of production

	CAP	FARM	SELF	HGSK	WHCL	BLCL	ARMED	FGNLAB
AKMD_1		75.332	36.733	3.065	23.427	105.627	12.423	
AKMD_2	6.867	33.105	45.493	8.650	14.340	95.324	42.239	
AKMD_3		15.888	34.989	3.065	12.091	49.218	19.877	
AKMD_4	19.568	26.434	55.897	12.259	17.156	24.663	37.270	
AKMD_5	5.317	14.987	22.971	15.324	9.592	20.545	22.362	
AKMD_6	5.785		22.655	12.259	16.761	12.736	19.877	
AKMD_7	52.726	11.871	16.213	6.130	19.185	5.296	14.908	
AKMD_8	20.118	5.416	12.469	12.259	14.948	4.175	4.969	
AKMD_9		7.058	19.193	6.130		1.065	4.969	
AKMD_10	31.483		6.577	6.130	9.845	3.528		
TRIP_1	7.501	2.732	32.288	6.130	14.264	81.936	12.423	
TRIP_2	10.377	3.551	26.394		11.838	46.133	4.969	
TRIP_3		11.820	11.702	3.065	12.307	23.812	4.969	
TRIP_4		4.837	14.969	12.259	29.210	33.299	4.969	
TRIP_5	5.713		15.876	15.324	12.091	16.250	7.454	
TRIP_6	36.815		23.985	6.130	12.307	4.091		

	CAP	FARM	SELF	HGSK	WHCL	BLCL	ARMED	FGNLAB
TRIP_7	7.647	7.179	19.802	3.065	9.845	6.052	9.939	
TRIP_8	11.628	6.916	12.922	15.324	16.761	7.996		
TRIP_9	23.530		25.125	39.842	14.300	10.166	2.485	
TRIP_10			7.195	21.453	7.384	1.764		
KZGB_1			1.145	3.065	2.461	12.633		
KZGB_2	8.786	4.730	6.098			1.065	2.485	
KZGB_3		20.786	4.964			11.681	2.485	
KZGB_4			4.084		2.208	9.049		
KZGB_5	13.829	6.492	7.937		11.451	19.131	2.485	
KZGB_6		24.815	4.584	6.130	9.592	21.323	2.485	
KZGB_7	14.678	15.805	11.372	9.194	2.461	14.317	9.939	
KZGB_8		13.693	9.563	9.194	2.461	16.346	4.969	
KZGB_9	19.587	23.303	31.376	8.650	4.923	10.490	14.908	
KZGB_10	155.259	16.837	30.803	26.625	48.042	16.354		
KSJB_1			1.480			2.820		
KSJB_2			0.757					
KSJB_3		6.815	1.879			7.390		
KSJB_4		5.797	10.760		7.868	12.571		
KSJB_5		14.338	13.899	2.449	19.298	28.018	3.972	
KSJB_6	24.913	2.150	38.653	2.449	7.182	25.373		
KSJB_7	21.889	7.206	65.888	14.849	13.396	19.725		
KSJB_8	55.561	8.505	97.515	18.830	48.377	36.137	9.929	
KSJB_9	132.617	3.474	101.455	21.610	44.264	15.698	7.943	
KSJB_10	910.056	19.689	390.138	68.780	100.077	50.467	3.972	
MATN_1			1.698			1.342		
MATN_2			1.182			12.720		
MATN_3			5.587		3.934	16.122		
MATN_4			8.360		7.352	33.017	1.986	
MATN_5		1.954	8.882	4.899	13.307	34.822	1.986	
MATN_6	22.763		29.219	11.481	28.932	38.049	15.886	
MATN_7	34.316	2.302	38.664	9.482	37.647	51.643	11.915	
MATN_8	118.169	13.608	67.310	21.279	52.480	57.411	9.929	
MATN_9	120.181	6.593	81.767	17.629	73.283	43.565	15.886	
MATN_10	833.108		248.979	76.839	88.852	32.400	5.957	
BRT_1						1.448		
BRT_2			10.322			7.016		
BRT_3			20.768		6.730	14.565		
BRT_4			12.910		7.891	15.696		
BRT_5			42.776	2.639	12.529	25.774		
BRT_6			26.411	2.639	31.427	38.654		
BRT_7	106.489		79.347	21.110	29.266	40.560	4.278	
BRT_8	267.627		114.164	23.280	49.688	56.572	6.418	
BRT_9	235.145		234.534	60.222	123.062	68.524	4.278	
BRT_10	2461.343		671.994	196.990	137.875	115.740	8.557	
BBDA_1			11.079		5.557	52.232	1.986	
BBDA_2	15.070		17.869	7.348	14.707	46.514		
BBDA_3	5.423		45.967	6.583	19.328	90.865	9.929	
BBDA_4	32.091		78.914	9.798	36.977	50.458	5.957	
BBDA_5	10.998	1.899	71.858	9.798	45.636	80.851	21.843	
BBDA_6	63.826	4.393	70.826	22.045	50.055	71.228	11.915	
BBDA_7	88.891		105.510	29.876	75.023	85.633	19.858	

	CAP	FARM	SELF	HGSK	WHCL	BLCL	ARMED	FGNLAB
BBDA_8	18.466		89.894	40.874	67.298	53.972	21.843	
BBDA_9	114.957		139.995	53.452	80.023	40.152	7.943	
BBDA_10	487.581		139.484	77.169	54.456	20.877	3.972	
CHAL_1			6.679		1.795	19.687		
CHAL_2	6.187	4.722	23.063	2.449	4.108	47.618	1.986	
CHAL_3	15.822		28.472	8.973	5.901	50.803	1.986	
CHAL_4	19.087	3.070	37.827	4.899	25.921	36.037	7.943	
CHAL_5	83.823	5.451	69.870	16.276	18.923	44.499	7.943	
CHAL_6	108.010	6.778	56.000	24.494	32.899	49.973	11.915	
CHAL_7	148.985	2.576	48.879	9.798	52.395	25.380	15.886	
CHAL_8	183.207	8.524	49.990	18.005	40.736	45.481	27.801	
CHAL_9	209.679	10.690	92.181	31.936	68.645	38.087	13.900	
CHAL_10	518.594	11.005	134.869	37.165	76.299	21.699	7.943	
SDJZ_1		1.320	14.456	2.086	8.229	60.359	1.691	
SDJZ_2	8.485		34.188	2.086	11.726	58.577		
SDJZ_3	2.952	4.239	36.540	6.258	17.619	46.263	5.073	
SDJZ_4	3.108	2.233	21.447	1.383	6.701	15.895	3.382	
SDJZ_5	17.562	4.823	26.826	8.343	16.114	23.489	5.073	
SDJZ_6	3.977	5.717	23.577	6.258	19.148	11.896	1.691	
SDJZ_7			21.126	16.893	19.515	12.439	5.073	
SDJZ_8	14.458	11.356	32.788	10.059	16.901	7.683	3.382	
SDJZ_9	21.338	8.791	45.037	9.777	8.229	13.439	3.382	
SDJZ_10	140.062		76.135	18.121	16.433	16.263	3.382	
NABA_1		1.058	0.415					
NABA_2		0.823	5.524		3.309	8.674		
NABA_3	3.783	2.460	10.596	1.467		4.115		
NABA_4		5.270	5.282		1.178	7.971	2.378	
NABA_5	8.099		8.439	1.467	4.590	9.374		
NABA_6	3.452	7.826	31.470	4.400	3.533	10.540	1.189	
NABA_7	3.545	5.359	43.731	10.266	12.956	8.926	4.756	
NABA_8	14.419	1.563	33.264	6.505	11.536	13.091	7.134	
NABA_9	33.474	3.660	29.936	14.405	15.173	7.520	2.378	
NABA_10	41.712		123.582	39.598	17.425	2.332		
SOUR_1			10.425			16.855		
SOUR_2		7.376	15.016		3.350	16.008		
SOUR_3	5.576	16.073	13.393		11.579	18.681	1.691	
SOUR_4		18.760	20.530	2.086	9.707	13.894	1.691	
SOUR_5	10.452	13.684	15.503	12.515	8.207	12.021	3.382	
SOUR_6		9.262	25.956	8.343	9.732	8.362	3.382	
SOUR_7	4.946	10.656	17.098	12.515	16.167	8.624		
SOUR_8	33.479	11.692	32.581	11.863	11.726	13.209		
SOUR_9	22.095	4.436	45.030	12.145	8.379	4.713		
SOUR_10	20.614	8.492	46.992	6.258	1.503	4.470		
BJMR_1		2.700	0.353			2.602		
BJMR_2		4.003	4.879		2.235	4.840		
BJMR_3	14.123	8.376	7.096			7.831		
BJMR_4	4.276	13.897	14.209	1.467	4.590	9.810		
BJMR_5	12.244	20.041	16.347	1.467	3.412	7.172		
BJMR_6	10.665	14.561	7.836	2.933	9.422	5.589	3.567	
BJMR_7	17.672	13.634	32.309	1.467	7.481	5.040	3.567	
BJMR_8	29.324	7.564	14.325	4.400	5.889	7.466	1.189	
BJMR_9	11.070	6.491	15.173	4.400	7.067	5.261	1.189	
BJMR_10	20.491	6.995	27.598	1.467	5.889	0.644		

	CAP	FARM	SELF	HGSK	WHCL	BLCL	ARMED	FGNLAB
WBRA_1		2.954	0.684	1.322	2.031	13.285		
WBRA_2	3.033	9.227	5.376	1.322	0.969	14.154	2.144	
WBRA_3	3.443	11.650	6.120		4.063	9.854	2.144	
WBRA_4	16.778	11.065	7.463		3.093	3.868	9.648	
WBRA_5	4.520	7.651	10.385	3.967	8.294	16.427	12.865	
WBRA_6	11.046	7.102	7.913	3.967	9.526	6.177	7.504	
WBRA_7	32.752	10.301	9.731	5.289	9.449	2.798	8.576	
WBRA_8	78.473	9.039	14.872	16.721	11.480	10.919	12.865	
WBRA_9	62.132	39.329	13.453	7.934	8.387	9.868	7.504	
WBRA_10	89.075	12.894	11.996	9.257	5.310	2.103	6.432	
ZHLE_1		5.079	0.918		1.062	16.824		
ZHLE_2		7.839	2.902			6.613		
ZHLE_3	9.234	13.491	2.411	3.967	2.202	8.572	2.144	
ZHLE_4		4.106	6.631		2.015	8.288		
ZHLE_5	19.107	23.900	7.880	2.645	6.154	6.390	4.288	
ZHLE_6	3.563	6.163	14.795	4.876	5.217	5.133	6.432	
ZHLE_7	13.561	16.933	4.981	3.554	10.402	9.661	5.360	
ZHLE_8	30.446	29.434	11.109	3.967	9.263	7.758	5.360	
ZHLE_9	56.333	8.593	20.316	11.666	20.350	3.409	3.216	
ZHLE_10	228.852	38.733	43.946	16.097	21.006	4.176	10.720	
HERBA_1		16.985	1.872	2.645		14.400		
HERBA_2		23.083	5.496		1.062	8.770		
HERBA_3	4.193	36.564	6.158		4.248	9.133	4.288	
HERBA_4	12.153	36.444	8.365	2.645	4.139	11.942	3.216	
HERBA_5	16.737	28.432	8.443		3.186	5.075	9.648	
HERBA_6	7.315	29.673	11.746	6.612	3.186	5.548	10.720	
HERBA_7	21.997	22.692	8.197	17.191	4.139	3.234	5.360	
HERBA_8	14.478	7.235	9.737	1.322	4.248	1.522	2.144	
HERBA_9	33.914	11.443	6.867	3.967	4.139	0.725	1.072	
HERBA_10	29.440	4.463	6.793	1.322	3.077		2.144	
GOV	2166.499							
ROW								1333.833
TOTAL	**11438.615**	**1262.809**	**5606.462**	**1634.068**	**2590.997**	**3300.514**	**796.715**	**1333.833**

Part 4: Trade margins

	TRNCSTDOM	IMP	EXP
CTRADE	1823.690	828.470	2573.830
TOTAL	**1823.690**	**828.470**	**2573.830**

Part 5.1: Akka Mennieh/ Denniehr households deciles

	AKMD_1	AKMD_2	AKMD_3	AKMD_4	AKMD_5	AKMD_6	AKMD_7	AKMD_8	AKMD_9	AKMD_10
CRL	3.301	1.889	0.900	0.893	0.517	0.238	0.213	0.113	0.205	0.083
FRT	14.198	12.957	6.649	8.418	3.016	3.636	1.809	1.160	1.421	1.159
INDCRP	2.208	1.308	0.623	0.619	0.358	0.165	0.145	0.078	0.142	0.058
VEGT	33.316	22.596	14.938	12.486	7.176	4.621	3.266	1.716	1.070	0.856
LIVESPR	5.351	6.336	3.681	4.181	1.948	1.836	1.483	0.618	0.462	0.444
FISH	8.579	4.840	2.956	2.608	1.646	1.237	0.702	0.350	0.549	0.365
FRMT	20.769	24.591	14.285	16.228	7.562	7.127	5.755	2.400	1.795	1.723
FPR	6.827	5.374	3.242	2.977	2.349	1.209	1.150	1.012	0.949	1.374
DAIRY	16.326	13.348	7.416	8.440	5.534	4.045	2.059	1.494	0.839	1.149
FATOL	13.572	14.000	8.037	7.193	8.341	3.914	2.155	2.974	2.411	0.532
PASTA	40.965	27.903	12.542	14.228	7.321	6.211	2.576	1.794	1.073	0.809
SGCHS	8.435	6.666	3.145	3.541	2.221	1.542	0.697	0.425	0.493	0.150
ALBVRG	0.401	0.252	0.095	0.166	0.287	0.048	0.204	0.326	0.083	
NALBVRG	8.984	7.248	4.565	4.264	2.366	1.782	1.417	0.876	0.841	0.384
OTHER	13.259	10.436	6.296	5.782	4.562	2.348	2.233	1.966	1.842	2.668
TABAC	10.425	8.462	3.470	4.059	2.598	1.733	0.288	0.727	0.523	0.283
CIND	83.274	96.147	63.148	64.287	39.117	39.964	23.582	15.035	10.290	36.109
CENW	52.554	43.872	27.012	26.015	16.318	11.064	8.397	5.221	3.033	5.539
CTTCOM	15.954	17.995	10.035	14.829	8.525	9.093	7.706	3.047	2.551	3.058
CSER	117.211	108.048	81.302	80.597	50.015	40.229	29.861	15.608	11.009	10.381
YTAX	20.794	24.175	13.542	18.944	10.915	10.229	12.998	7.829	3.561	6.537
S-I	5.405	6.334	6.839	7.586	8.602	9.353	54.831	37.566	15.117	30.327
TOTAL	**502.108**	**464.777**	**294.718**	**308.341**	**191.294**	**161.624**	**163.527**	**102.335**	**60.259**	**103.988**

Part 5.2: Tripoli households deciles

	TRIP_1	TRIP_2	TRIP_3	TRIP_4	TRIP_5	TRIP_6	TRIP_7	TRIP_8	TRIP_9	TRIP_10
CRL	0.686	0.340	0.253	0.182	0.156	0.101	0.140	0.113	0.185	0.058
FRT	6.126	4.400	3.285	2.563	2.159	1.847	1.674	1.337	2.992	1.209
INDCRP	0.475	0.235	0.175	0.126	0.108	0.070	0.097	0.078	0.128	0.040
VEGT	9.855	7.007	3.782	3.462	2.989	2.028	2.317	1.595	3.894	1.051
LIVESPR	2.001	1.687	1.128	1.323	1.180	0.613	0.685	0.401	1.547	0.440
FISH	1.862	0.898	0.854	1.013	0.399	0.315	0.280	0.386	1.363	0.151
FRMT	7.764	6.549	4.377	5.135	4.580	2.379	2.658	1.558	6.003	1.707
FPR	3.560	2.107	1.428	1.405	1.213	0.779	0.834	0.801	1.154	0.872
DAIRY	7.729	8.011	5.299	5.295	3.347	2.095	3.408	2.349	4.306	1.604
FATOL	2.781	1.825	1.073	0.922	1.141	1.409	0.435	0.959	1.651	0.693
PASTA	10.697	7.265	4.649	5.406	3.540	2.343	3.293	1.750	4.898	1.226
SGCHS	1.782	0.925	0.530	0.665	0.396	0.403	0.295	0.215	0.285	0.271
ALBVRG	0.178	0.106	0.027	0.069	0.006	0.064		0.010		0.718
NALBVRG	3.256	1.966	0.894	1.083	0.946	0.726	1.053	0.405	1.335	0.457
OTHER	6.913	4.092	2.773	2.729	2.356	1.512	1.619	1.556	2.242	1.694
TABAC	9.655	8.556	3.531	5.581	3.432	3.126	2.889	1.583	2.768	0.371
CIND	28.615	25.408	15.661	15.940	27.060	8.768	14.836	13.298	58.471	20.139
CENW	16.328	10.675	7.149	7.535	6.038	3.948	4.731	4.631	11.022	3.767
CTTCOM	10.827	7.988	3.960	9.408	5.066	5.865	6.136	5.317	16.108	5.741
CSER	71.926	47.582	32.230	50.677	48.388	28.367	37.770	30.566	80.044	31.262
YTAX	17.551	11.324	6.343	10.755	8.257	9.463	6.399	7.340	13.111	4.293
S-I	4.703	6.114	6.784	8.329	9.234	24.233	12.361	24.772	19.020	25.616
TOTAL	**225.270**	**165.060**	**106.185**	**139.603**	**131.991**	**100.454**	**103.910**	**101.020**	**232.527**	**103.380**

Part 5.3: Koura/Zgharta/Batroun/Bsharre households deciles

	KZGB_1	KZGB_2	KZGB_3	KZGB_4	KZGB_5	KZGB_6	KZGB_7	KZGB_8	KZGB_9	KZGB_10
CRL	0.101	0.137	0.167	0.096	0.297	0.211	0.322	0.117	0.176	0.278
FRT	1.325	1.484	1.495	1.511	3.566	3.438	3.454	1.711	3.278	6.996
INDCRP	0.070	0.095	0.115	0.066	0.205	0.146	0.223	0.081	0.122	0.192
VEGT	1.768	2.312	2.084	1.768	5.661	3.549	4.741	2.298	3.905	6.229
LIVESPR	0.324	0.612	0.747	0.537	1.674	1.104	1.264	0.625	1.313	2.480
FISH	0.381	0.468	0.294	0.419	0.906	0.556	0.550	0.782	1.395	5.822
FRMT	1.256	2.373	2.901	2.083	6.495	4.285	4.907	2.425	5.097	9.626
FPR	1.049	0.997	0.705	0.754	1.348	0.946	1.011	1.055	1.275	1.761
DAIRY	1.776	1.409	2.056	1.807	5.254	3.060	4.121	2.694	3.385	5.228
FATOL	0.552	0.822	0.535	0.954	3.044	2.542	1.353	0.779	1.511	2.594
PASTA	2.324	2.622	3.249	1.868	5.040	3.296	4.394	1.682	4.400	5.091
SGCHS	0.461	0.605	0.530	0.452	1.010	0.672	0.851	0.336	1.271	1.779
ALBVRG	0.028	0.129	0.133	0.164	1.051	0.210	0.527	0.986	0.378	1.707
NALBVRG	0.566	0.466	0.896	0.556	1.302	0.790	0.927	0.576	1.329	3.184
OTHER	2.036	1.937	1.370	1.463	2.617	1.837	1.963	2.049	2.476	3.421
TABAC	1.275	0.900	3.712	0.985	3.166	1.854	2.406	1.034	2.169	4.416
CIND	7.191	7.993	7.032	8.051	20.137	14.647	25.837	16.290	33.664	150.595
CENW	2.235	3.423	3.852	2.936	7.612	6.141	10.086	4.450	8.029	20.379
CTTCOM	3.186	2.770	6.838	3.169	9.738	7.545	17.497	9.129	16.126	36.316
CSER	7.408	9.590	20.871	14.432	27.908	30.292	39.967	25.744	44.562	117.034
YTAX	2.192	2.093	2.172	1.742	6.227	5.010	7.036	4.830	10.213	31.467
S-I	7.725	8.144	8.948	9.516	11.178	10.682	13.607	11.789	20.062	28.990
TOTAL	**45.229**	**51.381**	**70.702**	**55.329**	**125.436**	**102.813**	**147.044**	**91.462**	**166.136**	**445.585**

Part 5.4: Keserwan/Jbeil households deciles

	KSJB_1	KSJB_2	KSJB_3	KSJB_4	KSJB_5	KSJB_6	KSJB_7	KSJB_8	KSJB_9	KSJB_10
CRL	0.005	0.004	0.054	0.130	0.164	0.170	0.218	0.402	0.338	0.630
FRT	0.173	0.199	1.462	3.304	4.248	4.393	5.972	9.555	7.935	24.322
INDCRP	0.004	0.003	0.037	0.090	0.114	0.118	0.151	0.278	0.234	0.436
VEGT	0.073	0.140	0.840	2.263	2.406	3.179	3.492	7.189	6.285	14.320
LIVESPR	0.057	0.092	0.353	1.107	1.310	1.519	2.150	3.994	3.016	7.689
FISH	0.027	0.150	0.586	0.714	1.900	2.066	3.362	3.870	2.047	15.048
FRMT	0.221	0.358	1.370	4.294	5.084	5.896	8.344	15.501	11.705	29.840
FPR	0.167	0.538	0.593	1.165	1.250	1.296	1.549	2.328	1.780	3.231
DAIRY	0.041	0.286	1.302	3.046	4.025	4.595	5.460	10.021	7.844	15.775
FATOL		0.108	0.780	1.667	2.165	2.460	3.064	3.636	1.827	4.159
PASTA	0.108	0.271	1.318	2.691	3.659	3.771	4.715	9.437	5.550	17.224
SGCHS	0.061	0.029	0.086	0.856	0.514	0.986	1.669	2.307	1.807	4.684
ALBVRG	0.058		0.027	1.140	2.411	1.514	3.484	5.565	3.356	11.375
NALBVRG	0.033	0.096	0.284	0.740	0.951	0.986	1.310	3.313	2.667	10.993
OTHER	0.325	1.044	1.152	2.262	2.428	2.518	3.008	4.522	3.457	6.274
TABAC	0.005	0.070	0.165	0.417	0.636	2.055	1.225	2.442	2.805	7.456
CIND	0.253	0.689	3.954	11.322	14.094	22.605	29.130	64.700	53.476	366.602
CENW	0.239	0.361	2.091	5.182	8.371	11.961	13.085	24.651	26.431	72.376
CTTCOM	0.108	0.483	1.793	4.508	10.114	13.364	20.814	38.917	41.799	144.497
CSER	0.395	0.677	6.034	19.671	29.575	41.689	59.996	135.941	147.559	508.510
YTAX	0.488	0.086	1.053	3.543	7.681	11.194	15.416	30.248	36.748	173.014
S-I	5.638	7.143	6.678	9.467	8.780	10.535	11.768	13.889	20.706	421.302
TOTAL	**8.479**	**12.827**	**32.012**	**79.579**	**111.880**	**148.870**	**199.382**	**392.706**	**389.372**	**1859.757**

Part 5.5: Maten households deciles

	MATN_1	MATN_2	MATN_3	MATN_4	MATN_5	MATN_6	MATN_7	MATN_8	MATN_9	MATN_10
CRL	0.022	0.030	0.080	0.121	0.178	0.327	0.464	0.454	0.571	0.839
FRT	0.339	0.430	1.199	1.641	3.197	4.954	7.101	10.267	13.690	21.481
INDCRP	0.015	0.021	0.055	0.084	0.124	0.226	0.321	0.314	0.395	0.581
VEGT	0.245	0.573	2.072	2.381	3.613	5.376	7.874	9.921	11.894	15.234
LIVESPR	0.060	0.177	0.404	0.564	1.077	1.627	2.325	3.273	4.093	5.523
FISH	0.141	0.176	0.100	0.360	0.635	1.396	2.660	3.300	5.439	10.148
FRMT	0.234	0.687	1.570	2.190	4.180	6.313	9.025	12.702	15.884	21.436
FPR	0.209	0.301	0.821	1.047	1.389	1.965	2.496	2.797	2.880	3.426
DAIRY	0.280	0.264	1.404	2.319	3.346	4.137	5.987	8.002	10.421	14.021
FATOL	0.138	0.194	0.436	1.182	2.193	2.974	3.486	7.011	6.055	9.660
PASTA	0.611	0.835	1.614	2.687	4.043	5.865	8.492	9.228	11.223	12.723
SGCHS	0.099	0.068	0.221	0.434	0.717	1.256	2.034	2.081	2.423	4.168
ALBVRG		0.050	0.014	0.075	0.165	0.487	1.874	2.959	4.898	8.853
NALBVRG	0.121	0.290	0.797	1.219	1.789	2.763	4.414	4.587	5.734	7.715
OTHER	0.405	0.585	1.595	2.033	2.699	3.817	4.847	5.433	5.593	6.655
TABAC	0.142	0.013	0.604	0.798	1.275	1.898	2.443	5.121	6.646	6.082
CIND	2.599	5.270	10.801	14.403	32.622	60.636	78.542	93.442	126.334	332.155
CENW	0.907	1.458	3.742	6.453	10.202	15.449	19.612	26.859	28.199	51.574
CTTCOM	0.158	0.300	1.581	6.988	10.786	17.134	27.824	38.460	50.780	84.440
CSER	2.537	4.930	12.240	24.316	35.343	67.281	90.257	141.959	168.565	294.366
YTAX	0.345	1.579	2.912	5.759	7.256	16.618	20.858	37.088	40.010	146.059
S-I	5.175	6.110	6.493	7.746	9.574	10.105	11.279	13.334	16.151	451.365
TOTAL	**14.782**	**24.341**	**50.755**	**84.800**	**136.403**	**232.604**	**314.215**	**438.592**	**537.878**	**1508.504**

Part 5.6: Beirut households deciles

	BRT_1	BRT_2	BRT_3	BRT_4	BRT_5	BRT_6	BRT_7	BRT_8	BRT_9	BRT_10
CRL	0.013	0.111	0.153	0.255	0.282	0.332	0.416	0.541	0.893	2.487
FRT	0.175	1.422	3.019	3.399	5.816	7.643	8.675	14.884	27.327	55.685
INDCRP	0.009	0.077	0.106	0.177	0.195	0.230	0.288	0.374	0.618	1.722
VEGT	0.132	2.606	3.447	3.643	6.420	9.020	9.917	14.508	22.835	33.766
LIVESPR	0.042	0.714	1.105	1.117	1.819	3.219	3.130	6.253	9.565	17.207
FISH		0.278	0.314	0.581	0.628	1.578	3.274	3.654	6.095	22.764
FRMT	0.161	2.770	4.288	4.333	7.061	12.495	12.148	24.269	37.122	66.778
FPR	0.197	0.965	1.259	1.218	1.894	2.310	2.282	3.099	4.557	6.054
DAIRY	0.337	1.945	3.106	3.032	5.057	6.094	8.831	13.057	23.474	36.461
FATOL	0.035	0.945	1.196	2.113	1.418	2.428	2.687	7.941	9.345	42.214
PASTA	0.187	2.530	4.825	4.271	7.796	10.131	10.742	15.867	23.344	41.608
SGCHS	0.033	0.702	0.982	1.096	1.554	2.552	2.201	3.821	6.682	10.874
ALBVRG		2.046	0.504	0.816	0.501	2.556	1.274	3.277	8.023	22.088
NALBVRG	0.055	0.973	1.633	1.639	3.526	5.096	4.780	8.165	13.510	27.159
OTHER	0.382	1.874	2.446	2.366	3.679	4.486	4.433	6.018	8.850	11.758
TABAC	0.171	2.771	4.363	3.843	5.768	10.781	11.280	10.882	17.935	29.363
CIND	1.140	9.609	12.173	15.139	31.427	42.453	64.257	96.612	164.018	627.490
CENW	0.255	2.226	4.654	4.202	7.597	13.521	13.987	21.789	41.616	99.056
CTTCOM	0.039	1.935	5.160	6.820	11.837	20.378	23.105	39.072	76.706	175.951
CSER	0.943	13.966	24.080	23.808	68.077	95.552	96.159	172.111	366.018	1000.683
YTAX	0.164	1.969	4.777	4.145	9.507	11.258	31.917	58.798	82.421	407.980
S-I	3.826	9.496	7.771	9.288	11.227	11.109	12.660	30.013	17.727	1577.557
TOTAL	**8.296**	**61.930**	**91.361**	**97.301**	**193.086**	**275.222**	**328.443**	**555.005**	**968.681**	**4316.705**

Part 5.7: Baabda households deciles

	BBDA_1	BBDA_2	BBDA_3	BBDA_4	BBDA_5	BBDA_6	BBDA_7	BBDA_8	BBDA_9	BBDA_10
CRL	0.356	0.299	0.587	0.633	0.746	0.500	1.079	0.399	0.529	0.525
FRT	1.955	3.120	7.394	8.069	9.216	9.964	14.817	14.095	16.466	16.432
INDCRP	0.247	0.207	0.406	0.438	0.516	0.346	0.747	0.276	0.366	0.364
VEGT	5.938	6.727	13.016	12.634	12.376	12.706	16.585	12.574	13.533	11.615
LIVESPR	1.738	2.556	4.664	4.269	4.939	5.280	6.595	5.076	5.922	4.878
FISH	1.222	0.741	0.854	2.732	3.668	2.630	4.061	4.776	9.123	6.509
FRMT	6.746	9.919	18.102	16.566	19.167	20.491	25.594	19.698	22.985	18.932
FPR	1.812	2.274	3.277	3.356	3.504	3.241	4.186	3.225	3.082	3.066
DAIRY	5.621	6.282	11.463	11.050	12.446	13.688	15.908	14.274	16.050	13.402
FATOL	0.923	1.273	3.646	3.308	3.496	4.584	6.295	9.246	9.878	6.389
PASTA	8.375	8.212	14.795	12.504	12.570	12.428	16.462	13.111	13.326	13.279
SGCHS	0.281	0.612	1.388	1.597	1.455	1.563	2.517	2.679	2.086	3.959
ALBVRG				0.023	0.021	0.005	0.805	0.032	1.963	1.220
NALBVRG	2.181	3.585	6.394	6.066	6.665	7.871	9.588	8.673	8.543	7.759
OTHER	3.519	4.416	6.365	6.518	6.806	6.295	8.130	6.264	5.985	5.954
TABAC	6.416	6.943	13.678	14.441	12.423	13.229	16.288	11.463	9.155	6.517
CIND	15.093	24.582	52.603	47.923	55.642	72.257	98.942	111.920	155.867	203.780
CENW	8.522	11.605	19.519	19.877	25.021	25.866	40.432	25.727	34.714	33.033
CTTCOM	3.382	9.239	20.557	28.580	28.423	40.113	57.444	49.155	59.228	73.204
CSER	40.385	67.391	114.433	125.360	162.413	158.253	235.441	201.126	235.646	398.155
YTAX	8.046	11.528	20.225	24.325	27.367	32.922	45.970	33.200	49.574	88.982
S-I	5.093	6.373	7.999	8.233	9.303	10.761	12.302	13.619	17.581	31.281
TOTAL	**127.851**	**187.884**	**341.365**	**358.502**	**418.183**	**454.993**	**640.188**	**560.608**	**691.602**	**949.235**

Part 5.8: Shouf/Aley households deciles

	CHAL_1	CHAL_2	CHAL_3	CHAL_4	CHAL_5	CHAL_6	CHAL_7	CHAL_8	CHAL_9	CHAL_10
CRL	0.109	0.251	0.145	0.307	0.357	0.521	0.363	0.804	0.475	0.459
FRT	1.218	3.798	4.531	4.672	7.230	9.491	9.198	14.397	13.822	15.733
INDCRP	0.076	0.174	0.101	0.212	0.247	0.361	0.251	0.557	0.329	0.318
VEGT	2.669	6.790	5.247	5.235	8.293	9.384	9.527	10.070	10.718	10.404
LIVESPR	0.676	1.977	2.058	2.330	3.140	4.049	4.816	4.474	4.987	5.153
FISH	0.141	1.404	1.331	1.539	2.908	2.686	1.758	2.483	3.759	4.689
FRMT	2.622	7.673	7.989	9.043	12.187	15.715	18.689	17.364	19.355	19.998
FPR	1.128	2.306	2.149	2.115	2.874	2.815	2.794	2.841	2.818	2.668
DAIRY	1.738	5.085	4.786	4.965	7.268	10.270	9.395	10.793	10.956	10.171
FATOL	0.178	1.740	1.396	1.576	3.285	6.030	5.741	6.419	9.604	20.676
PASTA	3.863	7.720	7.509	7.128	9.694	11.808	9.578	11.317	12.677	11.422
SGCHS	0.340	1.194	1.219	1.104	1.804	2.320	2.092	2.906	3.046	3.628
ALBVRG	0.023	0.018	0.021	0.369	2.846	2.053	1.672	0.505	2.432	4.562
NALBVRG	0.909	2.536	2.565	2.097	4.208	5.182	4.801	6.191	6.382	6.680
OTHER	2.190	4.479	4.174	4.107	5.583	5.467	5.427	5.518	5.472	5.182
TABAC	1.034	3.492	2.718	4.228	6.515	8.088	5.660	6.619	6.413	5.872
CIND	8.070	30.253	37.076	42.729	74.267	75.963	84.535	116.026	158.051	253.350
CENW	4.706	12.238	11.880	12.491	22.277	24.934	25.518	28.744	35.545	37.118
CTTCOM	2.143	7.542	10.346	14.421	29.665	38.390	41.555	47.305	66.975	72.313
CSER	22.328	67.586	66.400	70.643	97.204	127.613	127.669	130.706	186.416	283.617
YTAX	3.198	9.700	12.714	14.958	27.407	32.172	34.219	41.476	51.607	90.462
S-I	3.951	5.784	6.691	7.520	8.902	11.068	12.620	13.921	17.457	107.832
TOTAL	**63.310**	**183.740**	**193.046**	**213.789**	**338.161**	**406.380**	**417.878**	**481.436**	**629.296**	**972.307**

Part 5.9: Jezzine/Saida households deciles

	SDJZ_1	SDJZ_2	SDJZ_3	SDJZ_4	SDJZ_5	SDJZ_6	SDJZ_7	SDJZ_8	SDJZ_9	SDJZ_10
CRL	0.255	0.313	0.293	0.133	0.183	0.171	0.134	0.207	0.160	0.183
FRT	3.038	4.194	3.887	1.768	2.563	2.308	2.368	2.360	2.460	3.586
INDCRP	0.176	0.217	0.203	0.092	0.127	0.119	0.093	0.143	0.111	0.127
VEGT	6.612	8.477	7.094	3.579	4.097	3.261	2.856	3.067	3.016	3.718
LIVESPR	2.317	3.257	2.884	1.426	1.683	1.271	1.284	1.457	1.112	1.674
FISH	1.143	1.708	1.664	1.140	0.995	0.802	0.627	0.719	1.110	1.746
FRMT	8.991	12.640	11.193	5.533	6.531	4.931	4.984	5.653	4.317	6.499
FPR	2.155	2.618	2.133	1.268	1.474	1.122	1.111	1.235	1.042	1.168
DAIRY	4.439	6.450	5.435	2.639	3.245	2.935	2.775	3.219	3.308	3.853
FATOL	0.901	2.127	1.846	1.216	1.304	0.859	0.743	1.620	1.033	1.046
PASTA	9.125	11.110	7.279	4.005	4.532	3.335	3.135	3.016	2.709	4.263
SGCHS	0.931	1.376	1.069	0.570	0.607	0.401	0.571	0.704	0.352	0.921
ALBVRG		0.046	0.101		0.031	0.019	0.017	0.129		
NALBVRG	1.247	2.192	2.169	1.235	1.358	1.102	1.218	1.663	1.430	2.030
OTHER	4.185	5.085	4.143	2.462	2.863	2.180	2.158	2.399	2.023	2.268
TABAC	4.027	5.746	4.559	2.527	2.657	2.399	2.210	2.108	2.520	2.136
CIND	19.427	38.762	34.012	18.272	22.034	18.297	17.689	29.887	26.107	120.527
CENW	9.761	15.055	11.905	7.880	10.669	10.544	8.340	11.177	9.270	12.245
CTTCOM	5.650	13.267	15.269	8.213	10.780	8.230	8.732	13.384	12.619	21.863
CSER	36.203	60.618	49.059	29.908	40.430	36.071	36.032	45.066	49.161	121.626
YTAX	9.860	13.067	13.026	5.896	11.062	7.557	8.523	9.684	11.493	30.707
S-I	4.489	6.238	7.207	7.591	8.199	9.718	10.462	12.871	14.945	30.863
TOTAL	**134.932**	**214.563**	**186.430**	**107.353**	**137.424**	**117.632**	**116.062**	**151.768**	**150.298**	**373.049**

Part 5.10: Nabatieh households deciles

	NABA_1	NABA_2	NABA_3	NABA_4	NABA_5	NABA_6	NABA_7	NABA_8	NABA_9	NABA_10
CRL	0.019	0.141	0.147	0.340	0.152	0.352	0.269	0.340	0.178	0.356
FRT	0.143	0.950	1.199	2.198	2.007	4.113	3.847	4.139	3.395	4.390
INDCRP	0.013	0.098	0.102	0.235	0.105	0.244	0.186	0.235	0.123	0.246
VEGT	0.335	2.191	2.121	2.432	2.624	4.563	4.412	4.642	2.999	3.734
LIVESPR	0.053	0.600	0.545	0.790	0.808	1.667	1.756	1.799	1.226	1.672
FISH	0.015	1.571	0.262	0.823	0.681	1.176	0.631	0.982	0.961	0.895
FRMT	0.207	2.330	2.114	3.064	3.135	6.471	6.815	6.982	4.758	6.489
FPR	0.219	0.839	0.907	1.069	0.960	1.458	1.361	1.498	1.092	1.276
DAIRY	0.124	1.334	1.621	2.202	2.590	3.769	4.608	4.378	2.874	4.021
FATOL	0.237	0.836	1.774	1.535	1.014	3.333	2.249	2.041	1.709	1.359
PASTA	0.241	1.935	1.926	2.339	2.217	4.271	4.259	3.980	2.705	3.474
SGCHS	0.012	0.371	0.458	0.645	0.421	0.950	0.899	1.205	0.801	0.856
ALBVRG								0.069		
NALBVRG	0.050	0.688	0.770	1.130	1.084	1.978	2.077	2.158	1.696	2.110
OTHER	0.425	1.630	1.761	2.077	1.865	2.831	2.644	2.909	2.120	2.479
TABAC	0.218	1.149	1.043	1.298	1.875	3.069	2.067	2.770	1.861	1.403
CIND	0.851	6.335	9.807	12.157	13.176	25.803	27.531	39.002	34.936	66.256
CENW	0.881	4.714	5.397	6.783	7.022	13.338	11.562	13.020	9.454	11.775
CTTCOM		1.739	2.218	4.098	4.723	9.882	12.528	16.586	13.819	18.604
CSER	1.696	8.923	12.949	19.791	19.612	38.589	50.622	60.694	48.827	94.112
YTAX	0.047	1.988	2.267	1.909	3.630	6.199	9.560	9.761	11.684	25.512
S-I	4.860	7.565	7.537	9.686	10.252	11.987	12.313	14.365	16.818	36.629
TOTAL	**10.646**	**47.927**	**56.925**	**76.601**	**79.953**	**146.043**	**162.196**	**193.555**	**164.036**	**287.648**

Part 5.11: Sour households deciles

	SOUR_1	SOUR_2	SOUR_3	SOUR_4	SOUR_5	SOUR_6	SOUR_7	SOUR_8	SOUR_9	SOUR_10
CRL	0.163	0.177	0.449	0.548	0.312	0.220	0.169	0.139	0.089	0.084
FRT	1.170	1.710	3.560	4.015	2.351	3.068	2.543	2.475	1.626	1.348
INDCRP	0.113	0.122	0.311	0.379	0.216	0.152	0.117	0.096	0.062	0.058
VEGT	3.289	3.673	5.793	5.433	3.756	3.418	2.694	2.640	1.830	1.408
LIVESPR	0.824	1.121	1.813	1.903	1.397	1.378	1.168	1.048	0.799	0.528
FISH	0.159	0.499	1.301	0.683	0.723	0.864	0.875	1.146	0.868	0.464
FRMT	3.198	4.350	7.037	7.384	5.420	5.349	4.532	4.066	3.102	2.049
FPR	1.087	1.042	1.588	1.365	1.357	0.968	0.954	1.065	0.959	0.811
DAIRY	2.151	2.347	3.553	3.920	2.321	2.498	2.211	2.403	1.934	1.029
FATOL	0.961	1.050	2.521	2.011	3.681	2.113	1.045	2.123	0.585	0.627
PASTA	3.359	3.272	5.757	4.770	4.022	3.439	2.576	2.513	1.662	1.270
SGCHS	0.635	0.833	1.473	1.467	1.050	0.934	0.791	0.871	0.684	0.689
ALBVRG							0.052	0.430	0.041	
NALBVRG	1.105	1.371	2.519	2.285	1.845	1.770	1.503	1.109	1.027	0.726
OTHER	2.110	2.024	3.084	2.652	2.636	1.881	1.853	2.069	1.863	1.574
TABAC	2.351	2.390	5.224	4.283	2.940	2.838	2.171	1.614	0.787	1.212
CIND	10.824	12.935	25.461	28.739	18.472	23.359	20.813	17.938	29.844	24.381
CENW	5.363	5.606	9.320	9.861	6.218	5.895	5.753	5.096	4.383	3.419
CTTCOM	1.435	5.171	6.318	10.536	7.121	10.045	12.425	8.343	6.700	7.558
CSER	18.122	21.017	37.795	42.101	24.195	26.781	28.517	28.696	22.371	49.000
YTAX	3.098	3.904	5.783	5.441	7.050	6.334	6.740	11.681	10.489	9.067
S-I	5.239	6.269	7.807	9.112	9.305	10.496	12.076	47.761	31.095	28.873
TOTAL	**66.756**	**80.883**	**138.467**	**148.888**	**106.388**	**113.800**	**111.578**	**145.322**	**122.800**	**136.175**

Part 5.12: Bent Jbeil/Marjaayoun/Hasbayya households deciles

	BJMR_1	BJMR_2	BJMR_3	BJMR_4	BJMR_5	BJMR_6	BJMR_7	BJMR_8	BJMR_9	BJMR_10
CRL	0.039	0.087	0.210	0.500	0.321	0.254	0.258	0.371	0.204	0.509
FRT	0.286	0.919	1.774	2.448	2.085	2.293	2.672	2.357	1.784	1.628
INDCRP	0.027	0.061	0.145	0.346	0.222	0.176	0.179	0.257	0.141	0.352
VEGT	0.646	1.748	3.529	3.436	3.207	2.600	3.486	2.337	1.942	1.556
LIVESPR	0.184	0.596	1.025	1.322	1.032	0.995	1.188	0.917	0.926	0.638
FISH	0.116	0.566	0.453	0.958	1.177	0.801	0.921	0.672	0.630	0.243
FRMT	0.714	2.312	3.979	5.129	4.005	3.862	4.611	3.560	3.593	2.478
FPR	0.455	0.501	1.047	1.166	1.004	0.871	1.155	0.979	0.932	2.796
DAIRY	0.527	1.231	2.565	2.975	2.339	1.955	3.179	2.395	1.853	2.155
FATOL	0.346	0.514	1.296	2.186	2.148	1.643	1.721	2.403	1.813	2.426
PASTA	0.757	1.537	2.828	3.295	2.462	2.020	2.572	2.070	1.387	0.965
SGCHS	0.111	0.187	0.507	0.717	0.810	0.815	0.813	0.516	0.617	0.168
ALBVRG					0.047		0.003	0.061	0.085	0.083
NALBVRG	0.152	0.484	1.147	1.421	1.213	0.973	1.326	1.058	0.710	0.500
OTHER	0.883	0.972	2.033	2.264	1.950	1.692	2.242	1.902	1.811	5.430
TABAC	0.483	0.949	2.539	2.594	2.396	1.400	2.638	1.767	1.156	0.631
CIND	1.760	6.357	13.717	16.359	21.183	17.188	22.763	21.942	18.206	19.596
CENW	1.000	3.309	6.732	7.524	6.760	6.738	7.752	7.769	7.927	3.942
CTTCOM	0.440	1.259	3.492	4.419	6.880	6.701	7.548	6.240	5.553	2.385
CSER	2.536	7.377	12.733	19.386	16.401	20.919	22.061	20.205	22.300	14.165
YTAX	0.336	1.357	3.299	3.901	4.616	4.544	7.670	7.108	5.015	6.370
S-I	4.135	6.131	8.553	8.515	10.233	11.152	12.530	13.903	14.914	28.965
TOTAL	**15.933**	**38.454**	**73.603**	**90.861**	**92.491**	**89.592**	**109.288**	**100.789**	**93.499**	**97.981**

Part 5.13: West Bekaa/Rashayya households deciles

	WBRA_1	WBRA_2	WBRA_3	WBRA_4	WBRA_5	WBRA_6	WBRA_7	WBRA_8	WBRA_9	WBRA_10
CRL	0.291	0.401	0.385	0.523	0.541	0.241	0.446	0.840	0.864	0.688
FRT	1.077	2.067	2.472	4.698	4.755	5.927	4.475	4.571	5.816	4.560
INDCRP	0.201	0.277	0.267	0.362	0.374	0.167	0.309	0.581	0.598	0.477
VEGT	2.339	2.981	2.864	4.438	4.789	3.743	3.548	5.394	6.147	2.812
LIVESPR	0.474	0.590	1.000	1.139	1.264	1.331	1.692	1.667	1.866	1.244
FISH	0.246	0.524	0.741	0.571	1.125	1.282	0.994	1.373	1.277	1.246
FRMT	1.838	2.290	3.882	4.419	4.905	5.164	6.568	6.470	7.243	4.829
FPR	0.833	1.051	0.967	1.109	1.314	1.194	1.142	1.275	1.630	1.208
DAIRY	1.678	1.801	2.227	2.592	2.361	3.379	4.332	5.080	5.791	2.552
FATOL	0.651	1.464	0.942	1.206	1.739	2.486	3.380	1.853	5.119	3.371
PASTA	2.386	2.722	2.676	3.687	4.747	3.539	2.980	4.356	4.714	2.802
SGCHS	0.380	0.631	0.432	0.669	1.741	0.959	1.166	1.167	1.468	0.990
ALBVRG	0.007		0.016	0.101	0.197	0.299		0.452	2.586	0.718
NALBVRG	0.670	1.154	0.856	1.501	2.002	1.575	2.052	1.999	2.368	1.296
OTHER	1.618	2.041	1.878	2.154	2.552	2.319	2.218	2.476	3.166	2.347
TABAC	0.666	2.218	1.496	2.419	2.760	1.905	2.276	1.746	2.610	1.766
CIND	8.230	11.058	14.054	24.243	26.760	28.932	30.287	47.643	63.356	60.528
CENW	6.080	10.245	11.268	16.401	17.773	13.966	15.890	20.114	21.011	13.330
CTTCOM	1.354	3.632	4.872	8.981	10.425	9.177	9.884	19.995	20.541	14.153
CSER	13.867	16.927	22.803	32.228	39.052	34.066	39.705	57.414	77.475	71.503
YTAX	1.967	3.066	2.910	4.639	6.412	5.239	7.790	16.505	12.410	14.102
S-I	4.988	6.925	7.869	9.343	10.335	11.992	13.915	15.264	18.975	29.030
TOTAL	**51.841**	**74.065**	**86.877**	**127.423**	**147.923**	**138.882**	**155.049**	**218.235**	**267.031**	**235.552**

Part 5.14: Zahle households deciles

	ZHLE_1	ZHLE_2	ZHLE_3	ZHLE_4	ZHLE_5	ZHLE_6	ZHLE_7	ZHLE_8	ZHLE_9	ZHLE_10
CRL	0.330	0.042	0.197	0.182	0.185	0.228	0.149	0.208	0.150	0.129
FRT	0.528	0.289	1.581	1.981	3.201	3.666	2.668	3.503	4.925	7.727
INDCRP	0.229	0.029	0.137	0.126	0.128	0.158	0.103	0.144	0.104	0.090
VEGT	1.763	0.641	1.808	2.243	2.976	4.150	2.743	3.319	3.618	4.378
LIVESPR	0.295	0.227	0.339	0.675	0.875	1.078	0.978	1.321	1.479	1.760
FISH	0.080	0.040	0.294	0.462	0.575	0.488	0.974	1.047	1.149	1.977
FRMT	1.146	0.882	1.314	2.620	3.394	4.184	3.797	5.126	5.741	6.831
FPR	0.592	0.469	0.701	0.733	0.875	1.093	0.887	1.547	1.455	1.804
DAIRY	1.086	0.634	0.785	1.274	1.940	1.950	2.043	2.800	3.212	5.116
FATOL	0.455	0.212	0.769	1.089	1.398	2.270	2.018	2.110	3.081	2.623
PASTA	2.189	1.072	1.740	2.692	3.147	3.390	2.401	3.168	3.989	6.087
SGCHS	0.534	0.088	0.363	0.519	0.627	0.862	0.625	1.096	1.015	2.435
ALBVRG	0.022		0.086	0.419	0.379	0.172	0.470	0.701	1.090	3.966
NALBVRG	0.590	0.252	0.527	0.893	0.967	1.058	1.002	1.127	1.747	2.342
OTHER	1.150	0.911	1.362	1.424	1.699	2.122	1.723	3.005	2.826	3.504
TABAC	0.891	0.997	1.179	2.019	1.729	2.254	1.931	1.723	1.324	2.476
CIND	5.520	4.357	8.602	12.070	19.594	22.578	23.615	28.843	42.270	93.382
CENW	4.344	4.486	5.592	7.470	11.711	9.928	9.979	12.285	17.861	24.037
CTTCOM	1.060	1.177	2.498	3.910	7.309	12.824	8.596	12.337	18.640	25.918
CSER	7.795	5.588	10.416	14.182	21.653	34.411	28.333	31.192	59.927	80.315
YTAX	2.135	1.081	3.240	1.923	5.277	4.544	5.397	7.711	13.093	36.885
S-I	5.297	5.450	7.035	8.564	9.970	12.855	11.773	15.348	17.923	82.872
TOTAL	**38.031**	**28.924**	**50.565**	**67.470**	**99.609**	**126.263**	**112.205**	**139.661**	**206.619**	**396.654**

Part5.15: Hermel/Baalbak households deciles

	HERBA_1	HERBA_2	HERBA_3	HERBA_4	HERBA_5	HERBA_6	HERBA_7	HERBA_8	HERBA_9	HERBA_10
CRL	0.298	0.195	0.508	0.472	0.435	0.360	0.418	0.184	0.172	0.025
FRT	1.944	2.401	3.252	3.597	4.266	3.855	3.365	2.113	2.111	0.787
INDCRP	0.206	0.135	0.352	0.327	0.301	0.249	0.289	0.127	0.119	0.017
VEGT	3.473	2.795	4.249	4.286	4.626	4.484	3.806	2.448	1.323	0.518
LIVESPR	0.955	0.981	1.317	1.571	1.228	1.340	1.261	0.804	0.609	0.370
FISH	0.678	0.566	0.971	1.049	0.938	1.012	1.261	0.496	1.195	0.372
FRMT	3.707	3.808	5.110	6.096	4.767	5.201	4.892	3.121	2.364	1.437
FPR	1.203	0.894	1.161	1.260	1.106	1.231	1.145	0.738	0.525	0.636
DAIRY	2.081	1.376	2.029	3.641	2.749	3.525	2.245	1.358	1.021	0.517
FATOL	1.179	1.626	2.254	1.938	2.252	2.166	1.424	1.196	0.512	0.322
PASTA	3.307	3.324	5.686	5.487	5.080	4.134	3.469	2.744	1.471	0.819
SGCHS	0.332	0.492	0.955	0.965	0.818	0.932	0.876	0.469	0.512	0.241
ALBVRG	0.005	0.006	0.036	0.017	0.415	0.496	0.184	0.200	0.174	0.245
NALBVRG	0.849	0.879	1.504	1.416	1.416	1.534	1.302	1.092	0.387	0.360
OTHER	2.337	1.737	2.255	2.448	2.148	2.391	2.223	1.434	1.020	1.236
TABAC	4.631	3.614	6.179	6.254	5.869	5.773	3.868	2.243	1.688	0.747
CIND	16.441	13.998	22.903	28.423	23.049	29.292	26.742	21.641	15.173	13.253
CENW	13.492	10.111	15.573	17.609	14.335	15.669	11.627	8.438	5.829	3.523
CTTCOM	2.223	4.309	6.163	8.391	9.145	13.529	11.174	8.354	6.464	3.834
CSER	19.148	17.109	25.964	28.998	29.311	31.857	30.558	26.641	15.913	11.078
YTAX	2.148	1.741	3.182	4.822	4.893	5.125	6.827	3.799	5.756	4.858
S-I	5.409	6.371	7.569	8.382	9.809	10.237	13.421	14.977	23.572	28.768
TOTAL	**86.046**	**78.468**	**119.172**	**137.449**	**128.956**	**144.392**	**132.377**	**104.617**	**87.910**	**73.963**

Part 6: Other institutions

	GOV	YTAX	ATAX	TAR	ROW	S-I	DSTK
CRL					1.193		-40.000
FRT					178.000		
INDCRP					90.000		
VEGT					52.000		
LIVES						20.000	
LIVESPR					19.000		
FISH					2.500		
FRMT					7.000		
FPR					88.000		
DAIRY					5.000		
FATOL					34.000		-71.000
PASTA					38.000		
SGCHS					79.000		
ALBVRG					23.000		
NALBVRG					33.000		
OTHER					43.000		
TABAC					3.100		
CIND					3127.000	2258.000	109.000
CCONS						4858.000	
CENW					10.000		-60.000
CTTCOM					203.000		
CSER					383.000		
CTRADE					916.010		
CADMIN	3426.000						
AKMD_1	23.514				221.986		
AKMD_2	53.601				165.158		
AKMD_3	25.941				133.649		
AKMD_4	38.091				77.003		

	GOV	YTAX	ATAX	TAR	ROW	S-I	DSTK
AKMD_5	34.430				45.766		
AKMD_6	32.674				38.877		
AKMD_7	26.979				10.220		
AKMD_8	18.656				9.325		
AKMD_9	9.692				12.152		
AKMD_10	20.974				25.451		
TRIP_1	15.352				52.645		
TRIP_2	11.811				49.987		
TRIP_3	12.017				26.493		
TRIP_4	16.465				23.595		
TRIP_5	12.769				46.514		
TRIP_6	7.063				10.063		
TRIP_7	17.703				22.678		
TRIP_8	17.564				11.909		
TRIP_9	29.681				87.398		
TRIP_10	24.423				41.161		
KZGB_1	4.359				21.566		
KZGB_2	4.487				23.730		
KZGB_3	4.734				26.051		
KZGB_4	6.896				33.092		
KZGB_5	11.379				52.732		
KZGB_6	11.227				22.657		
KZGB_7	18.085				51.193		
KZGB_8	17.527				17.709		
KZGB_9	24.041				28.858		
KZGB_10	107.825				43.841		
KSJB_1	0.982				3.197		
KSJB_2	2.193				9.877		
KSJB_3	3.638				12.290		
KSJB_4	6.082				36.501		
KSJB_5	12.223				17.684		
KSJB_6	4.822				43.327		
KSJB_7	5.201				51.228		
KSJB_8	20.143				97.709		
KSJB_9	45.291				17.020		
KSJB_10	284.425				32.153		
MATN_1	1.589				10.153		
MATN_2	3.464				6.975		
MATN_3	1.994				23.118		
MATN_4	3.966				30.119		
MATN_5	12.467				58.086		
MATN_6	25.333				60.941		
MATN_7	27.281				100.964		
MATN_8	31.088				67.318		
MATN_9	35.129				143.845		
MATN_10	194.003				28.366		
BRT_1	1.175				5.673		
BRT_2	2.916				41.676		
BRT_3	4.097				45.201		
BRT_4	2.852				57.952		
BRT_5	5.158				104.210		
BRT_6	6.832				169.259		
BRT_7	9.019				38.374		
BRT_8	21.347				15.909		
BRT_9	37.944				204.972		
BRT_10	690.775				33.431		
BBDA_1	6.328				50.669		
BBDA_2	5.132				81.244		
BBDA_3	15.159				148.111		
BBDA_4	12.055				132.252		
BBDA_5	25.087				150.214		

	GOV	YTAX	ATAX	TAR	ROW	S-I	DSTK
BBDA_6	31.886				128.819		
BBDA_7	41.886				193.511		
BBDA_8	53.405				214.856		
BBDA_9	33.980				221.100		
BBDA_10	39.774				125.922		
CHAL_1	1.213				33.936		
CHAL_2	12.891				80.716		
CHAL_3	11.582				69.507		
CHAL_4	15.012				63.993		
CHAL_5	20.200				71.176		
CHAL_6	27.216				89.096		
CHAL_7	38.808				75.171		
CHAL_8	47.147				60.544		
CHAL_9	49.903				114.276		
CHAL_10	137.775				26.958		
SDJZ_1	9.491				37.300		
SDJZ_2	1.915				97.586		
SDJZ_3	13.030				54.456		
SDJZ_4	10.444				42.760		
SDJZ_5	16.039				19.155		
SDJZ_6	7.040				38.329		
SDJZ_7	16.734				24.282		
SDJZ_8	17.474				37.666		
SDJZ_9	12.702				27.603		
SDJZ_10	32.463				70.190		
NABA_1	1.492				7.682		
NABA_2	4.224				25.373		
NABA_3	2.314				32.190		
NABA_4	6.777				47.745		
NABA_5	5.049				42.935		
NABA_6	7.483				76.150		
NABA_7	17.091				55.566		
NABA_8	17.721				88.322		
NABA_9	23.646				33.844		
NABA_10	34.975				28.024		
SOUR_1	5.665				33.811		
SOUR_2	3.277				35.857		
SOUR_3	7.806				63.668		
SOUR_4	8.206				74.014		
SOUR_5	10.970				19.654		
SOUR_6	8.632				40.132		
SOUR_7	11.821				29.752		
SOUR_8	17.521				13.251		
SOUR_9	10.921				15.081		
SOUR_10	11.917				35.929		
BJMR_1	1.883				8.396		
BJMR_2	6.636				15.861		
BJMR_3	2.626				33.551		
BJMR_4	6.417				36.195		
BJMR_5	13.223				18.584		
BJMR_6	20.273				14.746		
BJMR_7	15.170				12.948		
BJMR_8	10.924				19.708		
BJMR_9	11.715				31.133		
BJMR_10	13.469				21.429		
WBRA_1	4.960				26.605		
WBRA_2	5.555				32.285		
WBRA_3	5.845				43.758		
WBRA_4	12.298				63.209		

	GOV	YTAX	ATAX	TAR	ROW	S-I	DSTK
WBRA_5	22.890				60.925		
WBRA_6	13.969				71.678		
WBRA_7	17.131				59.022		
WBRA_8	26.118				37.748		
WBRA_9	23.828				94.596		
WBRA_10	20.058				78.427		
ZHLE_1	1.626				12.522		
ZHLE_2	4.245				7.325		
ZHLE_3	4.732				3.812		
ZHLE_4	3.487				42.943		
ZHLE_5	10.776				18.469		
ZHLE_6	12.519				67.565		
ZHLE_7	11.330				36.423		
ZHLE_8	15.857				26.467		
ZHLE_9	16.647				66.089		
ZHLE_10	25.413				7.711		
HERBA_1	4.232				45.912		
HERBA_2	1.956				38.101		
HERBA_3	7.467				47.121		
HERBA_4	6.860				51.685		
HERBA_5	15.013				42.422		
HERBA_6	18.574				51.018		
HERBA_7	16.979				32.588		
HERBA_8	9.742				54.189		
HERBA_9	9.992				15.791		
HERBA_10	8.245				18.478		
GOV		2635.000	437.000	2642.000			
ROW	1775.650						
S-I	-926.499				3518.650		
DSTK						-62.000	
TOTAL	**7880.499**	**2635.000**	**437.000**	**2642.000**	**16702.251**	**7074.000**	**-62.000**