

The effect of rural to semi-urban transformation on livelihoods using A livelihoods index

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ABSTRACT

In the past 50 years, excluding populated cities, the majority of areas in Lebanon have shifted from rural to semi-urban. The main drivers of this transition are increased access to education and technology, coupled with the development of the private sector, as well as internal and external factors like the civil war and the Syrian crisis. To determine the consequences of this transition on people's lives, a livelihoods index study will take place in one particular area of Lebanon; Kobayat Akkar, one of the largest villages in Lebanon. The stakeholders taking part in this study are people who have experienced both the rural and the semi-urban periods, e.g. farmers, business owners, head of municipalities, etc. The study will include quantitative and qualitative data collected in the field using one questionnaire to draw a comparative analysis of before and after assessments. For the qualitative data collection, a Likert scale will be used to translate the qualitative answers into numerical figures. The findings of the study will shed the light on the difference between the indexes of this same area, Kobayat, both as a rural and as a semi-urban agglomeration. The study will also provide details about how each kind of capital (natural resources, economic, social, human and physical) has been negatively or positively affected as a consequence of this transition.

Key words: Livelihoods capitals, rural, semi-urban, index modification.

Introduction

In Lebanon, changes in how people make living, changes in where people live, and changes in how people interact with society and the state, have all undergone transformations in the past 50 years. Lebanon, a middle-eastern country which encountered frequent internal and external crises beginning from the French mandate, going on to the civil war in 1975 and the invasion of 1982 all the way to the current Syrian/regional crisis, underwent a significant metamorphosis to its governmental, social and economic condition. These changes have affected the people nationwide

In both rural and urban settings - in an attempt to cope with each upheaval. Some of these transformations had a more long term effect than could be attributed to a coping period; gradually, they indirectly transformed the whole society's organisation. The Lebanese rural society - in which the majority of people relied on agriculture as their main source of income - has decreased significantly since 1960 when it represented 58% of the total Lebanese population hitting a low of 12% in 2015 (World Bank online data).

As per field interviews with people who encountered both phases, Kobayat, one of the largest rural villages in Lebanon, was directly and deeply affected by all the changes that affected the Lebanese landscape until becoming nowadays a semi-urban area.

Although several definitions exist in literature and in the common vernacular about rural, urban and semi-urban areas, in this paper, we make reference to the structural approach suggested by Blanc, not simply based on the geographic and demographic characteristics of the space, but on the study of the representation that social actors have on it, specifically how the rural (or former rural) area is lived by those who are part of it, daily. (Blanc, 1997; De Gennaro and Fantini, 2002).

During the French mandate between 1920 and 1943, people were relying on agriculture as a main source of living. Some of the lands were used mainly for personal use or for food staples sold through

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the local market; the majority of the people working in agriculture were workers in the lands of local aristocratic groups known as Bakawat (Houranu, 1985). The livelihoods plan for the families - considered as large in size by then - was mainly meeting basic needs such as food and shelter while primarily working in the land; for people owning the lands, the plan was to pass them down to their sons resulting in low educational levels for a couple of upcoming generations. The rising of insecurities following the French mandate coupled with changes in land structures, have upset the Lebanese rural society, made them feel that their livelihoods are at risk: relying on agriculture only was not enough anymore for a sustainable life (Ghazi, 1997; Geha, 2016). Since then, people started pursuing governmental positions such as military and public teachers to feel secure.

In 1975, the civil war in Lebanon took place, and it was the main trigger for increasing the fear within societies, mainly the rural ones. The poor delivery of services became even poorer (health, finance, water, sanitation and transport) and failed to reach the poor in rural locations, in this time of change. However, people became more educated than before in order to be capable of joining some sustainable governmental jobs and secure health and other basic needs. The families decreased in size and the interest in agriculture dwindled as this sector was no longer able to secure any basic service, a minimum right for civilians. This period was sculpting the society and pushing it forward to an inevitable transition in its livelihoods' capitals. What little interest remained in agriculture coupled with the reduced size of families in addition to non-secured future plans, pressed the parents to focus more on their kids' education. After the civil war, the situation became more stable and the education of people increase as did the living standards. Governmental positions turned out to be less attractive, limiting the youth's ambitions, adding to it the absent governmental support in addition to a perpetual fear of another war. These were the main reasons that triggered the high levels of immigration amongst educated youth, the continuing switch to private businesses such as commerce, the remarkably low interest in agriculture and the dependence on tourism, etc. Accordingly, this situation is still considered -to date- as an on-going phase for Kobayat.

The objective of the paper is to draw a comparative analysis of the livelihoods' index in Kobayat and how each capital (natural resources, economic, social, human and physical) has been negatively or positively affected as a consequence of this transition.

Materials and Methods

The paper is grounded on secondary and primary data collected in Kobayat, North Lebanon carried out in May 2017 with the head of Kobayat's municipality, 35 farmers, the head of the agricultural cooperation in the area and the director of North LARI (Lebanese Agricultural Research Institute). The data was collected using two structured questionnaires - one for the farmers and the other one for the head of the municipality, the head of the agricultural cooperation and the director of North LARI.

The first questionnaire - addressed to farmers - highlights data about respondents (age, gender, educational level, family size, etc.). Additionally, farmers have been asked about details related to the land structure, income sources, the availability of water, general services and the social relationship between each other. Some of the answers were qualitative and in order to translate them into numbers, a Likert scale from 1 to 5 was applied. The interviewed people are elderly men and they experienced all the phases of the transition in Kobayat.

On the other hand, another questionnaire was dedicated to opinion leaders, namely the head of the municipality, the head of the agricultural cooperation and the LARI director. The data received from them was more qualitative than quantitative, focusing on the bigger picture of the society and how it was shaped through history. Moreover, tests on water and soil have been collected by the Author and checked with LARI. The main groups of variables derived from the farmers and the leaders' questionnaires and the author's tests, referring to the different kinds of capital, are summarized in Table 1.

Table 1: Different kinds of capital and related groups of variables

Capitals	Main groups of variables
Natural Resources Capital NC	Soil structure, fertility, chemical properties; water quantity and quality
Economic Capital EC	Agricultural income, productivity, perspectives; Non- agricultural income, tourism, aquaculture, beekeeping
Human Capital HC	Education, knowledge, health
Social Capital SC	Relations among farmers, with the cooperative, with religious and political groups
Physical Infrastructures Capital PC	Roads, housing, electricity, internet; Municipality services, agricultural and post-harvest services, irrigation networks

*Source: Author's elaboration based on the questionnaire survey.

Results and Discussion

Each type of capital index is defined from a set of indicators integrated with one other and collected throughout the two surveys. These indicators differ from one kind of capital to another; in fact, each capital has, according to its precise objective and the peculiar characteristics of the study area, indicators that are specific to it. And there is no reference list of indicators that is applied in the same way in all evaluation cases (Pathak *et al.*, 2005). Therefore, in order to develop a representative index, a group of suitable indicators was chosen for the purpose of our study. The indicators were mostly based on the agricultural sector and were integrated in all livelihoods' capitals. In addition, an overview of each type of capital was added and reflected by indicators apart from the agricultural sector.

After conducting the interviews, the answers have been compiled in one sheet and all the qualitative answers were translated into numbers based on a Likert scale. Each capital's indicators have been weighted one by one in order to calculate the specific kind of capital index and the different capital indexes have been weighted to obtain the final index. Two formulas have been used:

1- Capitals index:

2- For each indicator: $IndI = (Value - Min Value) / (Max Value - Min Value)$.

Weight has been specified based on the importance of each indicator and each capital while calculating the final index:

Capital index: $(IndJ * w_i) + (Ind2 * w_2) + (Ind3 * w_3) + \dots$

Final index: $(NC * WNC) + (EC * WEC) + \dots$

The results of study are shown as in table 2:

Table 2: Comparison of before and after capital indexes

Capitals	Kobayat Rural Standards	Kobayat Semi-Urban Standards
Natural Resources Capital NC	0,644	0,184
Economic Capital EC	0,605	0,408
Human Capital HC	0,448	0,69
Social Capital SC	0,353	0,63
Physical Capital PC	0,390	0,52
Index	0,528	0,47

*Source: Author's elaboration based on the questionnaire survey results.

The shift from rural to semi-urban has affected the five livelihoods capitals in varying ways. To dive deeper into the results of the questionnaires, it is better to start with the natural resources capital that is mainly and negatively affected by this transition. Many factors impacted this capital which is considered as the most sensitive, based on its indicators that are associated with the physical/chemical properties of water and soil. People nowadays have more access to pesticides and are using them in a much unsystematic way, not taking into consideration the harmful consequences on the land and the

water's structure; their main aim of using these pesticides - in a non-controllable way - is to increase the quantity of products thereby generating a higher profit; hence, the government is not testing the final products consumed by consumers nor is it testing the land and the water's chemical properties. In addition, several factors affect natural resources, and in 2011, IFAD (International Fund for Agricultural Development) has generally identified all of these factors; some of which are climate change, increased market competition, human activities other than agriculture, overexploitation of forests and unsustainable agricultural practices (traditional method, monoculture, etc.) (IFAD, 2011). To re-enforce this theory, a sample from the water and soils was checked by LARI's laboratories in North Lebanon and the results show that the underground water is polluted and the lands' chemical properties have been significantly modified (e.g. pH 8); these results have been compared to the LARI's previous data (e.g. pH 5.5) considered in line with the international standards.

Moreover, the land owners are not caring for their own land and are irresponsibly using the "free" natural resources such as water. The crop rotation is out of consideration, the irrigation systems are traditional and an abundant quantity of water is wasted (which, moreover, negatively affects the relationship between farmers who are struggling to get control over water sources, the main indicators of the social capital). However, as per the head of the agricultural cooperation in Kobayat, new irrigation systems have been in place in order to help farmers but the lack of agricultural knowledge is preventing them to access it; this knowledge deficiency is linked to the low number of farmers, itself a consequence of the conversion from rural to semi-urban area. The analysis of the economic capital will make the above analysis stronger. All of the surveyed farmers stated that they don't depend on agriculture as their main source of income; working in agriculture is an added source of income; as a consequence, investments in the lands are modest, since even the future generations are showing no interest in agriculture. Additionally, the tourism in the rural areas has been improved and people are increasingly relying on private non-agricultural businesses; these are considered more secure than agriculture, where the nearby markets are over-saturated with products. However, the increased income is associated with an increase in expenses for families, in response to the current living standards; therefore, the transformation is negatively affecting the economic capital, represented by the sum of revenues when compared to the expenses.

The Syrian civil crisis has badly affected the situation of farmers in North Lebanon and mainly the large farmers who rely on agriculture as their main source of income. The Syrian internal borders have been closed in front of the North Syrian farmers. This led them to dump all of their products into the Lebanese markets, taking advantage of the complete absence of the Lebanese government. The hard situation of the large farmers is considered an extremely discouraging situation for anyone planning to invest in agriculture in the whole area. Additionally, Syria was considered the main route for trade to the Arab gulf. In addition to all of the above, the social and the human capitals have been significantly affected by this transition. From an agricultural and non-agricultural perspective, these capitals have been positively affected by the transition. People are considered remarkably more educated than before (for instance, instead of one official school in Kobayat, there are now 4 public schools and 1 private school). Consequently, people have more access to basic services (life insurance, education, health, etc.), more public places such as restaurants and cafes, less gender barriers that enable women to work, a significant increase in the marriage age, etc. Hence, from an agricultural perspective, more agricultural engineers are available for further technical support, in addition to the orientation seminars held by the ministry of agriculture, the municipality, the head of agricultural cooperation and other NGOs (nongovernmental organizations).

Finally, the physical infrastructures capital indicators have been, in general, positively affected when it comes to the agricultural sector. The infrastructure of the rural area was positively reformed. The roads are much more accessible -in some areas new roads have been constructed- the access to electricity is higher, the information system via mobile phones is used by farmers in order to track the weather conditions, new seminars, ministry-disseminated information, etc. Finally, the synthetic index calculated by summing up all capitals multiplied by their weight. Each capital is given a weight which is relative to its standard value. That is to say, the greatest weight is given to the capital with the greatest value, and so on. Then, the capital is aggregated with their respective standard values and weight together to deduct the value of the expected synthetic index.

Two scenarios have been studied, one where all capitals have the same weight (Table 3), and in the other one the natural resources capital were weighted the highest. (Table 4).

Scenario 1:

Table 3: Synthesis of before and after capital indexes with the same weight

Capitals	Kobayat Rural Standards	Weight	Value x Weight
Natural Resources Capital NC	0.644	0.2	0.1288
Economic Capital EC	0.605	0.2	0.121
Human Capital HC	0.448	0.2	0.0896
Social Capital SC	0.353	0.2	0.0706
Physical Capital PC	0.390	0.2	0.078
Total			Index L= 0,488

Capitals	Kobayat Semi-Urban Standards	Weight	Value x Weight
Natural Resources Capital NC	0.184	0.2	0.0368
Economic Capital EC	0.408	0.2	0.0816
Human Capital HC	0.69	0.2	0.138
Social Capital SC	0.63	0.2	0.126
Physical Capital PC	0.52	0.2	0.104
Total			Index L= 0.486

*Source: Author's elaboration based on the questionnaire survey results.

Scenario 2:

Table 4: Synthesis of before and after capital indexes with different weights

Capitals	Kobayat Rural Standards	Weight	Value x Weight
Natural Resources Capital NC	0.644	0.3	0.1932
Economic Capital EC	0.605	0.25	0.15125
Human Capital HC	0.448	0.2	0.0896
Social Capital SC	0.353	0.1	0.0353
Physical Capital PC	0.390	0.15	0.0585
Total			Index L= 0.528

Capitals	Kobayat Semi-Urban Standards	Weight	Value x Weight
Natural Resources Capital NC	0.184	0.3	0.0552
Economic Capital EC	0.408	0.25	0.102
Human Capital HC	0.69	0.2	0.138
Social Capital SC	0.63	0.1	0.063
Physical Capital PC	0.52	0.15	0.078
Total			Index L= 0.436

*Source: Author's elaboration based on the questionnaire survey results.

Conclusion

It can be concluded that in order to develop an index for the evaluation of natural resources, the five different capitals must be studied. At the level of this paper and following the study of capitals, two indexes with an average value of 0.528 for the rural phase and 0.436 for the semi-urban phase were obtained. Each capital has its own characteristics and defects requiring recommendations to increase its score in order to improve the overall value of the index.

Transitioning from rural to semi-urban is not always a positive transition especially when the agricultural sector is neglected. The potential impact of infrastructure and services is lowered by the difficulty of disseminating information amongst a reduced group of farmers. The importance of natural resources is underestimated and nobody will assume the cost of negative externalities on land degradation and environmental pollution. Comparing the indexes between both phases - through those are two different scenarios- the synthetic rural index is higher than the semi-urban one which is calculated through all the capitals. Hence, the natural resources capital was the higher capital in the rural context and the lowest in the semi-urban one. To re-increase this capital, a couple of

recommendations should take place such as: more seminars to local citizens about the importance of agriculture and natural resources protection, more support from the government in controlling the import/export of agricultural products by respecting the seasonal calendar, secure the link between farmers and buyers (for local and international markets), better storage capacities such as refrigerated storage containers, include GAP practices dissemination during training and awareness sessions.

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