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# **Heterogeneity, Specialization and Social Cohesion in Israeli Moshav Cooperatives**

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## **Abstract**

The Israeli Moshav cooperative was designed as a group of homogeneous family farms, all equal in size and resources. Over the years, processes of selective migration and specialization have increased heterogeneity within each Moshav. This has led to destabilization of the social and economic viability of the cooperative, and was one of the reasons for the financial crisis of 1985. This paper investigates the process of heterogeneity and specialization and examines its consequences in the post-crisis period. In particular, it documents the aggregate trends of decreasing number of active farms, increasing farm size, increased farm specialization, and increased reliance on off-farm income. All these lead to increased heterogeneity and polarization within and between Moshav cooperatives, raising concerns about the future economic and social viability of these cooperatives.

**Keywords:** Cooperatives; Heterogeneity; Structural change.

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## **Introduction**

The Israeli Moshav cooperative was designed as a group of homogeneous family farms, all equal in size and resources. Over the years, differential processes of selective migration and specialization have increased heterogeneity within each cooperative and between cooperatives. This has led to destabilization of the social and economic viability of each cooperative and the cooperative movement as a whole, and was one of the reasons for the financial crisis of 1985. The purpose of this paper is to examine the evolution of heterogeneity within and between Moshav cooperatives, to quantify the effects on total heterogeneity of specialization in farm production, diversification of income through non-farm sources, and population heterogeneity through allowing non-farm families to join.

Farm sectors in developed countries have experienced considerable structural transformations during the second half of the 20<sup>th</sup> century. One of the dramatic changes is the decrease in the number of farms and the resulting increase in average farm size (Huffman and Evenson, 2001). This has been initially attributed to scale economies induced by technological changes (Gardner and Pope, 1978). However, Kislev and Peterson (1982) have indicated the changing market conditions as the main reason. The role of farm specialization and the increased importance of non-farm income sources have also been studied by several authors (e.g., Pope and Prescott, 1980; Yee and Ahearn, 2005; Kimhi and Rekah, 2006).

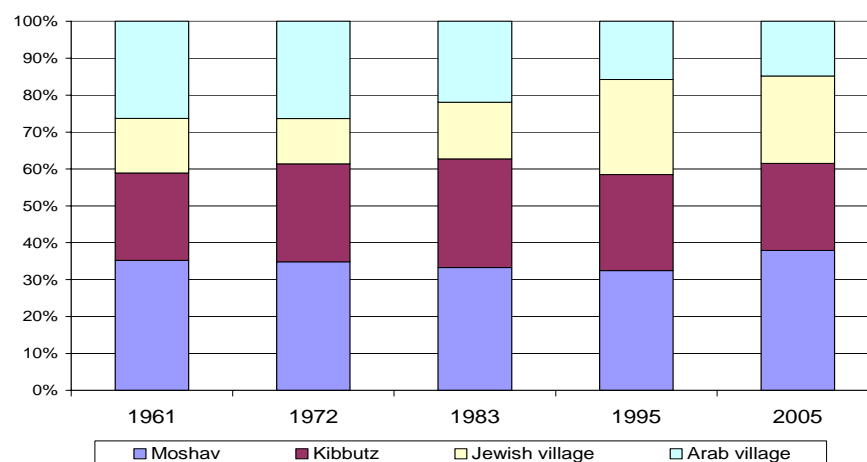
Structural changes in Israeli agriculture have not been very different from the U.S. or other developed countries. The exit from farming, the increase in average farm size and specialization, and the increasing reliance on non-farm income sources, have been documented in earlier studies by Kimhi and Bollman (1999), Kimhi (2000, 2008), Ahituv and Kimhi (2006), and Kimhi and Rekah (2006, 2007). After providing an in-depth institutional and historical background on Israeli agriculture in general and the cooperative sub-sector in particular, we will demonstrate the increase in heterogeneity within and between Moshav cooperatives over the years, and draw implications with respect to social cohesion and functional stability of these rural entities.

## **Background**

Agriculture was one of the most important foundations on which the state of Israel was established. Since the end of the 19<sup>th</sup> century, Jewish settlers in Israel saw agriculture as a channel through which the link between the Jewish people and their ancient homeland can be re-established. Cooperation has been the key to the success of settlement and agricultural production. The two dominating types of

cooperative settlements have been the Kibbutz and the Moshav (Kislev, 1992). The Kibbutz was a commune in which each member produced according to his ability and consumed according to his needs (Lecker and Shachmurove, 1999; Ingram and Simons, 2002). The Moshav was a cooperative village made of individual family farms, in which certain activities such as purchasing, marketing, and financing were handled jointly in order to exploit economies of scale in these activities (Haruvi and Kislev, 1984; Schwartz, 1999; Sofer, 2001). A third type of cooperative settlement, Moshav Shitufi, was a compromise between Kibbutz and Moshav: production was handled collectively while consumption was handled individually. Ideologically, all three types of cooperatives explicitly highlighted farming as a way of life and not only as a way of making a living. Non-cooperative rural communities existed as well, but cooperative communities comprised more than half of the rural population over the years (figure 1). These days, cooperatives are still cultivating about 75% of all crop areas (figure 2).

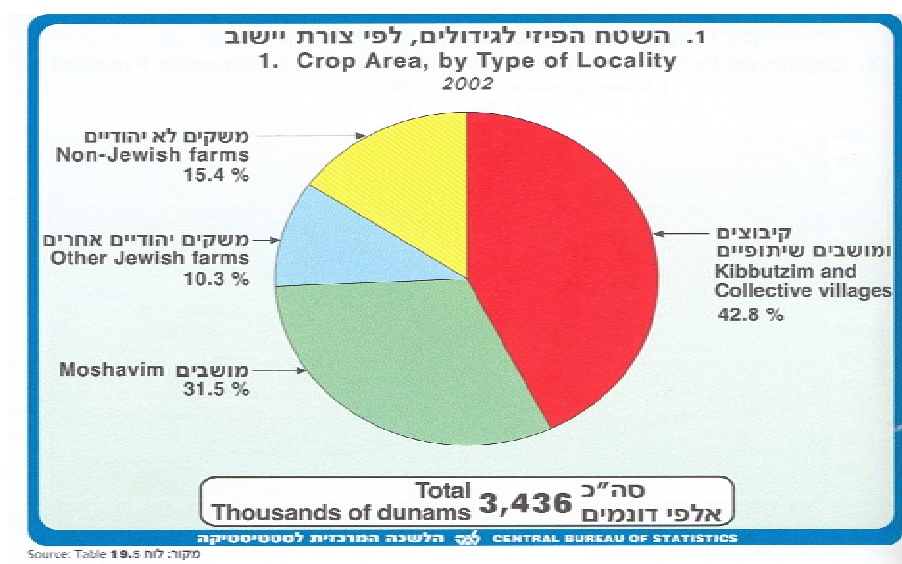
**Figure 1. Rural Population by Type of Locality**



Note: Moshav Shitufi included in Kibbutz.

Source: Statistical Abstract of Israel, various years.

Economically, agriculture constituted a major fraction of national income (and exports in particular) for many years. Socially, the agricultural sector provided a generation of political, cultural and military leaders. After Israel declared its independence and masses of immigrants started pouring in, food security became one of the top priorities of the government. Many agricultural communities (especially Moshavim) were established in the early 1950s, mostly in remote areas,

**Figure 2. Crop Area by Type of Locality, 2002**

and populated by immigrants. The new settlers were provided with infrastructure and professional guidance in order to allow them to make a living off agriculture. Agricultural research was also promoted and financed by the government, and the resulting technological progress was remarkable.

In the 1970s, terms of trade of agriculture were already worsening, but the prosperity of agriculture continued thanks to the opening of export markets for fruits, vegetables and flowers. This has led to increased capital investments that were subsidized by the government. However, the inevitable decline of farming, experienced by virtually all countries during the development process, was around the corner. The reliance on exports made farmers more vulnerable to world price fluctuations and macroeconomic conditions. The unstable economic environment brought about by the high inflation in the late 1970s and early 1980s made farm income even more uncertain. The large debt due to the capital investments could not be serviced adequately (Kislev, 1993). The development of non-agricultural manufacturing and service industries provided an alternative source of income, especially for the high-ability farmers. Out-migration from agriculture accelerated through two complementary channels. The first channel was by farmers selling their farms to urban families seeking rural-style residence (Kimhi and Bollman, 1999). The second channel was by continuing farmers who supplement their income by engaging in non-agricultural activities (Sofer, 2001; Kimhi, 2000).

These included on-farm small businesses as well as off-farm businesses and jobs, located in part in the surrounding rural area and in part in nearby urban centers.<sup>2</sup>

The farm debt crisis that followed the 1985 economy-wide stabilization plan was a major accelerator of this process. Many farms became practically delinquent due to the high real interest rates and could not serve as a source of income anymore. Many cooperatives collapsed, leaving their members without the safety net and support system that served them for decades (Kislev, Lerman and Zusman, 1991; Schwartz, 1999). Farmers were increasingly shifting to alternative income-generating activities, and while some of the more productive farms were able to acquire more farm resources and expand production, increasing fractions of land and other farm inputs were left unused.<sup>3</sup>

In the early 1990s, two significant structural changes took place. As a result of the Palestinian uprising, farmers found it more and more difficult to rely on Palestinian hired laborers. As a consequence, the government allowed farmers to bring in guest workers (from Thailand) in numbers that increased year after year. This allowed farmers to rely more heavily on hired labor and increase the scale of their production. At about the same time, a mass migration wave from the former Soviet Union created a housing shortage. As a result, the government allowed farm communities to convert part of their agricultural land to non-agricultural uses, including both industrial parks and residential neighborhoods. This has also been viewed as a way to help farm families overcome the debt crisis. This policy provided farmers with more opportunities to develop non-agricultural businesses, and in addition allowed the communities to expand with the addition of many non-farm families that in some cases outnumbered the farm families. Both outcomes contributed to the accelerated decline in the importance of agriculture as a source of income in rural communities.<sup>4</sup> Less than 15% of the rural labor force was employed in agriculture in the year 2000, compared to almost 85% in 1960. Today,

2 One should bear in mind that the concept of rural in a small country such as Israel is relative. Most rural residents live within a couple of hours drive from a major urban center. In addition, "development towns" were established in rural areas during the immigration wave of the 1950s, in order to provide hired labor to the farm communities. By the 1980, some of these towns (but not all) were prosperous enough to provide jobs for exiting farmers.

3 Legally farmers were not allowed to trade land and water quotas. This regulation was more or less self-enforced by the cooperatives, but after their collapse, and given the financial hardships of the farmers, it became common to lease land and water, mostly on a short-term basis.

4 Another outcome of the housing shortage was a boom in real estate prices. This allowed and still allows farmers in the central part of the country to sell off their farm to wealthy urban families who seek a rural residence and do not have any interest in farming.

in many rural communities only a handful of families are living off agriculture. The population had become more heterogeneous, and inequalities within as well as between farm communities and regions have expanded (Sofer and Applebaum 2006).

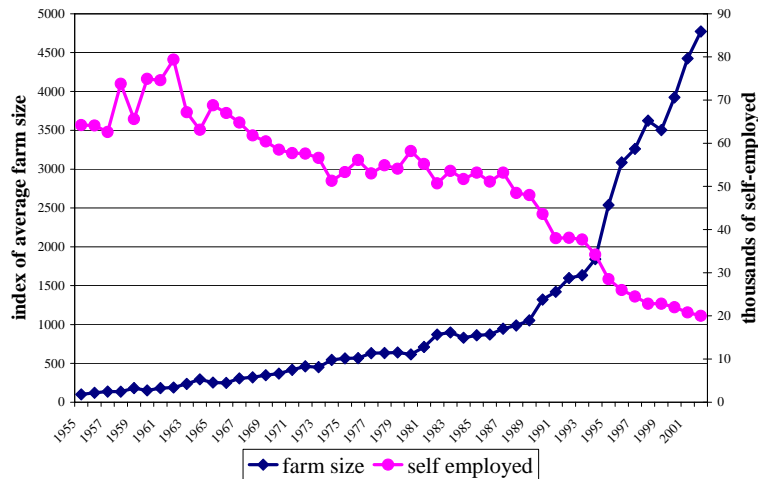
### **Evidence on the increase in heterogeneity**

As mentioned above, Moshav cooperatives were established with the principle of equality in opportunity. Each family obtained exactly similar means of production.<sup>5</sup> Over the years, members who were successful in their operation intensified their production mostly through capital investments, while those who were less successful supplemented their farm income from off-farm labor. Of the latter, those who were successful off the farm eventually gave up farming altogether. Some of them remained in the village, keeping the ownership of their inactive farms, while others sold their farms and moved out. As the fraction of inactive farms increased, active farmers could further intensify their production using the land, water and production quotas of the inactive farms. Hence, the decrease in the number of farms and the increase in the size of farms go hand in hand, as can be seen in figure 3. Farms which were sold to outsiders were sometimes bought by prospective farmers who competed with the existing farmers over the quotas, but sometimes, especially in proximity to urban centers, by city residents seeking rural amenities. In the latter case, this increased the ability of existing farmers to expand.

Farm expansion, naturally, was not homogenous. Each farm expanded in the direction in which it had a comparative advantage. During the expansion, farmers also identified economies of scale in certain farm activities. Hence, the process of farm growth went hand in hand with the increase in farm specialization, as can be seen in figure 4. The increase in specialization across cooperatives can be traced partially by looking at specialization by geographical regions. For example, the Negev region accounted for 23% of cut flowers and 23% of vegetables in 1976. These numbers went down to 6% and 15%, respectively, in 1999. On the other hand, the share of the Negev region in Citrus cultivation went up from 5% in 1976 to 9% in 1999. The Theil index of Moshav specialization went up from 0.52 to 0.55 between 1992 and 2001 (Kimhi and Rekah, 2006).

5 With the exception of some communities in mountainous areas where the land could not be divided equally. In those cases some farms obtained land for crops while other farms obtained quotas for livestock.

**Figure 3. Trends in the Number of Farmers and Average Farm Size**



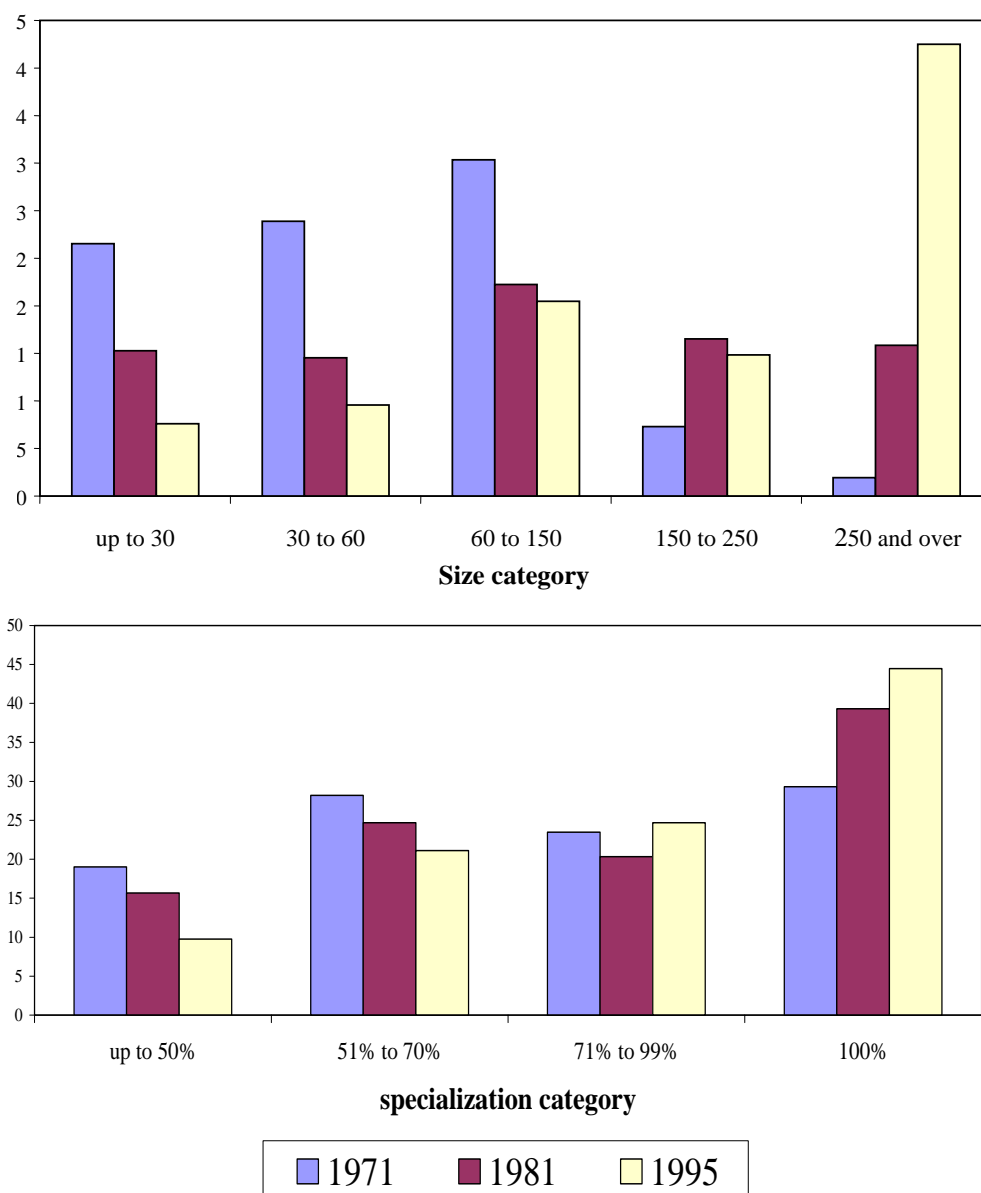
Source: Ahituv and Kimhi (2006).

The occupational structure in Moshav cooperatives has also changed dramatically over the years. Figure 5 shows that the fraction of Moshav employees employed in agriculture went down from 75% in 1960 to 15% in 2002. This reflects both exit from farming and the tendency of existing farm families to diversify their income portfolios. Among active farmers, one can also trace a shift towards off-farm employment, but this shift is mostly a result of the increase in the off-farm participation rates of spouses and elderly children of the farm operators, while the operators' rates of off-farm labor participation remained relatively stable (figure 6). This implies a conceptual change in the definition of Moshav farms as family farms. These days the farms are mostly operated by an operator (and hired workers), whereas other family members are less involved. This is also reflected in the increased reliance on hired labor, including foreign workers, over the years. Hired workers comprised only 40% of the total employed in agriculture in 1965, but their fraction reached 56% in 2007.

### Further evidence on population heterogeneity in the Moshav

Some more insight into on population heterogeneity in the Moshav can be obtained from two telephone surveys that were conducted in 2003 and 2006 in a sample of 101 randomly-chosen Moshav cooperatives. These data reflect one of the most

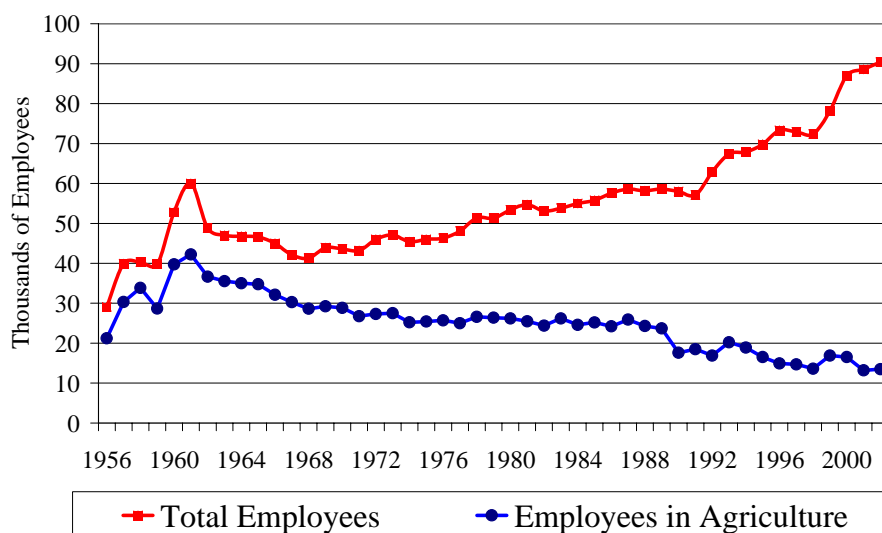


**Figure 4. Trends in the Distributions of Farm Size and Specialization**

Source: Census of Agriculture (1971 and 1995), Survey of Agriculture (1995).

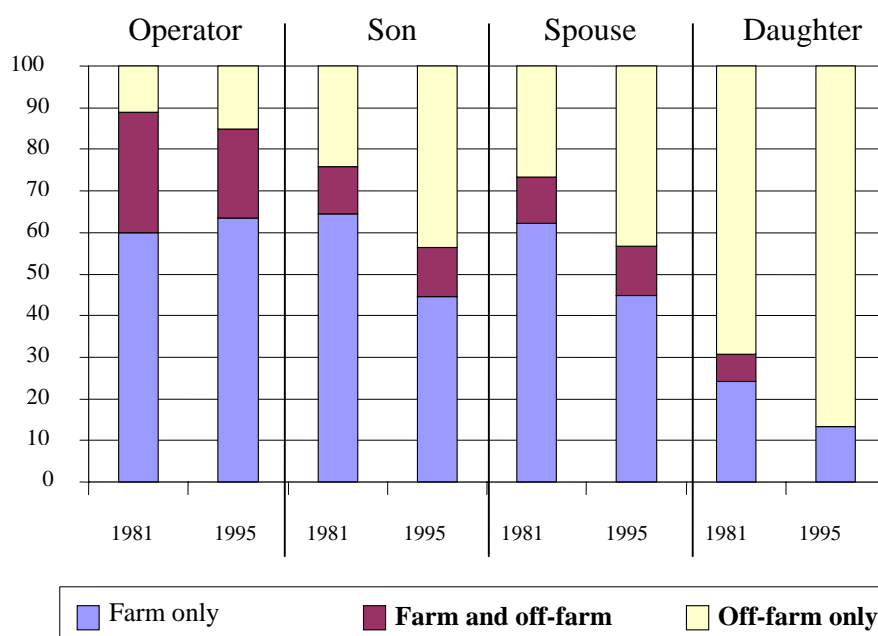
Notes: Size is measured as gross value added (NIS 1,000 in 1995 prices). Specialization is measured as the fraction of the largest enterprise in total value added.

**Figure 5. Moshav Employees**



Source: Statistical Abstract of Israel, various years.

**Figure 6. Changes in the Off-Farm Labor Participation Patterns**

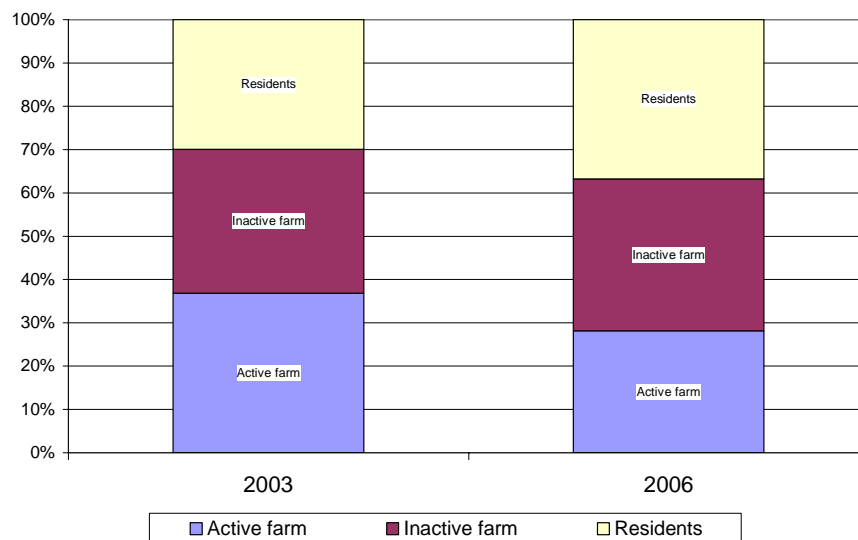


Source: Kimhi (2004)

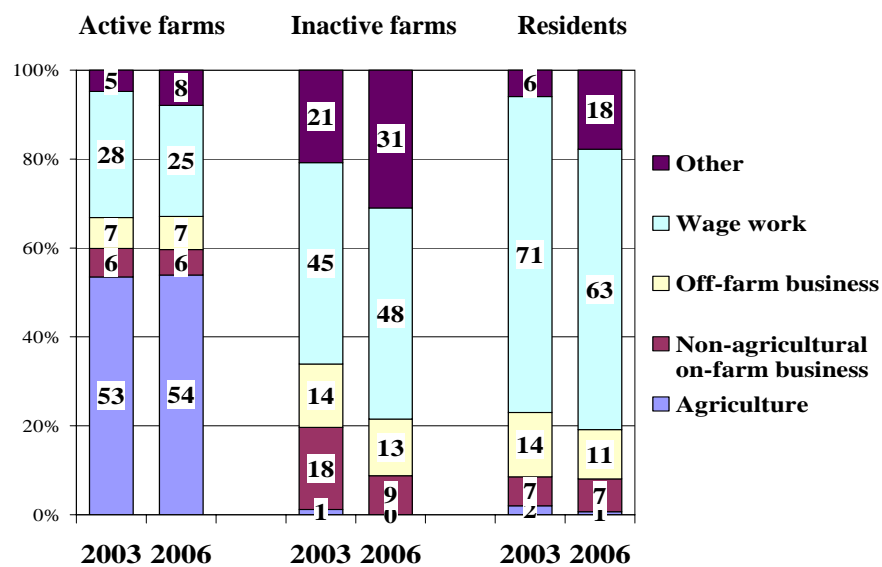
dramatic structural changes, namely the construction of residential neighborhoods within Moshav communities. These neighborhoods were originally intended for non-succeeding children of Moshav families, but were eventually inhabited by outsiders as well. This provided a demographic boost to Moshav communities, which were struggling to provide adequate municipal services to a population that grew older, but also created conflicts between farmers and non-farm residents, that could potentially harm social cohesion within the Moshav.

Figure 7 shows that the fraction of residents (families without farms) has increased between 2003 and 2006, mostly on the expense of active farms. This has resulted in a decrease in the income share of agriculture from 22% in 2003 to 15% in 2006. However, among those who remained active farmers, about half still derive most of their income from farming (figure 8). Comparing the 2006 sample income distribution to that of the country as a whole, we find that 22.4% of the sample households are located in the bottom quintile of the country-wide income distribution, while 30.5% are located in the top quintile. This implies that the income distribution within the Moshav population is less equal than in the Israeli population as a whole. Figure 9 shows that the Moshav income distribution also has a strong geographic dimension, mostly among households that do not operate a farm.

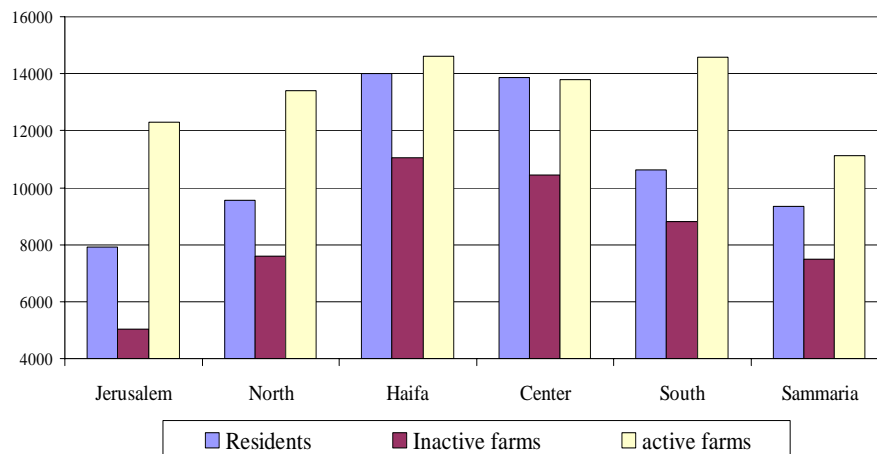
**Figure 7. Changes in the Distribution of Moshav Households**



**Figure 8. Primary Income Sources of Moshav Households**



**Figure 9. Gross Monthly Income (NIS) of Moshav Households**



### Summary and conclusions

The Israeli Moshav cooperative was designed as a group of homogeneous family farms, all equal in size and resources. Over the years, processes of selective migration and specialization have increased heterogeneity within each Moshav. This has led to destabilization of the social and economic viability of the cooperative, and was one of the reasons for the financial crisis of 1985. This paper has investigated the process of heterogeneity and specialization and examined its consequences in the post-crisis period.

In particular, we have documented the aggregate trends of decreasing number of active farms, increasing farm size, increased farm specialization, and increased reliance on off-farm income. All these lead to increased heterogeneity and polarization within and between Moshav cooperatives. We also examined data from more recent surveys among Moshav households, and found that the diversity of household income sources continues to rise, in part due to the inflow of non-farm families and in part due to the shift away from farming among farm households. This has implication for the viability of the Moshav as a social entity, and raises concerns about the ability of the Moshav population to overcome conflicts between cooperative members and residents and between farmers and non-farmers.

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