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Albania's agriculture sector: Concise assessment (2017)

by

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Preamble

The statistical data in this note are mainly derived from the following sources:

- The INSTAT online statistical database (<http://databaza.instat.gov.al/pxweb/en/DST/>)
- Agricultural statistical collections for Albania for the years 2012, 2013, 2014, and 2015 downloaded from the INSTAT web site (<http://www.instat.gov.al/en/publications/>)
- The FAOSTAT online statistical database (faostat.org)
- The Knoema online statistical database (knoema.com) that integrates data from a variety of international sources (World Bank, IMF, UNDS, and more).

The purpose of the note is to provide a concise assessment of the developments in Albania's agriculture since the end of the communist era and to highlight main issues that require corrective interventions.

Abbreviations

| | |
|------------|--|
| GDP | Gross Domestic Product |
| GAO | Gross Agricultural Output |
| GVA | Gross Value Added (dominant component of GDP) |

Introduction

Albania's agriculture today has been shaped by three waves of agrarian reform:

- The post-World War II "land-to-the tiller" reform implemented in 1946 that eliminated the dominance of large estates and distributed land to the agricultural population. This land reform, like distributive land reforms in many countries around the world, was driven by considerations of social equity.
- The collectivization reforms in the late 1950s and the early 1960s that consolidated land in large collectives (production cooperatives) and state farms, reversing the 1946 distributive reform. The collectivization reform was justified by the Soviet-era ideology that advocated economies of scale and industrialization of agriculture.
- The post-communist "land-to-the-tiller" reform that began in 1961 as part of the general transition to market economy. As in other transition economies, the objective of this reform was to transform the agricultural sector from the Soviet model to a market-compliant model of the advanced Western economies. However, contrary to other transition countries in Central and Eastern Europe, Albania did not restitute land to former owners but instead decided on equitable distribution of land to the agricultural population, as in many former republics of the USSR. The post-communist reform produced hundreds of thousands of small farms divided into several parcels: in 2012, there were 350,000 farms with 1.02 ha cropped area in 4.9 parcels per farm on average (INSTAT, Agriculture Statistics 2012).

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The role of agriculture in the economy

Agriculture cannot be evaluated on its own. It is integrated in the country's overall economy and should be judged relative to other macro indicators. Agriculture's share in GDP has decreased sharply since 1992, as the share of services soared while the share of other industries remained relatively constant (**Figure 1a**). Agriculture nevertheless averaged above 20% of GDP in the period 2005-2015 (INSTAT), with services accounting for 40% of GDP in recent years and all other sectors combined contributing another 40%. Agriculture's share of GDP in Albania is much higher than the corresponding share in developed countries in Western and Southern Europe and even in Eastern Europe and Central Asia (**Figure 1b**).

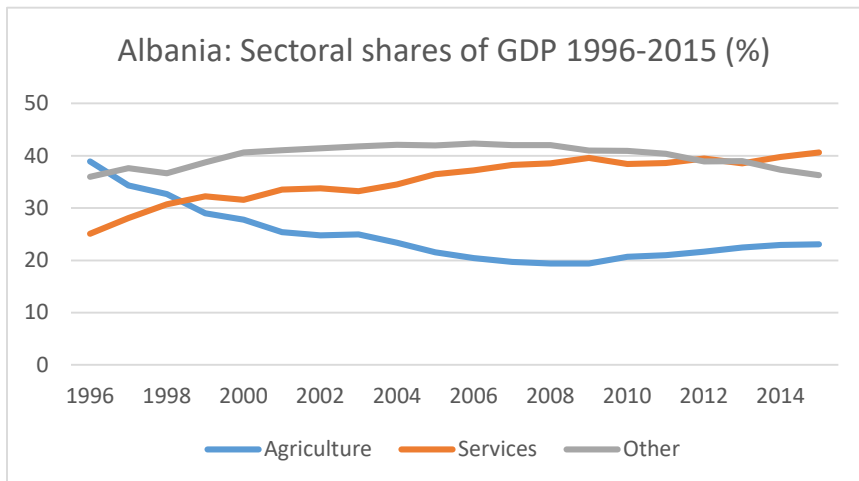


Figure 1a.

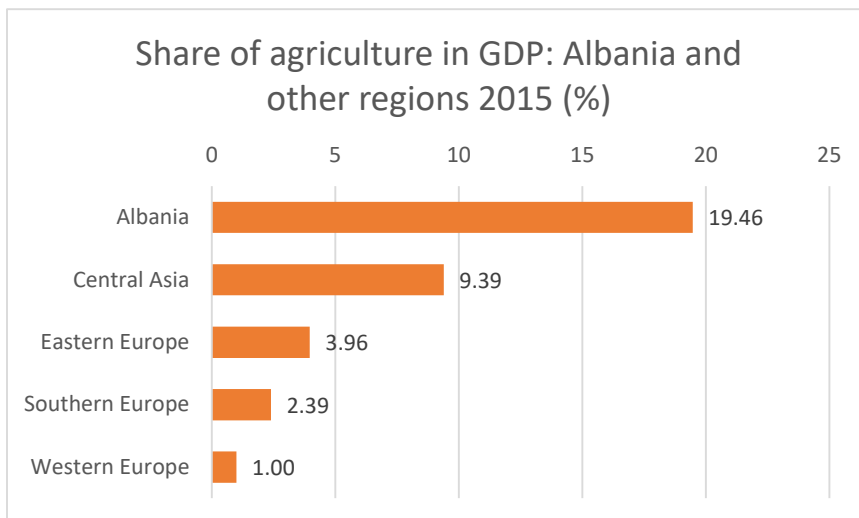


Figure 1b.

Agriculture's share of GDP began decreasing as overall economic growth accelerated in 1996-1997. The fast growth of GDP clearly registers in both current and constant values (**Figures 2a and 2b**, respectively), while agriculture was growing at a slower rate. The chart in current prices creates a false impression of stagnation during the communist period up to 1990. This impression is merely an artifact of the nominal price scale used on the vertical axis in **Figure 2a**: transformation to constant (inflation-adjusted) prices clearly shows (**Figure 2b**) that both GDP and GAO (Gross Agricultural Output) grew at a respectable rate also during the communist period, although 1990 was clearly a trigger point for accelerated growth. GDP in constant prices grew by 150% between 1997 and 2015, at an average annual rate of 4.5%, while GAO (grew by close to 100%, at a lower average annual rate of 3.8% (**Figure 2b**). The phenomenon of agricultural growth somewhat lagging behind overall economic growth is typical of all transition economies, where the emergent services sector that played a minor role in the socialist era begins to contribute massively to GDP.

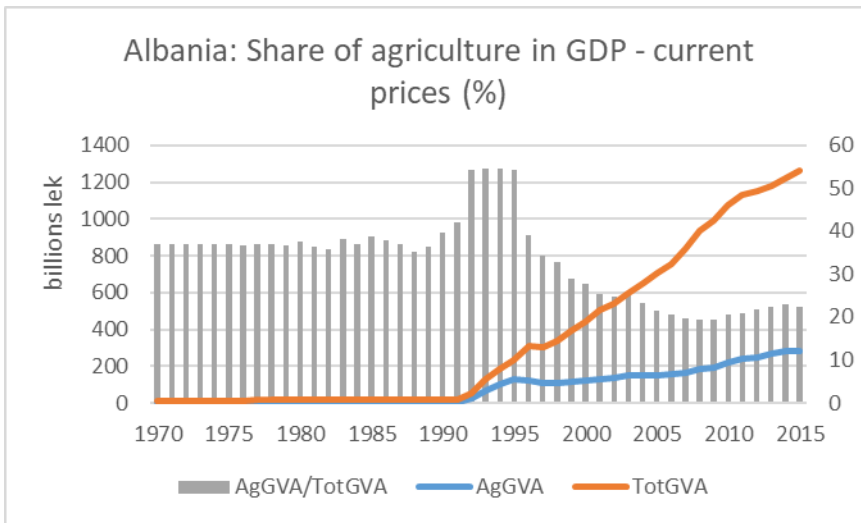


Figure 2a.

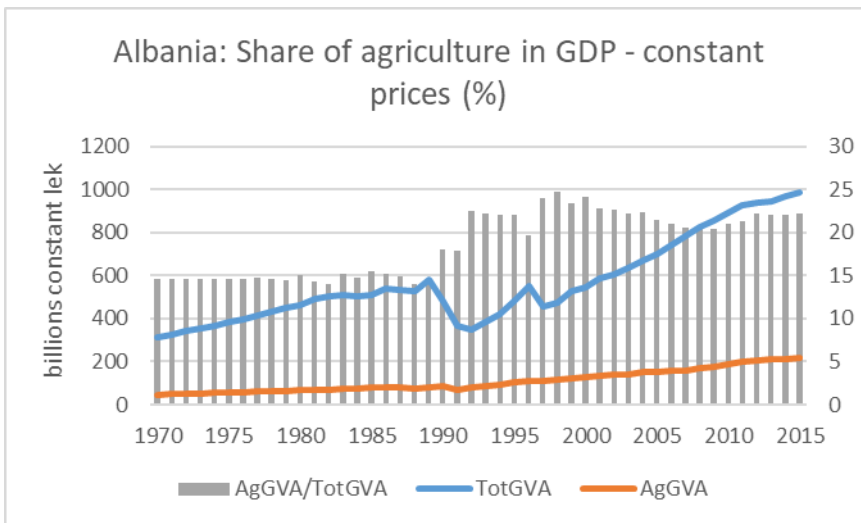


Figure 2b.

Agriculture’s share in total employment is also decreasing over time (Figure 3), but at around 45% in 2013-2015 (INSTAT) it remains phenomenally high not only by Western standards, but also by the standards of other transition countries. Decrease in agricultural employment is a feature of economic development observed everywhere in the world. As the economy grows, new sectors emerge to attract labor away from more traditional sectors. In Albania, this is the services sector. Decrease in agricultural employment generally leads to increases in labor productivity, certainly if agricultural production grows (as it does in Albania).

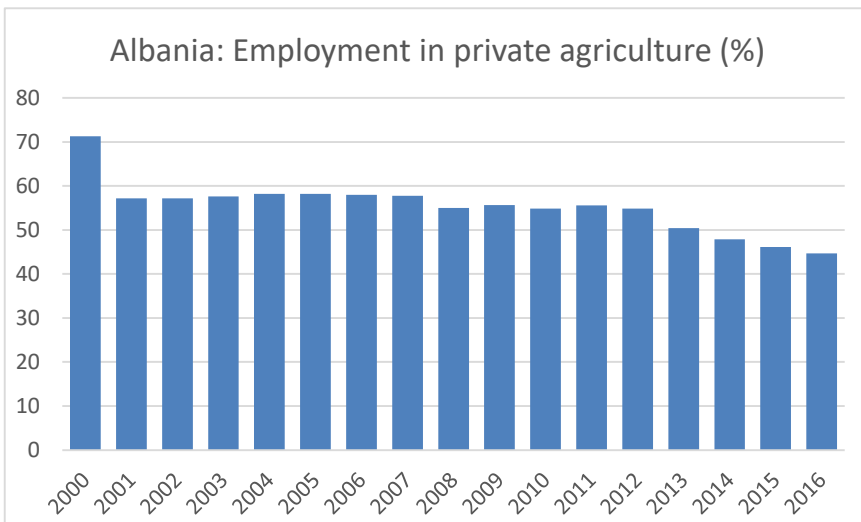


Figure 3.

Agriculture's contribution to exports and imports

Agriculture's contribution to exports is very small. Agricultural exports have been increasing during the last decade and especially in the last three-four years (**Figure 4**), but by 2016 they had reached only 10.5% of Albania's total exports (**Figure 5**). This is roughly one-half of agriculture's share in GDP. Albania's agricultural exports are highly undiversified. Just three aggregated groups of products accounted for 80% of total exports in 2016: fruits and vegetables, both fresh and processed (35% of exports), live and canned fish (31%), and medicinal plants (15%). The available numbers suggest that most of the fish produced is directed to exports, whereas surprisingly **only a miniscule share of fruit and vegetable production is exported**. It can be only surmised that medicinal plants are grown primarily for exports.

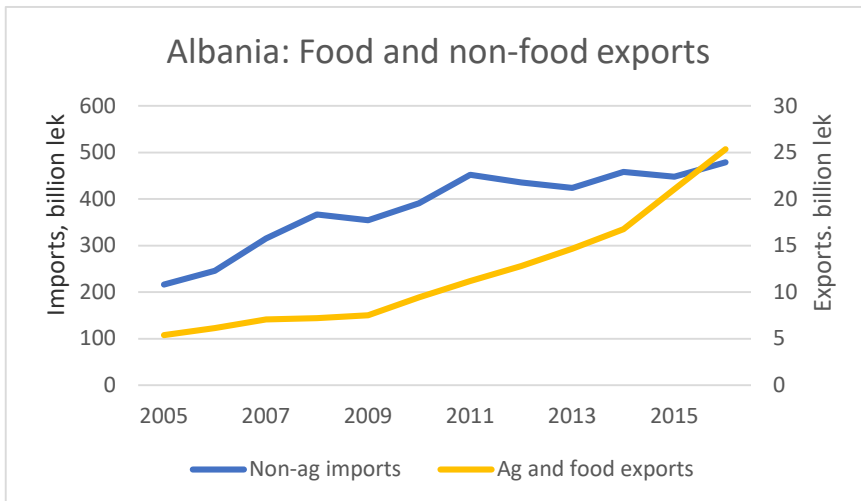


Figure 4.

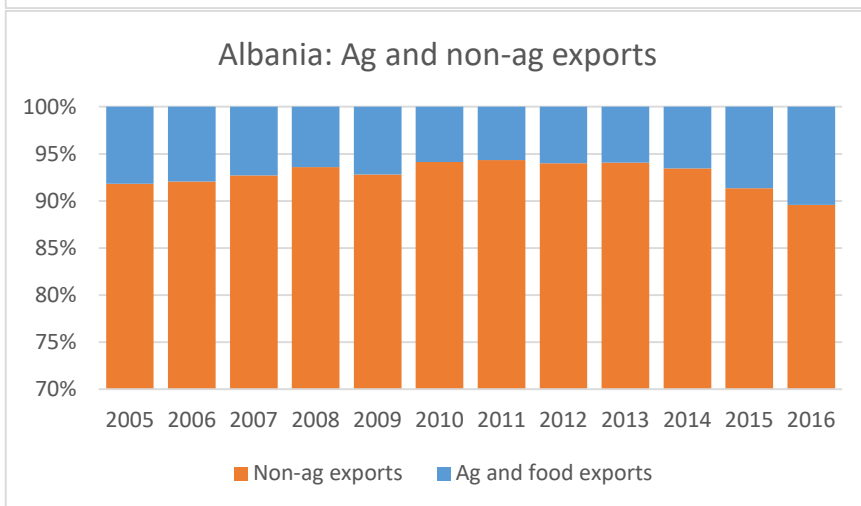


Figure 5.

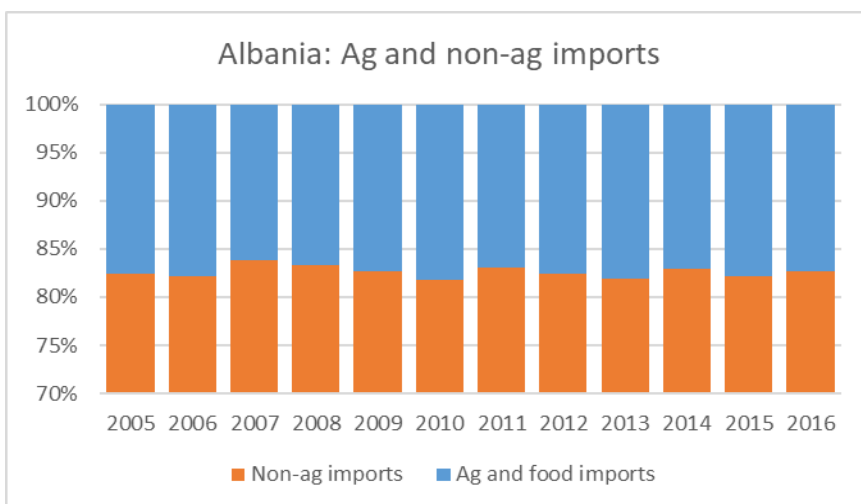


Figure 6.

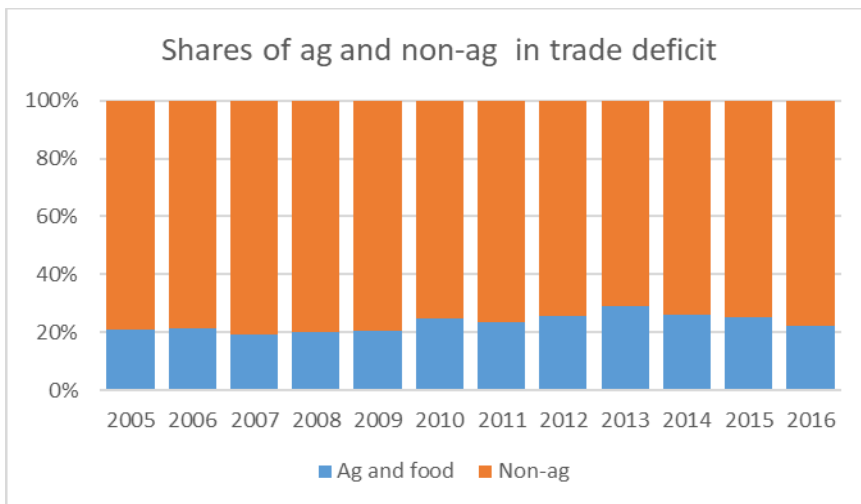


Figure 7.

Agriculture’s share in imports is much higher than its share of exports, running at about 17%-18% of total imports during the recent decade (**Figure 6**). As a result, agriculture’s share in trade deficit has been around 25% in recent years, although by 2016 it had dropped to 22% due to the reported increase in exports (**Figure 7**).

Efforts to increase agricultural exports and reduce agricultural imports thus can have a noticeable effect on reducing Albania’s trade deficit. A 10% increase in agricultural exports simultaneously with a 10% decrease in imports (keeping other trade components unchanged at their 2016 level) will reduce the overall trade deficit by about 4%, bringing it down from 336 billion lek (2016 numbers) to 323 billion lek. A 10% increase in agricultural exports alone, without an accompanying increase in import substitution, will reduce the trade deficit by a mere 0.75%. This is the justification for the two-pronged focus adopted in the PMO’s Program for Investment in Agriculture:

- investments that increase agricultural exports;
- investments that increase import substitution (i.e., reduce imports).

There are two prerequisites for increasing exports and reducing imports. One is to increase agricultural production and in this way build up surpluses, above the subsistence level, that can be sold on domestic and foreign markets (import substitution and export, respectively). The other is to increase the farmers’ willingness to sell and facilitate their access to domestic and foreign markets, both technically and institutionally.

Production growth and farm sales

Albania’s agriculture is growing at a respectable rate. Like all transition countries, Albania suffered a considerable decline in agricultural production due to the disruptions during the first years of transition, but recovery came much faster than in other transition countries – after only three years (**Figure 8**). Albania’s Gross Agricultural Product (GAO) declined by 32% between 1989 and 1991 and then resumed its growth, more than doubling (in constant prices) between 1991 and 2015. After the events of 1996-1997, agriculture grew until 2015 at an average annual rate of 3.8% (in constant prices). During the last five years (2010-2015), the annual growth rate stabilized at 2.8%.

While agriculture is growing, **farmers sell only a relatively small portion of their production**. The very limited data available on farm sales indicate that the average share of output sold fluctuates around 30% (INSTAT data for 2004-2012; **Figure 9**). This is an average figure, so there are naturally farms that sell much more than one-third of the output and at the other extreme there are farms that sell nothing. Yet it seems fair to say that Albanian farms are not locked into the subsistence mode and policies should be designed to encourage farmers’ existing willingness and ability to sell.

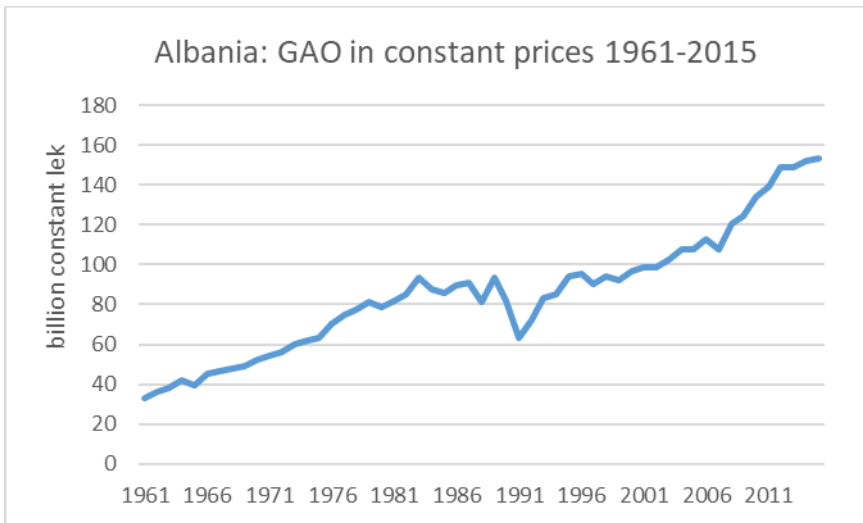


Figure 8.

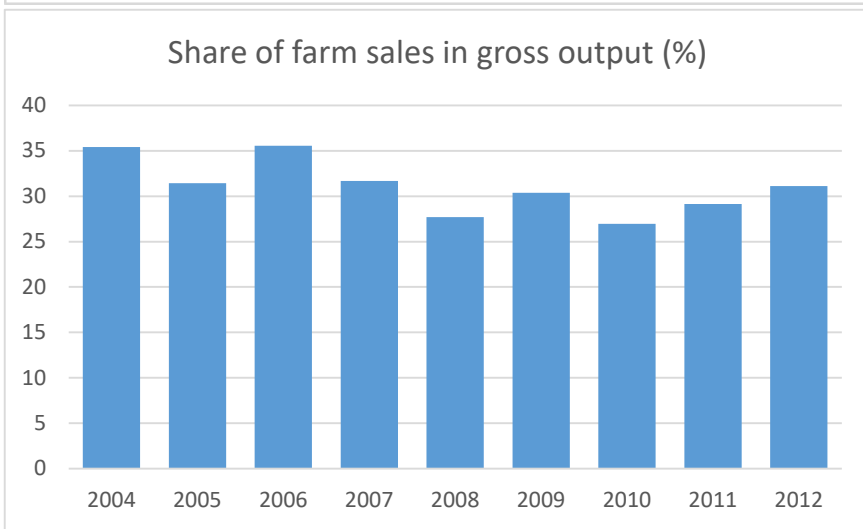


Figure 9.

Import substitution: imbalances in supply and demand

The importance of import substitution emerges with great clarity when domestic consumption of food products is compared to domestic production. Cereals, fruits and vegetables, meat (including live animals), and vegetable oils are among the import leaders accounting in aggregate for 50% of total imports in 2016 (INSTAT; Figure 10).

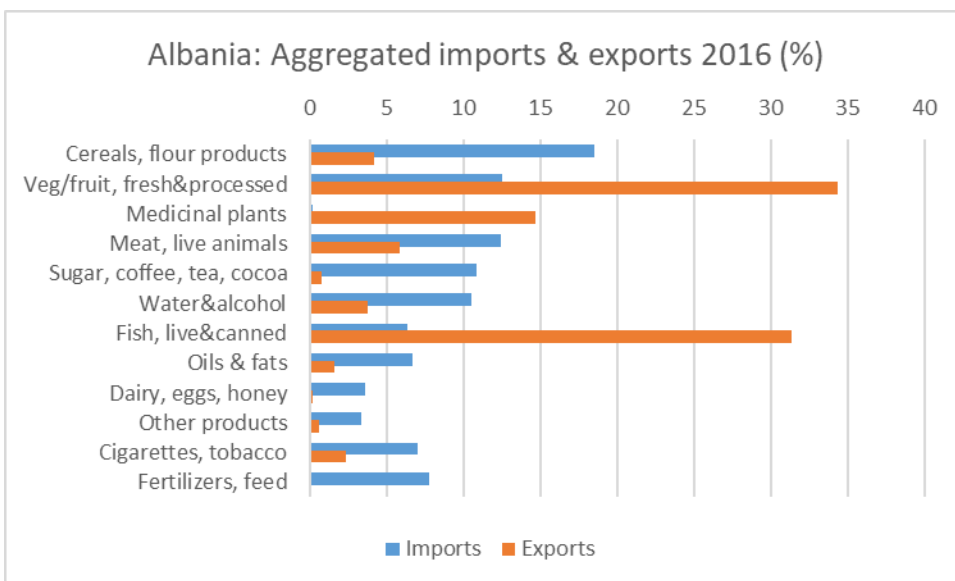


Figure 10.

For cereals, domestic production satisfies only 60% of domestic needs, but not much can be done to correct the shortfall because of the agro-climatic conditions that are not favorable for growing cereals in Albania. Yet the shortfalls for meat, fruits, and vegetable oils can certainly be reduced by increasing domestic production, which currently runs at 78% of demand for meat, at a surprisingly low 86% for fruits, and at an astonishingly low 3% for vegetable oils (Knoema.com; **Figures 11, 12, 13**). These are rough estimates, because they use aggregate numbers without exact product-by-product matching between production and demand, but they nevertheless identify the **three areas – meat, fruits, and vegetable oils – where increases in production can improve import substitution**. The production of vegetables balances domestic demand (**Figure 14**), so **any increases in production can be directed to increase vegetable exports**.

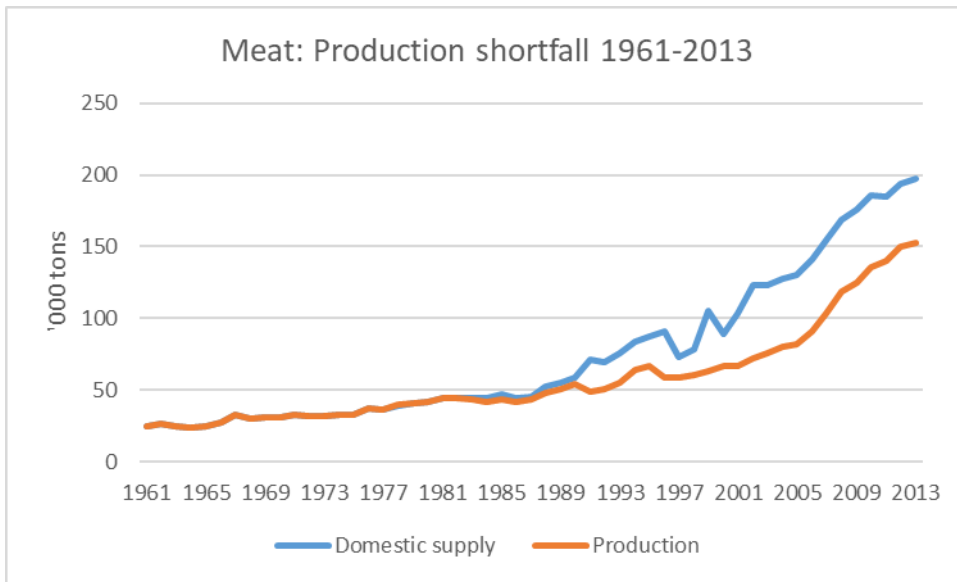


Figure 11.

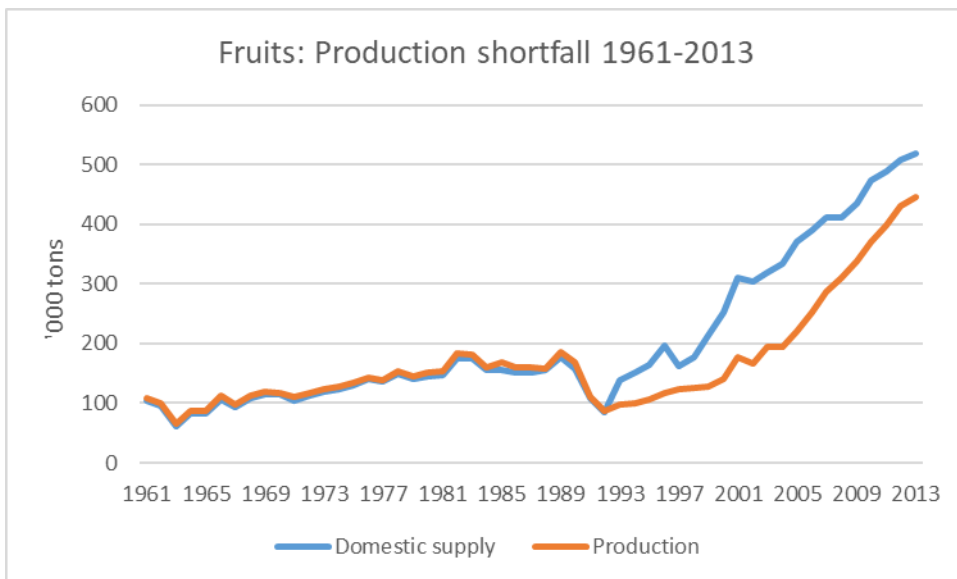


Figure 12.

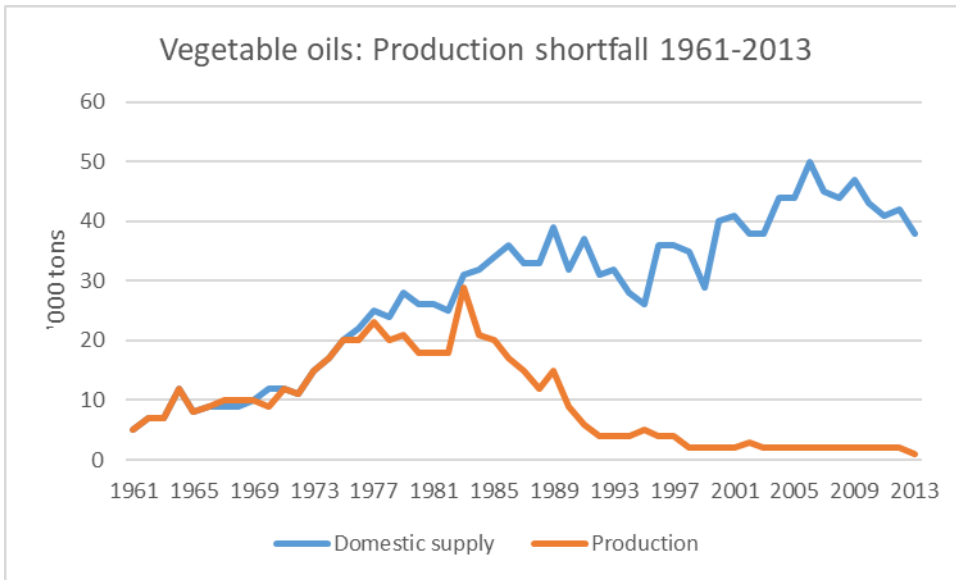


Figure 13.

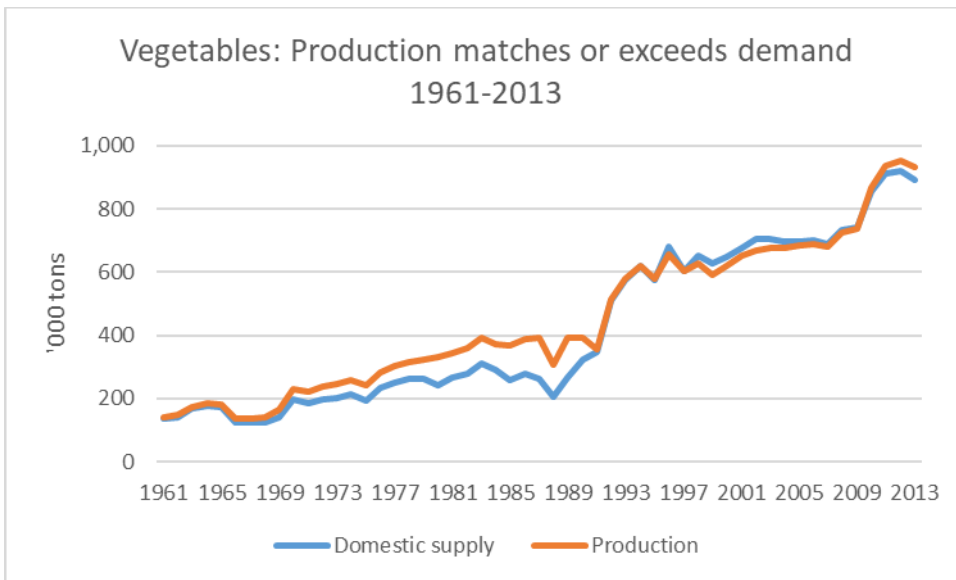


Figure 14.

Structure of agricultural production: crops, livestock, uncultivated land

Crops were the dominant component of Albania’s agriculture all through the communist period, with the share of crop production running at around 80% of GAO. It began to decrease in 1986, dropping to a plateau of 50% between 1996 and 2006. In the last decade, the share of crop production rose back to 60% of GAO (Figure 15).

Livestock has always played an important, though generally subordinate, role in Albania’s agriculture. The share of livestock in total agricultural production, equal to one minus the share of crop production, increased from a steady 20% during the communist era to 30% in 1989, then to 40%, and finally peaked at 50% between 1996 and 2006. In the recent decade, the share of livestock production receded back to 40%, still much higher than during the socialist period (Figure 15). By this measure, Albania today does not stand out among the CEE and CIS countries. Livestock production is much more important at the household level, where sales of livestock products account on average for 60% of family income (INSTAT data for 2004-2012; Figure 16).

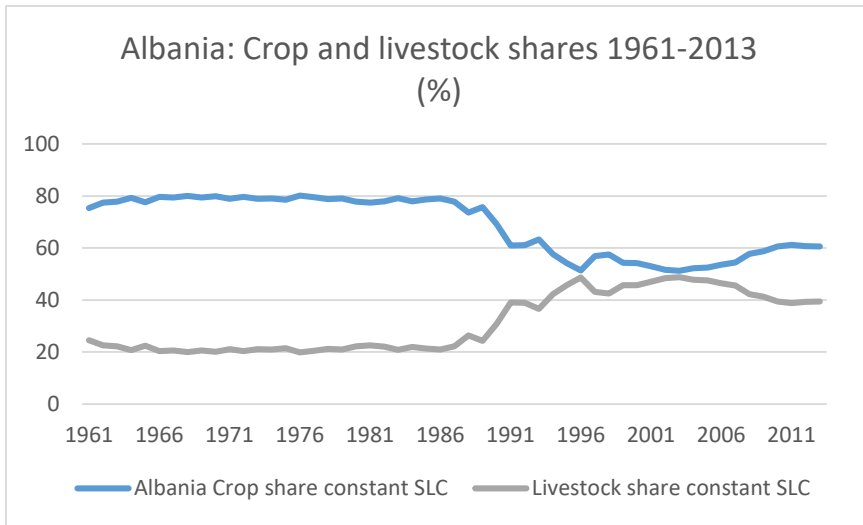


Figure 15.

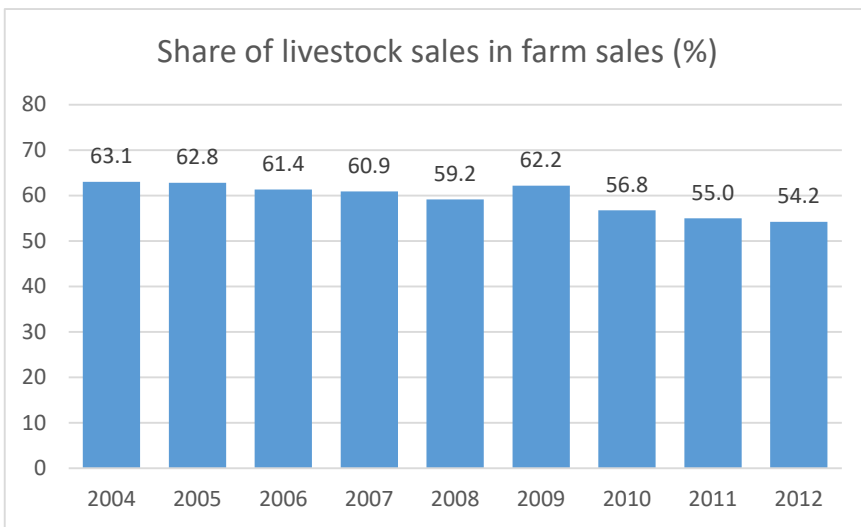


Figure 16.

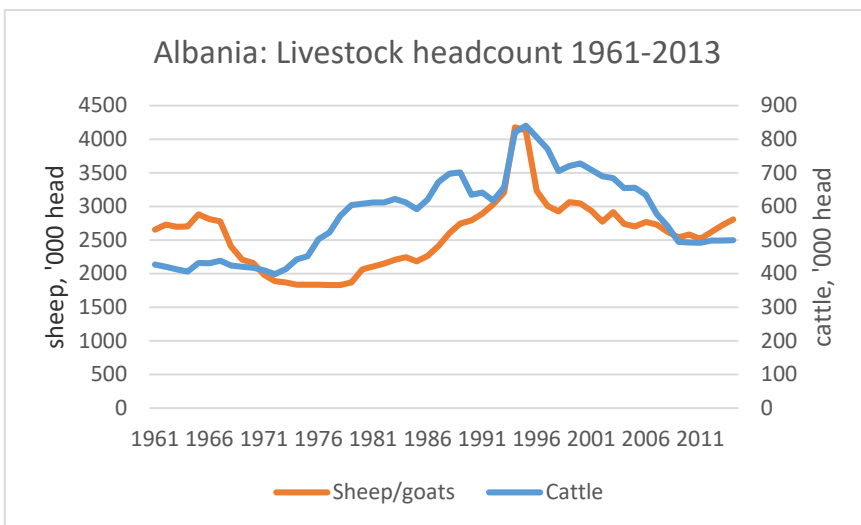


Figure 17.

The livestock headcount reached its peak in 1995, declining thereafter through 2015 by 40% for cattle and 30% for sheep and goats. In 2015, Albanian farmers had 500,000 head of cattle and 2.8 million sheep and goats (Figure 17). This translates into **1.7 head of cattle and 9 sheep per farm** on average in 2015 (assuming 300,000 mixed farms with crops and livestock out of total 350,000 farms in 2011 according to INSTAT data). Without access to the 2012 agricultural census it is impossible to assess the distribution of the number of animals across farms and to determine the extent of

variation between small and large farms. However, even without full distributional data it is clear that many farms with only 1 cow produce small quantities of milk and special collection facilities are required to ensure that the milk from these smallholders reaches dairies and thence the market.

Arable land is the main agricultural resource for crop production. During the communist period, official statistics indicated full utilization of arable land: there was practically no or very little uncultivated land up to 1990. After 1990, the share of unutilized arable land began to grow, stabilizing at 35% since 2008. The cropped area (i.e., area sown to crops) decreased from a peak of 570,000 hectares in 1990 to 400,000 hectares at 2001, a decrease of 30% in a little over a decade (**Figure 18**). It has remained at that level ever since. **Bringing unutilized arable land back into cultivation requires a combination of policy measures and investments, including mapping, surveying, and reclaiming.**

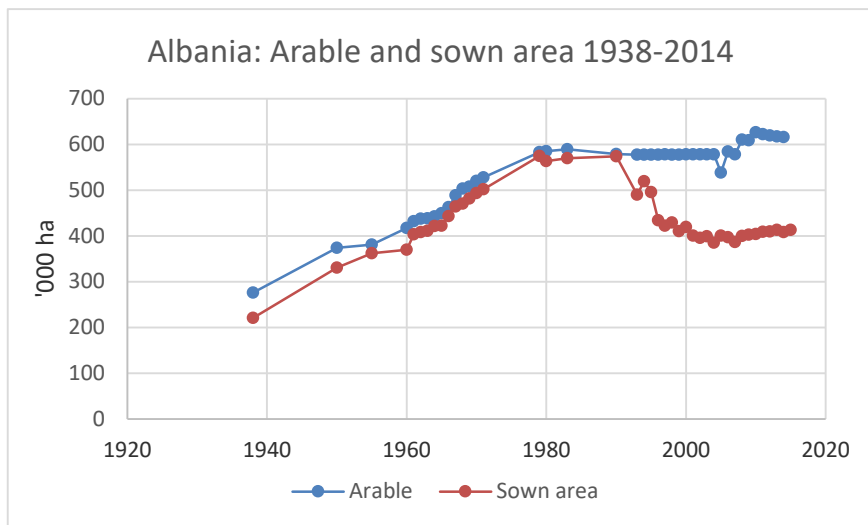


Figure 18.

Forage crops: improved feed base?

The main crops in terms of the sown area they occupy are cereals and forage crops. The share of area under forage crops steadily increased from 35% in 1998 to 50% in 2007 and has remained at that level since then. The area sown to forage crops expanded by 40% between 1998 and 2015 (from 146,000 ha to 207,000 ha) despite a 30% decrease in cattle numbers (from 700,000 head to 500,000 head). The area for the expansion of forage crops came at the expense of cereals, whose share in cropping structure dropped from 50% in 1998 to 35% in 2007 and thereafter. All other crops – legumes, vegetables, and industrial crops – have remained at a level of about 15% of sown area since 2007 (**Figure 19**).

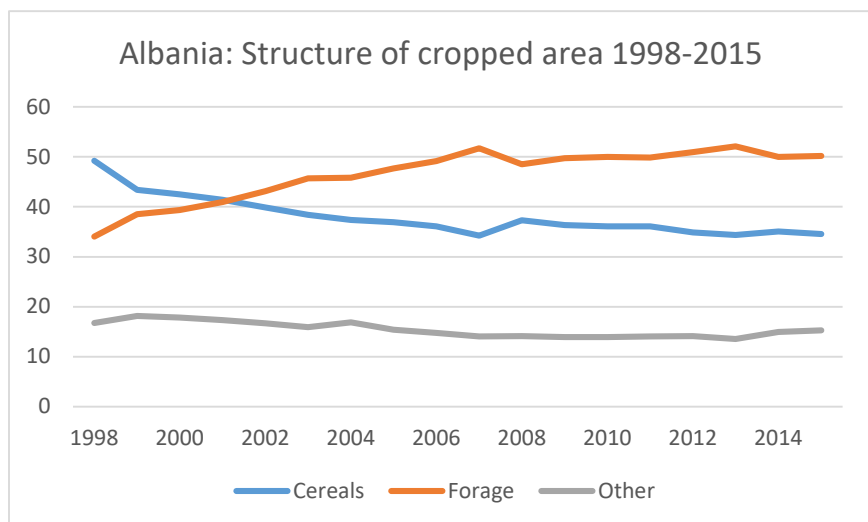


Figure 19.

It is noteworthy that the area sown to forage crops expanded by 40% between 1998 and 2015 (from 146,000 ha to 207,000 ha) despite a 30% decrease in cattle numbers (from 700,000 head to 500,000 head; **Figure 20**). The availability of area under forage crops accordingly doubled from 0.2 ha per cattle head to 0.4 ha. Feed availability in tons per head per year more than doubled from 5.5 tons in 1998 to 12 tons in 2015. At the same time, milk production increased by about 40% (from 700,000 tons to 970,000 tons), which combined with the decrease in the headcount of cows produced an impressive increase in milk yields from 1,700 kg per cow per year in 1998 to 2,700 in 2014 and 2015 (**Figure 21**). **These increases in milk yields may have been associated with the improvement of the feed base since 1998.**

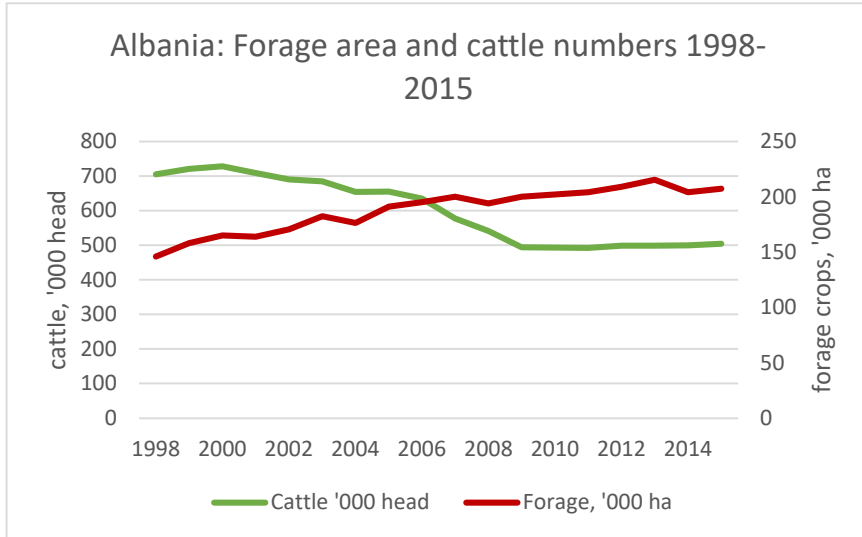


Figure 20.

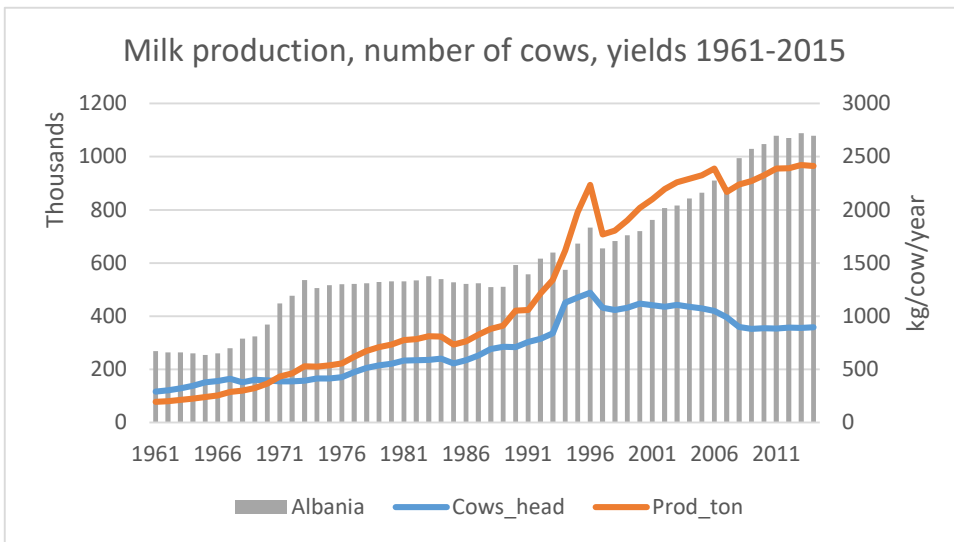


Figure 21.

Despite the 60% increase since 1998, milk yields remain low by international standards. Milk yields in Albania are substantially lower than in the EU and even lower than in Eastern Europe (**Figure 22**). The respective numbers in 2014 were 6,800 kg per cow per year in the EU and 4,500 kg per cow per year for Eastern Europe (this group includes also the countries in the European part of the CIS). Albania is doing better by milk yields only compared to the five Central Asian states (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan), which averaged 1900 kg per cow per year in 2014. There is a huge potential for technological innovation to bring livestock production to EU or at least Eastern European standards.

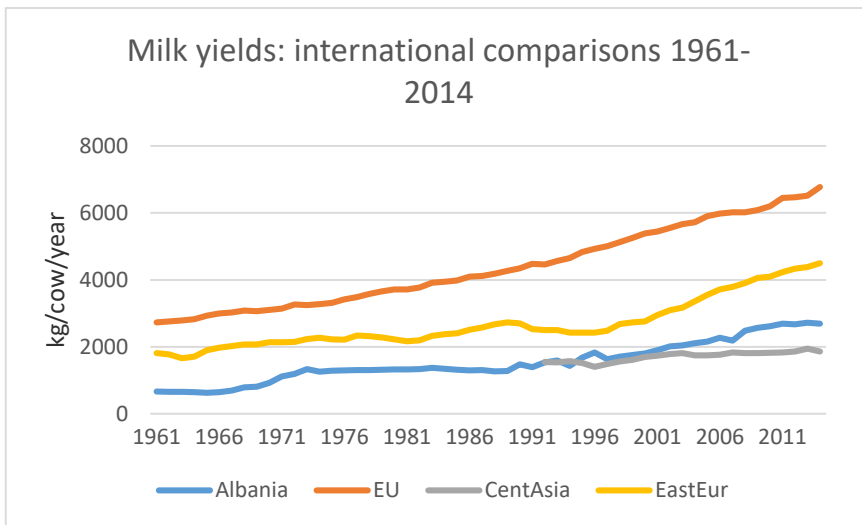


Figure 22.

Greenhouses and greenhouse vegetables

The adoption of greenhouses is an important yield-increasing technological innovation in Albanian crop agriculture. INSTAT reports data on greenhouses only since 1998 but greenhouses probably began to emerge in Albanian agriculture much earlier. The area in greenhouses of different types grew rapidly from 309 ha in 1998 to 1,250 ha in 2015 (Figure 23). In 2012 there were 5,708 greenhouses with covered area of 940 ha, i.e., 0.165 ha or 16,500 sq. m per greenhouse on average. Access to the 2012 agricultural census database is required in order to characterize fully the distribution of greenhouses by size. Yet the growth and apparent success of greenhouse vegetable growing in Albania proves again the well-known fact that **smallness of farms is a relative concept that depends on the technology used in production.**

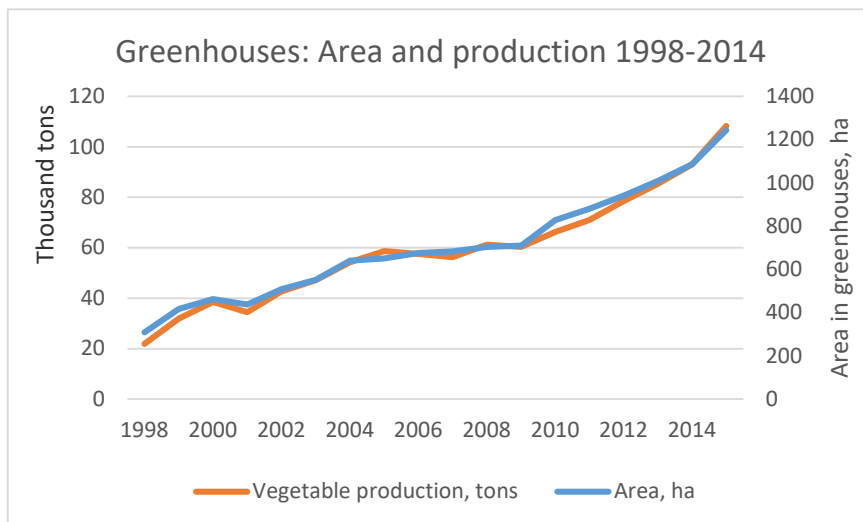


Figure 23.

In terms of yields, greenhouses clearly perform up to expectations. **The yields of greenhouse vegetables are around 80 tons/ha since 1998, compared with just 25 tons/ha for vegetables grown on open ground (Figure 24).** The production of greenhouse vegetables increased closely following the increase of the greenhouse area (Figure 23), which suggests that the yields of greenhouse vegetables remained fairly constants between 1998 and 2015. Despite the successful performance, greenhouses still account for a minor share of total vegetable production in Albania. Thus, with peak

production of 110,000 tons of fresh vegetables in 2015, greenhouses accounted for less than 17% of total production of fresh vegetables that year.

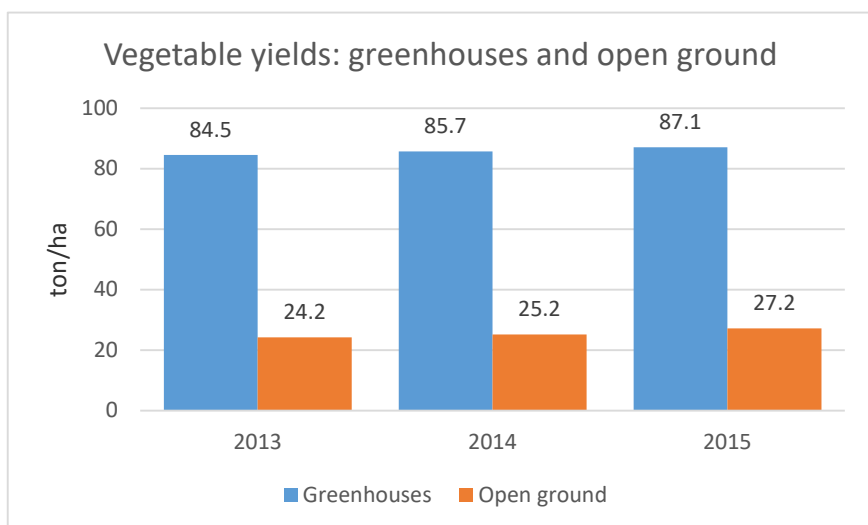


Figure 24.

It thus seems that **there is an excellent potential for improving farm profits by expanding into greenhouse vegetables**. However, greenhouses require investment and involve higher operating costs than open-ground crops. Therefore, a careful cost-benefit analysis has to be performed before expansion into greenhouses can be recommended as a strategy for Albanian farms.

Farm fragmentation: alleviating the “curse of smallness”

INSTAT data show that the average farm size in Albania gradually increased from 1.04 ha in 2000 to about 1.2 ha in 2010-2012 (Figure 25). This process of farm size consolidation did not affect the fragmentation into parcels: the number of parcels remained around 4.6 per farm and the average parcel size fluctuated during this period between 0.20 ha and 0.30 ha without a clear pattern (Figure 26). **Fragmentation into multiple parcels has been shown to have a negative effect on productivity and efficiency, but there is no evidence in the literature of economies of scale in primary agriculture**: the consensus among researchers is that the efficiency of primary agricultural production does not increase with farm size and **every disadvantage that smallholders experience due to small size can be offset through institutional and market mechanisms**.

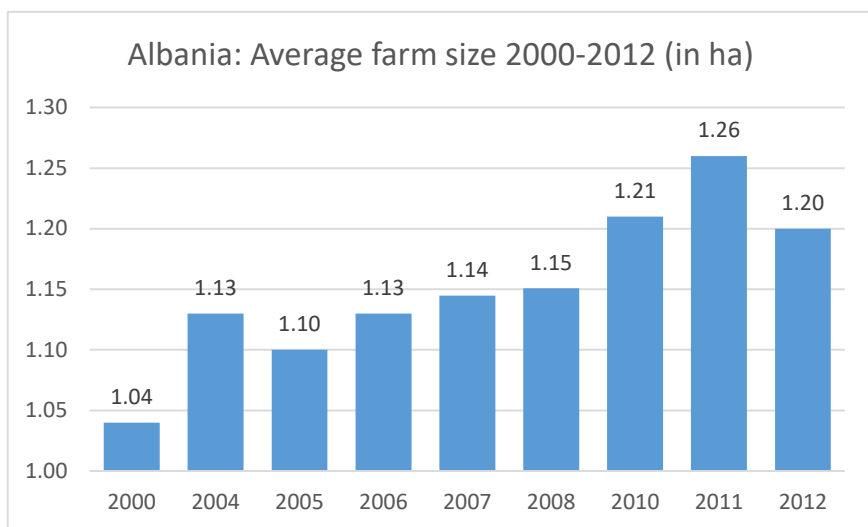


Figure 25.

Thus, small farms are disadvantaged relative to larger farms with respect to availability of machinery and equipment; this disadvantage can be compensated through wide spread of machinery leasing services or establishment of machinery pools for joint use. Small farms are disadvantaged relative to larger farms with respect to market access – be

it access to markets for product sales, markets for input purchases, or markets for credit and borrowing; this disadvantage can be countered by effective enlargement and creation of market power for smallholders through group action in the form of marketing, supply, and credit cooperatives. Market access disadvantages for smallholders also can be alleviated through contract arrangements with large processors, marketers, or input suppliers that by virtue of their market power can shield small farmers from the negative effects of smallness while securing their own supply of raw materials. The disadvantages listed above are known in the literature as the “curse of smallness”. World experience shows that **best options for alleviating the curse of smallness include horizontal or vertical integration**. In agriculture, horizontal integration usually implies cooperation among farmers through group action, whereas vertical cooperation represents arrangements whereby smallholders benefit from special contract arrangements with larger organizations.



Figure 26.

Horizontal and vertical cooperation provide techniques for consolidation of services – machinery, marketing, input supply, credit – while leaving production and productive resources (land and livestock) in the family. Of course, it will be advantageous to consolidate the scattered parcels managed by a single family into larger contiguous plots. However, the experience of other transition countries that launched formal parcel consolidation programs (Slovakia, Moldova) has been highly discouraging. World experience suggests that **parcel consolidation should be left to market mechanisms through fully discretionary buy-and-sell or leasing transactions**. Farmers should be allowed to make market-driven consolidation decision given their qualifications, aims, and management capacity. State programs should preferably stay out of the process.

Above and beyond these technical and institutional factors, human capital plays a predominant role in eliminating economies of scale in agriculture. **Management capacity is one of the best tools that farms have to overcome the “curse of smallness”, with management capacity built up by a combination of formal training, hands-on experience, and natural aptitudes**. When the management factor is added to appropriate econometric models, the results conclusively show that there are no economies of scale in primary agriculture and that small farms perform no worse than large farms. There is no reason to be afraid of smallholder agriculture.

Rural population: A profile

Albania’s rural population increased during the entire Communist period, rising from less than 1 million in 1950 to a peak of 2.1 million in 1990. The change of economic and political regime in 1990 led to persistent outmigration from rural areas, with the rural population dropping to 1.2 million by 2016 (Figure 27). The decrease of the rural population between 1990 and 2016 (–900,000 people) greatly exceeded the long-term increase in the urban population (+500,000 people) and as a result Albania’s total population decreased by as much as 12% during this period. Strong rural-to-urban migration has been strongly reinforced by overall emigration, which affected the rural sector to a much greater extent than the urban.

Consistently with overall development trends, the share of rural population in Albania showed secular decrease from 70% in 1960 to 64% in 1990 (about 2% per decade), accelerating thereafter to 42% in 2016 (decrease of more than 8% per decade). Rural population shows marked regional variability: thus, in 2015, the share of rural population in Albania ranged from a low of 17% in Durres to a high of 73% in Diber, averaging 42% nationally. The median share of rural population was substantially higher (54.5%), as in only 4 of the 12 regions the share of rural population was below the average. Despite the continuing decrease since 1990, the share of rural population remained high over time, which is consistent with the high share of agriculture in employment noted at the beginning of this note.

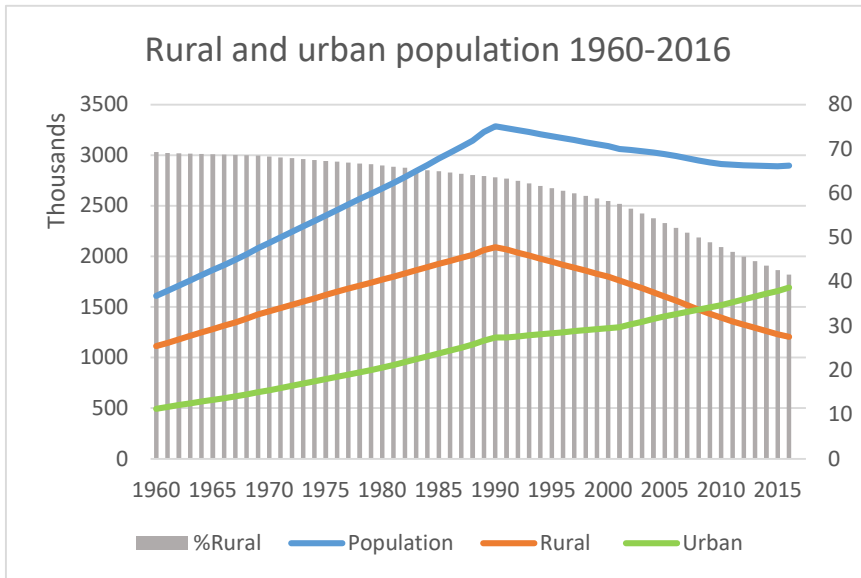


Figure 27.

According to World Bank’s LSMS 2012, the poverty headcount ratio is 14.3 (i.e., 14.3% of the population is below a poverty line), with the highest ratio recorded in Kukes (22.5) and the lowest in Vlore (11.1) and Elbasan (11.3). These poverty headcount ratios are reported for the entire population. Separation into urban and rural poverty headcounts gives 13.3 for the urban population and 15.3 for the rural population. Yet LSMS 2012 reports a decrease in rural poverty in recent years, while urban poverty has increased considerably. An attempt to reveal possible differences between urban and rural poverty did not produce conclusive results: no relationship was found between the poverty headcount on the one hand and the share of rural population or total rural population across prefectures (2011 numbers). Thus, statistically speaking, poverty is not a feature of the rural population (Figure 28). To quote LSMS 2012, “Poverty does not appear to be solely a rural phenomenon anymore. Instead, poverty has mainly shifted to the urban areas.”

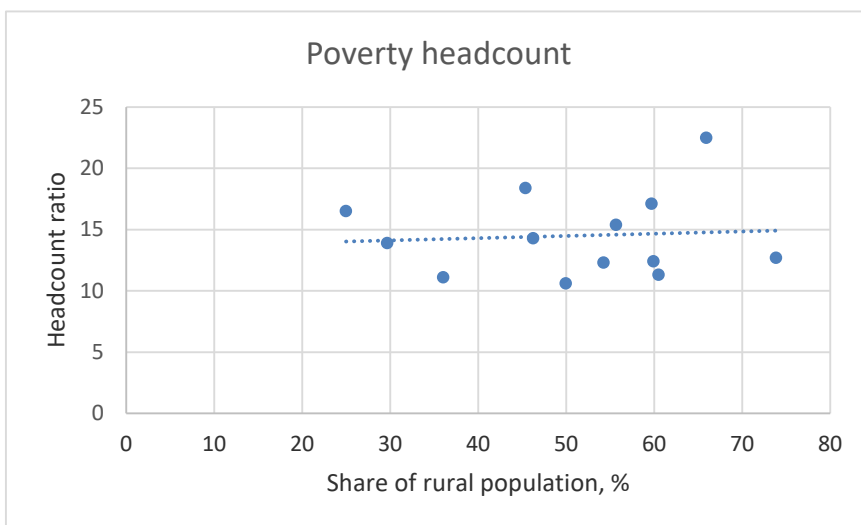


Figure 28.

The mountain region used to be the poorest in Albania, with poverty headcount ratio of 44.5 in 2002 (compared to country average of 25.4). By 2012, the poverty headcount ratio in the mountain region had dropped dramatically to 15.1

and it is now close to the country average of 14.3. Regional poverty disparities have also largely disappeared over time (INSTAT).

The average size of a farm household in Albania was 4.5 in 2012. The farm population in Albania is not particularly aged: 41% of the farm population are between the ages of 22-54 and only 12% are older than 65. The young generation (younger than 24) account for 34% of the farm population, providing a sufficient intergenerational replacement pool. The age distribution of farm holders is more skewed toward older people: fully 33% of farm holders are older than 65, which may reflect accumulation of experience or traditional respect toward the elderly. Gender discrimination is very pronounced: only 6% of farm holders are women.

Educational attainment is a standard measure of human capital. Among Albanian farm holders, 63% have primary or lower education and 34% finished high school (30% agricultural high school). Farm holders with university education – whether agricultural or general – are a mere 3% of the farm population. This distribution is substantially different from the national distribution of educational attainment reported in the 2011 Population Census. Nationally, only about 15% have primary education and fully 70% completed high school. Farm population is thus characterized by a substantially lower human capital endowment than the national average.

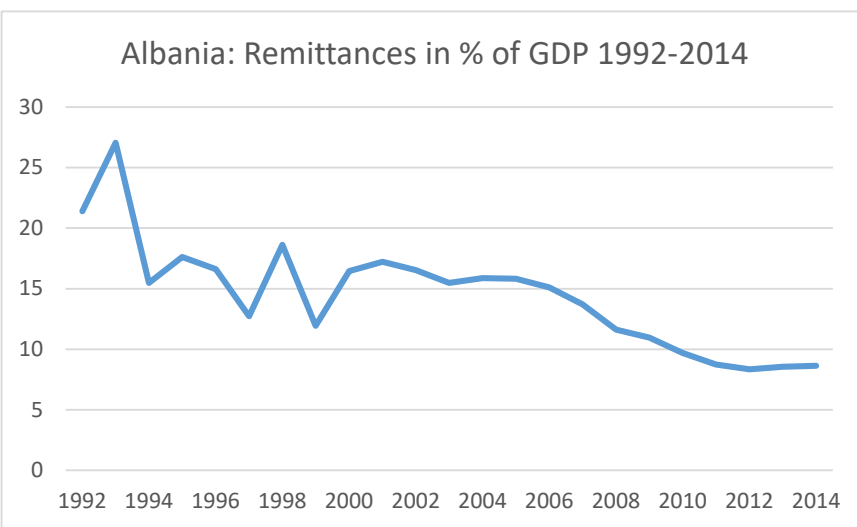


Figure 29.

Remittances from Albanian workers abroad have accounted for about 8% of GDP since 2012 (Figure 29). This is a dramatic drop from a high of 27% during 1993 and even from the 15%-16% plateau that characterized the period from 2000 to 2006, when the continuing decline in the share of remittances in GDP began (Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/DDOI11ALA156NWDB>). According to the Bank of Albania and INSTAT (2009 Balance of Payments Bulletin), 55% of remittance-recipient household are in rural areas and remittances account for 29% of total household income for remittance recipients (much less nationally). In line with the decline of the share of remittance in GDP, there has been a decline in the share of remittances in total income (down from 35% in 2007 and 31% in 2008). Remittances are received mainly from emigrant workers in Greece (46% of migrants) and Italy (41%). Of the average quarterly remittance of EUR 289, about 60% is used to meet the daily household needs.

* * *

This concludes the concise assessment of Albania’s agriculture. The following table assembles the various issues raised above into an outline of possible policy measures for increasing agricultural exports and reducing imports.

Proposed policy measures to address the weaknesses of Albanian agriculture

| Sectoral symptoms | Suggested policy measures |
|---|--|
| Low share of agriculture in total exports | Aggressively promote exports of fruits and vegetables – fresh and processed |
| | Support development of export infrastructure: sorting and packing facilities, warehouses, refrigerated trucks |
| | Increase production of fish, fruits, and vegetables to create exportable surpluses: <ul style="list-style-type: none"> • Develop aquaculture • Plant new orchards and vineyards • Build more greenhouses as a proven yield-increasing technology |
| | Expand export-oriented food processing |
| | Explore potential for export of medicinal plants by systematic application of advanced market-research tools. |
| | Sponsor development of tools for cost-benefit analysis of investments in greenhouses: higher returns versus higher investments and operating costs |
| | Examine economic feasibility of planting new orchards and vineyards |
| Large agricultural trade deficit | Encourage production of import substitutes by developing processing industries |
| | Increase production and processing capacity for meat, fruits, and vegetable oils to expand import substitution |
| Most exports are to non-EU countries | Pursue systematically the goal of obtaining EU certification for milk and other livestock products by developing the required quality control, standards, and monitoring procedures |
| | Study and apply the experience of new accession countries |
| Farm sales account for less than one-third of production | Create mechanisms to increase farm sales by supporting private intermediaries and integrators |
| | Emphasize horizontal and vertical integration (establishment of cooperatives, contract farming) as a mechanism for increasing farm sales |
| Livestock: 40% of agricultural production, 60% of farm income from small producers with less than 2 cows attaining very low milk yields | Increase milk yields by <ul style="list-style-type: none"> • Providing quality feed in sufficient quantities • Improving animal health through development of veterinary services • Ensuring access to latest information on best livestock practices |
| | Establish special collection and testing facilities to ensure that the milk from smallholders reaches dairies and the market in required quality |
| | Secure EU certification of Albanian livestock products by ensuring that EU quality requirements and standards are met |
| | Establish programs to provide small farmers with young stock |

| | |
|--|---|
| One-third of arable land is uncultivated | Create legal and administrative mechanisms to map, survey, and title land as a step toward development of land markets |
| | Adopt tools to bring land back into cultivation: <ul style="list-style-type: none"> • Link land tax to land-use efficiency • Pay incentives to land users who attain above normal efficiency |
| Land fragmentation: small farms divided into several parcels | Fragmentation into multiple parcels has a negative effect on productivity and efficiency; parcel consolidation should be left to market mechanisms through fully discretionary buy-and-sell or leasing transactions; the government's role is to provide the legal and administrative framework for the development of a land market |
| | There is no evidence for economies of scale in primary agriculture: small farms are no less efficient than large; farm sizes will grow naturally as land markets and human capital develop; the government should advance the creation of legal and administrative frameworks for land market development |
| | Horizontal and vertical integration, including contract farming arrangements, provide the best options for correcting the disadvantages of smallholding; the government should create an enabling environment for the emergence of integration |
| | Management capacity and technological innovation are also among the best tools that farms can use to counteract the smallness constraints; the government should emphasize agricultural education and training to build up human capital among farmers; the government should support free flow of technological, scientific, and market information to farms |