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INVESTING IN THE AGRIBUSINESS VALUE CHAIN AND CHANGES IN GDP

INWESTOWANIE W ŁAŃCUCH WARTOŚCI W AGROBIZNESIE A ZMIANY W PKB

Key words: agribusiness, agriculture, rural sector, GDP, agribusiness value chain

Słowa kluczowe: agrobiznes, rolnictwo, PKB, łańcuch wartości w agrobiznesie

Abstract. The goal of the research was to present the role of investing in the agribusiness value chain as a factor impacting the change in the share of agriculture in GDP and, secondly, to show the dependencies between the share of the agricultural sector in GDP and the level of GDP per capita. In the article the authors drew attention to a potentially conflicting issue connected with the development of agriculture. On the one hand, investment in agribusiness and the rural sector contributes to the development of rural areas; on the other hand, countries with a large share of the agricultural sector in GDP have a much lower GDP per capita than countries with a low share of the agricultural sector in GDP. Therefore, it seems significant not to make investments only but to place them properly in the appropriate links of the agribusiness value chain. It could be better not to invest directly in agricultural areas, but in other agribusiness stages, decreasing the share of the agricultural sector in GDP. Increasing the share of the services and manufacturing sectors, which are directly or indirectly related to the agricultural sector can contribute to the decline in the share of agriculture in GDP. These changes can be made by re-training of persons connected with agriculture and searching for jobs for them in large urban areas or by enabling such persons to create jobs in the agriculture-related sector or by establishing non-agricultural companies in rural areas.

Introduction

Agriculture constitutes a major sector of the economy and numerous states endeavour to achieve self-sufficiency in food production. However, the share of agriculture in the GDP in some countries is decreasing. At the same time, together with a general economic growth and the increase in affluence of society we can observe significant changes in the level of and in the food consumption structure. Investments in rural areas do not mean producing new food products only, but they also mean creating new jobs, increasing the importance of the services sector, developing the agribusiness and rural sector. Investments made in the development of agriculture and agribusinesses are, in fact, not only investments made in this sector but also they support the infrastructure already existing in rural areas [Yumkella et al. 2011]. In the case of agriculture, we have to deal with a conflicting dependency. On the one hand, investments in agribusiness and the rural sector contribute to the development of rural areas. On the other hand, countries with a large share of the agricultural sector in GDP have a much lower GDP per capita than countries with a low share of the agricultural sector in GDP.

The goal of the paper is to present the role of investing in (the different stages of) the agribusiness value chain as a factor impacting the change in the share of agriculture in GDP and, secondly, to show the dependencies between the share of the agricultural sector in GDP and the level of GDP per capita.

Material and research methodology

A critical analysis of the literature will allow the objective of the article to be reached. This analysis is to indicate differences in the definitions of the concepts of agriculture, agribusiness and the rural sector. The concept of agribusiness will be shown in static terms in relation to the concepts of agriculture and the rural sector and in terms of the process by identifying the stages in the agribusiness value chain.

Then, after defining the idea of the agribusiness value chain we will attempt to determine the impact of investments in agribusiness and the rural sector on GDP. Using the Spearman's rank correlation coefficient we will indicate the relationship between the share of agriculture in GDP and the level of income per capita in selected countries. The research material was based on statistical data of the World Bank, the International Monetary Fund and Central Intelligence Agency.

Research outcome

Defining difficulties in term agribusiness, agriculture and rural sector

It is not easy to explore the differences between the definitions of agriculture (agricultural sector), agribusiness (agribusiness sector) and rural sector. The term of agribusiness was defined as the sum total of all operations involved in the manufacturing and distribution of farm supplies, production operations on the farm, and the storage, processing, and distribution of farm commodities and items made from them [Davis 1956, Davis, Goldberg 1957, King et al. 2010]. According to this definition, agriculture is a part of agribusiness. Friedland says that agriculture is connected only with industrial processes physically located in the open air [Friedland 2002].

Additionally it is significant that the agribusiness sector is also a source of raw materials for sectors outside of the conventional food system. Agricultural products can be used to produce biomass or medicines. King and others [2010] argue also that all of this creates new strategic and competitive challenges for agribusiness companies, and it will have profound implications for the structure and operations of the supply chains in the industry.

While analysing the definitions of agribusiness and agriculture, it is necessary to consider the term of the rural sector in the economy. That term may be defined as any economic activity conducted within rural areas. It may refer directly to the agricultural rural sector through, for instance, animal breeding or producing processed food. However, it may not be connected in any way with agriculture or agribusiness – then we speak of the non-agricultural rural sector. An example is the tourist sector with its operations conducted in rural areas [Lanjouw, Lanjouw 2001]. Figure 1 shows the interdependencies held between the terms of agribusiness, agricultural and rural sectors. In Figure 1 agribusiness is shown in static terms and in relation to agriculture and the rural sector. However, you can approach agribusiness in a process manner. The process approach to agribusiness may be presented by means of the value chain in agribusiness. It follows from our considerations on definitions that agribusiness needs effective tools and measures promoting the development of agribusiness in order to identify areas of a particular need for investments, e.g. agriculture or some infrastructural factors. It is important that agriculture should be considered in an agribusiness value chain as its integral part.

A value chain (supply chain), as defined by Boehlje [1999], is a set 'of value creating activities in the production-distribution process and the explicit structure of linkages among these activities

or processes'. Agribusinesses supply inputs to the farm sector and link the agricultural sector with the final consumer through processing, marketing and distribution activities. Agricultural manufacturers such as smallholder farmers, a diverse range of agribusinesses, i.e. small and medium-sized agricultural companies, including farm input and service suppliers, downstream processors and merchants all form part of the agribusiness value chain

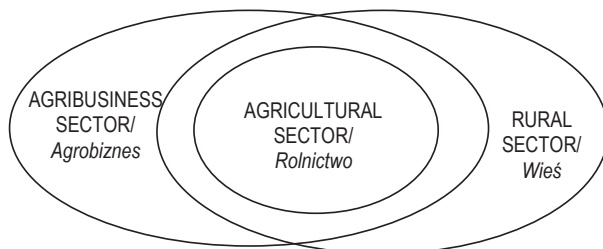


Figure 1. The scope of the terms of agribusiness, agricultural and rural sectors

Rysunek 1. Różnice definicyjne pojęć związanych z rolnictwem

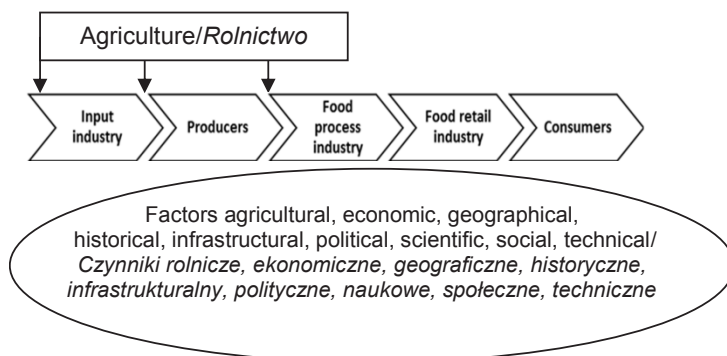
Source: own study

Źródło: opracowanie własne

Figure 2. Agribusiness value chain (agribusiness stages)
Rysunek 2. Łańcuch wartości w agrobiznesie (ogniwa agrobiznesu)

Source: compiled by the authors based on [Miller et al. 2010]

Źródło: opracowanie własne na podstawie [Miller et al. 2010]



[Miller et al. 2010]. It is often at these downstream levels where investment can cause the most growth in the chain.

Of particular importance for development is a dynamic private agribusiness sector, which plays a vital role for growth in the agricultural and the rural non-agricultural sector. However, it must be noted that access to finance plays a fundamental role in promoting viable agribusinesses [Miller et al. 2010, *Safety and health...* 2000].

Investing in agribusiness, agriculture and the rural sector

It should be emphasized that the change in the profile of activity in rural areas is usually limited by capital possibilities. The other two factors of production, namely land and labour, in these areas are much less rare goods¹. Agricultural economists, such as King and others [2010], have developed financing instruments and arrangements tailored to the characteristics of the farm sector: loan portfolio, credit analysis, and capitalization structures for financial institutions serving the sector as well as valuable public data resources on the sector and firm financial structure and performance. There are many different ways to provide financial support in the agribusiness sector or rural sector, but it is unclear what each approach really offers and which best suits their investment objectives. It should be noted that there is an important knowledge gap and lack of transparency in agribusiness or rural investments when compared to other assets. Beyond typical forms of agribusiness (or the rural sector) financing (such as credits, loans etc.), Meyer [2011] presented five major interventions frequently sustained by governments and international agencies to support financial services. All of them could be intended to kick-start a private-sector activity². He emphasizes the role of these interventions because of two reasons. They may be useful in their own right, and on the other hand, they may convince financial institutions to serve more rural clients and farmers. Considerations on the environmental investments may also be interesting. A more profound discussion of environmental investments from the financial market point of view was presented by Dziawgo [2003, 2010, 2012]. In Poland, a potential source of support for investment in rural areas can also be funds coming from the Rural Areas Development Programme or from savings made by farms [Krupa et al. 2012, Żołądkiewicz 2012, Walczak 2013].

It follows from the considerations on the modernisation of rural areas [Esty 2011] that, firstly, in order to modernize rural areas, in fact, relatively low funds need to be invested. Secondly, it is easy to initiate entrepreneurship in every area and, thirdly, the rural sector may also be profitable. Balisacan [2007] claims that using the form of investment in agriculture can play a critical role in fostering the development of the agricultural sector in various countries.

¹ It should be emphasized that jobless people in rural areas are frequently those with the lowest qualifications.

² These interventions are microinsurance and weather index-based insurance, credit guarantee funds, warehouse receipts, agricultural development banks, agricultural investment funds [Krupa 2011].

The impact of investments in agribusiness and the rural sector on GDP

The necessary investment may be connected with agriculture, processing agricultural products or with the proper infrastructure that is indispensable in agribusiness. Also, investments made in the rural non-agricultural sector, though theoretically they are outside the agribusiness value chain, may contribute to the development of the agricultural sector by increasing income levels of inhabitants of rural areas and by providing an adequate capital return rate [Miller et al. 2010].

People involved in the agricultural sector, due to investments made, can ‘move along’ the agribusiness value chain from the input industry link, or the producers link, towards further links (still performing the activities they are familiar with), or, in a rural area, they can create a new non-agricultural company (mostly in the SME sector servicing customers they know) and thus entering the area of rural non-agricultural sector. Certainly, such investments may be more effective than investing large sums in expensive re-training and creating new jobs in cities for people from rural areas. In addition, those involved in agribusiness or the rural sector do not have to resign from conducting agricultural activities.

Due to suitable investments agribusiness may also contribute to a fall in the share of agriculture in GDP by increasing the participation of the services and manufacturing sectors that are directly or indirectly related to the agricultural sector. Countries with a big share of the agricultural sector in GDP are characterised by a considerably lower per capita GDP than countries of a low share of the agricultural sector in GDP.

The Spearman’s rank correlation coefficient³ (statistically significant at 0.01 level) is -0.904, which is a strong negative correlation between the share of agriculture in GDP and the level of per capita income (values have been calculated on the basis of data from the World Bank and Central Intelligence Agency). Figure 3 shows the indicated values based on the example of selected countries only, because of maintaining the figure’s transparency (Fig. 3).

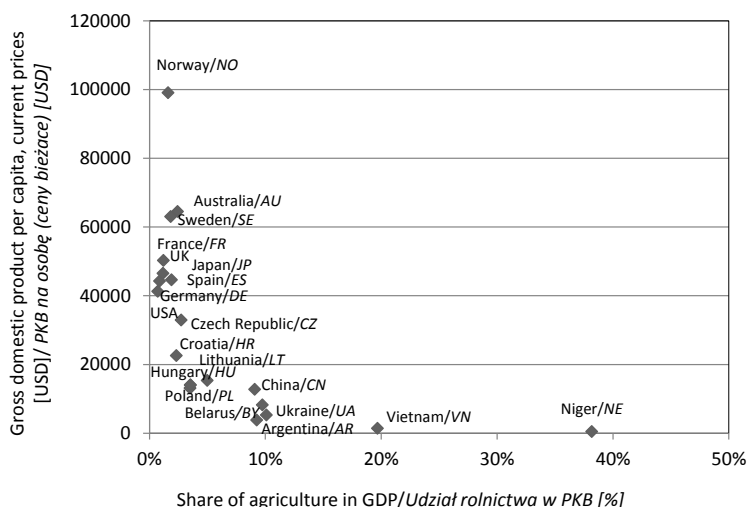


Figure 3. Gross Domestic Product per capita and the share of agriculture in GDP in 2012 (for 20 countries)
Rysunek 3. PKB per capita a udział rolnictwa w PKB w 2012 roku (dla 20 państw)

Source: Compiled by the authors based on [http://data.worldbank.org, 20.03.2014, http://www.imf.org, 20.03.2014, https://www.cia.gov, 20.03.2014]

Źródło: opracowanie własne na podstawie [http://data.worldbank.org, 20.03.2014, http://www.imf.org, 20.03.2014, https://www.cia.gov, 20.03.2014]

³ Calculated for 144 countries worldwide.

Due to the fact that the development of the agribusiness sector denotes not only increases in the income of persons working in it, it may positively impact the whole of the economy.

However, the fact that a big share of the agricultural sector in GDP is related with lower per capita GDP does not necessarily imply the opposite (not necessarily guarantee the inverse relationship). Other factors are connected with level of development of the country (developed countries usually have a lower share of the agricultural sector in GDP than undeveloped countries). It seems necessary to conduct empirical research to verify that if we reduce the share of agricultural sector in GDP of an underdeveloped country, the GDP per capita will be increased.

Summary and conclusions

As mentioned above, investments made in agribusiness and the rural sector contribute to the development of rural areas. Perhaps it could be better not to invest directly in agricultural areas, but in other agribusiness stages, decreasing the share of the agricultural sector in GDP.

Using the form of investment in agriculture can play a critical role in fostering the development of the agricultural sector in developing countries, since they contribute to growth, productivity increases, poverty reduction and hence sustainable development. The statement may have a wider application – it may refer to agribusiness and rural sectors. It must be remembered that the reduction of the share of the agricultural sector in GDP may be important. However, this dependency requires further study with the consideration of the level of the development of the state. It is not possible, however, to provide all persons involved in agriculture with alternative forms of employment. Yet, with appropriate forms of financing, it is much easier to enable those involved in agriculture to start up their non-agricultural activities in rural areas (the non-farming rural sector), or to become involved in broadly understood agribusiness, or in the processing of agricultural products.

What is relevant in the context of strengthening the economies of the various countries is the engagement in the support of not only agriculture but, primarily, of agribusiness and the rural sector to allow some people to move away from agriculture.

At the same time it should be emphasized that investment in the agricultural sector, agribusiness sector and the rural sector is not only a contribution to the development of these sectors and the reduction of poverty in rural areas, but also (for some) an investment with an excellent rate of return.

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Streszczenie

Celem badań było przedstawienie roli inwestowania w łańcuch wartości w agrobiznesie jako czynnika wpływającego na zmianę udziału rolnictwa w PKB oraz pokazanie zależności między udziałem sektora rolnego w PKB a poziomem PKB na mieszkańca. W pracy zwrócono uwagę na sprzeczną zależność związaną z rozwojem rolnictwa. Z jednej strony, inwestowanie w szeroko pojmowane rolnictwo związane zarówno z agrobiznesem, jak i z przedsiębiorczością prowadzoną na terenach wiejskich przyczynia się do rozwoju tych obszarów. Z drugiej strony, państwa o dużym udziale rolnictwa w PKB charakteryzują się znacznie niższym PKB na mieszkańca niż kraje o jego niskim udziale. Istotne więc wydaje się nie tyle samo dokonywanie inwestycji w agrobiznes, ale ich odpowiednie ulokowanie we właściwych ogniwach łańcucha wartości w agrobiznesie. Inwestowanie w inne niż rolnictwo etapy agrobiznesu może zmniejszać udział sektora rolnictwa w PKB. Zwiększenie udziału usług i sektorów produkcyjnych, które są bezpośrednio lub pośrednio powiązane z sektorem rolniczym może przyczynić się do spadku udziału rolnictwa w PKB.

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