
Relative Prices and Intersectoral Capital Transfers into Romanian Economy – Applied Method

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Abstract

Starting from the fundamental precept according to which the gross value added represents the reward of the primary factors of crop production (land, labour and capital) and from the “circularity” theory (the sum of inflows to a system is equal to the sum of outflows), the utilized methodological approach presupposes that the (implicit) inter-sectoral capital transfers result from the transactions between sectors, i.e. from the sale-purchase of commodities and services, while the sectoral prices can evolve at different rates from the price rates in overall national economy, resulting that the sectors with prices lower than the macro-economy aggregate average price will ‘receive’ capital resources, supplied by other sectors. The necessary information base consists of data on the level, structure and dynamics of total GVA (GDP), by formation resources (branches), in the period 1980 – 2017, while the methodological support of the study is represented by the relatively less known capital transfer quantification method.

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1. Introduction

In “economic behavior terms”, the Romanian farmers have a traditional propensity to prudence or even fearfulness in relation to credits, under the background of reluctance to running into debt, which are attitudes that risk insolvency under an unstable financial - economic environment if no correct evaluations for rational investments are made.

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In terms of “competition economy institutions”, in Romania we cannot speak yet of a systematic capital market for agriculture, where loan capital is available, after the exhaustion of capital resources generated by farm own incomes.

2. State of Knowledge

The deciphering of income generating flows and the measurement of their capital formation potential in agriculture presume a most accurate individualization both of the supplier sectors of capital transfers and of the receiving sector of capital flows.

Starting from this “battery” of premises, our approach attempts to investigate, be it partially, the controversial issue of intersectoral capital transfers through relative prices.

From the methodological point of view, the attempt to measure Romania’s agriculture capacity to generate economic surplus, that is to provide capital resources for its own development, as well as to contribute to the general economic growth, is relatively singular among the adequate methodic approaches.

The economic literature of the recent years indicates relatively accessible procedures to quantify the intersectoral transfers of capital resources based on the relative price system. Most of these procedures methodological derivatives of the well-known “measuring methods of agriculture contribution to social labor productivity gain” (Ayazi, 1978, Bandini et al., 1965, Kuznets, 1963, Rainelli, 1971).

On the basis of this method, one can estimate the level (value) and direction of intersectoral capital transfers, based on the relative prices, for this purpose the concepts of ‘implicit deflator’, ‘implicit transfers’, ‘internal terms of trade’, etc. being used.

Before the presentation of method simulation results with data referring to Romania’s national agriculture and economy in the period 1980 - 2017, a few statements of principle are necessary:

- In the first place, this method does not exhaust the modalities of translating the capital resources from one sector to another (through the fiscal system itself – when the cashed in taxes are higher than the expenditures and governmental subsidies, or through the financial system – when the volume of funds captured in a sector through financial instruments is higher than the volume of financial resources directed towards this sector);
- In the second place, until 1990, no great importance was attached to the role of “vehicle” of the price system for the intersectoral capital transfers; in reality, the relative sectoral prices represent the most important form of operating the financial flows transfers of a certain sector to another sector, i.e. when in a certain branch, its implicit prices grow at a lower rate than the prices from another sector or the relative prices of the national economy aggregate;
- In the third place, it is considered that even in the countries with developed market economy and agriculture, agriculture is facing unfavorable internal terms of trade, caused by the low labor remuneration in the sector, by the industrial protection, by the relatively inelastic demand of agro-food products and above all, by the low recovery rate of investments in agricultural production; their consequence is that the in agriculture – non-agricultural sectors relations, the latter “impose” the so-called “supra-prices” to agriculture (Toderoiu, 2002: 163 - 164).

3. Introduction

The theoretical premise of our methodological approach is that the (implicit) intersectoral capital transfers result from the transactions between sectors, i.e. from the sale - purchase of goods and services, while the sectoral prices can evolve at different rates from the rates of overall national economy prices, resulting that the sectors with rates lower than the macro-economy aggregate average will “receive” capital resources, provided by other sectors.

The theoretical-methodological support of the study is represented by the less-known capital transfers quantification method (Romano, 1992), used with the data on the structure of resources (branches) of gross value added (GVA) origin, after a previous grouping of branches into three sectors: primary (agriculture + forestry + fisheries); secondary (industry + constructions) and tertiary (the rest of branches).

In order to determine the valor “volume” of capital vehiculated through the nominal sectoral prices, the nominal
valor indices of GVA (GDP) were used – as a product between the volume indices and the nominal prices indices (used as general price deflators, considered as relevant by the economic literature (Toderoiu, 1996).

The econometric relations quantifying the intersectoral yearly capital transfers in Romania’s economy, in the period 1980 - 2017, are formalized through the following analytical formulas:

\[
\delta_{ICT}^{a, prim}_j = [\delta_{GVA}^{a, prim}_j - (IPD_{gva}^{a} \times \delta_{GVA}^{a, prim}_j)]
\]

(1)

where:

- \( \delta_{ICT}^{a, prim}_j \) = change of capital transfer, in the primary sector;
- \( \delta_{GVA}^{a, prim}_j \) = change of (nominal) GVA, in the primary sector;
- \( IPD_{gva}^{a} \) = implicit price deflator of GVA – total economy;
- \( \delta_{GVA}^{a, prim}_j \) = change of (real) GVA, in the primary sector;

\[
\delta_{ICT}^{a, sec}_j = [\delta_{VAB}^{a, sec}_j - (IPD_{vab}^{a} \times \delta_{VAB}^{a, sec}_j)]
\]

(2)

where:

- \( \delta_{ICT}^{a, sec}_j \) = change of the capital transfer, in the secondary sector;
- \( \delta_{VAB}^{a, sec}_j \) = change of (nominal) GVA, in the secondary sector;
- \( IPD_{vab}^{a} \) = implicit price deflator of GVA – total economy;
- \( \delta_{VAB}^{a, sec}_j \) = change of (real) GVA, in the secondary sector;

\[
\delta_{ICT}^{a, ter}_j = \{-1\} \times [(\delta_{VAB}^{a, prim}_j + \delta_{VAB}^{a, sec}_j) - IPD_{vab}^{a} \times (\delta_{VAB}^{a, prim}_j + \delta_{VAB}^{a, sec}_j)]
\]

(3)

where:

- \( \delta_{ICT}^{a, ter}_j \) = change of the capital transfer, in the tertiary sector;

The functional condition of the econometric relation that determines the intersectoral capital transfers is that the algebraic sum of obtained values is null, i.e. the so-called “circularity” characteristic:

\[
\sum_j (\delta_{ICT}^{a, prim}_j + \delta_{ICT}^{a, sec}_j + \delta_{ICT}^{a, ter}_j) = 0
\]

(4)

The information base necessary to this method application consists of data referring to the total GDP level, by formation resources (branches) in the period 1980 - 2017. For this purpose, the structural “matrix” of GDP by branches, in current prices, is “converted” into the same structural “matrix”, in 2012 comparable prices, the essential premise for the determination of implicit sectoral deflator vectors of GDP prices.

4. Empirical Results

We consider that two “packages” of results are relevant in the present methodological approach: the real sectoral prices and the intra-sectoral capital transfers through the price “vehicle”.

\[\text{The sign "minus" of the values determined for ICT signifies the fact that one sector transfers (supplies) capital resources to other sectors, while the sign "plus" reveals the situation that one sector "receives" capital resources from other sectors.}\]
As regards the first “package” of results, i.e. the real sectoral prices, their distortional oscillations are obvious, mainly after 1990, when the hermetical price system in the economy was “unfrozen”. (Fig. 1).

In relation to the reference year 1989, the dynamics of real prices feature a wide range of situations by the main branches producing goods, forming the three economic sectors for which the presented method was applied:

- The relative real prices of the GVA in Agriculture (equivalent with the primary sector = agriculture+forestry+hunting+fisheries aggregate = GVA-Agric_r.p.) represented in the year 2013 only 45.5% of their 1989 level, at the same minimum level from the year 2010; it is worth mentioning that in the period 1997 – 1999, these real sectoral prices were down by 21.4% in three years’ time, while in the next seven years (2000 – 2006) by other 9.5%; Romania’s accession to the European Union did not stop the “fall” of real sectoral prices, it only slowed it down (in the year 2013, the index was 0.455, with 9.6 p.p lower compared to 2006).

- The relative real prices of the GVA in Industries (GVA-Ind_r.p.) in the year 2013 represented 84.1% of their level in the reference year 1989, with a minimum of 70.5% in the year 2003; after the accession to the EU, the industry “operated” with increasing real prices (by 10.9% on a cumulative basis in six years’ time); this probably means that the structural adjustment of industrial aggregate supply is more pregnant, under the competition conditions of the European Single Market.

- The relative real prices of the GVA in Constructions (GVA-Cons_r.p.) presents relatively similar tendencies with agriculture, yet at a slightly higher level, both as regards the dynamics (in the year 2013 the index of these prices represented 68.0% by comparison with the reference year, as well as an “adjustment reaction” after accession (index decline by 9.7% in 2013 compared to 2006).

- The relative real prices of the GVA in the National Economy (GVA-Econ_r.p.) obviously present a relative decrease tendency (by only 4.4% compared to the year 1989), which was influenced by the presence of certain branches (economic activities) in the national economy aggregate that operated with remunerable real prices to a greater extent, on one hand; on the other hand, it was influenced by the different taxation to subsidizing ratios throughout the years.

Fig. 1. Dynamics of real relative price indices of GVA in Romania’s economy, in the period 1980 – 2017 (1989 = 1)
The second “package” of presented results refers to the *intersectoral capital transfers*, measured by the utilization of the \((1) - (4)\) econometric relations, in which the total GVA-Econ. general price deflator was used (when using the total GDP-Total implicit price deflator, the functional relations are identical) (Fig. 2).

On the basis of the applied method, it was determined that, through the price system, financial flows of about 41.1 billion RON (2012 prices) were transferred in the primary sector in the period 1990 – 2013 (on a cumulative basis), compared to about 265.9 billion RON in the secondary sector and, on a “circularity” basis, the tertiary sector supplied these flows worth 307.0 billion RON.

![Fig. 2. Intersectoral capital transfers through relative prices (yearly) in Romania’s economy, period 1980 – 2017](image)


“The breaking down“ by significant time periods of transition makes it possible to highlight a diversity of so-called intervention or non-intervention “philosophies” of the public power in the mitigation of economic disequilibria (Fig. 3).
Throughout the period 1980 - 2017, only two intervals were identified when capital resources were transferred from the primary sector to the rest of the economy:

- 1981 - 1989, when the primary sector delivered (supplied) about 1.2 billion lei (2012 prices), the hermetically price system from the command economy being well-known;
- 1993 - 1996, when about 14.6 billion RON (2012 prices) were transferred through the sectoral relative nominal prices; in this period a first real economic growth process took place, of capital fructification in the sector, a situation when the financial flows vehiculated through prices diminish, which eases the budgetary effort, for final consumers included.

In the secondary sector (industry + constructions), out of the 12 time intervals considered as significant, only in one (1993 – 1996) the sector had a capital “supplier” “status” through the price vehicle in national economy, in the remaining time periods this sector being a “receiver” of capital flows through prices.

The period 1993 – 1996 was also the period when the price reform in the economy was prepared, in the sense of the gradual compression of the so-called “list of strategic products”, with administered prices and the full price liberalization in 1997.

Another characteristic of the presented method is its suitability for the determination of the so-called “internal terms of trade”, relevant for the identification of the extent to which a certain sector has more favorable real relative prices. This is useful information in any attempt to elaborate a prognostic thinking.

5. Concluding Remarks

1. The Romanian farmers have a traditional propensity to prudence or even fearfulness in relation to credits, under the background of reluctance to running into debt.
2. In our country, we cannot speak yet about a systematic capital market for agriculture, with loan capital for farmers, after the exhaustion of capital resources generated by farm own incomes.
3. The theoretical methodological support of the study is represented by the less-known method of capital transfers quantification.
4. The determination of the valor “volume” of capital vehiculated through the sectoral prices used the nominal valor indices of GVA (GDP).
5. The econometric relation of intersectoral capital transfer determination has a functional condition, according to which the algebraic sum of obtained values is null, i.e. the same-called “circularity” characteristic.
6. The application of this method has as informational base the data referring to the total GDP level, structure and dynamics, by formation resources (branches) in the period 1980 - 2017.
7. The real GVA prices of the primary sector represented in the year 2013 only 45.5 % of its 1989 level, identically with the level from the year 2010, down by 21.4% in the period 1997 – 1999, while in the next seven years (2000 – 2006) by other 9.5%; Romania’s accession to the EU did not stop the further decrease of real sectoral prices, but it only slowed it down (in the year 2013, the index was 0.455, down by 9.6 % compared to the year 2006).
8. The industrial GVA real prices in the year 2013 represented 84.1 % of those in the reference year 1989, with a minimum of 70.5% in the year 2003.
9. On the basis of the applied method, it was determined that, through the price system, financial flows of about 41.1 billion RON (2012 prices) were transferred in the primary sector in the period 1990 – 2013 (on a cumulative basis), compared to about 265.9 billion RON in the secondary sector and, on a “circularity” basis, the tertiary sector “supplied” these flows worth 307.0 billion RON.
10. Throughout the period 1980 - 2017, only two intervals were identified in which capital resources from the primary sector were transferred to the rest of economy, namely 1981 – 1989 and 1993 – 1996.
11. Out of the 12 time intervals considered as significant, only in one of them, i.e. 1993 – 1996, the secondary
sector supplied capital through the price vehicle to the national economy, while in the remaining periods this sector received capital flows through prices.

References