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# ON POLICY INDUCED TRANSFERS DURING ECONOMIC TRANSITION: THE CASE OF THE WHEAT-FLOUR-BREAD CHAIN IN BULGARIA

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## ABSTRACT

*Recent analysis of policy-induced income changes along the agro-food chain in Bulgaria uses an extension of the PSE/CSE methodology. It shows that measures taken by the government with the intention of supporting consumers have led to a substantial negative impact on producers, without having a positive impact on consumers; that throughout the period 1990-1993 farmers have been net losers and retailers have been net gainers from agro-food policies; and that by the end of the period, both farmers and consumers were losing heavily to the benefit of processors and, overwhelmingly, retailers. The paper presents hypotheses to explain some of these counterintuitive results, using a more detailed study of the wheat-flour-bread chain. The first conclusion is that transitional excess profits and product quality improvements may explain part of the calculated transfers to retailers, but that this explanation is insufficient. A second conclusion is that the large net transfers to "retailers" are mostly rents collected by flour wholesale trading enterprises. A third conclusion is that "transition business practices", including monopolistic and collusive behavior in the agro-food chain, induce rents which are not included in the calculated transfers. Also, critical assumptions on conversion factors and exchange rates affect the results. While our analysis suggests that effective consumer taxation has been overestimated by the calculations, we support general conclusions on the inefficiency of the Bulgarian policies.*

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# **ON POLICY INDUCED TRANSFERS DURING ECONOMIC TRANSITION: THE CASE OF THE WHEAT-FLOUR-BREAD CHAIN IN BULGARIA**

Johan F.M. Swinnen

## **1. Introduction**

A recent paper by Nedka Ivanova, John Lingard, Allan Buckwell and Alison Burrell (ILBB) studies policy-induced income changes along the agro-food chain in Bulgaria since 1990. The paper presents a unique and very interesting extension of the PSE/CSE methodology by disaggregating the standard PSE/CSE transfers between different stages along the agro-food chain. The disaggregation which ILBB have done is impressive, especially because of the massive data problems (both in terms of availability and interpretation) in transition economies. Their remarkable analysis shows how government policies induce important transfers throughout the food chain, and suggests that these transfers are counter to some of the common understanding.

Their general conclusion is the following. There has been substantial redistribution of income between different levels in the food marketing chain. Moreover, while at the beginning of the period this redistribution was mainly in favour of final consumers, the pattern of redistribution changed in favour of retailers. Measures taken by the government with the intention of supporting consumers have led to a substantial negative impact on producers, without having a positive impact on consumers. Specifically, ILBB conclude on the basis of their calculations that throughout the period 1990-1993 “farmers have been net losers and retailers have been net gainers from agro-food policies” and that “by the end of the period, both farmers and consumers were losing heavily to the benefit of processors and, overwhelmingly, retailers”(p.370).

For any casual observer of the changes in Bulgaria’s agro-food sector and its government’s policies, these conclusions are counterintuitive.

First, in Bulgaria, as in most other Central and Eastern European countries, the food retail sector has been privatized much earlier and faster than any other part of the agro-food chain. If anywhere, competition between many food retail shops and stores seems strong. In addition, there are no large direct subsidies to this sector. Thus, based on the market economy paradigm (which Western economists have been trying to sell all over Central and Eastern Europe, including Bulgaria) one would expect private ownership and competitive markets to lead to anything but the collection of massive policy rents at the expense of consumers and producers in the food retail sector.

Second, many studies have stressed that one of the key objectives of Bulgarian price and trade policies in agriculture is keeping bread prices low for consumers (see e.g. Schmitz et al., 1994). The concern of low bread prices and sufficient supplies has been a top government priority in Bulgaria throughout transition. As recently as January 1996, the Minister of Trade and the Minister of Agriculture had to resign in the wake of large uproar in the country

following rumors of bread grain shortages after lifting a two year grain export ban in the summer of 1995. At first glance, these observations appear also inconsistent with the ILBB conclusions, unless one assumes that a poor understanding of the system and large information imperfections are responsible. Evidently, imperfect information is important in Bulgarian transition, but I find it an unsatisfactory explanation.

This note presents some hypotheses to explain the ILBB results, based on a further study of the wheat-flour-bread chain, which makes up an important part of the ILBB calculations. First, I analyse whether the ILBB results may be explained by the existence of excess profits during transition. Second, I indicate that even with a 4-group decomposition of the chain (farmers/processors/retailers/consumers) important transfers between heterogeneous agents within the groups are “hidden”. This is important for explaining the results, but also because of the potential conclusions policy-makers may derive from the ILBB calculations. Third, I try to explain some of the ILBB results by linking them to observations on imperfect competition and collusive behavior of enterprises in the agro-food chain. Fourth, I show how the magnitude of the taxation of bread and flour consumers may have been overestimated due to some calculation assumptions.

My conclusion emphasizes the need for a nuanced interpretation of policy transfer calculations in transition economies. More specifically, in the case of the ILBB results, the heterogeneity of the groups in the analysis, their internal dynamics, and unaccounted transfers need to be taken into account. At the same time the analysis enforces a key conclusion of ILBB: keeping grain prices down is an inefficient way to support consumers, especially when the government allows remaining monopolistic structures and transition collusive arrangements to collect large rents in the food chain between producers and consumers.

## **2. Competitive Markets and Transitional Excess Profits<sup>1</sup>**

The first, and most straightforward, explanation is that the transfers to retailers are excess profits captured by the retail sector during transition. The theory of the workings (and the benefits) of a competitive market says that excess profits will disappear because of competition, under the conditions of perfect information and free entry. However, this of course is a long run result. Hence, one could argue that there is no inconsistency between transitional excess profits, and the fact that this is the most competitive part of the chain.

This explanation is consistent with Stefan Bojnec's (1996) argument that in the initial stages of transition in Slovenia, new private bakeries followed the price policy of the monopsonistic large state bakeries. They were competitive (a) because of better quality of their bread (and especially because of the variety of bread they offered) and (b) because they kept bread prices slightly below state bakery prices. Therefore, in the initial stage, the private bakeries did not so much compete between themselves, because there was enough space for all of them, but they mostly tried to be competitive with the large state companies, who before and also at that moment mostly controlled the regional markets.

Bojnec claims that in the initial transition stage, private bakeries were one of the most profitable business, but that with increasing competition, as new bakeries entered the business,

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<sup>1</sup> This section incorporates comments by Allan Buckwell and Stefan Bojnec on a previous version of the paper.

market forces contributed to price competition and also to further improvement of bread quality. He also notes that in Slovenia the government mostly tried to control prices of the "basic" type of bread, but not the rest of the bread. This had two effects: the former main bread production was less profitable, which induced additional incentives for producing better quality bread.

Two conclusions can be drawn. First, privatization and increased competition has induced bread quality improvements and a wider variety of bread, which may, *ceteris paribus*, partially explain an increase in the "bread" price ratio, on which the transfers are based. Second, there is a case to be made that the transfer to retailers are excess profits during transition, despite the fact that this is also the most competitive part of the chain.

However, if these are the explanations, one would expect that these excess profits, or "transitional rents", would gradually decline as transition proceeds and as competition increases. But this is inconsistent with the ILBB calculations which indicate that the transfers to retailers have consistently increased from 2% in 1990 to 21% in 1994 period (see table 1). Therefore this explanation is, at least, insufficient to explain the ILBB results.

### 3. On "Retailers" and "Consumers"

Table 1 presents the net transfers at each level of the wheat-flour-bread chain. The "summary" part of table 1 is consistent with the numbers reported by ILBB (in their table 4).<sup>2</sup> The summary section of table 1 suggests that grain producers have faced consistent and large negative transfers throughout the transition; that retailers have benefited strongly, and increasingly, from the policy-induced transfers and that, while consumers benefited strongly in the first transition years, that their gains have increasingly eroded, leading to increasing taxation.

The second part of table 1 presents the net transfers disaggregated by product. The most important observation from the disaggregated transfers is that all the net transfers at the retail level go to the flour retailers (around 27% for each year between 1992 and 1994), while the bread retailers do not receive any transfers (less than 3% annually over the same period). At the consumer level, bread consumers have benefited from policies until 1993 (although at a decreasing rate according to the numbers in table 1), while flour consumers have been consistently and substantially taxed since 1992 (-13% to -18%).<sup>3</sup>

*The conclusion is that the net transfers to retailers and taxation of consumers of the "flour and bread" chain is due almost solely to the "flour" part of the chain, and that "bread" consumers have been subsidized, except for 1994.*

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<sup>2</sup> Differences in the 1993 values are due to calculations based on final data (the ILBB calculations were based on preliminary 1993 data). The differences are not significant and do not change any of the ILBB conclusions. My table 1 also includes 1994 results, which are based on Ivanova (1995). The 1994 results are largely consistent with the trends indicated by ILBB, and I believe their conclusions would be unaltered with the new data.

<sup>3</sup> I will focus most of the discussion on 1992-1994, because the 1990 and 1991 data are much more sensitive to exchange rate assumptions (see more detailed discussion further).

The implications of this conclusion are not straightforward. To understand them, we need to take a closer look both at what the data (statistics) actually measure and at the structure of the wheat-flour-bread chain.

### ***3.1 Some “consumers” are more consumers than others***

The “consumers” of bread are in general individual purchasers. The prices on which the calculations of transfers to (or from) bread consumers are based are output prices of the state bakeries. However, our calculations indicate that by 1994 only 20% of the total flour production went through the state bakeries’ chain, missing out much of the bread consumption, which is bought from private bakeries. The problem in adjusting the calculations is that the private chain prices are not usually registered, and flour is used for different purposes than only bread. “Consumers” of flour include, besides private bakeries, pasta and pastry producers and businesses like pizza restaurants. Bulgarian Business News (Dec 11, p.7) reports that in 1995, 60 percent of baked products are produced by private bakers. “Final consumers” are mostly individual bread consumers, again.

However, as prices for bread from private bakeries are unregistered, net transfers to or from “bread consumers” are not calculated. In principle, if the private bakeries and the “real retail” sector (see next section) work efficiently without some additional rent collection (and *ex ante* this seems one of the only parts of the chain where there are no obvious reasons to expect otherwise), but do pass the high flour prices on to the final consumers, the net transfer from final bread consumers would be somewhere in between the net transfer to “bread consumers” and the net transfer to “flour&bread consumers”, indicated by the numbers in table 1. In fact, Bojnec’s argument (see previous section) on the pricing strategies of the private bakeries is consistent with this conclusion.

### ***3.2 Some “retailers” are more retailers than others***

As shown above, the major part of the net transfers go to flour “retailers”. In fact, the way the transfers are calculated,<sup>4</sup> these flour “retailers” are essentially the companies controlling the wholesale flour trade. Therefore, what is measured by “net transfers to flour retailers” are mostly rents collected by these wholesale trading enterprises.

*The conclusion is therefore that the large net transfers to “retailers” indicated by the ILBB analysis are essentially rents accruing to the flour wholesale trading enterprises.*

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<sup>4</sup> The transfers are based on data from the National Statistics Institute (NSI), in turn based on output price data provided by the state owned enterprises (Zarno Ltd. and other state mills). See Ivanova et al. (1995); and Ivanova (1994) for details.

## 4. Market Imperfections and Collusive Vertical Integration

Several private trading companies are active in food wholesale trading. How are they able to collect these rents ? How can they keep purchase prices low and their sales prices high, forcing their margins above international standards, as suggested by the ILBB calculations ? My hypothesis is that there are two explanations for this, both of which have to do with imperfect competition and collusive vertical integration in the grain-flour-wheat chain.

Ad hoc evidence suggests that the “private” wholesale traders are less independent from the semi-state controlled processors than would appear at first sight.<sup>5</sup> First, the former state monopoly, Zarno Ltd. seems to have been able to use its market power in grain trading and storage facilities to influence the flour market. Second, transition business practices in Bulgaria include cash payments to “state” enterprise managers with transactions, and collusive agreements between these managers and wholesale traders. These collusive agreements induced artificially low output prices for the state enterprises (and thus low purchase prices for the wholesale traders). Both activities bias the transfer calculations towards an underestimation of transfers to “processors” and an overestimation of transfers to “retailers”.

Let us consider the effects of these factors in more detail.

### 4.1 Monopolistic behavior in the chain

Grain storage and flour milling was until 1994 still largely (up to 90%) controlled by the former state monopoly, Zarno Ltd., and state enterprises. Zarno Ltd, whose activities were still strongly influenced by the government, had 49% of the off-farm grain storage facilities, and state enterprises most of the rest (table 2). An extensive 1994 USDA report on the grain sector (Leath et al.) concludes that uniform monthly storage charges were set by Zarno Ltd. for all its branches in the entire country, and that these charges did not reflect the supply and demand for storage.<sup>6</sup> Furthermore, Zarno Ltd. and the state enterprises together controlled 40 out of 45 “large” flour mills in the country (table 3).<sup>7</sup>

Zarno Ltd. used its market power in storage facilities and in milling to influence both the flour processing and the flour wholesale markets. One example is how millers in wheat-deficit

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<sup>5</sup> By “state controlled companies” I mean both the Zarno Ltd. and “state owned enterprises”. None of them are effectively privatized; the influence of the government on their business decision-making is important. However, the control of the government over both Zarno and “state-owned enterprises” is imperfect during the transition period, because of typical principal-agent problems in a transition situation. For example, in 1995, state mill managers were to lose 20% of their wage if they did not meet the state imposed targets, but there is little additional control over those persons, who manage state owned property essentially according to their private interests. Given the widespread use of unofficial payments to managers with selling and buying transactions in the industry (see below), 20% of the official wage might not be that much of a punishment.

<sup>6</sup> The USDA study concludes that the commercial storage charge was used in conjunction with the average procurement price to set the price quoted to millers for wheat delivered from storage during the post-harvest period. Competitive rates for storage would result in a more efficient distribution of grain in the country and lower carrying costs. Seasonal price increases were based on interest and storage costs plus a 6 % profit margin. Prices offered by storage managers increased about 150 BGL per ton per month. These price determining procedures were similar to the old system of administered prices (Leath et al.).

<sup>7</sup> Additionally, there are approximately 250 small privately owned mills of 1-3000 tons which roughly grind the grain on farms for on-farm and local market use. Many of these mills have been restituted to their former owners (Cappuccio and Cubitt, 1994).

regions were not provided competitive access to wheat stocks in Zarno Ltd. even when they were willing to pay the offer price. Zarno-owned wheat stocks were usually reserved for Zarno-controlled mills. The USDA study describes how a few Zarno-controlled mills determined the rail shipping patterns during the 1993/4 marketing year. In a few cases, supply contracts between Zarno, Ltd. and state-owned mills were not honored in 1993, and some state-owned mills had difficulty obtaining rail deliveries following harvest. State mills in wheat deficit areas did not have adequate grain storage capacity or financing to purchase annual needs at harvest.<sup>8</sup> As a result they faced shortages when Zarno Ltd. did not honor its supply contracts and did not allow equal access to its stock.

Another example is that flour and bread prices are generally considerably higher in the the Sofia City region than in the rest of the country. Part of this can be explained by the distance from the main wheat production areas. However, an important part is due to monopoly pricing. According to the same USDA report flour prices charged to bakers by Zarno Ltd. Milling in Sofia were significantly higher than prices offered by mills in adjoining regions. In some cases State mill managers over 100 km away could have offered lower prices (including transport costs) to bakers in Sofia. However, difficulty in procuring grain from Zarno Ltd. branches in the wheat-surplus areas (Varna region) hampered their efforts to serve these bakers. This suggests that the former state monopoly has an important influence also on the flour wholesale market because of its control of the grain storage facilities and that it collects parts of the rents measured by ILBB as going to “retailers”.

#### ***4.2 Unrecorded transfers because of transition “exchange activities”***

Another form of vertical collusion which distorts the calculated transfers is that in some large state enterprises a construction is set up either by the manager or by a private financial or trading firm in cooperation with the management. The traders sell inputs to the enterprise at high prices, buy its output at low prices, and collect the profits, while the state enterprise picks up the bill in the form of increased debts. Besides the obvious direct benefits from this construction, the ultimate objective and gains comes from distorting the effective profitability of the company and therefore its attractiveness for possible privatization. By accumulating losses, the company becomes less attractive and its price will be less when sold to investors. Obviously, the persons best placed to buy the company, both because of a correct valuation of the company’s potential and because of the necessary capital for investment are the people who set up the scheme.

This form of “capital creation for privatization” is no longer an exception (see e.g. Bogetic and Hillman (1995) for a more extensive discussion). Just how widespread it is, is hard to judge. In any case, these activities cause the measured prices to diverge from the effective prices and costs for the different agents in the chain. While it is difficult as such to analyze all the effects, an obvious effect is an underestimation of transfers to processors, or at least to their managers, and also an overestimation of transfers to “retailers”.

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<sup>8</sup> Mill managers in major wheat producing regions generally attempted to purchase annual requirements at harvest. This resulted in large costs to maintain inventories needed for processing, but it is a rational approach in the current market environment where the price of grain in Zarno-controlled storage is based on average acquisition price plus storage costs plus a fixed percentage profit margin. All this is pushing up output prices of the mills. According to the USDA report, the state-established-maximum-12 % profit margin restricted the flour pricing decision of only a few managers.



Finally, there is a widespread use of unregistered payments to managers of state enterprises and of producer cooperatives under liquidation (which in 1994 still produced 70% of total grain output, and even more in the previous years).<sup>9</sup> Registered prices cover only part of the input costs when dealing with state companies. Traders report that in any dealing with state controlled companies (buying and selling, renting storage facilities, ...), an important share of the effective costs is unregistered cash payments to company directors. The problem for the analysis is that there is no “hard” information available on these payments. But as registered prices only indicate part of the “effective price”, monopoly rents of the state-controlled sector are underestimated. In addition, taxation of producers (cooperative farms) is overestimated. Of course, this depends on whose bank accounts the payments end up.

Both these practices have become increasingly common in Bulgarian business dealing where state controlled enterprises are involved. These practices tend to distort the effective margins and costs of agents in the agro-food chain and will therefore distort the net transfer calculations.

*The overall conclusions are that (a) at least part of the transfers to “retailers” are collected by the former (and now semi-) state grain purchasing monopoly, and that (b) transition business practices lead to an underestimation of net transfers to (managers of) state enterprise; more specifically, the transfers to flour processors are underestimated, and the transfers to “retailers” overestimated.*

## **5. Critical Assumptions in the Calculations**

The disaggregation along the agro-food chain which ILBB have done is remarkable, especially because of the massive data problems (both in terms of availability and interpretation) in transition economies. The calculations have been done very carefully, based on reasonable assumptions where necessary and unavoidable.

I found two assumption debatable: (1) the conversion factor used for calculation of the “bread processing reference price” from the “flour processing reference price”; and (2) the choice of the exchange rate. It turns out that both assumptions have an important impact on the net transfers in the bread chain.

### **5.1 Conversion factor assumptions**

Because of the unavailability of “bread reference prices”, ILBB derived the “bread processing reference price (Pwb)” from the “flour processing reference price (Pwf)”. They assume the same ratio between the reference prices as between the domestic prices, i.e.:

$$Pwb = Pwf * CF$$

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<sup>9</sup> Between 1992 and 1994 most Bulgarian agricultural cooperatives were managed by so-called Liquidation Councils.

where  $CF = P_b/P_f$ ,  $P_b$  is the domestic bread price at processing level, and  $P_f$  is the domestic flour price at processing level. ILBB set the CF equal to the 1992  $P_b/P_f$  ratio, i.e.  $CF = 1.188$ . However, table 4 shows that this ratio has varied substantially over the 1990-1994 period, and more importantly, that the 1992 ratio was substantially lower than the ratio in all other years of the transition period. The choice of the smallest conversion factor implies that for all years (except possibly 1992), the transfer to processors and retailers of bread is overestimated and the transfer to bread consumers is underestimated.

Table 5 and 6 show how the transfers in the bread chain alter if either the CF is allowed to vary each year, or when an average over five years is taken. Table 5 shows the effect for the flour&bread channel, while table 6 has the numbers for the bread channel only (where all the effects occur). For flour and bread combined, with an adjusted conversion factor, taxation of processors increases, subsidization of “retailers” decreases and taxation of consumer decreases (table 5). When looking at the bread chain calculations specifically (table 6), the effects are much stronger: consumers are substantially subsidized (+25% between 1992 and 1994) with the alternative variable conversion factor (CF1), while processors are consistently taxed and retailers are increasingly taxed. With the fixed average conversion factor (CF1AV) substantial shifts in the resulting transfers are still obtained. However, in this case, consumers are substantially subsidized, but the subsidies decline; the net transfers to processors increase; and retailers have a constant negative net transfer (around - 10%). The declining trend in consumer subsidization is consistent with the ILBB conclusions (at a different level though).

*The conclusion is that this calculation assumption on the conversion factor tends to underestimate the transfer to bread and flour consumers. Under an alternative, and as I have argued more realistic, assumption “bread consumers” are subsidized and “bread processors” taxed. However, at the level of the aggregate “bread-and-flour-chain, the adjustment only reduces the size of the taxation of consumers and does not reverse ILBB’s conclusion.*

## 5.2 Exchange rate assumptions

Figure 1 shows a remarkable correlation between the ILBB calculations of the decline in “bread consumer” subsidization between 1991 and 1994 (Cons-ILBB and Cons-CF1) and both the evolution of the real exchange rate (Real ExRate) and the change in the protection rate for wheat in Bulgaria caused by macro-economic policies (ExPR), as calculated by Bojnec and Swinnen (1996). These correlations suggest that exchange rate effects have importantly affected the transfer to bread consumers in Bulgaria. There are two ways of interpreting these correlations, but the implications of both conclusions overlap to an important extent.

From the World Bank Study on the Political Economy of Agricultural Pricing Policies (Krueger, Schiff and Valdes, 1992) we know that an important part of taxation of agricultural producers in developing countries comes from overvalued exchange rates, and that a correct measure of transfers should include this factor. The measurement of this effect depends strongly on the choice of the “equilibrium exchange rate”, which is supposed to prevail in the absence of government intervention affecting the exchange rate. This “equilibrium exchange rate” is the one which, in principle, should be used in PSE/CSE-type transfer calculations.

Tangemann (1994) has an excellent discussion on the problems of the choice of the equilibrium exchange rate in pre-reform CEECs and shows its crucial importance for deriving

conclusions and implications from the policy transfer calculations. These problems have not disappeared with the 1989 reforms. Because of major macroeconomic instability in the early 1990s, and the ongoing transition of the macro-economic situation and the various output and factor markets, the choice of the “equilibrium exchange rate” is problematic. Because of this, one should be very careful in interpreting any (especially pre-1992) calculations which are affected by exchange rate assumptions.

However also the choice of the “equilibrium exchange rate” for post-1992 PSE/CSE calculations in general and, more specifically for the ILBB transfer calculations, is subject to much debate (Bojnec, Münch and Swinnen, 1997). Calculations based on the concept of Purchasing Power Parity (PPP) indicate that the Bulgarian Lev is still substantially undervalued (as is the case for virtually all Central and Eastern European currencies). Other macro-economic indicators, such as the trade accounts and central bank currency market operations give conflicting indications (Buckwell, 1996). Assuming that the actual exchange rate is overvalued and closer to the PPP would substantially increase consumer taxation and reduce producer taxation.

The most frequently used approach to adjust policy transfer calculations for macro-economic policy impacts is to choose an “equilibrium exchange rate”, typically by selecting a year in which it is assumed that the actual exchange rate equals the “equilibrium exchange rate” and to adjust the calculations for the divergence of the nominal exchange rate from the “equilibrium exchange rate” by measuring the relative inflation rate between the domestic consumer price index and an external price index (see e.g. OECD, 1994, 1995). This calculation leads to the conclusion that the Bulgarian Lev is overvalued (see further). This would imply that the producers are taxed more heavily and consumers taxed less in recent years than the ILBB calculations indicate.

One conclusion from this debate is that because of the lack of an agreed upon approach and because of the disequilibrium situation of an economy in transition (more particular due to the many disturbances in the fundamental relationships between exchange rates, interest rates, taxation and government expenditures during transition), that there is no equilibrium exchange rate, and that the best way is just to use the actual exchange rate (Buckwell, 1996). This justifies the approach taken in the ILBB calculations for 1992 and later (on which the main ILBB conclusions are based) which are calculated with nominal exchange rates.

Alternatively, an example of the “standard” approach for adjusting for macro-economic policy effects is the OECD’s calculation of PSEs for Hungary and the Czech Republic (OECD, 1994, 1995) and Bojnec and Swinnen’s (1996) analysis of “adjusted exchange rates” which we used for calculating “adjusted protection rates” in CEECs, including Bulgaria.<sup>10</sup> The latter calculations indicate that the divergence between domestic and foreign inflation in Bulgaria since 1992 induced a negative impact of macroeconomic policies on producer incomes, effectively taxing producers and subsidizing consumers (12.1% for wheat and 16.6% weighted average for 9 products). In other words, if 1992 had an “equilibrium exchange rate”, adjusting the exchange rates in the calculations for the relative inflation rates would increase 1993 and

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<sup>10</sup> OECD PSE/CSE calculations used 1991 as the reference year for the “equilibrium exchange rate” in Hungary, and 1994 in the Czech Republic (OECD, 1994, 1995).

1994 producer taxation and increase consumer protection relative to the transfers calculated by using a nominal exchange rate.

While the choice of 1992 as the “equilibrium exchange rate” is admittedly debatable, this does not detract from the argument that ignoring the relative inflation effect has an important impact on transfer calculations.<sup>11</sup> More specifically, as is illustrated in figure 1 for the ILBB calculations, the decline in “bread consumer” subsidization (or increase in taxation) between 1991 and 1994 is strongly correlated with the change in the indirect protection rate (ExPR) for wheat in Bulgaria, as calculated by Bojnec and Swinnen (1996). This suggests, that, while all the previous qualifications on the “equilibrium exchange rate” remain valid, that, whatever the starting point, the decline in consumer transfer estimates over the 1991-1994 period is partially due to the choice of nominal exchange rate for the calculations. And, hence, that when controlling for this macro-economic effect by using e.g. the “real exchange rate”, would indicate *much more stability in the transfers over the 1991-1994 period*. The reason is that the change in nominal prices (i.e. the so-called “direct protection” effect) induced a decrease in producer taxation and consumer protection, which is offset by the so-called “indirect protection” effect, measured by the ExPR.

Then, one still needs to resolve the issue of which year the equilibrium exchange rate exist(ed), because this will generally determine whether consumers are subsidized or taxed over the whole period. For example, if the 1992 exchange rate was indeed in equilibrium, this implies that wheat farmers were taxed more heavily in 1993 and 1994 than suggested in table 5 and that “bread and flour consumers” were taxed less by the aggregate set of policy instruments. In fact in this case the policy-induced low wheat price would heavily tax wheat producers while having approximately no effect on “bread and flour consumers”.

Notice that this last conclusion does not mitigate the ILBB conclusion regarding the inefficiency of current Bulgarian policies which heavily tax farmers with little or no positive effect on consumers. While this adjustment leads to the conclusion that consumers are taxed less than suggested by ILBB, it simultaneously suggests that producers are taxed more heavily, which enforces their conclusion on the inefficiency of Bulgarian policies.

An alternative interpretation is the following. The ExPR reflects the real appreciation of the Bulgarian Leva after the initial devaluation of the currency. Such a real appreciation has been observed in most CEECs in recent years. The real appreciation of the Leva is captured by the Real ExRate indicator in figure 1, where Real ExRate is measured as the ratio of the nominal exchange rate and the consumer price index.

In this interpretation, ExPR not so much (or not only) captures macroeconomic *policy* effects, but rather structural adjustments in the economy influencing the real exchange rate. This real appreciation benefits consumers and hurts producers. The alternative interpretation of figure 1 is therefore that the change in policy induced transfers measured by the ILBB calculations (a reduction in subsidization of consumers and taxation of producers) offset the positive income effects for consumers and negative income effects of producers caused by the (*exogenously*

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<sup>11</sup> Notice that this is not always or necessarily the case. For example in the case of Poland and Hungary the indirect protection effect (ExPR) is close to zero for 1993 and 1994, compared to 1992 (Bojnec and Swinnen, 1996).

induced) real appreciation of the currency. Such offsetting subsidy policies would be consistent with the “relative income hypothesis” which predicts that political incentives induce governments to implement income transfer policies which offset exogenous relative income developments (Swinnen, 1994, 1996).

In conclusion, while it is important to distinguish between these two interpretations, i.e. to understand whether the macroeconomic impact on consumer and producer incomes is (macroeconomic) policy induced or not, the impact on consumers and producers is the same and so is the offsetting effect of the price and trade policies. Incorporating these exchange rate developments in the analysis implies that the combined net effect of macroeconomic developments and price and trade policies has been much more stable than suggested by the ILBB results, but again confirming their conclusions on the efficiency of the policies.

## **6. Concluding Remarks**

The analysis by Nedka Ivanova, John Lingard, Allan Buckwell and Alison Burrell (ILBB) of policy-induced income changes along the agro-food chain in Bulgaria uses a unique and very interesting extension of the PSE/CSE methodology. Their disaggregation of the standard PSE/CSE transfers between different stages along the agro-food chain is impressive, especially because of the massive data problems (both in terms of availability and interpretation) in transition economies, and shows how government policies induce important transfers throughout the food chain.

Their analysis suggests that some of these transfers are counter to expectations based on common knowledge. They show that measures taken by the government with the intention of supporting consumers have led to a substantial negative impact on producers, without having a positive impact on consumers; that throughout the period 1990-1993 farmers have been net losers and retailers have been net gainers from agro-food policies; and that by the end of the period, both farmers and consumers were losing heavily to the benefit of processors and, overwhelmingly, retailers.

This note presents hypotheses to explain some of the counterintuitive results of the ILBB study. My analysis is based on a more detailed study of the wheat-flour-bread chain, an important part of the ILBB calculations. Some of the conclusions are relevant as well for the other (animal product) subsectors, but not all of them.

The first conclusion is that transitional excess profits and product quality improvements may explain part of the calculated transfers to retailers, but that this explanation is insufficient.

A second conclusion is that the large net transfers to “retailers” indicated by the ILBB analysis are mostly rents collected by flour wholesale trading enterprises. At least part of these transfers to “retailers” are collected by the former (and now semi-) state grain purchasing monopoly.

A third conclusion is that “transition business practices”, including monopolistic and collusive behavior in the agro-food chain induce rents which are not included in the calculated transfers. For example, unregistered payments to state company managers leads to an underestimation of net transfers to (managers of) state enterprises. More specifically, these activities and

unrecorded transfers may contribute to explain the relatively low transfers to flour processors, and the increasingly higher transfers to “retailers”.

Also, critical assumptions on conversion factors and exchange rates affect the results, which may partially explain the increase in “bread and flour” consumer taxation and reduction of producer taxation since 1992. Adjusting the calculations and incorporating exchange rate developments would make the conclusions more consistent with casual empirical observations on the government’s priority concern for low bread prices.

While my analysis suggests that effective consumer taxation has been overestimated by the ILBB calculations, it supports their general conclusion on the inefficiency of the Bulgarian policies, i.e. that substantial taxation of farmers has little positive effect (if at all) on consumers. This has important policy implications. As ILBB show, pursuing the social objective of supporting low income consumers by depressing grain prices, e.g. through grain export bans, is an inefficient policy. This is especially the case if the government at the same time allows agents in the agro-food chain to collect massive rents through the exploitation of remaining monopolistic structures and new collusive arrangements. Overall, this analysis enforces the policy conclusion that it is important to push vigorously ahead with privatization and the creation of real competition throughout the food chain in order to improve the terms of trade for agriculture and simultaneously lower food prices for consumers.

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**Table 1: Net transfers at each level of the wheat-flour-bread chain (Million BGL and % of output value) -- CFO**

<b>Summary</b>		<i>1990</i>		<i>1991</i>		<i>1992</i>		<i>1993</i>		<i>1994</i>	
		<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>
Farmers		-1251	-32	-2795	-22	-3243	-30	-2895	-20	-3257	-14
Processors		-473	-31	-211	-5	344	6	-142	-2	-360	-4
“Retailers”		37	2	333	8	942	16	1584	20	2165	21
“Consumers”		970	131	710	21	17	0	-437	-7	-1274	-14
<b>By product</b>											
Farmers	Wheat	-791	-32	-1071	-17	-2269	-39	-3025	-33	-2088	-17
	Maize	19	2	-1496	-35	-517	-16	66	2	-218	-3
	Barley	-479	-91	-228	-12	-457	-26	64	3	-951	-28
	<i>Total</i>	-1251	-32	-2795	-22	-3243	-30	-2895	-20	-3257	-14
Processors	Flour	-405	-51	-178	-7	516	13	-206	-4	-710	-13
	Bread	-68	-9	-33	-2	-172	-9	64	3	350	12
	<i>Total</i>	-473	-31	-211	-5	344	6	-142	-2	-360	-4
Retailers	Flour	129	14	469	20	943	27	1514	27	2080	28
	Bread	-92	-11	-136	-7	-1	0	70	3	85	3
	<i>Total</i>	37	2	333	8	942	16	1584	20	2165	21
Consumers	Flour	346	80	105	6	-428	-14	-595	-13	-1144	-18
	Bread	624	205	605	40	445	25	158	8	-130	-4
	<i>Total</i>	970	131	710	21	17	0	-437	-7	-1274	-14

Source: N. Ivanova (unpublished calculations)



**Table 2 : Grain storage facilities:**

Off-farm storage	100%	5 million tons
- of which:		
Zarno Ltd.	49 %	
Flour milling industry	22 %	
Feed compound industry	29 %	
On-farm storage		2 million tons
Total		7 million tons

Source: Leath et al., 1994

**Table 3 : Distribution of “large flour mill” ownership:**

	<i>Number</i>	<i>Capacity</i>
Zarno Ltd.	11	1,945 t/day
State-owned	29	
Private	5	
Total	45	6,760 t/day

(\*) Of which 3 restituted to former owners and 2 privatized otherwise.

Source: Leath et al., 1994

**Table 4 : Conversion factor for calculation of “Bread Processing Reference Price” from “Flour Processing Reference Price”**

	1990	1991	1992	1993	1994
<i>Conv. Factor (NIC)</i>	1.188	1.188	1.188	1.188	1.188
<i>Domestic producer price (at processing level)</i>					
<i>Bread</i>	410	2118	3624	5784	9471
<i>Flour</i>	306	1648	3049	4155	6272
<i>Conv. Factor (=Ratio)</i>	1.340	1.285	1.188	1.392	1.510
<i>Conv. Factor (Average)</i>	1.343	1.343	1.343	1.343	1.343

Source : Own calculations based on N. Ivanova's data

**Table 5: Impact of conversion factor on TOTAL net transfers in the wheat-flour-bread chain (Million BGL and % of output value)**

	<i>1990</i>		<i>1991</i>		<i>1992</i>		<i>1993</i>		<i>1994</i>	
	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>
<b>ILBB Conversion factor</b>										
Farmers	-1251	-32	-2795	-22	-3243	-30	-2895	-20	-3257	-14
Processors	-473	-31	-211	-5	344	6	-142	-2	-360	-4
“Retailers”	37	2	333	8	942	16	1584	20	2165	21
“Consumers”	970	131	710	21	17	0	-437	-7	-1274	-14
<b>Alternative Conversion Factor (CF1)</b>										
Farmers	-1251	-32	-2795	-22	-3243	-30	-2895	-20	-3257	-14
Processors	-579	-37	-367	-8	344	6	-493	-7	-1040	-12
“Retailers”	-82	-5	159	4	942	16	1221	16	1404	14
“Consumers”	1089	148	885	27	17	0	-73	-1	-513	-5
<b>Average Alternative Conversion Factor (CF1AV)</b>										
Farmers	-1251	-32	-2795	-22	-3243	-30	-2895	-20	-3257	-14
Processors	-581	-38	-460	-10	83	1	-408	-6	-688	-8
“Retailers”	-84	-5	54	1	650	11	1308	17	1799	18
“Consumers”	1091	148	989	30	309	6	-160	-2	-908	-10

*Source:* Own calculations based on N. Ivanova’s dataset and model

**Table 6: Impact of conversion factor on net transfers in the BREAD chain (Million BGL and % of output value)**

	<i>1990</i>		<i>1991</i>		<i>1992</i>		<i>1993</i>		<i>1994</i>	
	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>	<i>Mio BGL</i>	<i>%</i>
<b>ILBB Conversion factor</b>										
Processors	-68	-9	-33	-2	-172	-9	64	3	350	12
“Retailers”	-92	-11	-136	-7	-1	0	70	3	85	3
“Consumers”	624	205	605	40	445	25	158	8	-130	-4
<b>Alternative Conversion Factor (CF1)</b>										
Processors	-174	-23	-189	-10	-172	-9	-287	-14	-330	-12
“Retailers”	-211	-25	-310	-16	-1	0	-293	-13	-676	-23
“Consumers”	743	244	780	51	445	25	522	27	631	21
<b>Average Alternative Conversion Factor (CF1AV)</b>										
Processors	-176	-23	-282	-15	-433	-24	-202	-10	22	1
“Retailers”	-213	-25	-415	-21	-293	-13	-206	-9	-281	-10
“Consumers”	745	245	884	58	737	41	435	22	236	8

*Source:* Own calculations based on N. Ivanova’s dataset and model

