The transmission process of supply and demand shocks in Czech meat commodity chain

Proces transmise nabídkových a poptávkových šoků v komoditní vertikále maso v České republice

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Abstract: Based on the results of price transmission analysis, the paper aims to explain the asymmetry of price transmission in Czech meat commodity chain, in the supply as well as in the demand direction. The transmission asymmetry *in supply direction*, i.e. e. from farmer to consumer (especially in case of price growth); can imply the existence of market power exercised by individual links of the chain, especially by processors or retailers. The transmission asymmetry *in demand direction*, i.e. from the final consumer to farmer, is treated as well, although the possible reasons behind the asymmetry are definitely not the same. Demand shock (rapid decline in consumer demand), which is often followed by price fall at the consumer level, can be caused by food safety hazards. They play very important role in the meat commodity chain, where higher risks of threatening the food safety standards are presupposed, especially in connection with the frequent distribution of animal diseases (such as the mad cow disease (BSE), the avian flu, the foot-and-mouth-disease), which is the main reason for demand-oriented price transmission analysis. Price transmission analysis is carried out in three steps. First, the extent of the transmitted price changes is measured by the coefficient of elasticity of price transmission (EPT), the results are presented in the form of matrix, which represents supply as well as demand direction. Second, the analysis of price differences is carried out in both directions. Positive as well as negative price changes are treated separately. As the last step, the impact of time delay on the price transmission process is assessed in both directions. The data used represent monthly prices (resp. their differences) in the period of 1997–2005 with the distinction on poultry, pork and beef branch of the chain.

Key words: commodity chain, demand shock, food safety, market structure, meat and meat products, price transmission, supply shock.

Abstrakt: Cílem příspěvku je na základě výsledků analýzy cenového přenosu vysvětlit jeho asymetrii v nabídkovém i poptávkovém směru v komoditní vertikále maso v podmínkách České republiky. Asymetrie přenosu v nabídkovém směru, tj. směrem od zemědělce ke konečnému spotřebiteli (zejména v případě růstu cen), může implikovat existenci tržní síly uplatňovanou některým z článků řetězce, a to především zpracovatelem nebo maloobchodním článkem. Analýza je provedena i v poptávkovém směru, tj. od konečného spotřebitele k výrobci zemědělské suroviny, avšak z odlišných důvodů; poptávkový šok (prudký pokles spotřebitelské poptávky), který je často následován cenovým poklesem na úrovni spotřebitelských cen, může být způsoben ohrožením v oblasti bezpečnosti potravin. Tato rizika hrají významnou roli právě v komoditní vertikále masa, kde lze předpokládat vyšší rizika porušování zásad bezpečnosti potravin, a to zejména v souvislosti s častým výskytem různých chorob zvířat (např. nemoc šílených krav (BSE), slintavka a kulhavka, ptačí chřipka). Analýza cenové transmise je provedena ve třech fázích. Nejprve je charakter a rozsah cenového přenosu měřen koeficientem elasticity cenové transmise (EPT), dosažené výsledky jsou prezentovány ve formě matice, kde je zachycen jak nabídkový, tak poptávkový směr cenového přenosu. Dále je provedena analýza cenových diferencí; odděleně v případě pozitivních, resp. negativních diferencí. V poslední fázi řešení je posuzován vliv časového zpoždění na proces cenového přenosu. Data představují měsíční ceny (resp. diference) v období 1997–2005, s rozlišením na větev drůbežího, vepřového a hovězího masa.

Klíčová slova: cenová transmise, komoditní vertikála, maso a masné výrobky, nabídkový šok, poptávkový šok, potravinová bezpečnost, tržní struktura

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INTRODUCTION AND THEORETICAL BACKGROUND

The asymmetry of price transmission (APT) – the proportion of the input price change that is passed on to the output prices – has always been the subject of a considerable attention in agricultural economics. It is particularly important in the analysis of welfare effects of changes in agricultural policies, and in the analysis of economic effects of new technologies. Of particular importance is the issue of asymmetric manufacturer or processor price responses to exogenous changes in marginal (variable) input costs. In many industries, it has been observed that, while increases in input prices are almost instantaneously reflected in the output prices, input price decreases are usually followed only by delayed and partial drops in the output prices (Peltzman 2000).

In connection with the analysis of the agri-food chains and their partial markets, the economists dealing with this field of study often focus on the research of the inter-market price transmissions. In economic theory, this phenomenon has been explained in terms of two major influences (Revoredo et al. 2004):

1) Existence of market power of manufacturers (imperfect competition)

The logic of the market power argument is simply that firms in a tacitly collusive industry earning abnormal profits tend to simultaneously increase their margins in response to a drop in the input costs thereby passing only a small fraction of the decrease on to the output prices. At the same time, the collusive behaviour facilitates passing (almost) all of the input price increase to the output price. The magnitude of such transmission asymmetry depends not only on the firm behaviour but also on the economies of scale and demand and supply elasticities (McCorriston et al. 2001).

2) Profit maximizing inventory management

The inventory management argument is that the presence of inventories introduces additional price rigidity, which is consistent with maximizing behaviour: because of the "cushioning" effect of inventories, prices tend to move sluggishly in industries whose outputs (inputs) are storable, as price responses are substituted by quantity responses. Thus, sectors with perishable inventories are more likely to exhibit more price flexibility than those with easily storable stocks.

Apart from the market power and inventory management arguments, asymmetric price transmission has also been attributed to cost adjustment rigidities, like menu costs or sticky wages, in those cases when input price change is significant enough to warrant the production volume or capacity adjustment.

Asymmetry in the context of price transmission can be classified according to **three criteria** (Meyer, von Cramon-Taubadel, 2004). *The first criterion* refers to whether it is the speed or the magnitude of price transmission that is asymmetric. The distinction between these two types of APT is depicted in Figure 1, where a price (p^{out}) is assumed to depend on another price (p^{in}) that either increases or decreases at a specific point in time.

In Figure 1(a), the magnitude of the response to a change in p^{in} depends on the direction of this change; in Figure 1(b) it is the speed of the response that depends. Clearly, combinations of these two fundamental types of asymmetry are conceivable. In Figure 1(c), price transmission is asymmetric with respect to both speed and magnitude because an increase in p^{in} takes two periods (t_1 and t_2) to be fully transmitted to p^{out}, while a decrease in p^{in} requires three periods (t_1, t_2 and t_3) and is not fully transmitted.

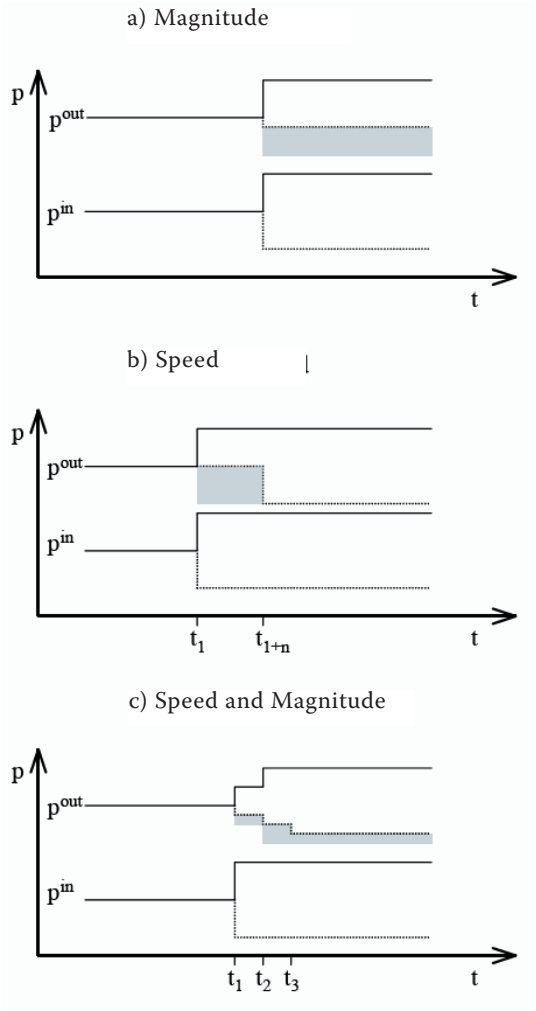


Figure 1. Asymmetric Price Transmission

The transfers associated with these two types of the APT are depicted schematically as shaded areas in Figure 1. Interpretation is eased by assuming a constant, unchanging volume of transactions over time, i.e. completely price inelastic demand for the output good. The asymmetry with respect to the speed of price transmission leads to a temporary transfer – in this case from buyers of the output good to sellers – the size of which depends on the length of the time interval between t_1 and t_{1+n} as well as the price changes and transaction volumes involved (Figure 1(b)).

The asymmetry with respect to the magnitude of price transmission leads to a permanent transfer (Figure 1(a)), the size of which depends solely on the price changes and transaction volumes involved. Figure 1(c) shows that the asymmetry with respect to speed and magnitude leads to a combination of temporary and permanent transfers. Which type of transfer is of greater concern cannot be determined *a priori*; depending on the numbers involved, a large temporary transfer could outweigh the present value of smaller permanent transfer.

The second criterion allows the APT to be classified as either positive or negative. If p^{out} reacts more fully or rapidly to an increase in p^{in} than to a decrease, the asymmetry is termed 'positive'. Correspondingly, 'negative' asymmetry denotes a situation in which p^{out} reacts more fully or rapidly to a decrease in p^{in} than to an increase (Figure 2).

This convention can be misleading if interpreted in a normative fashion: if p^{in} and p^{out} represent farm gate and retail prices for a commodity, respectively, 'negative' asymmetry is 'good' for the consumer, while 'positive' asymmetry is 'bad' in the sense that the former (latter) is associated with gains (losses). At the same time, however, this highlights the importance of the distinction between positive and negative asymmetry, as this distinction determines the direction of transfers due to the APT.

Note that price transmission does not have to flow from input to output prices as has been assumed so far. It is also possible that changes in output prices, caused for example by demand shifts, be transmitted to input prices. In this context, it still makes sense to distinguish between the speed and magnitude of the APT. However, the distinction between the positive and negative APT – defined above with respect to how p^{out} reacts to a change in p^{in} – must be generalised. Positive APT can be defined as a set of reactions according to which any price movement that squeezes the margin (*i.e.* an increase in p^{in} or a fall in p^{out}) is transmitted more rapidly and/or completely (to p^{out} or p^{in}, respectively) than the equivalent movement that stretches the margin. Conversely, the APT is negative when price movements, that stretch the margin, are transmitted more rapidly and/or completely than movements that squeeze it.

The third criterion for classifying the APT refers to whether it affects vertical or spatial price transmission. As an example of the vertical APT, farmers and consumers often complain that increases in farm prices are more fully and rapidly transmitted to the wholesale and retail levels than equivalent decreases in farm prices. An example of spatial APT would be a rise in the US export price for wheat causing a more pronounced reaction in the Canadian export price than a corresponding reduction of the same magnitude. Spatial APT can be classified according to speed and magnitude as well, and according to whether it is positive or negative.

GOAL, METHODOLOGY AND DATA USED

The aim of the paper is to explain the asymmetry of price transmission (APT) in Czech meat commodity chain. Price transmission analysis is carried out in the *supply direction*, i.e. e. from farmer to consumer, as well as in the demand direction, i.e. from the final consumer to farmer. A positive APT in supply direction can imply the existence of market power exercised by individual links of the chain, especially by processors or retailers. Demand-oriented price transmission analysis is performed as well, especially with respect to the issues of food safety. They play

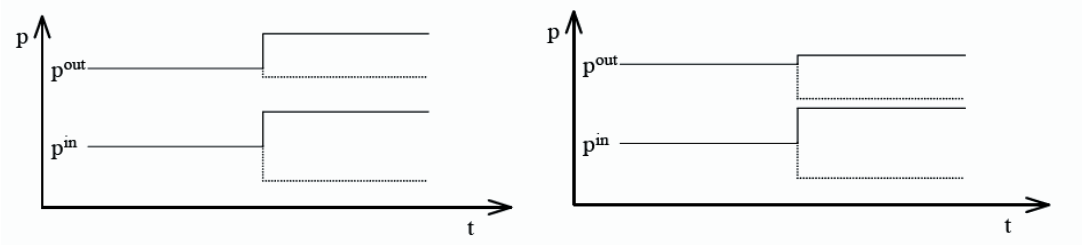


Figure 2. Positive (left) and negative (right) asymmetric price transmission

a very important role in analysed commodity chain – meat and meat products, where higher risks of threatening food safety standards are presupposed, especially in connection with frequent distribution of animal diseases.

The data used represent monthly prices (resp. their differences) in the period of I/2000–V/2005 (poultry), I/1999–X/2005 (pigs), I/1997–X/2005 (beef). In pig/pork and beef branch of the chain, meat products of low (flitch, boneless beef) and high quality (pork boneless leg, beef sirloin) are analysed separately.

The structure of the database used is depicted in following figure (Table 1):

Methodically, price transmission analysis is carried out in three subsequent steps (Lechanová 2005):

1. *At the first stage* the process of price transmission assesses in complex and systematic way at all possible levels of the observed commodity chain. For the assessment of character and quantification of the intensity of price transmission, *the coefficient of the elasticity of price transmission (EPT)* is used as the basic indicator of the transmission.

   With respect to the fact, that the analysis is carried out in supply as well as in the demand direction, the attention is paid for the calculation of the EPT coefficients above and below the diagonal in the the EPT matrix.

   If we distinguish two market levels within some commodity chain and we denote them f.e. i and j, then the coefficients of elasticity of prise transmission (EPT_{ij}) between these two market levels can be defined in the following way:

$$EPT_{ij} = \frac{\frac{\partial p_j}{p_j}}{\frac{\partial p_i}{p_i}} = \frac{\partial p_j}{\partial p_i} \times \frac{p_i}{p_j}$$

where as the order of parameters *i* and *j* is decisive for the direction of observed price transmission. So defined coefficient of the EPT_{ij} says by how many percents will the price change at j^{th} level change, if the price at i^{th} level changes by 1%.

2. *At the second stage,* the attention is paid to the immediately subsequent partial markets in observed commodity chain, where analysis of price differences is carried out in order to assess different results of analysis in case of positive, resp. negative price changes.

   For the analysis of positive, resp. negative price differences, the regression models (simple regression) were made according to the following relationship:

$$\Delta P_{jt} = A^{+} + \sum_{l=1}^{k} B_l^{+} \times \Delta P_{it}^{+}$$

resp.

$$\Delta P_{jt} = A^{-} + \sum_{l=1}^{k} B_l^{-} \times \Delta P_{it}^{-}$$

   The intensity of the regression of time series, representing the monthly price differences with the distinction to positive and negative price changes (distinguished according to the values of the independent time series), is assessed by the means of determination coefficient.

3. The third stage rests upon the analysis of the impact of time delay on the transmission of price changes between individual market levels. Monthly differences in all branches of the selected commodity chain are used as the relevant database for the analysis.

   The intensity of the delayed time series is assessed by the means of determination coefficient. In both branches of the chain, time delay in the length of 1 to 4 month was tested, whereas the exact length of time delay is determined according to the maximum value of determination coefficient. Gradually, the probable length of time delay for all market levels

Table 1. The structure of the database used for the price transmission analysis

Price transmission analysis within Czech meat commodity chain		
Poultry branch	Pig/pork branch	Beef branch
Monthly prices (I/00–V/05) or their differences	Monthly prices (I/99–V/05) or their differences	Monthly prices (I/97–V/05) or their differences
Farm prices (FP) of broilers	Farm prices (FP) of pigs	Farm prices (FP) of beef-cattle
Producers' prices (PP) of broilers	Producers' prices (PP) of pork – flitch, boneless pork leg	Producers' prices (PP) of beef – beef, beef sirloin
Consumers' prices (CP) of broilers	Consumers' prices (CP) of pork – flitch, boneless pork leg	Consumers' prices (CP) of beef – beef, beef sirloin

of all branches of the chain is determined (poultry, pig/pork and beef branch).

RESULTS AND DISCUSSION

Before the price transmission analysis, it is necessary to visually assess the price development within all branches of the selected chain. It is depicted in Figure 3 (poultry – broilers), in Figure 4 (pigs – flinch, boneless pork leg) and in Figure 5 (beef-cattle – boneless beef, beef sirloin).

In the poultry branch (Figure 3), it is obvious that price development at all market levels of the chain (producer, processor, consumer) is similar, strong interdependence can be expected at 2nd market level (in he relationship between processor and consumer).

In the pig/pork branch (Figure 4), we can observe a very similar trend in price development at all price levels, we can say, that consumer prices (CP) copy producers' prices (PP), a they – PP – copy farm prices (FP) round again. There are more apparent fluctuations in the prices of flitch than the prices of boneless pork leg.

Prices of beef at the individual market levels (Figure 5) copy price levels especially at the 2nd stage of the chain, interdependence of price levels at the 1st stage appears not to be so obvious.

Results of the 1st stage of price transmission analysis, where the intensity of price transmission is expressed by the elasticity of price transmission (EPT) (Figure 6), proved that:

1st stage of the chain (relationship between farmer and processor)

a) *in supply direction* (coefficients of EPT above diagonal): Unambiguous inelastic price transmission we can see in pig/pork branch (EPT = 0.68, resp. 0.53) and partially also in the beef branch (boneless beef). In the poultry branch, resp. in the beef branch (beef sirloin) we can conversely see more than unit reaction in the output price if input prices change by one unit (EPT = 1.34, resp. 1.58).

b) i*n the demand direction* (coefficients of the EPT below diagonal): Elastic price transmission in demand direction was proved only in pig/pork branch of the chain (EPT = 1.26; 1.59), in the poultry, resp. the beef branch of the chain values of the EPT coefficients confirmed inelastic price transmission (EPT = 0.53, resp. 0.84 and 0.27), i.e. one unit change of producers prices causes less than one unit change of farm prices.

2nd stage of the chain (relationship between processor and retailer/final consumer)

a) *in supply direction* (coefficients of the EPT above diagonal): Incomplete price transmission was con-

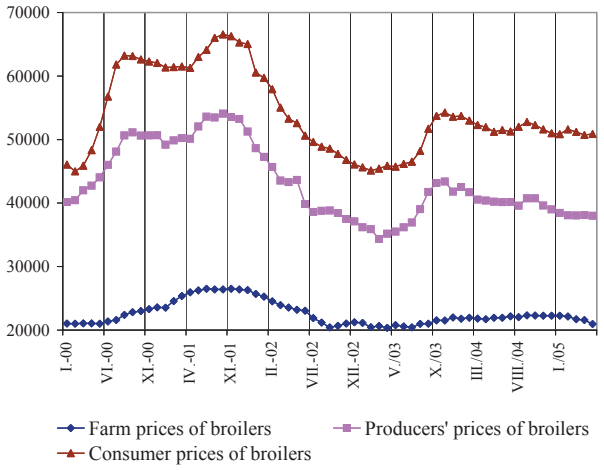
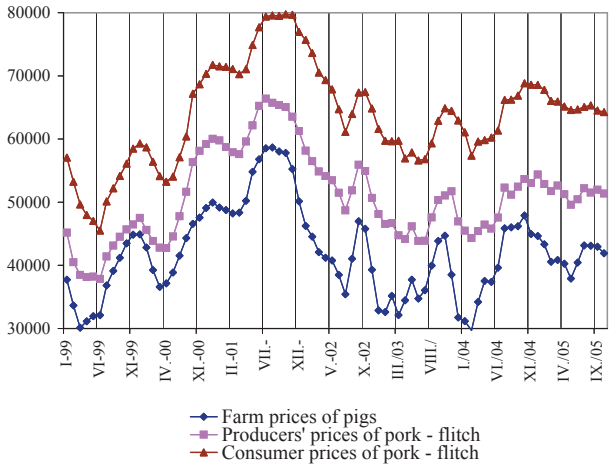


Figure 3. Price development in the poultry branch (broilers)



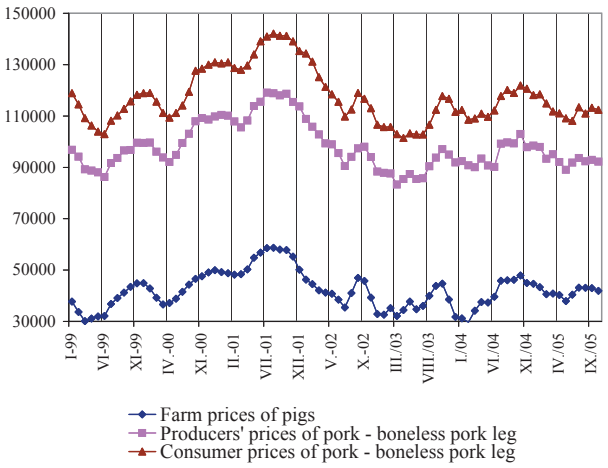


Figure 4. Price development in the pork branch of the chain (flitch-left, boneless pork leg-right)

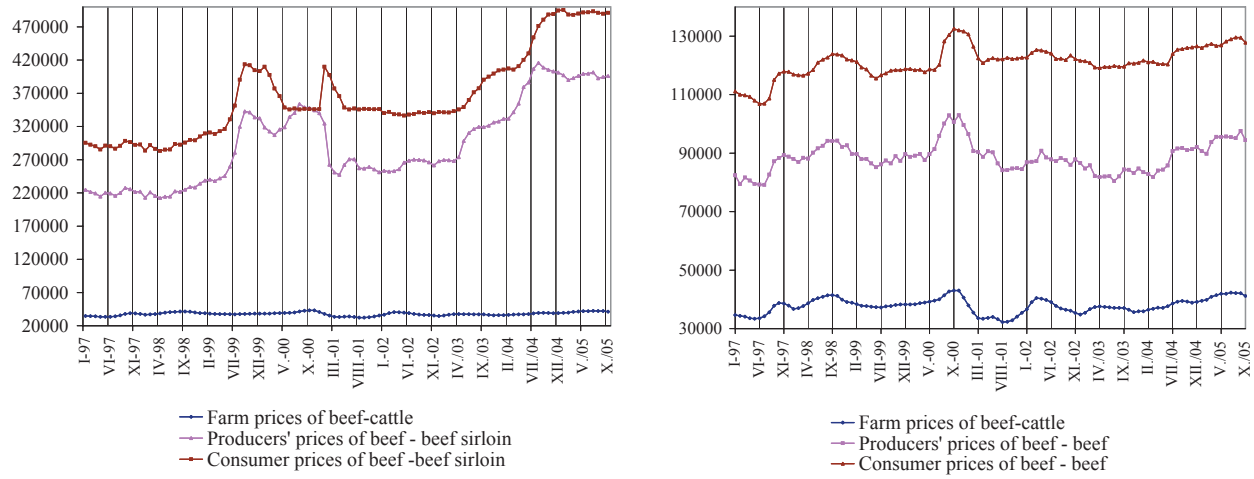


Figure 5. Price development in the beef branch of the chain (beef boneless-left, beef sirloin-right)

firmed in all branches of the meat commodity chain, coefficients of the EPT range between 0.4 (beef boneless) and 0.96 (boneless pork leg).

b) *in demand direction* (coefficients of the EPT below diagonal): Transmission of price changes in all branches was found as elastic; values of the EPT coefficient are higher than one: EPT = 1.04 (broilers), 1.13 (flitch), 1.02 (pork leg), 1.61 (boneless beef), 1.02 (beef sirloin).

At the 2nd stage of price transmission analysis, the interdependence of the positive, resp. negative price changes was assessed, whereas it was measured by the determination coefficient – R^2 (see Table 2). The obtained results mostly confirmed preliminary conclusions made on the basis of visual assessment of price levels.

– In the case of *poultry* (broilers), a quite high regression of time series was confirmed at the 2nd stage of the chain (determination coefficient reached 77%), while at the 1st stage of the chain the calculated regression was rather below the average (R^2 reached 40%).
– In the case of the *pig/pork* branch, similar results for the 1st and the 2nd stage of the chain were found out for both observed final products (flitch, boneless pork leg); the regression can be considered as strong, the values of determination coefficient range between 82–87%.

EPT m poultry branch	FP of broilers	PP of broilers	CP of broilers	EPT m pig-pork branch	FP of pigs	PP of pork (flitch)	CP of pork (flitch)	EPT m pig-pork branch	FP of pigs	PP of pork (pork leg)	CP of pork (pork leg)
FP of broilers	X	1.34	1.26	FP of pigs	X	0.68	0.54	FP of pigs	X	0.,53	0.51
PP of broilers	0.53	X	0.88	PP of pork (flitch)	1.26	X	0.83	PP of pork (pork leg)	1.59	X	0.96
CP of broilers	0.58	1.04	X	CP of pork (flitch)	1.38	1.13	X	CP of pork (pork leg)	1.62	1.02	X

EPT m beef branch	FP of beef-cattle	PP of beef	CP of beef	EPT m beef branch	FP of beef-cattle	PP of beef - sirloin	CP of beef - sirloin
FP of beef-cattle	X	0.59	0.25	FP of beef-cattle	X	1.58	0.90
PP of beef	0.84	X	0.40	PP of beef - sirloin	0.7	X	0.74
CP of beef	1.45	1.61	X	CP of beef - sirloin	0.21	1.02	X

Figure 6. EPT matrix (from above and left: poultry, pig/pork, beef branch)

Table 2. The interdependence of positive and negative differences (%)

Branch of the chain	Change of price	1. stage of the chain		2. stage of the chain	
		FP-PP	PP-FP	PP-CP	CP-PP
Poultry	price increase	11	34	78	59
	decrease	21	22	60	63
Pork – flitch	increase	68	60	85	77
	decrease	64	83	7	67
Pork – boneless pork leg	increase	62	77	60	69
	decrease	61	67	63	47
Beef – boneless	increase	21	34	44	52
	decrease	58	47	42	42
Beef – sirloin	increase	6	8	25	27
	decrease	63	48	7	23

– In the case of the *beef* branch, the average, resp. below-average regression was observed at both stages of the chain, R^2 ranges about 55, resp. 34% (for boneless beef, resp. for beef sirloin). This fact can also be caused by a low share of agricultural product on final price.

The attention was then paid especially to the presumption, that price decreases can be transmitted to a smaller extent than price increases as the consequence of market power.

– *At the 1st stage of the chain,* this presumption was confirmed only in the pig/pork branch (for both final products), in other branches (beef and poultry) it was not proved. It is necessary to mention that also in case of the pig/pork branch the differences in results for positive, resp. negative price changes were minimum.
– *At the 2nd stage of the chain,* the presumption was confirmed (excluding boneless pork leg) at all branches of the meat chain, the maximum differences between the positive, resp. negative price changes was observed in the pig/pork branch (flitch), where R^2 range between 0.85, resp. 0.07 for positive, resp. negative price differences.

At the 3rd stage of the price transmission analysis, the impact of time delay on the transmission of price changes was analysed at all branches of the chain. Time delay in the length of 0–4 months was tested in supply as well as demand direction. The regression of time series is expressed by the determination coefficient, the exact length of time delay is determined according to the maximum value of determination coefficient. The values of determination coefficient for all branches and both stages of the chain are shown in Table 3.

– The results *in supply direction* showed that no time delay was confirmed in most branches of the meat chain at 1st as well as the 2nd stage of the chain (excluded monthly delay for flitch at the 2nd stage of the chain, and 1–3 monthly time delay for beef sirloin at the 2nd stage of the chain, which can be caused by the specific inventory management system.
– *In demand direction,* the results showed that time delay in the length of 3 months was proved only at the 1st stage of the chain in poultry branch (broilers), in all other branches the values of determination coefficients proved no time delay.

CONCLUSIONS

This paper aims to analyse the process of price transmission in Czech meat commodity chain, whereas the analysis was carried out in the supply as well as demand direction. The interpretation of results must be differentiated according to this direction because of the different reasons behind the asymmetry of price transmission (APT) in the supply or demand direction.

The APT *in supply direction* mostly refers to the existence of market power. The results of the price transmission analysis confirmed the increasing impact of finalizing links of the meat commodity chain in conditions of the Czech Republic; unambiguously at the 2nd stage of the analysed chain (retailers) and with distinction according to the kind of meat at the 1st stage of the chain (meat processors).

– The situation on **market with processed meat products** is analysed in the work of Fibinger (2005). The author says, that while the market with beef

Table 3. Values of determination coefficient for various lengths of time delay

	Length of time delay (%)				
	1 month	2 months	3 months	4 months	no delay
Poultry branch					
1. stage: FP of broilers – PP of broilers	33	19	26	18	**40**
1. stage: PP of broilers – FP of broilers	88.6	90.8	**91.1**	89.3	83.9
2. stage: PP of broilers – CP of broilers	61	44	36	23	**77**
2. stage: CP of broilers – PP of broilers	92.4	86.0	77.9	68.3	**95.8**
Pig-pork branch (flitch)					
1. stage: FP of pigs – PP of pork (flitch)	48	8	8	5	**85**
1. stage: PP of pork (flitch) – FP of pigs	81.2	67.9	55.6	45.1	**90.4**
2. stage: PP of pork (flitch) – CP of pork (flitch)	**26**	18	1	8	18
2. stage: CP of pork (flitch) – PP of pork (flitch)	90.7	81.4	71.8	62.6	**97.3**
Pig-pork branch (boneless pork leg)					
1. stage: FP of pigs – PP of pork (pork leg)	41	8	17	4	**82**
1. stage: PP of pork (pork leg) – FP of pigs	82.2	70.6	61.6	52.7	**91.5**
2. stage: PP of pork (pork leg) – CP of pork (pork leg)	53	5	15	1	**80**
2. stage: CP of pork (pork leg) – PP of pork (pork leg)	92.4	83.0	72.9	62.7	**98.6**
Beef branch – boneless beef					
1. stage: FP of beef-cattle – PP of beef (boneless)	35	24	6	7	**51**
1. stage: PP of beef (boneless) – FP of beef-cattle	67.6	53.1	35.7	18.3	**76.8**
2. stage: PP of beef (boneless) – CP of beef (boneless)	49	40	20	8	**50**
2. stage: CP of beef (boneless) – PP of beef (boneless)	67.7	55.3	42.8	30.0	**75.8**
Beef branch – sirloin					
1. stage: FP of beef-cattle – PP of beef (sirloin)	43	32	11	4	**41**
1. stage: PP of beef (sirloin) – FP of beef-cattle	43.3	42.5	39.1	34.9	**45.0**
2. stage: PP of beef (sirloin) – CP of beef (sirloin)	36	36	37	19	**12**
2. stage: CP of beef (sirloin) – PP of beef (sirloin)	90.7	89.0	87.4	85.9	**92.9**

meat approaches perfect competition structure most from analysed markets and the relationship producer-processor is more or less balanced, on the market with pork meat there is much stronger position of processors in relation to producers. The situation on market with poultry could not be analysed due to the limited access to required data.[1] The results of the first as well as the second stage of price transmission analysis confirmed, that the position of processors of pork meat appears to be stronger in relation to beef or poultry meat processors; it is shown as an inelastic price transmission at the 1st stage of the analysis (EPT < 1) and a stronger regression of the negative price changes at the 2nd stage of the analysis.

– In the **retail sector,** it comes to strong concentration from the half of 90's of the last century, although these processes stabilised and slowed down in the last decade. According to the Incoma Research, the market share of 10 biggest companies in the Czech Republic in 2003 was approximately 53%. To the companies with the highest turnover, there belongs

[1] In contrast to the meat producers, where concentration is based on the principle of sales cooperatives, meat processors carry out the strategy of horizontal integration by means of holdings (f.e. Agrofert Holding, a.s., Agropol Group, a.s., ZŘUD).

f.e. the Makro Cash and Carry, s.r.o., the Ahold Czech Republic, a.s., the Kaufland v.o.s., the REWE ČR, the Tesco Stores ČR, s.r.o. and the Globus ČR, k.s. The increasing market power of retail chains in the analysed commodity chain was confirmed by the results of the price transmission analysis. At the 1st stage, the inelastic transmission of price changes was proved for all final meat products in all branches of the chain, and at the 2nd stage the presumption, assuming that the price decreases are in a smaller extent transmitted along the commodity chain as the consequence of the market power of retailers, was confirmed.

The APT *in demand direction* was analysed especially because of the food safety hazards and their impact on price levels and transmission of price changes.

The consumer very sensitively perceives the problems of food safety nowadays and any threatening of food safety at any level of the food chain can be reflected in the changes of consumer demand and the cause decreasing of its existing level. Subsequently, it comes to the relevant price fall of the product. An interesting thing is then, if and to what extent is this fall of retail price reflected into other price levels within the food chain, i.e. what is the impact on processors and producers of the agricultural product, which the final food product is made of. The meat commodity chain was chosen for this demand-oriented analysis because higher risks of the threatening food safety standards are presupposed, especially in connection with frequent distribution of animal diseases. Thus, this paper also aims to assess the transmission of price changes in demand direction in last 6-9 years in meat commodity chain in the Czech Republic.

From the results of the analysis, we can conclude that while at the 2nd stage of the chain, i.e. between consumer and processor of agricultural product, changes of price levels are more than adequately projected into the changes of price levels at the foregoing stages of the chain. At the 1st stage of the chain, i.e. between the processor and producer of agricultural product, it comes to the incomplete transmission of price changes.

In case of the decreased consumer price as the result of the demand shock, processors (forms in food industry) thus gain an inconvenient position, when price decrease in more than adequate extent project into prices of their products (producers' prices – PP). At the same time, they are not able to gain from the decreased price of agricultural raw material (farm prices – FP), which is not complete and is not proportionally adequate to the decrease of the final consumer price. It is likely that at the farm level, the impact of agrarian policy instruments will play an important role.

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