Cacchiarelli and Sorrentino *Agricultural and Food Economics* (2016) 4:2
DOI 10.1186/s40100-016-0046-9

Agricultural and Food Economics
a SpringerOpen Journal

RESEARCH Open Access

Antitrust intervention and price transmission in pasta supply chain

Luca Cacchiarelli* and Alessandro Sorrentino

* Correspondence: cacchiarelli@unitus.it
Dipartimento di Economia e Impresa, Università della Tuscia, Viterbo, Italy

Abstract

The issue of price transmission along the food chain has attracted considerable interest in the EU because of the welfare and policy implications that could potentially be generated. Possible consumer welfare loss may exist if price increases are rapidly transmitted through the supply chain, while price decreases are transmitted more slowly, or incompletely. Pasta is a strategic product in the Italian agro-food industry. In the last years, among the events which have characterized the Italian pasta supply chain such as CAP reform and prices instability, a case of anticompetitive practices against pasta makers was identified and sanctioned by the Italian Antitrust Authority for the period between October 2006 and, at least, March 2008. Specifically, based on Antitrust sentence Italian pasta makers (about 90% of Italian market) and two Industrial Unions of Italian pasta makers have put into practice a restrictive-competition accord aimed at harmonizing increases in the sale price for semolina dry pasta that applies to the retail sector. Our goal is to investigate whether antitrust sentence has produced some substantial effects in the Italian pasta market by restoring a state of appreciable competitiveness among companies.
A useful way to analyze pasta makers' behavior, before and after antitrust sentence, is to investigate whether and how the mechanism of the transmission price, specifically the pasta producer price adjustment process to semolina price variations, was changed with antitrust intervention.
We use Kinnucan and Forker model which has been employed in literature for analyzing the impact of a policy intervention on farm-to-retail price transmission in the fluid milk market.
The results showed that antitrust intervention would seem have produced some substantial effects in the Italian pasta market by restoring a state of high competition among companies.

Background

Vertical price transmission along the food chain has attracted considerable interest in the EU (Commission of the European Communities 2009) because of the welfare and policy implications that could potentially be generated. Perfect transmission of price shocks occurs when changes in prices at a given level of the chain are fully and instantaneously transmitted to the other stages. Therefore, if price increases are more rapidly and completely transmitted through the supply chain than price decrease, then, possible consumer welfare loss may exist (Meyer and von Cramon-Taubadel 2004; Vavra and Goodwin 2005).

Among the possible factors that may explain the presence of asymmetries in price transmission along a food chain, many authors suggest the exercise of market power at the processing and retailing stage (Peltzman 2000; Lloyd et al. 2006).

Pasta is a strategic product in the Italian agro-food industry since Italy has the peculiarity of being, at the same time, the main producer and consumer of pasta. During the last several years, wheat-pasta chains have been strongly affected by some changes. For example, CAP reforms in the durum wheat sector have progressively reduced government intervention in the market. Furthermore, starting in the spring of 2007 until March 2008, durum wheat prices have increased sharply causing important costs increases for the semolina and pasta maker stages. Finally, a case of anticompetitive practices against pasta makers was identified and sanctioned by the Italian Antitrust Authority for the period between October 2006 and, at least, March 2008 (Antitrust 2009). Specifically, based on Antitrust sentence Italian pasta makers (about 90 % of all firms in the Italian market) and two Industrial Unions of Italian pasta makers have put into practice a restrictive-competition accord aimed at harmonizing increases in the sale price for semolina dry pasta that applies to the retail sector.

Research on evaluating competition policy has grown rapidly in the last 10–20 years with a number of surveys in which critical overviews of the methodology are used to evaluate the effectiveness of Competition Authority decisions (Davies and Ormosi 2010; Davies 2010; Bergman 2008; Werden 2008). Only recently, since the spring of 2006, the Italian Competition Authority (ICA) started paying attention to the evaluation of the impact of its decisions, by establishing a new unit in charge of this task (Sabbatini 2008). The estimation of the effects of Competition Authority intervention is usually realized by analyzing the price variations and by estimating the margins, consumer surplus and, recently, total welfare (Sabbatini 2008; Aguzzoni 2011). Few studies on ICA decisions reveal that in some cases the investigation and the fines produce beneficial deterrent effects on firms' behavior such as in "baby milk" case (Sabbatini 2008), while in other cases, differently from what was expected by policy makers and consumers associations, the authority intervention does not produce price decreases as in the Italian pay-toll highways refueling market (Aguzzoni 2011).

In our idea, the pricing behavior of Italian pasta makers might presumably be scrutinized by investigating on how producers have transmitted semolina price variations into pasta price. A useful way to analyze pasta makers' behavior, before and after antitrust sentence, is to investigate whether and how the mechanism of the transmission price, specifically the pasta producer price adjustment process to semolina price variations, was changed with antitrust decision.

Our goal is to investigate whether antitrust intervention has produced some substantial effects in the Italian pasta market by restoring a state of appreciable competition among firms in terms of price transmission.

Methods

Among the various models of the asymmetric price transmission methodology, we employed Kinnucan and Forker (1987), which has been used in literature for analyzing the impact of a policy intervention on farm-to-retail price transmission in the fluid milk market (Lass 2005).

In the pass-through between semolina and pasta producer price the specification model assumes the following form:

$$PA_t = \alpha T + \sum_{i=0}^{M1} \pi_i^r SR_{t-i} + \sum_{i=0}^{M2} \pi_i^f SF_{t-i} + \delta C_t + \varepsilon_t \quad (1)$$

Where PA_t is the accumulated change in pasta producer price, T is a time trend variable, $SR_t = SR_1 \sum_{i=0}^{t-1} \text{Max}(\Delta S_{t-i}, 0)$ measures the accumulated increases in semolina price up to period t, while $SF_t = SF_1 \sum_{i=0}^{t-1} \text{Min}(\Delta S_{t-i}, 0)$ measures the accumulated decreases in semolina price up to period t, with $\Delta S_t = S_t - S_{t-i}$ which represents the changes of semolina price. Moreover, following Kinnucan and Forker (1987) and Lass (2005) we include C_t which symbolizes the other costs faced by pasta makers such as labour and energy in order to capture all costs which affect pasta price; finally, ε_t is a stochastic disturbance. The semolina-pasta model is presented in a completely general form, which allows different numbers of lagged values to be incorporated. This implies that pasta producer price could respond differently to rising and falling semolina prices with respect to both the magnitude and speed. In effect, the different superscripts on the summation term of increasing (M1) and decreasing (M2) variables allows that price transmission does not necessarily require the same number of lags for the two different components.

Neither theory nor empirical studies suggest the exact number of lagged values to include in both models, therefore, we proceeded to evaluate different structures in terms of lags and chosen the model that best fits the data (Lass 2005; Capps and Sherwell 2007; Cacchiarelli and Sorrentino, 2013). In the semolina-pasta model, we determined that the best lag structure incorporates the current period and three lagged prices both for increasing and decreasing components.

In this study the main focus is to identify the presence of asymmetries in price transmission between the two selected stages of the pasta chain. To determine whether pasta producer price responds in an asymmetric way to semolina price changes, we conduct two different tests:

$$H_0: \quad \pi_i^r = \pi_i^f; \; H_a: \quad \pi_i^r \neq \pi_i^f; for\ lags i = 0, 1, 2, 3 \quad (2)$$

and;

$$H_0 = \sum_i^3 \pi_i^r = \sum_i^3 \pi_i^f \; ; \; H_a = \sum_i^3 \pi_i^r \neq \sum_i^3 \pi_i^f \quad (3)$$

Hypothesis test (2) is sometimes referred to as short-run tests of asymmetry and was performed on the individual parameters. This hypothesis focuses on the equality of transmission rates during the same period for increasing and decreasing upstream prices. In the second hypothesis test shown in Eq. (3), all lagged variables are incorporated both for increasing and decreasing components of the model to test whether the pasta prices return to same level after equivalent increases and decreases in the semolina prices. This type of test is referred as of long-run asymmetry.

Data and preliminary analysis

We employed monthly data provided by Istituto di Servizi per il Mercato Agricolo Alimentare (ISMEA) and the National Institute for Statistics (Istat). Data concern prices

of semolina and pasta producer and cost indexes as labour and energy from January 2005 to August 2013 for Italy.

Fig. 1 shows the general movement of semolina and pasta prices in the selected period. Before 2007, the data indicate a slight alternating trend, where short upward movements are followed by smooth downward periods. On July 2007, there is a considerable increase recorded first in semolina price and, afterwards, in pasta price. Then, beginning March 2008 the semolina prices reversed the trend and returned to the level at which they began their rather dramatic increases, while the pasta price reduction was started some month later.

We used Granger-causality tests in order to verify the direction of price transmission. The results[1] show that semolina price causes pasta price while pasta price does not affect semolina price.

After having conducted a preliminary test[2] to determine whether structural change in the price transmission occurred with prices instability and antitrust intervention we split dataset into two periods: January 2005-August 2008 (Pre-Antitrust intervention) and September 2008-August 2013 (Post-Antitrust intervention) (Table 1).

Finally, we conducted tests on stationarity and cointegration of the time series employed in the model. According to Granger and Newbold (1974), running an Ordinary Least Square with non-stationary variables could lead to spurious results and Capps and Sherwell (2007) and Bolotova and Novakovic (2012) argue that pre-cointegration approach such as Kinnucan and Forker model might not be the best one to be used in the situations where data exhibit non-stationarity properties. Specifically, two alternative tests, the augmented Dickey-Fuller (ADF) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) test, were used to determine whether the time series were stationary while for cointegration tests we employed the Johansen (1991) procedure. The results show that variables in the models were non-stationary and cointegrated (Table 2).

Results and discussion

The models were estimated by generalized least-squares using Prais-Winsten methods due to serial correlation of the errors. As we mentioned above, some authors (Capps and Sherwell 2007; Bolotova and Novakovic 2012) argue that pre-cointegration approach such as Kinnucan and Forker model might not be the best one to be used in the situations where data exhibit non-stationarity properties. They suggest that in the case in which the variables are cointegrated the Asymmetric Error Correction Model

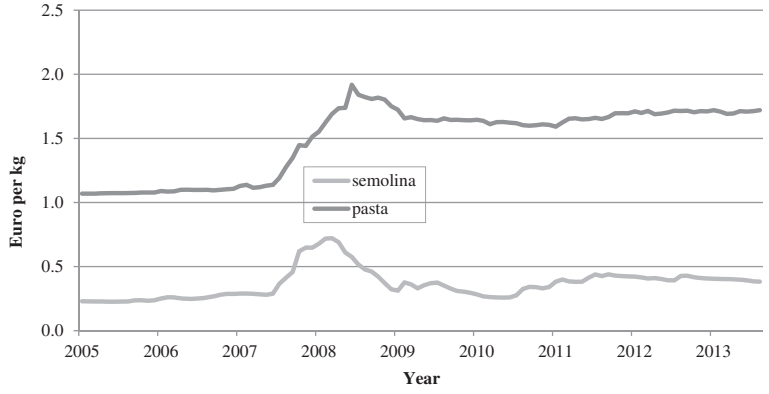

Fig. 1 Semolina and pasta producer prices from January 2005 to August 2013

Table 1 Stationarity tests

	Jan 2005-Aug 2008		Sept 2008-Sept 2013	
	ADF	KPSS	ADF	KPSS
Pasta price	−2.088	0.485[b]	−1.597	0.515[b]
Rising semolina price				
Current	0.162	0.964[a]	1.096	1.068[a]
One month	0.176	0.939[a]	2.652	2.029[a]
Two month	0.193	0.911[a]	2.680	2.035[a]
Three month	0.237	0.883[a]	2.690	2.038[a]
Falling semolina price				
Current	0.665	1.041[a]	0.947	0.647[a]
One month	0.254	0.698[b]	1.191	0.641[b]
Two month	0.741	0.821[a]	0.976	0.635[b]
Three month	0.743	0.938[a]	1.050	1.141[a]
Other costs				
Labour	2.901	0.948[a]	1.111	1.718[a]
Energy	1.711	0.908[a]	−0.515	0.463[b]

In ADF test, hypothesis null is unit root while in KPSS is stationarity
[a]Statistically different from zero at 1 %; [b]Statistically different from zero at 5 %
In ADF test, hypothesis null is unit root while in KPSS is stationarity

(ECM) might be a superior alternative to pre-cointegration models. However, after having estimated both Kinnucan and Forker and ECM model to analyze the price transmission before and after antitrust authority intervention, we concluded that the results were essentially statistically similar[3] as occurred for the most part of cases (Capps and Sherwell 2007; Bolotova and Novakovic 2012).

As a consequence, only the estimates of the first model are reported in Table 3. In the Pre-Antitrust intervention period, the model presents a fast upward adjustment of pasta producer price in response to semolina price increases. The current period effect is statistically significant at the one percent level of significance and is the coefficient estimated with the greatest magnitude. In the subsequent three months, the first and the third show negligible and insignificant downward movements while the second an additional increase, significant at the ten percent level. The semolina price decreases are transmitted more slowly on pasta price than increases. While the current period presents a positive and insignificant coefficient the first month is characterized by a significant and wide upward movement (negative coefficient). The last two months conclude the price transmission with a large and statistically significant downward correction. Finally, the processing cost increases were estimated to have no statistically significant effects on pasta price. In the Post-Antitrust intervention period, the results show a great difference in the pasta price adjustment process to semolina price changes when compared to the Pre-Antitrust intervention model. In particular, the effect of price increases is overall negligible while

Table 2 Johansen trace test for cointegration

Rank	Jan 2005-Aug 2008	Sep 2008 -Sept 2013
<=	3.15[a]	4.32[a]
0	20.35	18.45

[a]Statistically different from zero at 1 %

Table 3 Estimated Pre-Antitrust sentence and Post-Antitrust sentence pasta producer price models

	Jan 2005-Aug 2008		Sept 2008-Sept 2013	
	Estimate	t	Estimate	t
	Rising semolina price coefficients			
Current	0.768	5.48[a]	−0.417	−3.57[a]
One month	−0.016	−0.110	0.219	1.91[c]
Two month	0.591	3.92[a]	−0.063	−0.530
Three month	−0.029	−0.190	0.300	2.62[b]
	Falling semolina price coefficients			
Current	0.493	1.52	−0.137	−0.68
One month	−2.737	−6.81[a]	0.712	3.2[a]
Two month	0.891	1.95[c]	0.199	0.92
Three month	1.642	4.22[a]	0.009	0.06
	Other costs			
Labour	−0.002	−0.990	0.000	−0.500
Energy	0.000	0.380	0.000	0.260
Trend	−0.001	−1.81[c]	0.004	3.37[a]
	Aggregate lagged effect			
Sum of rising coefficient	1.314		0.039	
Sum of falling coefficient	0.288		0.783	
Differcence[d]	1.026	3.61[a]	−0.745	3.65[a]
R2	0.92		0.88	
Durbin-Watson	1.88		1.67	
Sample size	44		60	

[a]Statistically different from zero at 1 %; [b]Statistically different from zero at 5 %; [c]Statistically different from zero at 10 %
[d]Difference indicates the subtraction between the sum of rising coefficients and the sum of falling ones.

the sum of falling coefficients indicates that, on the whole, pasta makers incorporate semolina price decreases with a greater intensity than in the previous period.

A useful way to illustrate pasta producer price response is to capture the accumulated current and lagged effects, holding all other effects constant, by simulating equivalent semolina price increases and decreases (Fig. 2). Since these simulations do not take into account statistical significance of the coefficients, they do not assume any statistical

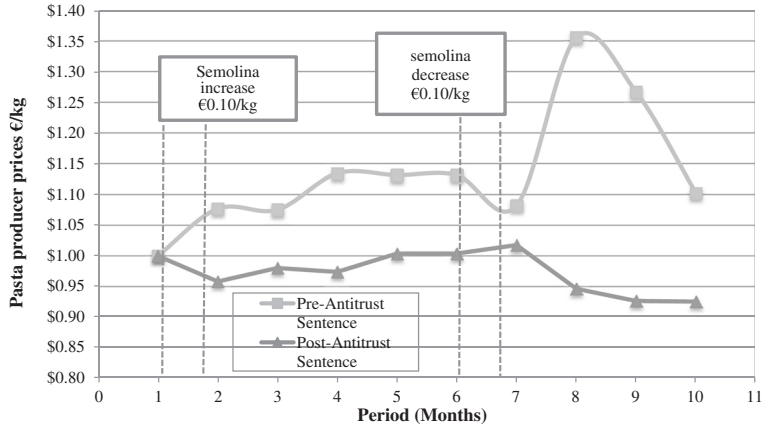

Fig. 2 Estimated effect on pasta producer price of an equivalent semolina price increase and decrease

significance but they exclusively represent a preliminary indication of pasta makers' behavior which will be statistically tested below (Table 3).

An initial pasta producer price of €1.00 per kilo is assumed. After two months, we assume a semolina price increase of €0.10 per kilo and allow these effects to fully impact the pasta producer prices without introducing any other changes until the sixth month (this allows all estimated lagged increases to fully impact the semolina price). For the Pre-Antitrust intervention period, in the current period pasta price increases to €1.078 per kilo, followed by a slight downward movement, a further but less marked raise and a another imperceptible decrease. Thus, by considering the net effect of about €0.13 we can argue that the transmission rate of a semolina price increase on pasta price was about 130 %. After the adjustment process was complete, we introduce an equivalent reduction of €0.10 per kilo on semolina price. As a result, the final pasta producer price fails to return to the initial level remaining at about €1.10 per kilo. For comparison purpose, we set up the same simulation in the Post-Antitrust intervention period. In this case, the pasta price adjustment to semolina price increase produces a price of 1.004 with a transmission rate of 0.4 % (Fig. 2).

Next, we examine the impact of a semolina price decrease of €0.10. The final result was €0.93 per kilo, which is lower than the initial pasta price. The aggregate partial analysis provides an interesting comparison of the two periods, with a strong indication of positive long-run asymmetry in the Pre-Antitrust intervention period, which then moves to an evidence of negative asymmetry after Antitrust Authority intervention.

The next step is to test, by conducting F-test of the equality between the estimated parameters for increasing and decreasing prices, whether the observed asymmetric price transmission behavior we found for pasta producer prices are statistically significant.

As we mentioned above, we apply two different hypothesis tests (the results are reported in Table 3). In the first test (short-run asymmetry), the null hypothesis is the equality of transmission speed of adjustment during the same period for upstream price increases and decreases. The second test, referred to as long-run asymmetry, provides statistical evidence about whether downstream price returns to the same level after equivalent upstream price increases and decreases. Regarding short-run asymmetry test we found some evidences exclusively in the Pre-sentence period while after antitrust intervention, the transmission speed of adjustment during the same period for upstream price increases and decreases is statistically equal. The results of the second test show that in both periods we reject the long-run symmetry null hypothesis. This allows us to confirm that: i) there is a statistical evidence, at 1 % of level of significance, that net changes in prices was greater following equivalent increases and decreases in semolina prices before the intervention of Italian antitrust; ii) after antitrust authority action, there is a statistical evidence, at 1 % of level of significance, that, after an equivalent increases and decreases in upstream prices, the final price is lower than its initial level (Table 4).

Conclusions

Pasta is a strategic product in the Italian agro-food industry. In the last years, among the events which have characterized the Italian pasta supply chain such as CAP reform and prices instability, a case of anticompetitive practices against pasta makers was identified and sanctioned by the Italian Antitrust Authority.

Table 4 Hypothesis tests[b] of asymmetric pasta producer price response for Pre-Antitrust and Post-Antitrust

	Period	Jan 2005-Aug 2008	Sept 2008-Aug 2013
Rising semolina price coefficient vs falling semolina price coefficient	Current	0.54	1.51
	1st month	39.2[a]	2.79
	2nd month	0.38	1.46
	3rd month	15.41[a]	0.21
Sum of rising coefficients vs sum of falling coefficients		13.09[a]	13.33[a]

[a]Statistically different from zero at level of significance 1 %;
[b]Tests were conducted as F-test of the equality between the estimated parameters for increasing upstream prices and decreasing upstream prices

Our goal was to investigate whether antitrust intervention has produced some substantial effects in the Italian pasta market by restoring a state of appreciable competition among firms.

A useful way to analyze pasta makers' behavior, before and after antitrust intervention, was to investigate whether and how the mechanism of the transmission price, specifically the pasta producer price adjustment process to semolina price variations, was changed.

The empirical analysis showed interesting changes to price transmission in the pasta market with the antitrust intervention. While in the Pre-Intervention period the effects of semolina price decreases on producer pasta price were much lower in magnitude than the effects of increases, after Antitrust Authority action pasta producer price responded to semolina increases in a completely different way by incorporating only a minimum part of the cost rises of the raw material. Furthermore, the effect of semolina decreases on producer pasta price was greater than that shown before of the Authority action. Therefore, the net effect was negative because of the price increases that were lower than price decreases.

The long-run asymmetry tests confirm, respectively, a positive asymmetric price transmission in the first period (2005-Aug 2008) and a negative asymmetric adjustment of pasta producer price in response to semolina price changes in the second (Sept 2008-Aug 2013) one.

Consequently, the analysis of the price transmission has showed that antitrust intervention would seem have produced some substantial effects in the Italian pasta market by restoring a state of high competition among companies. This result is in line with part of the previous literature (Sabbatini 2008) on the effectiveness of authority intervention on markets in which collusion among firms is investigated and fined. However, among the reasons which could have pushed firms to a higher competition, it is important to consider that in the last years, as suggested by Cacchiarelli, Lass and Sorrentino (2016), in Italian pasta supply chain the role played by retailers is decisively more important. In fact, retailers, entering pasta market through private labels, have improved their bargaining power toward pasta makers. Based on the last sentences, it is worthwhile to briefly underline the importance of competition law in the food supply chain which connects sectors with a very articulated structure. The agricultural sector is characterized by highly fragmented production while the market structure in processing and retailing stages is much more concentrated (EU 2009; Russo et al. 2011). This often allows processors and retailers to exert their potential market power to extract rent from government interventions sustaining farmers by different forms of subsidies (Russo et al. 2011; Sexton 2013). Therefore, for an effective antitrust policy it is crucial both the monitoring activities of antitrust

authority and the measures of the Common Agricultural Policy (CAP) which can be successful in rebalancing the market power among the sectors of the agro-food chains. In effect, although national antitrust authorities can intervene, as we demonstrated in this paper, by restoring a state of competition among companies this is not sufficient to prevent anti-competitive conducts. This goal can be reached through a policy which might improve the bargaining power of farmers. In this direction, we consider very useful the measures of the 2013 CAP Reform to strengthen and extend the role for Producer Organisation and Interbrunch Organisation in all agricultural sectors for their capability to concentrate producers' supply and provide alternative marketing channels with more balanced contracts and transactions.

Endnotes

[1]Granger-causality tests were conducted on the original time series to obtain Wald statistics for the hypothesis that all coefficients on the lags of explanatory variables were jointly zero in the equation for the dependent variable. In order to choose the lag structure in the VAR model preceding the causality test the SBC criterion was used. We safely reject the hypothesis the semolina prices do not cause pasta prices while we fail to reject the hypothesis that pasta prices do not cause semolina prices (the p-value was 0.927).

[2]In order to estimate the date of the structural break we employed "Gregory and Hansen (1996)" is cited in text but not given in the reference list. Please provide details in the list or delete the citation from the text. Gregory and Hansen (1996) method, within the conventional Engle and Granger (1987) test, which allowed us to detect a possible break in the long-run relationship of unknown date.

[3]The main results of the Asymmetric Error Correction model are: i) in the Pre-Antitrust Sentence period, the positive error term was decisively statistically greater than the negative error term indicating that in the long-run pasta makers transmitted semolina increases while the decreases were not completely transmitted into pasta prices; ii) after Antitrust intervention ECM results indicate that pasta makers, in the long-run, have changed behavior transmitting with a greater magnitude the decreases of semolina price. All results of ECM models are available upon request.

Acknowledgement
This paper has been selected as a best paper of the 51th SIDEA Conference in Benevento (18–20 September 2014). It has been accepted for publication in this journal following the usual revision process.

Received: 7 November 2014 Accepted: 27 January 2016
Published online: 02 February 2016

References

Aguzzoni L (2011) Three Essays in Competition and Consumer Policy (Doctoral dissertation, European University Institute Florence). Autorità Garante della Concorrenza e del Mercato. Bolletino n° 8 del 16 marzo 2009.

Bergman MA (2008) Quis Custodiet Ipsos Custodes? or Measuring and Evaluating the Effectiveness of Competition Enforcement. De Economist 156:387–409

Bolotova YV, Novakovic AM (2012) The Impact of the New York State Milk Price Gouging Law on the Price Transmission Process and Supermarket Pricing Strategies in the Fluid Whole Milk Market. Agribusiness An Int J 28(4):377–399

Cacchiarelli L, Lass D Sorrentino A (2016) CAP reform and price transmission in the Italian pasta chain. Agribusiness: An International Journal. DOI: 10.1002/agr.21459.

Cacchiarelli L, Sorrentino A (2013) La trasmissione dei prezzi nella filiera pastaria tra fattori congiunturali e riforma della Pac. Agriregionieuropa 9:35

Capps O Jr, Sherwell P (2007) Alternative Approaches in Detecting Asymmetry in Farm-Retail Price Transmission of Fluid Milk. Agribusiness An Int J 23:313–331

Commission of the European Communities (2009) A better functioning food supply chain in Europe. Communication, COM, Brussels, p 591
Davies S W (2010) A Review of OFT's Impact Estimation methods. Office of Fair Trading, OFT1164
Davies SW, Ormosi PL (2010) Assessing Competition Policy: Methodologies, Gaps and Agenda for Future Research
Engle RF, Granger CW (1987) Co-integration and error correction: representation, estimation, and testing. Econometrica: journal of the Econometric Society: 251-276
Johansen S (1991) Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. Econometrica J Econ Soc 59:1551–1580
Granger CW, Newbold P (1974) Spurious regressions in econometrics. J Econometrics 2(2):111–120
Gregory, AW, Hansen BE (1996) Practitioners corner: tests for cointegration in models with regime and trend shifts. Oxford bulletin of Economics and Statistics 58(3): 555-560
Kinnucan HW, Forker OD (1987) Asymmetry in farm-retail price transmission for major dairy products. Am J Agricul Econ 69:285–292
Lass DA (2005) Asymmetric response of retail prices in the northeast revisited. Agribusiness An Int J 21(4):493–508
Lloyd T, McCorriston S, Morgan C W, Rayner A J, Weldegebriel H (2006) Market Power in Uk Food Retailing: Theory and Evidence from Eight Product Groups. Paper presented at the 80th AES Annual Conference, Paris, France 30–31, 2006.
Meyer J, Von Cramon-Taubadel S (2004) Asymmetric Price Transmission: A Survey. Am J Agricul Econ 55(3):581–611
Peltzman S (2000) Prices rise faster than they fall. J Pol Econ 108(3):466–502
Russo C, Goodhue RE, Sexton RJ (2011) Agricultural Support Policies in Imperfectly Competitive Markets: Why Market Power Matters in Policy Design. Am J Agricul Econ 93:1328–1340
Sabbatini P (2008) The assessment of the impact of antitrust intervention by the Italian Competition Authority. De Economist 156(4):491–505
Sexton RJ (2013) Market power, misconceptions, and modern agricultural markets. Am J Agricul Econ 95(2):209–219
Vavra P, Goodwin B K (2005) Analysis of Price Transmission Along the Food Chain. OECD Food, Agriculture and Fisheries Working Papers 3 OECD Publishing.
Werden GJ (2008) Assessing the Effects of Antitrust Enforcement in the United States. De Economist 156:433–451