

**PUBLIC RECORD**

Final Report

**ASSESSMENT OF THE MARKET SITUATION FACTORS IN  
ITALY FOR PREPARED OR PRESERVED TOMATOES**

By

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For

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26 June 2015

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### Objective

This report analyses and explains matters relevant to the Anti-Dumping Commission's (the Commission) assessment about whether the situation in the domestic market in Italy for prepared or preserved tomatoes is such that sales in that market are not suitable for assessing the normal value of prepared or preserved tomatoes in Italy during 2014<sup>1</sup>.

The report does not draw conclusions as to whether a 'market situation' exists.

The report includes information relevant to the production and sales of:

- prepared or preserved tomatoes; and
- raw tomatoes (raw tomatoes are the primary raw material used in the manufacturing of prepared or preserved tomatoes).

The report includes, but is not limited to, an examination of:

- direct and indirect payments made to tomato growers under the European Union's (EU) Common Agriculture Policy (CAP);
- support offered through Italian Producer Organisations; and
- regulations on imports of raw tomatoes.

The paper discusses whether, and to what extent these factors impact upon supply and demand and prevailing prices in the relevant markets. Supporting evidence is included with appropriate references.

Where appropriate, the report also provides indications of how/where to probe the issues further during the Anti-Dumping Commission's investigation.

### The Competitive Market Test

In order to assess a market situation in a domestic market, and whether sales in that market are suitable for assessing the normal value, one needs to adopt a market test, or standard, involving a counterfactual or comparator, against which a given market situation can be judged. It is proposed here to use a *competitive market test* to examine whether or not there is a distortion of competitive market conditions in relation to the subject goods such that domestic sales are likely to be significantly distorted from normal value. This is consistent with the Commission's approach identified in its *Statement of Essential Facts 217 (SEF 217)*, p 29:

Consideration of whether a situation exists in the relevant market is concerned with the operation of policies and regulations (whether *overt or implied*) and their potential impact on the suitability of domestic selling prices for normal value purposes. Accordingly, the question to be answered is whether the relevant policies operate in a manner which:

- a) leads to a distortion of *competitive market conditions* in relation to the subject goods such that domestic sales are unsuitable for the purposes of determining normal value; and
- b) affects the conditions of commerce related to the production or manufacture of like goods such that the records of exporters of prepared or preserved tomatoes cannot be relied upon to reasonably reflect *competitive market* costs associated with

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<sup>1</sup> The Commission will examine exportations of prepared or preserved tomatoes to Australia from Italy (by certain exporters) during the period from 1 January 2014 to 31 December 2014 (the investigation period) to determine the level of dumping (if any).

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production in accordance with the provisions of Regulation 180(2) of the Customs Regulations 1926<sup>2</sup>.

The Commission further noted in SEF 217 p 27

At the time of initiation, the Commission considered that there was sufficient information to warrant inquiring into whether the EU's agricultural policies created a market situation that led to a distortion of competitive market conditions to such an extent that domestic sales were no longer suitable for establishing normal values.

In its consideration report 276 (CON 276)<sup>3</sup> p 22, the Commission noted SPCA's claims that the supply and price of fresh tomatoes is influenced by direct and indirect payments made to tomato growers under the Common Agricultural Policy and claims that there are regulations on imports of raw tomatoes and support offered through Italian Producer Organisations. The Commission noted SPCA's allegation that:

the prices of raw tomatoes would have been higher than the historical and current prices paid by the tomato processors; this in turn would impact the normal value of prepared and preserved tomatoes in Italy.

The Commission concluded in CON 276 (p 23):

Based on an assessment of the information set out in the application and the information gathered by the Commission in the previous investigation into prepared or preserved tomatoes exported by Italy, the Commission considers it appropriate to examine SPCA's market situation claims during the course of the investigation.

### Summary of Results

In order to frame the analysis of the domestic market in Italy for prepared or preserved tomatoes during 2014 the report first analyses a number of dimensions relevant to market definition, including product, geographic, functional and time dimensions. On product dimension the report notes the case focuses on prepared and preserved tomatoes (PPT) in containers. As much as [REDACTED] % of the relevant value of the goods exported to Australia for example involved [REDACTED] in various container sizes while as much as [REDACTED] % related to [REDACTED] in various container sizes, and a further [REDACTED] % related to [REDACTED]. [Confidential information removed – discussion of models] On geographic dimension the report starts with a narrow definition for the domestic market for the above PPT product, centred on the location of La Doria and Feger head offices and factories, but concludes competitive conditions lead one to expand the market to include the whole of Italy. On the functional dimension or supply chain dimension the report identifies the upstream raw tomato market in Italy as a key important influence on the operation of the PPT market worthy of further analysis. The report also addresses downstream factors relating to investment in distribution and marketing including labelling, noting that it is important to always standardize comparison using net prices that “back out” investment in distribution and marketing based on a “resale price minus” (RPM) method. On the time dimension the report notes the harvesting of tomatoes occurs in the third quarter of the year (June to August) implying generally one would expect PPT prices in 2014 to be influenced by factors affecting raw tomato supply in 2013. This is subject to the economics of inventory cycles, which may enable time shifting, leading to prices being somewhat evened out.

<sup>2</sup> These provisions are now contained at Regulation 42(2) of the Customs (International Obligations) Regulation 2015.

<sup>3</sup> The Commission's consideration of the SPCA application for the publication of a dumping duty notice in respect of prepared or preserved tomatoes exported to Australia from Italy by Feger Di Gerardo Ferraioli SpA and La Doria SpA.

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On institutional arrangements the paper identifies a high level of distortion to the raw tomato market in Italy, which is relevant to the PPT market including three main factors:

- 1) First and in particular the EU Common Agricultural Policy (CAP) appears to have resulted in particularly distortionary effects on the raw tomato market in Italy. There are three features of CAP payments that serve to generate distortionary effects - their lack of uniformity across different *types of agricultural product*; the generally high *level of the subsidies*, and the extent to which they are tied or “coupled” to *the level of output* of particular products. Despite attempts at reform overall it appears that reform of CAP payments to raw tomatoes has not been fully implemented in Italy, and that total farm assistance for tomatoes has not been fully decoupled and has moreover not fallen significantly. Thus EU CAP payments with respect to tomatoes used in processed and preserved tomatoes in Italy have thus remained coupled in two ways. First *explicitly* - with an additional payment of 160 Euros per hectare introduced recently, which is coupled to production of tomatoes. Second they are *implicitly* coupled, in that EU CAP payments are largely based on subsidy levels received by farmers in previous years, which were based on the past system of coupled payments, and are thus *implicitly* tied to output.
- 2) Second there appears to also be scope for potential distortions in the market due to the risk of Italian Producer Organisations engaging in cartel like behaviour. In this regard it is important that it appears that the EU has either introduced or is looking to allow Italian Producer Organisations derogations to EU competition law,<sup>4</sup> and exemptions from State Aid Rules for Italian Governments assistance to them.
- 3) Finally there are market distortions due to the regulation of imports of raw tomatoes to Italy. The law prohibits the import of fresh tomatoes from outside the EU for local sale. Such imports are only allowed (at a duty) for processing so long as they re-export the processed product. Import of preserved tomato products are subject to duties. Processed tomato products are thus traded but face ad valorem tariffs in the EU without the complexities introduced for trade in fresh tomatoes.<sup>5</sup>

Our analysis below suggests that while the level of distortion of the raw tomato sector in Italy is high, it appears that the ultimate effect of these distortions on the price of prepared and preserved tomatoes (PPT) in Italy, or any “flow on” effect may be relatively small. Thus for example although the value of the CAP subsidy appears to be around 32% of the variable costs of producing raw tomatoes, the limited degree of flow on may mean that the ultimate effect on the price of PPT is relatively small by comparison. Using one methodology, we predict that as a result of the CAP subsidy, the price of prepared and preserved tomatoes may be around ■■■% lower, while using another methodology, it may be lower by ■■■%. **[Confidential information removed – Commission considers the amount to be insignificant]** These estimates incorporate the simultaneous impact of support offered through Italian Producer Organisations, and regulations on imports of raw tomatoes. In the raw tomato market, there is a potential for Producer Organisations to distort market prices and engage in cartel-like behaviour. Similarly, import regulations on the purchase of raw tomatoes can distort market prices by increasing the market power of tomato growers. To reflect these, in our simulations the flow on effect of the subsidy to raw tomato prices is calculated to be less than 100%.

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<sup>4</sup> see Para 6: [http://europa.eu/rapid/press-release\\_MEMO-13-621\\_en.htm](http://europa.eu/rapid/press-release_MEMO-13-621_en.htm)

<sup>5</sup> Rickard and Summer (2008) pp57

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### Outline

This paper consists of three main sections

- a) Market Definition; The first section reviews the market definition relevant to the case. Market definition is required to frame the analysis of factors affecting the domestic market in Italy for prepared or preserved tomatoes during 2014.
- b) Institutional arrangements; The second section reviews the relevant institutional arrangements that are likely to have caused a distortion to the domestic market in Italy for prepared or preserved tomatoes during 2014.
- c) Impact Analysis; The third and final section analyses the likely impact of the foregoing institutional arrangements on the domestic market in Italy for prepared or preserved tomatoes during 2014.

### Market Definition

In applying a competitive market test to assess whether the situation in the domestic market in Italy for prepared or preserved tomatoes (PPT) is such that sales in that market are not suitable for assessing the normal value of PPT in Italy during 2014, it is first important to define the relevant market under investigation. Market definition is required to frame the analysis of factors affecting the domestic market in Italy for prepared or preserved tomatoes during the investigation period (2014).

There are a number of dimensions for market definition which we address in this section including:

1. Product
2. Geography
3. Function
4. Time

The best place to start is with a narrow market definition. Related markets can then be identified by asking the question whether a small non-transitory increase in price (SNIP) would induce shifts in demand, or supply, to or from other markets. For example with a narrow geographic definition the question is whether a SNIP would encourage supply from an adjacent region. If so then these markets actually form part of a broader market.

Once the primary market is defined it is relatively easy to assess the likely impact of any distortionary arrangements that *directly affect* this primary market and its subsequent effects on the prepared or preserved tomatoes (PPT) market. It will also however then be important to consider complementary output and input markets including the market for major inputs such as raw tomatoes in Italy. This will enable us to isolate factors that may have an *indirect effect* on the PPT market, by means of related markets, including indirect effects operating through the raw tomatoes (RT) input market.

### Product Dimension

The goods under consideration in this report, (i.e. the goods exported to Australia - the goods) are exported from Italy by two companies

1. La Doria S.p.A. and
2. Feger di Gerardo Ferraioli S.p.A.



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Source: Calculations using data provided by La Doria and Feger

[Confidential table removed – Australian sales volumes and values for Feger and La Doria during the investigation period]

Thus as much as [redacted] % of the relevant value of the goods exported to Australia involved [redacted] in various container sizes. As much as [redacted] % related to [redacted], and a further [redacted] % related to [redacted]. [Confidential information removed – discussion of models]

The above products appear to be close substitutes both on the demand and supply side. Thus if prices were calculated on a unit volume, e.g. per kilogram to standardize, it is likely variations in unit prices will arise from differences in can size, type of tomato (e.g. [redacted]) and type of cut/recipe (e.g. [redacted]).

### Geographic Dimension

In order to establish the geographic extent of the relevant market for PPT in Italy it is useful to start with a narrow definition which initially focuses on the location of the manufacturers of PPT. Starting with a narrow geographic definition the task is then to assess whether the degree of substitution between locations means a wider market definition should be considered.

As noted the two exporters whose products are the subject of the investigation are Feger and La Doria. Feger's head office is in Southern Italy, in Angri, Salerno.<sup>7</sup> Feger has only one factory, which is co-located with its Head Office. La Doria's Head Office is also in Angri, Salerno in Southern Italy, and just 400 metres down the road from Feger.<sup>8</sup> La Doria owns four factories directly and three others through its subsidiary. Of the four factories La Doria owns directly, three are located in Salerno as well, the other in Ravenna:

1. Angri (Salerno): Via Nazionale, 320 – 84012
2. Sarno (Salerno): Strada Statale 367, - 84087
3. Fisciano (Salerno): Via Polcareccia 3 - 84084
4. Faenza (Ravenna): Via Emilia Ponente, 4 – 48018

- [redacted]
5. Lavello (Potenza): Strada Consorziata - 85024
- [redacted]

[Confidential information removed – exporter production information]

La Doria claims the goods under investigation are manufactured in four of its factories, 1,2,3, and 5 only. All four are thus in the south of Italy. Indeed the first two are located very close together in Salerno being only ten kilometres from each other (and Feger's). The third one is

<sup>6</sup> [redacted] [Confidential information removed – Details of Exporter sales volumes]

<sup>7</sup> Via Nazionale, 236 –Angri (SA) 84102 Italy

<sup>8</sup> at Via Nazionale, 320 –Angri (SA) 84102 Italy





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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: Calculations using data provided by La Doria and Feger.

[Confidential table removed - Australian sales volumes and values for Feger and La Doria during the investigation period]

The table below compares La Doria's total sales of the investigated goods against its purchases of raw tomatoes.

Table 3: La Doria's Total Sales versus Cost of Raw Tomatoes Purchases

Total Sale (EUR)	Cost of Raw Tomatoes (EUR)	% Cost Raw Tomatoes / Sales
[REDACTED]	[REDACTED]	[REDACTED]%

Source: Calculations using data provided by La Doria.

It is clear then that raw tomatoes are a major input to the production of PPT, with La Doria's expenditure on raw tomatoes representing about [REDACTED] % of sales revenue. In appendix two we present more detailed analysis of the cost share for La Doria and Feger. As we show for La Doria on a per kg basis, raw tomatoes purchases costs make up about [REDACTED] % of industrial costs and about [REDACTED] % of total costs.

As we shall see in the next section the share of costs attributable to raw tomatoes is of particular interest in this case given there are:

- CAP payments made to farmers involved in producing raw tomatoes for processing (processing tomatoes). This may directly affect the production and pricing of raw tomatoes in Italy and may indirectly affect prepared or preserved tomatoes;
- producer organisations representing tomato growers who may be involved in the administration of assistance programmes, and co-ordinating farmers activities, including their contract negotiations, and price setting, but also processing.
- entry level prices, external tariffs, import quotas and import levies affecting the production and pricing of raw tomatoes in Italy but not prepared or preserved tomatoes;

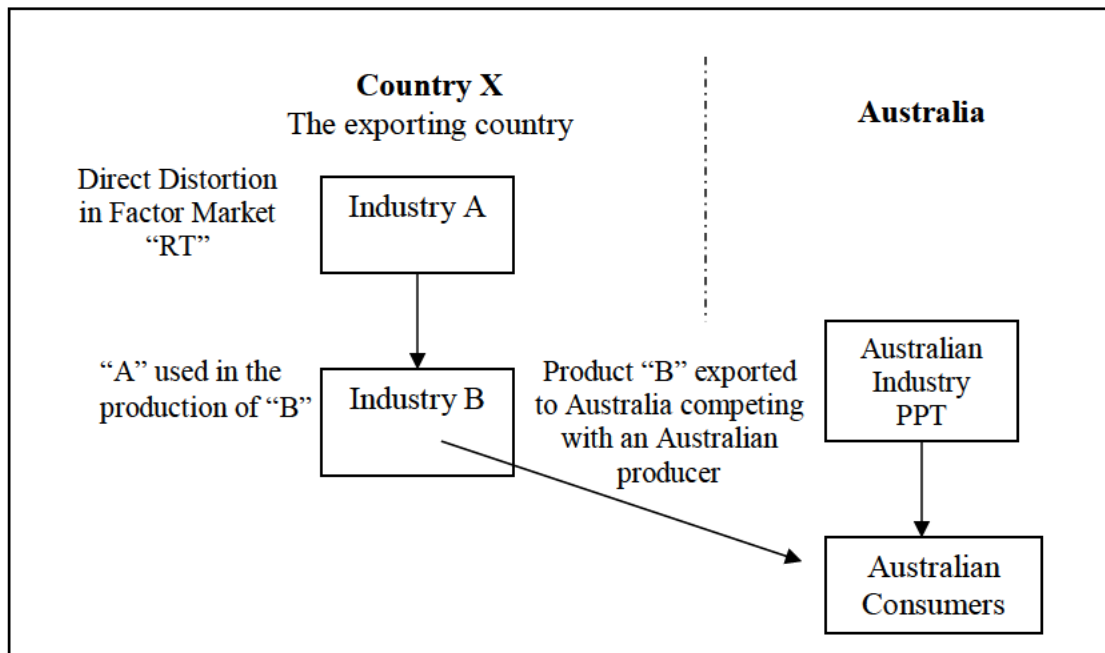
A highly simplified market definition incorporating product, geographic and functional dimensions of particular interest in this investigation is depicted in Figure 1 below. As shown in the diagram an Australian industry (depicted on the right hand side) is concerned about the impact of low cost imports of a product B, in our case "prepared or preserved tomatoes" PPT

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from country X, in our case “Italy”, (shown on the left hand side) which is being sold to Australian retailers.

As noted in the case of distortionary factors that only affect the primary market “B” (PPT), the analysis is likely to be quite simple or relatively straightforward. The analysis becomes more complicated as in this case, if “B” is produced in country X using a significant factor or input A (“A” = in our case raw tomatoes) and there are significant distortionary factors in the factor market “A” which may be having an *indirect effect* on the product market for “B”.



**Figure 1: Market map**

As indicated in the diagram in country X (Italy) there may be distortionary arrangements affecting the production of “A” (raw tomatoes) but not directly affecting the production of “B” (prepared or preserved tomatoes) that still have a major effect. In particular the question of interest is to what extent the distortion in market A impacts on the price of “A” and thus “flows through” to “B” and affect the price in market B.

When considering how distortions in relevant factor or input markets may indirectly affect the market for preserved or prepared tomatoes, one needs to revisit the geographic dimension, this time of any relevant input market - and in this case especially raw tomatoes. It may be suggested for example that any input distortion in raw tomatoes should one exist may affect one regional input market (north or south) differently from another. In this regard the raw tomatoes used in processing are cultivated in almost all regions of Italy, but show a high territorial concentration in two main regions, and there appear to be systematic differences between the two regions in terms of farm structure and industrial organization worth considering.

Thus in Italy overall, nearly half of the processing tomatoes are produced in the South; another 44% is concentrated in the North, and only the residual 8% in the central regions.<sup>9</sup> There are thus essentially two processing tomato basins accounting for over 80% of

<sup>9</sup> Solazzo et al (2014) p 10

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production.<sup>10</sup> The southern basin comprises mainly Puglia, Campania and Basilicata and the northern basin comprises Emilia-Romagna, Lombardia, Piemonte and Veneto. Within these basins, two regions, Puglia in the south (33%) and Emilia-Romagna in the North (32%), concentrate two-thirds of production. In Puglia the province of Foggia has become the top production area in Europe, producing almost two-thirds of the tomato produced in the southern basin, and 30% of the Italian output. In Emilia-Romagna, the province of Piacenza is the second area in Italy, with the output of Piacenza along with the provinces of Ferrara and Parma in Emilia-Romagna accounting for 20% of Italian national output (Solazzo et al, 2014).

Puglia and Emilia-Romagna, and in general the two processing tomato basins, display different characteristics as regards farm structure, production and supply chain organisation, the functioning of contractual relationships, and the type of processing tomato. The northern basin is characterized by larger farms and a higher level of mechanization than the national average, while the southern basin is composed of smaller farms. Moreover, despite similar figures in terms of production and grown area, Emilia-Romagna exhibits a very high degree of specialisation, with almost half of the entire horticultural area covered by processing tomato. This percentage reaches 90% in the province of Parma. In Puglia the percentage does not exceed 20%; even in the province of Foggia in Puglia, the percentage, although higher, is only 41% (Solazzo et al, 2014).

A further difference is found in industrial organisation. The northern area is characterized by the presence of large self-processing cooperatives - or grower controlled producer organizations which in turn own processing facilities. The southern area is characterized by a high number of mostly small private companies owning processing plants and buying from a large number of small farms.

As noted above, all five of the factories involved in manufacturing goods under investigation are located in the south of Italy. Feger's only factory is located 100 meters from one of La Doria's in Angri Salerno, while La Doria has another located very closely in Salerno, only ten kilometres away, and a third also in Salerno about 40 kilometres away, or about an hour's drive. The fifth factory is in Lavello, still only about 190 kilometres or 2 hours drive away.

Given the location of their factories in the south, it seems therefore likely that the La Doria and Feger plants will draw on tomatoes mainly from the province of Foggia in the south. (But this needs to be verified) This implies a lower role for producer organisations. Competition between north and south will also tend to mean any distortionary effects of producer organisations dominant in the north will be eroded by competition from the south. Indeed the close proximity between the main north and south basins, (on average approximately 650 kilometres, or 6 hours drive) and the scope for substitutability imply they may form one market. Having said that, the transport costs involved in north-south trade, differences in type of tomato grown, and the perishability of tomatoes once picked may mean that there is some scope for price differentials to emerge in raw tomatoes between the north and south. This ideally could be tested using the SNIP test. In general however, it seems reasonable to predict that the price for raw tomatoes in the south may be slightly lower than that in the north, given the weaker role of producer organisations in the south, the lack of vertical integration between processing and farm production, and the greater competition between smaller farmers - although there may be some offset from the relative diseconomy (higher costs) from smaller scale farms in the south. In conclusion it seems that La Doria and Feger may face tomato prices that are less distorted by the effects of producer organisations. This may change

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<sup>10</sup> *ibid* p 10

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however to the extent there is co-ordination through inter-group producer associations which appear to have been emerging of late.

The market may moreover be more complex than the one outlined in the above diagram. Italian raw tomatoes used to make PPT, can also be sold direct to consumers to eat both locally and/or overseas.<sup>11</sup> This implies more branches need to be added to the above diagram just below “industry A” branching away from industry B to adequately describe the market and indicate the alternative uses of “A”. The reason the alternative uses of “A” need to be mapped out is that such alternative uses for A will affect the likelihood of any distortion in market A flowing through into the production of “B”. We shall explore this point further under our discussion of factors affecting the supply of “A” for production in “B” - or supply side factors below.

Turning to “demand side” analysis (or analysis of the factors affecting the demand for “A” for use in production of “B”) we may need to explore the nature and availability of including substitutes and complements to Italian raw tomatoes used in the production of PPT. It is assumed at this point for reasons outlined below that relevant substitutes and complements do not significantly further affect the analysis. The closest substitutes for Italian tomatoes used in the production of Italian prepared and preserved tomatoes are raw tomatoes produced within Europe (e.g. Greek, French or Spanish Tomatoes). Two factors suggest this may not be a significant factor. First it seems that the distance required to transport, may mean tomatoes from other European Countries are not close substitutes, and therefore not relevant. Second because tomatoes from other European Countries are subsidized under EU CAP too, to the extent there is competition for supply, there will be a tendency toward a uniform subsidized price net of transport costs. Tomatoes produced outside the EU are also not relevant since regulations dictate that they cannot be used in the production of PPT in Italy, unless they are re-exported. In relation to complements, in order to produce the final good “B” (e.g. Italian prepared and preserved tomatoes), factor “A” (tomatoes) may need to be combined with a complementary input (packaging and containers like cans or glass). The extent of flow on depends on the availability of these complements. It may be important to consider the conditions of supply of complementary packaging inputs during the time period of the investigation further. It is assumed at this point these are in ready supply.

Not only does market definition involve an investigation of the technical supply and demand relationships between products for example in the form of substitutes and complements as outlined above, but also an investigation of the number *and* nature of the relevant players in the markets. Thus as noted to the extent there are many small farms in the south, quite a different competitive dynamic may result, in turn influencing the extent of flow on.

Finally one needs to consider factors affecting markets downstream from the PPT manufacturing plants. One feature of the functional or supply chain dimension is the point along the supply chain at which the goods are imported into Australia. In this regard it is possible for the PPT to be sold to supermarkets which wish to assume a greater role in marketing and distribution, and go so far as to have their own label placed on the outside package, and the PPT exported from Italy which are the subject of investigation include all PPT of the type described under product definition above *regardless of how labelled whether with*

- i. *a generic,*
- ii. *a house brand / private label for retailer or*
- iii. *a proprietary label.*

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<sup>11</sup> If sold overseas, it is more likely going to be in substantial quantities only in Europe. For far away locations (e.g. Australia), the high costs of air freight (air freight being the only option given the perishability of the product) will probably mean a fairly high price, with the product targeted to a very small segment of the market

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The degree of labelling may be significant, but only to the extent it reflects investment in distribution and marketing. One way to standardize comparison then would be to use net prices. This can be done using what economist calls a “*resale price minus*” (*RPM approach*) through which net prices are identified after deducting for example the competitive market distribution and marketing costs that would be incurred for resale between reasonable parties, acting at arms length. To implement the RPM approach one would use the resale prices received for branded PPT, and deduct a comparable margin, based on a comparison of margins earned by comparable firms in the market, to identify a comparable unbranded price.

A final factor to consider in our analysis is the likelihood that supermarkets may be able to exert competitive pressure on suppliers of house brands, to the extent that flow on from EU CAP payment may be higher.

### Time

The time period of the investigation into exportations of prepared or preserved tomatoes to Australia from Italy (by certain exporters) is the period from 1 January 2014 to 31 December 2014

Time periods are important having regard to seasonality. It seems the harvesting of tomatoes occurs in the third quarter according to the ADC Statement of Essential Fact (SEF) March 2014. This is reflected in the Northern market, the Borsa Merci, where there are no prices cited for processed tomatoes between June to August. This implies there may be lags in prices, with processed product in the first half of the year being drawn from tomatoes grown in the previous year. Generally then one would expect PPT prices in 2014 to be influenced by factors affecting raw tomato supply in 2013. In which case any weather events affecting tomato crops may not show up in prices for processed tomatoes with a lag. This is subject to the economics of inventory cycles, which may enable time shifting, leading to prices being evened out.

### Relevant Institutional Arrangements

In what follows we review the nature and likely broad effects of relevant institutional arrangements including:

- direct and indirect payments made to tomato growers under the European Union’s (EU) Common Agriculture Policy (CAP);
- regulations on imports of raw tomatoes; and
- support offered through Italian Producer Organisations.

### European Union’s (EU) Common Agriculture Policy (CAP)

In order to understand the current system of CAP payments affecting the market for preserved and prepared tomatoes in Italy in 2014, one needs to understand how CAP payments were calculated in the previous 20 years. This is particularly important due to the use of “historical reference” payments which are based on past subsidy systems. In this section we therefore outline the history of CAP payments through to the recent 2014 reforms.

There are three features of CAP payments that serve to generate distortionary effects - their lack of uniformity across different *types of agricultural product*; the generally high *level of the subsidies*, and the extent to which they are tied or “coupled” to *the level of output* of particular products.

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Until 2003 CAP payments were linked to the level of production of specific agricultural products (“coupled payments”). Payments of this sort mainly came by crop type (e.g. tomato in tonnes), as area aid (e.g. by hectare) or by livestock (per animal). From 2003 however payments were meant to be de-coupled from level of production. Overall however as we shall see it appears the decoupling of CAP payments to tomatoes has not been well implemented in Italy. Thus only recently an *additional* payment of 160 Euros per hectare (applicable from January 2015) was introduced which is explicitly *coupled* to production of tomatoes.<sup>12</sup> Moreover even still in 2014, EU Common Agricultural Policy payments with respect to tomatoes used in processed and preserved tomatoes in Italy were largely based on subsidy levels received by farmers in previous years, which were based on the past system of coupled payments. Thus while technically farmers may receive “historical reference” payments that are not explicitly tied to current output, for political and economic reasons the payments are still likely to be *implicitly* tied to output. Thus while explicitly decoupled from current output, historical reference subsidies are implicitly coupled to output. The use of “historical reference” payments, which are *implicitly* coupled, together with a new *explicitly* coupled payment means that a significant part of CAP payments with respect to tomatoes are still effectively coupled to production.

### The 1996 Reforms

The first Common Market Organisation (CMO) rules on processed tomatoes date back to 1977. In 1996 the CMO was reformed by Council Regulation (EC) No 2200/96 which gave the producer organisations (POs) a key role in the fresh product and processed product sector, while Council Regulation (EC) No 2201/96 amended the instruments for intervention on the processed product market, and regulated the aid scheme and the trade regime with third countries.<sup>13</sup>

Under the support system for processed tomatoes laid down in 1996 by Council Regulation (EC) No 2201/96 and Council Regulation (EC) No 2200/96 the CAP subsidy was:

- coupled to output, and limited to a quantity of processed products corresponding to a specific volume of fresh tomatoes. The quantity of fresh tomatoes, divided into three groups (tomato concentrate, canned whole peeled tomatoes and other products), was distributed annually among the Member States (MSs) according to the average quantities produced.
- *paid to processors* approved by the MSs on the basis of a contract with recognised Producer Organisations (PO). The aid was only granted on processed products meeting minimum quality requirements made from raw materials harvested in the Community for which a price at least equivalent to the minimum price had been paid;

### 2000 reforms

The 2000 reform under Council Regulation (EC) No 2699/2000 required that:

- the aid was to be *paid to farmers* via recognised POs;
- *a contract for sale of tomatoes must have been concluded with approved processors*<sup>14</sup>

<sup>12</sup> La Doria Annual report 2014 June. La Doria’s 2014 half annual report states : *the partial return of coupled aid to support the competitiveness and sustainability of the Italian tomato sector. The coupled subsidy which will be granted to farmers (in addition to the current decoupled subsidy which will be reduced with the entry into force of the new measures) is estimated at €160/ha’*

<sup>13</sup> For the following points 1 & 2 see p2 of [2006 Evaluation of measures on processed tomatoes](#) by Agrosynergie Abridged Summary October 2006 which was part of the evaluation of the Fruit and Vegetable (F&V) CMO (common market organisation). Framework Contract No 30-CE-0035027/00-37

<sup>14</sup> See website on CAP and Agriculture and rural development <http://ec.europa.eu/agriculture/cap->

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- the aid was *per tonne* of tomatoes – and at the time amounted to €34.50 per tonne of tomatoes.
- the quota system was replaced by Community and national processing thresholds. If these thresholds are exceeded, penalties were applied.
- the minimum price was abolished

### 2003 Fischler Reforms

Under pressure from its WTO partners and threat of legal actions owing to the illegality under WTO rules of its CAP subsidies, a far-reaching reform of CAP was decided in 2003 and 2004, with progressive implementation as from 2005.<sup>15</sup> Under Council Regulation (EC) No 1782/2003 fundamental changes concerning direct payments to farmers were introduced. In particular, it was intended that:

- From 2003 direct payments to farmers were to be largely decoupled from production type - although as we shall see the possibility existed to keep part of the payments linked to specific production.
- A mechanism of compulsory 'modulation' was introduced. It consisted in a reduction of direct payments (by 10% in the 2012 application year) with the transfer of the corresponding funds to rural development.

The 2003 reform then proposed a so-called Single Payment System (SPS) involving decoupled payments to apply to member states who joined the EU prior to 2004. A simplified transition version called the Single Area Payment System (SAP) applied to newer member states. As noted the intention of the 2003 reforms implied at least two things:

1. decouple farm payments from type of production (e.g. tomatoes), to be realised through the Single Payment Scheme (SPS); and
2. reduce the amount of farm assistance paid, involving slowly reducing “national ceilings” in what has been termed “modulation”.

Decoupling however was very incomplete, Rather than a decoupled Single Payment System (SPS), a hybrid model was instead implemented in some Members States (including Italy) with payments received still being linked to past payments, or “historical references” implying different levels of SPS for each farmer. While there was some “regionalization” where all payments were averaged out over a state or region, reducing the amount paid to some and increasing payments to others. The 2003 reforms further allowed Member States to retain coupled payments at 10% of their national ceilings for specific types of farming, involving the retention of the classic coupled mechanism.

Thus the CMO reform in fruit and vegetables introduced by Regulation (EC) No. 1182/2007 integrated the sector into the single payment scheme from 1st January 2008. For processing tomatoes however, Italy opted for

- the three year transition period (2008-2010)
- maintaining coupled payments at 50% of the national ceiling until the end of 2010.
- with decoupled payments to be fully implemented from 2011,

In the end however although it was intended to move completely to single decoupled uniform regional payment for all of Italy, because processed tomato growers were one of the last groups to receive coupled payments (like dairy), it proved politically too hard to adjust. So

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[funding/beneficiaries/shared/index\\_en.htm](#)

<sup>15</sup> See [Report on the distribution of direct aids to agricultural producers \(financial year 2013\) October 2014](#) p2



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the processed tomato grower was instead given a soft landing, and continued to receive money based on the historical tomato payment their farm had received. Thus if the farmer had 50 hectares in processed tomatoes in the past and received say 65,000 euros then the 65,000 Euro payment continued.

It is important to realize the implications of this. First, farms in the processing tomato sector in Italy historically received high payments linked to production.<sup>16</sup> For these farms, a uniform distribution of payments per hectare would have entailed a reduction of over 60% of the entitlements unit value in 2011<sup>17</sup>. This implies processing tomato subsidies were on average 2.5 times more than a uniform national payment would have implied. Second, a key feature of the Italian reform was the use of historic reference payments, whereby even if de-coupled a farm would continue to receive the total CAP payment it was receiving at the time. This meant Italy retained historic high relative subsidy levels for tomato processing farms. Even if de-coupled the total CAP payment at the time would be continued. This implies an effective distortion or biased support to Tomato processing, based on historic sorting of farms into high subsidy tomato processing, and low subsidy non-tomato processing subsidy production categories. To the extent the total payment was transferred to a per hectare payment, by dividing the total by the hectares *in production* at the time, this would have further implied that increased production might still be rewarded with greater assistance. In Italy then if decoupling had been completed, and full regionalization (or greater uniformity across agricultural sectors), and greater modulation (or reduction in payment levels) had occurred, subsidies to processing tomato would not have remained so high and distortionary.

On the total amount of EU farm assistance paid in Italy (including tomato subsidies), this did not decrease by much after the 2003 reforms however, as Table 4 below shows. Thus post 2003 the EU's total farmer assistance measured by the Producer Support Estimate (PSE) only fell *on average* by 2% per annum. Although PSE as a percentage of total production fell by 29%, most of this fall was due to increased production, not the fall in PSE.

Table 4 Evolution of EU's Producer Support Estimate (PSE)

1996-2002									
Year	1995	1996	1997	1998	1999	2000	2001	2002	Average % p/a
Euro Millions	94,382	95,814	91,014	97,089	104,681	94,709	90,073	98,289	0.4%
% PSE/Value	35	34	32	35	38	33	30	34	
2003-2009									
Year	2003	2004	2005	2006	2007	2008	2009	Average % p/a	
Euro Millions	98,134	109,727	99,736	99,008	93,689	92,795	86,980	-2%	
% PSE/Value	34	33	30	29	24	22	24		

Source: OECD PSE/CSE Database 2010

<sup>16</sup> See Solazzo et al (2014) p16

<sup>17</sup> See Solazzo et al (2014) p16

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### 2008 Health Check

The aims of the 2008 Health Check were to:

- (1) assess the experience from the implementation of the Single Payment Scheme and introduce adjustments to further simplify and increase the effectiveness of the policy; and
- (2) respond to market opportunities and new challenges related to energy, water management and climate change via some adjustments in the 'modulation' defined as 'progressive modulation'.<sup>18</sup>

As a result of the 2008 Health Check rules applicable for the financial year ended 2014 for the direct payments system were established by Council Regulation (EC) No 73/2009, of 19 January 2009 which replaced Council Regulation (EC) No 1782/2003, establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, amending Regulations (EC) No 1290/2005, (EC) No 247/2006, (EC) No 378/2007.<sup>19</sup>

Article 68 of Council Regulation (EC) No 73/2009 however extended the ability of member states to retain coupled payments within their national ceilings for specific types of farming, and increased the number of objectives for which coupled aid could be granted.<sup>20</sup> It thus appeared recently with a further Euro 11.2 million for specific support to processed tomatoes under S68 of 73/2009. In 2013 the European Court of Auditors completed an inquiry into the design of the specific support provided for in Article 68 and the way this was implemented in 2010 and 2011 (management and control arrangements) and in particular whether specific support satisfactorily proved to be consistent, relevant and properly controlled.<sup>21</sup> It found major problems in its design, management and control, noting:

“Twenty-four Member States have decided to make use of Article 68, through a patchwork of 113 extremely varied measures. The total budget for the 2010–13 period is 6,4 billion euros. Although the measures are each subject to their own individual rules, most of them are based on classic mechanisms for coupled direct payments....

The SPS was based on the principles of decoupling direct payments from production and simplifying the payment regime ('single payment'). As a derogation, Article 68 allows Member States to maintain direct coupled payments 'in clearly defined cases'. However, the Court found that the Commission had little control over the justification for such cases and that Member States had a large degree of discretion in introducing direct coupled payments. As a result, the implementation of Article 68 provisions was not always fully aligned with the general principles of decoupling and simplification now governing the common agricultural policy (ECA 2013 pp. 6-7)

The Court of Auditors was also critical of the Commission's proposed 'post-2013' CAP reform relating to article 68 noting that “the Commission proposal now under discussion

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<sup>18</sup> Among other changes, the Health Check introduced an increase of the transfers to rural development measures from 2010

<sup>19</sup> (OJ L 30, 31 1 2009, p. 16).

<sup>20</sup> European Court of Auditors (2013) Special Report No 10//2013 “Common Agricultural Policy: Is the Specific Support Granted under Article 68 of Council Regulation (EC) No 73/2009 Well designed and Implemented? ISBN 978-92-9241-382-8 doi:10.2865/26972 (ECA (2013))

<sup>21</sup> European Court of Auditors (2013) Special Report No 10//2013 “Common Agricultural Policy: Is the Specific Support Granted under Article 68 of Council Regulation (EC) No 73/2009 Well designed and Implemented? ISBN 978-92-9241-382-8 doi:10.2865/26972

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would allow specific support to be maintained in the form of coupled payments, but without sufficiently defining precise limits.”

As noted earlier then for processing tomato however, Italy opted for

- the three year transition period 2008-2010
- maintaining coupled payments at 50% of the national ceiling until the end of 2010.
- decoupled payments to be fully implemented from 2011.

In the end however, although full decoupling was proposed in Italy, instead it appears a “double soft landing” was pursued. Thus, although it was intended to move completely to single decoupled uniform regional payment for all of Italy, because tomatoes was one of the last groups to receive coupled payments (like dairy), the grower was given double soft landing, and

- a. continued to receive money based on the historical tomato payment farm received – so if had 50 hectares in tomatoes in the past and received say 65,000 euros then the 65,000 Euro payment continued.
- b. received a new and additional coupled payment of 160 Euros per hectare which is to run to 2020, but will be reset in 2017 so as to ensure “convergence” and complete regionalization by 2020.

Consistent with the predictions of economic theory however, even the limited reforms to CAP payments adopted in Italy appear to have been associated with price rises, and falls of production. This of course is consistent with the prediction that CAP payment tend to reduce prices, so that even limited reductions are associated with price rises. In northern Italy for example the price negotiated within the framework contract, drawn up by the representative branches of producer organizations and processing industries, rose to EUR 88 per ton in 2011, against EUR 49 per ton (plus a quota of EU support amounting to EUR 27.76 per ton) in 2007.<sup>22</sup>

### 2013 Reforms

In December 2013, new rules for direct payments to farmers were adopted for the period 2015-2020 (see [Regulation \(EU\) N° 1307/2013](#) of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments)

This new regulation however does not come into effect until 1 January 2015. In the meantime Regulation (EC) No 73/2009 will continue to apply in 2014.

Under the new regulation, from 2015 a new basic payment scheme should replace the single payment scheme established under Council Regulation (EC) No 1782/2003 (1), and continued under Regulation (EC) No 73/2009, which combined previously existing support mechanisms in a single scheme of decoupled direct payments. Such a move should, in principle, result in the expiry of payment entitlements obtained under those Regulations and the allocation of new ones. The allocation of new payment entitlements should be based, as a general rule, on the number of eligible hectares at the disposal of farmers in the first year of implementation of the scheme.

It is noteworthy however that both historic reference payments and coupled payments will be allowed to continue even under the new regulation thus:

- *Historic reference payments:* Member States which currently operate the single

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<sup>22</sup> See Solazzo et al (2014) p10

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payment scheme on a regional or regional hybrid basis should have the possibility of keeping their existing payment entitlements. (see para 21 Regulation 1307/2013 OJEU p20.12.2013 L 347/611) and for those Member States which keep their existing payment entitlements and which have already opted for convergence steps in accordance with Article 63(3) of Regulation (EC) No 1782/2003, those convergence steps should be implemented, where applicable (see para 23 Regulation 1307/2013 OJEU p20.12.2013 L 347/611).

- *Voluntary Coupled Payments.* Member States will be allowed to use part of their national ceilings for direct payments for coupled support in certain sectors or regions in clearly defined cases (see para 49 Regulation 1307/2013 OJEU p20.12.2013 L 347/615-6). Article 52 (2) of Regulation 1307/2013 thus allows such “voluntary coupled” support for fruit and vegetables, which includes tomatoes. Member States will be allowed to use up to 8 % of their national ceilings for this support, or 13 % where their level of coupled support exceeds 5 % in at least one of the years of the period 2010-2014 or where they apply the single area payment scheme until 31 December 2014. In duly justified cases where certain sensitive needs in a sector or a region are demonstrated, and upon approval by the Commission, Member States should be allowed to use more than 13% of their national ceiling. Coupled support should only be granted to the extent necessary to create an incentive to maintain current levels of production in the sectors or regions concerned. That support should also be available to farmers holding, on 31 December 2013, special payment entitlements allocated under Regulation (EC) No 1782/2003 and Regulation (EC) No73/2009, and who do not have eligible hectares for the activation of payment entitlements.

Once again, the rate at which farming assistance is falling in terms of the national ceiling for Italy appears quite slow, as shown in table 5 below in the last row, falling on average only 1% per annum, and terminating at 5% less after 5 years from 2019 on.

*Table 5 Italy CAP National Ceiling from 2015 (Annex II: Regulation 1307/2013)*

	<i>(in thousands EUR)</i>				
Calendar year	2015	2016	2017	2018	2019 +
Italy	3,902,039	3,850,805	3,799,540	3,751,937	3,704,337
Average Annual % Change					1%
Total % Change					5%

## Conclusion

Overall then it appears that reform of CAP payments to Tomatoes has not been fully implemented in Italy, and that total farm assistance for tomatoes has not been fully decoupled and has moreover not fallen significantly. There were three stages to the recent CAP reform

- 1) 2000 - The subsidy would be paid to the farmer via a Producer organisation, and no longer to the processor. The subsidy however was still coupled to, and paid per ton of product.
- 2) 2003- 2008 the subsidy was partially decoupled, and became per hectare of product.
- 3) 2011 – Although full decoupling was proposed in Italy instead a “double soft landing” was pursued. So the grower was given double soft landing, and
  - a. continued to receive money based on the historical tomato payment farm received
  - b. received a new and additional coupled payment of 160 Euro per hectare.

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Thus EU CAP payments with respect to tomatoes used in processed and preserved tomatoes in Italy have thus remained coupled in two ways. First *explicitly* with an additional payment of 160 Euros per hectare introduced, which is coupled to production of tomatoes. Second they are *implicitly* coupled, in that EU CAP payments are largely based on subsidy levels received by farmers in previous years, which were based on the past system of coupled payments, and are thus *implicitly* tied to output.

The use of “historical reference” payments, which are *implicitly* coupled, together with a new *explicitly* coupled payment means that a significant part of CAP payments with respect to tomatoes are still effectively coupled to production. Thus while technically farmers may receive “historical reference” payments that are not explicitly tied to current output, for political and economic reasons the payments are still likely to be *implicitly* tied to output. For political reasons fully decoupled historical reference payments appears politically unsustainable. Such subsidies would become politically threatened if farmers’ historical reference payments became disproportionate to their current activity, to illustrate for example at the extreme, if the farmers were to produce nothing. Thus farmers know that politically their future subsidies depend on maintaining output, and will behave accordingly. In addition, farmers are likely to allocate their capital, including subsidies, as they have done in the past to producing output that exploits their farms’ known comparative advantage and maximises their profits. For economic reasons, in the short run (barring any major change) farmers past output is likely to be a proxy for current output, meaning current subsidies will bear a relationship to current output. Thus while explicitly decoupled, historical reference subsidies are implicitly coupled.

### Italian Producer Organisations

While Producer Organisations (POs) and inter-branch organisations may provide efficiency enhancing, or transaction cost minimising services that help the operation of markets, there appears to also be scope for potential distortions in the market due to the risk of POs engaging in cartel like behaviour. In this regard it is important that it appears that the EU has either introduced or is looking to allow Italian Producer Organisations derogations to EU competition law,<sup>23</sup> and exemptions from State Aid Rules for Italian Governments assistance to them. Furthermore, it appears the possibility of farmers collectively negotiating contracts is foreseen. The European Commission is to provide guidelines about potential issues relating to competition law.

Typically one might expect any producer organisations attempts to organize and act like a cartel to be inherently unstable, as there would be incentives for members to compete and undermine, or “cheat” on any attempt to raise or fix prices. The stability and role of Italian Producer Organisations may however be reinforced by EU funding for Italian Producer Organisations operational programs. Funded program activities for example involve research and development, agricultural practices, quality marketing, and promotion measures<sup>24</sup>, and crisis prevention and management measures, including, non-harvesting, green harvesting, promotion and communication, training, harvest insurance and support for the administrative costs of mutual funds.<sup>25</sup>

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<sup>23</sup> see Para 6: [http://europa.eu/rapid/press-release MEMO-13-621\\_en.htm](http://europa.eu/rapid/press-release_MEMO-13-621_en.htm)

<sup>24</sup>[http://ec.europa.eu/taxation\\_customs/dds2/taric/measures.jsp?Lang=en&SimDate=20141102&Area=AU&Taric=2002&LangD escr=en](http://ec.europa.eu/taxation_customs/dds2/taric/measures.jsp?Lang=en&SimDate=20141102&Area=AU&Taric=2002&LangD escr=en)

<sup>25</sup> [http://ec.europa.eu/agriculture/promotion/documents/brochure\\_en.pdf](http://ec.europa.eu/agriculture/promotion/documents/brochure_en.pdf)

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### Regulations on Imports of Raw Tomatoes

In Europe the other main tomato producers are Spain and France. The law prohibits the import of fresh tomatoes from outside the EU for local sale. Such imports are only allowed (at a duty) for processing so long as they re-export the processed product. Import of preserved tomato products are subject to duties. Processed tomato products are thus traded but face ad valorem tariffs in the EU without the complexities introduced for trade in fresh tomatoes.<sup>26</sup> It appears the tariff applies to all imports of processed tomato products with two exceptions. First, some product enters the EU under preferential trade agreements with Mediterranean partners (European Commission 2004). Second, imported product that is destined for re-export (perhaps after additional processing or re-packaging) is allowed an import tariff refund or duty drawback. Although data describing the EU quantity of processed tomato products imported under preferential trade agreements are readily available, data related to EU imports with duty drawbacks are not. Evidence from EU industry sources indicates that the EU imports some processed tomato products under a duty drawback program, and that these imported products do not have domestically produced substitutes. Industry sources claim that this is due partly, to EU firms that blend EU bulk processed tomato products with inexpensive foreign products.<sup>27</sup> Recently the Chinese for example bought a major French company, it was suspected to enable it to import tomatoes from China and process them locally. Other countries nearby who are growing tomatoes are Turkey and Morocco. Labour costs in Morocco are obviously much lower and hence provide a cheaper source of raw tomatoes for Italian processors. In response to the higher labour costs in Italy, the north Italian processed tomato farming in particular tends to be highly mechanized.<sup>28</sup>

### Evaluating the Combined Effect of Distortions on the Market

#### The Value of the CAP Subsidy

SPC Ardmona in its submission<sup>29</sup> estimated the value of the subsidy per hectare to be around €2,350 per ha during the calendar years 2011 – 2014, following 100% decoupling under the Single Payment Scheme. Its authority for this estimate is a 2007 publication which sought to estimate the effect of decoupling.<sup>30</sup>

Using this estimate of the value of the subsidy in 2013, SPC Ardmona then estimated the subsidy paid in 2013 was up to 37% of the raw prices paid by the processors as follows<sup>31</sup>

*Para 26) a) During 2013, the production of tomatoes for processing in Italy was 4.08 million tonnes.<sup>32</sup>*

*b) The total tomato plantation in hectares for the 2013 tomato season was 55,837.19<sup>33</sup>*

*c) Therefore the tonnes per hectare for 2013 was 73T/ha (based on (a) divided by (b) above)*

*d) The subsidy per tonne based on above can be estimated to be €32/tonne. (based on Payment per ha ..[of €2,350].. divided by (c) above)*

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<sup>26</sup> Rickard and Summer (2008) pp57

<sup>27</sup> Rickard and Summer (2008) p61

<sup>28</sup> It is worth noting the possibility that non-Italian sourced canned tomatoes could be sold as Italian canned tomatoes in the Australian market.

<sup>29</sup> Para 25(f) pp8-9 SPC Ardmona Non Confidential Attachment B 4.2 to SPC Ardmona Anti dumping application for Prepared or preserved tomato products exported by La Doria S.p.A and Feger di Gerardo Ferraioli SpA

<sup>30</sup> 'EU: what will decoupling look like?' Tomato News (October 2007)

<sup>31</sup> Ibid Para 26 pp8

<sup>32</sup> WPTC World Production estimate as of 5 September 2014

<sup>33</sup> Based on the Information published by Tomato News Italy: the north/south distribution of planted surfaces' Tomato News [March 2014]

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e) Price paid by processors for raw tomatoes range between €85-86 per kilogram dependent on the brix content.<sup>34</sup>

f) Therefore, subsidy as a percentage of raw prices for 2013 was 37%. (based on subsidy established in (d) above divided by raw prices in (e) above)

g) That is to suggest that up to 37% of the raw tonne price is being distorted by single payment scheme.

There are a couple of problems with the above SPC Ardmona analysis. First is a minor one related to the calculation of the subsidy at step f, which is stated as based on dividing the “subsidy established in (d) above” - which is measured *per tonne* - by “by raw prices in (e) above” - which it is stated measured “*per kilogram*”.<sup>35</sup> It appears the price quoted at point e is actually per tonne, that is price paid by processors for raw tomatoes range between €85-86 per tonne dependent on the brix content.

Second however the estimate of the subsidy per hectare appears to be an overestimate. SPC Ardmona based its estimate on predictions made in a 2007 publication which sought to estimate the effect of decoupling.<sup>36</sup> The Italian Farm Accounting Data Network (FADN) database however suggests that in 2011 the average CAP payment per hectare was in fact much less at 775 €/ha, for farms located in the plain of Emilia Romagna, one of the main production areas of processing tomatoes in Italy. Thus the 2011 FADN data suggests the subsidy was 33% of the figure assumed by SPC Ardmona.

As noted however it is still true that historically, tomato farms have received average higher payments than other sectors, and in fact in the FADN sample, the average payment per hectare of about 775 €/ha, is more than twice the average of other farms.<sup>37</sup> The likely impact of this subsidy of raw tomato production cost also seems significant.

### The Effect of the Subsidy on Variable Costs of Tomato Production

In order to evaluate the effect of the EU CAP subsidies we have relied on a quantitative model developed by Arfrini et al (2011) and Solazzo et al (2014) based on Positive Mathematical Programming (PMP) (Howitt, 1995; Paris and Howitt, 1998). PMP has been used to analyse data on farms in the Italian Farm Accountancy Data Network (FADN) database which are located in the plain of Emilia Romagna, one of the main production areas of processing tomatoes in Italy. This PMP methodology captures the economic information relevant to farmers’ production plan decisions, and predicts their behaviour under varying policy and market scenarios. Analysis is carried out at farm level with the FADN weighting system in order to ensure results are consistent with the production structure of the relevant area.

Table 6 below summarises relevant data for processing tomato farms in the 2011 FADN database in Emilio Romagna. In the first row of table 6 is the average CAP payment per hectare noted above of 776 €/ha, and in the second row the estimated variable cost of farms at 3,232 €/ha. As the last two rows show therefore the subsidy is thus 24% of variable cost (S/VC), and the subsidy rate is 32% (S/(VC-S))

<sup>34</sup> ‘Italy: Satisfaction expressed over price agreement at EUR 92 per tonne’ Tomato News (February 2014)

<sup>35</sup> Given there are 1000 kgs in a tonne, this means the distortion per tonne is 0.037%.

<sup>36</sup> ‘EU: what will decoupling look like?’ Tomato News (October 2007)

<sup>37</sup> The average payment per hectare for Italy can be found at the following weblink:

<http://www.reformthecap.eu/key-data-on-the-cap> illustrating that tomato payments are high relative to other industries

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Table 6: 2011 Tomato Farms: Farm Accounting Data Network (FADN)

	FADN Sample
EU CAP Subsidy (S) €/ha	776
Variable Cost (VC) €/ha	3,232
% S / VC	24%
% S/(VC-S)	32%

One can convert the above estimates of the subsidy and variable costs identified in the table above from being per hectare, to per kilogram of raw tomatoes using an assumption of the yield being 73.07 tonnes of processing tomatoes per hectare, as in the table 7 below.

Table 7: Variable Cost and CAP Payments

	Per Hectare	Per Tonne	Per KG
Variable Cost (VC)	3,232.00	44.23	0.0442
CAP Subsidy	776	10.62	0.0106
Net Variable Cost (NVC)	2,456.20	33.61	0.0336
Effect of Removing Subsidy	32%	32%	32%

Thus according to FADN data in 2011 if the subsidy were removed variable costs of production for the farmer would increase by 32% as shown in the last row of the above table 7. In what follows we shall examine the likely incidence<sup>38</sup> of the removal of this subsidy on raw tomatoes ultimately on prices for prepared or preserved tomatoes. This depends on:

- a) the degree of flow on of any change in the subsidy on raw tomatoes to the price of raw tomatoes; and
- b) the degree of flow on of any change in the price of raw tomatoes to prepared and preserved tomatoes;

We shall begin by examining a rather extreme circumstance where it is possible that the 32% increase in variable costs from removing the subsidy would fully flow through first to the raw tomato price, and then to the prepared and preserved tomato price. As we shall see this maximum effect will arise if one assumes a constant mark up on costs through the value chain, net of any subsidy, and if the cost of raw tomatoes remained a constant share of the final price of prepared and preserved tomatoes, even if costs fall or rise due to a subsidy. We later drop these simplifying assumptions, and examine the likely effect under more realistic scenarios.

### Full Flow On with Constant Mark Up

As shown in the fourth row last column in Table 7 above according to FADN data the net variable cost of tomato farms in 2011 was 0.0336 per kilo of tomatoes. By comparison the FADN data suggests tomatoes were selling at about 88 euros per tonne or .088 per kilogram in 2011. This implies a mark up<sup>39</sup> multiple of 1.62 on variable cost (net of subsidy). By implication if the same mark up on variable costs was applied after the removal of the subsidy

<sup>38</sup> Incidence is a technical term in economics used to describe the distributional effect of interventions, such as subsidies and taxes. Thus tax (subsidy) incidence is the analysis of the effect of a particular tax (subsidy) on the distribution of economic welfare. Tax (subsidy) incidence is said to "fall" upon the group that ultimately bears the burden (enjoys the benefit) of, or ultimately has to pay (benefits from), the tax (subsidy). If demand is more elastic than supply, producers will bear the cost of the tax (benefit of a subsidy). When supply is more elastic than demand, the tax burden (subsidy benefit) falls on the buyers - commonly called pass through or the flow on of a tax (subsidy)

<sup>39</sup> The mark up percentage (or multiple) is price less cost divided by cost. In this case absolute mark up would be  $0.088 - 0.0336$ , and percentage mark up would be  $(0.088 - 0.0336) / 0.0336 = 162\%$ , and as a multiple 1.62.



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as before, then prices of raw tomatoes would also rise by 32% in line with the increase in variable costs after the removal of the subsidy, from .088 per kilo to .116 per kilo.

This is shown in table 8 below. In the second row we show the outcome prior to removal of the subsidy. In the third row we show the outcome after removal of the subsidy. As shown in the last column we assume a constant mark up on cost (1.62). As a result as shown in the second to last column, variable cost (net of subsidy) remains a constant proportion of the raw tomato price at 38.2%, both before and after removal of the subsidy. Given these assumptions, as shown in the fourth row, the percentage change in variable cost and the raw tomato price is the same, with both increasing by 32 % after removal of the subsidy.

Table 8: Full Flow on with Constant Mark Up

	Subsidy	Variable Cost (VC)	Price €	VC Share	Mark Up Multiple
With Subsidy	0.0106	0.0336	0.088	38.2%	1.62
Without Subsidy	-	0.0442	0.116	38.2%	1.62
% Change		32%	32%		

On a similar basis one could identify the maximum possible effect of the removal of the raw tomato subsidy on the price of prepared and preserved tomatoes. By 2014 the price of raw tomatoes was around € [REDACTED] per kg, and the weighted average Italian domestic price of preserved and prepared tomatoes imported to Australia was € [REDACTED] per kilogram.

[Confidential information removed – exporter price information] Thus if we assume as above, that the removal of the subsidy would have increased the raw tomato price by 32% in 2014, then if one assumed the raw tomato (RT) price per kilo remained a constant share of the final preserved and prepared tomato (PPT) price before and after the removal of the subsidy (as shown in the last column in the table below), then the 32% rise in the RT price will translate to a 32% rise in the PPT price (as shown in the last row of table 9 below).

Table 9: Full Flow on to Prepared and Preserved Tomatoes

	RT Price	PPT Price	RT Price/PPT Price
With Subsidy	[REDACTED]	[REDACTED]	[REDACTED]
Without Subsidy	[REDACTED]	[REDACTED]	[REDACTED]
% Change	32%	32%	

[Confidential data removed – Prices derived from data provided by Feger and La Doria]

Assuming 100% flow on, constant mark-up throughout the value chain and constant cost shares then, removal of the subsidy would be predicted to increase prices of preserved and prepared tomatoes by 32%. In what follows we revisit the assumptions underlying this conclusion, and try to estimate a more likely effect. We do this in two stages

- first revisiting the effect of the subsidy on prices for raw tomatoes;
- second by revisiting the effect of any change in the price of raw tomatoes on the price of prepared and preserved tomatoes

### Revisiting the Raw Tomato Price

In a more complete analysis, the effect of a per unit subsidy amount for tomatoes on its price can be illustrated in the following standard demand and supply figure from economics – see figure 2 below. Figure 2 identifies price on the vertical axis, and quantity sold on the horizontal. The figure presents a standard downward sloping demand curve D, showing that quantity demanded increases as price falls. The figure then includes two supply curves. The

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supply curve  $S_0$  assumes no subsidy, while the supply curve  $S_s$  assumes a \$4 subsidy per unit. Both supply curves are upward sloping indicating that as price increases quantity supplied increases. The effect of the subsidy is to move the supply curve down by \$4, indicating that with a subsidy more is supplied at any given price.

The equilibrium price in the market is found where demand equals supply. In the absence of the subsidy then equilibrium is assumed to occur at the intersection of the demand curve  $D$  and supply curve  $S_0$  where price is  $P^* = 9$  and the quantity traded is  $Q^* = 10$ .

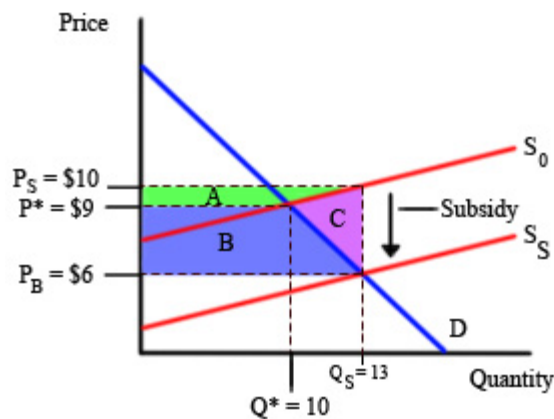


Figure 2: Impact of Subsidy on Market Price

As noted without any subsidy the equilibrium quantity of supply,  $Q^* = 10$ . The subsidy of \$4 however shifts supply curve down vertically by \$4. The equilibrium price then falls by \$3 from \$9 to \$6, after an increase of production from  $Q = 10$  to  $Q = 13$ .

In this example then a \$4 subsidy “flows through” to a final price reduction of \$3, implying a flow on rate of 75% – with both suppliers and consumers sharing in the subsidies. The extent of any price reduction however clearly depends on the slope of the demand and supply curves. From the above diagram, it is clear that if the demand curve is downward sloping demand (elasticity is negative) and the supply upward sloping supply (elasticity positive), the flow on rate will lie between zero and one – in this case .75

If instead firms compete away the subsidy fully then the supply curve is horizontal (perfectly elastic) and there will be full flow on of the subsidy to consumer price. Similarly, there will be full flow on if consumers are unresponsive to price changes, or demand is vertical (perfectly inelastic). If on the other hand consumers are extremely responsive to price changes, so much so that demand is horizontal (perfectly elastic) the flow on rate is zero. Between these extremes, the widespread rule of thumb is that the more inelastic side of the market enjoys a greater share of the subsidy.

The price reduction of \$3 thus depends on the price elasticity of supply of  $\omega$ , which measures the percentage change in quantity supplied that occurs in response to a percentage change in price, and the price elasticity of demand  $|\epsilon|$  which measures the percentage change in quantity demanded that occurs in response to a percentage change in price. In particular it depends on the ratio of  $\omega$  to  $(|\epsilon| + \omega)$ , the flow on rate or  $\left(\frac{\omega}{\omega + |\epsilon|}\right)$ . In the above example then:

$$|\epsilon| = \frac{P}{Q} \times \frac{1}{\text{slope}} = \frac{9}{10} \times 1 = \frac{9}{10}$$

$$\omega = \frac{P}{Q} \times \frac{1}{\text{slope}} = \frac{9}{10} \times \frac{1}{1/3} = \frac{27}{10}$$

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The reduction of \$3 = subsidy \$4  $\times \left(\frac{\omega}{\omega+|\epsilon|}\right) = \$4 \times \frac{27}{9+27} = \$3$

The flow on rate  $\left(\frac{\omega}{\omega+|\epsilon|}\right) \times 100\%$ , in this case,  $\left(\frac{\omega}{\omega+|\epsilon|}\right) = 0.75 = 75\%$ .

This provides a basis for first estimating the maximum possible effect of the subsidy on the price of raw tomatoes, and then estimating the effect under alternative scenarios for price elasticities.

The table below identifies the elasticities of demand and supply associated with the extreme outcomes where flow on is either 0% or 100%. As shown in the table the flow on rate will be zero if either demand is perfectly elastic ( $|\epsilon| = \infty$ , horizontal demand), or supply is perfectly inelastic ( $\omega = 0$ , vertical supply). At the other extreme the flow on rate will be 100% if demand is perfectly inelastic ( $\epsilon = 0$  vertical demand) or supply is perfectly elastic ( $\omega = \infty$ , horizontal supply)

Table 10: Flow on Rate and Elasticities

Flow on Rate %	Demand Elasticity	Supply Elasticity
Flow on Rate 0%	perfectly elastic ( $ \epsilon  = \infty$ , horizontal demand)	perfectly inelastic ( $\omega = 0$ , vertical supply)
Flow on Rate 100%	perfectly inelastic ( $\epsilon = 0$ vertical demand)	perfectly elastic ( $\omega = \infty$ , horizontal supply)

Of interest then are factors which may limit the flow on of the subsidy to raw tomatoes which as noted already could with full flow on lead to the price of raw tomatoes being 32% less than if the subsidy were removed. In particular factors which make demand more elastic, and supply less elastic will lead to lower flow on of the subsidy.

Focusing on demand elasticity, demand for processing tomatoes grown in Italy will be more elastic (and flow on less) the greater is the supply of close substitutes for Italian grown tomatoes. This may be driven largely by the availability of imports. Unlike fresh market tomatoes, processing tomatoes however tend not to be traded. Processing tomatoes are perishable and bulky, and processing plants are located nearby to growing areas. This implies demand will tend to be relatively inelastic. Tariffs or other government barriers to trade in processing tomatoes themselves are also not that relevant.<sup>40</sup> Nevertheless restrictions noted above on the import of tomatoes for use in making prepared and preserved tomatoes for on-sale in Italy, may imply a significant part of the market for Italian processing tomatoes is relatively captive. This all tends to imply relatively inelastic demand, implying *higher flow on and therefore lower domestic prices as a result of the subsidy*.

On the other hand turning to supply elasticity, the supply of processing tomatoes grown in Italy will be more inelastic (and flow on less) the greater are the limitations on the supply of Italian grown tomatoes. This may depend on the role of producer organisations. The derogations from competition law offered to producer organisations may mean they may be able to limit the supply of tomatoes to the market, effectively capturing a larger share of the subsidy for tomato growers, leading to relatively inelastic supply, and implying *lower flow on and therefore higher domestic prices as a result of the subsidy*.

The above features of the raw processing tomato market may to some extent then offset each other. In any event it seems unlikely the extent of flow on is zero, and equally it is unlikely to be 100%.

<sup>40</sup> Rickard and Sumner (2008) p56

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Based on estimates from the literature we use a mean overall elasticity of demand for processing tomato for the EU set to  $-0.3^{41}$ , and assume the elasticity of supply of processing tomatoes is relatively inelastic in the short run, and may be up to 0.8 in the long run. <sup>42</sup> As shown in the table below this implies a flow on of about 72.73%.

*Table 11: Elasticities Estimates and Flow on rate for Raw Tomatoes*

	Supply Elasticity
Demand Elasticity	0.8
-0.3	72.73%

This might suggest that around 73% of the effect of the subsidies effect on price might flow through, implying removal of the 32% subsidy might increase the price of raw tomatoes for processing by as much as 23%

### Revisiting Flow on to Prepared and Preserved Tomato Prices

If all other costs remain the same, the 23% rise in raw tomato cost will be the sole source of any potential PPT price increase. Turning to the flow on to prepared and preserved tomatoes, how PPT producers would in fact pass on a 23% increase in raw tomato prices to the price of canned tomatoes depends on several factors.

- (i) the share of raw tomato costs in total costs of production;
- (ii) the margin on canned tomatoes.
- (iii) the degree of competition in canned tomato products, which affects the degree to which producers are prepared to absorb the higher costs into their margins.
- (iv) the costs of other factors of production (canning, labour, etc.)

Focusing on the share of raw tomatoes in total costs of production, obviously the effect of any increase in the price of raw tomatoes on final PPT prices however will be less, the lower the share raw tomato constitutes of the total cost of PPT prices. This suggests a revised formula for flow on. Let raw tomatoes share of the cost of PPT be represented by  $s_{pt}$ . Assuming a constant margin for production, the degree of flow on ( $\tau_{pt}$ ) in this case can be expressed as:

$$\tau_{PT} = \frac{\varpi}{\varpi + |\gamma|} \times s_{pt}$$

where:

- $\varpi$  = price elasticity of supply for processed tomatoes  
 $|\gamma|$  = price elasticity of demand for processed tomatoes

<sup>41</sup> Rickard and Summer (2008) p61

<sup>42</sup> Rickard and Summer (2008) p62, Chern (1976), Chern and Just (1978).

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Analysis of [redacted] [exporter] data suggests  $s_{pt}$  may be around [redacted]%. If that is true already the effect of a 23% increase in RT prices may at most translate to a [redacted]% increase in the price of PPT depending on  $|\gamma|$  and  $\varpi$ .

This leads to interest in factors on affecting  $|\gamma|$  and  $\varpi$ . In particular factors which make demand more elastic, and supply less elastic will lead to lower flow on of the [redacted]% effect of removal of the subsidy on prepared and preserved tomato domestic prices in Italy.

Focusing on demand elasticity, demand for processing tomatoes grown in Italy will be more elastic (and flow on less) the greater is the supply of close substitutes. This may be driven largely by the availability of imports. Processed tomato products are traded and face ad valorem tariffs in the EU without the complexities introduced for trade in fresh tomatoes.<sup>43</sup> The EU tariff for canned tomato products and tomato paste has been 14.4% since full implementation of the URAA in 2001.<sup>44</sup> The tariff applies to all imports of processed tomato products with two exceptions. First, some product enters the EU under preferential trade agreements with Mediterranean partners (European Commission 2004). Second, imported product that is destined for re-export (perhaps after additional processing or re-packaging) is allowed an import tariff refund or duty drawback. Although data describing the EU quantity of processed tomato products imported under preferential trade agreements are readily available, data related to EU imports with duty drawbacks are not. Evidence from EU industry sources indicates that the EU imports some processed tomato products under a duty drawback program, and that these imported products do not have domestically produced substitutes. Industry sources claims that this is due partly, to EU firms that blend EU bulk processed tomato products with inexpensive foreign products.<sup>45</sup>

Again based on estimates from the literature we use a mean overall elasticity of demand for processing tomato for the EU set to -0.3<sup>46</sup>, and assume the elasticity of supply of processed tomatoes may be 0.8.<sup>47</sup> As shown in the table below this implies a flow on again of about 72.73%, and a net flow on therefore of [redacted]%

Table 12: Flow on estimate for Prepared and Preserved Tomatoes

Subsidy	23%
Spt	[redacted]%
Flow on	[redacted]%
Supply Elasticity	0.8
Demand Elasticity	-0.3
Flow on Rate	73%
Effect on Price	[redacted]%

This might suggest that removal of the 32% subsidy might increase prepared and preserved tomato prices by around [redacted]%. [Confidential information removed – Exporter price information]

<sup>43</sup> Rickard and Summer (2008) pp57

<sup>44</sup> Rickard and Summer (2008) pp56-57

<sup>45</sup> Rickard and Summer (2008) p61

<sup>46</sup> Rickard and Summer (2008) p61

<sup>47</sup> Rickard and Summer (2008) p62 Chern(1976) and Chern and Just (1978)

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In appendix two we present a more detailed analysis of possible outcomes or scenarios as to the flow on rates of the reduction in subsidy on prepared and preserved tomatoes prices. For this we assume three different scenarios of the share of raw tomatoes in the cost of processed tomatoes, a range of price elasticity of demand figures ranging from -0.1 to -1 and a lower price elasticity of supply of 0.5. Clearly as shown in the appendix, the flow on rate to the final price of prepared and preserved tomatoes (PPT) is greater, the higher the share of raw tomatoes in total cost of PPT, the more inelastic the demand for PPT and the higher the supply elasticity of PPT.

### A Final Cross Check

The above approach is based heavily on cost data. There is an alternative way to cross check the above results that does not rely so much on the cost data. This approach focuses instead on the value of the subsidy per kg of tomatoes. It then tries to trace what part of the subsidy flows through. This is done in two stages. First we examine the flow on to the price of raw tomatoes. Second we examine the flow on to the price of prepared and preserved tomatoes.

The first step in this methodology is used in table 12 below. As shown in the last two columns in the table we assess the impact assuming two rates for the subsidy. In the second to last column as shown in row 3, we use the €776 per hectare subsidy rate same as above. While in the last column of table, as shown in the third row, we add the new €160/ha subsidy - which assume will commence in January 2015, giving a new total assumed subsidy of €936/ha. Adding the 160/ha implies a 17% increase in the subsidy.

In Row 4, or the next row in table 12, we use the same assumed yield as before, but in kilogram per hectare. This is then used to calculate the value of the subsidy per kilogram of raw tomato in row 5 for both subsidy rates. As shown in row 5 the old subsidy rate was €0.0106 per kg of raw tomatoes and the new subsidy rate €0.0128 per kg. In the next section of Table 12 (rows 8-9) we derive the flow on rate of 72.3% in row 9, based on the same assumptions as before being: supply elasticity of 0.8 as identified in row 7, and demand elasticity of -0.3 identified in row 8. In the third part of the table then (rows 11-13) we first derive for each subsidy rate the implied change in the tomato price per kg in row 11. We then identify the price per kg of raw tomatoes on █████ euro per tonne in row 12. *We then finally identify the predicted change in price of raw tomatoes in the final row 13 being █████% for the lower rate subsidy, and █████% for the higher rate subsidy.*

Table 12: Raw Tomato Price Cross-Check using an Alternative Flow on Methodology

Row 1	STAGE 1: Elasticities Estimates and Flow on rate for Raw Tomatoes		
2		W/out new 160/ha subsidy	With new 160/ha subsidy
3	Subsidy per Hectare	€776	€936
4	Yield Kg per hectare	73070	0
5	Subsidy per kg (€/kg) of Raw Tomato	€0.0106	€0.0128
6			
7	Supply Elasticity $\omega$ ,	0.8	0.8
8	Demand Elasticity $\epsilon$	-0.3	-0.3
9	Flow on % $\left(\frac{\omega}{\omega+ \epsilon }\right)$ .	72.73%	72.73%
10			
11	=>'s Change in Price of Raw Tomato per KG (row 9 * row 5)	€0.0077	€0.0093
12	Average price of raw tomato per kg (€/kg)	€ █████	€ █████
13	% Change in Raw Tomato Price per Kg	█████%	█████%

**[Confidential data removed – Exporter price information]**

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In table 13 below we now estimate how much of the change in the price of raw tomatoes predicted in the row 11 of table 12 above may flow through to the final price of prepared and preserved tomatoes.

To establish this in Table 13 below we first assume that around [REDACTED] kg of raw tomatoes is required to make 1 kg of prepared and preserved tomatoes based on industry data. This is shown in row 3 of table 13 below. This means that the predicted change in the price of raw tomatoes estimated in row 11 of table 12 above needs to be multiplied by [REDACTED] to identify the value of the subsidies effect in the production of prepared and preserved tomatoes. Using this ratio of [REDACTED] in row 4 in table 13 below, we then estimate the predicted value of the subsidy per kilogram of prepared and preserved tomatoes as € [REDACTED] at the lower subsidy rate (shown in the second to last column of row 4 table 13 below), and € [REDACTED] at the higher subsidy rate (as shown in the last column row 4 table 13 below) **[Confidential data removed – Exporter product and price information]**

*Table 13: PPT Price Cross-Check using an Alternative Flow on Methodology*

Row 1	<i>STAGE 2: Elasticities Estimates and Flow on rate for PPT</i>	W/out 160/ha	With 160/ha
2			
3	Ratio of Raw Tomato Kg to 1 kg PPT = [REDACTED] **	[REDACTED]	[REDACTED]
4	Subsidy per kg (€/kg) of PPT	[REDACTED]	[REDACTED]
5			
6	Supply Elasticity	0.8	0.8
7	Demand Elasticity	-0.3	-0.3
8	Flow on %	72.73%	72.73%
9			
10	=>'s Change in Price of PPT per Kg	[REDACTED]	[REDACTED]
11	Weighted average price of PPT per Kg	[REDACTED]	[REDACTED]
12	=>'s % Chge on Price of PPT	[REDACTED] %	[REDACTED] %

**[Confidential data removed – Exporter price information]**

In the next section of table 13 (rows 6-8) we again assume the same percentage flow on rate as above (shown in row 8), based on the same assumptions as to demand and supply elasticities (rows 6 and 7).

This leads us in the last three rows of table 13 to identify the effect of the subsidy on the price of prepared and preserved tomatoes. Row 10 shows the impact on the price per kg of PPT of the old subsidy rate is € [REDACTED] per kg (in row 10, second to last column) and the new subsidy rate is € [REDACTED] per kg (row 10 last column). Row 11 identifies the weighted average price of a kg of PPT at [REDACTED], and row 12 highlights the ultimate impact on the price of PPT is only between [REDACTED] % and [REDACTED] % depending on the rate of subsidy.

It is clear that the ultimate effect of the distortions in the raw tomato market remains small even if one adopts elasticities of supply and demand within reasonable bands that imply higher flow on rates. Thus if one increased the assumed elasticity of supply to 1.2, and reduced the elasticity of demand to -0.1, this would give a higher flow on rate *per stage* of 92.31%, - and in total of 85.21% - but still the impact of the subsidy on the final price of PPT would remain small at [REDACTED] % for the lower subsidy rate and [REDACTED] % for the higher subsidy rate.

**[Confidential data removed – Exporter price information]**

## Conclusion

In order to frame the analysis of the domestic market in Italy for prepared or preserved tomatoes during 2014 the report first analysed a number of dimensions relevant to market definition, including product, geographic, functional and time dimensions. On product dimension the report notes the case focuses on prepared and preserved tomatoes (PPT) in containers. As much as [redacted] % of the relevant value of the goods exported to Australia for example involved [redacted] in various container sizes while as much as [redacted] % related to [redacted] in various container sizes, and a further [redacted] % related to [redacted]. [Confidential information removed – Discussion of models] On geographic dimension the report starts with a narrow definition for the domestic market for the above PPT product, centred on the location of La Doria and Feger head offices and factories, but concludes competitive conditions lead one to expand the market to include the whole of Italy. On the functional dimension or supply chain dimension the report identifies the upstream raw tomato market in Italy as a key important influence on the operation of the PPT market worthy of further analysis. The report also addresses downstream factors relating to investment in distribution and marketing including labelling, noting that it is important to always standardize comparison using net prices that “back out” investment in distribution and marketing based on a “*resale price minus*” (RPM) method. On the time dimension the report notes the harvesting of tomatoes occurs in the third quarter of the year (June to August) implying generally one would expect PPT prices in 2014 to be influenced by factors affecting raw tomato supply in 2013. This is subject to the economics of inventory cycles, which may enable time shifting, leading to prices being somewhat evened out.

On institutional arrangements the paper identified a high level of distortion to the raw tomato market in Italy which is relevant to the PPT market including three main factors:

- 1) First and in particular the EU Common Agricultural Policy (CAP) appears to have resulted in particularly distortionary effects on the raw tomato market in Italy. There are three features of CAP payments that serve to generate distortionary effects - their lack of uniformity across different *types of agricultural product*; the generally high *level of the subsidies*, and the extent to which they are tied or “coupled” to *the level of output* of particular products. Despite attempts at reform overall it appears that reform of CAP payments to raw tomatoes has not been fully implemented in Italy, and that total farm assistance for tomatoes has not been fully decoupled and has moreover not fallen significantly. Thus EU CAP payments with respect to tomatoes used in processed and preserved tomatoes in Italy have thus remained coupled in two ways. First *explicitly* - with an additional payment of 160 Euros per hectare introduced recently, which is coupled to production of tomatoes. Second they are *implicitly* coupled, in that EU CAP payments are largely based on subsidy levels received by farmers in previous years, which were based on the past system of coupled payments, and are thus *implicitly* tied to output.
- 2) Second there appears to also be scope for potential distortions in the market due to the risk of Italian Producer Organisations engaging in cartel like behaviour. In this regard it is important that it appears that the EU has either introduced or is looking to allow Italian Producer Organisations derogations to EU competition law,<sup>48</sup> and exemptions from State Aid Rules for Italian Governments assistance to them.
- 3) Finally there are market distortions due to the regulation of imports of raw tomatoes to Italy. The law prohibits the import of fresh tomatoes from outside the EU for local sale. Such imports are only allowed (at a duty) for processing so long as they re-

<sup>48</sup> see Para 6: [http://europa.eu/rapid/press-release MEMO-13-621\\_en.htm](http://europa.eu/rapid/press-release_MEMO-13-621_en.htm)



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export the processed product. Import of preserved tomato products are subject to duties. Processed tomato products are thus traded but face ad valorem tariffs in the EU without the complexities introduced for trade in fresh tomatoes.<sup>49</sup>

In conclusion our analysis suggests that while the level of distortion of the raw tomato sector in Italy is high, it appears that the ultimate effect of these distortions on the price of prepared and preserved tomatoes (PPT) in Italy, or any “flow on” effect may be relatively small. Thus for example although the value of the CAP subsidy appears to be around 32% of the variable costs of producing raw tomatoes, the limited degree of flow on may mean that the ultimate effect on the price of PPT is relatively small by comparison. Using one methodology, we predict that as a result of the CAP subsidy, the price of prepared and preserved tomatoes may be around ■■■% lower, while using another methodology, it may be lower by ■■■%. **[Confidential information removed – Commission considers the amount to be insignificant]** These estimates incorporate the simultaneous impact of support offered through Italian Producer Organisations, and regulations on imports of raw tomatoes. In the raw tomato market, there is a potential for Producer Organisations to distort market prices and engage in cartel-like behaviour. Similarly, import regulations on the purchase of raw tomatoes can distort market prices by increasing the market power of tomato growers. To reflect these, in our simulations the flow on effect of the subsidy to raw tomato prices is calculated to be less than 100%.

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<sup>49</sup> Rickard and Summer (2008) pp57

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**APPENDIX I: Cost Shares [Confidential Appendix 1 removed –  
Exporter cost, sale and price information]**

[REDACTED]

[REDACTED]					
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

[REDACTED]



## APPENDIX II: Mathematical Simulations

### *Flow through of Subsidy on the price of raw tomatoes*

Consider the market for raw tomatoes, operating under competition, with the product sold at a single price. Let:

$P_s$  = Price per kg of raw tomatoes received by supplier

$P_d$  = Price per kg of raw tomatoes paid by consumer

A per kg subsidy of  $\sigma$  is paid to all tomato growers in that industry.

The subsidy implies that the growers will receive a price that exceeds the price paid by consumers by the amount of the subsidy, i.e.:

$$P_s - P_d = \sigma \quad (1)$$

In equilibrium, demand equals supply:

$$D(P_d) = S(P_s) = S(P_d + \sigma) \quad (2)$$

The effect of a marginal change in the subsidy rate on equilibrium is obtained by differentiating (2) fully with respect to  $\sigma$  :

$$D_p \frac{dP_d}{d\sigma} = S_p \frac{dP_d}{d\sigma} + S_p \quad (3)$$

The above can be rearranged to isolate the effect of the change in subsidy on price (the flow through rate  $\tau_{RT}$ ) and formulated in terms of elasticities:

$$\tau_{RT} = \frac{dP_d}{d\sigma} = \frac{S_p}{D_p - S_p} = \frac{\omega}{\omega - \varepsilon} = \frac{\omega}{\omega + |\varepsilon|} = \frac{1}{|\varepsilon| / \omega + 1} \quad (4)$$

where:

$\omega$  = Price elasticity of supply for raw tomatoes

$\varepsilon$  = Price elasticity of demand for raw tomatoes

From (4), the proportion of flow through from subsidy to final price paid by consumers clearly depends on the elasticities of demand and supply. With the standard assumption of a downward sloping demand curve and upward sloping supply curve, the flow through rate will lie between zero and one. If supply is perfectly elastic (horizontal supply), firms will compete away the subsidy and there will be full flow through of the subsidy to consumer price.

If demand is perfectly elastic  $|\varepsilon| = \infty$ , the flow through rate is zero. No firm has any incentive to lower its price since it can sell as much as it wishes at the prevailing price.

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$$\tau_{RT} = \frac{\omega}{\omega + \infty} = 0\%$$

If demand is perfectly inelastic  $\varepsilon = 0$ , there will be full flow through of the subsidy to consumers.

$$\tau_{RT} = \frac{\omega}{\omega + 0} = 100\%$$

If supply is perfectly inelastic  $\omega = 0$ , the flow through rate is zero.

$$\tau_{RT} = \frac{0}{0 + |\varepsilon|} = 0\%$$

Between these extremes, generally, the more inelastic side of the market enjoys a greater share of the subsidy. Table II.1 below illustrates the flow through rate given three price elasticity of supply levels at 0.5, 1, 1.5 and a range of price elasticity of demand figures ranging from -0.1 to -1. It is clear from this table that at any given level of price elasticity of supply, the more (in)elastic is demand, the (higher) lower is the flow through rate to final price. Similarly, at any given level of price elasticity of demand, the higher the elasticity of supply, the higher the flow through of the subsidy to final price.

Table II.1 Flow through Rate Estimates

$\varepsilon$	$\frac{\omega}{\omega +  \varepsilon }$ , $\omega = 0.5$	$\frac{\omega}{\omega +  \varepsilon }$ , $\omega = 1$	$\frac{\omega}{\omega +  \varepsilon }$ , $\omega = 1.5$
-0.1	83.33	90.91	93.75
-0.2	71.43	83.33	88.24
-0.3	62.50	76.92	83.33
-0.4	55.56	71.43	78.95
-0.5	50.00	66.67	75.00
-0.6	45.45	62.50	71.43
-0.7	41.67	58.82	68.18
-0.8	38.46	55.56	65.22
-0.9	35.71	52.63	62.50
-1	33.33	50.00	60.00

In a competitive market,  $P=MC$ . A reduction in subsidy will increase cost by the amount of the subsidy. The absolute flow through amount of the subsidy from raw tomatoes to raw tomato prices can be calculated as follows:

$$\tau_{RT} = \frac{\omega}{\omega + |\varepsilon|} \times \% \text{ increase in costs}$$

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### *Subsidy flow through to price of canned tomatoes*

In the case of tomato growers, the subsidy is on the end product (per kg of raw tomatoes). For the tomato canning sector, the end product uses raw tomatoes and adds value to it from a transformation process involving labour, raw materials (raw tomatoes, tin and glass containers) and other additional expenses such as transportation, marketing, labelling, etc.) to take the final good (preserved tomato in a container) to the consumer. The industry at this point is assumed to be as competitive, if not more competitive than that for raw tomatoes. In the domestic market, competition would arise from other Italian PPT producers. On the international market, competition is expected to be even higher from local Australian tomato PPT manufacturers as well as competing tomato producing countries exporting PPT products to Australia.

With 100% flow through, if the subsidy is eliminated, raw tomato growers will increase their price by the corresponding percentage increase in cost following the removal of the subsidy. For the PPT producer, this represents an increase in costs to a key input to production. Assuming other costs of production remain the same, the immediate effect of this 100% flow through is to increase the element of production costs accounted for by raw tomato purchases. How much total production cost will increase will depend on the share of raw tomato purchases in total production costs.

Let  $p$  and  $c$  represent price per kg and marginal cost per kg for PPT respectively. From earlier,  $\sigma$  is the per kg subsidy paid to tomato growers. Assume the marginal cost is constant and other costs of production do not change. In a competitive market, price equals marginal cost, i.e.

$$p = c$$

However, from an empirical point of view, we observe the following in accounting data:

$$p - c > 0$$

Such that the price-cost margin is positive:

$$\frac{p - c}{p} > 0$$

A removal of the per kg subsidy for raw tomatoes results in an increased cost for the producer, by the amount of the subsidy, i.e.  $\Delta c = \sigma > 0$ .

Given that raw tomatoes is one of the inputs that enter into the production of processed tomatoes, the degree of flow through will depend on the share of raw tomatoes in total costs. If all other costs remain the same, the rise in raw tomato cost will be the sole source of cost increase. Let this share be represented by  $s_{pt}$ . Assuming a constant margin for production, the degree of flow through ( $\tau_{pt}$ ) in this case can be expressed as:

$$\tau_{pt} = \frac{\omega}{\omega + |\gamma|} \times s_{pt}$$

where

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$\varpi$  = price elasticity of supply for processed tomatoes  
 $|\gamma|$  = price elasticity of demand for processed tomatoes

From the above, 100% flow through will be achieved if both components equal 1. If one of the components is less than 1, flow through will be less than 100%.

In the above, we assume a competitive market, which means that prices will adjust to a rise in marginal costs to maintain margins constant. In a less competitive market, the final effect of a reduction in subsidy in the upstream industry on downstream price will also depend on the ability of the producer to absorb the higher costs into its margin.

Table II.2 below illustrates the flow through rates of the reduction in subsidy on processed tomato prices, given a price elasticity of supply of 0.5, a range of price elasticity of demand figures ranging from -0.1 to -1 and three different scenarios of the share of raw tomatoes in the cost of processed tomatoes. Clearly, the higher the share of raw tomatoes in total cost of processed tomatoes, the larger the flow through rate on the final price of processed tomatoes.

*Table II.2 Flow through Rate Estimates*

$\gamma$	$\frac{\varpi}{\varpi +  \gamma } \times S_{pt}$		
	$S_{pt} = 0.25$ $\varpi = 0.5$	$S_{pt} = 0.5$ $\varpi = 0.5$	$S_{pt} = 0.75$ $\varpi = 0.5$
-0.1	20.83	41.67	62.50
-0.2	17.86	35.71	53.57
-0.3	15.63	31.25	46.88
-0.4	13.89	27.78	41.67
-0.5	12.50	25.00	37.50
-0.6	11.36	22.73	34.09
-0.7	10.42	20.83	31.25
-0.8	9.62	19.23	28.85
-0.9	8.93	17.86	26.79
-1	8.33	16.67	25.00

### *Simulations with current data*

To illustrate the above, we use the data extracted from FADN (see Solazzo et al (2014)) explained earlier in the report and the [redacted] [exporter] data on costs from [redacted] the exporter. The relevant figures are presented in the table II.3 below:

*Table II.3 Flow through Using Tomato Data*

Subsidy (€/ha)	776
Variable Costs (€/Hectare)	3232
% Subsidy / Variable Costs	24
% Subsidy / (Variable Costs – Subsidy)	32
Yield of tomatoes (kg/hectare)	72000
Subsidy per unit (€/kg )	[redacted]
Average price of raw tomato (€/kg )	[redacted]
% Subsidy/raw tomato price	[redacted]
% Cost share of raw tomato costs for PPT producers	[redacted]
Average price of processed tomatoes (€/kg )	[redacted]

[Confidential information removed – Exporter price data]



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In the calculations shown Tables II.4 and II.5 below, we use the share of subsidy in variable cost (32%) with flow through. We assume a range of price elasticities of demand from -0.1 to -1. We begin by assuming price elasticities of supply figures of 0.5 for both raw tomatoes and preserved tomatoes. We then vary these to 0.5 and 1 in in Table II.4 and Table II.5 respectively.

Table II.4 Effect of a 32% increase in raw tomato costs on processed tomato prices.

$\omega = 0.5, \varpi = 0.5$

$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

[Confidential data removed – Figures presented relate to industry price data]

Table II.5 Effect of a 32% increase in raw tomato costs on processed tomato prices

$\omega = 0.5, \varpi = 1$

$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$	$\frac{\Delta P}{P} = \frac{\Delta C}{C} \times \frac{1}{1 + \frac{1}{\epsilon}} \times \frac{1}{1 + \frac{1}{\varpi}}$
[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

[Confidential data removed – Figures presented relate to industry price data]