

THE ECONOMIC EFFECT OF COMPETITION LAW ENFORCEMENT: THE CASE OF THE NETHERLANDS

BY

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Summary

In this paper we try to bridge the gap between the outcome ambitions of competition policy in terms of welfare gains and consumer surplus and the longer term effects of competition policy on growth and employment. First of all, an overview is given of the different definitions of welfare. We explain why maximising the consumer surplus is an important part of the mission statement for most competition authorities. In the second part of the paper we estimate the impact of the introduction of the competition law on economic development. The effects of antitrust policies, merger control and energy regulation on the consumer surplus appear substantial. This increase in consumer surplus can be interpreted as a cut in the “market power wedge” which, from a modelling point of view, is comparable to a cut in the tax wedge. A model simulation for the Netherlands shows that the economy responded positively to this increase in the consumer surplus. We find that production has grown by an extra 0.5% and that employment has increased by 0.4% as a result of the enforcement of the Competition Law.

Key words: Competition law, Antitrust enforcement, Mergers, Macro-economic effects

JEL Code(s): L16, L40, L50

1 INTRODUCTION

The effects of competition policy on economic performance and the effectiveness of enforcing the competition law are the subject of increasing attention. Policy makers are interested in the effects of competition policy, deregulation and privatisation on economic performance, growth and employment.¹ They also want information on the effectiveness of enforcing the competition law by competition authorities. As it is much easier to calculate the costs of

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1 See e.g. the study published by the Ministry of Economic Affairs on the economic impact of privatization of sectors (Ministry of Economic Affairs (2008)).

the competition authorities than the benefits of competition law enforcement, politicians tend to conclude that authorities are expensive while the gains of such institutions are disputable. Therefore a growing number of competition authorities feel the need to quantify the impact of antitrust policies and merger control on the economy.² Sometimes the goals of an authority are related to the outcome of these calculations. For instance, the UK Office of Fair Trading (OFT) formulated a goal that the consumer savings obtained by OFT intervention should be 5 times the amount the tax payer has to pay for the authority on a yearly basis (OFT (2005, 2007a)). The US Department of Justice (US DoJ) is obliged to present annual outcome figures under the Government Performance and Result Act.³ The EU also publishes outcome figures which are based on the fines paid by infringers of the competition law. The Netherlands Competition Authority (NMa) publishes data on the outcome of law enforcement and sector control in its annual reports and other publications.⁴ These outcome calculations are used both to legitimise the spending of taxpayers' money and as a management tool.

Most competition authorities concentrate on the effects of competition policy on consumer surplus. Maximising consumer surplus is often part of the mission statement of many competition authorities. When calculating the impact on consumer surplus, the authorities distinguish between the effects of merger control, antitrust policies and the effects of sector specific regulation. However, these outcome calculations only give a rough picture of what a competition authority has accomplished in economic terms and more particularly it only focuses on the short term and static effects.

Although calculations on the effects of competition law enforcement became common practice among several competition authorities during the last decade, scepticism about the reliability of these exercises within the economic profession is still widespread.⁵ For instance, Nelson and Sun (2001) discuss the methods and assumptions used by the Federal Trade Commission (FTC) and US DoJ to calculate the effects of the interventions. They argue that the assumptions might not always be that conservative and that there might be negative deterrence effects too. Furthermore, they warn that rough estimates might be used to evaluate the effectiveness of the authorities for a year to year comparison or as an indicator of the relative effectiveness of the

2 This is increasingly complemented with a calculation of the effects of sector specific control. In the Netherlands until recently this was especially the case with the effectiveness of Energy and Telecommunication regulation.

3 For a description of the methods used to calculate the figures, see Werden (2008) and Nelson and Sun (2001).

4 See van Sinderen (2006, 2007) and van Sinderen and Kemp (2008).

5 See for instance Crandall and Winston (2003) as critical academics and the reaction of Werden (2003) and Baker (2003) on the paper of Crandall and Winston. See also Bergman (2008) in this issue for a critical assessment.

authorities. They argue that these calculations are too rough and unreliable for these purposes. At the conference on “the effectiveness of competition law enforcement”, almost all speakers from both sides of the Atlantic thought that quantification of the possible economic effects of interventions by competition authorities should be seen as approximations and should not be used for other purposes than to get a rough idea about the economic effects of competition law enforcement.

For politicians and policy makers, competition is not a goal per se but a means to stimulate more efficiency, which contributes to growth, productivity and consumer welfare. New products or improved production processes should contribute to a better price-quality ratio. Furthermore, politics is also concerned about general interests, quality, access to facilities and employment. These issues are the main objectives of research in the study of the [Ministry of Economic Affairs \(2008\)](#) on the effects of competition policy of the last decades.

This study explores the impact of competition policy on consumer surplus and the effects of the introduction of more competition on the economy as a whole. Given the needs of politicians and policy makers in evaluating the outcomes of competition policy and competition law enforcement, these more macro-economic variables such as growth, productivity and employment are important policy variables. We therefore estimate the effect of competition policy on growth and employment in the medium and long term. We model the relationship between the micro-economic static outcome of the effects of competition policies in terms of consumer surplus and the medium and long term dynamic macro-economic effects of such interventions in terms of growth and employment change. We follow the well known phenomenon in economic literature on imperfect competition that taxes create a wedge between price and marginal costs in the same way that market power creates such a wedge. In order to quantify the outcome of a policy that stimulates competition, we use a well tested model called MESEMET-2 ([van Sinderen and Donselaar \(2000\)](#)) in which a tax wedge between gross and net income is part of the modelling device. Using this device, we introduce a wedge on labour income caused by market power (the “market power wedge”).

The plan of this paper is as follows. In Section 2, we will discuss the measurement of welfare and how the choice of consumer surplus as a measure of the effectiveness of a competition authority must be considered. We will concentrate on the goals of the NMa and how to judge these goals in the context of the effectiveness of law enforcement. Section 3 provides an overview of different studies on the effect of introducing more competition in market economies. In Section 4, we will describe current outcome calculation at the NMa. In this section, we will present the interaction between the micro-oriented outcome calculations of the NMa between 1998 and 2007 and the macro-economic effects in the longer term. This allows us to draw

conclusions on the short term and long term effects of competition law enforcement. In Section 5 we draw some conclusions.

2 THE MEASUREMENT OF WELFARE

When studying the economic effects of competition law enforcement, it is important to look at the objectives of competition law and the criteria to be used to evaluate its effects. Competition law is primarily concerned with economic efficiency and with overall social welfare. However, competition authorities not only pursue this economic efficiency goal in isolation, they also try to ensure that consumers get a fair share of the economic benefits of markets working properly and economic and technical progress. Because a total welfare standard does not automatically result in a 'fair' share for consumers, the competition authority needs to use another welfare standard which can allow for a redistribution of the benefits between the consumers and producers. A discussion on the selected welfare standard is therefore important because the selection of the welfare standard affects decisions in the enforcement of the competition rules.

From an economic perspective, the competition law is a means to make markets work and achieve economic efficiency. As such, from an economic perspective, the choice of a total welfare standard generates the most for society as a whole because it takes into account both allocative and productive efficiency. This total welfare standard, in line with the Chicago school, treats the distribution of wealth between consumers and producers neutrally. From a political point of view, however, this total welfare standard can create undesirable solutions.⁶ For instance, a decision to allow a merger that generates substantial greater gains for business and losses to consumers may be efficient in terms of a total welfare standard, but not from a political perspective. It is therefore unlikely that competition authorities will adopt this policy. In fact, increasing consumer welfare is the common goal of competition authorities (see [van Sinderen and Kemp 2008](#), p. 292). Consumer welfare in this case can be defined as the degree to which consumers benefit by being able to buy a product for a price that is less than they would be willing to pay. Under standard assumptions, consumer welfare is maximised in a situation of perfect competition. However, the standard assumptions often do not apply and in evaluating the effect of competition policy, the situation without a cartel or merger is compared with a situation with no cartel or merger and not with perfect competition per se. Given prevailing market characteristics,

⁶ Even a redistribution of surplus within a group of consumers or a group of producers is not non-normative. For instance, a redistribution from low income households to high income households may not be appreciated in a political context.

consumer welfare will not always be maximised after an action of the competition authority, but it may have increased.

In a consumer welfare standard, a transfer from consumers to producers will not be seen as an improvement but as harmful, even if total welfare is improved. With a consumer welfare standard in mind, many decisions still have to be taken such as: how to weight the short term and long term effects of interventions; how to balance a reduction in producer's surplus and investments in innovation etc.

One extreme is a standard which only recognises immediate and short term consumer interests. Short term profits for producers (as a result of market power) at the expense of consumers which will be used to reduce production costs (and lower prices) in the long run will not be valued in this perspective. On the other hand, consumer welfare could also be interpreted as an essential long term goal where the immediate interests of consumers are subordinate to the economic welfare of society as a whole. The idea is that at some point consumers will receive a fair part from the producer's innovation and efficiency gains. This perspective requires a prediction on long-term competitiveness in a market: how long can the time-lag be between the implementation of a merger and the realisation of efficiency gains for consumers, i.e. the dilemma between static and dynamic efficiency.

In all these cases, the evaluation of (potential) efficiencies that may result from certain behaviour of companies (merger, vertical relations etc.) is crucial. Also the weights given to different groups (consumers versus producers) are critical. This implies a normative view on the proper welfare weights is required.

In this section we will discuss the selection of the welfare standard in more detail, particularly from a merger control perspective.

In this context of mergers, Renckens (2007, pp. 155–157) gives five different possibilities for measuring welfare which also take into account the possibilities of efficiency gains.

- price standard;
- consumer surplus standard;
- Hillsdown standard;
- weighted surplus standard;
- total surplus standard.

In the price standard, a merger will generally be blocked if the merger produces an increase in prices. Even if efficiency advantages might be proven, the merger will be blocked because of the negative impact of the price increase on consumer welfare. Efficiencies are not taken into account in this standard.

The consumer surplus standard is an addition to the price standard. Together with the price standard, only the effects of the merger on consumer welfare are studied. Efficiencies are taken into account to evaluate expected price

changes. In the consumer surplus standard, a merger can be approved if it creates efficiencies which result in a price decrease reflecting the efficiency gains despite the potential increase in market power, i.e. there is no net reduction in consumer surplus. At least some of the cost savings should be passed on to consumers in the form of lower (or not higher) prices. Therefore in these cases, the prices will be lower and consumer surplus will increase. Consumer surplus can also increase if prices rise as long as consumers benefit from the merger in another way, e.g. by better quality, better service or the introduction of new products. Thus if a merger leads to higher prices in the first place, but consumers will be better off in the medium term (notably because of an improvement in the ratio between price and quality), then a merger can pass because of the gains of improved quality which are passed on to the consumer. This can also be seen as an outward shift of the demand curve where consumers' willingness to pay increases because of the higher quality.

In the price and consumer welfare standard, efficiencies are not taken into account to compensate potential loss of consumer surplus. The producer surplus is valued at zero. In the Hillsdown standard, which was named after the Canadian Hillsdown case,⁷ producer efficiencies are taken into account. The transfer of surplus from the consumer to the producer is considered an acceptable cost of the merger because of the resulting efficiency gain. The efficiency gains however must be larger than the total loss in consumer welfare (the surplus transferred *plus* the deadweight loss). Under this standard, a merger can pass even if it results in higher prices for consumers. The interest of the producer as an entity by itself is recognised (in the form of an increase in the producer surplus resulting from efficiency gains), but it gives no weight to the increase in producer surplus resulting from a transfer from consumers (Bian and McFetridge (2000)).

The weighted surplus standard is linked to the Hillsdown standard. The difference is that, under this standard, the policymakers give relative weights to the importance of the consumer and producer surplus, i.e. the producer surplus is taken into account to a certain extent. The weights could depend on the interpersonal comparison of welfare. This requires value judgements made by policymakers.

The total surplus standard looks at the change in the total surplus. If the total surplus increases, a merger will increase total utility and also total welfare. In that case, a merger improves welfare and will be accepted by the

7 Canada versus Hillsdown Holding Canada (1992 41 CPR (3d) 289.) In this case the court states that both the distribution of wealth and the deadweight loss should be weighted to each other. A weighting of the deadweight loss alone – as the Canadian Competition Law states – is considered too limited.

authority. The distribution of utility between consumers and producers is no longer relevant.⁸ Some standards are easily formalised (Renckens (2006)):

$$\text{Utility index} = \text{Consumer Surplus} + \alpha \text{ Producer Surplus}$$

(If $\alpha = 0$ we have the consumer surplus standard; if $\alpha = 1$ we have the total surplus standard; if $0 < \alpha < 1$ relatively more weight is given to the consumer surplus; if $\alpha > 1$ more importance is given to the producer surplus).

The increasing focus on the different measures of welfare is related to the increasing importance of economic arguments as a basis for judging competition cases. A change is observable from a “rules per se” towards a “rules of reason” approach.⁹ In the latter case, economic principles play a more dominant role than purely legal arguments.¹⁰ This change in focus can be observed in the improved economic analysis in the assessment of competition cases (Neven (2006)). A consequence of this development is that most competition authorities have appointed a Chief Economist. Also the adjustment of the EC Merger Regulation 2004 initiated more discussion on welfare analyses in merger cases, at least in the context of the judgement of possible efficiency improvements. Because of this change in approach in merger cases, it is necessary to make the goals of competition policy more explicit, i.e. it is important to define the welfare measures to be used. Economists agree that in general the total utility concept is preferable to the consumer surplus as such (Heyer (2006)). However, in order to maximise total utility, in many cases competition authorities have to concentrate on maximising consumer welfare (Farrell and Katz (2006)). This has to do with information asymmetry

8 If some parties lose and other parties gain, also the total surplus standard implies value judgments because it requires interpersonal utility comparisons. The total surplus standard is similar to the Hicks-Kaldor criterion, which states that total welfare is considered to have increased when the gains of the winners are sufficiently large to compensate the losers for their losses (even if such compensation does not in fact take place).

9 See a document by the Economic Advisory Group for Competition Policy on article 82 (EAGCP (2005)).

10 Christiansen and Kerber (2006) deal with the advantages and disadvantages of both approaches. They state that a ‘per se rule’ tends to be a less costly form of enforcing competition law because less research is needed, there is less lobbying, less information asymmetry between the competition authority and the parties involved and less juridical uncertainty. A ‘rule of reason’ approach has the advantage that the risk of making type I and type II errors is reduced. However a disadvantage is that decisions by the competition authority will become less predictable. There is also a danger of continuous law suits and appeals. It becomes more rewarding for parties to mislead or at least misinform the authorities. Christiansen and Kerber conclude that a differentiated approach is necessary. In some cases, a “rule per se” approach should be used, in other cases a “rule of reason” approach. The choice between both approaches is affected by the specific market characteristics. For instance, in technological markets some competition principles might be more time dependent (see Boone (2008)). Economic analyses are necessary to make the distinction between different cases.

between parties and uncertainties. First of all, many of the expected and projected benefits of mergers are uncertain. According to studies by [Schenk \(2005, 2006\)](#), about 70% of mergers are unsuccessful even for the merging partners. It is therefore important that the competition authorities are cautious when judging the claimed (efficiency) benefits of mergers. This implies a difference between what we call a procedural and a conceptual choice of welfare standard. [Besanko and Spulber \(1993\)](#) argue that it is better for the competition authority to concentrate on maximising consumer utility as a procedural measure, because of information asymmetry between the companies and the competition authority. This would provide the best guarantee that total utility is improved (as a conceptual choice). Concentrating on consumer surplus balances the information asymmetry between the economic agents and the competition authority. For large, complex or internationally integrated economies in particular, it appears that the consumer welfare standard achieves higher total welfare than the direct application of the total welfare standard ([Renckens \(2007\)](#)). [Neven and Röller \(2005\)](#) argue that maximising consumer utility by competition authorities can be defended because companies have many more possibilities for lobbying than consumers. If lobbying is common practice, maximising consumer surplus adds to the maximising of total welfare. This is also an important reason for competition authorities to maximise consumer utility. Whether this is the best approach depends on the specific characteristics of the case. The level of transparency of the market process and the predictability of the procedures are the main reasons for deciding whether a total welfare standard should be taken as a guideline or whether there are arguments for using the consumer surplus as a policy guideline. If the merging company is big or if efficiencies as a result of merging companies are not easy to prove, maximising the consumer surplus is recommended (see also [Pittman \(2007\)](#)). A practical argument for using consumer surplus as a guideline is put forward by [Werden \(1996\)](#). He shows that it is much easier for a competition authority to concentrate on consumer surplus than on some other welfare measurement. The consumer surplus is easy to define, requires small adjustment costs and is also easy to communicate. For these reasons, most competition authorities chose maximising consumer surplus as one of their main policy goals.

3 MACRO-ECONOMIC CALCULATIONS OF THE EFFECTS OF MORE COMPETITION

In this section, we will present an overview of studies which are concerned with calculations of the effects of competition, deregulation and sector control on macro indicators (GDP Growth, employment growth and productivity). Table 1 shows different studies which calculate the effects of deregulation and more competition on economic development in different countries and/or in different sectors. Some calculations are made for a specific country; other cal-

TABLE 1 – AN OVERVIEW OF DIFFERENT STUDIES ON DEREGULATION AND COMPETITION. EFFECTS ON GDP, EMPLOYMENT AND PRODUCTIVITY

Study	Policy	Period	Model and country/sector	Effect (GDP %)	Employment	Productivity
Ehrlich et al. (1994)	(partly) Public ownership	1973–1983 cumulated	Regression analyses, comparing 23 international airlines			1.6–2%
Waasdorp et al. (1994)	Flexibility on labour and product market	1984–1990 annually	General Equilibrium Model	0.5–1.1	0.2–1.1 %	0/+
Barry and Toole (1998)	Competition and deregulation	1980–1993 cumulated	MEOM The Netherlands General Equilibrium model (Irish ECG) Ireland		2 %	
Nieuwenhuijsen and Nijkamp (2001)	Competition	1988–2005	One-sector simulation model, MOCO (from SCALES). Data from the Netherlands	3		
Maher and Wise (2005)	Liberalisation and deregulation	1990–2002	Regression of aggregated performance of different countries			> 10%
Nicoletti and Scarpetta (2005)	Competition and deregulation	1980–2002	Using regressions, of panel data of 20 OECD countries		+	+
OECD (2005)	Competition	Cumulated	Econometric panel data study and general equilibrium model GTAP OECD	3–3.2		

TABLE 1 – continued

Study	Policy	Period	Model and country/sector	Effect (GDP %)	Employment	Productivity
Creusen et al. (2006)	Competition	1993–2001	Calculations of Boone index and Price Cost Margin The Netherlands	0/+	+	0
Voigt (2006)	Competition	Different intervals (1980–2000), cumulated	Regression analyses of around 90 countries/states	+	+	+
DTI (2007)	Liberalisation network industries	From 1980 cumulated	Qualitative comparing EU with USA.	1.3–1.7	140,000/360,000	
Ilzkovitz et al. (2007)	Internal Market Program	1992–2006 cumulated	Regression analyses EU	2.2	2,750,000 or 1.4 %	
OFT (2007b)	Competition	Cumulated	Qualitative UK		+	+

culations are for a number of EU or OECD countries. Some studies look into specific sectors (e.g. airlines), while others compare outcomes of different sectors through a cross-section. The table should be read as follows. Column 2 presents the specific policy measure(s) to increase competition. Column 3 gives the period considered. In column 4 we summarize the research method and indicate the country (countries) or sector(s) studied. Many of the studies use a model; others simply use regression analysis. Almost all the studies are empirical. Columns 5, 6 and 7 give the outcome in terms of growth, employment and productivity.

The differences in outcome between the studies are obvious. Still it is clear that the studies all show a positive impact of more competition on growth and employment. The outcome on growth varies between an annual increase ranging between 0.5 and 1.1% (Waasdorp et al. (1994) and a cumulated effect over the years of around 3% (Nieuwenhuijsen and Nijkamp (2001) and OECD (2005)). In most studies, the productivity was found to increase.

The impact of more competition on growth and employment varies for different reasons. Firstly, the outcome depends on the economy's specific state of competition at the start of deregulation and policies to increase more competition. For instance, until 1998 companies in the Netherlands were allowed to make agreements on prices and division of the market as long as these agreements were reported to the Ministry of Economic Affairs. The change in this policy following the introduction of the new competition law gave a strong impetus to competition. The marginal addition to the outcome of more deregulation will decline in situations in which an economy is already competitive.¹¹ Secondly, the outcome effect depends on the specific policy measure under consideration. A policy to stimulate the functioning of the product markets will be more effective when the deregulation of government activities is implemented at the same time. Deregulation in some markets combined with strong government interventions in other markets will undermine the total effectiveness of a policy to stimulate more competition. Also deregulation in the product market will be more effective in an economy with a flexible labour market.¹² Thirdly, it is important to distinguish between the short term effects of more competition and the medium or longer term outcome of improving the competitive climate in a country. The effect in the longer term must include the impact of competition on innovation as well. Therefore the OECD (2005, p. 2) states:

“As the analysis is confined to a relatively narrow set of policies and abstracts from potential dynamic effects from reform-induced increase

11 In New Zealand the structural adjustments at the end of the 1980s were very successful because many government interventions prevented it from growing in the decade before.

12 See van Bergeijk et al. (1997) and Jonsson (2006).

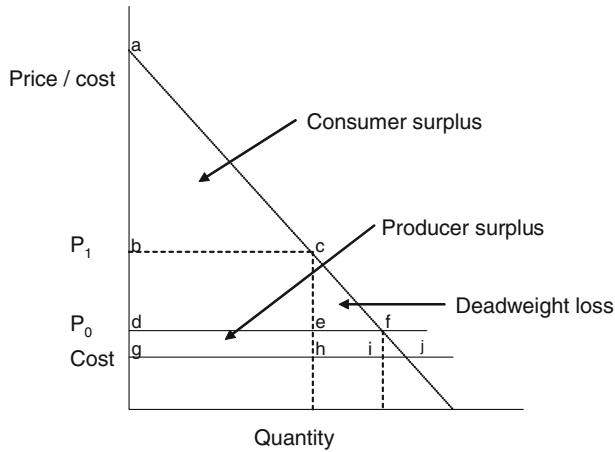


Figure 1 – Consumer surplus and producer surplus

in innovation, the overall gains from broad reforms could be significantly higher than reported in the paper”...

All studies surveyed show that an increase in competition by deregulation or privatisation leads to an increase in GDP and employment growth. The effects vary from an increase in the annual growth rate to an overall cumulated effect on economic growth. In most cases, long term productivity will also increase. Furthermore, the context in which the introduction of more competition is placed has an influence on the magnitude of the effects.

4 ESTIMATING THE OUTCOME OF COMPETITION LAW ENFORCEMENT BY THE NMa

Since 2004 the NMa publishes estimates of the gains in consumer surplus resulting from the enforcement of competition law and sector specific control (electricity). A consumer surplus calculation combines the impact on prices and output. The published figures are calculations of the gains in consumer surplus at micro level and are based on individual decisions.¹³ In order to estimate the static outcome effects of interventions by the NMa, the office of the Chief Economist calculates the static consumer savings on an annual basis.

The method used is illustrated in Figure 1. It provides a simple illustration of how a change in the consumer surplus is estimated for a specific NMa case.

13 See the annual reports of 2005 and 2006 of the NMa for a description of the method used to calculate the micro level effects.

The demand curve is represented by the straight line ac_fj . The breakdown of a cartel will lead to a price reduction from P_1 to P_0 .¹⁴ Given the information on output before the intervention, it is easy to calculate the direct consumer savings that result from the intervention. In Figure 1, this is the rectangle $dbce$. In order to estimate the deadweight loss part of consumer surplus (the triangle cef), information on the demand elasticity on the specific market is also needed. Further assumptions for the estimation of the consumer surplus of antitrust policies are:

- The period under consideration is only the period for which the cartel is proven;
- The basis for the calculations is only the turnover related to the infringement and fined companies.

For mergers, the following assumptions for the calculations are made:

- Mergers should be “prohibited” by the authority or there should be information that they have been postponed due to interventions and remedies proposed by the NMa;
- The projected price increase which is prevented by the NMa intervention is estimated to be 1%.

The OFT uses the same assumptions for its outcome calculations for the UK as those used by the NMa for the Netherlands (see [OFT \(2005\)](#)). The assumptions are considered to be conservative, in that they are unlikely to overestimate the gains in consumer surplus from competition law enforcement.

In order to estimate the outcome effects of regulation in the energy transport sector, the NMa computes the difference between the actual price increase for energy transport and the annual price increase of the consumer price. This price difference is multiplied with the turnover of the sector at the beginning of the period considered.

These three calculations (for cartels, mergers and energy regulation) together yield the estimated static outcome effects of the enforcement of the competition law and of regulation in the energy sector.

In the period 1998–2007, the total increase in the consumer surplus as a result of the NMa interventions is estimated at about € 4.2 billion. Of this figure, about 50% of the outcome must be attributed to antitrust

14 The price decrease is based on case specific information. If no further information is available, it is assumed that the cartel had a price effect of at least 1% (see [OFT \(2005\)](#) and [Werden \(2008\)](#), in this issue).

policies, about 45% to energy regulation and only about 5% to merger control. This has to do with the specific assumptions made in order to avoid over-estimating the impact of the NMA interventions.

However, these outcome calculations only measure the static effects of law enforcement in one case or sector. The spillover to other companies and sectors is not included. Also the fact that consumers might switch to other products which become relatively cheaper and might compensate the primary loss in the specific market are not included in this simple method.

Furthermore, short term calculations at micro level do not distinguish between short term and long term effects of law enforcement. It is possible that a company's short term dominant position is accepted for the time being, in order to increase the net value of the consumer surplus over the whole life cycle of the product. Note that this may imply a fall in the consumer surplus in the short term, benefiting the producer. These dynamic effects are often used as an argument by opponents of competition policies and deregulation to criticise the calculation of the consumer surplus. As soon as we switch from pure micro short term effects to the macro dynamic effects, they expect the outcome effects will change dramatically (Kolnaar (2004)).

In order to obtain a more balanced view of the dynamic effect of interventions and competition law enforcement, we feel it is important to make simulations with a model which also includes the dynamics of market equilibriums in the long run. For such calculations, we use a general equilibrium model called MESEMET-2 (See van Bergeijk et al. (1997) and van Sinderen and Donselaar (2000)). A common characteristic of MESEMET models is that they are well equipped to estimate the macro-economic impact of micro-economic interventions which do have an effect on the wedge between gross and net income (See van Sinderen (1990)). MESEMET-2 is a general equilibrium model. It is a supply side model with explicit modelling of the tax wedge on labour income, with a labour market and a simple capital market as well as technological progress. In MESEMET-2, equilibrium is obtained by maximising consumer welfare and business profits. The structure of MESEMET-2 is embedded in micro economic behaviour. A representative company maximises profits in a situation of perfect competition. This maximisation process leads to the factor demand relations. In the model, two types of economic agents are distinguished: capital owners and employees, who decide on their labour supply. Both types maximise their utility functions under a budget restriction. The utility function of the employees contains consumption and leisure as arguments. The utility function of the capital owner contains a balanced approach between future consumption and current consumption. Their income depends on the rate of return on investment. In MESEMET-2, it is assumed that there are two types of possible investments: shares and bonds.

The government can tax both capital and labour income. These taxes lead to a wedge between gross and net income.¹⁵ Labour supply is endogenous in MESEMET-2 and technological progress is also partly endogenous.

In symbols, the important equation for the purpose of this analyse are:

$$L_s = f(W'n) + A \tag{1}$$

$$W'n = W - 1.5 T_i \tag{2}$$

$$W = P_l - P \tag{3}$$

$$dP_l = dP + dH + 0.25 dT_i - \mathbf{B} \tag{4}$$

$$L_d = ZY_d - 0.55 W_y + C \tag{5}$$

$$W_y = P_l - P_y \tag{6}$$

$$P_y = g(P) \tag{7}$$

$$P = h((Y + P_y); (L + P_l)) \tag{8}$$

$$L = k(L_s, L_d) \tag{9}$$

In this part of the model, we define L_s as labour supply and L_d as labour demand. The actual employment (L) is determined by both labour demand and labour supply. Labour supply depends on the real net wage rate ($W'n$); labour demand on the real gross wage costs (W_y). The influence of direct and indirect taxes (T_c) on the real gross wage rate is defined in equation 2. The real wage rate itself is defined in equation 3. Equation 4 describes the nominal wage rate growth. The consumer price is defined in equation 8; production prices are defined in equation 7. All variables are in growth rates. Bold faced symbols are “other variables”.

Carlton (1996) already made it clear that the remarkable resemblance between the theoretical results of macro models which try to model market power and models which provide insights into the effects of taxation are the backbone of the macroeconomic calculation of the outcome of policies to break market power and monopolies.

15 The MESEMET model is structured so that taxes on capital are equivalent to corporate taxes and taxes on labour are equivalent to income taxes. The net capital income is included in the total income of the consumer which is taxed through income taxation. Therefore the simulation of market power is comparable to a tax on labour income.

Carlton (1996, p. 3): “taxes create a wedge between price and marginal costs in the same way that market power creates a wedge. It is this “wedge” that drives most of the interesting results in the macro literature dealing with imperfect competition.”

So market power leads to a wedge which can be compared to the tax wedge.

Browning (1994) shows that regulation has the same characteristic. In his opinion, regulation leads to a “non-tax wedge”, which also has the same characteristics as a tax-wedge.

On the non-tax wedge, Browning wrote:

“[...] there are a large number of non-tax phenomena that have the effect of reducing input prices below marginal value products, just as do taxes on income. ... These include such things as monopoly, monopsony...and many forms of business regulation.” (Browning (1994), p. 419).

Matheron (2002) proves that in an endogenous growth model, the welfare costs of monopolistic competition can be substantially higher than in the static case when a conscientious decision making process is assumed. He concludes:

“Notice that from a formal point of view, the effects of monopolistic competition are similar to those deriving from a constant tax on income associated with lump-sum transfers. This analogy first shows that the estimates which were derived here are not completely surprising” (Matheron (2002), p. 132).

The specific characteristics of MESEMET allow us to estimate the effects of government interventions aimed at reducing market power and fighting cartels. Imbalances and execution of market power in the product market are transferred to the labour market by means of the wedge between the gross and the net income as a result of market distortions. In principle, this is the same mechanism as the influence of taxation. Therefore tackling a market distortion can be interpreted as a cut in the non-tax wedge which is the result of imperfect competition and which has the same characteristics as the tax wedge.

In order to compensate the income effects of the cuts in the tax wedge, the cut in the tax wedge on labour income which leads to an increase in net income of the consumer must be compensated by a lump sum transfer of tax money from the consumer to the government.

Table 2 presents the macro-economic effects of competition law enforcement and sector specific regulation by the competition authorities. It shows

TABLE 2 – EFFECTS CALCULATED BY MESEMET-2 OF A REDUCTION IN THE MARKET POWER WEDGE OF 0.75% OF GDP

Period	1	5	10	20	Long term
Macro-economic variables					
Export	0.6	0.5	0.5	0.6	0.6
Consumption	0.3	1.7	1.7	1.7	1.8
Financial balance government ^a	0.0	0.1	0.1	0.3	0.3
Investments	2.1	0.5	0.5	0.6	0.6
Employment	0.0	0.3	0.3	0.3	0.4
Import	-0.4	0.1	0.1	0.1	0.3
Price level	-0.4	-0.1	-0.1	-0.3	-0.3
Nominal gross wage	-0.5	-0.3	-0.1	-0.1	-0.1
Welfare index for capital	0.8	1.2	1.2	1.2	1.0
Welfare index for labour	0.9	0.9	0.9	1.0	1.0
Total welfare index	0.9	1.0	1.0	1.0	1.0
Profit before tax	-0.4	-0.3	-0.4	-0.5	-0.6
Production	0.1	0.3	0.4	0.5	0.5
Production capacity	0.1	0.3	0.4	0.5	0.5
GDP	0.1	0.3	0.4	0.4	0.4

Cumulative deviations (in %) of the base model

^a Absolute deviation of the base model

that a cut in the non-tax wedge by € 4.2 billion (0.75% of GDP) which is compensated by a lump sum transfer has a positive effect on growth and employment. In the long term, production will increase by 0.5%.

Employment increases too: by 0.4%. This implies that productivity grows by around 0.1% as a result of increasing the competition in the product market.

These calculations indicate that the benefits in terms of the consumer surplus which is transformed into GDP growth will be higher in the long term than in the short term. According to these calculations, business profits will fall as a result of government intervention. However, investments will increase. The reason for this is that the negative influence of the profits is offset by a positive effect of output.

5 CONCLUSIONS

In order to estimate the economic effects of competition policy enforcement, it is important to define what goals the different economic actors try to maximise. Maximising the consumer surplus is the goal of the competition authorities. Although in some merger cases, arguments of efficiency defence must be incorporated into the ultimate decision to let a merger pass or not, consumer

welfare is the most important goal in merger cases too. Therefore, consumer savings are the most prominent outcome indicator presented by competition authorities like the US Department of Justice, the Office of Fair Trading (OFT) and the Netherlands Competition Authority (NMa). Politicians and policy makers are other important stakeholders in the competition policy arena. Of course they are also interested in the outcome of the enforcement of the competition law, but they have a somewhat broader perspective. Besides consumer savings, they are often also concerned about the effects of more competition on economic growth and employment. In this paper, we try to bridge this gap between the outcome ambitions of competition policy in terms of welfare gains and consumer surplus and the longer term effects of competition policy on growth and employment. The following conclusions can be drawn from this research.

1. Empirical studies on the impact on the economy of introducing more competition show that, in general, more competition leads to more growth and employment. Sometimes productivity responds positively as well. However, this also depends on how technological progress is affected by more competition in the product market. Most studies do not report simultaneously on the effects on consumer surplus and on economic growth.
2. In the Netherlands, enforcement of the competition law has had a very positive effect on the static consumer surplus during the ten years we have considered in our research. Using conservative assumptions, we estimate that enforcement of the competition law has increased consumer surplus by about € 4.2 billion between 1998 and 2007.
3. In estimating the macro-economic dynamic effects of competition law enforcement, we treat an increase in consumer surplus as a reduction in the non-tax wedge on labour. This implies that in a macro-economic context, an increase in consumer welfare can be simulated as a balanced budget cut in taxation. It is a well known analogy from the literature that market power or cartels create a wedge between price and marginal costs comparable to that of taxes. This analogy allows us to calculate the effects of the enforcement of competition law in a model in which taxation is the driving force of distortions of government policies.
4. NMa policies over the 1998–2007 are estimated to have had a positive effect on production of 0.5%. This estimate is based on the estimated increase in consumer surplus and hence rests on the same conservative assumptions.
5. Employment growth will also respond positively to an increase in competition. According to our estimates, this effect is around 0.4%. Consequently, the effect on labour productivity is around 0.1%.

In this paper, we have shown how micro-economic calculations can be used to obtain macro-economic estimates which are relevant to the political debate on

competition and competition law enforcement. The main conclusion is that enforcement of the competition law has positive effects on consumer welfare and in the long term also on economic growth, employment growth and productivity.

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