

## THE SOCIAL COSTS OF MONOPOLY: A SURVEY AND AN EVALUATION

### MONOPOLÜN SOSYAL MALİYETLERİ: LİTERATÜR TARAMASI VE BİR DEĞERLENDİRME

Erdal GÜMÜŞ\*

#### ABSTRACT

Existence of monopoly and its costs to societies have been intensely studied. However, there has been no clear view obtained yet. Studies of rent-seeking approach of the public choice school even make the issue more interesting. This paper surveys from traditional Harberger's triangle approach of social costs of monopoly to the most recent studies and drive some conclusions from it.

*Keywords:* Social costs of monopoly, Harberger's triangle, Rent-seeking theory.

#### ÖZET

Bir ekonomideki monopolcü firmaların varlığı dolayısı ile söz konusu firmaların topluma yükledikleri maliyetler yoğun bir şekilde araştırma konusu yapılmaktadır. Ancak, konu üzerinde görüş birliği henüz ortaya çıkmamıştır. Kamu tercihi okulu rant arama yaklaşımının çalışmaları konuyu çok daha ilginç hale getirmektedir. Bu çalışma ile monopolün sosyal maliyetlerini Harberger'in üçgen yaklaşımından, yakın zamana kadar geliştirilen çalışmaların bir literatür taraması yapılarak değerlendirilmekte ve bazı sonuçlara varılmaktadır.

*Anahtar Sözcükler:* Monopolün sosyal maliyetleri, Harberger üçgeni, rant arama teorisi.

---

\* Eskişehir Osmangazi Üniversitesi İİBF Maliye Bölümü Öğretim Üyesi

## **INTRODUCTION**

The social costs of monopoly have been an interesting subject in the literature since Harberger's study in 1954. Since then, many scholars such as Stigler (1956), Tullock (1967), Posner (1975), Wenders (1987), Browning<sup>1</sup> (1997), Epstein and Nitzan (2002), Brown and Yoon (2006), and others<sup>2</sup> have studied various aspects of the issue. Many of them have tried to measure empirically how large the social costs of monopoly might have been while others have studied the theoretical aspects of this subject.

In an economy where a monopoly is present, there is a cost to society, since a monopoly firm sets its output price above the competitive equilibrium price level and its output level would be lower than that of competitive level. Hence, there will be excess demand that would not be fulfilled, and therefore society suffers from that gap too.

The purpose of present study is to survey the literature briefly and evaluate them and drive some results. The paper is organized as follows: Current partial equilibrium research results are summarized in the next section. From Harberger's study to most recent studies that employ general equilibrium methodology have been surveyed in section III. Section IV hosts an evaluation and conclusion.

## **WELFARE LOSS**

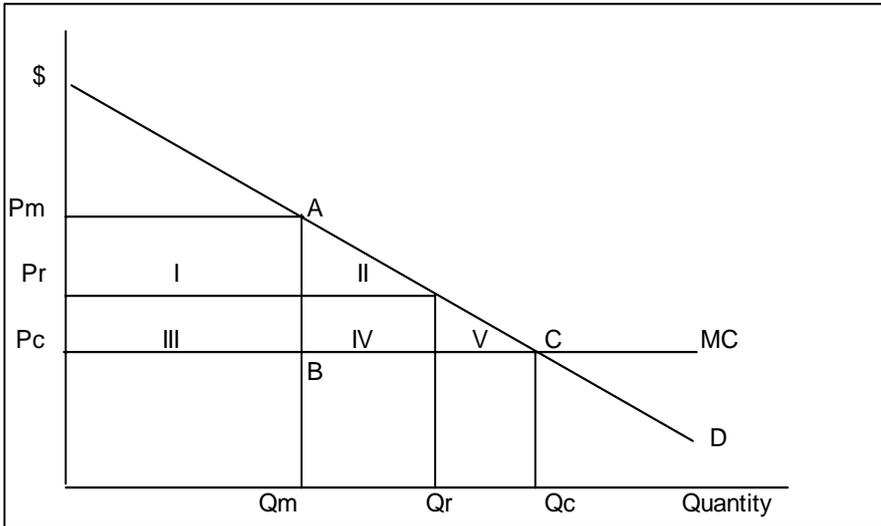
Although many early studies on the social cost of monopoly power have been developed and analyzed the issue in the context of the conventional partial equilibrium framework, there have been recent studies that started to evaluate this issue from general equilibrium perspective.

The social cost of monopoly was methodologically introduced by Harberger (1954) as the welfare triangle, ABC, which is called in the literature as "deadweight loss," and "Harberger triangle," or 'welfare loss,' that is shown in figure I.

---

<sup>1</sup> Browning (1997) offers a new factor in calculating social cost of monopoly. His suggestion is to include resource supply distortion effect caused by tax system. Taking tax distortion into consideration, his findings indicate a huge social cost of monopoly when comparing with the conventional estimate.

<sup>2</sup> Worcester (1973), Bergston (1973), Cowling and Mueller (1978), Baik (1999), Davis and Reilly (2000) can be mentioned here.



Source: Modified from Wenders (1987, 458).

**Figure 1: Harberger Triangle**

Harberger states that when monopoly price is above competitive level there would be a loss to society since buyers would buy its product ( $Q_c - Q_m$ ) if it would produce at the competitive level. Thus, in the static framework, the area of ABC in figure I may constitute the social cost of monopoly. The area  $P_mABP_c$  is excess profit which is a transfer from consumers to monopolist (Harberger, 1954).

Whether the social cost of monopoly is “just” the said triangle shown in figure I has been the subject of many studies. Many of these studies have relied on the simplicity of partial equilibrium framework while many others have adopted a powerful computable general equilibrium theory to analyze and hopefully find relatively accurate results. In the rest of this paper, we try to be selective and review those important studies adding a positive aspect to the issue.

Tullock (1967) and Posner (1975) have extended the analysis of welfare loss from monopoly by considering the dynamics of monopolization as Baysinger and Tollison mentioned (1980). Tullock and Posner argue that “The existence of an opportunity to obtain monopoly profits will attract resources into efforts to obtain monopolies, and the opportunity costs of those resources are social costs of monopoly too (Posner, 1975:807).” This statement simply says that potential monopolists will expend resources on monopolizing inputs, which, as Baysinger and Tollison (1980) mention, would be in forms of hiring lawyers, lobbyists, improved product quality,

better services etc., up to the value of area I and III or rectangle of PmPcBA in figure I in order to acquire the rights of monopoly rents. They especially point out that since the process of monopolization is a transfer between members of society, any resources expended in this effort are socially wasted. Moreover, the social loss from monopoly, according to them, is not simply the area of the ABC triangle, but the entire trapezoid, PmACPc, as shown in figure I.

Wenders has argued that “Recurring or sunk, even the largest specification of the Harberger and Tullock costs of regulatory monopolization may fall far short of the actual welfare costs. This is because the analysis concentrates on the rent-seeking Tullock costs and largely ignores the parallel rent-defending<sup>3</sup> Tullock costs. A proper assessment of such rent-defending Tullock costs might more than double the maximum welfare costs of regulation suggested by Posner (Wenders, 1987:456).” This means that consumers will also actively defend consumer surplus, and they will not watch when monopolists are rent-seeking. Rather they will paralyze take actions against monopolists. This also requires some consumer spendings such as lobbying action, or some types of pressure on regulatory agencies to force monopolists to set prices as closely to competitive levels as possible. Wenders (1987) explains the reasons that

Neither buyers nor sellers may refrain from spending the maximum amount they each have at stake. If either voluntarily spends less, they will be taken advantage of by the other side. In addition, there is the incentive for each side to compete among themselves to either achieve or avoid the proposed regulation. Thus, both sides may spend up to the amount each has at stake (Wenders, 1987:458).

In figure I, consumers will spend as much as the area of PmACPc to pay the price of Pc for the good in question. In this sense, Wenders claims that in a situation where monopolization is not binary, sellers are suggesting a form of regulation that would result in a Pm price, while buyers have the alternative of engaging in rent-defending activities that would hold the regulated price below Pm, say, at Pr, which might lie anywhere between Pm and Pc. This follows that the sellers initially propose a regulation that would result in price Pm, the full monopoly price. Buyers would be willing to spend an amount up to I+II to water down the proposed regulation so only price Pr came about. For the water down regulation, sellers would be willing to pay III + IV in figure I. Hence the total welfare costs might amount to the entire trapezoid between Pm and Pc that is I + II + III + IV + V (Wenders, 1987:458). Consequently, Wenders concludes that “when rent-

---

<sup>3</sup> Perhaps a more descriptive term would be “consumer surplus defending” [Wenders footnote.]

defending Tullock costs are admitted to the analysis, and presuming a parallel kind of perfect dissipation of the consumers' surplus lost to full monopoly pricing, the total welfare costs amount to a similar, but necessarily larger, Posner-like trapezoid computed at the unobserved full monopoly price (Wenders, 1987:458)."

This conclusion, of course, is not the final conclusion. There are other theoretical aspects of the issue such as price elasticity of demand for goods in question which is also important when studying empirical aspects of the subject. However, we will review those aspects of the issue in the next section. Here, it can be said, in sum, that the social costs of monopoly greatly vary depending upon the size of relevant elasticities, the distribution of monopoly markups, and of course, the size of the monopolist sector in the economy. Therefore, we agree with Wenders who expresses rightly that "At one time, the cost of monopoly was neatly settled and made its way into even elementary texts. By now, it should be clear that these matters are far from settled. A new, stable, orthodoxy in the area is still a long way off (1987)."

## **THE LITERATURE**

Harberger's 1954 seminal study is one of the first influential works that dealt with social cost of monopoly problem. In his study, Harberger (1954) emphasizes about the measurement of resource misallocation and welfare loss due to monopoly. Based on a number of important assumptions<sup>4</sup>, he uses Epstein's (1934) study as a source of data and calculates rates of return for each industry for the five year period, 1924-1928.<sup>5</sup>

Harberger estimates welfare loss of monopoly in the amount of "less than one-tenth of one percent of the national income (Harberger, 1954:82)." Figure II reproduces Harberger's original figure that shows "Welfare Loss" or called Harberger triangle in the literature. His main conclusion was that "all I want to say here is that monopoly does not seem to affect aggregate welfare very seriously through its effect on resource allocation (Harberger, 1954:87)."

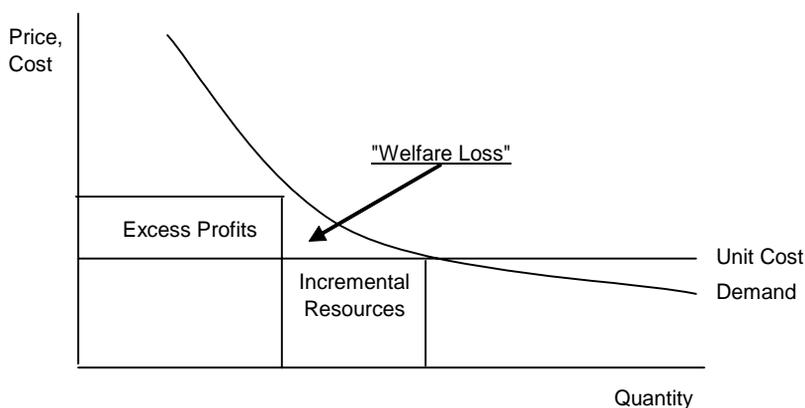
---

<sup>4</sup> His assumptions are (1) "in the long run, resources can be allocated among our manufacturing industries in such a way as to yield roughly constant returns. (Harberger, 1954:77)," (2) "All firms are operating on their long run cost curves, the cost curves are so defined as to yield each firm an equal return on the invested capital, and markets are cleared (Harberger, 1954:78)," and, (3) "The elasticity of demand for the industry's product is unity (Harberger, 1954:78)."

<sup>5</sup> Epstein, Ralph C., *Industrial Profits in the United States* (National Bureau of Economic Research, 1934).

This conclusion is very important in the sense that after this study, many scholars have questioned both sides of his study; theoretically and empirically. Another feature of his study is that it was one of the first comprehensive studies dealing with monopoly and resource allocation.

The weak point in Harberger's study is his assumptions on which Stigler (1956) raises several objections. Stigler criticizes Harberger's assumptions and says "the assumption of a demand elasticity of unity is objectionable. A monopolist does not operate where his marginal revenue is zero (Stigler, 1956:34)." Thus, he says in Harberger model, welfare losses go up when elasticity of demand increases (Stigler, 1956:34).



Source: Reproduced from Harberger, 1954, 78)

**Figure 2: Traditional Harberger's Triagle**

The second objection Stigler raises is that "If monopoly profits are capitalized, the capital of a monopolist grows in such a way that only competitive rates of return are being earned (Stigler, 1956:34)." Here Stigler indicates his objection by saying that some industries in Harberger study are monopolistic and some are not. In his words "The estimate of welfare losses is biased downward on this score. One can not believe that petroleum, meat-packing, railway equipment, and pianos were excessively competitive industries and that boots and shoes, planning mills, canned goods, and job printing were monopolistic (Stigler, 1956:35)." He finds Harberger calculation of welfare loss due to monopoly too low (Stigler, 1956:34).

Stigler's study encouraged new studies on both sides and two views were developed on the social costs of monopoly. One of them reflects Harberger's view that monopoly is not an important problem since the costs

it causes for society are too low, while the other view supports Stigler's position that those costs might be large.

For instance, Schwartzman (1960) tries to present some figures to confirm Harberger's finding. He follows Harberger's procedure but uses his own estimation of profits to measure the welfare cost of monopoly. He relaxes Harberger's unit elasticity assumption by assuming a range of reasonable values for the elasticity of demand (Schwartzman, 1960:627). The welfare loss he calculated for the United States manufacturing industry for the year of 1954 was \$ 202.5 million.<sup>6</sup> The Harberger's calculation for the year of 1953 was \$225 million. Both figures were less than one percent of the corresponding year's national income (Schwartzman, 1960:630). His conclusion is that "Since the estimates are similar to Harberger's, they provide confirmation of Harberger's general conclusion that the welfare loss from monopoly has been small (Schwartzman, 1960:630)."

Kamerschen (1966) argues that the social costs of monopoly were much larger than what Schwartzman and Harberger found. Kamerschen agrees with Stigler on the fact that the welfare loss would be larger than what has been estimated. In this context, Kamerschen's study is an application of Harberger's technique, and is more comprehensive. In the light of previous studies in this area, he makes some further realistic assumptions and uses various values of price elasticity of demand and concludes that

Estimating by a number of alternative methods, we calculate 'welfare losses' that range from 1 to 8 percent of the average national income. Therefore, this study suggests that the 'welfare losses' in the American economy are of a significantly different magnitude from what previous studies had indicated and are of a higher order of magnitude. Using what appear to be most realistic estimates-based on after-tax income, fully adjusted profit rates with industry-by-industry elasticity data- we obtain losses of roughly 6 percent of the average national income (Kamerschen, 1966:235).

This conclusion is important when we look at the previous empirical studies. There is an important increase in the amount of welfare loss calculation. This is because every study adds positive contribution to the subject along with available data.

Tullock's (1967) study is a good example of an important theoretical contribution to the field after Harberger's study. Tullock advocates that the

---

<sup>6</sup> The original calculated welfare loss was \$ 234 million, however, the author of the article has made a correction in his later article: "The effect of Monopoly; A Correction," *Journal of Political Economy*, October 1961, pp. 494.

social costs that monopoly causes are much larger than the Harberger triangle. His contribution to the subject briefly is that

The rectangle to the left of the welfare triangle is the income transfer that a successful monopolist can extort from the customers. Surely we should expect that with a prize of this size dangling before our eyes, potential monopolists would be willing to invest large resources in the activity of monopolizing. In fact the investment that could be profitably made in forming a monopoly would be larger than this rectangle, since it represents merely the income transfer. The capital value, properly discounted for risk, would be worth much more. Entrepreneurs should be willing to invest resources in attempts to form a monopoly until the marginal cost equals the properly discounted return. The potential customers would also be invested in preventing the transfer and should be willing to make large investments to that end. Once the monopoly is formed, continual efforts to either break the monopoly or muscle into it would be predictable. Here again considerable resources might be invested. The holders of the monopoly, on the other hand, would be willing to put quite sizable sums into the defense of their power to receive these transfers (Tullock, 1967:231).

He gives an example that “the cost of a football pool is not measured by the cost of the winner’s ticket, but by the cost of all tickets. Similarly, the total costs of monopoly should be measured in terms of the efforts to get a monopoly by the unsuccessful as well as the successful (Tullock, 1967:232).” As his important contribution to the subject he concludes that the resources put into monopolization and defense against monopolization would be a function of the size of the prospective transfer. Since this would be normally large, we can expect that this particular socially wasteful type of ‘investment’ would also be large. The welfare triangle method of measurement ignores this important cost, and hence greatly understates the welfare loss of monopoly (Tullock, 1967:232).

Tullock’s work may be thought as an important contribution to the subject in two respects; (1) it considers the rectangle to the left of the Harberger’s triangle, PmABPc in figure I, as social cost of monopoly in addition to triangle. (2) It opens an argumentative door that questions whether the efforts of potential monopolists and consumers can be regarded socially wasteful and, therefore, to be added to the social cost of monopoly.

It is especially interesting to mention Worcester (1973) study that follows a similar analogy of Harberger’s study (1954) and claims that “the present study attempts to reveal monopoly loss which in other studies was hidden in ‘industries’ which include both profitable and unprofitable firms by using data presented by Fortune Magazine for the 500 largest industrial

firms in the U.S. for each year, 1956 through 1969 (Worcester, 1973:234).” Thus he claims courageously that previous estimations of social costs of monopoly may have been underestimated. However, he concludes “The estimates of welfare loss to monopoly reported here are substantially lower than anticipated when this research was undertaken. ...I can only conclude that there is very little ground for the common belief that a large loss of welfare exists due to the economic impact of monopoly power. ...as a social scientist I believe that the burden of proof now rests on those who believe the loss is large (Worcester, 1973:244).”

An empirical study similar to the traditional Harberger’s method was done by Siegfried and Tiemann (1974). They apply a strictly partial equilibrium framework and conclude that “The results of our analysis show that the bulk of the welfare loss due to monopoly is concentrated in relatively few industries (Siegfried and Tiemann, 1974:190-191).” They suggest that “a policy to reduce monopoly power in specific industries may possess a greater benefit/cost ratio than the benefit/cost ratio for restructuring the whole manufacturing sector. Marginal adjustments in market structure may be desirable even if a total restructuring is unwarranted (Siegfried and Tiemann, 1974:191).”

Posner’s (1975) study can be viewed as one of the most important contributions to this literature. Posner (1975) agrees with Tullock (1967) on the measurement of social cost of monopoly which is not simply Harberger’s triangle but the rectangle to the left of the welfare loss triangle too. In his words “the existence of an opportunity to obtain monopoly profits will attract resources into efforts to obtain monopolies, and the opportunity costs of those resources are social costs of monopoly too (Posner, 1975:807).” Posner makes three basic assumptions and constructs a model to calculate the social cost of monopoly. He states firms expenditures will be as much as total monopoly profit that

If 10 firms are vying for a monopoly having a present value of \$1 million, and each of them has an equal chance of obtaining it and is risk neutral, each will spend \$100,000 (assuming constant costs) on trying to obtain monopoly. Only one will succeed, and his costs will be much smaller than the monopoly profits, but the total costs of obtaining monopoly-counting losers’ expenditures as well as winners’- will be the same as under certainty (Posner, 1975:812).

He separates monopolies as regulated monopolies and private monopolies, and especially stresses that social costs of a regulated monopoly probably exceed the costs of private monopoly (Posner, 1975:818-819). His main conclusion is that previous studies of the costs of monopoly may have grossly underestimated those costs, and the costs of monopoly are quite

probably much greater in the regulated than in the unregulated sector of the economy (Posner, 1975:821).

Cowling and Mueller (1978) raise several objections against the Harberger approach. They use partial equilibrium analysis and estimate welfare loss from monopoly using procedures derived to meet their objections (Cowling and Mueller, 1978:727). They state that “all previous estimates of monopoly welfare losses suffer in varying degrees from the same biases incorporated in Harberger’s original estimates (Cowling and Mueller, 1978:727).” After they explain four substantive criticisms of the Harberger approach and follow Tullock’s (1967) and Posner’s (1975) methods, they calculate the welfare loss by measuring at the firm-level for both the United States and United Kingdom. They conclude that “our figures and supporting analysis further demonstrate that ‘the monopoly problem’ is broader than traditionally suggested. A large part of this problem lies not in the height of monopoly prices and profits per se, but in the resources wasted in their creation and protection (Cowling and Mueller, 1978:744).”

This conclusion, driving from empirical estimation, supports what Tullock (1967) and Posner (1975) advocated. Additionally they suggest, contrary to those who argue that the social cost of monopoly is small, thus the monopoly problem is unimportant, that “still further weight would be added against the position that monopoly power is unimportant if the link with the distribution of political power were considered (Cowling and Mueller, 1978:746).”

Their work was an application based on Tullock’s (1967) and Posner’s (1975) definitions, and their finding confirms that social costs of monopoly in fact are considerably higher.

While various explanations and reasoning have been offered and defended on the theoretical ground of determining the social cost of monopoly<sup>7</sup>, others try empirically to test and come up with hopefully supportive results. Dixon, Gunther and Mahmood (2001) have estimated the welfare loss of monopoly in Australian manufacturing. They follow Cowling and Muller (1978) method and estimate the deadweight loss. They modified Cowling and Muller model by including the presence of collusive oligopoly effect in their model. Based on the estimation, they arrived at the conclusion that the social costs “of monopoly in Australia are substantially higher than previous estimates have suggested (Dixon, Gunther and Mahmood, 2001:396).” Their estimated aggregate welfare loss was 1.38 per cent of average GDP over the period measured in current price.

---

<sup>7</sup> See for instance Young (1997) who approaches this issue by studying price leadership behavior.

Another study confirming Tullock and Posner studies were developed by Baysinger and Tollison (1980). They extend Tullock (1967) and Posner (1975) methods by incorporating certain other aspects of reality into the analysis of the social costs of monopoly and regulation. When the institutional environment within which potential monopolists and consumer forces attempt to capture portions of consumer surplus is taken into account, results at variance with those of both Harberger and Tullock and Posner are generated (Baysinger and Tollison, 1980:22). They study the past and current price behavior of regulators under conditions of when state action is arbitrary and when state action is predictable. Their conclusion is that the social cost of rent seeking is a variable which is functionally related to both the past and current behavior of price-setting regulators. Past behavior is important in that it informs the formation of expectations by those intimately affected by the regulatory process. The expectations so formed determine the individually optimal level of resources the parties will devote to the 'monopolization' process. Current regulatory behavior is important in that it determines the static allocative losses which must be added to monopolization costs of monopoly and regulation. It stands to reason that attempts to extract rents will be fought by affected parties, unless such a contest is deemed futile due to the past history of the involved authorities. We have demonstrated that Posner's estimate of social waste is too high if parties can predict the outcome of monopoly rights proceedings with near certainty, and too low if these outcomes are relatively unpredictable. thus while the conventional result that rent-seeking expenditures are socially wasteful stands, the degree of such welfare losses is related to the nature of the institutional environment within which rent-seeking takes place (Baysinger and Tollison, 1980:26).

Therefore, contribution of this study, it can be said, to take into consideration the past and current behavior of price setting regulators when estimating the social costs of monopoly.

Baik (1999) sets up a model in which the government decides first whether to regulate a monopoly or not. If regulation is appropriate, then, which firm should be the monopolist? In this model Baik (1999) seeks to address whether consumer surplus defending activities increases or decreases the social costs of monopoly. His main conclusion is that "given just one rent-seeking firm, consumers' CS-defending activities generally increase the social cost of monopoly, but given two or more rent-seeking firms, such activities generally reduce the social cost of monopoly (Baik, 1999:551)".

Stegemann (1984) also develops a model which investigates foreign transactions' dimension to the issue. His study can be viewed as an extension of the Tullock, Posner, Cowling and Mueller perspective that

analyzes the issue in an open economy. In other words, it links the existing literature to international markets. Stegemann explains the aim of his paper as "...most national markets are linked, via imports or exports, to international markets. Of course, everybody is aware that the market power of domestic producers often depends on the existence of import barriers and that the magnitude of the monopoly burden may depend on the level of such barriers. Yet it seems necessary to explore more fully the implications for the social costs of domestic market power resulting from the existence of international competition (Stegemann, 1984:718-719)." He states that "in open economies, domestic producers can retain monopoly power for three reasons (1) the domestic market is protected; (2) the supply of importable perfect substitutes is not perfectly elastic; (3) imports are imperfect substitutes of domestic goods (Stegemann, 1984:718)." He employs partial equilibrium analysis to investigate the implications for the welfare burden of monopoly resulting from the existence of foreign competition in each of the three cases (Stegemann, 1984:718). He concludes that "as a consequence, monopoly in an open economy may cause a welfare burden by causing excessive importation. Importation is excessive because monopolistic pricing behavior of domestic producers induces buyers to purchase imports when equivalent domestic goods could be produced at a lower social opportunity cost (Stegemann, 1984:719)." Therefore, the contribution of this study is appreciable since it analyzes the foreign sector's effect in the context of the existence of literature in this area.

Davis and Reilly (2000) use analytical and experimental methods to evaluate rent-seeking and rent-defending behavior of having a monopoly. By using various experiments they conclude that "overbidding is persistent when bidders have different sharing rules. In fact, the observed social costs of rent-seeking often increase just when rent-defending has the greatest predicted ameliorative effect (Davis and Reilly, 2000:389)."

Another good contribution to this literature was developed by Wenders (1987). His study mainly extends Tullock's study considering the parallel Tullock's rent-seeking procedure which briefly says consumers would perform some activity to defend consumer surplus. When considered simultaneously, potential monopolists would do some activity (e.g., lobbying, hiring lawyers, giving bribery, ect.) to get consumer surplus as monopoly rent, while consumers would do parallel activity not to surrender consumer surplus to monopolists. It is from in this context that Wenders concludes

Under perfect competition among and between buyers and sellers, regulation always results in maximum welfare costs, that is, equal to the rent-seeking Tullock and Harberger costs under full monopoly pricing. And only if sellers succeeded in attaining full monopoly pricing would this result

equal the total welfare cost originally proposed by Posner; in all other cases the total welfare loss would be larger due to the admission of rent-defending Tullock costs (Wenders, 1987:458).

Studies considering consumer defensive activities against monopoly power give conflict results. Epstein and Nitzan (2002) find that social costs of monopoly would not be large while Keem (2001) strongly reveal that, by assuming asymmetric lobbying abilities across firms, consumer defensive activities will increase the social cost of monopoly power.

A recent empirical study (Yoon, 2004) takes the traditional partial equilibrium approach and uses company data in calculating welfare loss of monopoly in Korean economy. This study uses manufacturing data of selected Korea companies and found 7.56 percent of gross value of shipments in 1998 as costs to society resulting from monopoly power in Korea (Yoon, 2004: 956).

Given that partial equilibrium analysis isolates consumers' utility levels and states firmly that monopoly firms seek only to maximize their profits led researchers to consider the social cost of monopoly in general equilibrium framework. Bergson (1973) analyzed the subject in the general equilibrium framework to prove that the social costs caused by monopoly are large. Bergson, after Stigler, seriously criticized the partial equilibrium framework that mainly undergirded Harberger's approach of a general equilibrium model. As Worchester (1975) states, Bergson uses a constant elasticity of substitution (CES) utility function and a linear production function to calculate the compensating variation -the additional income consumers must receive to offset the loss of utility caused by monopoly price. The share of the total market monopolized, the size of monopoly prize markup over competitive price and different elasticities of substitution (used in place of demand elasticity), are built into his model. Potential welfare losses are found by assuming specific values for the parameters. He then offers two tables showing welfare losses calculated for a number of hypothetical alternatives. He also advocates strongly that monopoly can be a matter of consequences (Bergson, 1973). In sum, his contribution on theoretical ground is useful for further research; however, the parameters in his tables are questionable.

Recently the general equilibrium model applicable to measure social cost of monopoly was reconsidered in context of "cost minimizing market equilibrium" developed by Brown and Wood (2004a; 2004b) and later improved by Brown and Yoon (2005; 2006). Brown and Wood (2004a) have argued that the purpose of regulating monopolies is to promote allocative efficiency. The deviation of allocative efficiency measured by Debreu's (1951) coefficient of resource utilization can be defined as waste resources that represent as social cost of monopoly power. Thus, they developed a

general equilibrium model where monopoly firms are assumed both to be price takers in competitive factor markets and quantity takers in their output markets (Brown and Wood, 2004a). They have illustrated their “cost minimizing general equilibrium model” by a number of numerical examples and later revised their work (Brown and Wood, 2004b) by following study of Shoven and Whalley (1992) to reformulate their general equilibrium model. Despite their rationality, they calculated “upper and lower bounds on the margin between the monopoly price and the contrafactual competitive price in each observation” (Brown and Wood, 2004b, 13). Brown and Yoon (2005; 2006) have followed and confirmed Brown and Wood (2004b) study on theoretical ground.

## **EVALUATION AND CONCLUSION**

In this paper, we have surveyed many important studies that employ both partial and computable general equilibrium models to develop theoretical bases of a comprehensive measurable social cost of monopoly. Most of the studies relied on conventional partial equilibrium model while recent studies prefer applicable general equilibrium analysis.

Based on these models, there have mainly been two different views developed in the literature to estimate the welfare effect of the monopoly. One view is being that the social costs of monopoly are just Harberger’s triangle, and therefore, they are negligible since they are considered to be relatively low. The second view is being that the dynamic of monopolization should be considered, and the opportunity costs of all efforts by all relevant sides in trying to capture and protect monopoly rents should also be considered wasteful, and therefore, those costs of efforts should well be considered as social costs of monopoly too. When the latter view is accepted in its larger meaning, the social costs of monopoly might be enormous. On the theoretical ground the literature seems to value the latter view whilst empirical studies do not give relatively strong support to this view. There are many factors that affect the relative size of the social cost of monopoly. They can be listed as follows;

- Assumptions used
- Effect of tax distortion
- Behavior of regulating authority
- Relative size of rent protecting activities
- Relative size of rent defending activities
- Degree of economic development of the economy
- Degree of differentiation of price from marginal cost

- Relative size of monopolized industry in the economy
- Price elasticity of demand in the monopoly industries
- Relative size of consumer surplus defending activities

On empirical grounds, the estimated social costs of monopoly have been regarded as low due to technical and measurement difficulties to grab all relevant factors in to the analyses. Thus, no one can still claim that the size of social costs of monopoly truly estimated, however, new computable general equilibrium approaches seem promissory and future research may concentrate on this theory to improve it and come up with much better understanding.

## REFERENCES

- BAYSINGER, B. AND TOLLISON R. (1980) Evaluating the Social Costs of Monopoly And Regulation, *Atlantic Economic Journal*, 8, 22-26.
- BERGSON, A. (1973) On Monopoly Welfare Losses, *American Economic Review*, 63, 853-70.
- BROWN, D. J. and WOOD, G. A., (2004a) The Social Cost of Monopoly Power, Yale ICF Working Paper No. 04-31; Cowles Foundation Discussion Paper No. 1466.
- BROWN, D. J. and WOOD, G. A., (2004b) Competition, Consumer Welfare and Monopoly Power, Cowles Foundation Discussion Paper No. 1466R.
- BROWNING, E.K. (1997) A neglected welfare cost of monopoly-and most other product market distortions, *Journal of Public Economics*, 66, 127-144.
- COWLING, KEITH AND MUELLER D. C. (1978) The Social Costs of Monopoly Power, *The Economic Journal*, 88, 727-748.
- DAVID S. (1960) The Burden of Monopoly, *Journal of Political Economy*, 68, 627-30.
- DAVID S. (1961) The Effect of Monopoly; A Correction, *Journal of Political Economy*, 494.
- DAVIS, D. D. AND R. J. REILLY (2000) Multiple Buyers, Rent-Defending and the Observed Social Cost of Monopoly, *Pacific Economic Review*, 5(3), 389-410.
- DEBREU, G. (1951) The Coefficient of Resource Utilization, *Econometrica*, 19, 273-292.
- DIXON, R., A. GUNTHER, AND M. MAHMOOD (2001) The Cost of Monopoly in Australian Manufacturing, *The Australian Economic Review*, 34(4), 390-402.

- EPSTEIN, R. C. (1934) *Industrial Profits in the United States*, NBER.
- GEORGE J. S. (1956) The Statistics of Monopoly and Merger, *Journal of Political Economy*, 64(1), 33-40.
- HARBERGER, A. C. (1954) Monopoly and Resource Allocation, *American Economic Review*, 77-87.
- KAMERSCHEN, D. R. (1966) An Estimation of the 'Welfare Losses' from Monopoly in the American Economy, *Western Economic Journal*, 221-236.
- KEEM, J. H. (2001) The Social cost of monopoly when consumers resist, *European journal of political economy*, 17, 633-639.
- LEE, YOON-HO ALEX and BROWN, DONALD J. (2006) Competition, Consumer Welfare, and the Social Cost of Monopoly, *Yale Law School: Yale Law School Student Scholarship Series. Paper 19*. Available at <http://lsr.nellco.org/yale/student/papers/19> (last visited, 28th of July, 2006).
- POSNER, R. A. (1975) The Social Costs of Monopoly and Regulation, *Journal of Political Economy*, 83(4), 807-827.
- SIEGFRIED, J. J. AND TIEMANN T. K. (1974) The Welfare Cost of Monopoly: An Inter-Industry Analysis, *Economic Inquiry*, 12, 190-202.
- SHOVEN, J. AND J. WHALLEY (1992), *Applying General Equilibrium*, Cambridge University Press.
- STEGEMANN, K. (1984) The Social Costs of Monopoly in an Open Economy, *Canadian Journal of Economics*, 17, 718-730.
- TULLOCK, G. (1967) The Welfare Costs of Tariffs, Monopolies, and Theft, *Western Economic Journal* 5, 224-32.
- WENDERS, J. T. (1987) On Perfect Rent Dissipation, *The American Economic Review*, 77(3), 456-459.
- WORCESTER, DEAN A. JR. (1973) New Estimates of the Welfare loss to Monopoly, United States: 1956- 1969, *Southern Economic Journal*, 40, 234-45.
- YOON, S. (2004) Welfare Losses due to Monopoly: Korea's Case, *Journal of Policy Modeling*, 26, 945-957.
- YOUNG, D. P.T. (1997) Dominant firms, price leadership and the measurement of monopoly Welfare losses, *International Journal of Industrial Organization*, 15, 533-547.