World Academy of Science, Engineering and Technology
International Journal of Mechanical and Industrial Engineering
Vol:5, No:8, 2011

Impact of Mergers and Acquisitions on Consumers' Welfare: Experience of Indian Manufacturing Sector

Pulak Mishra[1], and P V Kiran Kumar[2]

***Abstract*—**In the context of introduction of deregulatory policy measures and subsequent wave of mergers and acquisitions (M&A) in Indian corporate sector since 1991, the present paper attempts to examine the welfare implications of this wave. It is found that M&A do not have any significant impact on consumers' welfare. Instead, consumers' welfare is significantly influenced by exports intensity, imports intensity, advertising intensity, technology related efforts, and past profitability of the firms. While the industries with higher exports orientation or greater product differentiation or better financial performance experience greater loss in consumers' welfare, it is less in the industries with greater competition from imports or better technology. Hence, the wave of M&A in Indian manufacturing sector in the post-liberalization era may not be a matter of serious concern from consumers' welfare point of view. Instead, in many cases, M&A can help the firms in consolidating their business and enhancing competitiveness, and this may benefit the consumers in the form of greater efficiency and lower prices.

***Keywords*—**Mergers, acquisitions, concentration, welfare, India
JEL Codes—L1, L2, L4, L5

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

I. Introduction

ECONOMIC reforms initiated in India since July 1991 aim at enhancing competition in the marketplace to bring in greater efficiency in production and distribution of goods and services so that consumers' welfare is maximized. While the policy interventions have largely removed various legal and structural entry barriers to facilitate greater market competition, the strategic response by the firms have relied largely on mergers and acquisitions (M&A) to counter the competitive threat [4]. Under the new business conditions, the domestic firms have taken the route of M&A to restructure their business and grow[3], whereas the foreign firms have used the same to enter into and raise control in Indian industry sector[4] [4]. As a result, there has been a significant increase in the number of M&A[5] in Indian corporate sector in the post-liberalization era [32], [52], [11], [46], [4], [6], [7], [8], [17], [34], [1], [18], [37], [2], [36].

There are two broad theories in industrial organization literature that explain why firms acquire or merge with other firms. The monopoly theory postulates that the firms use the route M&A to raise their market power [49], [12]. The general proposition of this theory is that M&A, especially those of horizontal in nature, generate elements of market power often to the detriment of consumers' interests through pricing strategies designed to drive the rivals out of the business, and unfair entry deterrence[6]. In other words, the monopoly theory suggests that increase in market concentration following M&A gives the firms an opportunity to charge monopoly prices and thereby leads to losses in allocative inefficiency. In addition, there are also possibilities of wasteful rent-seeking expenditures by firms to secure market power through non-market means[7], and increasing X-inefficiency due to decline in competitive pressure following M&A [16].

On the other hand, according to the efficiency theory, M&A are planned and executed to reduce costs by achieving scale economies [44], [50][8]. Such efficiency gains typically originate from synergy effects of the integration of two or more firms into a single entity. These potential gains can include improvements in productive efficiency through a better allocation of resources of the merging firms, etc. Further, if the M&A make the combined entity more competitive, prices can even fall leading to improvement in allocative efficiency. In addition, M&A can enhance innovation and improve dynamic efficiency as well. According to [35], the horizontal mergers that involve combinations of less than 50 percent of the market enhance efficiency.

[1]Assistant Professor of Economics, Department of Humanities and Social Sciences, Indian institute of technology Kharagpur, Kharagpur – 721 302, India Email: pmishra@hss.iitkgp.ernet.in
[2]Ericsson India Private Limited, RM R&D India, Gurgaon - 122 002, Haryana, India Email: kiran.kumar.p.v@ericsson.com

[3] In the present era of enhanced competition and shorter product life cycles, many of the firms prefer to grow through M&A primarily because of the speed and access to proprietary assets such as R&D base, technical know-how, patents, brands, etc. Moreover, merging with or taking over a firm with established manufacturing, marketing and distribution system has obvious advantages over developing the same on one's own.

[4] However, compared to the domestic firms, the MNCs are better placed in the acquisition game due to their deep pockets and relatively cheaper access to capital [4].

[5] Although mergers and acquisitions are different in definitions and the statutory procedures, their effects from an economic perspective are the same as in both the cases the control of one company passes on to another. As a result, in the present paper, no distinction is made between the mergers and the acquisitions.

[6]There are evidences of increase in market concentration following M&As. For example, there was rapid concentration of sales in many markets after the mergers waves in the USA in earlier periods [51], [42]. Similarly, in the absence of tight controls, merger activity in the UK had raised sellers' concentration significantly [28].

[7]In many cases, the firms hire lawyers to defend themselves against antitrust suits. They also persuade the governing authorities of their deservingness of franchises and seek ways to prevent new firms from entering into their market [33], [43].

[8]These scale economies may arise at the plant level [45] or as a result of operating several firms within one firm [48]. In either case, MAs bring together firms, which individually fall short of the minimum efficient scale.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

Hence, there are diverse forces following M&A that can affect consumers' welfare. While the monopoly power arising out of M&A can go against the interests of the consumers, the enhanced efficiency and greater innovation can benefit the consumers in the form of better quality and lower prices. Further, M&A may also fail to increase market concentration in industries that experience entry of a large number of players, greater import competition or considerable expansion of the market[9]. There may be pure M&A with no prospective effect on a particular market structure and many of these M&A may be neutral in terms of welfare [9]. Besides, M&A among the relatively smaller firms may help them to enhance their competitiveness and thereby, to prevent increase in market concentration. The exact impact of M&A on consumers' welfare, therefore, depends on the relative strength of these diverse forces.

It is, therefore, necessary to examine how consumers' welfare is affected by the wave of M&A with adequate control for these diverse forces. Further, since M&A are industry specific activities [40], their impact on market structure and hence on consumers' welfare may vary across industries depending on the industry-specific characteristics. But, while the existing studies in Indian context basically deal with the issues like trends and patterns of M&A [6], [1], their types and objectives [52], [32], [6], [8], [4], [37] and their impact on market structure and performance [4], [37], [39], the welfare implications of these activities are not adequately explored.

The present paper is an attempt to fill in this gap. The rationale for such attempt lies mainly in the contradictions arising from the two broad theories of industrial organization, viz., the monopoly theory, and the efficiency theory. Besides, brining in greater competition into the market place is an integral part of economic reforms in India. Accordingly, there have been many important changes in the industry, trade and investment related policies in general and competition policy in particular. An analysis of the welfare implications of M&A will help in having a deeper understanding of the effectiveness of these policy changes, and thereby in designing appropriate policies in the interest of the consumers. The rest of the paper is divided into four sections. Section II gives an overview of the trends and patterns of M&A, and the state of consumers' welfare. The econometric model estimated to examine the impact of M&A on consumers' welfare, methodologies applied and the sources of data are presented in Section III. Section IV discusses the regression results and their implications. Finally, Section IV concludes the paper with policy implications.

[9]In addition to these industry level factors, whether a merger or an acquisition will lead to greater market concentration may also depend on firm specific factors like motive of that particular synergy. If, for example, a merger or an acquisition is motivated by more efficient operation rather monopoly power, it may not lead to increase in market concentration. Analyzing the great merger of 1897-1903, [3] find that the deals were motivated by efficient operations rather than monopoly power and eventually the firms suffered from an economically and statistically significant value loss that do not support expectations of conventional monopoly behaviour.

II. Mergers, Acquisitions And Welfare In Indian Manufacturing: An Overview

Mergers and Acquisitions:

Mergers and acquisitions (M&A) have become prominent business strategies in the advanced capitalist countries since the late 19th century. But, in recent years, have they become a regular phenomenon in the developing countries as well. Many of the Asian countries have witnessed considerable increase in merger activity especially since the mid 1990s [13] and Indian corporate sector is not an exception to this trend. There has been a substantial increase in the number of M&A in the Indian corporate sector in the post-liberalization era, particularly when compared with that during entire period of 1975-90, and the increase is quite substantial after the mid-1990s (Table I). However, the pace retarded during 2005-2009, possibly due to the global economic slowdown.

TABLE I
TRENDS IN M&AS IN THE INDIAN CORPORATE SECTOR

Year	Mergers	Acquisitions	Total
1975-90	425	117	542
1990-00	661	407	1068
1990-95	236	91	327
1995-00	425	316	741
2000-05	993	2332	3325
2005-09	774	2199	2973

Source: Beena (2008) and Business-Beacon, CMIE

Majority of the M&A in the post-liberalization were horizontal in nature [32], [46], [17], [4], [6], [34], [1], [37], and the share deals of vertical and conglomerate types were relatively less [1]. Further, a significant part of the participating firms in mergers belonged to the same business group [5], [4], and the proportion increased as one moves from the phase of stagnant merger activity to the third phase of high merger activity [1]. This was so because with increasing market competition, the firms used the route of M&A for consolidation/restructuring of business to correct inefficiencies caused by over-diversification during the regime of regulation and control [4]. Such efforts towards business consolidation were also motivated by the need for increasing controlling block to guard against a takeover or a dilution of control [4].

As the global business environment emerging from the new policy regime facilitates cross-border mergers [8], a large number of MNCs that used the route of M&A to enter into Indian market and strengthen their presence therein. As a result, around 40 percent of the foreign direct investment (FDI) during this period came into the country through cross-border M&As [34], [47]. Dominance M&A in FDI inflows continued in the recent past also with a significant portion of total FDI equity inflows taking the route of M&A, and the share showing an increasing trend over the years. However, the MNC related deals were concentrated mainly in consumer goods industries such as foods, beverages, household appliances, pharmaceuticals, personal care products, automobiles, etc. primarily to explore countrywide established marketing, distribution and service network of these industries

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

[34] and [6]. On the other hand, the number of foreign acquisition by Indian firms also increased significantly in recent years, particularly in the sectors like pharmaceuticals, information technology and telecommunications [37], [26], [41] indicating enhanced competitive strength of the domestic firms in the global market.

TABLE II
DISTRIBUTION OF MERGERS AND ACQUISITIONS BY MAJOR INDUSTRIES, 1992-2009

Industry	Mergers	Acquisitions	Total
Food Products	11.8	8.7	9.6
Beverages & tobacco	4.7	2.4	3.1
Textiles	10.6	8.8	9.4
Drugs & pharmaceuticals	8.5	9.1	8.9
Chemicals	21.4	18.8	19.6
Plastic products	3.2	3.8	3.6
Petroleum and Poly	2.9	3.2	3.1
Rubber & Tyre	1.2	1.7	1.5
Non-metallic mineral products	4.7	6.9	6.2
Metals	10.1	9.1	9.4
Machinery	11.5	12.0	11.8
Electronics	5.3	6.5	6.1
Automobile	0.9	2.7	2.2
Automobile ancillaries	3.6	5.3	4.8
Miscellaneous manufacturing	4.8	7.4	6.7
Diversified	3.1	2.7	2.8
Total	100.0	100.0	100.0

Source: PROWESS (CMIE)

However, though a large part of the deals were concentrated in the private manufacturing sector[10], the number of M&A varied significantly across different industry groups depending on the nature and scope for M&A therein and the distribution is highly skewed towards a few industry groups [4], [17], [1], [18], [37]. As it is shown in Table II, majority of deals were concentrated in the industries like food products, textiles, chemicals (especially, in drugs and pharmaceuticals), metals, and machinery. In addition, non-metallic minerals and electronics also had reasonable share in the game of M&A. On other hand, the industries like beverages and tobacco, automobiles, petroleum and rubber had negligible share in the total number of deals of M&A.

Consumers' Welfare:

The potential welfare implications of M&A can be examined in terms of loss in consumers' surplus following the deals. There exists a wide body of literature [29], [14] and [15], [20], [22], [23], [54] that theoretically derive alternative measures of potential losses of consumers' welfare following increase in monopoly power and inefficiency. In the present paper, we measure loss of consumers' welfare following [19]. The measure is based on [29] triangle[11] and Lerner Index is used as a proxy of welfare loss. The Lerner Index measures relative margin, i.e., the disparity between price and marginal cost as a percent of price, and is used extensively in empirical research. If we assume a linear demand function and constant returns to scale so that average costs are constant and are equal to marginal costs, ΔABC (the Harberger triangle) in Figure 1 stands for welfare loss due to inefficiency associated with imperfect competition and $\square ACPcP_m$, i.e., 2ΔABC refer to welfare loss as a result of market power. Although there are several criticisms of this measure including the use of the profit data, the assumption of linear demand and unitary elasticity of demand for all industries, etc., we use it as it is simple for computation and interpretation.

$$\text{Now, } \Delta ABC = \frac{1}{2}[Pm - Pc].Qm \qquad (1)$$

$$\text{Or, } \Delta ABC = \frac{1}{2}\left[\frac{Pm - MC}{Pm}\right].Rm \qquad (2)$$

This follows from the first-order condition of profit maximization under perfect competition, i.e., $Pc = MC$. Since $MC = AC$ under assumption of constant returns to scale, we can therefore write,

$$\frac{\Delta ABC}{Rm} = \frac{1}{2}\left[\frac{Pm - AC}{Pm}\right] \qquad (3)$$

Since, $\left[\frac{Pm - AC}{Pm}\right]$ stands for the Lerner Index (LI) of market power (under constant returns to scale), we may write

$$\frac{\Delta ABC}{Rm} = \frac{1}{2}LI \qquad (4)$$

The above expression represents social inefficiency caused by imperfect competition per unit of sales. Similarly, loss of consumer surplus per unit of sales due to market power can be measured as

$$\frac{2\Delta ABC}{Rm} = \left[\frac{Pm - AC}{Pm}\right] = LI \qquad (5)$$

Therefore, total loss of welfare (*WL*) associated with imperfect competition relative to firms' revenue (*Rm*) can be measured as,

$$\frac{WL}{Rm} = \frac{\Delta ABC + 2\Delta ABC}{Rm} = \frac{3\Delta ABC}{Rm} \qquad (6)$$

$$\frac{WL}{Rm} = \frac{3}{2}\left[\frac{Pm - AC}{Pm}\right] = \frac{3}{2}LI \qquad (7)$$

[10] While three-fourth of these activities were concentrated in the manufacturing sector, the remaining one-fourth were in services and other related areas [4], [17].

[11] [29] Estimate the deadweight loss arising out of market power for 73 United States manufacturing industries under the assumption of unitary price elasticity of demand.

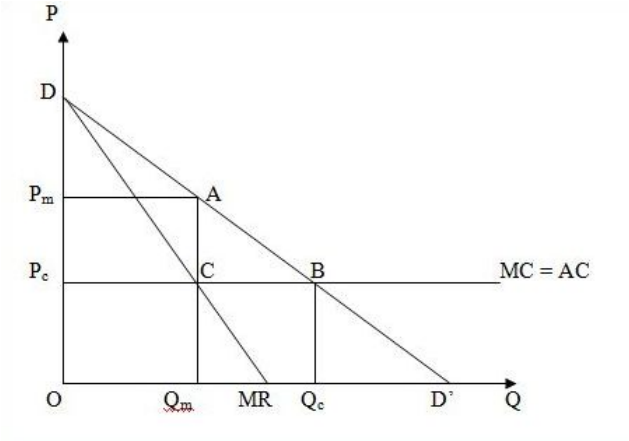


Fig. 1 Measurement of Deadweight-loss and the Harberger Triangle

In the present paper, we have use price-cost margin (PCM) as a proxy for Lerner Index of market power. The PCM in industry *j* in year *t* is measured as

$$PCM_{jt} = \frac{VA_{jt} - WS_{jt}}{VO_{jt}} \qquad (8)$$

Here, *PCM* = price-cost margin, *VA* = value added, *WS* = wages and salaries, and *VO* = value of output. Hence, loss of consumers' welfare per unit of sales in industry j in year t,

$$\left[\frac{LW}{Rm}\right]_{jt} = \frac{3}{2} PCM_{jt} = \frac{3}{2}\left[\frac{VA_{jt} - WS_{jt}}{VO_{jt}}\right] \qquad (9)$$

We compute the extent of welfare loss in major industries by using the above formula and compare the same across the industries by using relative measure. In order compare the loss of welfare across industries, we calculate the average of PCM for each of the 34 major industry groups in two sub-periods, viz., 1996-97 to 2000-01 and 2001-02 to 2008-09. These averages are standardized by changing their origin with respect to the mean (μ) and their scale with respect to the standard deviation (σ). The extent of welfare loss in an industry is considered as relatively high if the standardized value is greater that unity, i.e., $Z_i = \frac{\overline{X}_i - \mu}{\sigma} > 1$ and as relatively low if it is less than minus one, i.e., $Z_i = \frac{\overline{X}_i - \mu}{\sigma} < -1$.

TABLE III
INTER-INDUSTRY DIFFERENCES IN EXTENT OF WELFARE LOSS, 1996-2009

Year	Extent of Welfare Loss	Number of Industries	Industry
1996-2001	High	5(14.7)	Beverages & tobacco, Cosmetics & toiletries, Petroleum products, Mining, Electricity
	Moderate	27(79.41)	Food Products, Synthetic textiles, Readymade garments, Other Textiles, Inorganic chemicals, Alkalis, Fertilizers, Pesticides, Paints & varnishes, Dyes & pigments, Drugs & pharmaceuticals, Organic chemicals, Other chemicals, Polymers, Plastic products, Tyres & tubes, Rubber & rubber products, Non-metallic mineral products, Ferrous metals, Non-ferrous metals, Non-electrical machinery, Electrical machinery, Electronics, Automobile, Automobile ancillaries, Misc. Manufacturing, Diversified
	Low	2(5.88)	Cotton Textiles, Textile processing,
	Total	34 (100.0)	
2001-2009	High	5(14.7)	Beverages & tobacco, Cosmetics & toiletries, Drugs & pharmaceuticals, Mining, Electricity
	Moderate	24(70.58)	Food Products, Readymade garments, Other Textiles, Inorganic chemicals, Alkalis, Pesticides, Paints & varnishes, Dyes & pigments, Organic chemicals, Other chemicals, Polymers, Plastic products, Tyres & tubes, Rubber & rubber products, Non-metallic mineral products, Ferrous metals, Non-ferrous metals, Non-electrical machinery, Electrical machinery, Electronics, Automobile, Automobile ancillaries, Misc. Manufacturing, Diversified
	Low	5(14.7)	Cotton Textiles, Synthetic textiles ,Textile processing, Fertilizers, Petroleum products,
	Total	34 (100.0)	

Note: Figures in parentheses indicate percentage share to total number of industries.
Source: Prowess, CMIE

It is observed that the extent of welfare loss is neither very high nor very low for most of the industries (Table III). The industries that recorded relatively high welfare loss over the years include beverages & tobacco, cosmetics & toiletries, mining, and electricity. Interestingly, although the market of Indian pharmaceutical industry is considered to be competitive, the extent of welfare loss was relatively high during 2001-2009. On the other hand, the loss of welfare is relatively low in the industries like cotton textiles and textiles processing. However, the number of industries experiencing low extent of welfare loss has increased during 2001-02 to 2008-09 as compared to that during 1996-97 to 2000-01, though that with high loss of welfare remained the same.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

TABLE IV
CORRELATION BETWEEN M&A AND WELFARE LOSS, 1996-2009

Year	Correlation Coefficient
1996-97 to 2000-01	-0.1129
	(0.465)
2001-02 to 2008-09	-0.369
	(0.014)

Note: Figure in parentheses indicate the level of significant
Source: Prowess, CMIE'

Table IV shows the correlation coefficient between the average number of M&A and the average level of welfare loss per year for two the sub-periods, viz., 1996-97 to 2000-01 and 2001-02 to 2008-09. We find that the correlation coefficient is negative for both the sub-periods indicating an inverse relationship between the two, but it is much higher and statistically significant for the second sub-period. However, the correlation coefficient does not capture the direction of causality. Further, in addition to M&A, welfare loss may also be influenced by other factors like structural aspects of the market, other business strategies of the firms, their performance, and policies of the government. Therefore, we apply regression approach to examine the impact of M&A on consumers' welfare controlling the influences of other factors. What follows next is an attempt in this direction.

III. MERGERS, ACQUISITIONS AND CONSUMERS' WELFARE: THE ANALYTICAL MODEL

Model Specification:

We specify the functional model on the basis of the generalized structure-conduct-performance-policy framework. We assume that the extent of loss of consumers' welfare depends on a set of variables relating to structure of the market (MS), conducts of the firms (FC), their performance (FP) and policies of the government (GP), i.e.,

$$WL = f(MS, FC, FP, GP) \quad (10)$$

If we include the degree of sellers' concentration (CN) and growth of industry sales (GRS) to control structural aspects of the market, mergers and acquisitions (M&A), efforts towards product differentiation and image advantage through advertising (ADVT), technology strategies (TECH), exports intensity (EXP) and imports intensity (IMP) for behaviour of the firms, and profitability (PROF) for their performance, the above functional relationship can be rewritten as,

$$WL = f(CN, GRS, M\ \&\ A, ADVT, TECH, EXP, IMP, PROF) \quad (11)$$

Here, in addition to firms' conduct, EXP, IMP and TECH also capture policies of the government. While TECH can capture policies relating to technology, EXP and IMP can account for policies relating to international trade.

Possible Impact of the Independent Variables

Mergers and Acquisitions (M&A): M&A can affect consumers' welfare in three possible ways. First, M&A may result in greater monopoly power and hence higher prices and lower output compared to what might have occurred in a competitive market without M&A. Second, the decline in market competition following M&A may result in X-inefficiency as, in the absence of competition, firms may become complacent about cost management and the cost may rise as well above the minimum possible level[12]. However, there are potential offsets to these possible sources of loss. In many cases, M&A can help the firms to reap the benefits of large-scale production and hence to lower costs and prices of the products. Increase in monopoly power may also result in greater technological progress and innovation yielding new and better products[13] as well as lowering costs and prices. The exact impact of M&A on consumers' welfare is, therefore, an empirical issue.

Market Concentration (CN): In a concentrated market, the firms are expected to exercise their monopoly power. This in turn results in higher prices and loss of consumers' welfare. In other words, the industries with high market concentration are likely to suffer from greater loss in consumers' welfare. However, when greater market concentration enhances efficiency and competitiveness, the consumers may be benefitted in the form of lower prices and better quality of the products.

Growth of Industry Sales (GRS): In the present paper, GRS is used as a proxy for growth of market demand. It is expected to influence consumers' welfare in three possible ways. First, high GRS is likely to create opportunities for the existing firms to expand their business and thereby, to achieve greater efficiency through economies of large-scale operations [31]. Secondly, high GRS induces new players to enter into the industry. This reduces the level of concentration and PCM [21]. Finally, high GRS may raise input and hence output prices [24]. The ultimate impact of GRS on consumers' welfare, therefore, depends on the relative strengths of these diverse forces.

Advertising Intensity (ADVT): Advertising intensity captures firms' efforts towards product differentiation and building up image advantage. Image related entry barriers and product differentiation through advertising help the incumbents to exercise their monopoly power. Therefore, the consumers in industries with greater advertising efforts by the firms are expected to suffer from higher loss in welfare.

Technology Intensity (TECH): The variable technology intensity is used to control for the impact of in-house R&D efforts as well as the firms' efforts towards acquiring foreign technology on consumers' welfare. It is expected that greater efforts towards technology helps the firms in introducing new products and new processes. While new products give the consumers a wider range of choices, new processes reduce the cost of production. In either way, the consumers are likely to

[12] In addition, there are also social costs associated with defending and maintaining monopoly power arising out of M&A.
[13] Such new products of better quality serve a useful social purpose by giving consumers a variety of choices, particularly, when the information on product quality and reliability is not free.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

be benefitted. However, greater technology efforts may also act as entry barrier restricting market competition, and this may go against the interests of the consumers in the long run.

Exports Intensity (EXP): Export markets provide the domestic firms opportunities to move towards the optimum scale of operation particularly when the demand in the domestic market is limited. This helps the firms to reduce their costs of operations and the consumers are benefitted if this decline in costs results in lower prices. However, if the exporting firms exercise international price discrimination due to tariff protections, higher exports intensity may result in greater loss in consumers' welfare in the domestic market.

Imports Intensity (IMP): In industries with greater import intensity, it is perceived that the consumers have access to products of better quality. On the other hand, greater import intensity of a firm may strengthen its position in the market vis-à-vis the rivals. It may also restrict entry of new firms into the market. Hence, the nature of impact of import intensity on consumers' welfare depends on which of the diverse forces outweighs the others.

Profitability (PROF): It is commonly perceived that higher profitability of the existing firms in an industry comes from their greater market power and the consumers in such industries are expected to suffer from loss in welfare. It is also possible that greater profitability encourages new firms into enter into the industry and thereby increases competition and benefits the consumers in the long run. The nature of impact of profitability on consumers' welfare, therefore, depends on relative strength of these diverse forces.

IV. Methodology And Data

The above function is estimated by applying panel data estimation techniques for a set of 34 broad industry groups in Indian manufacturing sector over the period from 2001-02 to 2008-09. Use of panel data not only helps in raising the sample size and thereby enhancing the degrees of freedom and efficiency of the estimates considerably, it also incorporates the changing dynamics in different industries over the period of time. This is very important in having a better understanding of a complicated issue like welfare implications of M&A.

We estimate the pooled regression model, the fixed effects model (FEM), and the random effects model (REM). The pooled regression model assumes that the intercept as well as the slope coefficients are the same for all the 34 industries. On the other hand, in the FEM the intercept is allowed to vary across the industreis to incorporate special characteristics of the cross-sectional units. In the REM, it is assumed that the intercept of a particular industry is a random drawing from a large population with a constant mean value. In other words, in the REM the intercept of an industry is expressed as a deviation from the constant population mean[14]. Therefore, the choice amongst the pooled regression model, the FEM and the REM is very important as it largely influences conclusions on the individual coeffcients[15].

We carry out the restricted F-test to make a choice between the pooled regression model and the FEM. The restricted F-Test validates the FEM over the pooled regression model on the basis of the null hypothesis that there is a common intercept for all the industries[16]. If the computed F-value is greater than the critical F-value, choice of the FEM is made over the pooled regression model. We also apply Breusch and Pagan [10] Lagrange Multiplier test to make a choice between the pooled regression model and the REM. The test is based on the null hypothesis of no random effect and uses a test statistic that follows χ^2 distribution. Rejection of the null hypothesis suggests that there are random effects in the relationships, and therefore the REM is better suited as compared to the pooled regression model. Finally, in the event the FEM and the REM are selected over the pooled regression model following the restricted F test and the Breusch and Pagan [10] Lagrange Multiplier test respectively, we apply the Hausman [30] test to select between the FEM and the REM. The test is based on the null hypothesis that the estimators of the FEM and the REM do not differ significantly and uses a test statistic that has an asymptotic χ^2 distribution. If the null hypothesis is rejected, the FEM is better suited than the REM.

The present paper uses secondary data collected from the Centre for Monitoring Indian Economy (CMIE), Mumbai, India. While the information on M&A is compiled from the Business-Beacon database of CMIE, the data on rest of the variables are sourced from the Prowess database. Appendix gives the measure of each of these variables.

V. Results And Discussions

The summary statistics of the variables used in regression analysis are presented in Table V, whereas, Table VI gives the regression results for the pooled regression model, the FEM and the REM. It is observed that the F-statistic of the pooled regression model and the FEM, and the Wald-χ^2 of the REM are statistically significant. This means all the estimated models are statistically significant. On the other hand, while the explanatory power of the OLS model is reasonably high, that of the REM is low and it is very low for the FEM. However, this does not necessarily indicate that the estimated models are not acceptable [4]. According to Goldberger [25], R^2 has a very modest role in regression analysis. Nothing in

[14] See, [27] for the details in this regard.

[15] This is so because when the number of cross-sectional units is large and the number of time-series units is small, as it is in the present case, the estimates obtained by the FEM and REM can differ significantly [27].

[16] The test uses the following test-statistic:

$$F = \frac{\left(R^2_{UR} - R^2_R\right)/d-1}{\left(1-R^2_{UR}\right)/n-(d+k)} \sim F_{[(d-1),(n-d-k)]}$$

Here, R^2_{UR} stands for goodness-of-fit of the unrestricted model (the FEM), R^2_R for goodness-of-fit of the restricted model (the pooled regression model), d for the number of groups, n for the total number of observations, and k for the number of explanatory variables.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

classical linear regression model (CLRM) requires that the value of R^2 should be high. Neither is a high value of R^2 evidence in favour of a model nor is a low value of R^2 evidence against it.

TABLE V
SUMMARY STATISTICS OF THE VARIABLES INCLUDED IN REGRESSION

Variable	Number of Observation	Mean	Standard Deviation	Minimum	Maximum
WEL	272	0.6779	0.1840	0.2945	1.2012
CN	272	0.0901	0.0820	0.0097	0.3858
GRS	272	4.2293	3.0367	-6.3844	15.7307
MA	272	72.1360	77.3160	4.0000	539.0000
EXP	272	0.1574	0.1428	0.0005	0.8160
IMP	272	0.0101	0.0152	0.0000	0.0823
ADVT	272	0.0091	0.0138	0.0001	0.0855
TECH	272	0.0202	0.0136	0.0033	0.0723
PROF	272	0.0959	0.0490	-0.0387	0.2568

TABLE VI
REGRESSION RESULTS

Ordinary Least Squares Model				Fixed Effects Model			Random Effects Model		
Variable	Coefficient	t-Stat	VIF	Variable	Coefficient	t-Stat	Variable	Coefficient	z-Stat
Intercept	0.43469	22.16*		Intercept	0.71868	26.96*	Intercept	0.65887	21.41*
CN	0.43590	2.63**	1.84	CN	-0.18776	-0.92	CN	0.02424	0.14
GRS	0.00365	0.90	1.60	GRS	-0.00263	-1.35	GRS	-0.00242	-1.22
MA	0.00043	3.17*	1.93	MA	-0.00013	-1.11	MA	-0.00003	-0.26
IMP	2.09043	5.26*	1.48	IMP	2.15220	6.55*	IMP	2.07858	5.94*
EXP	-0.11446	-1.66***	1.10	EXP	-0.41004	-3.44*	EXP	-0.31823	-3.11*
ADVT	3.74096	5.24*	1.35	ADVT	0.47827	0.35	ADVT	2.92564	3.52*
TECH	-2.24381	-4.08*	1.25	TECH	-0.77350	-1.79***	TECH	-0.95844	-2.58**
PROF	1.72645	5.59*	1.72	PROF	0.52998	3.16*	PROF	0.53273	3.19*
F-Stat	43.65*			F-Stat	9.23*		Wald-χ^2	1547.35*	
R^2	0.53			R^2-Within	0.26		R^2-Within	0.24	
Adj-R^2	0.52			R^2-Between	0.01		R^2-Between	0.17	
				R^2-Overall	0.01		R^2-Overall	0.18	
Number of Obs.	272			Number of Obs.	272		Number of Obs.	272	

*Statistically significant at 1 percent.
**Statistically significant at 5 percent.
*** Statistically significant at 10 percent.

We compute variance inflation factors (VIF) for each of the explanatory variables to examine the severity of multicollinearity problem. It is found that the VIF of all the explanatory variables is less than 2. This means that the estimated models do not suffer from severe multicollinearity problem. Further, the t-statistics and z-statistics for the individual coefficients are computed by using White's [53] robust standard errors to control for the problem of heteroscedasticity and autocorrelation.

For analysis of the individual coefficients, first we make a choice between the pooled regression model and the FEM by using restricted F test. As it is shown it Table VII, the F-statistic is significant. This means that the FEM is a better choice vis-à-vis the pooled regression model. Similarly, in order to choose between the pooled regression model and the REM we apply the Lagrange multiplier test as suggested by Breusch and Pagan [10]. We find that the test statistic (χ^2) is significant implying that the REM is a better fit as compared to the pooled regression model. Finally, we make a choice between the FEM and the REM by applying the Hausman test. However, the Hausman test statistic (χ^2) is not significant. This means that there is no systematic difference in the coefficients and the REM is a better fit than the FEM. As such, we consider the regression results of the random effects model to explain the implications of the individual coefficients.

We find that in the REM the z-statistic of EXP, IMP, ADVT, TECH and PROF are statistically significant (Table VI). This means that inter-industry variations in loss of consumers' welfare are caused by variations in exports intensity, competition from imports, efforts towards advertisitng, technology strategies and financial performance of the firms. Further, while the coefficient of IMP, ADVT and PBIT are positive, that of EXP and TECH is negative. In other words, the consumers in the industries with greater import competition, advertising intensity and better financial performance suffer more from loss of welfare. On the other hand, loss of consumers' welfare is less in the industries with greater penetration in the exports market and high technology intensity. However, the z-statistic of CN, GRS and M&A are not statistically significant.

This implies that mergers and acquisitions, degree of sellers' concentration and expansion of the market do not have any statistically significant impact on loss of consumers' welfare.

TABLE VII
TESTS FOR SELECTION OF APPROPRIATE MODEL

Purpose	Null Hypothesis	Test	Test Statistic
Selection between Polled Regression Model and Fixed Effects Model	All $u_i = 0$	Restricted F Test	$F(33,230) = 87.37$*
Selection between Polled Regression Model and Random Effects Model	$\sigma_u^2 = 0$	Breusch-Pagan Lagrange Multiplier Test	$\chi^2(1) = 566.81$*
Selection between Fixed Effects Model and Random Effects Model	Difference in coefficients is not systematic	Hausman Test	$\chi^2(8) = 11.40$

*Statistically significant at 1 percent

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

The findings discussed above have three important implications. First, a concentrated market does not necessarily result in greater loss of consumers' welfare. In other words, there is no significant difference in loss of consumers' welfare between a concentrated market and a relatively competitive market in Indian manufacturing sector. This may be so as in a concentrated market, the firms can reap the benefits of scale economies and hence sell the product at a lower price in the market and this may outweigh the adverse effect of greater market power of the firms. Besides, in a welfare state like India, the government regulates the price in a concentrated market by setting the ceiling for the interest of the consumers. This undermines the possible loss of consumers' welfare due to higher in market concentration.

Second, mergers and acquisitions do not necessarily result in any significant change in loss of consumers' welfare possibly due to weak association between mergers and acquisitions and market concentration. In fact, the wave of M&A in the 1990s did not have any significant impact on market concentration in Indian manufacturing sector [37]. This is so because impact of M&A on market concentration depends on a variety of other factors like the initial level of market concentration, extent of entry, expansion of the market and growth of import competition, etc. [37]. Besides, a merger or an acquisition may not necessarily aim at gaining greater market power and, therefore, may not be detrimental to consumers' interests. Using a set of 97 mergers and 79 acquisitions that took place during 1992-98, [37] finds that the mergers were directed mainly by the need of business restructuring and to some extent to rehabilitate the sick business units, whereas the basic objective of acquisitions, particularly those by the foreign firms, was market entry and strengthening presence in the marketplace[17]. A considerable portion of the deals was also for expansion of business or strengthening research and development (R&D) base [38][18]. On the other hand, consolidation of business and strengthening market presence by the domestic firms through M&As can restrict emergence of monopoly power of the MNCs and hence loss of consumers' welfare. Similarly, expansion of R&D base through M&A can reduce cost of production and provide and wider range of choices to the consumers. However, any specific conclusion in this regard requires further investigation[19].

Third, under policy induced market competition, other business strategies like exports, imports, advertising and technology are more important in respect of consumers' welfare. While greater imports strengthens the market presence of a firm vis-à-vis the rivals, advertising restricts market competition trough product differentiation and image advantage. In either case, the consumers suffer. On the other hand, higher exports and better technology benefits the consumers in the form of greater efficiency and competitiveness of the firms, and lower prices and more varieties of the products. However, since these strategies are policy driven, trade, technology and competition (in respect of restricted business practices) related policies have very significant role to protect the consumers' interest in the emerging markets.

VI. Conclusions And Policy Implications

Thus, despite the wave of M&A, Indian manufacturing sector has witnessed a decline in the extent of loss of consumers' welfare in majority of the industries in the post liberalization era. There are a variety of factors like export intensity, import intensity, efforts towards advertising and technology by the firms and their financial performance that significantly affect the extent of loss of consumers' welfare in an industry. While loss of consumers' welfare is more in industries with higher import intensity, greater efforts towards advertising and better financial performance raises, it is less in industries with larger penetration in the export market and greater technology efforts by the firms. On the other hand, mergers and acquisitions and the structural aspects like the degree of sellers' concentration and expansion of the market do not have any significant impact on loss of consumers' welfare.

The findings of the present paper have three important policy implications. First, as higher market concentration does raise welfare loss, rather reduces the same, though not significantly, the degree of sellers' concentration should not be a matter of serious concern while designing the competition policies. Rather, a market concentrated up to a certain degree may even benefit the consumers by reaping the scale economies and encouraging the firms towards innovation. Therefore, there should be policy induced flexibility towards growth in a particular line of business. This can reduce the possibility of over diversification and hence inefficiencies. Further, the restrictive business practices like adverting should be effectively regulated to restrict loss of consumers' welfare.

Second, considering that large number of M&A does not necessarily raise the extent of loss of consumers' welfare in an industry, a merger or an acquisition should not be controlled solely on the basis of its size as it is mentioned in the Competition Act 2002. There should be adequate space in the competition policy framework for evaluating the role of a merger

[17]For example, Ranbaxy Laboratories, Nicholas Piramal India, Sun Pharmaceuticals, Cadila Healthcare, etc. largely relied on M&A primarily to consolidate their position in the domestic marketplace.

[18]For example, the Ajay Piramal group acquired Boehringer Mannheim India Ltd. mainly to have access to the parent company's (Boehringer Mannheim of Germany) R&D base. Similarly, Nicholas Piramal India Ltd., an Ajay Piramal group company, acquired the basic research unit of Hoechst Marrion Russel (India) as a part of its R&D strategy. Besides, Sun Pharmaceutical Industries Ltd. merged Tamil Nadu Dadha Pharmaceuticals Ltd. with it to expand its R&D plan, whereas, Dr. Reddy's Research Foundation formed an R&D alliance with Novonordisk of Denmark for developing a compound of Glitazone (an anti-diabetes drug).

[19]This is so because the information on the objectives of the M&A are gathered from company announcements and other publicly available documents and there is every possibility that
the objectives like 'gaining monopoly power' would not be reported. These objectives can only be seen as approximate as they are entirely based on publicly made statements. The actual objectives may be quite different from the revealed ones.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

or an acquisition in respect of competitiveness as well. Further, policy measures should also provide the firms proper guidance for correcting their inefficiencies and/or enhancing efficiency to improve their competitiveness through such integration. In other words, competition policy should encourage the M&A that are aimed not at gaining market power but achieving competitiveness through business restructuring.

Third, given that other business strategies have significant influence on consumers' welfare and these strategies are policy induced, the policies relating to technology, trade and competition require serious scrutiny. As greater export intensity and technology efforts reduce loss of consumers' welfare, policies relating to exports, in-house R&D, and foreign technology purchase should have enough scope in this regard. Appropriate incentive structure may be combined with necessary subsidies to promote exports and encourage the firms towards innovation and technology development. Besides, adequate emphasis should be put towards import substitution. All these require enough flexibility in the policy framework along with simplification of the procedural rules and regulations.

APPENDIX

Measurement of the Variables

In the present paper, three-year average values of the variables, instead of their annual values, are used to control the potential simultaneity bias among them. In other words, the average loss of consumers' welfare during year t, t-1 and t-2 is hypothesized to depend on the averages of the independent variables during the same period. However, in order to simplify notations, we use only subscript t for each independent variable, although three-year averages are used. Such measures are also expected to make the dataset more consistent over the period of time as well as to account for their cumulative effects and the changing dynamics of the system.

WL: Three-year average of price-cost margin (PCM) in industry j in year t is used as a measure of loss of consumers' welfare in the industry.

M&A: The extent of mergers and acquisitions (M&A) in an industry in a particular year is measured as the total number of deals in the industry over previous three years with a one-year starting lag from the year under reference.

$$M\ \&\ A_{jt} = \sum_{i=1}^{n} M\ \&\ A_{i,t-1} + \sum_{i=1}^{n} M\ \&\ A_{i,t-2} + \sum_{i=1}^{n} M\ \&\ A_{i,t-3} \quad (12)$$

Here, $M\&A_{it}$ stands for number of deals by firm i in the industry. Such a lag structure allows adequate gestation period to capture the process of adjustment following M&A.

CON: The Herfindahl-Hirschman Index (HHI) is used as the measure of seller's or market concentration. This index satisfies all the desirable properties of a concentration measure as it combines both the number and size distribution of firms in the industry. It also measures the potential impact of corporate restructuring activity on industry concentration[20].

$$CON_{jt} = \frac{\left(\sum_{i=1}^{n} s^2{}_{i,t-1} + \sum_{i=1}^{n} s^2{}_{i,t-2} + \sum_{i=1}^{n} s^2{}_{i,t-3}\right)}{3} \quad (13)$$

Here, CON_{jt} is the degree of sellers' concentration in industry j in year t and s_i stands for market share of the i^{th} firm in the industry. The market share of a firm (s_i) is defined as the ratio of the firm's sales (S_i) to total industry sales (S_j).

GRS: In the present paper, GRS is measured as

$$S_{j_t} = S_{j_0}(1+g_j)^t \quad (14)$$

Here, g stands for the rate of growth of sales (S) of industry j. This function is regressed over a period of five years with a one-year lag in the starting year.

ADVT: The present paper measures ADVT as the ratio of advertising expenditure (A) to sales (S), i.e.,

$$ADVT_{jt} = \frac{\left(\frac{\sum_{i=1}^{n} A_{i,t-1}}{\sum_{i=1}^{n} S_{i,t-1}} + \frac{\sum_{i=1}^{n} A_{i,t-2}}{\sum_{i=1}^{n} S_{i,t-2}} + \frac{\sum_{i=1}^{n} A_{i,t-3}}{\sum_{i=1}^{n} S_{i,t-3}}\right)}{3} \quad (15)$$

Here, $SELL_{jt}$ stands for the selling intensity in industry j in year t.

TECH: The ratio of total expenditure on technology (including expenditure on in-house R&D and technology purchase) (TE) to sales (S) is used as a measure of technology strategies.

$$TECH_{jt} = \frac{\left(\frac{\sum_{i=1}^{n} TE_{i,t-1}}{\sum_{i=1}^{n} S_{i,t-1}} \frac{\sum_{i=1}^{n} TE_{i,t-2}}{\sum_{i=1}^{n} S_{i,t-2}} \frac{\sum_{i=1}^{n} TE_{i,t-3}}{\sum_{i=1}^{n} S_{i,t-3}}\right)}{3} \quad (16)$$

Here, $TECH_{jt}$ stands for the technology intensity in industry j in year t.

PROF: In the present paper, we measure PROF as the ratio of profit before interest and tax (PBIT) to sales (S), i.e.,

$$PROF_{jt} = \frac{\left(\frac{\sum_{i=1}^{n} PBIT_{i,t-1}}{\sum_{i=1}^{n} S_{i,t-1}} + \frac{\sum_{i=1}^{n} PBIT_{i,t-2}}{\sum_{i=1}^{n} S_{i,t-2}} + \frac{\sum_{i=1}^{n} PBIT_{i,t-3}}{\sum_{i=1}^{n} S_{i,t-3}}\right)}{3} \quad (17)$$

EXP: The variable EXP is defined as the ratio of exports (EX) to sales (S), i.e.,

$$EXP_{jt} = \frac{\left(\frac{\sum_{i=1}^{n} EX_{i,t-1}}{\sum_{i=1}^{n} S_{i,t-1}} + \frac{\sum_{i=1}^{n} EX_{i,t-2}}{\sum_{i=1}^{n} S_{i,t-2}} + \frac{\sum_{i=1}^{n} EX_{i,t-3}}{\sum_{i=1}^{n} S_{i,t-3}}\right)}{3} \quad (18)$$

IMP: The variable EXP is defined as the ratio of imports (IM) to sales (S), i.e.,

[20] Another advantage of using HHI is that by squaring market shares the HHI weights more heavily the values for large firms than for small ones. Therefore, when precise data on the market shares of very small firms are unavailable, the resulting errors are not large

$$IMP_{jt} = \frac{\left(\frac{\sum_{i=1}^{n} IM_{i,t-1}}{\sum_{i=1}^{n} S_{i,t-1}} + \frac{\sum_{i=1}^{n} IM_{i,t-2}}{\sum_{i=1}^{n} S_{i,t-2}} + \frac{\sum_{i=1}^{n} IM_{i,t-3}}{\sum_{i=1}^{n} S_{i,t-3}} \right)}{3} \quad (19)$$

REFERENCES

[1] Agarwal, M. (2002), *Analyses of Mergers in India*, M. Phil Dissertation, University of Delhi, Delhi.

[2] Agarwal, M. and A. Bhattacharya (2006), Mergers in India: A Response to Regulatory Shocks, *Emerging Markets Finance and Trade*, 42(3), pp. 46-65.

[3] Banerjee, A. and E. W. Eckard (1998), Are Mega-Mergers Anticompetitive? Evidence from the First Great Merger Wave, *RAND Journal of Economics*, 29(4), pp. 803-827.

[4] Basant, R. (2000), Corporate Response to Economic Reforms, *Economic and Political Weekly*, 35(10), pp. 813-822.

[5] Beena, P. L. (1998), *Merger and Amalgamations: An Analysis of the Changing Structure of Indian Oligopoly*, Dissertation, Centre for Economic Studies and Planning, JNU, New Delhi.

[6] Beena, P. L. (2000), *An Analysis of Mergers in the Private Corporate Sector*, Working Paper No. 301, Centre for Development Studies, Kerala.

[7] Beena, P. L. (2004), *Towards Understanding the Merger Wave in the Indian Corporate Sector – A Comparative Perspective*, Working Paper No. 355, Centre for Development Studies, Kerala.

[8] Beena, P. L. (2008), Trends and Perspectives on Corporate Mergers in Contemporary India, *Economic and Political Weekly*, 43(39), pp. 48-56.

[9] Beeslay, M. E. (1973): "Mergers and Economic Welfare," in *Mergers, Takeovers and the Structure of Industry: Ten Papers on Economics, Law, Rules*, The Institute of Economic Affairs, London.

[10] Breusch ,T. S. and A. R. Pagan (1980), The Lagrange Multiplier Test and its Applications to Model Specifications in Econometrics, *Review of Economic Studies*, 47(1), pp. 239-253.

[11] Chandrasekhar, C. P. (1999), "Firms, Markets and the State: An Analysis of Indian Oligopoly", in A. K. Bagchi (Eds.), *Economy and Organization- Indian Institutions under Neo Liberalized Regime*, Sage Publications, New Delhi.

[12] Chatterjee, S. (1986), Types of Synergy and Economic Value: The Impact of Acquisitions on Merging and Rival Firms, *Strategic Management Journal*, 7(2), pp. 119-139.

[13] Chen, C. and C. Findlay (2003), A Review of Cross-border Mergers and Acquisitions in APEC, *Asia-Pacific Economic Literature*, 17(2), pp. 14-38.

[14] Cowling, K. and D. C. Mueller (1978), The Social Costs of Monopoly Power, *Economic Journal*, 88(352), pp. 724-748.

[15] Cowling, K. and D. Mueller (1981), The Social Costs of Monopoly Revisited, *Economic Journal*, 91(363), pp., 721-725.

[16] Church, J. and R. Ware (2000), *Industrial Organization: A Strategic Approach*, Irwin McGraw-Hill, Boston.

[17] Das, N. (2000), *A Study of the Corporate Restructuring of Indian Industries in the Post-New Industrial Policy Regime – The Issue of Amalgamations/Mergers*, Unpublished Ph.D. thesis Submitted to University of Calcutta, Calcutta.

[18] Dasgupta, P. (2004), Establishing an Effective Competition Policy System: the Challenges Facing India in Implementing its New Competition Law, presentation made at the WTO/UNESCO/ASCI Regional Seminar for Asia and Pacific Economies on Competition Policy, Development and the Multilateral Trading System, Hyderabad, India, 6-8 October.

[19] De Guevara, J. Fernández, J. Maudos, and F. Pérez, (2005), Market Power in European Banking, *Journal of Financial Services Research*, 27(2), pp. 109–138.

[20] Dixit, A. and N. Stem (1982), Oligopoly and Welfare: A Unified Presentation with Application to Trade and Welfare, *European Economic Review*, 19(1), pp., 123-143.

[21] Ghose, A. (1975), Concentration and Controls in the Indian Industry, *Journal of Industrial Economics*, 23(3), pp. 203-22.

[22] Gisser, M., (1986), Price Leadership and Welfare Losses in U.S. Manufacturing, *American Economic Review*, 76(4), pp., 756-767.

[23] Gisser, M., (1989), Price Leadership and Welfare Losses in U.S. Manufacturing: Reply, *American Economic Review*, 79, pp., 610-613.

[24] Goldar, B. and S. C. Aggarwal (2004): *Trade Liberalization and Price-Cost Margin in Indian Industries*, Working Paper No. 130, Indian Council For Research On International Economic Relations, New Delhi.

[25] Goldberger, A. S. (1991), *A Course in Econometrics*, Harvard University Press, Cambridge.

[26] Gopinath, S (2007), Overseas Investment by Indian Companies – Evolution of Policy and Trends, *RBI Bulletin*, 54(2), pp. 235-342.

[27] Gujarati, D. N. and Sangeeta (2007), *Basic Econometrics*, Tata McGraw Hill Publication, New Delhi.

[28] Hannah, L. (1983): *The Rise of the Corporate Economy*, Cambridge University Press, Cambridge.

[29] Harberger, A. (1954), Monopoly and Resource Allocation, *American Economic Review*, 44(2), pp. 77-87.

[30] Hausman, J. A, (1978), Specification Tests in Econometrics, *Econometrica*, 46(6), pp.1251-1271.

[31] Kambhampati, U. S. (1996), *Industrial Concentration and Performance; A Study of the Structure, Conduct and Performance of Indian Industry*, Oxford University Press, New Delhi.

[32] Khanna, S. (1997), *Industrial Deregulation and Corporate Restructuring: Understanding India's First Merger Wave*, Mimeo, Indian Institute of Management, Calcutta.

[33] Krueger, A. O. (1974), The Political Economy of Rent Seeking Behaviour, *American Economic Review*, 64(3), pp. 291-303.

[34] Kumar, N. (2000), Mergers and Acquisitions by MNEs: Patterns and Implications, *Economic and Political Weekly*, 35(32), pp. 2851-2858

[35] Levin, D. (1990), Horizontal Mergers: The 50-Percent Benchmark, *American Economic Review*, 80(5), pp. 1238-45.

[36] Mantravadi, P. and A. V. Reddy (2008), Post-Merger Performance of Acquiring Firms from Different Industries in India, *International Research Journal of Finance and Economics*, 22, pp. 193-204.

[37] Mishra, P. (2005), *Mergers and Acquisitions in the Indian Corporate Sector in the Post-Liberalization Era: An Analysis*, Unpublished Ph.D. Thesis, Vidyasagar University, West Bengal.

[38] Mishra, P. (2006), Mergers Acquisition Market Structure and Industry Performance: Experience of Indian Pharmaceutical Industry, *Review of Development and Change*, 11(2), pp. 135-164.

[39] Mishra, P. and T. Chandra (2010), Mergers, Acquisitions and Firms' Performance: Experience of Indian Pharmaceutical Industry, *Eurasian Journal of Business and Economics*, 3(5), pp. 111-126.

[40] Mitchell, M. L. and J. H. Mulherin, (1996), The Impact of Industry Shocks on Takeover and Restructuring Activity, *Journal of Financial Economics*, 41(2), pp. 193-229.

[41] Nayyar, D. (2007), *The Internationalization of Firms from India: Investments, Mergers and Acquisitions*, SLPTMD WP No. 004, Department of International Development, QEH, University of Oxford.

[42] Nelson, R. L. (1959), *Merger Movements in American Industry, 1895-1956*, Princeton University Press, Princeton.

[43] Posner, R. A. (1975), The Social Costs of Monopoly and Regulation, *Journal of Political Economy*, 83(4), pp. 807-827.

[44] Porter, M. E. (1985): *The Competitive Advantage*, The Free Press, New York.

[45] Pratten, C. F. (1971), *Economies of Scale in Manufacturing Industry*, Cambridge University Press, Cambridge.

[46] Roy, M. (1999), "Mergers and Takeovers: The Indian Scene during the Nineties" in A. K. Bagchi (Eds.), *Economy and Organization- Indian Institutions under Neo Liberalized Regime*, Sage Publications, New Delhi.

[47] Saha, B. (2001), *Investment Policy in India*, Paper Presented in a Seminar Organized by CUTS Centre for International Trade, Economics and Environment, Jaipur, India.

[48] Scherer, F. M., A. Beckensten, E. Kaufer, and R. D. Murphy (1975), *The Economics of Multi-plant Operation: An International Comparisons Study*, Harvard University Press, Cambridge.

[49] Steiner, P. O. (1975), *Mergers, Motives, Effects and Policies*, University of Michigan Press, Ann Arbor, MI.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf

[50] Shelton, L. M. (1988), Strategic Business Fits and Corporate Acquisitions: Empirical Evidence, *Strategic Management Journal*, 9(3), pp. 279-287.
[51] Stigler, G. J. (1950), Monopoly and Oligopoly by Merger, *American Economic Review*, Papers and Proceedings, 42(2), pp. 23-34.
[52] Venkiteswaran, N. (1997), Restructuring of Corporate India: The Emerging Scenario, Vikalpa, 22(3), pp. 3-13.
[53] White, H. (1980), A Heteroscedasticity Consistent Covariance Matrix Estimator and a Direct Test of Heteroscedasticity, *Econometrica*, 48 (4), pp. 817-818
[54] Willner, J. (1989), Price Leadership and Welfare Losses in U.S. Manufacturing: Comment, *American Economic Review*, 79, pp., 604-609.

Open Science Index, Mechanical and Industrial Engineering Vol:5, No:8, 2011 publications.waset.org/15468/pdf