Herfindahl-hirschman index | gini coefficient

Question: The Herfindahl Index coefficient and Gini coefficient are tools used in the analysis of industry concentration. Giving examples, assess their respective contribution to our understanding of industry structure.

A numerical approach to understanding economic structures has been the basis for the development of the Herfindahl-Hirschman Index and Gini coefficient. The concentration and industry structure are easily conceivable from a combination of these two indexes. The Herfindahl-Hirschman Index measures the size of the top 50 firms in the industry relative to the market. This comparison is in the form of a sum of the squares of their market shares. The primary basis behind the index is to understand the existing market structure based on the relative market shares of the top 50 (or all, if less than 50) firms. The coefficient will tend to be very high in case there is an oligopolistic market structure in which a small proportion of the firms will be holding large market shares.

However, if the market is such that the top 50 firms have small and roughly equal market shares, the coefficient will be very low. The difference between the two market structures is easily understandable by looking at the value of the coefficient. An oligopolistic market will generally have an H-H index of above 1800. This would mean that the market is concentrated and the top 50 firms have a significant majority share of the market. An industry with an H-H index of between 1, 000 and 1, 800 is assumed to be moderately concentrated i. e. there is a fair degree of distribution of market share with a few firms standing out slightly above the others. A market with just one firm serving the entire market (monopoly) will have an index value of 10, 000. The minimum index value is of course close to zero assuming a perfect

competitive market. The differences in these index values explain a lot about the industry and are often used to estimate the division of wealth between firms.

The Herfindahl-Hirschman Index of the automobile industry in the U. S. is in between 1, 800 and 10, 000. This is because of the fact that the industry has a lot of large players with significant market shares. However, the use of the Gini coefficient is more pertinent in measuring the distribution of wealth between firms in an industry.

The division of the US automobile industry is also supported by the Gini coefficient. Intuitively, the Gini coefficient is a measure of the relative dispersion of wealth in an industry. It measures the level of inequality of distribution of wealth in an industry. A Gini coefficient of 0 signifies perfect equality of wealth meaning that all firms in the industry have equal wealth. However, a perfect inequality of wealth is denoted by a Gini coefficient of 1. While theoretically it is impossible to have industries with Gini’s of 0 and 1, the extent to which they are close to either of these benchmarks denotes the concentration of the industry.

The US automobile sector has a Gini well above 0. 5 denoting that the industry is concentrated and there is significant inequality of wealth amassed by the automobile firms. The combinatory use of the two indexes gives a clearer picture of the degree to which different firms have a share of the market and the extent of income equality (or inequality) relative to a perfect equality of wealth distribution.

Question: In the market for air travel, why might a high degree of price discrimination lead to an improvement in both allocative and technical efficiency, and yet a reduction in consumer surplus?

A high degree of price discrimination in the airline industry results in an increase in the producer surplus. This is because of the fact that a producer is able to capitalize on the prices that the consumer is willing to pay instead of the equilibrium price for the market lying above the equilibrium.

is price methodology would raise allocative efficiency because the airlines will be using the appropriate consumption bundle on the consumers' indifference curve. This would lead to maximizing utility in terms of each individual using the airline's service; Instead of maximizing output for the airline, it would mean reaching the optimum production level.

The phenomenon of discriminatory pricing is also known as labelled as perfect price discrimination because of the fact that it matches a perfect competition market also completely. The optimum quantity for the airline would form the isoquant line while the budget line for the production would be denoted by the isocost line. The price discrimination strategy would mean that the budget line would meet the optimum production quantity i. e. the isocost would equal the isoquant. This would denote the optimum quantity which would however reduce the consumer surplus instead of raising it.

This phenomenon can be explained by the fact that the supply curve in this strategy would change for each consumer. The supply curve will be higher or lower for each consumer depending on the price discrimination level; they would be matching the customers' characteristics. Thus, this would result in an increase in the producer surplus at the expense of the consumer surplus.

While the total surplus would remain unchanged, a portion of the consumer surplus would be converted to the producer surplus. This is the basic reason for a decrease in the consumer surplus even though technical and allocative efficiency may be rising. The technical efficiency would rise because of the price discrimination strategy: the output of the airline would increase even though the inputs would remain the same. This increase in technical efficiency is complemented by allocative efficiency. The rise in allocative efficiency can be explained by the fact that the consumers' measure of the utility of the airline's service would increase.

The price discrimination strategy would enable the airline to charge different prices to each consumer based on their utility. Since the prices would be matching the utility of the customer, the net utility derived from producing the optimum quantity (where isocost would equal isoquants). The following graph displays this phenomenon:

Thus, it is possible for an airline to improve allocative and technical efficiency using a price discrimination strategy and at the same time experience decreasing consumer surplus.

Bibliography

- Cleaver T, 2004, *Economics:* The Basics, Routledge.
- Brittanica, 1994, *Isocosts and Isoquants,* Accessed May 16, 2010 from: http://media-2. web. britannica. com/eb-media/42/142-004-2E61196E. gif
- Jones, Chris, 2009, Financial economics. London: Routledge.

- Just, R.; Hueth, D. & Schmitz, A. 2002, *Applied Welfare Economics and Public Policy* , Prentice Hall.
- Krugman P, 2000, *The return of depression Economics,* W. W. Norton and Company.
- Mankiw N. G., 2010, *Macroeconomics* , Palgrave Macmillan.
- Riddell, Tom & Shackelford, Jean A., 2007, *Economics: a tool for critically understanding society* , Addison Wesely.