

Does the International Unions Provide Competitiveness? A Different Approach

¹Sahand Ebrahimi Poorfaez, ²Seyed Mehdi Mirhoseini and ¹Alale Shokouhi

¹Economics, University of Mazandaran, Babolsar, Iran

²Economics, Mofid University, Qom, Iran

Abstract: The purpose of this paper is to determine whether international unions have provided competitiveness for the member countries. For that purpose we have used the Herfindahl-Hirschman Index (HHI). We have examined 11 international unions between the years 1960- 2010. In this paper we treated the unions as countries and assumed that the member countries are industries. According to the results the unions have competitive conditions. However, they have a sharp trend to the oligopoly zone.

Key words: Herfindahl-Hirschman Index (HHI) • Competitiveness • Globalization • International unions
• Concentration indexes

INTRODUCTION

Since the term globalization came to existence, from now and then countries with some commonality started to gather together and build international organizations for common benefits; Organizations such as the World Trade Organization (WTO), Organization for Petroleum Exporting Countries (OPEC), Asia-Pacific Economic Cooperation (APEC), G-20, etc. International economic arrangements or organizations in the areas of trade, finance, or development are perceived to be based on interests of all countries involved [1].

On the other hand, achieving the conditions of a full competitive market is well desired goal for most countries around the globe. Multinational corporations (MNCs) have played a major role in this era of globalized economy [2]. As one of two main players in international business, countries have a great influence on competitiveness of multinational corporations [2]. Traditional trade theorists have considered capital, labor and natural resources as sources of national competitiveness. In reality, however, there are numerous counterexamples that disprove what traditional theorists have argued [2].

The near future is expected to bring important changes to the world's economy and to the landscape of major industries. In seeking to explain patterns of international competition, several researchers have emphasized the importance of characteristics of the home country in determining the competitive position of its firms in international markets [3-6]. However, the ultimate goal of a nation should be to maximize some social welfare

function incorporated with social conditions, environmental preservation and income [7]. In this regard, a nation's competitiveness has been defined by Artto as "the degree to which a nation can, under free and fair market conditions, produce goods and services that meet test of international markets while simultaneously expanding the real income of its citizens [8].

Market structure was referred to those of characteristics of organization of the market which influence the nature of competition and pricing in the market and conduct of business firms [9]. The prices charged by firms for their products, the nature and extent of their research and development activities, the type of product advertising and the selling techniques that firms employ are all influenced by the structure of the markets in which they deal [10].

In this paper we apply a controversial method. We use the Herfindahl-Hirschman Index (HHI) in order to determine whether international unions are a way to reach competitiveness. The HHI is one of the most commonly used indicators to detect anticompetitive behavior in industries, especially when examining horizontal mergers [11], nevertheless this concentration index has been used by other authors to study cooperative behavior in other contexts [12]. Theoretical and empirical evidence shows that higher HHI value indicates higher price-cost margin [13]. Share-holding interlocks are mathematically equivalent to partial cooperation [14]. Share-holding interlocks can also be interpreted as partial cooperation among firms, so the HHI can be assumed to be a practical indicator of conspiracy [15].

Table 1: the HHI (1960-2010)

	SAARC	OECD	OIC	CWS	APEC	CCASG	WTO	FSB	MENA	G-20	G-15
1960	0.02	0.02	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.01	0.00
1961	0.02	0.02	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.01	0.00
1962	0.03	0.02	0.00	0.01	0.03	0.01	0.01	0.02	0.00	0.02	0.00
1963	0.03	0.02	0.00	0.02	0.03	0.01	0.01	0.02	0.00	0.02	0.01
1964	0.04	0.03	0.00	0.02	0.03	0.01	0.02	0.02	0.00	0.02	0.01
1965	0.05	0.03	0.00	0.03	0.04	0.01	0.02	0.02	0.00	0.02	0.01
1966	0.03	0.04	0.00	0.02	0.05	0.02	0.02	0.03	0.00	0.03	0.01
1967	0.04	0.04	0.00	0.02	0.05	0.02	0.02	0.03	0.01	0.03	0.01
1968	0.04	0.05	0.01	0.02	0.06	0.02	0.03	0.04	0.01	0.04	0.01
1969	0.05	0.06	0.01	0.03	0.07	0.02	0.03	0.04	0.01	0.05	0.01
1970	0.06	0.07	0.01	0.03	0.08	0.02	0.04	0.05	0.01	0.05	0.01
1971	0.07	0.08	0.01	0.04	0.09	0.04	0.05	0.06	0.01	0.06	0.02
1972	0.08	0.10	0.01	0.04	0.11	0.05	0.06	0.07	0.02	0.07	0.02
1973	0.11	0.12	0.01	0.06	0.14	0.08	0.07	0.09	0.02	0.09	0.03
1974	0.15	0.15	0.03	0.08	0.17	0.46	0.08	0.11	0.04	0.11	0.05
1975	0.15	0.18	0.04	0.09	0.20	0.40	0.10	0.13	0.05	0.13	0.06
1976	0.16	0.22	0.06	0.09	0.25	0.48	0.12	0.16	0.07	0.16	0.07
1977	0.22	0.27	0.07	0.13	0.31	0.56	0.15	0.19	0.08	0.20	0.09
1978	0.29	0.35	0.09	0.16	0.39	0.67	0.20	0.25	0.11	0.25	0.12
1979	0.36	0.44	0.15	0.21	0.49	1.69	0.25	0.31	0.18	0.32	0.16
1980	0.56	0.52	0.16	0.33	0.58	2.31	0.29	0.38	0.28	0.38	0.22
1981	0.62	0.64	0.16	0.35	0.73	1.84	0.36	0.46	0.28	0.47	0.29
1982	0.64	0.69	0.14	0.35	0.78	1.41	0.39	0.49	0.29	0.50	0.26
1983	0.75	0.80	0.12	0.40	0.92	1.34	0.45	0.58	0.33	0.59	0.20
1984	0.72	0.99	0.13	0.39	1.14	1.48	0.55	0.71	0.37	0.72	0.20
1985	0.81	1.13	0.15	0.43	1.32	1.51	0.64	0.81	0.41	0.83	0.23
1986	0.94	1.28	0.16	0.49	1.47	1.01	0.72	0.92	0.47	0.94	0.26
1987	1.21	1.46	0.20	0.64	1.66	1.51	0.82	1.05	0.56	1.07	0.31
1988	1.39	1.70	0.20	0.73	1.92	1.34	0.95	1.22	0.51	1.24	0.39
1989	1.42	1.96	0.24	0.75	2.23	1.83	1.10	1.40	0.53	1.43	0.50
1990	1.59	2.22	0.38	0.84	2.49	1.28	1.25	1.59	0.65	1.62	0.63
1991	1.22	2.35	0.37	0.66	2.65	0.67	1.32	1.68	0.54	1.72	0.58
1992	1.11	2.64	0.43	0.62	2.96	1.48	1.48	1.88	0.66	1.92	0.63
1993	1.33	2.88	0.52	0.74	3.27	1.97	1.62	2.07	0.71	2.11	0.76
1994	1.74	3.25	0.37	0.97	3.70	2.12	1.83	2.34	0.79	2.39	1.01
1995	2.12	3.61	0.55	1.20	4.09	2.51	2.05	2.61	1.12	2.67	1.36
1996	2.43	4.01	0.65	1.39	4.58	3.30	2.29	2.91	1.38	2.97	1.63
1997	2.69	4.50	0.70	1.54	5.19	3.16	2.56	3.27	1.51	3.34	1.84
1998	2.70	5.02	1.05	1.50	5.81	2.35	2.56	3.65	1.62	3.72	1.80
1999	3.11	5.67	0.97	1.70	6.58	3.11	3.21	4.09	1.73	4.18	1.36
2000	3.25	6.38	1.15	1.81	7.47	4.90	3.62	4.62	2.13	4.71	1.66
2001	3.42	6.81	0.80	1.89	8.00	4.36	3.86	4.93	2.07	5.03	1.58
2002	3.80	7.31	0.99	2.11	8.59	5.01	4.15	5.30	1.85	5.41	1.49
2003	5.44	8.09	1.48	2.98	9.45	7.43	4.61	5.88	2.10	6.00	1.84
2004	7.96	9.23	2.31	4.34	10.78	11.17	5.29	6.75	2.10	6.89	2.46
2005	10.58	10.47	3.39	5.76	12.30	20.18	6.04	7.71	3.23	7.87	3.52
2006	13.60	11.78	4.27	7.45	13.97	31.47	6.87	8.77	4.24	8.95	4.82
2007	22.60	13.07	6.19	12.25	15.70	40.23	7.81	9.96	5.70	10.16	7.18
2008	21.75	13.73	8.29	12.06	16.95	69.60	8.49	10.83	8.84	11.05	8.80
2009	27.54	13.14	6.18	14.86	16.71	38.24	8.33	10.62	7.91	10.85	8.46
2010	43.22	14.10	8.25	23.17	18.68	NA	9.37	11.89	8.78	12.14	13.55

Source: Author's calculations

Table 2: Abbreviations, Full names and Number of members

Abbreviation	Full name	Num. of members
SAARC	South Asian Association for Regional Cooperation	9
OECD	Organization of Economic Contribution and Development	31
OIC	Organization of Islamic Cooperation	57
CWS	Common Wealth Secretariat	54
APEC	Asia-Pacific Economic Cooperation	21
CCASG	Cooperation Council for the Arab States of the Gulf	6
WTO	World Trade Organization	86
FSB	Financial Stability Board	13
MENA	Middle Eastern and North African Countries	19
G-20	G-20 major economies	20
G-15	Group of 15	18

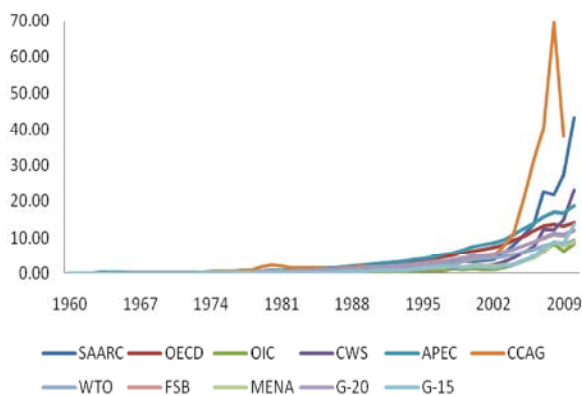


Fig. 1: HHI trend (1960-2010)

We have used the HHI in order to determine the degree of competitiveness in international unions such as APEC, OPEC, etc. in order to achieve this objective we have treated each union as a country. Then we have assumed that each member country is an industry. The mathematical formulations will be discussed over the next chapter. In the third chapter the data and the results will be covered. And the fourth chapter concludes.

The Herfindahl-Hirschman Index: As a matter of fact, HHI is somehow a weighted average of the proportion of firms’ production to the total production value in a market with their share of production being their weight. Its formula is as follows:

$$HHI = \sum_{i=1}^n S_i^2$$

Where S_i is each firm share in the market and n indicates the number of firms in the market. If the index is a total “HHI=0” the country has a full competitive market. If it is “HHI<100” it is still mostly competitive. For the case of

“100<HHI<1000” we face oligopoly. When the index is “1000<HHI<10000” the situation is considered as hard oligopoly and for “HHI=10000” and more it is a monopoly.

As described by Kathiravan *et al.* [16], the above two indices were to test the monopoly power of the market system and in the absence of monopoly; Bain’s [17] classification was used to identify the prevailing structure of market.

If the top four firms controlled 75-100 percent of the business of a product, it was considered as a highly concentrated oligopoly; for 50-75 percent it was recorded as moderately concentrated oligopoly; for 25-50 percent it was called slightly concentrated oligopoly; and for less than 25 percent of the business, it was referred as atomistically competitive [18].

There is also normalized Herfindahl index. Whereas the Herfindahl index ranges from $1/N$ to one, the normalized Herfindahl index ranges from 0 to 1. It is computed as:

$$HHI^* = \frac{\left(HHI - \frac{1}{n} \right)}{1 - \frac{1}{n}}$$

Where HHI^* is the normalized index and n is the number of firms in the market.

Data and Results: The data used in this paper were gathered from the World Development Index (WDI). The range of the data is from 1960 to 2010). Eleven international unions have been chosen to be examined (SAARC, OECD, OIC, CWS, APEC, CCASG, WTO, FSB, MENA, G-20, G-15). The reason for what these unions have been chosen is that they have a considerable economic motivation.

As it can be seen in Table1, the HHI for the period of examination has never reached its first limit (HHI=100). However an upward trend from the 1980s has started and sharpened over time. As shown in Figure1, the highest HHI achieved was for CCAG (69.60) in 2008 and fell considerably in the followed years (to 38.24). While the trend which the HHI has taken is upwards with a sharp tendency to rise, according to the pace of its growth, it takes a considerable amount of time until it reaches the limit of 100.

CONCLUSION

This paper's aim was to use the Hirfindahl-Hirschman Index (HHI) in order to determine whether the international unions have provided competitive conditions for their member countries. For that purpose, eleven countries have been examined for the period of 1960-2010. The results indicate that these unions are in the competitive area, determined by the HHI. However, from the 1980s an upward trend can be seen in the HHI. While this trend has a sharp tendency to rise, most of the unions have a long way to reach the 100 limit. The highest HHI index ever experienced was 69.6 in CCAG in 2008. This paper simply determined the fact that the observing international unions are in the conditions of competitiveness with the tendency to act otherwise. The reason for which the HHI is rising could be matter of another paper.

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