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Research Paper

Competition Policy Implementation in Armenia

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Introduction

From the general economics and competition theories, it is assumed that the higher rate of competition leads to the higher total social welfare. High social welfare usually is associated with efficient allocation of resources, low prices, and high output rates.

"Broadly defined, competition in market-based economies refers to situation in which firms or sellers independently strive for buyers' patronage in order to achieve a particular business objective, for example, profits, sales, or market share"[1, p.1]. Competition forces firms to become efficient and to offer a greater choice of products and services at lower prices. Decentralized decision-making by firms promotes efficient allocation of society's scare resources, increases consumer welfare, and gives rise to dynamic efficiency in the form of innovation, technological change, and progress in the economy as whole.

A lot of studies and researches were implemented to reveal the competition and industry dynamics relationships. For example, different competition indicators were opposed to the output (revenue) or employment growth.

Although in other areas of private sector development several researches have been done in Armenia, the researches on competition policy related issues are missing. Nevertheless, we will try to fill partially this gap and to be the pioneers in this type of analysis by observing the competition and industry dynamics relationships. Broadly speaking, *the purpose of this research is to reveal the relationship between industry concentration and industry dynamics*. Firstly, Herfindhal-Hirschman Index (HHI) (see Step 6) is taken as a concentration measure and an attempt would be made to calculate it for different (selected) Armenian industries. Then, the regression analysis of the relationship of HHI and the industry dynamics (which is the change in the number of employees and the change in the output for the selected sector in the period of 1997-1998) will be carried out.

The core objective of this paper comes to issue of HHI calculation, precisely, assignment of the market shares to the enterprises, which is a pretty difficult issue.

We have restricted our research by competitive products which are defined as "those for which there is resident industry and which may therefore be produced either by resident products or imported" [8, p.366]. No complementary products - "those for which no resident industry exists and are available only from imports" [8, p.366] – were not taken into account, in order to find a correlation of the level of concentration and output and enployment, which could be explained only by residential activities.

Another restriction should also be considered. In the research industries are classified on the basis of International Standard Industrial Classification (ISIC)[1], see *Table 1, Appendix A*, rather than product classifications, such as Central Product Classification (CPC). Product based classification provides with more reliable results, however it is almost impossible to find product specific data.

Chapter 1 deals with HHI calculation, precisely we will estimate 2 types HHI: autarky HHI and open market HHI. In Chapter 2 we will derive and analysis the regression between indices and industry dynamics. Appendix A and B is compiled with statistical tables and charts. The statistics and grahps on regression are presented in the Appendix C. The Economics of Competition Policy is briefly discussed in the Appendix D.

[1] United Nations' International Standard Industrial Classification of all Economic Activities, the industrial classification that is used in the System of National Accounts.

Chapter 1. Herfindhal-Hirschman Index Calculation

Step 1: Data collection on Small and Medium Enterprises (SMEs)

In 1999 the Ministry of Statistics, State Register and Analysis in collaboration with the Statistical Service of European Union (EUROSTAT) implemented a survey on SMEs in Armenia. The survey covered enterprises with the number of employees below 50. The selection of the enterprises (approximately 30%, 1409 entities) was based on the Neimann distribution method, which assured the proper representation of enterprises by sectors. One of the results of the survey was the calculation of the semiannual total output of selected enterprises in 1998. The results are presented in the *Table 2, Appendix A*.

Step 2: Total Output of SMEs

The total output figures for the whole SMEs are not available. We avoid this problem by the following simple action. As it has been mentioned, the data in *Table 2, Appendix A* represents the results for 30% of total output of SMEs, hence for getting the same data for the whole SMEs, it is quite logical and simple to multiply the figures in *Table 2, Appendix A* by 10/3.

Assumption 1: (Output of 30% of SMEs)*10/3 is assumed as the approximate measure of the total output for all SMEs

By doing this we have received the semiannual total output figures for all SMEs represented in *Table 3, Appendix A*. To derive the annual numbers we multiply the semiannual figures by 2.

Assumption 2: Output of the first half of the year equals to the output of the second half of the year

Second column of *Table 10, Appendix A* presents the 1998 Total Output of SMEs (see *Chart 1, Appendix B*).

Step 3: Determination of the Total Market (Autarky)

The purpose of this step is to define the total market, based on the output, of a particular sector. The total market of a particular sector is the simple sum of the output of SMEs (already obtained in the *Step 2*) and the output of large enterprises[2]. The Ministry of Statistics provided us with the data on industries' output, number of enterprises produced this output (see *Table 4, Appendix A; Chart 2, Appendix B*). The statistics does not presicely states whether these enterprises large or small. Usually, only large enterprises report on their activities to official bodies. Hence, we assume that the data on the number of enterprises in the *Table 4, Appendix A* concerns only large enterprises.

Assumption 3: The data provided by the Ministry of Statistics in the *Table 4, Appendix A* concerns only large enterprises.

[2] Enterprises with number of employees more than 50 are considered as large.

Another difficulty was the fact that the data on total output, more precisely, the classification, for the whole industries is not in compliance with the classification of industries used in the survey. The data in the survey (see Step 1) is classified in accordance with ISIC. The Ministry of Statistics, State Register and Analysis uses different classification of industries. This fact made difficult the total market calculation. We carried out the grouping of the industries for proper matching. The *Table 4, Appendix A* is compiled in accordance with ISIC.

Step 4: Determination of the Total Market (Open Economy)

At this stage we consider the export and import flows. We add up to our model import figures for particular sector and subtract data on export. The data on foreign trade is classified according to Harmonised System Nomenclature (HS)[3]. After the grouping of trade figures in compliance with ISIC, we summarise it in *Table 5, Appendix A (*see *also Chart 3, Appendix B).* It is worthy to mention that for some industries, particularly, codes [17,18], 28,29,31 (see *Table 1, Appendix A*) the export figures exceed the total output figures in autarky (see summary *Table 6, Appendix A*). It seems confusing, but it may be explainable. One of the reasons might be the fact that export activities are easier and better monitored than domestic ones, hence the reporting on exports is more accurate, while the domestic figures used to be underestimated. Another explanation to these phenomenon could be that enterprises export their assets produced in previous years. Industries involved in re-export activities are not reported in domestic output, hence this is another reasoning of the above-mentioned issue.

Step 5: Market share assignment

The last column of the summary *Table 6, Appendix A* shows the Total Market data for selected industries. In order to make market share assignment we divide the enterprises in the 5 groups. SMEs are divided into 4 groups by number of employees: 1) 1-5; 2) 6-10; 3) 11-20; 4) 21-50. The large enterprises are taken as a separate group (51 and more).

The *Table 7, Appendix A* presents data on number of the registered SMEs at January 1, 1998. As it was already mentioned in Step 1, survey on SMEs covered the selected enterprises. The *Table 8, Appendix A* presents the number of the enterprises by groups after the selection has been undertaken. During the survey the researchers found out the number of operating enterprises from their selected sample, which is presented in the first column of the *Table 9, Appendix A*. On the basis of the *Table 7, Appendix A* and *Table 8, Appendix A* we can estimate the number of all operating SMEs by groups (see *Table 9, Appendix A*) assuming the the following:

Assumption 4: Operating enterprises are evenly distributed in the population of registered enterprises.

This assumption let us apply (operating enterprises)/(selected enterprises) ratio to the whole population in the following way: we find out the proportion of operating enterprises to the selected SMEs by each group for a particular industry, then by multiplication of this proportion by the number of registered enterprises in each group we find out the number for all operating SMEs (see *Chart 4, Appenidx B*). For example, from the industry with code 15 (see *Table 1, Appendix A*) 306 enterprises were selected, then the survey found out that only 138 were operating. We also know the number of registered enterprises in this industry (1136). It is very simple to estimate that

[3] HS is developed by the World Customs Organisation for both the collection of trade statistics and the imposition of customs duties. [9, p.156]

the total number of operating enterprises for the whole industry equals to 513 (138/306*1136=513).

The numbers of large enterprises by industries are given (see Step 3) (see *Table 6, Appendix A; Chart 5, Appendix B*).

The estimated numbers of operating enterprises are necessary for finding the output per enterprise. Here, we need another assumption:

Assumption 5: Within the each group equal output accrue to enterprises.

With this assumption the output per large enterprise is simply acquired by dividing the Total Output of large enterprises to the number of large enterprises (see *Table 11, Appendix A*). In the case of SMEs we could do the same thing, however, we have an opportunity to estimate the output figures for each of the SMEs group separately, using the average number of employees of each group. For that purpose we need 2 more assumptions:

Assumption 6: Within each group enterprises employ equal number of employees: for the group 1) 3 employees (which is arithmetic average of the maximum and minimum numbers of employees of the group, i.e. (1+5)/2=3); 2) 8; 3) 15,5; 4) 35,5 .

Assumption 7: Within each industry labor productivity of SMEs irrespective to their sizes is equal.

The logic of finding the output per SMEs is obvious. We find the total number of employees in each industry (see *Table 9, Appendix A*) by calculating the sum of muliplications of number of workers per enterprise by the number of enterprises in each group, for example, in the industry with code 15 there are 6,405 employees (227*3+55*8+63*15.5+121*31.5=6,405). Then we divide the Total Output of SMEs by the number of employees in a given industry for the purpose of getting the output per employee(see *Table 10, Appendix A, Chart 6, Appendix B*) (e.g. code 15: output per employee = 20,115,993/6,405 = 3,147). By multiplying the output per employee by the average number of employees in each group we receive the estimated output per enterprise (see *Table 10, Appendix A*) (e.g. code 15; group 1 (1-5 employees): 3,147*3 = 9,440). *Table 11, Appendix A* is a summary table of output for all 5 groups of enterprises.

Finally, in this step, we assign market shares to each enterprise. **Assumption 5** let us to calculate market share of each enterprise in the following way: dividing output of each enterprise by Total Market of the industry concerned (see *Table 12, Appendix A*) (e.g. code 15: total market = 105,928,147; output of each enterprise within the group of 1-5 employees = 9,440; market share of each enterprise in the mentioned group = 9,440/105,928,147 = 0.00008911). In this way we receive open market shares. The same is done for the Total Market (Autarky). These results are summarisied in the *Table 15, Appendix A.* See *also Chart 7, Appendix B* on this issue.

Step 6: Calculation of the Herfindhal-Hirschman Index (HHI)

We have already developed the necessary data for HHI calculation.

HHI is based on the total number and size distribution of firms in the industry. It is computed as the sum of the squares of the relative size of all firms in the industry. Algebraically it is:

$$HHI = \sum_{(I=1:n)} (s_i)^2 , \text{ where } \sum s_i = 1$$

s_i is the relative output/market share of the i^{th} firm, and n is the total number of firms in the industry.

In an industry with one firm (monopoly), the HHI will be equal to 1. In a duopoly with two equal sized firms, the HHI measure will be: $(0,5)^2+(0,5)^2=0,5$.

The HHI may be computed on a base of 1 (as in the above examples) or 1000 or 10000. The index is used, for example, in the US Antitrust Merger Guidelines as an administrative criterion to screen mergers that may warrant further examination for their effects on competition. The HHI has several mathematical and economic properties which make it a desirable concentration measure [3, p 24].

Thus, having market shares of enterprises in each industry, we are able to compute HHI for each industry.

For the purpose of final analysis we calculate 2 types of HHI. First HHI is calculated for the open market, i.e. the export and import flows are considered (see *Table 13, Appendix A*). Second HHI is calculated under the assumption of autarky market (see *Table 16, Appendix A*). The results are obvious autarky HHI much higher than open market HHI (nevertheless, this is not always the case, only industry 15's HHI contradicts to the just-mentioned statement, due to the fact, that we suprisingly face positive trade balance).

So, we have 2 indices, and the tools for analysis are almost developed

Chapter 2. Industry Dynamics and HHI Relationship

The Ministry of Statistics provided us with the percentage change in the number of employeees and the percentage change in the output for the period 1997-1998 (see *Table 14, Appendix A*). In this Step we introduce 2 models (regressions): 1) regression between open market HHI and industry dynamics, 2) regression between autarky HHI and dynamics. There is something more to tell about the second model. Though we are regressing the autarky HHI, we think that to neglect foreign trade would be an inconsistency. We decide to introduce the trade factor in the following manner. Let's introduce import to dometic production ratio (Import/(Autarky Total Output+Import)) and export to domestic output ratio (Export/Autarky Total Output). The second model/ regression will consist of 3 independent variables: HHI, Import/(Autarky Total Output+Import), Export/ Autarky Total Output. Another advantage of the second regression would be the possibility to reveal the relationship of imports and exports on industry dynamics separately, not in a combination with HHI as in the first model.

Let's concentrate on the first model.

The computer derived the regressions which are presented in details in the *Table 1, Appendix C* (employment change and HHI) and *Table 2, Appendix C* (output change and HHI). From the statistics in the *Tables* we can derive following estimated regression (prediction) line equations:

1) Change in Output=118.3-241.3HHI

2) Change in Employment=85.8+84.8HHI

Equation 1) shows negative relationship (coefficient= -241.3) between Output Change and HHI, which can mean that the less the concentration (or more competition) the higher the output. This relationship supports widely spread statement about competition's influence on output. In this case, everything held constant *competition policy should support the decentralisation of the market.* But life is not so easy and clear as it seems from the equation 1). Correlation coefficient[4] (r) equals to –0.13095. It again proves the inverse relatioship, but the weak one. Weakness in this terms means that regression line is a poor predictor of the Change in Output with the given HHI.

Equation 2) adds extra controversies on this matter. It shows positive relationship between Employment Change and Concentration (the less the competition the higher the employment, from social point of view highly desirable). Here, r=0.15265, which confirms positive, but, again, weak relationship. From this perspective, *competition poicy should not be prone to decentralise the markets.*

As you have noticed, equations lead to extremely different strategies for the implementation of the competition policy. Another conclusion which can be drawn is that the inverse relationship exists between the Output and Employment Changes, what in its turn does not conform with generally accepted opinion on the direct relationship. Nevertheless, the negative relationship can be explained: the automation of the production process can lead to the increase in output, simultaneously cutting the employment. Probably, this has taken place in Armenia, unfortunately, we cannot prove this by evidence.

Summarising the regression, we may conclude that due to the controvercies of the equation, this type of analysis cannot serve as a guide in the formation of the competition policy implementation process.

Second model

[4] Measures the strength and direction of the relationship between 2 variables. Perfect correlation is approached as coefficient becomes near 1 to –1. Variables are uncorrelated whenever coefficient equals to 0 [11, p 413].

The (Imp/(Autarky Total Output+Imp)=M, (Exp/Autarky Total Output)=X ratios are presented in the *Table 17, Appendix A, Autarky HHI* is in the *Table 17, Appendix A.*

The regressions between just-mentioned 3 independent variables and industry dynamics are presented in details in the *Table 3, Appendix C* (employment change and HHI) *Table 4, Appendix C* (output change and HHI). Following regression lines are derived:

3) Change in Output=85.3+427.6HHI+32.7M-15.6X

4) Change in Employment=88.9+50HHI-5.8M-1.8X

Equation 3) shows positive relationship between autarky HHI and Output Change. This can be explained by the fact that in the autarky the demand for imports shifts towards domestic production. Only large enterprises (which usually operate in comparatively concentrated markets) can afford the satisfaction of this excessive demand due to the unutilised capacities. By this their market shares are increased (Autarky HHI > Open Market HHI). The Import factor surprisingly directly related to the output. Usually, it is assumed that imports serve as substitution to the domestic industry, hence it should be inversely related. Nevertheless, positive relationship can be established in the case of high volume of re-export activities. The negative Export relationship is really confusing, but the following could be an explanation. Due to the increase in the domestic demand, domestically-oriented industries (hence, industries with lower X ratio) could expand their capacities and by this contribute more to the positive Output Change. By the way, in this case the r=0.891768 (strong, positive correlation). We advise the *competition policy authorities to target the enforcement of centralisation of industries.*

Equation 4) agrees with Equation 3) in terms of Autarky HHI and X ratio. Here, the positive relationship between Output and Employment Changes is obvious. The contradiction concerns the Imports. Imports are related inversely to Employment Change in 4). The logic is simple, the higher the imports, the higher the rate of substitution, the less the employment. The r=0.30934 (weak, positive correlation). Considering only equation 4), we propose *the policy to be centrally-oriented.*

The results of the second model are more satisfactory. In general the equations of the model are not contradicting, and on this basis the policy implementation direction can be drawn. Again, *it should not be directed at decentralisation of the indutries. We come to an interesting conclusion, within the framework of Model 2 highly centralised/concentrated indutries are better contributors to the social welfare. The results we received seem to coincide with statement of Schumpetterian school:*

Monopolies are better for societies!

Appendix A

Table 1

Codes	Names
15	Manufacture of food and beverages
16	Manufacture of tobacco products
17	Manufacture of textiles
18	Manufacture of wearing apparel; dressing and dyieng of fur
19	Tanning and dressing of leather; manufacture of luggage, hand bags, saddlery, harness and footwear
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
21	Manufacture of paper and paper products
22	Publishing, printing and reproduction of recorded media
24	Manufacture of chemicals and chemical products
25	Manufacture of rubber and plastics products
27	Manufacture of basic metals
28	Manufacture of fabricated metal products, except machinery and equipment
29	Manufacture of machinery and equipment
31	Manufacture of electrical machinery and apparatus
36	Manufacture of furniture

Table 2

Semiannual Total Output of Selected SMEs (1998)

Codes	Semiannual Output (thous.AMD)
15	3,017,399
16	586
17,18	204,377
19	57,383
20	262,267
21	60,713
22	361,504
24	108,258
25	142,998
27	1,536
28	752,278
29	64,691
31	57,444
36	109,729

Ministry of Statistics

Table 3

Estimated Semiannual Total Output of All SMEs (1998)

Codes	Semiannual Output (thous.AMD)
15	10,057,997
16	1,953
17,18	681,257
19	191,277
20	874,223
21	202,377
22	1,205,013
24	360,860
25	476,660
27	5,120
28	2,507,593
29	215,637
31	191,480
36	365,763

Table 4

Output of Large Enterprises (1998)

Codes	Annual Output of Enterprises (thous.AMD)	# of Enterprises
15	94,406,793	254
16	5,714,355	3
17, 18	3,783,063	125
19	712,355	28
20	336,966	18
21	99,787	6
22	1,796,808	48
24	1,463,096	16
25	5,212,222	27
27	24,363,866	28
28	1,851,821	35
29	3,233,198	74
31	1,903,169	49
36	334,974	18

Ministry of Statistics

Table 5

Import and Export (1998)

Codes	Export (thous. AMD)	Import (thous. AMD)
15	8,717,000	122,361
16	406,800	26,270,300
17, 18	6,825,100	14,488,800
19	1,074,400	3,508,300
20	138,600	1,647,400
21	131,500	7,190,700
22	144,000	6,453,300
24	1,084,900	37,182,300
25	4,013,900	13,802,300
27	20,328,700	10,144,900
28	905,015	1,080,060
29	6,115,581	5,337,849
31	4,153,074	4,090,265
36	980,600	4,236,200

Ministry of Statistics

Table 6

Codes	Annual Output of Large Enterprises (thous.AMD)	# of Large Enterprises	Annual Output of SMEs (thous.AMD)	Estimated # of SMEs	Total Market (thous.AMD) (Autarky)	Export (thous.AMD)	Import (thous.AMD)	Total Market (thous.AMD)
15	94,406,793	254	20,115,993	466	114,522,786	8,717,000	122,361	105,928,147
16	5,714,355	3	3,907	2	5,718,262	406,800	26,270,300	31,581,762
17,18	3,783,063	125	1,362,513	79	5,145,576	6,825,100	14,488,800	12,809,276
19	712,355	28	382,553	38	1,094,908	1,074,400	3,508,300	3,528,808
20	336,966	18	1,748,447	75	2,085,413	138,600	1,647,400	3,594,213
21	99,787	6	404,753	10	504,540	131,500	7,190,700	7,563,740
22	1,796,808	48	2,410,027	140	4,206,835	144,000	6,453,300	10,516,135
24	1,463,096	16	721,720	27	2,184,816	1,084,900	37,182,300	38,282,216
25	5,212,222	27	953,320	25	6,165,542	4,013,900	13,802,300	15,953,942
27	24,363,866	28	10,240	3	24,374,106	20,328,700	10,144,900	14,190,306
28	1,851,821	35	5,015,187	96	6,867,008	905,015	1,080,060	7,042,053
29	3,233,198	74	431,273	35	3,664,471	6,115,581	5,337,849	2,886,739
31	1,903,169	49	382,960	33	2,286,129	4,153,074	4,090,265	2,223,320
36	334,974	18	731,527	66	1,066,501	980,600	4,236,200	4,322,101

Table 7

Number of Registered SMEs (1998)

Codes	# of registered enterprises, Jan.1,1998	1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	1035	699	165	92	79
16	3	2	0	0	1
17, 18	1103	837	149	57	60
19	405	330	42	20	13
20	385	298	55	23	9
21	47	33	9	4	1
22	322	184	66	49	23
24	90	49	24	9	8
25	253	208	23	16	6
27	15	8	4	3	0
28	290	205	30	30	25
29	207	122	25	38	22
31	171	126	22	13	10
36	324	221	57	24	22

Table 8

Number of Enterprises Selected in the SMEs Survey (1998)

Codes	# of Selected Enterprises	Number of Selected Enterprises by Number of Employees			
		1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	306	150	36	41	79
16	3	2	0	0	1
17, 18	324	199	37	28	60
19	120	85	11	11	13
20	114	78	15	12	9
21	20	8	7	4	1
22	96	38	14	21	23
24	32	10	7	7	8
25	84	55	14	9	6
27	14	7	4	3	0
28	86	41	7	13	25
29	64	21	7	14	22
31	52	28	7	7	10
36	94	48	13	11	22

Table 9

Estimated Number of Operating SMEs (1998)

Codes	# of Operating SMEs from the Selected SMEs	Estimated # of All Operating SMEs	Estimated # of Operating SMEs by # of Employees			
			1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	138	466	227	55	63	121
16	1	2	1	0	0	1
17, 18	23	79	46	10	7	15
19	11	38	25	4	4	5
20	22	75	50	10	8	6
21	4	10	3	4	2	1
22	42	140	54	21	31	34
24	9	27	8	6	6	7
25	8	25	16	5	3	2
27	2	3	1	1	1	0
28	28	96	45	8	15	28
29	11	35	10	4	8	13
31	10	33	17	5	5	7
36	19	66	32	10	8	16

Table 10

Estimated Output of SMEs
(1998)

Codes	Estimated Total Output (thous.AMD)		Output per employee (thous.AMD)	Estimated Output per Enterprise (thous.AMD)			
	1998 semiannual 100%	1998 annual 100%		1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	10,057,997	20,115,993	3,147	9,440	25,173	48,772	111,703
16	1,953	3,907	101	304	-	-	3,602
17,18	681,257	1,362,513	1,586	4,758	12,689	24,586	56,309
19	191,277	382,553	1,104	3,312	8,832	17,113	39,194
20	874,223	1,748,447	3,084	9,251	24,669	47,797	109,471
21	202,377	404,753	3,765	11,295	30,121	58,360	133,663
22	1,205,013	2,410,027	1,195	3,584	9,556	18,516	42,407
24	360,860	721,720	1,745	5,236	13,963	27,054	61,961
25	476,660	953,320	4,639	13,917	37,112	71,905	164,685
27	5,120	10,240	386	1,159	3,091	5,989	13,718
28	2,507,593	5,015,187	3,518	10,555	28,146	54,532	124,896
29	215,637	431,273	666	1,998	5,328	10,324	23,645
31	191,480	382,960	918	2,755	7,347	14,235	32,602
36	365,763	731,527	843	2,528	6,742	13,063	29,918

Table 11

Output of Each Type of Enterprise

Codes	Output per Large Enterprise	Estimated Output per SME (thous.AMD)			
		1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	371,680	9,440	25,173	48,772	111,703
16	1,904,785	304	-	-	3,602
17, 18	30,265	4,758	12,689	24,586	56,309
19	25,441	3,312	8,832	17,113	39,194
20	18,720	9,251	24,669	47,797	109,471
21	16,631	11,295	30,121	58,360	133,663
22	37,434	3,584	9,556	18,516	42,407
24	91,444	5,236	13,963	27,054	61,961
25	193,045	13,917	37,112	71,905	164,685
27	870,138	1,159	3,091	5,989	13,718
28	52,909	10,555	28,146	54,532	124,896
29	43,692	1,998	5,328	10,324	23,645
31	38,840	2,755	7,347	14,235	32,602
36	18,610	2,528	6,742	13,063	29,918

Table 12

Market Share of Each Enterprise (Open Economy)

Codes	Market Share per Large Enterprise	Market Share per SME (thous.AMD)			
		1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	0.00350880	0.00008911	0.00023764	0.00046042	0.00105452
16	0.06031282	0.00000964	-	-	0.00011406
17, 18	0.00236270	0.00037149	0.00099063	0.00191935	0.00439594
19	0.00720959	0.00093860	0.00250294	0.00484945	0.01110680
20	0.00520847	0.00257387	0.00686366	0.01329833	0.03045748
21	0.00219880	0.00149337	0.00398231	0.00771573	0.01767151
22	0.00355963	0.00034078	0.00090875	0.00176069	0.00403256
24	0.00238867	0.00013678	0.00036474	0.00070669	0.00161854
25	0.01210016	0.00087233	0.00232621	0.00450703	0.01032256
27	0.06131919	0.00008169	0.00021785	0.00042208	0.00096670
28	0.00751332	0.00149879	0.00399678	0.00774377	0.01773573
29	0.01513537	0.00069219	0.00184585	0.00357633	0.00819094
31	0.01746945	0.00123919	0.00330450	0.00640246	0.01466371
36	0.00430570	0.00058497	0.00155993	0.00302237	0.00692220

Table 13

Herfindahl - Hirschman Index (HHI) Calculation (Open Economy)

Codes	HHI
15	0.00327998
16	0.01091292
17, 18	0.00102961
19	0.00221335
20	0.00827136
21	0.00053048
22	0.00128081
24	0.00011357
25	0.00426646
27	0.10528144
28	0.01191169
29	0.01794481
31	0.01674474
36	0.00120873

Table 14

Codes	Change in the # of Employees* (%)	Change in the Output** (%)
15	87.2	103.7
16	95.3	263.0
17, 18	95.6	103.2
19	47.1	156.1
20	82.4	93.0
21	107.5	131.9
22	92.2	102.8
24	92.9	152.0
25	89.4	79.0
27	93.6	98.4
28	89.6	88.6
29	82.6	73.3
31	95.0	68.0
36	62.7	98.5

* Change in the # of Employees = $\frac{\text{\# of Emp 1998}}{\text{/\# of Emp 1997}} \times 100\%$

* Change in the # of Output = $\frac{\text{\# of Out1998}}{\text{/\# of Out 1997}} \times 100\%$

Table 15

Market Share of Each Enterprise (Autarky)

	Market Share per Large Enterprise	Market Share per SME (thous.AMD)			
		1-5 empolyees	6-10 employees	11-20 employees	21-50 employees
15	0.00324547	0.00008243	0.00021980	0.00042587	0.00097538
16	0.33310560	0.00005324	-	-	0.00062995
17, 18	0.00588165	0.00092477	0.00246606	0.00477799	0.01094314
19	0.02323596	0.00302505	0.00806679	0.01562941	0.03579640
20	0.00897680	0.00443607	0.01182953	0.02291970	0.05249352
21	0.03296301	0.02238759	0.05970024	0.11566921	0.26491981
22	0.00889826	0.00085187	0.00227166	0.00440134	0.01008048
24	0.04185410	0.00239662	0.00639099	0.01238255	0.02836003
25	0.03131035	0.00225724	0.00601929	0.01166238	0.02671062
27	0.03569928	0.00004756	0.00012683	0.00024573	0.00056280
28	0.00770484	0.00153700	0.00409866	0.00794116	0.01818782
29	0.01192310	0.00054528	0.00145409	0.00281730	0.00645253
31	0.01698950	0.00120514	0.00321371	0.00622656	0.01426084
36	0.01744928	0.00237067	0.00632178	0.01224845	0.02805289

Table 16

Herfindahl - Hirschman Index (HHI) Calculation (Autarky)

Codes	HHI
15	0.00280614
16	0.33287843
17, 18	0.00638048
19	0.02299057
20	0.02456973
21	0.11922068
22	0.00800362
24	0.03486927
25	0.02856675
27	0.03568436
28	0.01252670
29	0.01113605
31	0.01583729
36	0.01985171

Table 17

Codes	HHI	Imp/(Imp+ +Autarky Total Mkt)	Export/ Autarky Total Mkt
15	0.00280614	0.0010673	0.076115857
16	0.33287843	0.82124042	0.071140497
17, 18	0.00638048	0.73793024	1.326401466
19	0.02299057	0.76214235	0.981269354
20	0.02456973	0.44132941	0.066461666
21	0.11922068	0.93443475	0.260633273
22	0.00800362	0.60536759	0.034230012
24	0.03486927	0.9445015	0.496563555
25	0.02856675	0.69122642	0.651021435
27	0.03568436	0.29389317	0.834028538
28	0.0125267	0.13590673	0.131791756
29	0.01113605	0.59294144	1.668884931
31	0.01583729	0.64146993	1.816640268
36	0.01985171	0.79887594	0.919455596

Appendix B

Chart 1

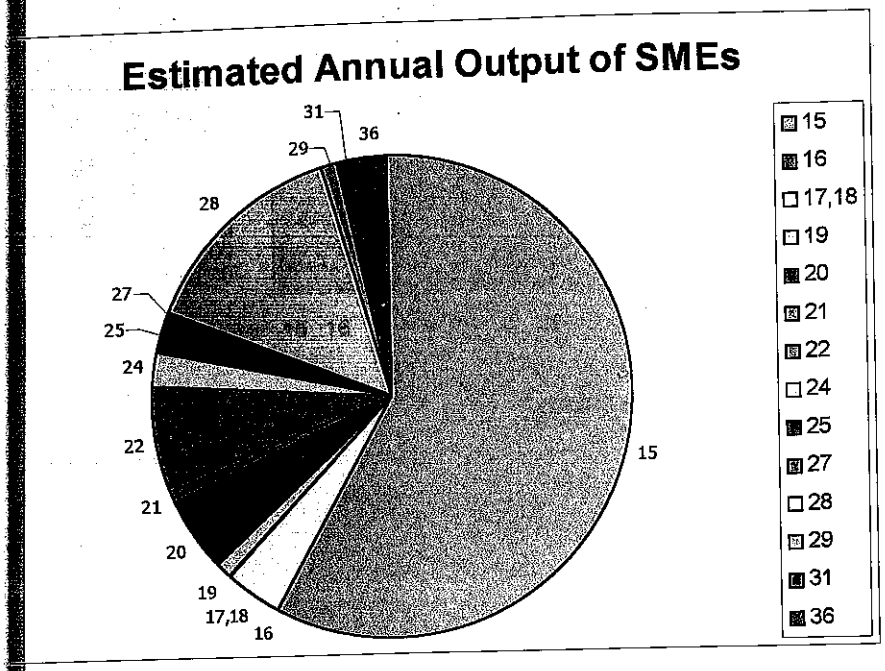


Chart 2

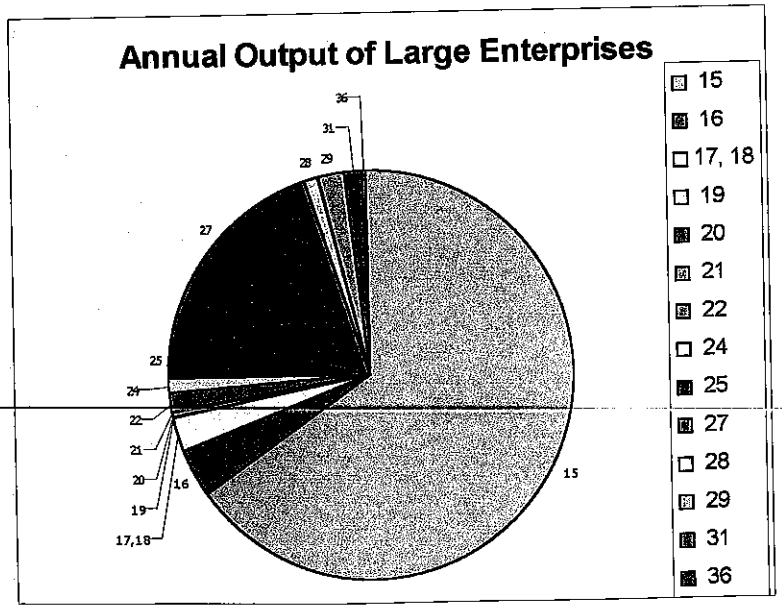


Chart 3

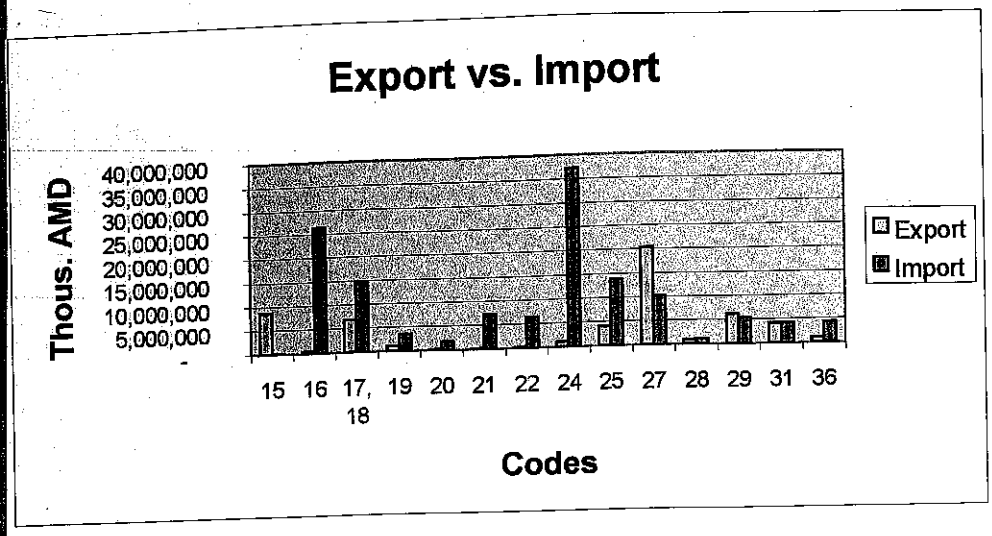


Chart 4

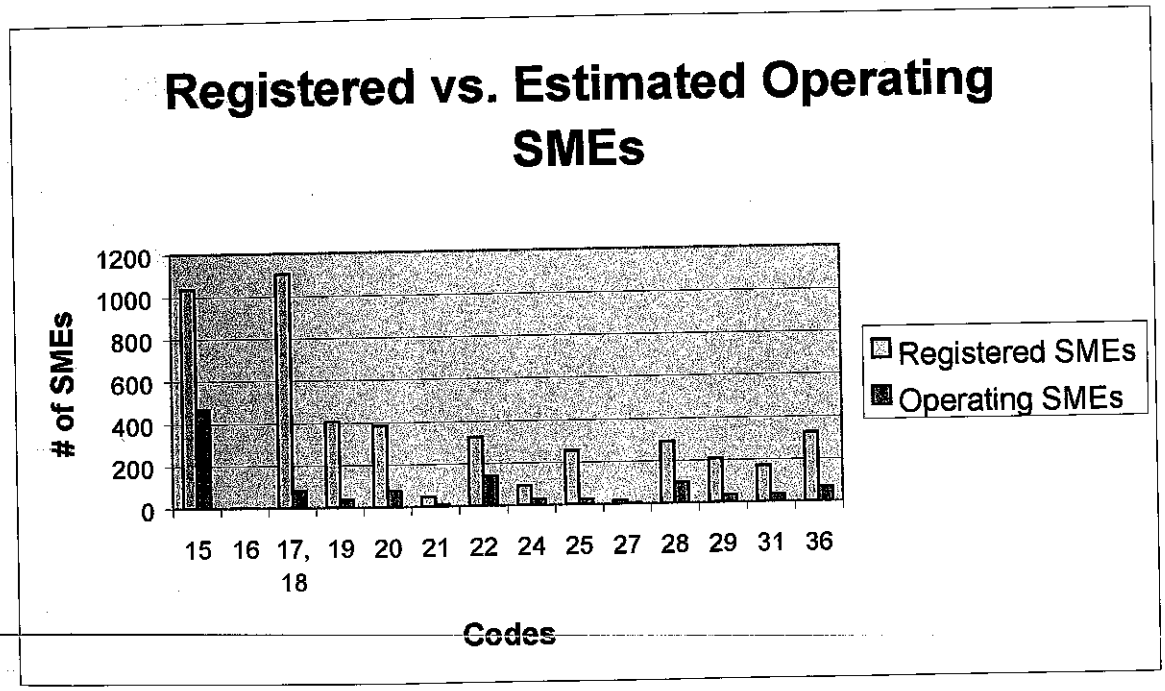


Chart 5

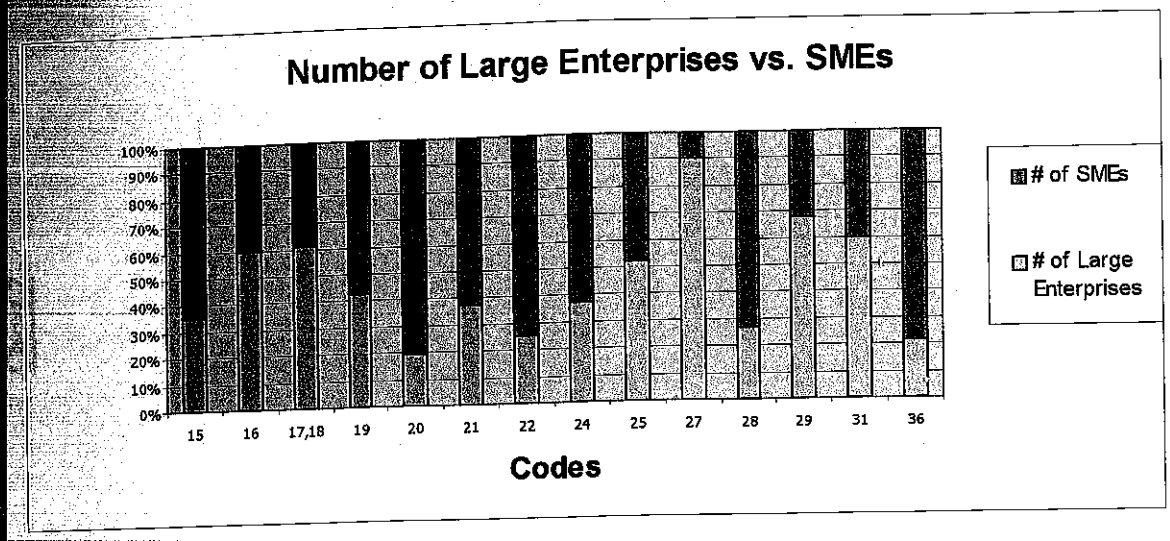


Chart 6

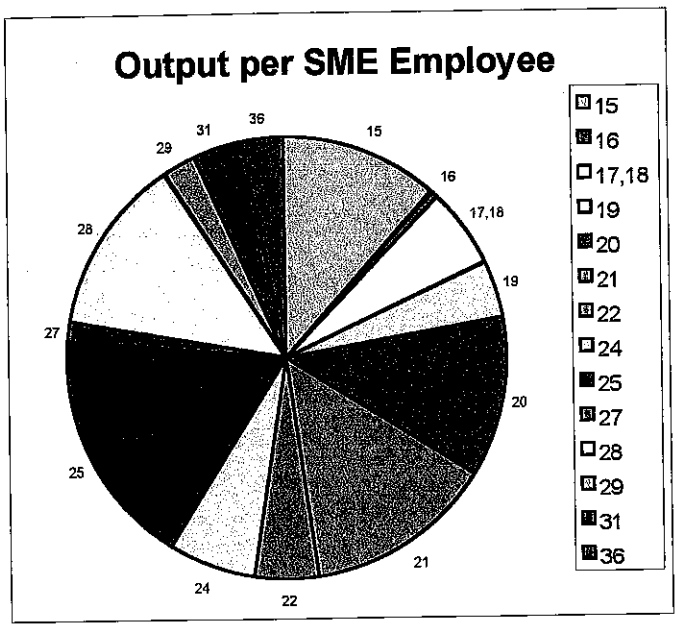
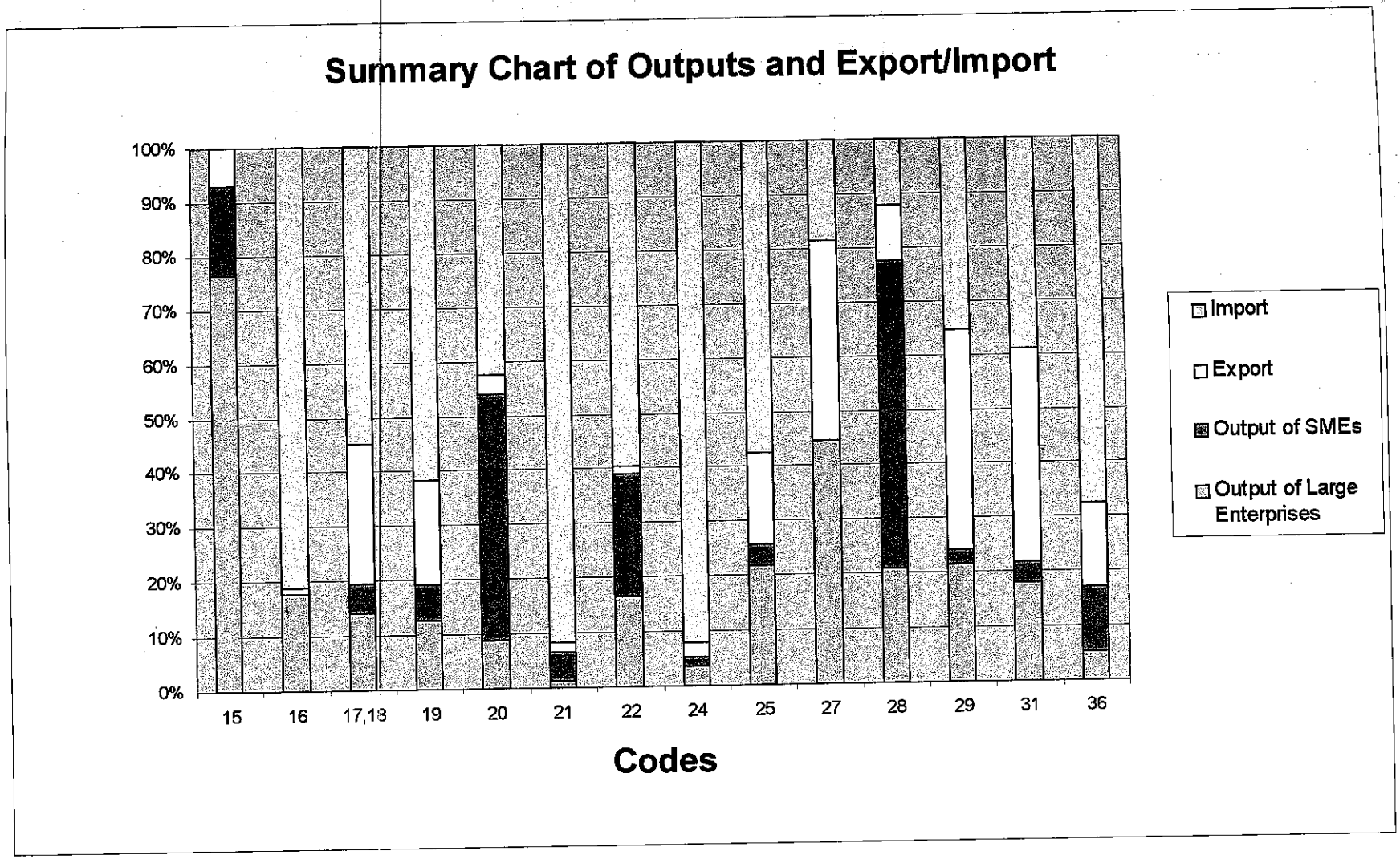


Chart 7


Summary Chart of Outputs and Export/Import
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
15
16
17,18
19
20
21
22
24
25
27
28
29
31
36
Codes
Import
Export
Output of SMEs
Output of Large Enterprises

Appendix C

Table 1

Regression Statistics	
Multiple R	0.152646421
R Square	0.02330093
Adjusted R Square	-0.058090659
Standard Error	15.5418993
Observations	14

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	69.15154773	69.15154773	0.28628179	0.602387366
Residual	12	2898.607605	241.5506338		
Total	13	2967.759153			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	85.51475107	4.652122455	18.38187879	3.7262E-10
HHI	84.82836791	158.5419697	0.535053072	0.602387366

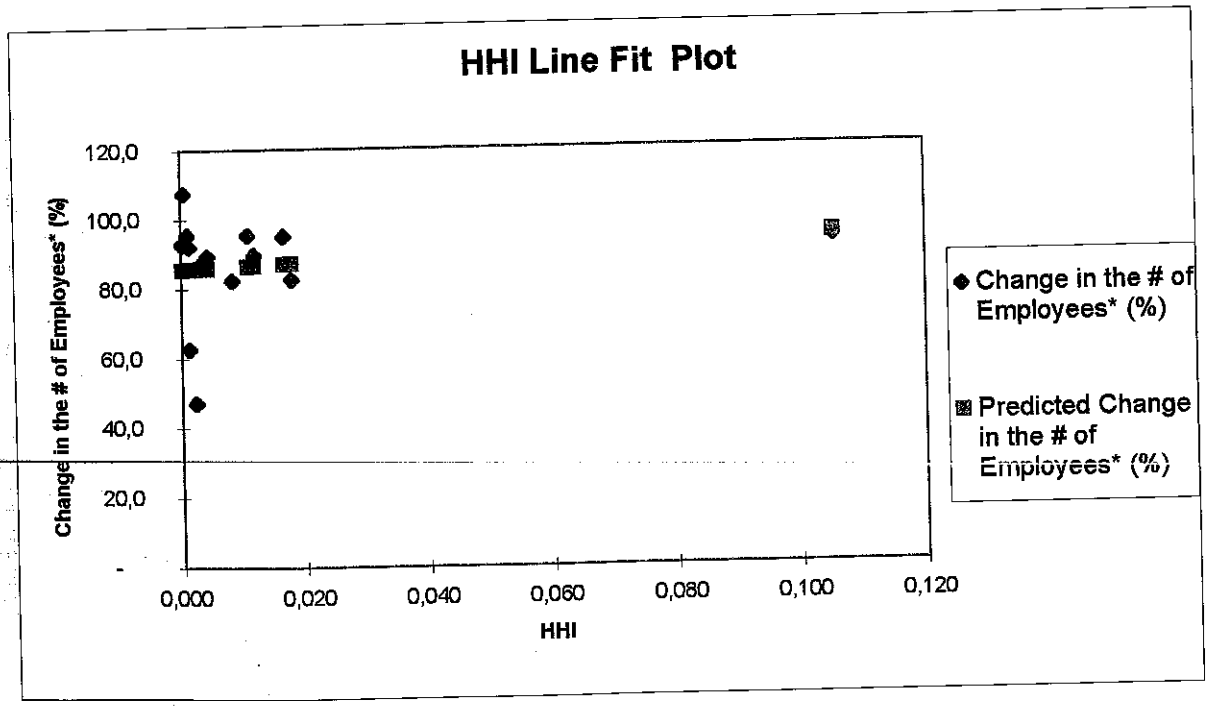


Table 2

Regression Statistics	
Multiple R	0.130951892
R Square	0.017148398
Adjusted R Square	-0.064755902
Standard Error	51.7043933
Observations	14

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	559.7211877	559.7211877	0.209371157	0.655434767
Residual	12	32080.13144	2673.344287		
Total	13	32639.85263			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	118.2912618	15.47656207	7.643251863	5.97907E-06
HHI	-241.3381795	527.4333723	-0.457570932	0.655434767

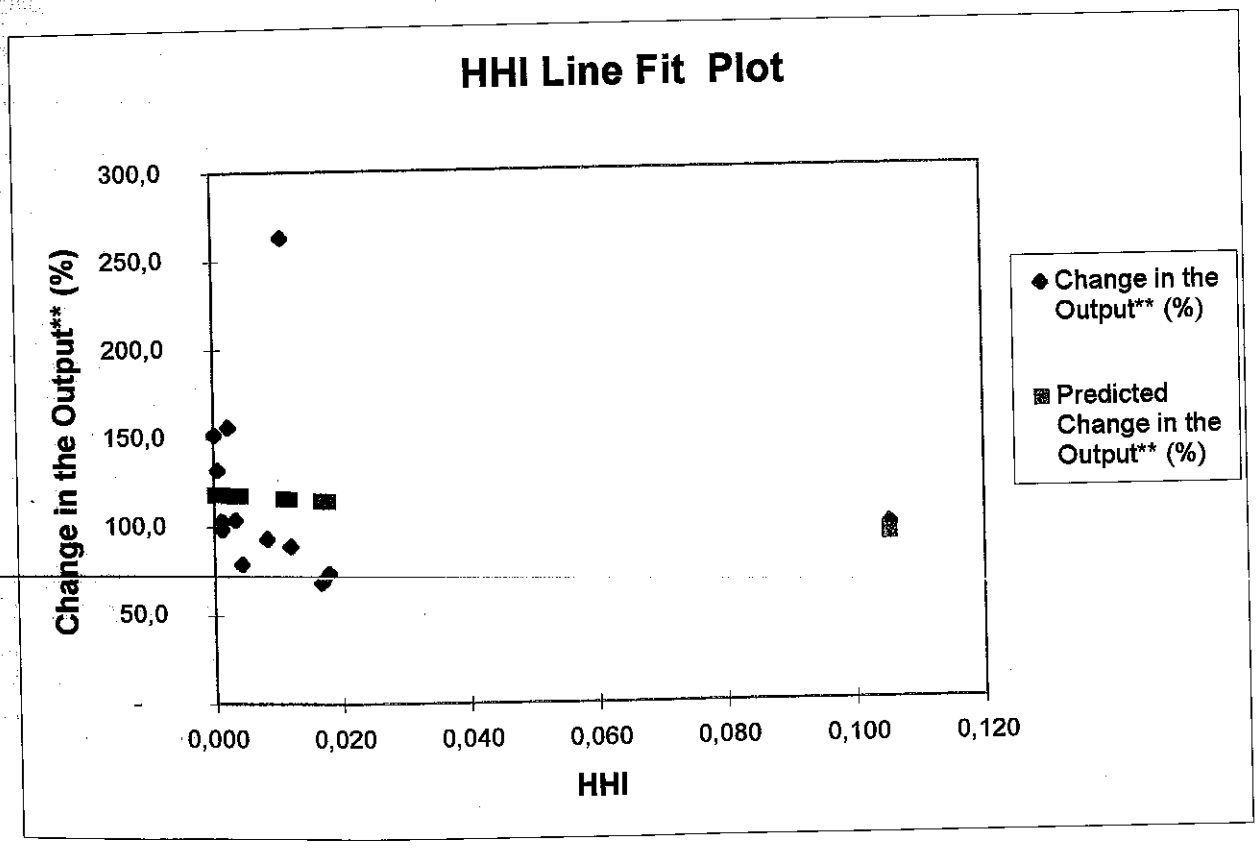


Table 3

Regression Statistics	
Multiple R	0.309340084
R Square	0.095691287
Adjusted R Square	-0.175601326
Standard Error	16.38221737
Observations	14

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	3	283.9886941	94.66289803	0.352723526	0.788255444
Residual	10	2683.770459	268.3770459		
Total	13	2967.759153			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	88.90082268	10.8332665	8.206280415	9.41492E-06
HHI	49.99587187	63.03859765	0.793099367	0.446129084
Imp/(Imp+Autarky Total Mkt)	-5.758410749	18.55502841	-0.31034233	0.76267213
Export/ Autarky Total Mkt	-1.831014554	8.58265591	-0.213338921	0.835349205

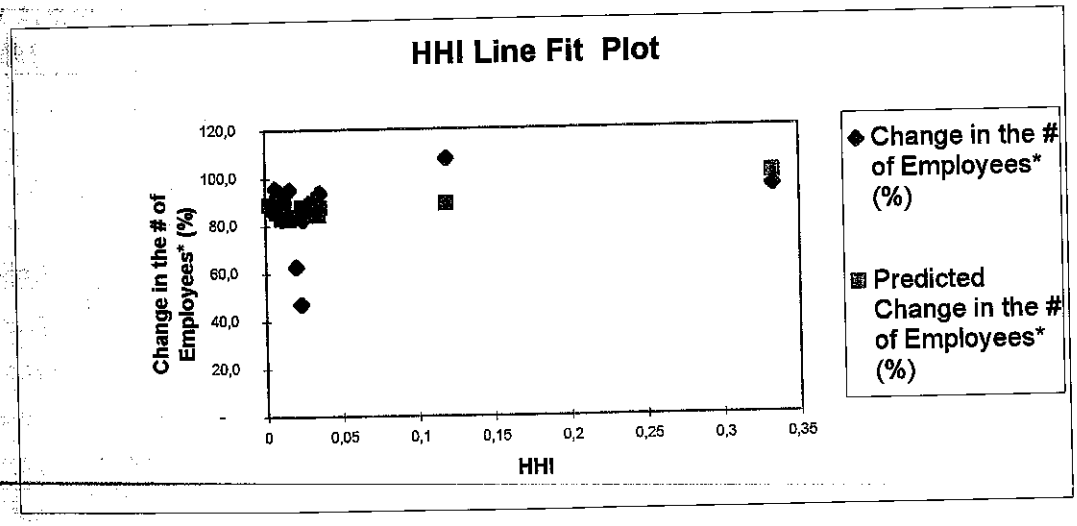
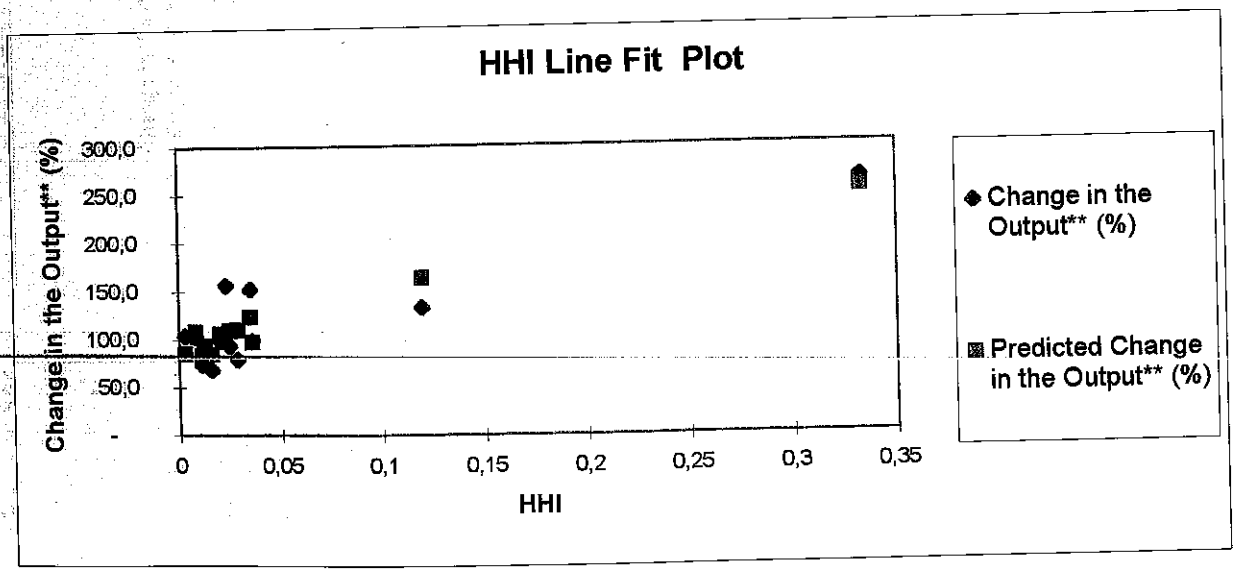


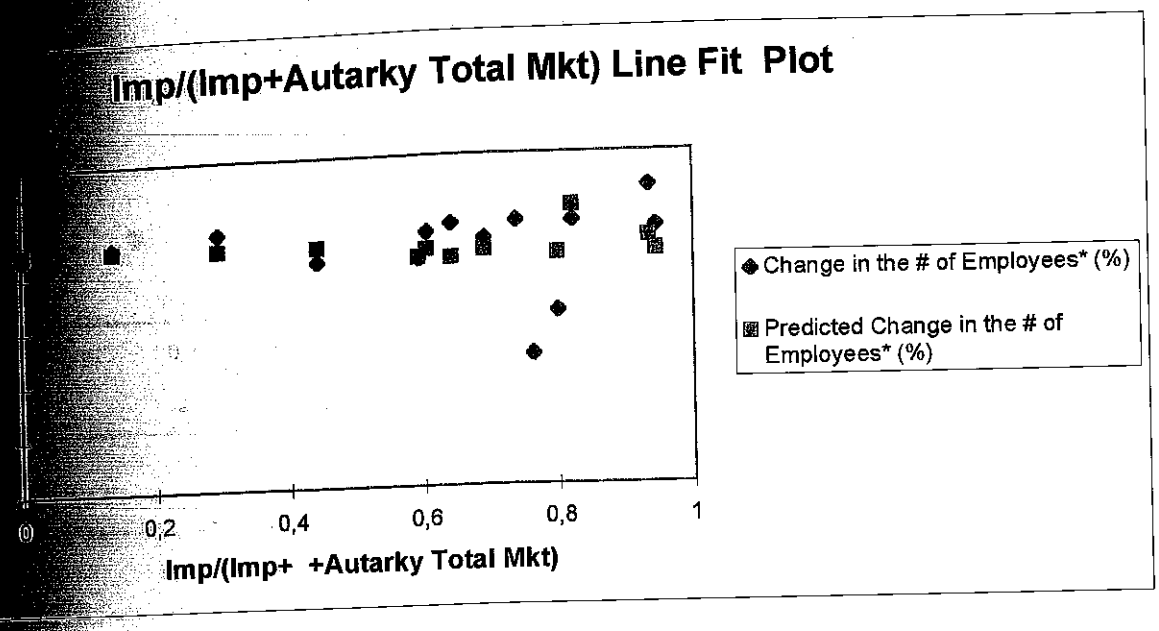
Table 4

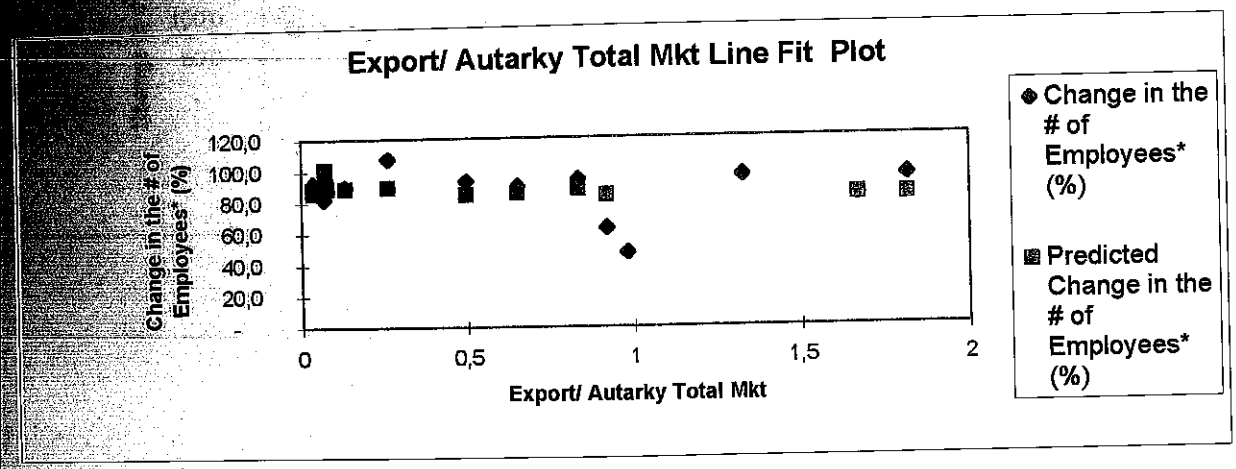
Regression Statistics	
Multiple R	0.891767705
R Square	0.79524964
Adjusted R Square	0.733824532
Standard Error	25.85154074
Observations	14

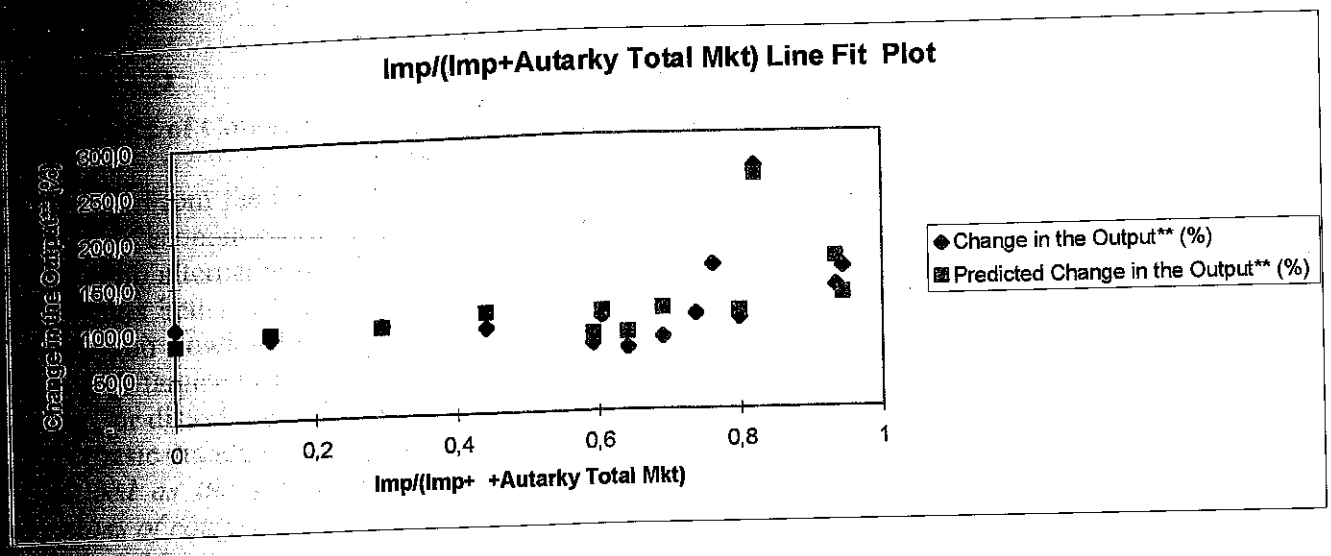
ANOVA	df	SS	MS	F	Significance F
Regression	3	25956.83104	8652.277015	12.94665429	0.000887008
Residual	10	6683.021588	668.3021588		
Total	13	32639.85263			

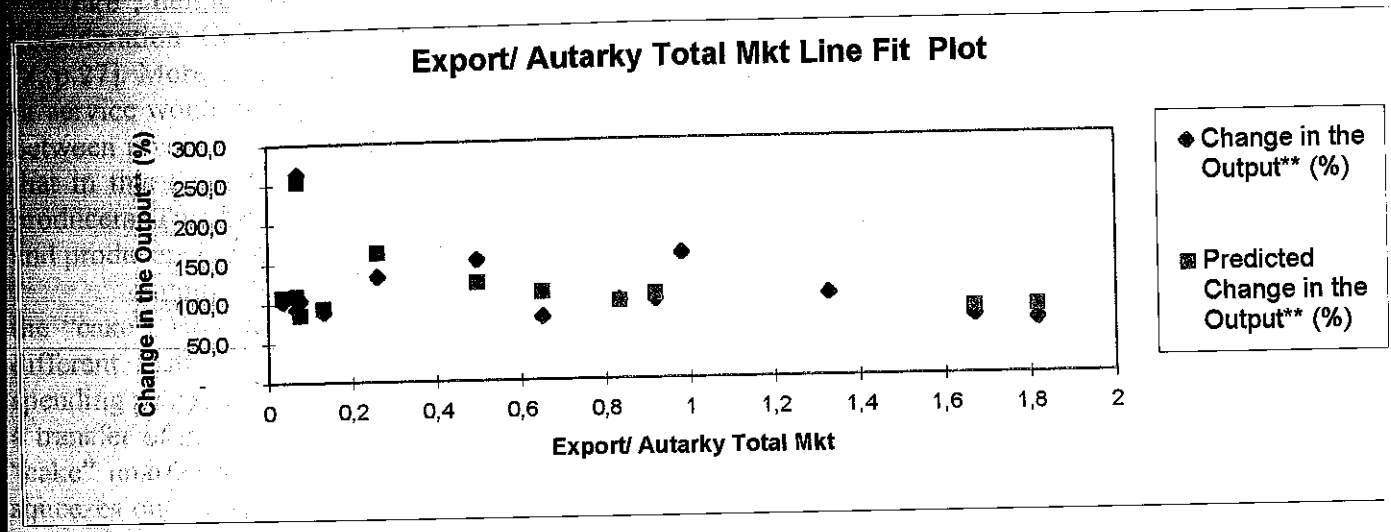
	Coefficients	Standard Error	t Stat	P-value
Intercept	85.28111619	17.09516019	4.988611702	0.000546434
HHI	427.5896677	99.47645297	4.298400827	0.001565373
Imp/(Imp+Autarky Total Mkt)	32.68208922	29.28028985	1.116180522	0.290447028
Export/ Autarky Total Mkt	-15.62667095	13.5436415	-1.153801284	0.275412026




Imp/(Imp+Autarky Total Mkt) Line Fit Plot
0,2
0,4
0,6
0,8
1
Imp/(Imp+ +Autarky Total Mkt)
Change in the # of Employees* (%)
Predicted Change in the # of Employees* (%)


Export/ Autarky Total Mkt Line Fit Plot
Change in the # of Employees* (%)
120,0
100,0
80,0
60,0
40,0
20,0
-
0
0,5
1
1,5
2
Export/ Autarky Total Mkt
Change in the # of Employees* (%)
Predicted Change in the # of Employees* (%)


Imp/(Imp+Autarky Total Mkt) Line Fit Plot
Change in the Output** (%)
300,0
250,0
200,0
150,0
100,0
50,0
0
0,2
0,4
0,6
0,8
1
Imp/(Imp+ +Autarky Total Mkt)
Change in the Output** (%)
Predicted Change in the Output** (%)


Export/ Autarky Total Mkt Line Fit Plot
Change in the Output** (%)
300,0
250,0
200,0
150,0
100,0
50,0
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
Export/ Autarky Total Mkt
Change in the Output** (%)
Predicted Change in the Output** (%)

Appendix D

Economics of Competition Policy

From the perspective of economic analysis, competition policy is typically assessed in terms of "economic efficiency" or "Pareto efficiency". An allocation of resources is efficient if there is no alternative way to organize the production and distribution of goods that makes some consumers better off without making some other consumers worse off [3, p.65]. A basic policy proposition flowing from the pursuit of economic efficiency is that any government intervention should be targeted as directly as possible at its objective, in order to minimize the undesirable side effects, or distortions, with which policy interventions are sometimes associated. While efficiency is the basic standard of judgment applied in economic analysis, *economic efficiency may not be embraced as the sole objective of competition policy - other factors may well influence the decisions of competition policy authorities.*

Most economic analyses view the purpose of competition policy to be to maximize "welfare", defined as the sum of consumer surplus and producer surplus in the industry under consideration. Consumer surplus is a monetary measure of the net benefit accruing to consumers [3, p.27]. More specifically, it is the aggregate difference between what the consumers of product or service would be willing to pay and what they actually pay. Producer surplus is the difference between revenue received by the producer and the cost of production[3, p.27]. It should be noted that in this theoretical framework, equal weights are placed on the interests of consumers and producers. This has the important implication that the *distribution* of surplus between consumers and producers is not taken into account by economists in their analyses of competition policy.

Intuitively, the purpose of competition policy can be viewed as maximizing the size of the "cake". How the cake is divided up among different groups within society, however, is a different matter, which better addressed by other policies, such as redistributive taxes and spending programs. From this perspective, a monopoly price is not undesirable because it implies a transfer of surplus from consumers to producers – that is, a transfer that leaves the size of the "cake" unaffected. Instead, the monopoly price would be judged as undesirable to the extent it squeezes out consumers who would be willing to pay enough to cover the extra production costs that their consumption would entail, albeit not at the monopoly price; this type of inefficiency is referred to as the dead-weight loss of monopolistic pricing [3, p.53]. In addition, monopolistic pricing may be viewed as undesirable because of other costs associated with imperfect competition, which will be discussed later.

1.1 Market Structures

Any competition policy prescription must be based on some idea of how the market concerned functions in practice. This part describes the standard models employed in economic analyses of markets.

Perfect Competition

An industry is perfectly competitive when among other things firms perceive that they individually have no noticeable influence on market prices. This is most likely to be the case in situations where industry comprises a large number of small firms. The market outcome in such an industry is efficient in that the cost of the last unit of output would just equal what consumers are willing to pay for that unit. The invisible hand of the market would automatically maximize the social surplus (the sum of consumer and producer surplus), and there would be no basis for a competition policy intervention [3, p. 66]. The relevance of this market structure may of course be questioned, and indeed, very few, if any, existing market can be said to be perfectly competitive in the strict sense of the term. However, there are some markets that seem to approximate this structure, such as some agricultural markets, where individual producers (farmers) may be too

small to have a noticeable impact on the market price. But, even in agricultural markets there are often some agents, including private intermediaries and government marketing boards, that are large enough to have individual market power.

The usefulness of the perfect competition paradigm hence does not stem from its being a close approximation of actual markets, but from being a benchmark for evaluating the extent to which other market structures deviate from full efficiency.

Monopoly

The opposite extreme to perfect competition is monopoly. The source of the inefficiency with monopoly is not, as pointed out above, that it transfers surplus away from consumers. Instead, the problem is that the producer restricts output so as to lift the price above the efficient, perfect competition level, towards a more profitable one. In this situation, consumers are willing to pay more for some additional consumption than it would cost to produce. Because of this dead-weight loss or inefficiency of monopoly, there is (at least in principle) scope for policy intervention. [3, p. 59]

It may be noted that this inefficiency results from the inability of a firm to charge individual prices to consumers with different valuations of its product. If a firm is constrained to set only one price that applies to all consumers, it will set that price higher than the level at which some consumers will buy, in order to exploit the greater willingness of others to pay. As a result, some consumers are squeezed out. But if the firm could price discriminate perfectly, that is, charge an individual price to the value of the consumption to the consumers it could set each consumer's price equal to the value of the consumption to the consumer. Of course, perfect price discrimination is very difficult in practice. But the reasoning indicates why the hostility towards price discrimination that is reflected in some competition laws finds limited support in economic analysis

Market Structures With Intermediate Degrees of Competition: Oligopoly and Monopolistic Competition

For the most part, industries are neither perfectly competitive nor monopolies, but rather fall somewhere in between. Because of the complexity and variety of different possible market situations, there is no single, all-encompassing description of the working of imperfect competition. *Oligopoly* is a generic term for such structures with a limited number of firms, where the firms are few enough for each firm to take into account its influence on the market price [3, p. 63].

While perfectly competitive industries and monopolies are relatively simple to analyze and prescribe policy recommendations for, these intermediate forms of competition are considerably more complex, because of the variety of possible interactions among firms in these structures. The appropriate policy prescription is highly sensitive to the details of the market structure and the "strategic" decisions taken by firms with respect to such variables as price, quantity, product design, marketing outlays, and so on. Most models of oligopoly and monopolistic competition predict that firms will charge prices above marginal costs. However, since these models portray situations in which firms are not able to collude, these firms are not able to charge monopoly prices. If it were the case that all firms charged a price set by a monopolist , then each individual firm would have an incentive to lower its price and thereby increases its sales. Consequently, firms may find it difficult to sustain a monopoly price, in the absence of some mechanism that facilitates collusion

Tacit Collusion

The discussion above did not account for the possibility that firms in an oligopolistic market structure may be able to raise prices through collusive agreements, including implicit arrangements based on sophisticated business strategies. While open cartel arrangements are often prohibited *per se* by national competition laws, tacitly collusive arrangements are by their nature

more difficult to detect and stem as no open agreements can be pin-pointed. To understand the nature of collusive behavior, we shall briefly consider some of the strategies employed to foster implicit collusion and the difficulties they may encounter.

The basic problem facing an oligopoly is the incentive facing each firm to produce more, leading to an output level higher than that which would maximize profits for the industry as a whole. In the absence of the possibility to write legally enforceable contracts that restrict the output of firms, any agreement among firms to hold back output is threatened by the temptation to cheat. If some firms hold back their output in an effort to raise prices, others have an incentive to expand their output in order to profit from the higher prices.

The basis for tacit collusion, like many other types of voluntary cooperation, is repeated interaction [3, p.26]. When firms interact frequently, they have the possibility to punish deviations from tacit agreements. Collusive pricing may be fostered by threats of more competitive pricing (or even price wars), in response to cheating by some firms on the implicit understanding to hold back output in order to support the collusive price.

There are circumstances under which tacit collusion may be difficult. For instance, the longer it takes for other members of the tacit agreement to detect cheating, or the more difficult it is to associate an observed price fall with cheating rather than unfavorable external events, the more tempting it is to cheat, and the more difficult it may be to keep the arrangement intact. These problems tend to be more severe the larger the number of firms that participate in the arrangements. Similarly, the less weight firms put on future profits relative to current profits, the more problematic it is to hold together the tacit agreement. Collusive arrangements may also be more difficult to achieve when firms differ significantly in production costs, since they then tend to have different interests with regard to desired output levels and prices. [3, p. 20]

1.2 The Sources and Costs of Imperfect Competition

Why does imperfect competition arise? Or put slightly differently, what economic factors tend to limit the degree of competition in various industries? Three factors shall be discussed here - scale economy, entry barriers, and product differentiation.

Scale economy

When unit costs fall with the volume of production of the individual firm, (internal) scale economies in production are said to exist [3, p. 39]. Scale economies may arise from fixed costs in production, which can be spread out more thinly over a larger production volume. Moreover, as technologies are not always divisible, production facilities must sometimes be of a certain size to encompass the most efficient technology available. The minimum efficient scale varies from industry to industry, but in the presence of scale economies, it is possible that the market cannot support more than a limited number of firms - if more firms enter, the average costs in each firm may become too large relative to consumers' willingness to pay. In extreme case of "natural monopoly", only one firm is economically viable.

Barriers to entry

The conditions of entry into an industry can be extremely important for economic performance. If the entry is costly or impossible, there are good reasons to expect that an industry will be imperfectly competitive. At least three related kinds of entry barriers can be distinguished - legal barriers, entry costs that have already been borne by incumbent firms, and strategic barriers [3, p. 13].

Legal entry barriers are those imposed by formal restrictions. It is not uncommon, for example, that governments restrict entry into such sectors as telecommunications, medical services, taxi services, and many other service industries.

Another source of entry barriers is the advantage that incumbent firms may enjoy in terms of lower production costs or established commercial networks or established brand names.

The essential feature of these factors is that they deter entry by making it costly for outsiders to break into the market; for instance it may require large expenditures on marketing, and very low prices initially to attract a sufficient consumer base. These type of phenomena may give rise to "first-mover advantages", which in turn, are reflected in uncompetitive market structures. [1, p. 101]

The significance of non-legal barriers is determined to a degree by the actions of incumbents. These firms may have acted strategically in order to erect such barriers, that is, to deter entry. Such behavior can take many forms. For instance, in cases where there are large learning-by-doing effects, firms may have an incentive to increase output (and lower prices) beyond what would be indicated from the point of view of current profits, in order to reduce production costs faster, and gain advantages relative to competitors. [6, pp. 25-27]

Product Differentiation

Product differentiation means that the characteristics of the goods offered by competing producers differ in ways that make them less than perfectly interchangeable from the perspective of consumers [3, p. 70]. For example, cars in a certain market segment may be similar, but they could embody important differences in terms of looks, performance, and quality. In other industries, the differences may have more to do with product image and brand names than with tangible differences. For example, few consumers may in a blind test be able to tell the difference between two bars of soap. Yet some consumers would be willing to pay premium for their favourite brand.

Product differentiation gives the individual producer some monopolistic or pricing power. The less interchangeable a variety is with competing brands, the higher the price can be sustained without losing ground to competing brands. As suggested above, products are not just designed to be different in the development stage, but the differences are often reinforced through marketing strategies.[5, p. 83]

The Cost of Imperfect Competition

There are three main economic costs usually associated with imperfect competition. First, as already mentioned in discussion of monopoly, a basic concern with imperfect competition is tha consumers will not be supplied a certain expansion of output, although they would be willing to pay enough to cover production costs, i.e. there is a dead-weight loss.

A second cost is *organizational inefficiency*, that is, the misallocation of resources within firms. Such inefficiency, which is manifested in higher costs of production, can reinforce the tendency among firms with market power to contract production. These inefficiencies are often said to be integral features of public monopolies, but there is no real presumption that they are less of problem in private monopolies. Hence, replacing a government monopoly with private monopoly may not solve the problem of organizational efficiency.

Imperfectly competitive industries tend to generate supernormal profits, or "economic rents". In order to capture and protect these potential profit opportunities, firms invest resources in *rent-seeking*. For instance, they may engage in excessive advertising, choose product standards with limited compatibility with the products of other firms, lobby for protection or the granting of exclusive production rights, and so on. The real resources used in this process (including scarce management time) represent a cost to society, on top of deadweight losses and the costs of organizational inefficiency. Empirical studies have shown the costs of rent-seeking to be substantial on some circumstances.

1.3 Some Basic Economic Considerations

In view of some of the arguments advanced in regard to the costs of imperfect competition, it might be concluded that it is the task of competition policy to maximize the degree of competition. This would minimize costs from dead-weight losses, organizational efficiency,

and rent-seeking. Matters are, however, more complicated than that, for a number of reasons. It will be explained below, for example, why not all contractual arrangements between firms that limit competition are socially undesirable, and why some firms' behavior, ostensibly hostile to competition, may be defensible on welfare grounds.

Competition Policy and the Theory of the Second Best

A basic reason why such arguments can be made, is that in some cases is *more than one source of divergence* from a fully efficient solution, and this makes trade-offs necessary. For example, as will be shown, trade-offs could arise as a result of the simultaneous presence of monopoly power and economies of scale, or of monopoly power at several stages of a production chain, or of monopoly power in combination with externalities. The above proposition has been generalized as the "theory of second best". An implication of this theory is that the complete removal of one source of distortion, like the elimination of monopoly pricing in a given market, does not necessarily improve welfare when there are other distortions at play [3, p. 78]. In practice, there are almost always several sources of inefficiencies. The implication of the theory of the second best is that a belief in "maximal" competition as an unreserved goal for competition policy is almost never warranted in practice. this economic insight is also consistent with the legal practice of evaluating business practices using a rule of reason approach, which drives many decisions taken by competition authorities.

Clearly, a main concern of competition policy is not to interfere unduly with the normal competitive process, which from time to time drives out inefficient firms from the market. The problem was concisely phrased in the US antitrust decision involving Alcoa: "The successful competitor, having been urged to compete, must not be turned upon when he wins". The difficulty, of course, is to distinguish the achievement of a dominant market position or monopoly through superior efficiency and foresight, from cases where a position has been gained by, for example, predatory tactics.

Dynamic trade-offs

The trade-offs facing competition policy mentioned above were largely static. However, there is another category of trade-offs, for which time is essential. As will be explained below, temporary imperfections are sometimes necessary in order, for example, to give enterpreneurs incentives to invest in product development. The patent system, which grants temporary exclusive rights, is a manifestation of this fact [6, pp. 40-41]. While it is easy to see that such arrangements are necessary, it is far more difficult to determine how they should be designed. Moreover, trade-offs between short-run and long-run interests also arise in competition policy decisions.

A related example of a difficult dynamic trade-off is the case where firms make investment decisions today in order to enter a market tomorrow. If firms expect the degree of competition tomorrow to be strong, perhaps because of vigorous competition policy enforcement, then the expected profitability may be so low that they refrain from entering. The purpose of the patent system is to prevent this mechanism from impeding entry into industries in which R&D is important, by promising (limited) monopoly positions to successful firms in the future.

It is clear that the impact of competition policy in areas such as research and development may be substantially more important for long run welfare than its static effects. Unfortunately, our understanding of the dynamic effects of competition policy is limited due to the inherent complexity of the issues involved.

Diverging Views on the Need for Competition Policy

A basic source of divergence on the question whether competition policies are needed relates to the interpretation of what, at least, at first sight, seem to be rents from imperfectly competitive positions. Do the associated rents represent justified compensation for previous investments in, for example, R&D, or they windfall gains to firms that happen to be in the right place at the right time, or are they the result of anti-competitive behavior? According to the view of the "Schumpetterian School", perfect competition does not yield maximal efficiency, except in a static sense. Instead, welfare is maximized through a high rate of innovation. This actually requires the possibility that firms might make sufficiently large profits in order to recoup earlier outlays on R&D.[4, pp. 8-10]

Another line of reasoning with somewhat similar policy conclusions is associated with the University of Chicago. According to this view, market imperfections arise mainly from government interventions. Privately created imperfections are either temporary, since the resulting profits will soon enough induce entry by other firms, or they are reflections of the superior production and product technologies of incumbents. The role of competition policy is then mainly to ease entry into markets, not least by limiting undue government interference, and also to prevent the most unambiguously inefficient business practices, such as horizontal cartels.[4, pp. 8-10]

A third view is provided by the "new theory of industrial organization". The distinguishing feature of this voluminous body of literature is the reliance on detailed models of strategic aspects of interactions among firms. The general picture that arises is much less optimistic concerning the efficiency of markets when left to themselves. But the theory does not suggest any simple rules for the conduct of competition policy. On the contrary, a main common feature of the results is that they are highly sensitive to the details of technology and strategic interaction. This body of theories strongly supports a rule-of-reason approach to competition policy. It can be seen partly as a reaction to more simplistic arguments about the efficiency of markets, and also refutes some of the more sweeping claims deriving from other approaches, such as that of the Chicago School. Unfortunately, this approach gives to an "embarrassment of riches" in the sense that the literature is so rich that it can potentially justify or condemn a broad range of restrictive business practices or competition policy interventions.[4, pp. 8-10]

There are also other "schools of thought" about competition policy. But the essential point for the purpose of this sub-chapter is the fact that economic theory does not provide a single, uniform depiction of the working of imperfectly competitive industries, and, in particular, does not give a simple, unambiguous prescription for the design of competition policy. Furthermore, even where they agree on the appropriate models to apply in analyzing industries, experts often disagree as to application of the models to particular sets of facts. It is important to bear this in mind when discussing competition issues from a policy-making perspective. On the other hand, as pointed out below, in the past decade or so, there has nevertheless been a partial convergence of views with respect to the appropriate goals and optimal design of national competition laws, and a significant degree of consensus on the analytical tools of competition policy has emerged.[7]

References

[1] "A Framework for the Design and Implementation of Competition Law and Policy"/ World Bank, OECD,1998.

[2] "Competition Policy Implementation in Transition Economies: An Emperical Assessment"/ Mark A. Dutz, Maria Vagliasindi, European Economic Review.

[3] OECD, "Glossary of Industrial Organisation Economics and Competition Policy", Paris.

[4] "Does More Intense Competition Lead to Higher Growth?", Aydin Hayri, Mark. A. Dutz, Working Paper #2249.

[5] "Market Definition in UK Competition Policy", Office of Fair Trading, Research Paper #1, 1992.

[6] "Quantitive Technique in Competition Analysis", Prepared for Office of Fair Trading by LECD, Research Paper 17.

[7] Synthesys Paper on the Relationship of Trade and Competiton Policy to Development and Economic Growth, Working Group on the Interaction between Trade and Competition Policy, WTO, WT/WGTCP/W/80, 1998.

[8] System of National Accounts, 1993, Prepared under the auspices of the Inter-Secretariat Working Group on National Accounts, Commission of the European Communities – EUROSTAT, IMF, OECD, UN, WB.

[9] Business Guide to the World Trading System, 1999, International Trade Center (UNCTAD/WTO), Commonwealth Sectariat.

[10] Survey on Small and Medium Enterprises of Republic of Armenia, 1999, Ministry of Statistics, State Register and Analysis.

[11] Statistics for Modern Business Decisions, 1990, Lawrence L. Lapin, San Jose State University