How Did Export-Led Growth Strategy Work In The Turkish Case?
The Experience of Manufacturing Sector After 1980

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Paper prepared for AIEL XXI National Conference of Labour Economics

Udine, Italy

September 2006

ABSTRACT

This paper explores the distributional effects of post-1980 export-led growth policies on Turkish manufacturing. Categorization of manufacturing sub-sectors according to their orientations in international trade shows that, both wages and mark-ups in exporting firms remained systematically below manufacturing average for the whole period. Effects of changes in export performance and import penetration on value-added categories are also investigated with dynamic panel estimations. Results show a significant and negative correlation between export performances and mark-ups, while no statistically significant relationship between exports increases and real wage changes is found. Exporting firms need to maintain wages at the lowest possible level to keep competitiveness at international markets and wages are not affected by export performance. However, this does not necessarily bring higher profitability. Also considering the government incentives to exporting firms, it is concluded that, export-led growth strategy did not bring specialization in sectors of high value-added, in the Turkish case.

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Introduction

In 1980, Turkish government, like in many other developing countries, made fundamental decisions to abandon import-substitutionist development strategy and adopted an export-led growth approach. The measures taken were primarily aiming to restore current account balance, lower inflation rate, reduce public sector deficit and increase growth rate which turned to negative values at the end of 70's. Since that date, integrating Turkish economy to world markets and encouraging exports either through direct subsidies or indirect ways such as investment supports have been policy anchors for all governments. Customs taxes had been reduced gradually until 1996, the year in which the customs union agreement between the EU and Turkey was put into force. Liberalization of capital account in 1989 was another step towards integration to the world economy, which left an unwanted side-effect on export performance by overvaluating the exchange rate caused by excessive borrowing.

Although Kindleberger is first known to suggest "export led growth" in 1962[1], the term's use became widespread after the works published by World Bank circles in late 1970's[2]. These studies underscored the importance of external orientation for developing countries which were suffering from low growth rates and so-called rent seeking activities. The expected benefits from external opening and increasing exports can be grouped in three main categories: Firstly, increased imports were supposed to put a downward pressure on mark-up ratios, as "imports-market-discipline" hypothesis suggests. This would induce a decline in sectoral inflation rates, improving consumer welfare. Secondly, productivity gains were expected through (i) economies of scale effects, (ii) increased R&D activities stimulated by increased competition, (iii) positive externalities and (iv) residual effects like increased capacity utilization, X-efficiency, managerial efforts etc. (Bayar, 2002). Increased exports, thirdly, were expected to encourage higher demand for labor considering the labor-intensive nature of manufacturing industries in developing countries. This is the proposition of well-known

[1] See Heitger (1987: 249)
[2] Turkish economy was a special focus of interest in that literature. See Krueger (1974, 1978), Bhagwati (1982).

Stolper-Samuelson theory.

Increasing marginalization and share of informal economy in developing world were not predicted consequences of external orientation in the export-led literature. Recent studies on informal economy show that it is shaping a significant part of GNP in developing and least developed countries and structurally linked to formal economy (Chen, 2005). The process of informalization in industrial production ends up with inability to export high value-added products in least developed countries (Robyn, 2001). Studies focusing on Turkish manufacturing also reveal that with few exceptions, informal employment is a common characteristic of Turkish manufacturing firms[3]. Informal production is widespread especially in textiles and apparel sectors, which supply approximately 30% of the total manufacturing exports in 2000[4].

The aim of this paper is to explore the effects of increasing export orientation on creation and distribution of value added in Turkish manufacturing industry at a disaggregated level. To do so, changes in two value-added categories, namely mark-up and wage rates are investigated for 4-digit manufacturing sectors between 1980 and 2000. Unlike the previous studies on the issue, dynamic panel data techniques and total factor productivity (TFP) growth calculations based on data envelopment analysis (DEA) are employed. Results show that, export performance in Turkish manufacturing is historically based on (i) keeping wage costs low, (ii) non-taxation of and/or providing government subsidies to exporting sectors and (iii) low level of mark-up ratios.

The plan of the paper is as follows: Section I summarizes the developments in Turkish economy after 1980. Section II draws stylized facts of export oriented industries using descriptive data from the manufacturing industry surveys. Section III provides the econometric results, while section IV outlines conclusions.

I. PHASES OF EXTERNAL ORIENTATION OF TURKISH ECONOMY

To overcome the foreign exchange crisis of late 70's, Turkish government initiated an IMF backed stabilization and structural adjustment program in January 1980. Main targets of the program were to increase foreign exchange earnings, reduce public sector deficit, restore a positive industrial growth rate, and a general transformation in the

[3] See Köse & Öncü (1998, 2000) and Dikmen (2000).
[4] Sectors 321, 322 and 323 according to their ISIC (Rev. 2) codes.

economy through liberalization of capital and goods markets[5].

The most important step towards increasing foreign exchange earnings was devaluation of Turkish lira approximately 50% against US dollar. Moreover, to close the price scissors between official and "black market" prices, the Central Bank rates of US dollar was started to set daily. To promote exports, supports were granted such as tax rebates, duty free allowances and low-interest credits to exporting firms. The amount of total subsidies was reaching up to 30% of value of total exports in mid 1980's[6]. Promotion of exports via government resources brought a new concept to the Turkish economic literature, called "fictitious exports". To benefit from export subsidies, some firms were signing counterfeit trade contracts with their foreign partners. Fictitious exports prevailed until the second half of 1990's, when direct export promotions were lifted. However, even today, there are government efforts to promote exports, such as Treasury transfers to Turkish Eximbank[7].

To reduce public sector deficits, the government first increased the prices of goods produced by state enterprises. The objective was to eliminate treasury transfers to state enterprises by making them profitable. Starting from 1986, these enterprises were started to be privatized, a policy which is also carried on today. Another step towards reducing public sector deficits was a radical decrease in wages in this sector. Starting from late 70's, government support to agricultural products was also in decrease. This policy was kept during 80's, causing a fast deterioration in domestic terms of trade (see Bilginsoy, 1997).

Reductions in customs taxes, removal of government controls over prices and interest rates were the main steps towards liberalization and deregulation of markets. The reasoning behind customs tax reductions was lowering of importation costs of investment goods. By removing controls over financial markets, government targeted to turn interest rates to positive values to be able to borrow domestically.

The military coup, which took place in 12 September 1980, also had important impacts on economic indicators. The army banned all political parties, all labor organizations including trade unions, and many other civil organizations. All forms of opposition to the military dictatorship were either officially or practically prohibited.

[5] More detailed analysis of Turkey's post-1980 transformation can be found in Boratav *et al*. (2000).
[6] See Taymaz (1998) for details.
[7] See Eximbank reports of 2003 and 2004.

Coupled with previous efforts to reduce wages, real wages after 1980 started to fall drastically, as can be seen in Table 1. This continued until 1983, when general elections were restored. However, until 1987, only two parties were allowed in the election race, while the most powerful ones of pre-1980 period were still banned. Practically there was a one-party regime until 1987.

Table 1: Selected Indicators of Turkish Economy: 1979-2000

	Real GNP Growth	Real Industrial Growth	PSBR/GNP	CPI (% Change)	Foreign Trade Deficit /GNP	Mnfc. Real Wage Ind.
1979	-0.5	-5.0	7.2	56.81	3.4	-
1980	**-2.8**	**-3.6**	**8.8**	**115.60**	**7.3**	**100**
1981	4.8	9.9	4.0	33.91	7.5	100.37
1982	**3.1**	**5.1**	**3.5**	**21.91**	**4.8**	**95.05**
1983	4.2	6.7	4.9	31.39	5.8	91.75
1984	**7.1**	**10.5**	**5.4**	**48.40**	**6.1**	**80.98**
1985	4.3	6.5	3.6	44.95	5.1	78.51
1986	**6.8**	**13.1**	**3.7**	**34.62**	**4.9**	**74.59**
1987	9.8	9.2	6.1	38.85	4.6	90.28
1988	**1.5**	**2.1**	**4.8**	**73.70**	**3.0**	**89.92**
1989	1.6	4.9	5.3	63.27	3.9	111.47
1990	**9.4**	**9.3**	**7.4**	**60.30**	**6.1**	**138.95**
1991	0.4	2.9	10.2	66.00	4.9	194.4
1992	**6.4**	**6.2**	**10.6**	**70.10**	**5.1**	**216.56**
1993	8.1	8.3	12	66.10	7.7	235.83
1994	**-6.1**	**-5.7**	**7.9**	**125.5**	**3.9**	**185.93**
1995	8	12.5	5	89.1	8.2	147.51
1996	**7.1**	**6.8**	**8.6**	**80.37**	**11.1**	**146.91**
1997	8.3	10.2	7.7	85.73	11.7	156.64
1998	**3.9**	**2**	**9.4**	**84.6**	**9.3**	**167.85**
1999	-6.1	-5	15.5	63.61	7.5	195.29
2000	**6.3**	**6**	**11.8**	**53.93**	**11.2**	**204.05**

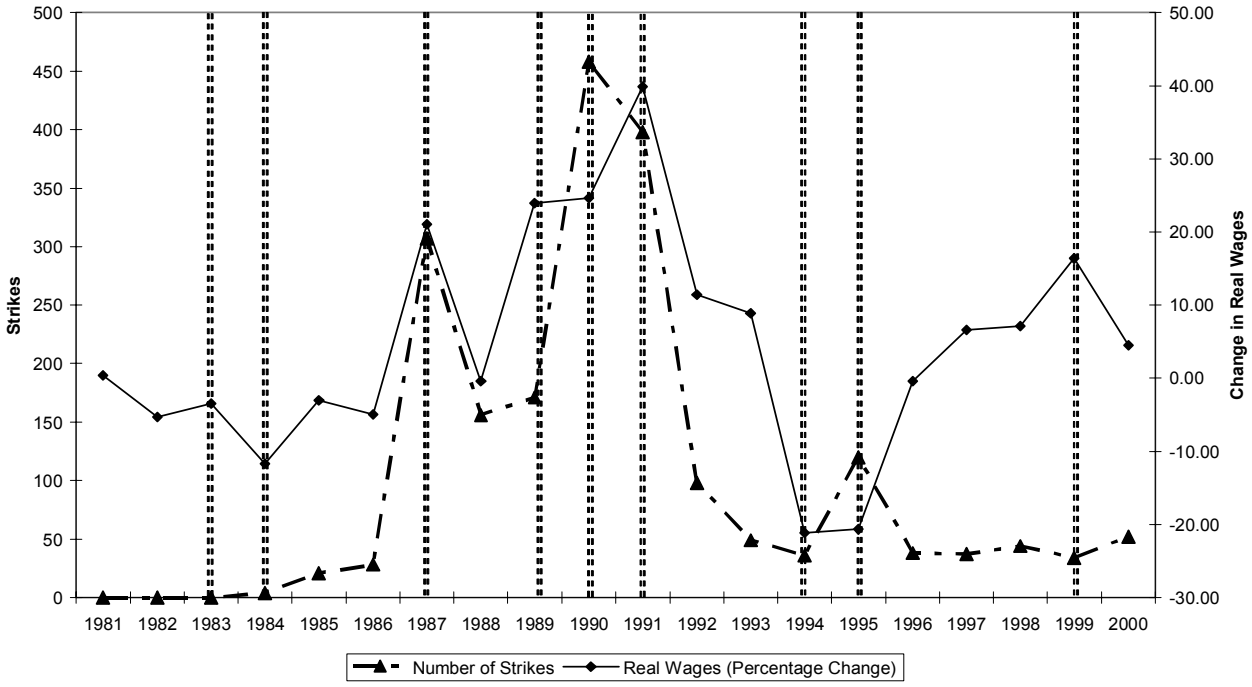
Source: State Institute of Statistics

The policies targeting to create an exportable surplus through oppression of domestic demand seemed to give its fruits in early 1980's. Foreign trade deficit kept declining until 1988. There was also a falling trend in PSBR and inflation rates (see Table 1). However, with return to electoral democracy in 1987, all variables started to get back to their previous values. Changes in labor market conditions and resurgence of political struggle were the two important reasons of this repetition in history. Graph 1 shows the relationship between election years, strikes (as an indicator of labor-class struggle) and percentage changes in manufacturing real wages.

Vertical dashed lines in the graph show election years. The other two lines show

number of strikes and percentage change in real wages (the heavy, dashed line). Because all kinds of labor organizations were banned before 1984, there were no strikes. Starting from that date, the graph shows a clear connection between the numbers of strikes and rises in real wages until 1994, a year of economic crisis. An increase in strikes in election years is also observable. Restoration of democratic elections in 1987 had an apparent impact on rising wage claims of the labor class. This process ended up with rising public sector and foreign trade deficits. Establishing macroeconomic stability through suppression of wages did not work under democratic regime.

Graph 1: Strikes and Real Wages



When PSBR was climbing up and domestic savings were not sufficient to finance it, the government made a decision to liberalize capital account in 1989. This was expected to attract foreign capital which could lift up limits on government borrowing and foster economic growth in the short run[8].

Turkey's liberalization in current and capital accounts was complete when the customs union agreement with EU put into force. This agreement removed all customs

[8] On the reasons behind Turkish capital account liberalization see Ersel (1996).

–except agricultural- taxes between EU member countries and Turkey.

II. WAGES AND MARK-UPS DURING TRADE LIBERALIZATION:

Literature Review

Previous studies dwelling on the issue of effects of current account liberalization on competition in Turkish manufacturing industry raised the question whether decreasing customs taxes after 1980 had a squeezing effect on mark-up ratios. Among them, Levinsohn's (1991) study which covers greater Istanbul region for 1983-1986 period concludes that with increasing imports, in four sectors out of a total five, mark-up ratios were reduced while the estimation results for the remaining sector are found to be insignificant. Another study by Foroutan (1991) asserts that reduction in the mark-ups remained at a very small rate for the period 1976-1985, with the possible explanation that profit margins were already at very low levels before opening up. Foroutan (1995) expands the previous research and reaches similar results. Based on 4-digit manufacturing panel data for the years 1982, 1985 and 1989 Katırcıoğlu *et al.* (1995) asserts that the effect of imports on competition is related to the degree of concentration in sectors. After liberalization of imports, mark-up ratios decreased only in sectors that had high CR4 ratios, while leaving no effect on the rest of the manufacturing industry. On the contrary, Yalçın (2000) asserts that while there was a general trend to decrease in mark-up ratios after trade liberalization, for those sectors having high level of CR4 ratios this tendency was reversed. His study covers 4-digit manufacturing sectors for 1983-1994 period. Another study raising the same question, Onaran and Yentürk (2002) explores the effects of real exchange rate, export ratios, imports ratios and production levels on the level of mark-ups at 3-digit level between 1980 and 1995. They conclude that, mark-up ratios are negatively correlated with real exchange rate (defined as TL/Forex basket) while showing a cyclical pattern with production growth. No meaningful relationship between foreign trade and mark-up ratios are found in their study. The issue of impact of openness on mark-up ratios is also inspected in Köse and Yeldan (1998) and Metin-Özcan *et al.* (2002) at three-digit level. They conclude that mark-up ratios are not responsive to foreign trade but are positively

correlated with wage increases. Bayar (2002) asserts that there is a positive relationship between increasing import penetration and mark-up ratios in Turkish manufacturing, contrary to common expectations. Günçavdı and Orbay (2002), on the other hand, find negative correlation between those two variables while the coefficient is close to zero.

The above-mentioned studies on mark-up ratios during trade liberalization bring somewhat conflicting results. Possible explanations are: (i) different periods covered, (ii) sectoral details (i.e. 3 or 4 digit), (iii) methods used, and (iv) definitions used to describe openness. As openness indicators, some articles use export ratios and import penetration ratios separately, while the others employ separate ratios of total imports and exports divided by production level.

To my knowledge, there is no study scrutinizing on the effects of foreign trade on real wages in Turkish manufacturing industry. However, some studies estimate effects of labor market conditions on wage rates. Among them, Metin (1995) and İlkkaracan and Selim (2003) investigate the effects of unemployment on real wages and find negative relationship between the two. However, Metin (1995) asserts that the causality is from wages to unemployment, confirming neoclassical economics' predictions. In addition to unemployment rate, Onaran (2002) explores the effects of labor productivity and price expectations on wages. The effect of labor productivity on real wages is also investigated in Özmucur (2003), Boratav *et al.* (2000) and Demirel (2001). Among them, Boratav *et al.* (2000) do not find any causal relationship between the two, while the others do. Lastly, Erdil (1997) studies the effect of wage leadership in Turkish manufacturing and concludes that 50% of the private and 35% of the public wage increases can be attributed to the wage increases of the leading sectors.

Stylized Facts

To draw the relationship between foreign trade and distribution of value added in Turkish manufacturing, I classify the 4-digit sectors according to their orientation in trade. In the literature, the *T* statistic offered by Krueger (1981) is mostly used for such classification. It is defined as,

$$T = \frac{M - X}{Q - X + M}$$

where M is imports, X is exports and Q is the production level. For those sectors exports exceeding imports the statistic has a value smaller than zero. On the other hand, when $T > 0$, that sector can be classified as either competing or importing (non-competing), depending on the magnitude of T. Researcher decides on the critical points.

There is an important obstacle to use of this criterion to classify Turkish manufacturing sectors: Production and foreign trade statistics are collected by different institutions. Source of the production statistics is State Institute of Statistics (SIS), while foreign trade statistics are published by Undersecretariat of Foreign Trade. Firms which employ informal labor and want to refrain from taxation do not report true production numbers to state institutions. On the other hand, foreign trade statistics are collected in customs borders. As a result of the difference in data sources, value of exports exceeds the value of declared production values in some years, especially for textiles and apparels sectors. This problem was much common in mid 1980's, when there were direct export-incentives from government budget[9].

To overcome this difficulty arising from data problems, I use a simple statistic as

$$Z = \frac{M - X}{Q}$$

for classification. In 4-digit calculations, this statistic is likely to change its sign from one year to another. Thus, instead of assuming those sectors having a negative (positive) value of Z as exporters (importers) straight away, I use threshold values for classification. Sectors for which $0.4 > Z > -0.2$ are classified as "competing", considering the fact that most of them are in this category. If a sector's Z value is higher than 0.4, it is categorized as importing (non-competing). Sectors having a Z value lover than -0.2 are assumed as exporters.

Table 2 shows the results based on sectoral Z values. In each category, first column shows relative size of corresponding group of sectors, based on their share in total manufacturing output. Second column shows the real wage index. In real wage calculations, the average wage in total manufacturing industry in 1980 is assumed equal

[9] There are some other possible explanations to this discrepancy in foreign trade statistics: Production data set covers firms that employ 10 or more workers. On the other hand, the foreign trade statistics are collected for all firms. Despite this fact, the divergence in foreign trade ratios arising from this discrepancy is negligible because more then 90% of the production in small-size firms is supplied to the domestic market (see Köse & Öncü, 1998). Another explanation would be direct exports. However, this inconsistency is observed in textiles and apparels, in which Turkey is a producer country. Thus, informal production and fictitious exports remain as the only plausible explanations.

to 100. The last column shows weighted average of mark-up ratios.

Regarding the wages, the table shows us that starting from 1981, there is a general trend to fall until 1986. After that date, wages started to increase until 1994 crisis. Between 1994 and 2000 there is also a gradual increase. Thus, the picture drawn in Section 1 for labor is valid for all sectors, regardless of their foreign trade orientations.

When we compare the wage series between three categories, we can see a clear distinction between exporting and the other sectors, though. There is not a clear-cut difference between wages in competing and importing sectors. However, real wages in exporting sectors are lower than the other sectors for all years with no exception. Considering the fact that Turkey was a developing country specializing on labor-intensive goods in foreign trade, lower wages in exporting sectors may be considered normal. The paradoxical observation is, however, even in 1998, real wage index for exporting sectors was still below its 1982 level. This brings us to the conclusion that main objective of post-1980 transformation in foreign trade regime was not to specialize in sectors that Turkey has a comparative advantage, but to create an exportable surplus by suppressing wages.

What does this table tell us about the mark-up ratios? Mark-ups are swinging in the range of 30 to 50 percent in importing and competing sectors. After 1986, the range narrowed to 40 to 50 percent, showing a general increase. There is not an observable difference between those two sectors regarding mark-up ratios. On the other hand, as in the case of real wages, mark-ups in exporting sectors are also clearly lower than manufacturing average. These observations contradict with "imports-as-market-discipline" hypothesis, which asserts that increasing imports put a downward pressure on mark-up ratios with increasing competition. In Turkish manufacturing, mark-up ratios are systematically higher in import-competing sectors than exporting sectors which are less open to foreign competition.

Briefly, when we categorize manufacturing industries according to their foreign trade orientations, the picture shows us that (i) export performance is based on keeping wage costs low and, (ii) lower wages do not bring higher profitability in exporting sectors. With all resources reserved to improve exports, such as tax rebates, investment supports, subsidized credits and all other sources, public sector was not benefiting from increasing exports either. Combining all these facts, it turns out that, export-led growth

in the Turkish case stimulated specialization in low-value-added activities after 1980. In the next section I construct these relationships with econometric methods.

TABLE 2: CLASSIFICATION OF MANUFACTURING SECTORS

Years	Exporting Sectors (Z<-0.2)			Competing Sectors (-0.2<Z<0.4)			Importing (non-competing) Sectors (0.4<Z)		
	Relative Size	Real Wage Index*	Mark-up Ratio	Relative Size	Real Wage Index*	Mark-up Ratio	Relative Size	Real Wage Index*	Mark-up Ratio
1980	**0.079**	**80.58**	**0.25**	**0.798**	**102.61**	**0.31**	**0.068**	**107.50**	**0.39**
1981	0.062	80.09	0.27	0.762	107.69	0.37	0.074	109.33	0.33
1982	**0.180**	**92.94**	**0.28**	**0.646**	**101.96**	**0.33**	**0.078**	**106.96**	**0.36**
1983	0.173	89.46	0.27	0.658	97.32	0.32	0.078	105.07	0.32
1984	**0.189**	**78.19**	**0.23**	**0.671**	**86.27**	**0.31**	**0.086**	**94.19**	**0.31**
1985	0.214	74.59	0.41	0.653	84.98	0.30	0.063	94.90	0.36
1986	**0.074**	**59.72**	**0.30**	**0.752**	**81.15**	**0.47**	**0.096**	**73.34**	**0.49**
1987	0.059	60.79	0.30	0.759	91.44	0.40	0.099	84.17	0.45
1988	**0.069**	**65.05**	**0.38**	**0.769**	**85.25**	**0.47**	**0.075**	**91.44**	**0.42**
1989	0.060	71.16	0.31	0.761	111.76	0.43	0.083	88.86	0.42
1990	**0.057**	**83.28**	**0.31**	**0.781**	**144.78**	**0.44**	**0.066**	**99.24**	**0.43**
1991	0.062	119.86	0.29	0.783	204.87	0.45	0.072	131.20	0.40
1992	**0.061**	**112.16**	**0.30**	**0.764**	**203.77**	**0.45**	**0.086**	**155.99**	**0.43**
1993	0.063	123.95	0.27	0.762	218.26	0.48	0.090	179.81	0.38
1994	**0.101**	**110.81**	**0.33**	**0.722**	**164.53**	**0.50**	**0.087**	**130.53**	**0.57**
1995	0.092	87.29	0.32	0.699	155.51	0.49	0.118	144.48	0.54
1996	**0.097**	**86.30**	**0.36**	**0.676**	**161.42**	**0.46**	**0.133**	**126.12**	**0.42**
1997	0.113	90.45	0.32	0.618	161.77	0.48	0.186	150.26	0.44
1998	**0.097**	**92.27**	**0.32**	**0.605**	**155.89**	**0.47**	**0.223**	**188.46**	**0.38**
1999	0.114	107.77	0.29	0.641	185.30	0.35	0.164	221.59	0.43
2000	**0.089**	**106.52**	**0.29**	**0.575**	**185.76**	**0.39**	**0.263**	**219.49**	**0.32**

* Average wage in total manufacturing in 1980 = 100.

III. ECONOMETRIC RESULTS

To overcome the difficulties arising from aggregation problems, I use 4-digit manufacturing industry statistics covering period 1980-2000, which is the largest industrial data set published by State Institute of Statistics (SIS). Working on 4-digit levels and a 21 year period increase the degrees of freedom in regression analysis and provides robust results[10].

Lagged values of mark-up ratios and real wage increases are also used as explanatory variables as well as others in estimations. This requires use of generalized method of moments (GMM) dynamic panel data estimation procedure proposed by Arellano and Bond (1991). The use of lagged dependent variables is both an empirical and a theoretical necessity for this study. Due to extremely high level of inflation rates in Turkey (see Table 1), almost all variables are affected by their past values. Hence, a model counting for the inertia that exists in all prices and wages is needed.

On the theoretical grounds, the nature of mark-up pricing should be considered. Following the literature, I calculate mark-up ratios as profits divided by variable costs. Calculated mark-ups can either be a result of the amount of the profits remained to firms as a residual in a competitive environment, or a previously determined coefficient set by the firms, which affect product prices. If the mark-up ratios are set by firms operating in oligopolistic market structures as proposed by Kalecki (1971), the second case should be valid and they are expected to be historically determined. Thus, it is vital to include lagged values in estimation to see whether calculated mark-up ratios are residuals or results of oligopolistic pricing behavior.

In each estimation, five different methods are used. First column reports the estimation with no lagged dependent variable. Generalized least squares (GLS) method with cross-section weights is used to count for cross sectional heteroscedasticity. Columns II and III report one-stage GMM estimations, while columns IV and V report two-stage estimations. Arellano and Bond (1991) and Arellano and Bover (1995) suggest two different transformations to remove fixed effects: first differences and orthogonal deviations. Equations are estimated both ways. The most appropriate estimation method is chosen using diagnostic statistics as criteria.

[10] Eviews 5.0 is used for all estimations. TFP growth rates are calculated with DEAP software, written by Coelli (1996).

In all estimations, lagged values of explanatory variables are instrumented on lagged dependent variable. Sargan is a statistic testing appropriateness of instrument variables, having a χ^2 distribution under the null of instruments are correlated with lagged dependent variable.

AC1 and AC2 show first and second order residual autocorrelation, respectively.

Results:

Estimated mark-up equation is:

$$MARKUP_{it} = \alpha_0 + a_1 MARKUP_{i,t-1} + a_2 PRIVSHARE_{it} + a_3 HERF_{it} + a_4 IMPRATIO_{it} + a_5 (HERF * IMPRATIO)_{it} + a_6 EXPRATIO_{it} + a_7 (CAPITAL / OUTPUT)_{it}$$

where MARKUP is level of sectoral mark-up ratio, PRIVESHARE is private sector's share in total employment, HERF is Herfindahl index, which measures degree of concentration, IMPRATIO is imports ratio (M/Q), EXPRATIO is exports ratio (X/Q), and CAPITAL is capital stock proxied by installed horse-power.

If mark-up ratios are historically determined as mentioned in the previous section, expected sign of the lagged dependent variable is positive. PRIVSHARE is also expected to have a positive sign considering the profit-maximizing behavior of private sector. In the mark-up pricing literature, concentration ratio is considered as the main factor affecting mark-up. Thus, firms operating in a sector having a higher Herfindahl index are expected to have higher mark-ups. The coefficient of IMPRATIO should have a negative sign, if imports-as-market-discipline hypothesis is valid. Following the literature (Katırcıoğlu *et al*., 1995 and Yalçın, 2000) I also added an interaction term (HERF*IMPRATIO) which measures effects of imports in different concentration levels. It is hard to guess the sign of the coefficient of EXPRATIO *a priori*. If exporting firms are price-discriminating between domestic and foreign markets, mark-ups are expected to increase with increasing exports. However, observations in section II imply that increasing exports do not lead to higher mark-ups. Lastly, mark-up pricing literature also expects CAPITAL/OUTPUT ratio, which measures the degree of capital intensiveness of production, to have a positive impact on mark-up. Estimation results

are shown in Table 3.

TABLE 3: MARK-UP ESTIMATIONS
Dependent Variable: MARKUP

Variables/ Method	**(I)** GLS (Cross Section Weights)	**(II)** GMM1-First Differences	**(III)** GMM1-Orthogonal Deviations	**(IV)** GMM2-First Differences	**(V)** **GMM2-Orthogonal Deviations**
C	0.329450*	-	-	-	-
MARKUP(-1)	-	0.158157	0.261341*	0.145460*	**0.246370***
PRIVSHARE	0.145957*	-0.113788	0.053062	-0.171967**	**0.085453****
HERF	0.423813*	0.659903**	0.543729**	0.313229*	**0.518916***
IMPRATIO	0.018634*	0.020155*	0.019036*	0.019012*	**0.018642***
HERF*IMPRATIO	-0.056942*	-0.049683*	-0.052298*	-0.042913*	**-0.052779***
EXPRATIO	-0.021239***	-0.037282	-0.029361**	-0.019068	**-0.023657***
CAPITAL/OUTPUT	-0.028216*	-0.015614**	-0.019172*	-0.018458*	**-0.019502***
Period/ Cross Sections	1980-2000/72	1982-2000/72	1982-2000/72	1982-2000/72	**1982-2000/72**
AC1 (Prob)	0.41 (0.00)	0.06 (0.15)	0.11 (0.06)	0.08 (0.00)	**0.11 (0.00)**
AC2 (Prob)	0.23 (0.00)	0.06 (0.08)	0.05 (0.29)	0.06 (0.00)	**0.04 (0.00)**
Sargan	-	194.3820	224.5570	43.15891	**45.45103**
Wald		29 (7)	91(7)	157(7)	**464(7)**
R^2	0.69	-0.16	0.18	-0.14	**0.17**

* Significant at 1% level
** Significant at 5% level
*** Significant at 10 % level

The signs of the estimated coefficients do not vary across the estimation methods significantly, except for PRIVSHARE. It is very unrealistic for PRIVSHARE to have a negative sign. So, the first difference transformed estimations (colums II and IV) do not seem to be the appropriate forms of estimation[11]. The GLS estimation (column I) shows strong residual autocorrelation, probably because of omitted lagged dependent variable. Sargan statistic for instrument validity favors GMM2 estimation (column V) over GMM1. Thus, GMM2 with orthogonal deviations is chosen as the most correct form of estimation.

All estimated coefficients in column V are significant. The coefficient of the lagged dependent variable is high (0.25) and significant at 1% level. This underscores the importance of estimating mark-up ratios in a dynamic model. Despite PRIVSHARE's coefficient is positive and significant, its magnitude is lower than

[11] They also produce negative R^2 values.

expected. The coefficient of HERF is also significant and high as the mark-up theory suggests. However, CAPITAL/OUTPUT gets a negative coefficient, contradicting with expectations of mark-up pricing literature. A similar conclusion is reached in Katırcıoğlu *et al.* (1995). A possible explanation is that, mark-up ratios have a cyclical correlation with the denominator of this ratio. If capacity utilization rates affect mark-ups in Kaleckian sense, increased production should also have an effect mark-ups, when the capital stock constant.

Estimated coefficients of foreign trade variables produces striking results: There is a positive relationship between increasing imports and mark-up ratios as opposed to the predictions of imports-as-market-discipline hypothesis. This may be a result of oligopolistic market structures in foreign markets. However, when import ratios and concentration ratios are interacted, the coefficient gets a negative value. This complies with the results obtained in Katırcıoğlu *et al.* (1995) which asserts that, while there is a general tendency to rise in mark-ups with increasing imports, this tendency is reversed for highly concentrated sectors.

Lastly, the coefficient of EXPRATIO is significant and negative, which complies with the picture drawn in section II. This conclusion is particularly important, considering all policies targeting to increase exports to foster economic growth since 1980. Increasing exports did not bring profitability; an observation which contradicts with assertions of export-led growth proponents.

I also estimate changes in the logarithm of real wage indexes, with similar explanatory variables:

$$\Delta \ln WAGE_{it} = \alpha_0 + \Delta \ln WAGE_{i,t-1} + \Delta HERF_{it} + \Delta PRIVSHARE_{it} + TFPCHNG_{it}$$
$$+ \Delta IMPRATIO_{it} + \Delta EXPRATIO_{it} + STRIKES_t$$

where TFPCHNG is TFP growth rate for each sector. STRIKES is the number of strikes in the manufacturing as a whole. Because the lack of detailed labor market data in Turkey, I am not able to use strike numbers for each sector separately.

Expected sign of HERF is uncertain. If firms having higher market-power are employing more skilled workers, there should be a positive relationship between WAGE and HERF. On the other hand, a higher market power may also imply a stronger resistance against wage claims of labor unions, which may result with lower wages. The coefficient of PRIVESHARE is expected to have a negative sign. Profit maximizing

private sector firms usually pay lower wages to reduce costs. In public enterprises, on the other hand, wages are kept higher, sometimes for political reasons. TFPCHNG and STRIKES are also expected to effect wage increases positively. Increasing import ratios (IMPRATIO) are expected to effect demand for domestic production negatively. This would also decrease the demand for labor in import-competing sectors, thus putting a downward pressure on real wages. Increasing exports, on the other hand, should have a positive effect on real wages, because of rising demand for labor. However, data tabulated in section II do not confirm with this expectation. Thus, expected sign of the coefficient of IMPRATIO is positive, while it is uncertain for EXPRATIO. Results of the estimation are reported in Table 4.

All methods of estimations produce similar results, which gives support to the form of the wage equation. Calculated Sargan statistics show that, only for GMM2 estimations instrument choice is correct. However, in model V, second order autocorrelation is found, which results in inefficient estimation of coefficients (Arellano and Bond, 1991). Thus, model IV appears to be most appropriate form of estimation.

TABLE 4: REAL WAGE CHANGES
Dependent Variable: $\Delta LN(WAGE)$

Variables/ Method	**I** GLS (Cross Section Weights)	**II** GMM1-First Differences	**III** GMM1-Orthogonal Deviations	**IV GMM2-First Differences**	**V** GMM2-Orthogonal Deviations
C	-0.021421*	-	-	-	-
ΔLN(WAGE(-1))	-	-0.051212**	-0.091227*	**-0.041709***	-0.088686*
D(HERF)	0.372875**	0.782184*	0.636186**	**0.805146***	0.536378*
D(PRIVSHAREMPLOY)	-0.506873*	-0.581316**	-0.711209**	**-0.647837***	-0.647408*
TFPCHNG	0.124792*	0.131405*	0.125465*	**0.129901***	0.126430*
D(IMPRATIO)	-0.030592*	-0.021198*	-0.022374*	**-0.022372***	-0.025079*
D(EXPRATIO)	-0.033749	-0.006681	-0.015765	**-0.002417**	-0.018113*
STRIKES	0.000588*	0.000652*	0.000649*	**0.000647***	0.000645*
Period/ Cross Sections	1981-2000/66	1983-2000/66	1983-2000/66	**1983-2000/66**	1983-2000/66
AC1 (Prob)	-0.14 (0.00)	-0.11 (0.00)	0.05 (0.06)	**0.11 (0.00)**	-0.22 (0.00)
AC2 (Prob)	-0.07 (0.01)	-0.01 (0.88)	-0.01 (0.7)	**0.01 (0.76)**	-0.17 (0.00)
Sargan	-	242.6756	193.3434	**58.86503**	55.52165
Wald	-	530	1007	**1703**	4460
R^2	0.31	0.25	0.31	**0.24**	0.31

* Significant at 1% level
** Significant at 5% level

Lagged values of wage increases are significant in all estimations. The coefficient is negative, showing an oscillating yet converging time path. Coefficient of Herfindahl index is also estimated positive, giving support to efficient wage hypothesis. As expected, coefficient of PRIVSHARE is negative. As private sector's share increases in employment, real wages fall. TFPCHNG is affecting real wages positively, while the coefficient is much smaller than expected. The coefficient of STRIKES is also positive and significant but it is close to zero. This may be the result of lack of data at sectoral level.

Coefficients of foreign trade statistics are also significant at 1% level. The sign of IMPRATIO is negative, confirming theoretical expectations. Increasing import penetration lowers demand for labor and causes a reduction in real wages. The important, yet not surprising result is the insignificant and negative value of the coefficient of EXPRATIO. Increasing exports do not end up with higher wages in exporting sectors. This complies with the findings of the previous section, where export performance was asserted to be based on keeping wages low.

IV CONCLUSIONS

This paper explored the distributional consequences of post-1980 export-led growth policies in Turkish manufacturing. Attention was paid on the impacts of increasing exports and imports on wages and mark-ups at a disaggregated level. Particularly, propositions of imports-as-market-discipline and export-led growth hypotheses were tested.

Results show that with current account liberalization, increasing imports had a positive impact on mark-ups at a general level, contrary to expectations. However, in sectors with high concentration rates, a fall in mark-ups was observed. This provides a partial support to imports-as-market-discipline hypothesis.

Calculations based on classification of manufacturing sectors according to their orientation in external trade prove a strong negative relationship between export performance and value-added categories. Wages in and mark-ups in exporting sectors are systematically well below the import-competing and non-competing sectors for the whole period covered. The gap is not closing over time.

The relationships between exports and value-added categories were also tested with panel data estimations. Results show that there is a significant and negative correlation between export performance and mark-up ratios. Its possible explanation is that, competitiveness in international markets is based on price competition for labor-intensive goods, which most Turkish firms specialize in. Regarding the wages, on the other hand, estimations do not show a significant correlation between exports and real wages changes. This is contrary to assertions of orthodox trade theory which expects a rise in labor demand and real wages with increasing exports in labor-intensive sectors. In the Turkish case, exporting firms need to maintain wages at the lowest possible level to keep the production costs at minimum.

Policies aiming to increase competitiveness with "cheap labor" did not result in higher profitability, especially in labor-intensive sectors such as textiles and apparel. "Racing to the bottom" in all senses, i.e. reducing the wage costs and profits margins, informalization in product and labor markets, non-taxation of and government incentives to exporting firms etc., appears to be a key determinant of export performance in Turkish manufacturing.

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