TERMS OF TRADE AND ECONOMIC DEVELOPMENT
IN TURKEY SINCE 1970

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ABSTRACT

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In this thesis, the terms of trade changes in Turkey since 1970 are analyzed. In the 1970s, Turkey faced strong terms of trade declines mainly due to two oil price shocks. Rapid diversification of Turkish exports into manufactures was instrumental in avoiding further declines in its terms of trade in the 1980s. However, the slow pace of the diversification into more skill- and technology-intensive manufactures in Turkey combined with the fallacy of composition problem in low-tech, labour-intensive manufactures may pose a real danger to the prices of its exports. To the extent that in the long-term, the changes in terms of trade of a country are determined by the level of technology embodied in its exports, the concentration of Turkish exports in low-tech, labour-intensive manufactures may highlight the need for upgrading exports and establishing backward- and forward-linkages between industries to escape from the trap of terms of trade deterioration in the long-term.

Keywords: Terms of trade, The Prebisch-Singer Thesis, Economic Development, Upgrading Exports, Fallacy of Composition Problem, Balance of Payments Constraint

ÖZ

1970'DEN SONRA TÜRKİYE'DE
DIŞ TİCARET HADLERİ VE İKTİSADİ KALKINMA

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Bu tezde, 1970'den günümüze Türkiye'de dış ticaret hadlerinin seyri incelenmiştir. 1970'li yıllarda Türkiye dış ticaret hadlerinde, büyük oranda petrol fiyatlarındaki rekor artışların sebep olduğu muazzam bozulmalarla karşı karşıya kalmıştır. İhracatın daha çok imal mal içerecek şekilde çeşitlendirilmesi, 1970'li yıllarda yaşanan dış ticaret hadlerindeki büyük kayıpların, 1980'li yıllarda da yaşanmasını engellemekte önem rol oynamıştır. Ama 1980'li yıllardan günümüze daha beceri- ve teknoloji-yoğun imal malları ihraç etmekte zorlanmamız, emek- ve düşük teknoloji-yoğun mallarda ortaya çıkan bileşim hatası (fallacy of composition) sorunu ile birlikte, yakın dönemde Türkiye'nin ihraç mallarının fiyatlarında önemli azalmalara sebep olabilir. Ülkelerin dış ticaret hadlerinin uzun dönemli seyrinin, bu ülkelerin ihraç ettikleri malların teknoloji içeriğine göre belirlenmesi Türkiye için daha teknoloji yoğun mallar ihraç etmenin ve endüstriler arasında geri- ve ileri-bağlantılar kurmanın önemini vurgulamaktadır.

Anahtar Kelimeler: Dış Ticaret Hadleri, İktisadi Kalkınma, İhracatta Mal Kompozisyonu Yükseltimi (Upgrading Exports), Prebisch-Singer Tezi, Bileşim Hatası Sorunu, Ödemeler Dengesi Kısıtı.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF TABLES

x

LIST OF FIGURES

INTRODUCTION

The main purpose of this paper is to analyze terms of trade movements in Turkey since 1970. The special emphasis will be given to investigate the terms of trade changes since the trade liberalization in 1980. On the eve of trade liberalization, Turkey's exports consisted of mainly primary goods, and Turkey suffered strong terms of trade declines over the period of 1970-80 primarily owing to the two record oil price increases that occurred in 1973-4 and 1978-79. As the share of manufactures in total exports of Turkey increased dramatically with export orientation, a question arises whether Turkey has been able to avert terms of trade deterioration since 1980 thanks to the diversification of its exports into manufactures; a policy recommended since the 1950s to primary producing countries to reduce the vulnerability of these economies to terms of trade shocks.

In the 1980s, when the simultaneous export drive of many primary producing countries and attendant fallacy of composition problem led to a sharp fall in the prices of these goods vis-à-vis manufactures, Turkey succeeded in avoiding large terms of trade declines due to rapid transformation of its export structure away from primary goods and towards manufactured products. However, the failure of Turkey to reduce the share of low-tech, labour-intensive products in total manufactured exports since trade liberalization appears to have been a matter of increasing concern since the mid-1990s as the market for these products became saturated as more and more developing countries concentrated their efforts in the export of such products. In this context, analyzing terms of trade movements in Turkey since liberalization may shed some light on how successful Turkey has been in upgrading exports vis-à-vis other developing countries.

The paper is organized as follows. The first chapter deals with the concepts of terms of trade and discusses adverse terms of trade movements in developing countries over the last 40 years. Chapter II addresses the issue of trade liberalization and associated fallacy of composition problem of developing countries. In Chapter III, the factors that led to a more outward-oriented development strategy and the consequent transformation of export structure of Turkey in the early years of trade

liberalization are analyzed. Section IV analyzes what factors have accounted for the changes in terms of trade of Turkey for 1985-2004 and assesses the success of Turkey in upgrading exports, and thereby, escaping from the trend towards deteriorating terms of trade resulting from the fallacy of composition problem that put pressure on the prices of low-tech, labour-intensive products since 1996. In this chapter, we also make econometric estimates to test whether there exists a long-run relationship between changes in terms of trade and the trade balance in Turkey. The last section summarizes and concludes the paper.

CHAPTER I

THE CONCEPTS OF TERMS OF TRADE AND TERMS
OF TRADE OF DEVELOPING COUNTRIES

The changes in terms of trade of a country are an important factor in determining gains from trade. Other things being equal, terms of trade deterioration (improvement) of a country indicates the country is worse (better) off than it was before because with a secularly declining trend of terms of trade, the country would obtain smaller amount of imports for the same amount of its exports over years.

There are five different concepts regarding terms of trade: Net barter terms of trade (NBTT), gross barter terms of trade (GBTT), income terms of trade (ITT), single factoral terms of trade (SFTT), and double factoral terms of trade (DFTT). NBTT is defined as the number of unit of imports obtainable for each unit of exports. NBTT are calculated in statistical terms as the ratio of an export price index to an import price index, relative to a base year. When used without a qualifying prefix, terms of trade generally refers to this concept. GBTT is the ratio of the volume of imports to that of exports, and it is equal to NBTT if trade is in balance. ITT, on the other hand, shows the level of imports in real terms attainable from current export earnings and is calculated as the ratio of export value index of a country to its import price index (Findlay, 1989, p.623-4).

SFTT and DFTT introduce productivity indices into the concept of terms of trade. SFTT is obtained by multiplying NBTT with an index of productivity in the export industries. A rise in SFTT means that for a given unit of a factor (labour) in the exporting industry, the country can obtain a greater quantity of imports. Lastly, DFTT is defined as the number of hours of labour in the export industries in trading partner countries obtainable for each hour of labour in the export industries in the country through trade. It is obtained by $(P_x/P_m) \times (Q_x/Q_m)$, where P_x, P_m, Q_x, Q_m represent export price index, import price index, productivity index in the export industries in the country, and the foreign productivity index for the country's

imports, respectively. A decline in DFTT of a country means that workers in this country have to work more than before to acquire the same units of labour in the export industries in the trading partners, or equivalently, one unit of labour in the trading partners exchange for more units of labour in the country (Appleyard and Field, 1998, p. 121-3).

The most commonly used concepts of terms of trade are NBTT and ITT. Sometimes ITT is regarded as a more useful concept than NBTT from the economic development perspective. Since stepping up development efforts in developing countries depends in large part on available supply of foreign exchange due to high import content of their manufacturing sectors and dependence on imports for investment, an increase in the purchasing power of exports, the only reliable source of foreign exchange in the long-term, is judged as favourable to economic development to maintain a certain level of investment and manufacturing production in the economy. However, there may be some situations where the rise in the total purchasing power of exports of a country is not as conducive to its economic development as judged. For instance, if the deterioration in NBTT is accompanied with more than a proportional increase in the volume of exports, ITT improves. However, increasing the volume of exports in the situation of falling NBTT involves resource costs as it necessitates sacrificing more resources (i.e. more labour, more intermediate goods and more raw materials) to achieve the same quantity of imports. For this reason, the view that improving ITT is to the benefit of a country under all circumstances can hardly be defended, even though the improvement may boost the country's imports of investment goods.

The Prebisch-Singer thesis predicted a secularly declining trend for prices of primary commodities in relation to those of manufactures. Lower price- and income-elasticity of primary goods vis-à-vis manufactures, the different labour market structures in developing and developed countries, the technological capability of developed countries to economize on imported raw materials, and lastly, the practice of mark-up pricing of producers in industrial countries due to their monopoly power on technological innovations were given as main theoretical reasons for the alleged tendency (Singer, 1987, p. 628).

4

Raffer and Singer (2001, p. 18) claim that "the Prebisch-Singer thesis-although statistically mainly discussed in terms of NBTT- was intended as a contribution to the analysis of DFTT showing that unequalizing factors existed in international trade". However, in contrast to NBTT and ITT indices, neither national institutions nor international agencies compute DFTT indices. Hence, hitherto, DFTT has been a theoretical concept rather than a subject of empirical investigation. In this paper, unless specified otherwise, terms of trade refers to the concept of NBTT.

In the 1950s, developing countries were stereotyped as producers of primary commodities, but subsequent to import-substitution industrialisation and the relocation of industrial production to developing countries by outsourcing and FDI, many developing countries reduced the share of primary goods in their exports and participated in the international division of labour as producers of labour- and resource-intensive, and low-tech manufactured products in addition to primary goods. However, developing countries that achieved the diversification of their exports into this type of manufactures could not escape from the tendency towards deteriorating terms of trade. This experience brought about a shift in the emphasis from primary-versus-manufacture terms of trade towards developing-versus-developed terms of trade. This shift also involved a shift in the policy recommendations from industrialization and diversification of exports into manufactures towards industrial upgrading by building up technological capacity and human capital to escape from a secular trend of terms of trade decline (Raffer and Singer, 2001, p. 17).

Empirical studies have found strong evidence of a decline in prices of manufactured exports of developing countries in relation to those of developed countries. Sarkar and Singer (1991, p. 335) indicated that during 1970-87, developing countries had faced a downward trend of 1 percent p.a. in their manufacture-manufacture terms of trade vis-à-vis developed countries. But, they admitted, then, that their data had limitations since it did not consider intraregional trade (i.e., trade within developed and developing country groups). After the investigation of aggregate data, they analyzed 29 country cases during the period

1965-85 and found that of the 29 cases, 14 had negative trends (six of which are statistically significant) and 15 had positive trends (eight of which are clearly significant). Yet, the negative trends were much more pronounced than the positive trends, and consequently, this country-based analysis showed that the prices of manufacture exports of the aggregated 29 cases had declined about -0,65 per cent annually in relation to that of the rest of the world, a finding confirming the aggregate data investigation. Later, this study was criticized by Athukorala (1993) on the grounds that Sarkar and Singer used unit value indices for exports of developing and developed countries rather than genuine price indices for exports of the two groups of countries (See Annex to Chapter I) and they included non-ferrous metals in the manufactured exports which should be excluded from manufactured exports according to Athukorala because he claims this category of Standard International Trade Classification (henceforth SITC) consists of mostly unprocessed products. However, Rowthorn (1997) found a decline in prices of manufactured exports of developing countries in relation to those of industrial countries since 1975 even when non-ferrous metals are treated as primary commodities. As a further support to the Sarkar and Singer results, by using genuine price indices which net out substitution bias and quality changes, Maizels (2000) also found a significant deterioration (1.9 per cent p.a.) in terms of trade of developing countries in their exchange of manufactures with the United States in the period 1981-97. The deterioration occurred heavily in the first half of 1980s and since then, the manufacture-manufacture terms of trade of developing countries vis-à-vis the United States was trendless.

It should be noted that even though most developing countries with diversified exports continue to suffer from a secularly declining trend of their terms of trade, thanks to diversification, they have avoided large fluctuations in prices of their exports and experienced much less terms of trade deterioration than did developing countries with a minor share of manufactures in their exports. This stems mainly from the fact that when there is an excess supply of primary commodities in the world market, prices of these commodities tend to fall sharply, but in case of manufactures, producers can adjust the volume supplied more flexibly compared to primary commodity producers, and thereby prevent prices of their goods from

declining so rapidly. Hence, cyclical instability is much more pronounced for primary goods than for manufactured products and terms of trade shocks are seen far more frequently in countries exporting primary goods than those exporting manufactured products (see Figure 1.1).

TERMS OF TRADE OF MAJOR EXPORTERS OF MANUFACTURES AND OF THE REMAINING NON-OIL EXPORTERS IN THE DEVELOPING WORLD, 1980-2003
(Index Numbers, 2000 = 100)
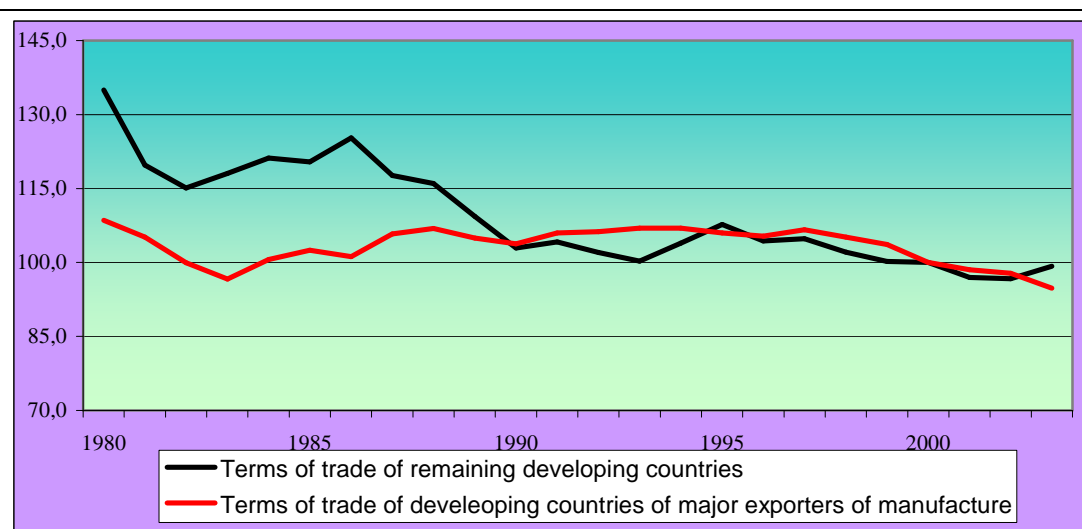
Source: UNCTAD Online Database, *Handbook of Statistics 2005*, table 2.1.

Figure 1.1 shows that while the terms of trade of developing countries that are major exporters of manufactures have declined only by about 0.5 per cent annually, other non-oil exporters in the developing world as a whole witnessed 1.5 per cent deterioration in their terms of trade during 1980-2003 per year. Moreover, the standard deviation of terms of trade indices of the former group is more than twice that of the latter group (3.9 versus 10.3 respectively).

Among the exporters of manufactures in the developing world, terms of trade trends also vary depending on the stage of their industrial development. The most technologically advanced manufacture exporting developing countries appear to experience the least terms of trade deterioration. Maizels, Palaskas, and Crowe (1998) provide an empirical support to this proposition. In their study, their findings

reveal that the terms of trade of East and South-East Asia in manufactures, technologically most advanced group of developing countries, had declined at an annual rate of 1.2 per cent with the European Union (EU) during 1979-94, whereas the decline of 3.6 and 2.3 were registered during the same period for Latin America and Mediterranean Basin, respectively, the bulk of whose exports consists of labour- and resource-intensive and low-tech products. Another important finding of their study is that the volume of exports to EU rose by 8.1 per cent annually for East and South-East Asia, by 4.8 for Latin America, and 6.6 for Mediterranean Basin showing that the fall in NBTT was compensated more by a rise in the volume of exports to EU, as the industrial development of a region gets higher.

In Figure 1.1, a terms of trade deterioration over the period of 1980-94 is not apparent for major exporters of manufacture among developing countries. The results of the above study, on the other hand, indicated a declining trend in terms of trade of these countries in manufacture vis-à-vis EU during the period. From this fact, it may be inferred that improvements in terms of trade of major exporters of manufactures in their exchange of manufactures with other developing countries and the large fall in the prices of primary goods compensated to a great extent the fall in their terms of trade in manufactured trade with developed countries.

UNIT VALUE AND PURE PRICE INDICES

To measure price and volume changes accurately, unit value indices are used most widely. In customs documents, values, quantities, and unit values are recorded for every transaction of commodities traded. Through the detailed classification of traded commodities that aims to make commodity groups as homogenous as possible, unit value indices are compiled. Another method of compiling export and import price indices is surveying prices directly from exporters and importers. However, this method involves surveying prices at regular intervals while the information to calculate unit value indices is readily available from trade data. Moreover, pure price indices cover relatively a smaller proportion of commodities than unit value indices. As a result, only few countries use pure export and import price indices derived from survey sources to calculate terms of trade indices.

In some cases, unit value indices may not reflect changes in price accurately. Changes in composition of commodity classes may cause unit value indices to give misleading results of the underlying price trend. Consider the following example from United Nations (1981, p.15) (See Table 1.A1): there are three types of refrigerators sold in a market. These refrigerators vary only in size. At period 0, the prices and sales of small, medium, large refrigerator were in proportions to 1, 2, 3 and 5, 3, 2, respectively. At the period t, all prices double and due to changes in tastes, new sales are in proportions to 2, 3 and 5 going from the smallest to the largest.

Table 1.A1

UNIT VALUE INDICES AND THE CHANGE IN
THE COMPOSITION OF A COMMODITY GROUP

	Size of refrigerator											
Period	**Small**			**Medium**			**Large**			**All sizes**		
	q	**p**	**v**	**q**	**p**	**v**	**q**	**p**	**v**	**Q**	**UV**	**V**
0	5	1	5	3	2	6	2	3	6	10	1.7	17
t	2	2	4	3	4	12	5	6	30	10	4.6	46

Source: UN (1981), *Strategies for Price and Quantity Measurement in External Trade.*

The change in unit value is measured as 2.71(4.6/1.7), though all prices only double between the periods. The failure to distinguish among various refrigerator sizes brought about an overstatement of true price changes by unit values. Hence, having very detailed and homogenously classified commodities is of paramount importance in freeing unit value indices of composition bias. It should be kept in mind that customs documents in some complex goods such as automated vehicles do not give adequate details. Thus, unit values of these classes of goods may be subject to high composition bias.

The fact that unit value indices include quality changes as well as genuine price changes is another defect of unit value indices. Cho (2004, p.7) defines the relations among the indices as follows:

$$\text{Price index} \times \text{Volume index} = \text{Unit value index} \times \text{Quantity index} = \text{Value index}$$

$$\underbrace{\text{Price index} \times \underbrace{\text{Quality change index} \times \text{Quantity index}}_{\text{Volume index}}}_{\text{Unit value index}} = \text{Value index}$$

Dridi and Zieschang (2002) give three estimation techniques of adjusting unit value indices for quality changes. These are overlap pricing, the link technique, and hedonic models. The first technique is applied to situations where old and new products coexist in the market for at least one period. To obtain the value of the new

product at a base year, the price of the old product in the base year is multiplied with the ratio of the price of the new product to the price of the old product at period t when both products exist. The link technique is, on the other hand, used when old products disappear in the market. In this case, the value of the new product at a base year is estimated by multiplying the price of the substituted product at the base year by the ratio of the price of new variety to the imputed price of the substituted product at period t when only new variety of the product exists in the market. The last technique of adjusting unit value indices for quality changes involves determination of quality characteristics of the product. The prices of the products are then regressed on these price determining characteristics to estimate the contribution to the final price of each characteristics. The price change is calculated as a residual from this regression.[1]

Recently, to measure price changes accurately in some sectors subject to high quality changes, some developed countries have been increasingly using pure price indices which do not reflect price increases linked to quality improvements. If quality changes are more frequent for these countries' exports than for their imports, their export unit value indices exceed their pure price indices of exports to a greater extent than their import unit value indices exceed their pure price indices of imports. Accordingly, their terms of trade with developing countries calculated by using pure price indices would show a smaller increasing trend compared to those calculated by using pure price indices.

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[1] However, even if freeing unit value indices of quality changes by these techniques is required to make unit value indices more precise statistical estimators of price changes, it may result in impractical economic meanings. The following example clarifies this point: Let the price of the most expensive mobile phone in a market be $400 at a base year. At the year t, a new kind of mobile phone with a price of $900 is introduced and the price paid for the old phone in this period is $300. If overlap pricing technique is applied to make adjustments for quality changes, the imputed price of the new product at the base year will be $1200 [$400 x ($900/$300)]. The price of the new product will seem to decrease by ¼ thereafter (from $1200 to $900). As a result, once the quality changes estimation techniques are applied, we may end up with the finding that quality changes offset more than the rise in unit values. Even if this reflects the true figures, it should be born in mind that developing countries have to pay for these quality changes. Hence, unit value indices which include both quality changes and price changes may be more appropriate than pure price indices in assessing the developmental effects on developing countries of terms of trade changes.

CHAPTER II

TRADE LIBERALIZATION AND TERMS OF TRADE OF DEVELOPING COUNTRIES

In the small country assumption, the country is assumed to have perfectly elastic demand curves for its exports and perfectly elastic supply curves for its imports. Regardless how much it exports and imports, it has to take the prices of exports and imports as given since it has no power to determine them. The fallacy of composition argument, on the other hand, states that even though many developing countries when taken separately can be small countries, the small country assumption is no longer valid for them if a simultaneous trade liberalization drive takes place among them. Under these circumstances, attempts to increase the export volume of similar products by many developing countries would result in a fall in export prices. That is, these countries collectively have a downward-sloping demand curve for these products (Lutz and Singer, 1994, p.1697).

To the extent that many developing countries are not significant exporters of any product, efforts of an individual developing country to export more will cause only small terms of trade deterioration, and thus, a possible increase in export volume will enhance their import capacity. For this reason, it is probable that an export-drive will be beneficial to a developing country as the rise in export proceeds will ease the balance of payments constraint which has been a crucial factor in explaining differing growth performances among developing countries. However, if many developing countries follow the same path (indeed, this is what we observe after 1980), the result will be a considerable reduction in trade gains due to significant terms of trade declines. This situation resembles the Nash equilibrium reached in the game of oligopolistic competition in that although exporting more is to the benefit of an individual developing country (i.e. the quantity effect will greatly outweigh the price effect), as many developing countries attempt to do the same thing, the end result will not be optimal for developing countries as a whole.

In the 1980s, the fallacy of composition was pertinent to primary commodities as attempts of many developing countries producing mostly primary goods to increase its own market share at the expense of others caused an outward shift in the global supply of primary commodities and depressed their prices. It is theoretically possible that the fall in prices of primary goods would have come to a halt if exporters had reduced the supply of primary goods in response to a sharp drop in the prices, but this did not realize and "despite some increase in 1988-89, non-fuel commodity prices were some 25 per cent lower relative to manufactures in 1991 than in 1985" (Bleaney, 1993, p.460). Bleaney attributes this largely to the role of real exchange rate policies used extensively by exporting countries to improve their competitiveness during the 1980s. He argues that real exchange rate devaluations may have prevented the adjustment of exporters to falling world export prices from happening as the domestic prices fell much less than world prices owing to large declines in the real exchange rate of the domestic currencies over the period. For producers of primary goods in the exporting countries, it was rational to continue to supply to the world market rather than reduce the output supplied to the world market or switch to the domestic market in the situation of falling world prices when large real exchange rate devaluations took place. This is indeed what had happened in the period 1980-90 when strong real devaluations of the currencies of developing countries occurred in the aftermath of the debt build-up of the early 1980s (See Table 2.1). During the period, almost all highly indebted developing countries analyzed in Bleaney's study experienced real devaluations of more than 25 per cent.[2] This gives a telling clue to the possible effect of such falls in the real exchange rates on the fallacy of composition problem in the 1980s related to the trade in agricultural and other non-fuel primary commodities.

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[2] In the study, reel effective exchange rates were computed as the price of domestic currency in terms of foreign exchange. Hence, a decrease in the rate indicates devaluation in the domestic currency.

Table 2.1

CHANGES IN REAL EFFECTIVE EXCHANGE
RATES OF DEVELOPING COUNTRIES, 1980-1990

% Change in REER 1980-90	World Sample	Number of Countries highly indebted	Less Indebted
≥ +25 %	1	0	1
0 to +25 %	3	0	3
-25 to 0 %	12	1	11
≤ -25 %	20	9	11
Total	36	10	26

Source: Bleaney (1993), *Liberalization and Terms of Trade of Developing Countries: A Cause for Concern,* table 1.

Bleaney's observation also highlights the role of Bretton Woods institutions in the problem of fallacy of composition. Simultaneous efforts of many developing countries to become more outward oriented and the resultant fallacy of composition gained momentum *especially after 1980* when the fact that these institutions persuaded developing countries to focus more on exports without much coordination between the different structural adjustment programmes added to the fallacy of composition problem of developing countries (Raffer and Singer, 2001, p. 24). The impact on the fallacy of composition of structural adjustment programmes can be traced to the standard policy recommendations of real exchange rate devaluations to improve the debt repayment capacity of developing countries in the early 1980s when these countries confronted with the debt crisis that we discussed in the previous paragraph.

Since 1995, the fallacy of composition may have been a problem pertinent to trade in manufactured products of developing countries. During the period 1996-2003, among developing countries, major exporters of manufactures suffered a stronger deterioration in their terms of trade with a decline of 1.2% compared to all developing countries as a group (See Table 2.2).

Table 2.2

TERMS OF TRADE OF DEVELOPING COUNTRIES, 1980-2003

(Average annual percentage change)

	1980-2003	1980-1985	1986-1990	1991-1995	1996-2003
Terms of trade of all developing countries	- 1.3	- 3.9	- 0.7	0.3	0.5
Terms of trade of non-oil exporters	- 0.5	- 2.8	- 0.8	0.9	- 0.7
Terms of trade of major exporters of manufactures	- 0.2	- 1.5	0.6	0.5	- 1.2

Source: UNCTAD, *TDR 2004*, table 2.4.

The sharp fall in prices of electronics, including computers and telecommunications equipments, and low-skill, labour-intensive products exported by developing countries accounts primarily for the decline in the price of their manufactured exports during the period. The slump in the former broad product category has a unique feature that we will discuss later. The precipitous decline in unit values of low-skill, labour-intensive products of developing countries, on the other hand, is to a large extent linked to the fallacy of composition in these product categories resulting mainly from increased participation of several highly populated developing countries in international trade as a consequence of more export-oriented development strategies. As an approximate measure of the decline in prices of textile and clothing, data from the United States Department of Commerce shows that unit values of apparel exports of developing countries to the United States market fell by more than 10 per cent between 1995 and 2004 (UNCTAD, TDR, 2005, p. 88).

A developing country may avoid fallacy of composition only if it can upgrade its exports and start to export higher-technology manufactures before the market for its traditional exports becomes oversupplied as more and more developing countries begin to take part in the exportation of products classified as the traditional exports of the country. The first-tier Newly Industrializing Economies (NIEs) owe their success in avoiding terms of trade deterioration until 1995 mainly to their efforts to upgrade their exports. For instance, they had already reduced substantially their dependence on primary commodities as a source of foreign exchange in the 1980s

before the fallacy of composition effect in primary goods sector brought about by simultaneous trade liberalization of many developing countries posed a threat to export prices of these economies. Moreover, the shift to higher-technology manufactures had relieved the Republic of Korea and Taiwan Province of China of severe problems associated with intense competition in labour- and low-skill intensive manufactures in the mid-1990s (See Table 2.3).

Table 2.3

PRIMARY COMMODITIES AND LABOUR-INTENSIVE AND RESOURCE-BASED EXPORTS AS A SHARE OF TOTAL NON-OIL EXPORTS OF SELECTED DEVELOPING COUNTRIES AND REGIONS, 1965–1994

	First-tier NIEs [a] (2 countries)	Second-tier NIEs	Latin America [b] (3 countries)	Brazil	Mexico
Primary commodities [c]					
1965	51.4	96.6	94.6	92.3	84.3
1975	18.4	87.5	81.6	74.0	64.8
1985	7.2	67.6	84.0.	52.8	33.9
1994	6.1	31.4	69.5	43.9	13.1
Primary commodities [c] plus resource-based and low-skill labour-intensive goods [d]					
1965	86.5	97.7	96.6	94.2	89.2
1975	69.4	93.2	87.7	83.4	75.0
1985	47.6	82.9	89.6	64.1	44.7
1994	31.6	59.0	82.0	58.1	22.8

Source: UNCTAD, *TDR 1996*, table 32.

    a Republic of Korea and Taiwan Province of China.

    b Argentina, Chile and Colombia.

    c Excluding petroleum and including non-ferrous metals (SITC 68).

    d Wood and paper products; non-metallic mineral products; textiles and clothing (including footwear); and
       toys and sports equipment.

Among the first-tier NIEs, the Republic of Korea experienced more favourable terms of trade changes during the period of 1980-94 than Taiwan Province of China (See Figure 2.1).[3] The share of investment in GDP in the former country rose continuously from 28 per cent for 1971-80 to 30.7 per cent for 1981-90 and 37.1 for 1991-94. In the latter country, on the other hand, this share diminished from 30.5 per cent for 1971-80 to 21.9 per cent for 1981-90, and then, rose slightly to 23.2 per cent for 1991-94 (Akyüz, Chang and Kozul-Wright, 1998, p.12). As the stagnant or decelerating capital accumulation may reflect a slowdown in the pace of upgrading exports and of building up domestic competitive industries, accelerating pace of capital accumulation in the Republic of Korea and decelerating accumulation in Taiwan Province of China after 1980 compared to the 1970s may have accounted for more favourable terms of trade changes in the former country by means of higher technological upgrading.

Figure 2.1

**TERMS OF TRADE OF THE REPUBLIC OF KOREA AND
TAIWAN PROVINCE OF CHINA, 1980-1994**

(Index numbers, 2000 = 100)
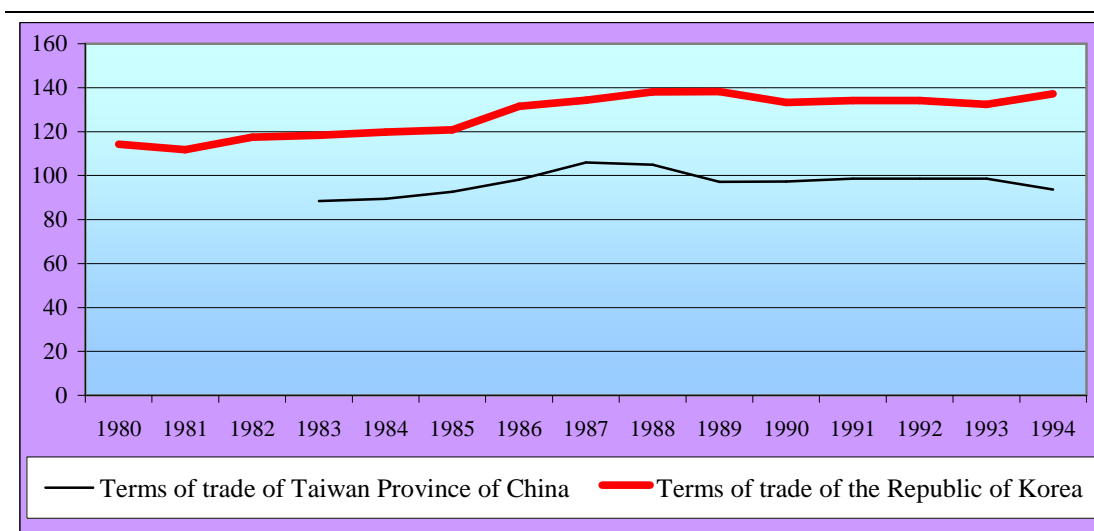
Source: UNCTAD Online Database, *Handbook of Statistics 2005*, table 7.3.

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[3] Because of the lack of data, the terms of trade values of Taiwan Province of China for 1980-82 are not shown in the figure.

In order to assess the extent to which averting the fallacy of composition problem through upgrading of exports has been fruitful for a country to avoid strong terms of trade declines, we think it would be useful to consider the developments in the terms of trade of the Republic of Korea as this country can be regarded as the most successful developing country in upgrading its exports. In the following five paragraphs, we will deal with the terms of trade changes in the Republic of Korea since 1980.

Until 1995, the Republic of Korea did not face a decline in manufacture terms of trade in its exchange with developed countries. Moreover, the Korean manufactured terms of trade with developing countries improved substantially. Berge and Crowe (1998, p.41) assert that the shift in the composition of Korean exports towards more technology-intensive products accounted for this fact. In the period of 1977-95, Korean exports to developing countries were dominated by SITC section 6 and 7 (the sum of the shares was 78.6 per cent of total exports during the period). While the share of section 6 (basic manufactures) in Korean exports to developing countries declined from 51.6 per cent in 1977 to 30.8 per cent in 1995, the share of section 7 (machinery and transport equipment) increased from 23.0 in 1977 to 45.4 in 1995, suggesting a shift in manufactured exports of the Republic of Korea to developing countries towards more technology-intensive products. The findings of their study showed that among the manufactures exports of the Republic of Korea to developing countries, the rise in unit value indices of exports in section 7 was the fastest (with 1980=100, the unit value index for SITC 5, SITC 6, SITC 7 and SITC 8 in 1995 were 105, 144, 209 and 118, respectively) (Berge and Crowe, 1998, p.7-9). Hence, the shift towards exports of more technology-intensive products had been a decisive factor in explaining a significant improvement in Korean manufacture terms of trade with developing countries. This provides further support to the thesis that shifting into higher technology-intensive products was the prime factor lying behind the Korean achievement to avert terms of trade declines *until 1995*.

After 1995, the Republic of Korea, has faced large terms of trade declines. Despite its success in upgrading its exports, the Republic of Korea experienced a substantial terms of trade deterioration in manufactures primarily owing to the

marked decline in its export prices of electronics products, including information technology (IT) products and telecommunications equipment in the post-1995 period. Between 1995 and 1997, Korean manufacture terms of trade deteriorated by 25 per cent. This was largely the result of overinvestment in the electronics sector in the 1990s when the producers of electronics products in all over the world increased investment as a reaction to fierce competition in the industry. Investment in electronics product sector was also facilitated by available low-cost foreign financing (UNCTAD, TDR, 1999, p.87). It should also be noted that by pursuing export-led strategies to recover from the recession in the aftermath of the Asian crisis, the crisis-affected countries accentuated the downward trend in prices of electronics products (UNCTAD, TDR, 2004, p.112).

UNCTAD (TDR, 2005, p. 88) estimates show that electronics product prices have been falling since 1990. Under this condition, as both the Korean export and import prices of electronic products have declined, the sharp fall in prices of electronics products leading to the significant terms of trade decline in the Korean manufacture may have arisen in two ways. One possibility is that if import prices in this product category decreased much less than the export prices, the Korean manufacture terms of trade would deteriorate sharply. Alternatively, if the share of electronics products in exports was much larger than that in imports, even approximately equal price declines in export and import prices of this product category would result in much higher decrease in unit value of exports than that of imports, and thus terms of trade would fall strongly. According to UNCTAD calculations, though the US import prices of electronics have declined higher than the export prices, the difference between the rate of decline in the export and import prices were not large (UNCTAD, TDR, 2005, p.89). If the US export (import) prices of electronics are taken as a proxy to the Korean import (export) prices of electronics, the small difference between the rate of decline in the US export and import prices for this product category reveals that the first possibility outlined above may have contributed only to a very limited extent to the decline in the Korean manufacture terms of trade. Accordingly, the greatly differing weights of this product category in total exports and imports of the Korean manufacture has probably accounted primarily for the terms of trade deterioration.

19

The phenomenon that Korean manufactured terms of trade have been falling sharply since 1995 proves that upgrading exports and thereby averting the fallacy of composition problem[4] is a necessary but not sufficient condition to relieve a country of the trap of terms of trade deterioration. As discussed above, similar to the way that an outward shift in the global supply of low-skill, labour-intensive manufactures caused by simultaneous export drive of many developing countries depressed their prices, a glut in electronics product's sector due to overinvestment in the sector has led to sharp drop in prices of these products since the mid-1990s.

Notwithstanding the sharp fall in the net barter terms of trade following the Asian crisis, the purchasing power of Korean's exports has risen considerably thanks to substantial increases in the export volume. The success of the Republic of Korea to maintain and even increase import capacity under not so much favourable conditions in major developed markets is remarkable. While annual average rate of growth of output in developed countries was merely 1.3 per cent between 2001 and 2003, the purchasing power of exports increased by more than 20 per cent despite falling terms of trade during the period (See Figure 2.2).

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[4] The fallacy of composition problems arises when simultaneous export drive of a large number of countries results in lower export prices and export earnings for each of them (UNCTAD, TDR, 1999, p. 93). While the major exporters of electronics products suffered from a precipitous decline in their price of manufactured products owing to the overinvestment in the sector, they were able to increase their export earnings, and thus, it would be misleading to identify the situation of the sharp falls in the electronics sector as the fallacy of composition problem.

Figure 2.2

**TERMS OF TRADE AND PURCHASING POWER OF EXPORTS
IN THE REPUBLIC OF KOREA, 1980-2003**

(Index numbers, 2000 = 100)
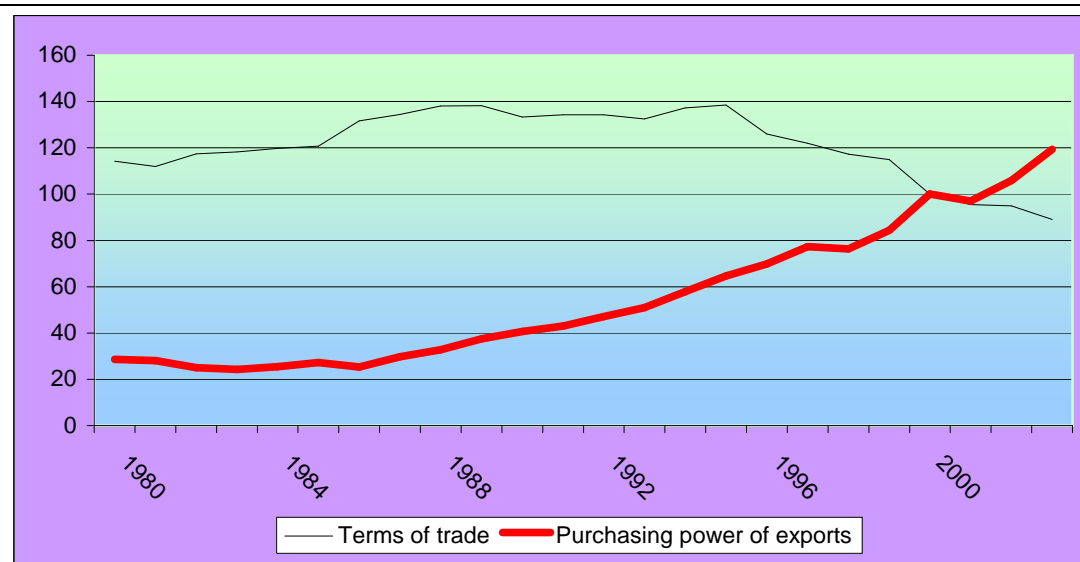
Source: Constructed on the basis of data from UNCTAD Online Database, *Handbook of Statistics
2005*, table 7.3.

It should be noted that not all developing countries that increased the share of
higher-technology manufactures in their non-oil exports over the period of 1980-94
performed as well in improving their terms of trade as did the first tier NIEs. For
instance, in Table 2.3, Mexico is seen as if it has been at least as successful as first-
tier NIEs in graduating across the full spectrum of manufacturing activities. This
conceals, however, the fact that the strong rise in the share of higher-technology
manufactures in non-oil exports of Mexico after 1985 reflects mainly the close
participation of Mexico in international production networks. It is noteworthy that as
Mexico participated only in labour-intensive processes of production of otherwise
highly technology-intensive manufactures, it was not able to establish an industrial
base to increase the local content of these manufactures. Thus, even though Mexico's
terms of trade remained stable after a great decline between 1980 and 1985, the
possibility of the shift of labour-intensive intermediate stages of production of capital
intensive goods out of Mexico by transnational companies in response to emerging
low-cost conditions in other developing countries poses a threat to the export prices

21

of Mexico (See Figure 2.3). This stems from the fact that under these circumstances Mexico may find itself in a situation of fierce competition with other developing countries in lower technology-intensive manufactures. The shift of production by transnational companies between developing countries has been a real possibility in today's world, and thus Mexico may experience further terms of trade deterioration.

Figure 2.3

TERMS OF TRADE OF MEXICO, 1980-2003

(Index numbers, 2000 = 100)
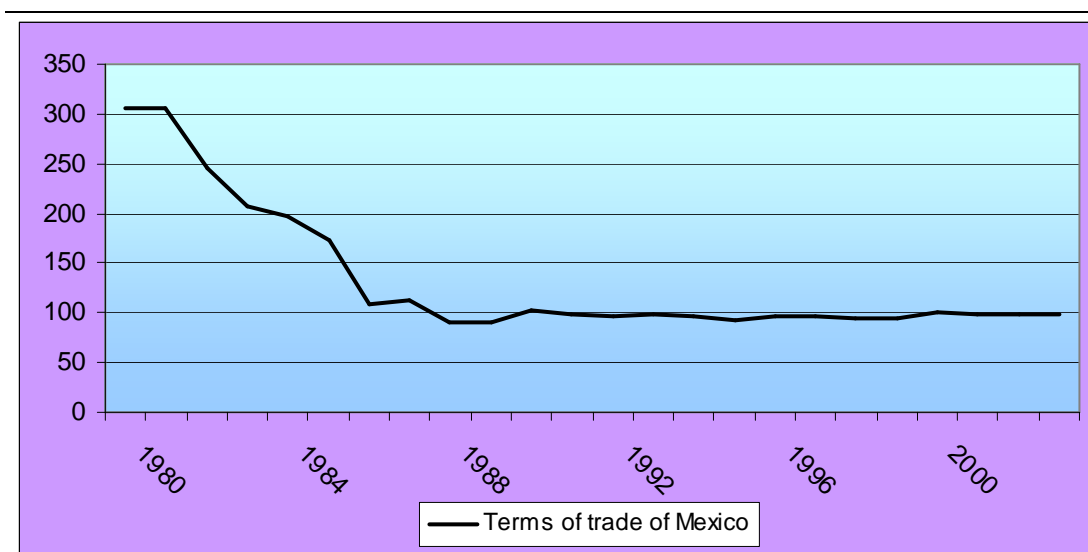
Source: UNCTAD Online Database, *Handbook of Statistics 2005*, table 7.3.

To sum up, concentration of exports of developing countries in lower-technology manufactures and the consequent fallacy of composition problem make upgrading exports an essential part of attempts to escape from terms of trade declines. However, the success in upgrading exports and producing higher-technology products is not sufficient to avoid deteriorating terms of trade as revealed by the Korean experience. As a matter of fact, the most important condition for a developing country to avoid terms of trade deterioration is to expand exports of goods that may be sold in less competitive markets. If we show that electronics products that are major exports of the Republic of Korea are sold in highly competitive markets, this may give us a telling clue to the reason for the large declines in terms of trade of the Republic of Korea since the mid-1990s. A recent

22

study of UNCTAD (TDR, 2002, p. 122) revealed that market for electronics (that are considered to be highly technology-intensive) as well as clothing has been more competitive than those for most other manufactures since 1990. This suggests technology intensity may not be a good indicator of competitive conditions in markets for products with different factor intensity. Regarding this issue, Maizels (2000, p.23) writes that IT products (constituting the main share of electronics product) may an exception to the general observation that higher technology-intensive products command a price well in excess of production costs due to a near-monopoly position of producers in these industries and claims that "…its unprecedented rate of technological innovation, the relative ease of establishing new small-scale production facilities using the latest techniques, and the consequent difficulties even of large producers to achieve a near-monopoly position…" may have been associated with sharp falls in IT product prices since the mid-1990s. This may have caused, in turn, a sharp deterioration in the terms of trade of the Republic of Korea since the mid-1990s. Here the conclusion occurs as the most expedient way in the long-term to escape from the trap of terms of trade declines for a developing country would be building-up technological and scientific capacities that allow it to increase the export of products that are sold in imperfectly-competitive markets.

CHAPTER III

THE DEVELOPMENTS IN THE TURKISH ECONOMY
AND ITS TERMS OF TRADE BETWEEN 1970 AND 1985

Turkey faced strong terms of trade deterioration in the 1970s mainly due to two oil price hikes. The downward trend in its terms of trade may have continued after 1980, had Turkey not changed radically its composition of exports towards more manufactured products. The diversification of exports through producing manufactures was instrumental in avoiding large terms of trade declines in the mid-1980s because in this period, the real prices of primary goods fell precipitously due to an outward shift in the global supply of such goods. The diversification of exports into manufactures served also to reduce fluctuations in the terms of trade for 1980-85.[5] It may be argued that thanks to more outward-oriented strategy, Turkey did not face a sharp decline in its terms of trade as the share of manufactured products in total exports increased rapidly after the implementation of export-led growth strategy in 1980. However, if Turkey owes the diversification of its exports into manufactures to more outward-oriented development strategy as such, why could not many other primary producing developing countries which were forced to become more outward-oriented after the debt crisis in 1982 succeed in escaping from terms of trade declines through the diversification of their exports? The reason for the failure of these countries to diversify their exports into manufactures after export-oriented strategy lies in the fact that before the integration of their markets with the world economy, these countries did not form an industrial base to produce manufactures that had the power to compete in international markets. This, in turn, implies that Turkey's success in rapid diversification of exports into manufactures between 1980 and 1985 stemmed largely from its great efforts in the pre-1980 period of import substitution industrialization to build up a capacity in manufacturing industry with a potential to survive the fierce international competition with opening of trade account in 1980. Taskin and Yeldan (1996, p. 159) assert that "among all the developing

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[5] This point would be clear when the terms of trade fluctuations of non-oil primary producing developing countries for the period are considered (See Figure 1.1).

countries which changed their development strategy and increased the share of manufactures in exports, there is no other country which has achieved as rapid a transformation of its export composition as Turkey during 1965-85", suggesting in part the success of import substitution industrialisation strategy adopted in Turkey during the period. However, if the statement is true, why had Turkey changed its development strategy suddenly and rapidly from allegedly successful inward-oriented import substitution industrialization to outward-oriented export-led growth? It seems that what lies behind this dramatic change was that the ISI strategy in Turkey hit a bottleneck of foreign exchange shortage in 1977. One of the underlying causes of the bottleneck was a significant downward trend in Turkey's terms of trade resulting from sizable increases in the price of oil. In this chapter, we examine terms of trade changes and the developments in the Turkish economy between 1970 and 1985, leading to a more outward-oriented strategy.

III.1. The Pre-1980 Period in Turkey

The governments in Turkey, instead of implementing economic policies that were conducive to reducing the vulnerability of the Turkish economy to the worsening conditions of world economy, pursued expansionary policies from the early 1970s until the payments crisis in 1977. Rising investment expenditure under the impetus of public sector combined with the resilient consumption expenditure led to widening of savings gap. In this period, the public sector borrowing requirement increased as a result of deterioration in the balances of state economic enterprises, and the duty losses of these institutions were financed through increased money supply. This gave way to an explosion of inflation. To prevent inflation from rising further, the government tried to maintain a fixed-exchange rate. However, the tight monetary policy resulted in the rapid appreciation of the real exchange rate as foreign capital inflows poured into the country. The appreciation of the real exchange rate added to the problem of current accounts deficit. Even if the government took some measures through export rebates and control on foreign capital movements, these attempts were ineffective since imports continued to rise without concomitant increase in exports (Togan, 1996, p.6-8).

External factors were also involved in the failure of governments to take necessary steps in time to avoid a current account crisis. The spread between the developing and developed countries' interest rate narrowed as a result of increased international liquidity caused by recycling of petrodollars of OPEC to oil-importing developing countries by commercial banks of industrial countries. Turkey could not resist the temptation of easy financing of its trade deficit by borrowing at low interest rates in international markets and delayed implementation of necessary measures to correct its current account.

The Turkish economy was hit by two oil price shocks in the 1970s as an energy-deficient country. The huge rise in oil bills between the years 1973-76 had a decisive impact on the worsening trade account of Turkey. This rise emanated not only from the huge increases in the price of oil but also from the rise in the volume of imported oil as the economy grew at very high rates during the period (annual average rate of GDP growth in Turkey was 5.9 per cent for 1973-76). Moreover, since the world economy went into a severe recession in the aftermath of the oil supply-shocks (the world economy grew merely at an annual rate of 1 per cent in 1974 and in 1975), the Turkish exports performed poorly (the exports increased by only 6 per cent over the two years). In the end, the great rise in the real price of oil combined with short-sighted expansionary economic policies adopted by the government in the period and a slowdown in the world economy played a significant role in the decline of the ratio of exports to imports to the historically low levels (the ratio was 29.6 per cent in 1975) (See Table 3.1).

Table 3.1

THE RATIO OF EXPORTS TO IMPORTS AND
THE REAL GNP GROWTH RATE IN TURKEY, 1970-1985

(Per cent)

	The ratio of exports to imports	The real GNP growth rate
1970	62.1	4.4
1971	57.8	7.0
1972	56.6	9.2
1973	63.1	4.9
1974	40.6	3.3
1975	29.6	6.1
1976	38.2	9.0
1977	30.2	3.0
1978	49.8	1.2
1979	44.6	-0.5
1980	36.8	-2.8
1981	52.6	4.8
1982	65.0	3.1
1983	62.0	4.2
1984	66.3	7.1
1985	70.2	4.3

Source: TSI (2006), *Statistical Indicators 1923-2004*, Table 17.2 and 21.6.

While increased oil bills were a significant factor leading to a sizable increase in trade deficits, the deficit on trade in manufactures with developed countries was even more important in pushing the ratio of exports to imports down to quite low levels in Turkey for 1973-80. As a matter of fact, the overall deficit in manufactures was almost two times higher than that in fuels during the period (See Table 3.2).

Table 3.2

**THE OVERALL TRADE DEFICIT, THE DEFICIT ON TRADE IN
MANUFACTURES AND FUELS IN TURKEY, 1973-1980**

(Billions of dollars)

	Trade deficit	The deficit in manufactures	The deficit in fuels
1973	0.76	1.38	0.17
1974	2.24	2.01	0.67
1975	3.33	3.01	0.76
1976	3.16	3.15	1.09
1977	4.04	3.42	1.46
1978	2.31	2.31	1.43
1979	2.80	2.22	1.75
1980	4.99	2.49	3.84
The overall trade deficit in 1973-80	23.63	19.19	11.17

Source: Our calculations, based on data in TSI (2006), *Statistical Indicators 1923-2004*.

Similar conclusions apply to all the non-oil producing developing countries between 1973 and 1980. In a study, the relative contribution of the deficit on trade of non-oil developing countries in manufactures and fuels to the overall deficit were compared during the period and it is reported that:

The overall trade deficit of non-oil developing countries grew steadily from $15 billion in 1973 to $40 billion in 1975. The largest part of this increase resulted from an increased deficit in manufactures, essentially in trade with industrial countries; the rise of the deficit in fuels, while substantial, was relatively less important. Between 1974 and 1978, the overall deficit of non-oil developing countries leveled off, the further rise in the manufactures deficit being offset by a higher surplus on trade in non-fuel primary products. In 1979, however, the overall trade deficit increased once again reflecting a sharp rise in the deficit on trade in both manufactures (to $71 billion) and fuels (to $21 billion) (GATT (1980). *International Trade 1979/80,* Geneva, quoted in Raffer and Singer (2001, p. 133)).

III.2. The End of Import Substitution Industrialization in Turkey

The 1970-79 average annual growth of Turkey's debt was 6.4 per cent higher than that of Turkey's exports (22.5 per cent and 16.1 per cent, respectively) (Krueger, 1987, p.177). Of the 19 developing countries investigated in Krueger's study, Turkey had the highest ratio of debt to exports in 1979 with 5.19. This explains the reluctance of international investors to invest in Turkey after 1976 due to the increase in the perceived risk of the inability of Turkey to repay its debt. As a consequence of the failure to borrow further in international markets and of the accompanying shortages of imported goods, the GDP growth rates after 1976 fell sharply, and eventually, the economy experienced a modest economic contraction of 0.5 per cent in 1979 and of 2.8 per cent in 1980. Before 1979, the last date in which the Turkish economy had a negative growth rate was 1954 (See Table 3.1).

It was clear by the late 1970s that the strategy of maintaining expansionary policies in Turkey at the expense of mounting external debt could not be sustained. This fact suggests that the Turkish economy was constrained by a balance of payments gap in the period. UNCTAD (TDR, 1996, p.75) gives a general description of the constraint "… even if domestic savings are sufficient to finance all the investment needed (or the investment that the public and private sectors are capable of undertaking efficiently), a developing country would still be unable to undertake the investment if it does not earn enough foreign exchange to pay for the imports required. Investment would thus be constrained by the lack of adequate foreign exchange rather than domestic savings. Consequently, production capacity would be underutilized, and growth would be below potential …" On the basis of observation that in most of the manufacturing sectors the capital-labour ratio declined between 1980 and 1990(See Table 3.3), Taskin and Yeldan (1996, p.169) conclude that increases in output was due to increased utilization of existing capacity during the period rather than due to the additions to the capital stock. Similarly, on the grounds of decreasing share of investment goods and increasing share of intermediate goods in total imports of Turkey for 1979-85, Kepenek and Yentürk (2003, p. 364) claim that the rise in manufactured exports after trade liberalization resulted from the increase in the capacity utilization rate rather than the creation of new capacity in

29

manufacturing sector. These findings support the view that in the late 1970s, the production capacity in Turkey was underutilized due to foreign exchange shortage.

Table 3.3

IMPORTS BY CLASSIFICATION OF BROAD CATEGORIES

(Per cent share in total)

	Investment goods	Consumption goods	Intermediate goods
1970	25.1	8.9	66.0
1971	20.2	9.0	70.8
1972	21.1	11.9	67.0
1973	20.6	11.4	68.0
1974	16.3	7.7	75.9
1975	20.7	8.7	70.6
1976	22.4	8.1	69.5
1977	21.1	6.3	72.6
1978	17.2	7.6	75.1
1979	14.9	6.5	78.6
1980	10.1	4.6	85.3
1981	12.7	4.2	83.0
1982	14.0	4.8	81.2
1983	13.8	4.4	81.8
1984	13.1	4.9	82.1
1985	16.1	5.9	78.0

Source: TSI (2006), *Statistical Indicators 1923-2004*, table 17.6.

When the foreign exchange shortage is the constraining factor on the growth of a country, the dependence on imported intermediate goods for manufacturing industry and on imported investment goods for investment may have substantial effects on its terms of trade. If the country can not attract sufficient foreign capital to cover the foreign exchange gap, it can respond to this situation in either of two ways. The first possibility is that it can allow the economy to grow either at a slower pace or at negative rates so that its imports demand shrinks and the gap vanishes. Alternatively, it may decrease its exports prices and try to increase exports earning as long as the demand for its exports is price-elastic. If the country chooses the second method to overcome the balance of payments constraint, its ITT improves at the

30

expense of falling NBTT unless the rise in the value index of exports is more than offset by a rise in its import price index.

The evidence suggests that the reaction of the Turkish economy to the foreign exchange shortage in 1977 was an economic slowdown in 1977 and 1978, and an economic contraction in 1979 and 1980. Although the export price index increased by 52.2 per cent during the period, the terms of trade had deteriorated by 25.7 per cent in 1976-80 (Akcan, 1986, p.34). Still, Turkey's response to the foreign exchange shortage in the period resembles more to the first possibility than the second and by responding this way, Turkey may have averted further terms of trade declines during the period. It is worth mentioning that as primary commodities was by far the major part of Turkey's exports (amounting to of 74.8 per cent of the total) in the 1976-80 period, the selection of the second strategy to cope with the foreign exchange problem might have resulted in prolonged terms of trade deterioration because only a long and pronounced price decline may increase the demand for primary commodities goods as the short-run price elasticity is very low (Raffer and Singer, 2001, p. 133). For 1962-82, Sapsford (1987) estimated the price elasticity of non-fuel primary commodities as approximately -0.15.

III.3. The Early Years of Trade Liberalization in Turkey

The new development strategy became industrialization through export promotion. Resources were allocated away from agriculture towards industry (Taskin and Yeldan, 1996, p. 164). Indeed, the internal terms of trade that shows the ratio of the price index of agricultural sector to that of industry sector was 94.4 per cent for 1970-79, and this ratio fell to 70.6 per cent for 1980-85. Accordingly, the composition of Turkey's exports has changed dramatically after trade liberalization. The share of exports of industrial goods in total merchandise exports rose from 36.6 per cent in 1980 to 76 per cent in 1985 (See Table 3.4).

Table 3.4

MERCHANDISE EXPORTS OF TURKEY BY ECONOMIC ACTIVITIES

(Per cent)

	1970	1975	1980	1985
Agriculture	72.8	55.5	56.0	20.8
Mining	6.6	7.5	6.6	3.0
Industry	20.0	36.2	36.6	76
Other	0.6	0.8	0.9	0.2

Source: TSI (2006), *Statistical Indicators 1923-2004*, Table 17.5.

Beginning in 1980, Turkey progressively opened its economy to the world market. Export incentives to industries and removing of barriers to imports brought about large expansion of trade-related sectors in the domestic economy, and in 1985 its trade openness measured by the ratio of volume of trade (the value of exports plus the value of imports) as a percentage of GDP was quite close to that of developing countries as a whole, which once had exceeded Turkey's trade openness by a large margin (see Figure 3.1).

Figure 3.1

TRADE VOLUME AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT, 1970-1985

(Per cent)
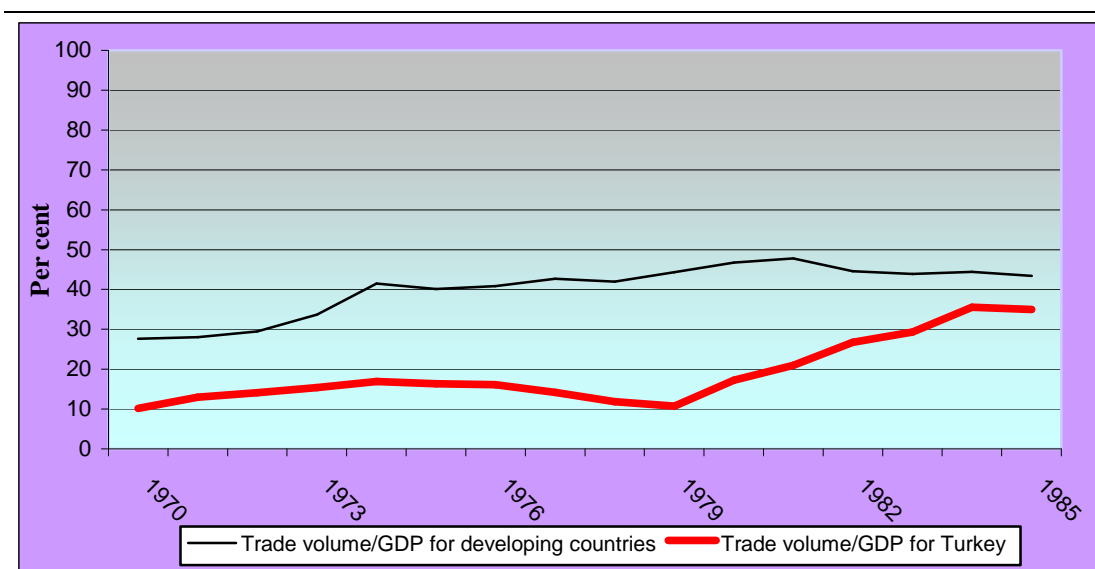
Source: UNCTAD Online Database, *Handbook of Statistics 2005*, table 7.3.

The higher the trade openness of a country is, the more vulnerable the country will be to external shocks. Since, with trade liberalization, the sum of the value of exports and imports have begun to account for a much larger share of GDP in Turkey compared to the 1970s, the terms of trade deterioration of a much lesser extent in the liberalization period may have impacts on the economy as consequential as did the terms of trade decline that Turkey suffered in the 1970s.

However, even in an economy with a high trade to GDP ratio, a sharp terms of trade deterioration need not cause an economic contraction if timely measures are taken to control the impact. For instance, when the Republic of Korea was hit by the oil price shocks in the 1970s, the share of its tradable sector in GDP was much greater than that of Turkey. Moreover, its demand for imported oil was much higher compared to Turkey's demand for oil. Nevertheless, the effects of terms of trade deterioration on its GDP growth rates had been limited. After a short period of a mild slowdown in the growth rates (the average annual real GDP growth rate in the Republic of Korea for 1971-73 was 8.5 per cent, and for 1973-75 was 6.9 per cent), the economy was revived and attained even higher high growth rates after 1975 (the real GDP grew at a rate of 10 per cent in 1976-79) than those of the first-oil shock period. The key difference between the experience of terms of trade deterioration in the Republic of Korea and in Turkey in the 1970s is that the former country took effective and timely measures to prevent its current account deficit from reaching unsustainable levels and encouraged energy efficiency to decrease oil consumption rather than relying unduly on external finance of its current account deficit as in the case of Turkey (Rodrik, 1997, p.6).

III. 4. Formal Analysis of Terms of Trade Movements in Turkey over the Period of 1970-85

During the 1970s, similar to many other oil-importing developing countries, Turkey suffered large terms of trade declines (See Figure 3.2). The underlying causes of the declines as described above were mainly the two oil crises and the ability of producers of manufactured products in developed countries to reflect higher cost of production resulting from higher oil prices to the prices of their products. The

adverse consequence of the former cause on the terms of trade is straightforward to understand. The impact on the terms of trade of Turkey of the latter cause during the period can be articulated once the greatly differing share of manufactures in Turkey's exports and imports is considered (for 1973-80, the average shares were 23.7 per cent and 64.6 per cent, respectively). Hence, even if we assume that producers of manufactures in developing and developed countries had equal power in setting the price for their products so that both export and import prices of manufactures in developing country increased at the same rate during the period, the effects of the rises in prices of manufactures on the overall export and import price indices would have been stronger in the case of imports (e.g. a 10 per cent increase in the price of manufactured exports and imports would cause a 2.3 and 6.4 per cent rise in the overall export and import price, respectively). Accordingly, one important result of the increases in the price of manufactures would have been deterioration in the terms of trade during the period.

Figure 3.2

TERMS OF TRADE OF TURKEY, 1970-1985

(Index number, average of 1971, 1972 and 1973=100)
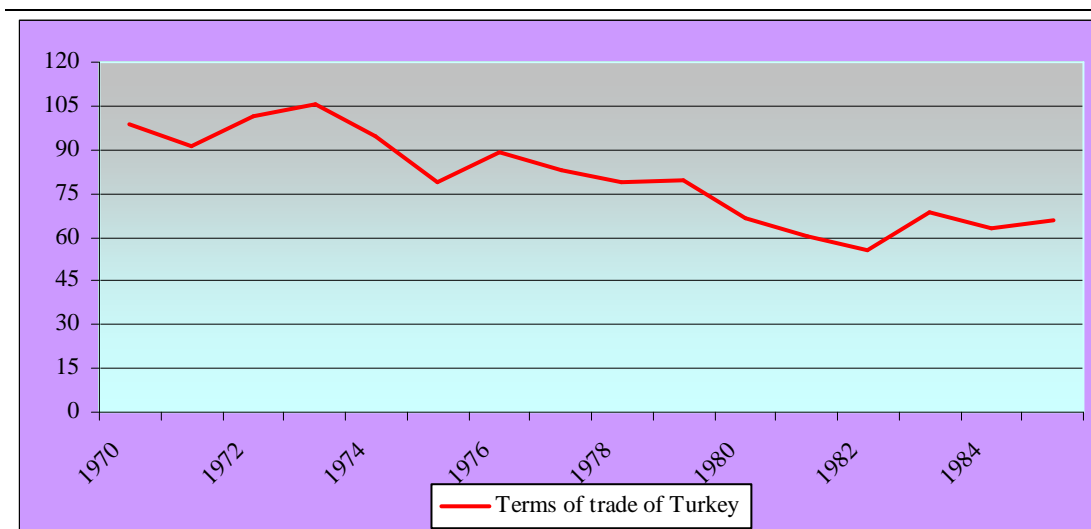
Source: Akcan (1986), "*The Income Effect of Terms of Trade Changes in Turkey, 1970-1985*", table 3.8.

To estimate Turkey's terms of trade deterioration trend empirically over 1970-85, we have fitted an exponential trend equation: *log TOT = a + b × trend*

34

where *TOT* is the Laspayres-type terms of trade index and *trend* is the time variable (taken as natural numbers 0, 1, 2 …). The values *a* and *b* denote the coefficient of the intercept term and estimated annual average rate of change, respectively. The results show that Turkey's terms of trade declined at an annual average rate of 3.7 per cent over the period of 16 years, 1970-85. When the period marked by the oil price hikes is considered, 1973-1980, as might be surmised, the deterioration had been even stronger at a rate of 5.2 per cent per annum (See Table 3.5). In the 1980s, the sharp downward trend in the terms of trade was brought to a halt mainly as a result of a slump in the real oil prices after 1980 and the ability of Turkey to reduce the share of primary commodities in its exports, the prices of which faced strong downward pressure during the period.

Table 3.5

<div align="center">

TREND IN TURKEY'S TERMS OF TRADE, 1970-85 AND 1973-1980

</div>

	Intercept term	Annual average rate of change (%)	R^2	Durbin-Watson Statistic
1970-85	4.68 †	- 3.7 †	0.79	1.44
1973-80	4.59 †	- 5.2 †	0.76	1.95

Source: Our calculations, based on data Akcan (1986), *The Income Effect of Terms of Trade Changes in Turkey, 1970-1985*, table 3.8.

† Significantly different from zero at 5% level.

The significant downward trend in the terms of trade for 1970-85 had been a central element in mounting trade deficits. In an attempt to measure the extent to which the terms of trade declines had an impact on the trade account, a decomposition calculation for changes in trade balance has been carried out. This calculation shows that the deterioration in the trade balance resulting from terms of trade effect accounted for about one third of the sum of worsening trade balance in each year vis-à-vis the base year (See Annex to Chapter III).

In an econometric study, Greenaway and Sapsford (1996) assess the power of two contrasting hypotheses to explain the developments in Turkey between 1968 and

1985 regarding terms of trade changes and outward-orientation. The first hypothesis claims that favourable terms of trade changes lead to a more outward-oriented trade regime, whereas adverse terms of trade changes lead to retrenchment (i.e. leading to the cutback in imports, and subsequently, less outward orientation measured as the share of sum of exports and imports in GDP). Thus, the direction of the causality in this hypothesis is from terms of trade changes to trade liberalization. The second hypothesis, on the other hand, proposes that more outward trade orientation in a country when coincides with simultaneous trade liberalization efforts in many developing countries exporting *similar goods* results in a worsening in the terms of trade. As a result, in contrast to the direction of causality in the first one, the second hypothesis sees the causation running from trade liberalization to terms of trade changes. Greenaway and Sapsford (1996, p. 64) found evidence in favor of the first hypothesis for the case of Turkey as their result show "it would seem … that changes in the terms of trade have led to trade reform in Turkey, rather than the other way around". However, in the first section of this chapter, we investigated the underlying causes of the change in the development strategy towards more outward oriented strategy and concluded that balance of payments gap combined with having difficulties borrowing any further amount from international markets owing to the rise in the perceived risk of Turkey not repaying its debt made the case for trade liberalization. In this respect, if the causality ran in Turkey from terms of trade changes to trade liberalization during the period, it would seem to be adverse terms of trade changes that led to trade liberalization rather than favourable terms of trade changes as predicted by the first hypothesis; as the results of the decomposition analysis of trade balance change in the annex to this chapter indicate adverse changes in terms of trade had been a significant factor in a widening in the trade deficits (and thus, in balance of payments gap) during the period, and in this respect, may have been a significant element in driving the economy into a more outward oriented strategy. Moreover, testing unidirectional causality from more trade orientation to a decline in the terms of trade would be inappropriate for Turkey during the period because when concurrent export drives of many developing countries took place in the early 1980s, Turkey began to shift rapidly its composition of exports away from

primary goods, and it may, therefore, be argued that Turkey did not export *similar goods* to ones exported by the major part of the developing world.[6]

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[6] Exporting similar goods is a necessary condition to test the second hypothesis.

DECOMPOSITION FORMULAE FOR CHANGES IN
TRADE BALANCE OVER THE PERIOD OF 1970-1985

Decomposition formulae for changes in trade balance serve to separate the components of the change in trade balance between a given year and base year as the change in the *relative prices* of exports and imports (i.e. change in terms of trade), the change in the *level of prices*, and the change in the volume as follows:

$$\underline{\text{Terms of trade effect}} = X_0 \, (P_t^x - P_t^m) \tag{1}$$

$$\underline{\text{Price level effect}} = B_0 \, (P_t^m - 1) \tag{2}$$

$$\underline{\text{Volume effect}} = (X_t - X_0 \times P_t^x) - (M_t - M_0 \times P_t^m)^{\,[7]} \tag{3}$$

Where, X_0, M_0, B_0, X_t, M_t are value of exports, imports, and trade balance in the base year, and value of exports and imports in a given year, respectively. P_t^x and P_t^m, on the other hand, are the base weighted price index of exports and imports in the given year, respectively, with *the base prices = 1*. The sum of the formulae gives the difference in trade balance between a given year and the base year $(B_t - B_0)$.

The first formula specifies that should the increase of base weighted export price index be large in proportion to that of base weighted import price index, the trade balance improves vis-à-vis the base year. The last formula, on the other hand, provide a measure of the effect of volume changes on trade balance as it tries to remove the effect of price components of trade deficits. And lastly, price level effect

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[7] While these formulae bear a close similarity with the formulae employed in Maizels (2000, p. 37), the first and the second formula in Maizels's study differ from the ones in our paper and are written in the former as $M_0 \times (P_t^x - P_t^m)$ and $B_0 \times (P_t^x - 1)$, respectively. When the trade account is in deficit in the base year, a rise in the base weighted price index of exports *inconsistently* appears to be detrimental to trade balance in Maizels' study. For this reason, as far as the countries with chronic trade deficits like Turkey are concerned, we think it would be better writing the second formula as above because in this formula a rise in the import price index is associated *consistently* with worsening trade account vis-à-vis the base year.

shows the adverse (favourable) impact of the rise (fall) in the import price level on trade balance (Maizels, 2000, p. 37).[8]

To measure the magnitude of each effect on trade balance in Turkey between 1970 and 1985, we used the Laspeyres- type base weighted price indices of exports and imports available in Akcan (1986, p.34) and the trade data available in TSI (2006). Since, in Akcan's study, the base period is chosen as the average of 1971, 1972 and 1973, the value of exports, imports and trade balance in the base year are computed as the arithmetic average of the corresponding trade values of three years. Table 3.A1 presents the results of the computations of effects using the proposed formulae. In the table, the price level effect accounts more than one half of the deterioration in the trade balance vis-à-vis the base period in 1970-85. The reason why the price level had the strongest impact on the trade balance during the period can be traced to the large increases in the import price index especially after 1980 (the overall import unit value index for 1980-85 is 413.2). The volume effect, on the other hand, shows that the deterioration in the trade balance due to volume changes was largest in 1975-77. This is in line with the fact that expansionary policies adopted until the balance of payments crisis in 1977 led to an increase in the volume of imports, and a real appreciation of the Turkish Lira during the period hampered the efforts of government to achieve an increase in the volume of exports. Lastly, the terms of trade had a sizable impact on the trade balance due to a significant downward trend in Turkey's terms of trade during the period.

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[8] To illustrate the price level effect, assume that the base weighted price index of exports in a certain (later) year increases in proportion to that of imports (let the increase in both prices be 10 per cent relative to the base year) so that there is no change in terms of trade of the country, and assume further that neither volume of exports nor that of imports changes between the years. Under these circumstances, the value of exports and imports, and accordingly, the trade balance in the later year would be 1.1 times the corresponding trade values in the base year. Therefore, trade balance in the later year vis-à-vis the base year would change not because of terms of trade change, nor because of volume change, but because of the change in price level.

Table 3.A1

DECOMPOSITION OF CHANGE IN TRADE BALANCE
IN TURKEY VIS-À-VIS THE BASE PERIOD,1970-1985

(Millions of dollars)

	B_t	$B_t - B_0$ [a]	Terms of trade effect	Price level effect	Volume effect
1970	-362.1	284.9	-10.6	99.6	195.8
1971	-494.2	152.8	-75.8	46.6	182.0
1972	-677.6	-30.6	13.4	44.0	-88.0
1973	-769.1	-122.1	62.4	-90.6	-93.9
1974	-1845.3	-1198.3	-98.8	-532.5	-567.0
1975	-3337.9	-2690.9	-435.6	-767.9	-1487.3
1976	-3168.4	-2521.4	-214.0	-680.0	-1627.5
1977	-4044.6	-3397.6	-387.7	-870.8	-2139.2
1978	-2310.8	-1663.8	-521.0	-993.1	-149.7
1979	-2808.2	-2161.2	-563.3	-1229.2	-368.7
1980	-4999.3	-4352.3	-1359.7	-2070.3	-922.3
1981	-4235.6	-3588.6	-1642.8	-2162.2	216.3
1982	-3100.9	-2453.9	-1807.8	-2104.6	1458.5
1983	-3510.5	-2863.5	-1054.6	-1596.7	-212.3
1984	-3639.7	-2992.7	-1328.0	-1775.9	111.2
1985	-3385.3	-2738.3	-1179.3	-1656.9	97.9
Total		-32338.0	-10603.2	-16340.4	-5394.4

Source: Our calculations; based on data in TSI (*2006*), *Statistical Indicators 1923-2004*; and in Akcan (1986), *The Income Effect of Terms of Trade Changes in Turkey, 1970-1985*.

[a] Average of trade balance of 1971. 1972 and 1973 is taken as the trade balance in the base period. It is computed as - 647.0 ([(-494.2) + (-677.6) + (-769.1)]/3).

CHAPTER IV

TERMS OF TRADE MOVEMENTS
IN TURKEY, 1985-2004: AN ASSESSMENT OF
TURKEY'S SUCCESS IN UPGRADING EXPORTS

As discussed in the previous chapter, the pillar of Turkey's success in avoiding declines in its terms of trade was the rapid shift in its exports composition towards manufactures between 1980 and 1985. Turkey continued to benefit from export diversification for 1985-91 because terms of trade declines of primary producing developing countries were even stronger during the period. However, since the mid-1990s, the concentration of export efforts of many developing countries in low-tech, labour-intensive products, and the resultant fallacy of composition problem pertinent to trade in these products seems to pose a threat to their prices. In this respect, the inability of Turkey to reduce the share of these goods in exports and to move up the 'technological ladder' seems to be a great challenge to avoid adverse terms of trade changes since then. These considerations suggest determining the position of Turkey in international division of labour is required to understand terms of trade movements during the period. In this chapter, we attempt to link terms of trade changes in Turkey to its performance in upgrading of exports through a comparative study over the last 20 years.

IV.1. Terms of Trade Changes in Turkey between 1986 and 2004

Figure 4.1

TERMS OF TRADE OF TURKEY AND OF NON-OIL
PRIMARY PRODUCING COUNTRIES, 1986-2003

(Index numbers, 2000=100)
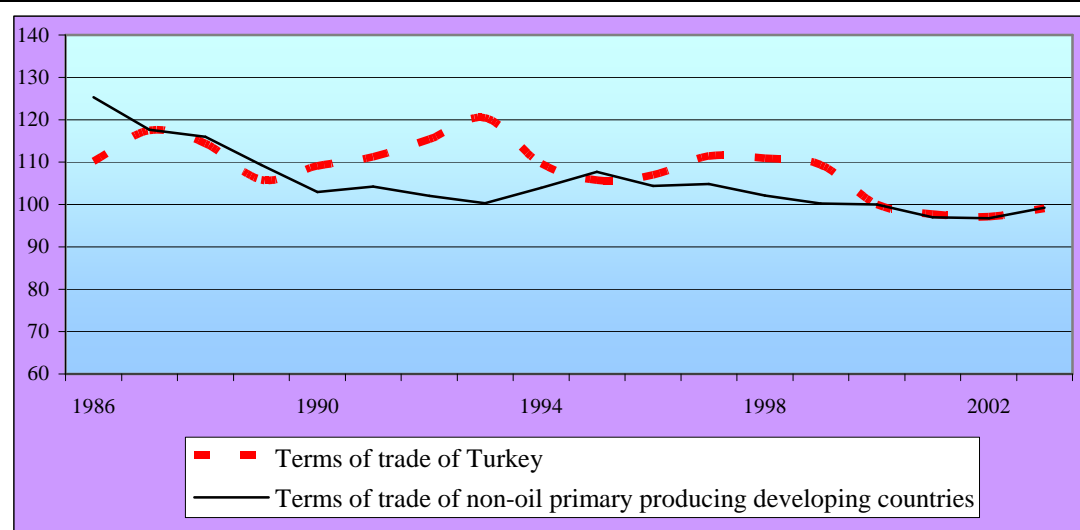
Source: UNCTAD Online Database, *Handbook of Statistics 2005*, table 2.1 and table 8.1.

Figure 4.1 shows the terms of trade of Turkey's terms of trade between 1986 and 2004. Turkey had been able to avert strong terms of trade deterioration over the period of 1986-1990. In this period, non-oil primary exporting developing countries faced large declines in their terms of trade[9]. From this fact, it may be argued that the ability of Turkey to increase the share of manufactures in its exports played a significant part in avoiding terms of trade deterioration during the period (the share of manufactures in non-oil exports of Turkey in 1990 was about 70 per cent).

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[9] Although the commodity-manufacture terms of trade deteriorated less during this period compared to the period of 1980-85, the terms of trade deterioration of non-oil primary producing countries was stronger for 1986-90 (See Figure 1.1). The large fall in the price of imported oil for 1980-85 lessened the impact of adverse commodity-manufacture terms of trade on the terms of trade of these countries in this period. However, the decline in real oil prices came to a halt for 1986-90, and thus it may be argued that the deterioration in commodity-manufacture terms of trade of a lesser extent in this period caused a stronger deterioration in the terms of trade of non-oil primary producing developing countries compared to the period of 1980-85.

There is no apparent trend in terms of trade of Turkey since 1986 in Figure 4.1. This is also evident in the exponential trend equation that we fitted to estimate the changes in terms of trade of Turkey over time as we did in the previous chapter; over the whole period, Turkey faced a small downward trend of 0.5 per cent per annum (See Table 4.1). To decide on whether Turkey has followed the general trend in terms of trade that major exporters of manufactures have faced during the period, we also estimated the equation for 1996-2004. In accordance with the finding that major exporters of manufactures experienced terms of trade deterioration at a rate of 1.2 per cent annually since 1996 (See Table 2.2), Turkey's terms of trade deterioration was 1.4 per cent per annum for 1996-2004. From this, it may be concluded terms of trade in Turkey face a trend similar to those of major exporters of manufactures.[10]

Table 4.1

TREND IN TURKEY'S TERMS OF TRADE, 1970-85 and 1973-1980

	Intercept term	Annual average rate of change (%)	R^2	Durbin-Watson Statistic
1986-2004	4.64 †	- 0.5 †	0.22	1.44
1996-2004	4.62 †	- 1.4 †	0.53	1.95

Source: Our calculations; based on data obtained from TSI.

  † Significantly different from zero at 5% level.

IV.2. The Link between Changes in Terms of Trade and Trade Balance in Turkey

Erlat and Erlat (1997) aimed to test for a long-run equilibrium relationship between the terms of trade and the trade balance for Turkey for the period 1981.2 – 1993.4 through a cointegration analysis. Their findings indicate that there exists a relationship between the variables such that deteriorations (improvements) in the

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[10] The correlation coefficient between terms of trade of major exporters of manufactures and that of Turkey was 0.82, whereas the coefficient between terms of trade of non-oil primary producing countries and those of Turkey was 0.44. This provides support to our conclusion that terms of trade movements in Turkey coincides more with those of major exporters of manufactures than those of non-oil primary producing countries.

terms of trade lead to a widening (narrowing) in the trade deficit. In this section, we make an attempt to test whether the variables sketched out are cointegrated for *the period of 1994.1-2004.4*. Since balance of payments gap has been a constraining factor in realizing sustainable growth rates in Turkey, the existence of a long-run relationship between the trade balance and terms of trade during the period may point out the fact that dealing with the balance of payments problem goes together with dealing with the terms of trade problem.

IV.2.1. A Cointegration Analysis between the Terms of Trade and the Trade Balance in Turkey for the period of 1993.1-2004.4

Depending upon the foreign price elasticity of demand for Turkey's exports and Turkey's price elasticity of demand for imports, an improvement in the terms of trade may lead to either a deterioration or an improvement in the trade balance. Table 4.2 gives the effect of terms of trade on trade balance under four possible situations. When both the foreign demand for its exports and its demand for imports is price-elastic, we would expect a negative relationship between the terms of trade and the trade balance. When both the price-elasticity of the demand for Turkish exports and that of its demand for imports are inelastic, we would expect a positive relationship between the two. In other situations, the impact of the terms of trade changes on the trade balance is indeterminate as it depends on the value of exports and imports in the previous year as well as the price elasticities.

Table 4.2

**PRICE ELASTICITIES OF DEMAND FOR EXPORTS AND IMPORTS AND THE
EFFECT OF TERMS OF TRADE CHANGES ON TRADE BALANCE**

		Turkey's demand for its imports	
		Price-elastic	Price-inelastic
Foreign demand for Turkish exports	Price-elastic	-	Indeterminate
	Price-inelastic	indeterminate	+

Before investigating a long-run relationship between the terms of trade and the trade balance, we shall first define the trade balance (TB) and the terms of trade (TOT) as;

$$\ln \text{TB} = \ln (X/M) \qquad (1)$$

$$\ln \text{TOT} = \ln (P^x/P^m) \qquad (2)$$

where X and M are the value of exports and value of imports, respectively. P^x and P^m are unit value index of exports and imports with $P^x = P^m = 100$ in 1994.

To investigate a cointegration relationship, it needs to be first shown that both the terms of trade and the trade balance series are integrated of order 1, that is I(1). The test for unit roots that we used is the augmented Dickey-Fuller (ADF) test. The results of ADF test for the series in question are reported in Table 4.3.

Table 4.3

AUGMENTED DICKEY-FULLER TEST FOR

THE TERMS OF TRADE AND THE TRADE BALANCE, 1994.1-2004.4

Estimated coefficients of the equation: $\Delta \ln Y_t = \beta_0 + \beta_1 t + \beta_2 \ln Y_{t-1} + u_t$

	β_0	β_1	β_2	ADF[a]
$\Delta \ln TB$	-0.1742	0.0010	-0.3339	-2.8451
	(0.0709)	(0.0015)	(0.1174)	
$\Delta \ln TOT$	-0.0080	-0.0003	-0.2627	-2.8546
	(0.0090)	(0.0004)	(0.0920)	

Estimated coefficients of the equation: $\Delta^2 \ln Y_t = \alpha_0 + \alpha_1 t + \alpha_2 \Delta \ln Y_{t-1} + u_t$

	α_0	α_1	α_2	ADF[b]
$\Delta^2 \ln TB$	-0,0232	0.0009	-1.0603	-6.7789
	(0.0435)	(0.0017)	(0.1562)	
$\Delta^2 \ln TOT$	-0.0012	0.0000	-0.7462	-5.5048
	(0.0088)	(0.0003)	(0.1356)	

Source: See Figure 4.2.

Note: Figures in parenthesis are standard deviation of the estimated coefficients.

[a] The 5 per cent asymptotic critical value for the ADF test is-3.5208 for the sample size of 42.

[b] The 5 per cent asymptotic critical value for the ADF test is 3.5180 for the sample size of 43.

In the first equation, we can not reject the null hypothesis of a unit root in both the trade balance and the terms of trade series as the ADF test statistics is less than the critical values in absolute terms. In the second equation, we reject strongly the null hypothesis of a unit root in the first difference of both series. Hence, we conclude that the series in question are I(1). On the basis of this finding, we can now test whether the terms of trade and the trade balance are cointegrated. We used most widely used Engel-Granger (1987) approach to test for a cointegration relationship between two I(1) variables. The idea lying behind the test is that if there exists a long-run relationship between the two I(1) variables, then when one variable is regressed on the other, the residuals series obtained from this regression should be stationary. To put it simply, Engle-Granger approach for cointegration is to test for a unit root in the residuals obtained from the auxiliary regression using the ADF test

without a constant and an intercept term. Table 4.4 gives the result of the ADF test for the residuals.

Table 4.4

THE ENGLE-GRANGER APPROACH TO THE TEST FOR COINTEGRATION
BETWEEN THE TERMS OF TRADE AND THE TRADE BALANCE, 1993.1-2004.4

Estimated coefficients of the equation: $\Delta u_t = \beta_0 u_{t-1} + \beta_1 \Delta u_{t-1} + \beta_2 \Delta u_{t-2} + \beta_3 \Delta u_{t-3} + \beta_4 \Delta u_{t-4} + \varepsilon_t$

	β_0	B_1	β_2	$\beta 3$	$\beta 4$	ADF
Δu_t	-0.6602	0.5414	0.2031	0.1147	0.2858	-3.4972
	(0.1888)	(0.1844)	(0.1685)	(0.1614)	(0.1548)	

Source: See Figure 4.2.

  Note: Figures in parenthesis are standard deviation of the estimated coefficients.

a The 5 per cent asymptotic critical value for the ADF test is -1.9496 for the sample size of 39.

As the ADF statistic of the equation (the t-value of β_0) is higher than the critical value, we reject the null hypothesis of the lack of cointegration between the terms of trade and the trade balance. Hence, we conclude that there exists a long-run relationship between the variables in question for the period of 1994.1-2004.4. This finding together with the existence of a long-run relationship showed by Erlat and Erlat over the period of 1981 and 1993 suggests that dealing with the terms of trade problem should have been an essential part of coping with the balance of payments constraint since the early 1980s.

Besides the terms of trade changes, changes in the volume traded may have been an important factor in mounting trade deficit during the period of 1994-2004. This inclines one to consider the effect of the changes in the volume imported and exported by Turkey on the trade balance. If the rise in the volume of Turkish exports fell short of that of Turkish imports over the period, this would indicate the need for exporting products with a better prospect of volume growth not to experience probable balance of payments constraint which might have an adverse effect on its terms of trade.

47

IV.2.2. The Impact of Changes in the Volume Traded on the Trade Balance and Market-Dynamic Products

The decomposition analysis of changes in trade balances in each year vis-à-vis the base year in the period of 1994-2004 shows that the volume effect was the prime factor in worsening trade account during the period. The terms of trade effect and price level effect had only trivial impact on the trade account that we give the sum of these two effects during the period (See Table 4.5).

Table 4.5

DECOMPOSITION OF CHANGES IN TRADE BALANCE
IN TURKEY VIS-À-VIS THE BASE YEAR [a], 1993-2004
(Billions of dollars)

	B_t	$B_t - B_0$	The sum of terms of trade and price level effect	Volume effect
1993	-14.08	-8.92	2.08	-11.00
1994	-5.16	0.00	0.00	0.00
1995	-14.07	-8.91	-1.63	-7.28
1996	-20.40	-15.24	-0.88	-14.36
1997	-22.30	-17.13	0.41	-17.54
1998	-18.95	-13.78	0.62	-14.40
1999	-14.08	-8.92	0.64	-9.56
2000	-26.73	-21.56	-1.02	-20.54
2001	-10.07	-4.90	-1.37	-3.53
2002	-15.50	-10.33	-1.38	-8.95
2003	-22.09	-16.92	-1.59	-15.34
2004	-34.42	-29.26	-1.86	-27.40
Total		-159.14	-4.53	-154.61

Source: Our calculations; based on data obtained from TSI.

    a The base year is 1994.

The fact that the volume component has played by far the most decisive role in snowballing trade deficit for the period of 1993-2004 suggests that Turkey was not able to increase the volume of its exports in proportion to the rise in the volume of

imports. The analysis of market dynamism of Turkey's major export products below may give a plausible explanation for this.

Table 4.6

EXPORT VALUE GROWTH AND SHARE IN TOTAL EXPORTS [a]
OF THE 20 MOST MARKET-DYNAMIC PRODUCTS, 1980-1998

(Per cent)

SITC Code	Product Group	Average annual export value growth 1980-1998	Share in total exports from developing countries in 1998	Share in total exports from Turkey in 1998
776	Transistors and semiconductors	16.3	7.7	0.0
752	Computers	15.0	5.0	0.1
759	Parts of computers and off. machines	14.6	3.6	0.0
871	Optical instruments	14.1	0.3	0.0
553	Perfumery and cosmetics	13.3	0.2	0.2
261	Silk	13.2	0.0	0.0
846	Knitted undergarments	13.1	1.4	6.9
893	Plastic articles	13.1	1.1	0.8
771	Electric power machinery	12.9	0.8	0.4
898	Musical instruments and records	12.6	0.5	0.3
612	Leather manufactures	12.4	0.2	0.0
111	Non-alcoholic beverages	12.2	0.1	0.1
872	Medical instruments	12.1	0.2	0.1
773	Electricity distribution equipment	12.0	1.0	1.4
764	Telecom. equipment and parts	11.9	2.9	0.4
844	Textile undergarments	11.9	0.8	1.0
048	Cereal preparations	11.9	0.2	0.7
655	Knitted fabrics	11.7	0.6	0.7
541	Pharmaceutical products	11.6	0.6	0.4
778	Electrical machinery	11.5	1.5	0.3
	20 most dynamic products		28.7	14.0

Source: UNCTAD, *TDR 2002,* table3.1, the share in total exports from Turkey in 1998 is our calculations; based on data obtained from TSI.

Note: SITC code numbers refer to *Standard International Trade Classification, Revision 2.*

　　a Excluding fuels.

Table 4.6 shows the 20 most dynamic products (i.e. *products with the highest export value growth in world trade*). It should be noted that in the study, the

deficiencies in data did not allow to separate volume and price components of export value growth, but "readily available evidence suggests that the ranking of products would remain largely unchanged if growth rates of products in world exports could be calculated on the basis of constant rather than current prices" (UNCTAD, TDR 2002, p. 55). Thus, we may regard the most market-dynamic products (as measured by value growth) as *products with the highest export volume growth*. In this context, were Turkey unsuccessful in increasing the share of most market-dynamic products in its non-oil exports, this would reveal an important underlying cause of the inability of Turkey to increase the volume of exports proportionate to that of imports. It is possible to identify two significant points in Table 4.7. First, the 20 most dynamic products constitute a much lower share of total non-oil exports from Turkey (14.0 per cent) than of that from developing countries (28.7 per cent) in general. Besides, Turkey virtually did not export the 3 most dynamic products in 1998, the share of which is 16.3 per cent in total exports from developing countries in that year. In view of these considerations, Turkey appears to have been excluded largely from the most dynamic exports in the world market with the exception of knitted undergarments, and therefore, the volume changes have been sizable adverse effect on the changes in the trade balance during the period resulting from the failure of Turkey to maintain an increase in the volume of exports equal to that in imports.

IV.3. An Assessment of Turkey's Success in Upgrading Exports

In Chapter II, we asserted that the necessity of upgrading exports for developing countries to avoid terms of trade falls as upgrading exports may allow them to avert problems associated with the fallacy of composition problem brought about by the simultaneous export drive of many countries exporting similar goods. While upgrading exports is not sufficient per se to escape from the trap of terms of trade declines as the Korean experience showed, in case of being locked in low-tech, labour-intensive products over a long duration of time, it is certain that the country is bound to face large terms of trade deterioration when other technologically less-advanced countries begin the exportation of these products in large amounts, and the resultant oversupply depresses the price of these goods in the world-market. In this

section, we will assess the success of Turkey to export more skill- and technology-intensive products in the period, 1985-2000.

IV.3.1. The Fallacy of Composition Problem and Turkey's Exports

We have seen in Section IV.1 that the correlation between terms of trade of Turkey and of major exporters of manufactures is strong. Over the period of 9 years, 1996-2004, when the competition among developing countries in the export of low-tech, labour-intensive products intensified, and overinvestment in the information technology products in the period of 1980-1995 led to a sharp decline in the prices of these products after 1995[11], major exporters of manufactures experienced 1.2 per cent decline per annum in their terms of trade. Turkey's terms of trade deteriorated also at an average annual rate of 1.4 per cent. The declines in the terms of trade of Turkey since 1996 should be traced to the fallacy of composition problem pertinent to trade in low-tech, labour-intensive exports rather than the record falls in the prices of information technology products as these manufactures constitutes only a small share of total imports and exports.

Table 4.7 shows the manufactures with the lowest market concentration in the world market.[12] The table indicates the degree of market concentration is lowest in the sectors of iron and steel (SITC 67), textiles (SITC 65) and clothing (SITC 84). It is notable that even though competition is highest in these sectors, the prices of the manufactures in these sectors may register a rise due to a substantial increase in the global demand for them. For example, data from United States Bureau of Labour Statistics indicate that the export and import price indices of the group of iron and steel manufactures rose significantly between 1997 and 2005 (both the US export and import price index for SITC 67 increased by about 50 per cent during the period). It was the Chinese appetite for these products that has led to soaring iron and steel prices in the world (Kappelle, 2003).

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[11] Information technology products are comprised of products with the following 3-digit headings: 752 (computers), 759 (Parts of computers and office machines), and 776 (Transistors and semiconductors). The import price index of the US for these products fell by about 70 per cent, 40 per cent, and 40 per cent, respectively between 1995 and 2004. (UNCTAD, TDR, 2005, p. 89)

[12] In this study, concentration is measured in terms of countries rather than firms.

However, if the strong demand for the manufactures with low market concentration falters, the fall in prices of these manufactures might be at least as strong as the rise in their prices. This may occur when many countries invest more and more on the production capacity of these manufactures to expand the output in an attempt to reap the benefits of soaring prices to the fullest extent, and in case of a weakening global demand, the prices of these products would inevitably register a sharp decline. It is notable that the possibility of this in product markets with highest market concentration is lower because the power of few countries to determine the global supply of these products may prevent the possible large declines in prices. Hence, it is more likely that the fallacy of composition problem will be pertinent to trade in products with the lowest market concentration rather than in those with higher market concentration.

In Chapter II, we pointed out that the unit value index of the US imports of textiles and clothing from developing countries declined by more than 10 per cent between 1995 and 2004. Likewise, in the electronics sector where the decline in the index of concentration was highest among all manufactures during the period (UNCTAD, TDR, 2002, p. 122), the prices fell largely since 1995. This may suggest that when the global demand for the products with low market concentration does not rise in proportion to the global supply, the exporters of these products do not have the power to prevent the prices of their products from declining very rapidly, and in this respect, these products may have acquired the features of primary commodities. It is worrying that all of Turkey's main export items appear in the list of the manufactures with the lowest market concentration. The sum of shares of these products in total non-oil exports of Turkey is very high (38.7 per cent) compared to other selected developing countries. This finding is suggestive of the urgent need for Turkey to upgrade its exports in the near future not to suffer strong declines in its terms of trade.

Table 4.7

**SHARE IN NON-OIL EXPORTS [a] FROM TURKEY AND
SELECTED DEVELOPING COUNTRIES OF THE MANUFACTURES WITH
THE LOWEST MARKET CONCENTRATION IN WORLD TRADE IN 1998**

(Per cent)

SITC code	Product Group	Index of Concentration	Turkey	South Korea	China	India	Mexico
635	Wood manufactures	441	0.1	0.0	0.5	0.0	0.3
651	Textile yarn	458	2.6	1.2	1.2	4.4	0.3
941	Live animals	474	0.0	0.0	0.0	0.0	0.0
673	Iron and steel bars, and rods	487	4.2	0.8	0.1	0.3	0.1
693	Wire products and fencing grills	504	0.3	0.2	0.1	0.2	0.1
522	Inorganic chemicals	507	0.1	0.2	0.7	0.2	0.2
677	Iron and steel wires	518	0.1	0.2	0.0	0.1	0.0
691	Metal structures and parts	537	0.5	0.3	0.3	0.3	0.1
652	Cotton fabrics	555	1.7	0.3	1.5	2.9	0.3
771	Electric power machinery	560	0.4	0.4	1.3	0.2	1.8
846	Knitted undergarments	561	6.9	0.5	2.5	2.5	1.3
672	Iron or steel ingots and forms	569	0.8	1.2	0.4	0.3	0.7
843	Women's textile garments	571	5.3	0.7	3.5	5.7	1.5
692	Metal containers	578	0.2	0.2	0.1	0.0	0.1
671	Pig and sponge iron	582	0.2	0.0	0.6	0.4	0.0
842	Men's textile garments	600	2.6	0.4	3.2	0.8	1.6
845	Knitted outergarments	613	8.3	1.0	4.0	1.3	1.1
844	Textile undergarments	623	1.0	0.3	1.1	2.4	0.2
658	Made-up textile articles	631	3.4	0.2	1.5	2.4	0.7
679	Iron and steel castings	635	0.1	0.1	0.3	0.3	0.1
	20 manufactures with the lowest market concentration		38.7	8.4	23.0	24.7	10.6

Source: UNCTAD, *TDR 2002,* table4.1, the share in non-oil exports in 1998 is our calculations; based on data obtained from UN-COMTRADE database.

Note: "The degree of market concentration for a particular product is expressed as the Herfindahl-Hirschman index (HHI) calculated for each product by taking the sum of the squared values of the market shares of all countries exporting that product, i.e. $HHIj = \Sigma(Sij)^2$ where Si is the share of country i expressed as a percentage of total world exports of product j. This means that the HHI ranges between 43, indicating that all 234 countries in the sample have equal shares (i.e. 0.43 per cent) in a product's total exports, and 10 000, indicating that the product is exported by only one country. The index numbers given are averages for 1997 and 1998" (UNCTAD, TDR, 2002, p.121).

a non-oil exports

IV.3.2. Commodity Structure of Exports from Turkey, 1980-2000

Maizels, Palaskas, and Crowe (1998) showed that the developments in the terms of trade of developing countries vis-à-vis developed economies to a large extent are linked to the level of technology embodied in their exports (See Chapter I). In a comparative analysis, Lall (2000, p. 16-17) considers the stagnation of the export structure of the Turkish export as a major weakness. Indeed, the combined share of medium and high skill- and technology-intensive products in manufactured exports of Turkey rose by only 3 percentage points over 1985-96. The inability of Turkey to increase the share of more sophisticated products in manufactured exports suggests that Turkey's exports consists mainly of products embodying a low level of technology. Hence, it is likely that Turkey suffered strong terms of trade deterioration vis-à-vis *developed countries* since 1980.

Table 4.8

COMMODITY STRUCTURE OF EXPORTS FROM TURKEY, 1980-2000

(Percentage of total non-oil exports)

Commodity group	1980	1990	2000
Primary Commodities	70.6	30.6	16.9
Food	41.4	18.2	10.7
Non-ferrous metals	0.6	1.8	1.4
Other primary commodities	28.7	10.6	4.8
Labour-intensive and resource-based manufactures	22.2	42.0	44.2
Textiles	11.9	11.4	13.7
Clothing	7.5	26.3	24.3
Footwear, leather and travel products	0.0	0.6	0.7
Wood and paper products	0.2	0.3	0.9
Paper, print and publishing	0.1	0.5	0.7
Non-metallic mineral products	2.4	2.8	3.8
Manufactures with low skill and technology intensity	1.4	13.6	9.9
Iron and steel	0.9	11.8	7.0
Fabricated metal products	0.5	1.2	2.2
Simple transport equipment	0.0	0.0	0.2
Ships and boats	0	0.5	0.4
Manufactures with medium skill and technology intensity	3.0	4.9	16.4
Rubber and plastic products	0.3	0.7	2.3
Non-electrical machinery	1.2	1.4	4.6
Electrical machinery (excl. semiconductors)	0.5	1.7	4.1
Road motor vehicles	0.9	1.1	5.4
Manufactures with high skill and technology intensity	2.4	8.0	10.3
Industrial chemicals	1.7	5.3	3.2
Pharmaceuticals	0.1	0.6	0.5
Computers and office equipment	0.0	0.2	0.2
Communication equipment and semicond.	0.3	1.9	3.5
Aircraft	0.1	0.0	2.5
Scientific instruments	0.1	0.1	0.2
Other manufactures	0.4	0.8	2.4

Source: UNCTAD, *TDR 2003,* table 5.8.

Table 4.8 indicates that Turkey could not succeed in upgrading exports since 1980. Together labour-intensive and resource-based manufactures and manufactures

with low skill and technology intensity accounted for more than one half of Turkey's non-oil exports in 1990 and in 2000. Besides, among labour-intensive and resource-based manufactures, Turkey could not succeed in exporting products with relatively more technology intensity. For example, over the period of 20 years, 1980-2000, while the share of comparatively technology-intensive textiles has been stagnant, the share of more labour-intensive clothing has risen considerably.

In order to assess the success of Turkey in exporting more technology-intensive products compared to developing countries taken as a whole, Table 4.9 shows the composition of exports of Turkey and of developing countries in 1980 and in 1998. In the table, it is possible to identify three important points. First, although the number of exporters of low-tech, labour-intensive manufactures in the world market registered a large increase during the period as many developing countries that were traditional exporters of primary commodities have become exporters of these manufactures, the stagnant shares of these broad categories of manufactures in total non-oil exports of developing countries since 1980 indicates that some developing countries have been successful in upgrading exports and reducing the shares of these products in their exports. Second, the high share of manufactures with high skill and technology intensity in total non-oil exports of developing countries is linked to the heavy participation of many developing countries in labour-intensive segments of international production networks in the former group of manufactures (UNCTAD, TDR, 2002, p. 68). This suggests that with a few notable exceptions, developing countries could not succeed in building up scientific and technological capacities to produce sophisticated manufactures. And lastly, the inability of Turkey to reduce the share of low-tech, labour-intensive manufactures in its non-oil exports reflects comparatively slow pace of upgrading exports in Turkey as well as its exclusion from production relocations.

Table 4.9

STRUCTURE OF EXPORTS FROM DEVELOPING COUNTRIES
AND TURKEY ACCORDING TO FACTOR INTENSITY, 1980 AND 1998

(Percentage of total non-oil exports)

	Share in exports from developing countries		Share in exports from Turkey	
Product category	**1980**	**1998**	**1980**	**1998**
Primary commodities	50.8	19.0	70.6	21.5
Labour-intensive and resource-based manufactures	21.8	23.2	22.2	46.5
Manufactures with low skill and technology intensity	5.8	7.3	1.4	11.2
Manufactures with medium skill and technology intensity	8.2	16.8	3.0	11.1
Manufactures with high skill and technology intensity	11.6	31.0	2.4	8.3

Source: UNCTAD*, TDR 2002,* table 3.4, the share in total exports from Turkey in 1998 is our calculations; based on data obtained from TSI.

   Note: For the products classification see UNCTAD, TDR 2002, Annex 1 to Chapter III.

IV.3.3. A Comparative Analysis of Unit Labour Costs in Manufacturing in Turkey

As a result of implementation of more outward-oriented development strategies in highly populated developing countries since the mid-1980s, the competition seems to become fiercer at the low end of manufactures (UNCTAD, TDR, 2002, 120). While the average wage rate in the manufacturing sectors of these economies are quite low in comparison to that of Turkey, many of them do not have a competitive edge over Turkey as higher labour productivity in manufacturing sectors of Turkey more than offset comparatively high wage rates. Table 4.10 gives a comparison between Turkey and selected developing economies of wages and of unit labour costs[13] in manufacturing in 1998.

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[13] Unit labour cost is defined on theoretical grounds as the ratio of the average wage rate to labour productivity in the economy. It shows how much should be paid to workers to get one unit of output.

Table 4.10

WAGES AND UNIT LABOUR COSTS IN MANUFACTURING
BETWEEN TURKEY AND SELECTED DEVELOPING COUNTRIES, 1998

Economy	Ratio to Turkey's level of	
	Wages	**Unit labour costs**
Singapore	3.0	1.4
Taiwan Province of China (1997)	2.6	2.6
Republic of Korea	1.7	0.9
Chile	1.6	0.9
Mexico	1.0	0.8
Malaysia	0.7	1.2
Philippines (1997)	0.5	0.8
Bolivia	0.5	0.7
Egypt	0.4	1.7
Kenya	0.3	2.2
Indonesia (1996)	0.3	1.0
Zimbabwe	0.3	1.3
India	0.2	1.6
China	0.1	1.1

Source: UNCTAD, *TDR 2002,* table 5.4.

   Note: Unit labour costs are calculated as wages (in current dollars) divided by value added (in current dollars).

As Table 4.10 indicates, although the average wage rate in manufacturing can be regarded as high in Turkey, unit labour cost in Turkey was lower vis-à-vis many of developing countries listed in the table because of the productivity advantage of Turkey over these countries. The analysis of unit labour costs in manufacturing is important for Turkey to the extent that these countries are mainly involved in low-tech, labour-intensive manufactures. In this context, the unit labour costs in India and China merits special emphasis. As in these countries unit labour cost was higher than that of Turkey, it may be argued that the export-oriented policies in these countries since the mid-1980s has not impacted Turkey in full as yet. However, in China, an increasing share of GDP has been allocated to investment expenditure since 1980 (the overall share of investment in GDP of China for 1995-2000 was 35.4 per cent). This will most likely have favourable effect on labour productivity in this country in

the long-term. With a narrowing of the productivity gap between Turkey and China, Turkey may lose its competitive edge over this country in its leading exports such as textiles and clothing. The possible consequence of such a development would be strong terms of trade deterioration in Turkey as having a competitive edge in these manufactures may lead China to cut the price in order to increase its market share in the world market. Accordingly, the fierce competition in clothing and iron and steel manufactures in the world market provides the backdrop for bleak prospects for terms of trade of Turkey in the near future.

The analysis of unit labour costs in clothing and textiles is more useful to predict the changes in terms of trade of Turkey in the near-future than the above analysis of unit labour costs in manufacturing as it gives a better indicator of a competitive edge of Turkey over other developing countries in the leading exports of Turkey. UNCTAD calculations show that unit labour costs in clothing and textiles industries of Turkey vis-à-vis those of developing countries that are main exporters of labour-intensive manufactures remains low (UNCTAD, TDR 2003, 108). It should be noted, however, that a possible increase in labour productivity in these countries may erode the competitive edge of Turkey. Turkey may prevent the erosion of its competitive edge in clothing and textiles sectors by either repressing wages or bending efforts to increase labour productivity in these sectors. However, even if Turkey retains a competitive edge in these sectors by adopting either strategy, its terms of trade will likely be affected unfavourably when the prices of clothing and textiles decrease as a result of increased competition in the world market.

A more effective and less painful way for Turkey to respond to increased fierce competition in clothing and textiles sectors in the world is to achieve industrial upgrading and move up into superior positions in the global value chain by mastering the dynamics of buyer-driven value chains in the apparel industry. This necessitates implementing a comprehensive development strategy for Turkey that will help its manufacturers to move on from original equipment manufacturing to original brand name manufacturing. The success of Turkey in implementing such a strategy would also be helpful to escape from large terms of trade declines because having

60

competitive assets such as design and brand names would allow manufacturers of clothing and textiles in Turkey to set prices on a cost-plus-mark-up basis.

SUMMARY AND CONCLUSIONS

The main aim of this study was to analyze terms of trade changes in Turkey since 1970 and to link these changes to the diversification of its exports into manufactures in the early 1980s and to the upgrading of its exports into higher skill- and technology-intensive products since the mid-1985.

In Chapter I, we highlighted the pitfalls of using unit value indices as an accurate measure of price changes. Still, we had to use unit value indices due to the lack of pure price indices for many developing and developed countries. In addition to this, we pointed out that the double factorial terms of trade concept may be a better indicator of gains from trade compared to the net barter terms of trade concept. Nevertheless, the difficulties inherent in calculation of productivity indices for export and import sector in an economy prevented us from investigating this concept. Thus, we focused on the net barter terms of trade. The analysis of this concept confirmed the existence of a downward trend in terms of trade of developing countries as confirmed by many studies. However, the degree of deterioration and the terms of trade volatility were lower for major exporters of manufactures in the developing world compared to primary exporting developing countries for 1980-2004.

Chapter II addressed the fallacy of composition problem in low-tech, labour-intensive products. As a possible solution to overcome this problem, upgrading exports was suggested although this policy recommendation was not sufficient per se to avoid large terms of trade declines as the Korean experience indicated.

Chapter III, we dealt with what factors have accounted for strong terms of trade declines and mounting trade deficit in Turkey in 1970-85. The two oil price hikes had a decisive impact on both the terms of trade and the trade balance during the period. The rapid diversification of exports into manufactures was instrumental in escaping from the trap of any further large terms of trade deterioration in the early 1980s due to the decline in real price of primary commodities resulting from a glut of these commodities in the world market.

Chapter IV, we tested for a long-run relationship between the terms of trade and the trade balance for 1993-2004 and assessed the success of Turkey in exporting manufactures with higher skill and technology intensity during the period of 1985-2004. We found a cointegration relationship between the variables during the period. The need to upgrade exports was also emphasized in this chapter as the inability of Turkey to reduce the share of labour-intensive manufactures may result in strong terms of trade falls in the near future.

It should be noted that although upgrading exports into more skill-and technology-intensive manufactures appears to be the most urgent need of Turkey to avoid probable strong terms of trade declines in the near future, the way Turkey achieves this will play a more decisive role in its terms of trade in the long-term. There are many valuable experiences of other developing countries in this respect that Turkey can draw on. For example, the experience of Mexico suggests that participation in the international production networks in low-tech, labour-intensive segments of manufactures that are highly technology-intensive may not be a good strategy to cope with the trap of terms of trade declines as "it (Mexico) now finds itself with drastically worsened terms of trade and its fledgling export sector endangered, thanks to the exported manufactures surging out of China" (Phelps, 2004, p.908). As a result, the Mexican experience suggests building up technological and scientific capacities that allow a country to decrease the import content of manufacturing and to establish backward and forward linkages, and thereby deepening industrialization should be an integral part of any approach to the terms of trade problem. To take another example, the experience of the Republic of Korea highlights the need for expanding the exports of products sold in less competitive markets to overcome strong terms of trade deterioration. The same policy recommendations also apply here as the ability of a country to increase the share of goods in total exports whose prices are set on a cost-plus-mark-up basis depends on the success in these policies, too.

As a last point, if Turkey were unsuccessful in deepening industrialization and had to resort to wage compressions in response to the fierce competition in

63

textile and clothing sectors in the world market, this might provoke a race to the bottom for Turkey. Evading this situation calls for deliberate measures to be taken by the governments in Turkey that are conducive to a comprehensive development strategy that effectively coordinates trade, industrial and financial policies.

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