A Short Review of the Long History of Turkish High Inflation

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Abstract: After experiencing high and persistent inflation for more than two decades, Turkey is entering a period of single-digit inflation again. Following a summary of the macroeconomic developments occurred since early 1970s, this paper attempts to survey the empirical literature both on the dynamics of chronic inflation and on the possible effects of disinflation in Turkey.

Key words: High inflation, causes of inflation, inertia, exchange rates, disinflation, stabilization policies, Turkish economy

JEL Classification: E31, E44, E66

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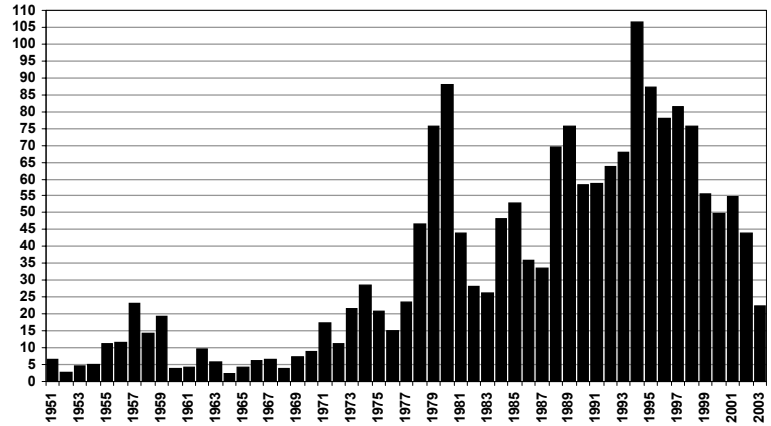
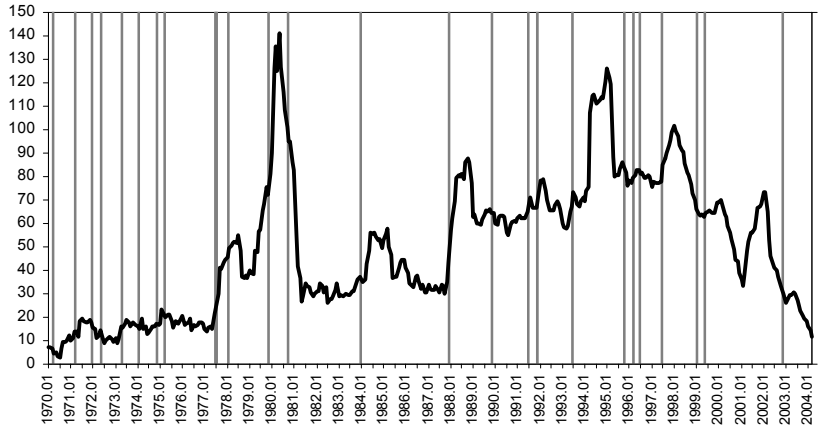
1. Introduction

Over the past 30 years, Turkey has been governed by 22 governments, while high and persistent inflation became a major feature of the Turkish economy. Several disinflation attempts since late 1970s seem to have failed one after another. The Turkish economy never experienced hyperinflation like Argentine or Israel in the period of global inflation from 1973 to 1994 but she felt into a unique situation after 1994. In 2002, the Turkish annual inflation rate was still 13 times higher than the average rate of inflation in the world, while global inflation rate has dropped from 25.3 percent in 1994 to 3.2 percent in 2002. Figure 1 is devoted to demonstrate various dimensions and the length of this unhappy experience of Turkey within the past 30 years.

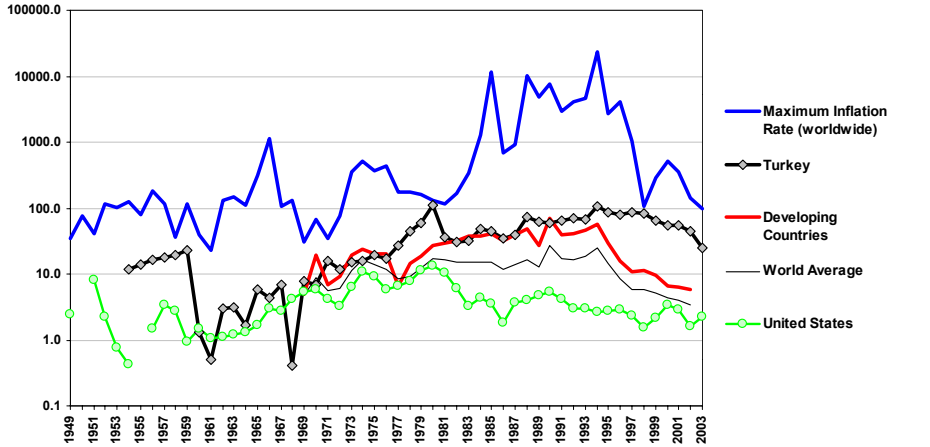
Figure 1: Inflation in Turkey and in the Rest of the World



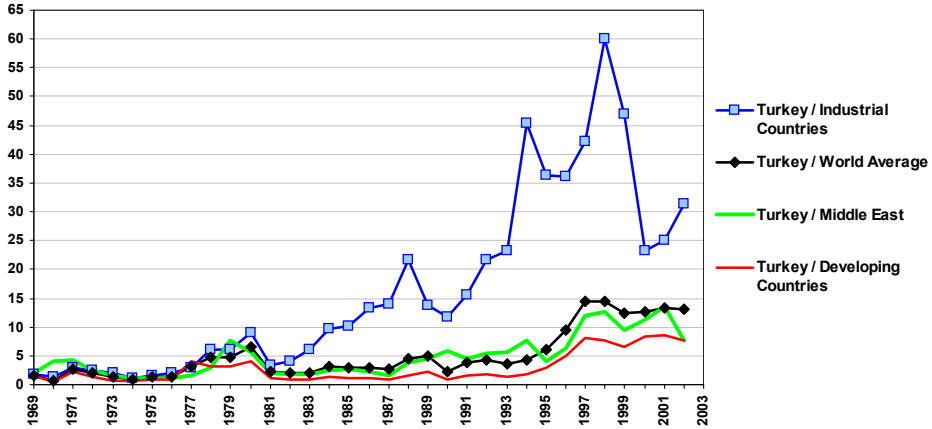
(a) Annual Inflation Rates in Turkey (percent changes in the GDP deflator, 1951–2003)



(b) Year-to-Year Changes in Consumer Price Index and Timing of Government Changes in Turkey (Jan. 1970 – Mar. 2004)



(c) Annual Percent Changes in National Consumer Price Indices (logarithmic scale, 1949–2003)



(d) Relative Inflation: Ratio of Annual Consumer Price Inflation in Turkey to Foreign Inflation Rate (1969–2002)

Source: State Institute of Statistics, State Planning Organization, and the IMF's *International Financial Statistics* (CD-ROM version, February 2004); author's own calculations.

As end of March 2004, however, the existing single-party government seems to have succeeded to lower inflation to single-digit levels, at least in terms of the wholesale price increases. However, many observers and experts of the Turkish economy think that it is still too early to believe that Turkey hereafter is a low inflation country because there still exists a number of potential causes, which may trigger the inflationary process in the country again.

In Turkey, it is *commonly* argued that sustainability of high and persistent inflation since the early 1970s has been "fed" by:

(1) high public sector budget deficits,

(2) monetization of public sector budget deficits,

(3) massive infrastructure investments of the various governments, such as for the Southeastern Anatolian Project,

(4) high military expenditures associated with geopolitical reasons,

(5) political instability which results in inflationary pressures due to populist policies that have ensued prior to each general election,

(6) persistent inflationary expectations of economic agents,

(7) inflationary effects of changes in exchange rates via increases in prices of imported inputs,

(8) occasional increases in world prices of major imported inputs (particularly, crude-oil),

(9) increases in regulated prices of public sector products which are mainly used as input by the domestic private sector, and/or

(10) rising interest rates resulting from the crowding-out effect of public sector borrowing in a shallow domestic capital market.

In reality, however, most of these "possible" causes discussed *publicly* may be condensed into a smaller number of determinants in order to better understand the dynamics of inflation in Turkey in the past, as well as the latest disinflation process after 1999. Actually, there are many reasons to do so. First of all, some of the factors listed above are closely interrelated, or may be seen as stemming from the same macroeconomic category. Second of all, some other factors mentioned above cannot be accepted as real causes of inflation if we consider the relevant debates in the theory of macroeconomics or if we check the results of related empirical studies. Furthermore, to be able to understand the underlying causes of the success in the current disinflation process, one should rank these broader factors according to their relative importance with respect to their roles from late 1999 to early 2004.

In this paper, I mainly attempt selectively to review both the major macroeconomic developments and existing large body of empirical literature on Turkish inflation and disinflation. Section 2 presents a theoretical categorization of causes of inflation. Section 3 presents a short review of macroeconomic developments, which highlighted the high inflationary decades in the past in Turkey. After that, I compare selected empirical studies of Turkish inflation in terms of their main results in Section 4. Finally, Section 5 is devoted to summarizing the main conclusions of the review.

2. Conceptual and Theoretical Background

Inflation is usually defined as sustained increases in the general price level for goods and services in an economy. This definition excludes clearly *one-time* increases in the price level. For many economists today, an adequate approach to explain the process of high and long-lasting increases in the general price level of goods and services requires a concentration on sources of *core*, or *underlying*, inflation, and not on changes in *relative* prices caused by factors, such as one-time increases in administered prices or unfavorable weather conditions.

If equilibrium price level in a domestic market for goods and services rises continuously as a result of continued excess demand conditions in successive time periods, then economists speak in general from *demand-pull inflation*. In this case aggregate demand grows faster than the level of aggregate supply and "pulls" prices higher. But if firms' costs increase continuously as in the cases of rising wages, interest rates, taxes, imported input prices, or exchange rates, then some economists prefer to use the term *cost-push inflation* to describe this phenomenon.

In practice, however, it is not always easy to decompose the observed inflation into its demand-pull and cost-push components. The process is dynamic, and the shocks to prices are mixed. Furthermore, inflation itself, or inertia in inflation, may also cause future inflation. Finally, some theories include both demand-side and supply-side channels of feedback in explaining inflation. Therefore, we need other criteria, besides demand-pull and cost-push, to classify theories of inflation. There are many alternative possibilities to distinguish various types of inflation theories. For example, we may differentiate between short-run vs. long-run inflation theories, closed vs. open economy models of inflation, theories of low-, high- or hyper-inflation, perfect competition (market-clearing) vs. imperfect (monopolistic) competition models, theories with assumptions of perfect or imperfect information, fiscal vs. monetary theories of inflation, etc. Following Kibritçioğlu (2002),[1] I prefer to employ the following four-blocked theoretical categorization of the causes of inflation.

The economy-wide price-level is the relative price of goods and services in terms of money, as implied in the definition of inflation in the first sentence of this section. Therefore,

[1] For surveys of inflation theories, interested readers may see Whitney (1982: 59-87), Frisch (1983), McCallum (1987), Beckerman (1992: 27-49) and Siklos (ed.) (1995: 3-34). Note that Humphrey (1998) specifically surveys the historical origins of cost-push inflation theories.

inflation must be a phenomenon that results from the interaction of *monetary* (demand-side) and *real* (supply-side) factors.[2]

The primary source of shocks in the demand-side is seen commonly as sustained public sector deficits. Modeling the role of government deficits and their financing methods is one of the major challenges faced by economists. The modification of an inflation model to allow for feedbacks, or "eroding" effects, from the inflation to the real value of government revenues due to the existence of tax-collection lags (*Olivera-Tanzi effect*),[3] and/or to the real value of the government's liabilities (*inflation tax*), leads to an increase in the complexity of the structure of the proposed model.

The study of inflationary effects stemming from real shocks is closely related to the economics of technology, long-run growth theory, and theory of exchange-rate determination, since they arise in the form of, e.g., negative productivity shocks, stagflationary relative-price shocks related to imported raw materials, or depreciations in the domestic currency. But, this is not the whole story. The time path of prices may also be influenced by the expectations, stickiness of prices/wages, and possible indexation experiences in the economy. Therefore, these *inertial* factors should be considered as a third block of explanatory factors of inflation.

The last block of explanatory factors of inflation seems to be offered by the new political macroeconomics. To model the dynamics of inflation more realistically, the political process, or the role of institutions and incentives, must also be considered explicitly. Most of the theoretical discussions on causes of inflation above are based on the assumption that financial markets are highly developed and functioning very well in the presence of necessary laws and

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[2] Traditionally, macroeconom(etr)ic models posit that monetary shocks have an effect on the economy only through a *demand* channel of transmission. In recent years, however, some economists argued that monetary shocks may also create important *supply*-side, or *cost*-side, effects on output and prices. For various theoretical models of monetary transmission mechanisms which allow monetary policy shocks to have both supply-side and demand-side effects, see Barth and Ramey (2001) and references cited therein.

[3] See Olivera (1967) and Tanzi (1977, 1978).

rules. However, this is not the case in many high-inflation developing countries. Thus, the political or institutional approach to macroeconomics suggests that one should take into account the institutional, political and cultural changes in such economies, and modify the model to explain high-inflation accordingly. As a conclusion, the complex and dynamic interactions of four groups of factors (i.e., demand shocks, supply shocks, inertial factors and the political process) come together to explain inflation in any economy.

3. Macroeconomic Background [4]

Until the end of the 1970s, successive Turkish governments pursued an inward-oriented, or import-substituting, industrialization strategy. Oil-price shocks in the 1970s and related balance-of-payments problems contributed substantially to a deep economic recession and a political and social crisis in Turkey. On the institutional and policy side, Turkey embarked on far reaching structural reforms after 1979. In early 1980, in response to a strong balance-of-payments crisis accompanied by a deep recession and accelerated inflation, Turkey abandoned its inward-oriented development strategy and gradually started to introduce free-market based reforms. After the introduction of a broad stabilization and liberalization program in January 1980, the government installed by the military regime in September 1980 was able to lower year-to-year increases in consumer prices from 140 percent in May 1980 to 33 percent and accelerate economic growth in the following four years. However, after 1983, the volatility of annual real GDP growth rates increased substantially and price increases speeded up again (see Table 1).

[4] Interested readers may see Ertuğrul and Selçuk (2002), Selçuk (2004), Selçuk and Ardıç (2004a) and Economist Intelligence Unit's (2003) up-to-date Country Report for further information about the macroeconomic and political developments in Turkey.

Table 1: Selected Macroeconomic Indicators for Turkey (Part I)

	Consumer Price Inflation (%)	Real GDP Growth (%)	Change in Nominal TL/US$ Exchange Rate (%)	JP Morgan's Real Effective Exchange Rate (1990=100)	Absolute Change in Central Bank's Gross Foreign Exchange Reserves (millions of USD)	Change in Average Crude Oil Import Price (%)	Foreign Exchange Deposits to Money Supply M2 (%)	Change in Nominal Money Supply M2 (%)
1970	6.9	3.2	26.4	220.4	176	- 0.7	0.0	21.9
1971	15.7	5.6	31.1	259.7	322	21.8	0.0	28.1
1972	11.7	7.4	- 5.5	208.3	564	5.8	0.0	26.0
1973	15.4	3.3	- 0.1	173.9	716	39.9	0.0	28.4
1974	15.8	5.6	- 1.6	131.9	- 433	159.0	0.0	25.7
1975	19.2	7.2	3.8	123.1	- 561	21.4	0.0	28.0
1976	17.4	10.5	10.9	118.2	57	8.2	0.0	23.4
1977	27.1	3.4	12.3	107.4	- 331	12.5	0.0	33.8
1978	45.3	1.5	35.0	96.2	163	- 1.0	0.0	36.5
1979	58.7	- 0.6	27.9	74.9	- 143	37.8	0.0	61.7
1980	110.2	- 2.4	144.3	87.7	419	110.5	0.0	74.5
1981	36.6	4.9	46.8	93.1	- 149	- 0.2	0.0	85.0
1982	30.8	3.6	45.9	104.1	151	- 9.7	0.0	56.7
1983	31.4	5.0	39.2	110.0	174	- 9.7	0.0	29.8
1984	48.4	6.7	61.9	122.4	- 14	- 5.5	5.1	58.0
1985	45.0	4.2	42.6	122.9	- 219	- 1.2	9.0	55.5
1986	34.6	7.0	29.3	119.7	348	- 49.5	22.3	42.5
1987	38.8	9.5	27.2	119.3	351	27.5	31.5	45.0
1988	73.7	2.1	66.4	115.4	589	- 18.4	34.6	54.1
1989	63.3	0.3	48.6	105.3	2 524	17.9	29.5	73.3
1990	60.3	9.3	22.9	100.0	1 141	33.1	30.4	51.8
1991	66.0	0.9	60.2	102.8	- 1 054	- 20.6	44.4	63.6
1992	70.1	6.0	64.6	112.2	1 198	- 1.6	55.6	62.9
1993	66.1	8.0	60.5	107.7	97	- 14.8	69.9	48.1
1994	106.3	- 5.5	169.9	137.1	899	- 2.1	94.9	123.2
1995	88.1	7.2	53.7	131.7	5 279	7.6	99.7	99.4
1996	80.3	7.0	78.0	134.2	3 882	21.4	89.8	132.8
1997	85.7	7.5	86.8	127.2	2 146	- 8.8	97.1	93.5
1998	84.6	3.1	71.6	127.6	1 302	- 35.3	83.8	101.9
1999	64.9	- 4.7	61.0	128.6	3 456	41.6	82.2	96.1
2000	54.9	7.4	48.5	113.9	- 1 005	58.7	79.4	42.5
2001	54.4	- 7.5	96.5	128.9	- 3 385	- 15.7	127.9	48.0
2002	45.0	7.9	22.9	112.8	8 020	2.8	120.7	31.0
2003*	25.3	5.8	- 0.8	113.5	6 809	14.8	86.4	33.7
1970-1979	23.3	4.7	14.0	151.4	53	30.5	0.0	31.4
1980	110.2	- 2.4	144.3	87.7	419	110.5	0.0	74.5
1981-1988	42.4	5.4	44.9	113.4	154	- 8.3	12.8	53.3
1989-1993	65.1	4.9	51.4	105.6	781	2.8	46.0	59.9
1994	106.3	- 5.5	169.9	137.1	899	- 2.1	94.9	123.2
1995-1999	80.7	4.0	70.2	129.9	3 213	5.3	90.5	104.7
2000-2001	54.7	- 0.1	72.5	121.4	- 2 195	21.5	103.6	45.2
2002-2003	35.1	6.9	11.0	113.1	7 414	8.8	103.5	32.3
1970-2003	49.9	4.1	46.7	126.2	985	13.2	38.1	56.4

Source: State Institute of Statistics, State Planning Organization, Central Bank of Republic of Turkey, JP Morgan, and the IMF's *International Financial Statistics* (CD-ROM version, February 2004); author's own calculations.

* Provisory or estimated figures.

Table 1: Selected Macroeconomic Indicators for Turkey (Part II)

	Public Sector Borrowing Requirement to GDP (%)	Official Unemploy-ment Rate (%)	Capacity Utilization in the Manufac-turing Industry (%)	Istanbul Stock Exchange's Composite 100 Index in USD (1986=1.0)	Current Account Balance (millions of USD)	Short-Term Capital Inflow (millions of USD)	Actual Foreign Direct Investment Inflow (millions of USD)
1970	n.a.	n.a.	n.a.	n.a.	- 171	n.a.	n.a.
1971	n.a.	n.a.	n.a.	n.a.	- 109	n.a.	n.a.
1972	n.a.	n.a.	n.a.	n.a.	- 8	n.a.	n.a.
1973	n.a.	n.a.	n.a.	n.a.	484	n.a.	n.a.
1974	n.a.	n.a.	n.a.	n.a.	- 561	n.a.	n.a.
1975	4.9	n.a.	n.a.	n.a.	- 1 648	40	n.a.
1976	6.9	n.a.	n.a.	n.a.	- 2 029	73	n.a.
1977	8.2	n.a.	n.a.	n.a.	- 3 140	968	n.a.
1978	3.2	n.a.	n.a.	n.a.	- 1 265	402	n.a.
1979	7.3	n.a.	56.9	n.a.	- 1 413	- 1 000	n.a.
1980	8.9	8.3	55.2	n.a.	- 3 408	- 2	35
1981	4.0	7.3	56.7	n.a.	- 1 936	121	95
1982	3.6	7.2	59.4	n.a.	- 952	98	55
1983	5.0	7.9	60.3	n.a.	- 1 923	798	46
1984	5.4	7.8	74.3	n.a.	- 1 439	- 652	113
1985	3.6	7.3	70.3	n.a.	- 1 013	1 479	99
1986	3.7	8.1	70.0	1.0	- 1 465	812	125
1987	6.1	8.5	77.1	4.0	- 806	50	115
1988	4.8	8.7	74.8	2.3	1 596	- 2 281	354
1989	5.4	8.7	72.8	2.6	938	- 584	663
1990	7.5	8.2	75.2	8.9	- 2 625	3 000	684
1991	10.2	7.8	74.0	5.3	250	- 3 020	810
1992	10.7	8.0	76.4	3.4	- 974	1 396	844
1993	12.1	7.7	79.6	5.6	- 6 433	2 994	636
1994	7.9	8.1	72.9	4.2	2 631	- 5 190	608
1995	5.0	6.9	78.6	5.3	- 2 338	3 635	885
1996	8.8	6.0	78.0	5.0	- 2 437	2 665	722
1997	7.9	6.4	79.4	7.8	- 2 638	- 7	805
1998	9.7	6.8	76.5	7.3	1 984	1 313	940
1999	15.8	7.6	72.4	8.0	- 1 344	1 024	783
2000	12.6	6.6	75.9	13.2	- 9 819	4 200	982
2001	16.2	8.4	70.9	5.1	3 390	- 11 321	3 266
2002	12.6	10.4	75.4	4.2	- 1 522	- 1 279	585
2003*	8.6	10.6	78.4	4.9	- 6 808	4 269	294
1970-1979	6.1	n.a.	56.9	n.a.	- 986	97	n.a.
1980	8.9	8.3	55.2	n.a.	- 3 408	- 2	35
1981-1988	4.5	7.9	67.8	2.4	- 992	53	125
1989-1993	9.2	8.1	75.6	5.2	- 1 769	757	727
1994	7.9	8.1	72.9	4.2	2 631	- 5 190	608
1995-1999	9.4	6.8	77.0	6.7	- 1 355	1 726	827
2000-2001	14.4	7.5	73.4	9.2	- 3 215	- 3 561	2 124
2002-2003	10.6	10.5	76.9	4.6	- 4 165	1 495	440
1970-2003	7.8	7.9	71.6	5.5	- 1 440	138	606

Source: State Institute of Statistics, State Planning Organization, Central Bank of Republic of Turkey, JP Morgan, and the IMF's *International Financial Statistics* (CD-ROM version, February 2004); author's own calculations.

* Provisory or estimated figures.

n.a.: not available.

The 1980 stabilization and liberalization program was designed to devalue the Turkish lira to eliminate its excess overvaluation, to increase the prices of public sector products and to remove restrictions on interest rates. Over the first four years of the program, the first steps of external liberalization concentrated on current account transactions. In May 1981, the government took the first step from fixed to a managed floating exchange-rate system. In 1984, domestic citizens were allowed to open foreign exchange deposit accounts in Turkish banks (see Table 1). In 1989, the government finally took serious steps to liberalize the capital account, too. Following the introduction of convertibility, the overvaluation of the Turkish lira and high domestic interest rates on government bonds attracted short-term capital inflows to the country. The change in the deficit financing method of the public sector from money to bond-finance starting in 1986, and attempts to stabilize the exchange rate to prevent the inflationary effects of rising exchange rates made this policy combination unsustainable within a short period of time. It led to an "exchange-rate" crisis in the first half of 1994 without a "balance-of-payments" crisis typical of the 1970s. In 1994, the annual inflation rate exceeded 100 percent as in 1980.

Turkish governments introduced new disinflation measures to stabilize the economy after the 1994 financial crisis. However, these efforts in 1995, 1998 and 2000 failed to reduce the inflation rate to levels below 25 percent per year, as it had been in the early 1970s. The 1998 disinflation program did not last very long, because the Russian crisis in 1998, the domestic general elections in April 1999 and the devastating earthquake in August 1999 led to a deterioration of the fiscal balance of the public sector. The so-called three-year program, which was introduced in December 1999, was essentially an exchange-rate-based stabilization program supplemented by fiscal adjustment and structural reforms. There were also measures to strengthen and regulate the banking sector. The main objective of the 2000–02 program was to reduce inflation to single-digit levels in medium term. With this program it was also

aimed to diminish public sector deficit with special emphasis on fiscal discipline, to foster growth and to settle a market-oriented economy via various structural adjustment policies. To achieve these targets tight monetary and fiscal policy and comprehensive structural reforms were adopted as main policy measures.

The main tool of the 2000–02 disinflation program was actually the adoption of a crawling-peg regime: The percent change in the Turkish lira value of a basket of foreign exchanges was fixed for a period of a year and a half. At the beginning, the program was quite successful. Interest rates fell sharply below expected levels, inflation significantly slowed down, and production and domestic demand started to increase. Despite the fact that the program achieved some remarkable results in a short period of time, the 2000–02 program had to be revised in light of the two successive liquidity and exchange-rate crises; first in November 2000, as a result of the extremely risky position of a medium-sized bank with large holdings of government securities in its portfolio, and then in February 2001. The government abandoned the crawling-peg regime under the original plan and floated the Turkish lira in February 2001. The policies of the Central Bank since then have been aimed at controlling the volatility of the exchange rate rather than targeting its level or direction while trying to lower the inflation rate. Although factors, such as real appreciation of the Turkish lira, also may have played a role in developments pushing the economy into crises in late 2000 and early 2001, the main reasons for these crises were unsustainable domestic debt of the public sector and unhealthy structure of the Turkish financial sector.

To overcome the negative impact of the crises and to achieve sustainable economic growth, a new strengthened economic program has been launched on May 2001. In February 2002, a revised three-year plan for the 2002–04 period was adopted. The new plan contained provisions for fiscal adjustment to help bring about debt sustainability, reform of the banking sector through an operational and financial restructuring of public banks, and regulation and

supervision of private banks. However, the early general elections on November 3, 2002 dramatically changed the political climate in Turkey. The established single-party government contacted the International Monetary Fund to make minor changes in the program to disinflate and restructure the Turkish economy. The current economic program, which is in implementation since early 2002, has two overriding goals: To manage the crises and increase the resilience of the economy to shocks and to ensure growth with disinflation. In order to achieve these targets, strong structural adjustment policies focusing on the elimination of problems in the banking sector, enhancement of transparency in economic management and improvement of governance in both public and private sector have been adopted. Fiscal and monetary policies have been shaped to ensure the sustainability of government's fiscal position and to bring down the inflation permanently. Social policies have been strengthened to alleviate the effects of the crisis on the most vulnerable groups of the society.

According to the current government, their program differs greatly from the previous programs implemented in 1980s and 1990s. In fact, the current program got started on a solid base that the other programs did not have. These were: (*i*) the amendments made in the Central Bank Law for the Central bank independence, (*ii*) the radical measures taken for a healthy banking system, (*iii*) the realization of basic structural reforms to a great extent by gaining momentum in 2001 and 2002, and (*iv*) the measures for the continuation of fiscal discipline.

2004 is the last year of the three-year macroeconomic program. So far, the disinflation process functioned well (see Table 1). Fiscal discipline is increasing while interest rates are gradually falling. The Central Bank's independency is respected by the government. Exports of goods and services are increasing, despite the fact that in 2003 the Turkish lira was overvalued against foreign currencies. Strong currency substitution arisen after 1983 is rapidly diminishing. Some experts argue that the overvaluation in 2003 may be caused both

by reverse currency substitution and by unrecorded foreign-exchange inflows from abroad. However, there are still things to be done by the government in order to achieve more healthy and sustainable macroeconomic conditions. The heavy unemployment problem, which is arisen after the 2000–01 financial crisis, is still a problem to be solved. Income distribution is negatively affected by chronic inflation. Another important issue is the restructuring of the banking system to increase efficiency in financial sector, to achieve a healthy financial sector, and to remove the problems in channeling funds to real sector. In 2002, privatization targets were not fully met, in part because of the early elections. Therefore, in 2003 and 2004, the privatization is still a top agenda item in the program. Turkey needs a renewed privatization effort, measures and legislative changes to attract foreign direct investment, fighting corruption and improving corporate governance. To sum up, all economic agents in Turkey should learn how to act in a low-inflation environment now. Without a permanent change in their economic, political and cultural mentality, nobody can be sure about the sustainability of low inflation rates in the country.

4. Empirical Studies on Turkish Inflation and Disinflation [5]

4.1 Empirical Evidence on Dynamics of Inflation Prior to 1980

Turkey experienced a short period of high inflation in the second half of the 1950s but the history of today's high and persistent inflation goes back to the first half of the 1970s at the earliest (see also Figure 1 above). The acceleration of inflation after 1953 is explained by the fact that the money supply started to grow faster than real output (Fry, 1980) while the decade of the 1970s is characterized by both the frequent devaluations of the Turkish lira, and the stagflationary effects of two major oil price shocks in 1973–74 and 1978–79.

[5] A broad list of studies on causes and effects of both inflation and disinflation in Turkey is available on the web at: http://politics.ankara.edu.tr/~kibritci/inflation/turkinf.html.

To my knowledge, Akyüz (1973) is the first analytical attempt to study the causes and dynamics of inflation in Turkey. For the 1950–68 period, he investigates the relations between the money supply and prices in terms of a combined "adaptive expectations - demand for money" model, and concludes that inflation is not self-generating, and it can be explained by the present and past changes in the money supply, real income, and the non-monetization ratio. His further analysis shows that the monetary growth in Turkey is largely attributable to the expansion in the monetary base, which in turn is closely related to the agricultural price policies followed by the government through the State Economic Enterprises in the mid 1950s. He stresses that the *political* reason for these economic policies was the populist tendency of the first elected government after the transition to a multi-party parliamentary system in 1950.

Ertuğrul's (1982) comprehensive study departs from the statistical analysis of causality between money and prices prior to 1980. The author develops then step-by-step a *self-generating* inflation model with six equations which is based on the statistical endogenity of money supply and on the assumption of adaptive inflation expectations in Turkey. Notice that he models government deficits as a function of relative agricultural support prices. Ertuğrul's macroeconometric simultaneous-system estimations based on deseasonalized quarterly data for 1970–78 show that increases in real income have a remarkable negative effect on the general price level. He concludes that inflationary expectations variable is the major determinant of inflation in Turkey.

Aksoy (1982), on the other hand, aims to test the monetarist and structuralist theories of inflation by using Turkish annual data for the period of 1950–79. He mainly concludes that the relationship between the money supply and prices is not proportional, but depends on both the inflationary expectations and the nature of foreign exchange availability. Furthermore, he

finds little evidence on the cost-push effects of relative prices, i.e. the relative price shocks work through the money supply mechanism rather than creating cost-push pressures.

In the late 1970s, two major phenomena seem to contribute substantially to the increase in inflationary pressure in the financially-repressed Turkish economy: first, the fast domestic credit expansion, particularly to government and public sector enterprises, and second, the sharp recession caused by the foreign exchange shortage, which in turn stemmed from two oil-price shocks. After his analysis using quarterly data for 1962–77, Levy (1981: 370) adds:

> Since the prices of oil and other raw materials are still rising, Turkey's terms of trade can be expected to deteriorate further. In order to ease the adjustment of the economy to the higher world price of petroleum and raw materials, their domestic prices must be increased. Although *political and social pressures* do not make this an easy task, Turkey's inability to pay for its imports and *pressure* by the International Monetary Fund have recently forces the Turkish government to announce an increase in the price of oil and oil products. [*Italics* are added.]

Finally, using annual data to estimate a simple model for the demand for money, Togan (1987) reports that the time path of money and interest rate determined the movements in the rate of inflation from 1960 to 1983.

4.2 Sources of Inflation in the 1980s and 1990s

There is a much larger literature focusing on specific aspects of post-1979 inflation in Turkey. The sharp acceleration of inflation in 1980 and the increased availability of statistical data for shorter frequencies after 1980 appear to have contributed to this enrichment in the empirical literature.

For many authors, Öniş and Özmucur (1990) is a common starting point to survey the studies on causes of Turkish inflation after 1979. Using monthly data from 1981–87, Öniş and Özmucur (1990) explore inflationary dynamics in Turkey. The authors reject a pure monetary explanation of inflation based on a vector-autoregression analysis (VAR) and a simultaneous equation model. They find that *devaluations* of the Turkish lira have a strong impact on

domestic inflation while supply-side factors seem to have in general significant effects on inflation. Rittenberg (1993) argues contrarily that Granger causality tests show that causality runs from price level changes to exchange rate changes but that there is not feedback causality in the opposite direction.

Yeldan (1993) analyzes the political economy of inflation and disinflation in Turkey, by focusing particularly on *distributional and structural aspects*. His computable general equilibrium analysis with some Keynesian features shows that public sector expenditures act as an important and strong source of demand-pull inflation in Turkey. Furthermore, the distributional conflicts among socio-economic classes have a direct impact on the formation of price movements in the 1980s. He observes that the profit/rent inflation, which is based on increases of monopolistic producer mark-ups over prime costs, has a relatively strong inflationary impact on the cost-side, as compared to wage inflation. Finally, Yeldan refers to *devaluationist exchange-rate policy* as a major source of imported inflation due to the import-dependent character of the Turkish industry. İnsel (1995), Erol and van Wijnbergen (1997), Lim and Papi (1997), Agénor and Hoffmaister (1997), Darrat (1997) and Akyürek (1999) also provide results supporting the inflationary effects of *depreciations*. For many authors, this conclusion implicates the necessity to design an exchange-rate-based stabilization program to reduce the inflation in Turkey.

In 1984, domestic citizens were allowed to open foreign exchange deposit (FED) accounts in Turkish banks. The subsequent increase in FED-accounts to money-supply ratio after 1984 may be interpreted as a gross indication of rising *currency substitution* in Turkey (see Table 1). The capital account liberalization in 1989 also seems to have contributed to this development. In the presence of strong currency substitution, it is theoretically expected that the exchange rate instability significantly increases and that the government's ability to collect seigniorage revenue is limited. Currency substitution, which may create inflationary

effects by reducing the seigniorage revenue of the government, is closely related to the credibility of economic policies or inflation expectations. If, for example, economic agents perceive that the government will pursue a lax fiscal policy, then they flee from domestic currency to avoid future inflation tax. In this case, both the money demand and the exchange rate become unstable. The effects of currency substitution on exchange rate instability and seigniorage-maximizing rate of inflation in Turkey are empirically investigated by Selçuk (1994, 1997 and 2002), Scacciavillani (1995) and Akçay, Alper and Karasulu (1997). Scacciavillani (1995) mainly reports that the share of foreign currency holdings in liquid assets exhibits a strong and stable relationship with exchange rate fluctuations. Furthermore, he finds that the relationship between the inflation rate and currency substitution is statistically insignificant. Selçuk (2002), on the other hand, concludes that, as long as there is some degree of currency substitution in the economy, the Turkish government cannot collect more seigniorage revenue to finance budget deficits by simply setting the growth rate of monetary base at a higher level.

In recent years, the impact of exchange-rate changes on prices is usually investigated by economists within the framework of the so-called *exchange-rate-pass-through* literature that concentrates on measuring the transmission degree of a change in nominal exchange rates to domestic wholesale and/or consumer price indices. Using a recursive VAR model for Turkey, for example, Leigh and Rossi (2002) founded that (*i*) the impact of the exchange rate on prices is over after about a year, but is mostly felt in the first four months, (*ii*) the pass-through to wholesale prices is more pronounced compared to the pass-through to consumer prices, and (*iii*) the estimated pass-through is complete in a shorter time and is larger than estimated for other key emerging market economies. Furthermore, Selçuk (2004) reports that the exchange-rate-pass-through in Turkey is around 35 to 50 percent. Consequently, a

slowdown in nominal exchange-rate depreciation would result in a smaller inflation. Similarly, nominal appreciation would have some deflationary effect on prices.

Metin (1995) concludes by using a broader data set with annual and quarterly frequencies that *fiscal expansion* dominated the determination of Turkish inflation from 1950 to 1988. Excess money demand influences inflation positively in the short run. That is, to reduce inflation successfully, governments have to eliminate public sector budget deficits. Furthermore, devaluations also have some inflationary effects.

Akçay, Alper, and Özmucur (2002) investigate the relationship between inflation and the budget deficit and debt sustainability. After testing for stationarity in the discounted debt to GNP ratio from 1970 to 2000, they conclude that the fiscal outlook does not appear to be sustainable. While noting that lack of sustainability does not imply insolvency, this finding nonetheless suggests the importance of a change towards fiscal austerity to avoid insolvency in the future. They also find that increases in the public-sector borrowing requirement (PSBR) lead to higher inflation and that the PSBR is a better indicator of Turkey's fiscal position than is the consolidated budget deficit. They suggest that previous studies that have focused on the more transparent budget deficit may have drawn erroneous conclusions between Turkey's fiscal policies and inflation. By using 1989–2002 data, Pongsaparn's (2002) findings suggest significant role played by both monetary and fiscal factors in determining inflation. Debt is the root to inflation and banking sector failure and can be relieved in many ways such as fiscal discipline, improvement in tax collection or privatization.

In Turkey, it is common for politicians and bureaucrats to blame *crude-oil price increases* for inflation. Özatay (1992), Kibritçioğlu and Kibritçioğlu (1999), and a few studies cited in Kibritçioğlu (2001) discuss the potential once-and-for-all price effects of increases in crude-oil and oil-product prices. By using the 1990 input-output table for Turkey, Kibritçioğlu and Kibritçioğlu (1999) calculate that a hypothetical 20% increase in the dollar price of imported

crude-oil leads to a cumulative increase in the general price level of only 1.1% within ten months. Furthermore, they estimate that a 20% increase in the nominal dollar price of the Turkish lira contributes to inflation in the amount of 2.8% within the same time frame. Finally, their VAR model estimations indicate the importance of both nominal exchange rate increases and past values of inflation itself as main determinants of inflation for the period 1986–98. The results of the study by Kibritçioğlu and Kibritçioğlu (1999) regarding the inflationary effects of oil-price increases are broadly supported in a recent study by Dibooğlu and Kibritçioğlu (2004).

The negligible role of a crude-oil price increase as a determinant of Turkish inflation may be explained principally by both the absence of a dynamic mechanism which generates continuous increases in the price level, and the gradually decreasing oil-dependency of many industries after 1980 as in the rest of the world. But, the substantial swings in the crude-oil prices since the late 1980s are usually followed by fiscal-conditional increases in prices of oil-products in Turkey. Obviously, this phenomenon makes the analysis of net inflationary effects of crude-oil price increases more complicated.

Recently, Uygur (1992), Akçay, Alper and Özmucur (1997), Lim and Papi (1997), Agénor and Hoffmaister (1997), Alper and Üçer (1998), Akyürek (1999), Cizre-Sakallıoğlu and Yeldan (1999), Baum *et al.* (1999) and Şahinbeyoğlu (2001) have emphasized in particular the increasing role of *inertia* in the process of inflation in Turkey. Erlat (2002), for instance, states that both Turkish consumer and wholesale price indexes each have a significant long-run memory component. The expectational component of inflation inertia may result from the lack of credibility of government policies. He reasons that a disinflation program will eventually achieve its aim but that there will initially be a great deal of resistance on the inflation front.

4.3 Studies on Disinflation in Turkey

The empirical literature on dynamics and possible effects of *disinflation* in Turkey is relatively poor but the recent tendency towards disinflation may encourage more economists to work on this issue in the future.

The Turkish banking sector experienced many borderline or systemic crises in the 1980s and 1990s, as pinpointed by Kibritçioğlu (2003) using a so-called banking sector fragility index. The large share of the banking sector within the financial system as in many developing economies, as well as the strong dynamic interactions between banking crises, currency crises, recessions and inflation in the past, indicate that the possible role of the banking sector in inflationary and disinflationary processes needs to be investigated in detail. Alper, Berument and Malatyalı (2002), for example, examine whether the structure of the financial system is compatible with a more stable, lower inflation environment. Based on descriptive and regression analyses of the Turkish banking sector, they conclude that a successful disinflation program, including continued privatization or "autonomization" of public banks, will result in bank consolidation and a growth in the size of foreign banks (either through opening new branches or through mergers and acquisitions). They predict that as outstanding government debt stock falls and banks compete with each other for asset management, economies of scale will become important and small banks will disappear. Efficiency should also increase in this sector and the installation of fee-based services will become more common. Because in this new environment, management of credit risk, as opposed to sovereign risk, will grow in importance and banks will return to core banking activities, the development of secondary securities markets will be critical in shoring up Turkey's fragile banking system. Further progress on bank restructuring is critical, the authors argue, to the success of the disinflation program implemented in 2002.

Kirmanoğlu (2001) suggests that Turkey has faced the cost of high inflation in terms of lower economic growth. His results show that inflation adversely affects both private investments and the economic growth in Turkey. Using a GARCH-M system of equations and analyzing a nearly 40-year period (1963–2000), Nas and Perry (2002) find a direct relationship between inflation and inflation uncertainty and an inverse relationship between inflation uncertainty and real GDP growth. Thus a benefit of disinflation in Turkey should be higher real growth.

Recently, by using a dynamic open-economy aggregate supply – aggregate demand model with imperfect capital mobility and structural vector-autoregressions, Dibooğlu and Kibritçioğlu (2004) showed that a major component of inflation in Turkey between 1980 and 2002 has been "aggregate demand-driven" or "core" inflation. Real oil-price, supply and balance-of-payments shocks had no significant effect on inflation while the real aggregate-demand shocks, which stemmed from changes in the money stock and autonomous aggregate-demand, can be interpreted as a combined result of changes in high public sector budget deficits and devaluations of the Turkish lira. Finally, they also founded that output is mainly explained by supply shocks within the model.

When inflation runs high for a sustained period of time, inflationary expectations and inflation inertia play a significant role in inflation dynamics. Recently Dibooğlu (2002) showed that inflationary expectations have forward- and backward-looking elements in Turkey. A key result of the study is that forward-looking expectations dominate; as such the output costs of a credible disinflation program are likely to be limited. Indeed the limited effects of aggregate demand shocks on output in this paper also provide evidence that a credible disinflation program may not have significant output costs.[6] The lack of political

[6] Celasun *et al.* (2003) recently investigated the empirical validity of the argument that inflation in Turkey has become "inertial", posing an obstacle to disinflation. Their results show that the current degree of inflation

determination to undertake timely structural reforms fed inflationary expectations. It can be said that Turkish macroeconomic policies in the 1980s and 1990s reflected a preference toward expansionary policies at the expense of price stability. When governments in Turkey faced a choice between responding to the immediate needs of their constituents and reforms necessary for sustainable long-run growth, they opted for the first, and quite predictably, Turkey became one of few countries in history to have a high sustained inflation short of hyperinflation for more than two decades.

The result, achieved by Dibooğlu and Kibritçioğlu (2004), that a major component of inflation is demand-driven core-inflation highlights the importance of structural reforms and credible commitment mechanisms that restrain discretionary aggregate demand polices. To the extent that recent program maintains the current high credibility of the government and is accompanied by necessary structural reforms, it really can bring the high inflation era to an end, and stabilize the economy.

Notice that, for Turkey, as a country that has a long history of high inflation and a high degree of foreign-currency-denominated external debt, both the stability of the exchange rate and its volatility are crucial. The results by Selçuk and Ardıç (2004a and 2004b) indicate that the Turkish Central Bank's recent interventionist foreign-exchange-market policies, accompanied with favorable external factors, such as the recent falling spread between emerging market bonds and US treasury bills, were indeed effective in taming the volatility of the exchange rate in a relatively short period of time in the aftermath of the February 2001 crisis. However, the strong real appreciation of the Turkish lira, as it was the case in 2003,[7] implies that an increase in the current account deficit, along both with a possible slowdown in

persistence in Turkey is lower than in Brazil and Uruguay prior to their successful stabilization programs. Furthermore, forward-looking expectations are more important than backward-looking expectations in shaping the inflation process. Their results are broadly in line with findings by Dibooğlu (2002).

[7] For a broad discussion on measurement issues regarding the degree of real-exchange-rate misalignment in Turkey, see Kibritçioğlu and Kibritçioğlu (2004).

manufacturing productivity and with an unexpected adverse shock in the spread, may cause a sharp increase in nominal exchange rates and hence, result in an increased risk premium of the country, further worsening the fiscal position of the government. Thus, in order to maintain the success in macroeconomic stabilization, the current government also should take into account this type of "accumulated risks" in the economy.

5. Concluding Remarks

This study departs from a four-blocked schematization of origins of inflation: Demand-side (or monetary) shocks, supply-side (or real) shocks, adjustment (or inertial) factors, and political processes (or the role of institutions). Accordingly, inflation is the net result of sophisticated dynamic interactions of these four groups of explanatory factors. In other words, inflation is always and everywhere a macroeconomic *and* institutional phenomenon.

The survey of the empirical studies in Section 4 on the dynamics of high and persistent inflation in Turkey shows that the existing modeling experiences seem to have focused mainly on demand-side factors, such as the money supply and government deficits. Some studies are limited solely to investigate the possible effects of *one-time* shocks, such as occasional increases in oil prices. However, the *persistent* nature of high inflation requires a more integrated framework to explore the *dynamics* of inflationary *mechanism* in Turkey. Therefore, the possible sources and the degree of inflation inertia need to be investigated further. The consideration of inertia in existing empirical studies is generally limited to the role of inflationary expectations. However, the study of the short-run adjustment dynamics of the general price level should also be examined further as attempted recently by Çağlayan and Filiztekin (2001).

The role of the political process in explaining Turkish inflation has been in general ignored in empirical modeling efforts. To my knowledge, there are some political-economy

approaches to explain Turkish inflation (e.g., Öniş, 1997 and Özatay, 1999), but empirical studies in the tradition of *new* political economy are far from adequate. Recently, Ergun (2000) and Tutar and Tansel (2001) focus particularly on institutional and electoral determinants of government budget deficits in the country, while Akat (2000) identifies four categories of social actors as being responsible for the persistence of inflation in Turkey: the politicians, the voters, the bureaucratic establishment in Ankara, and the Turkish business community. Apparently, it is crucial to consider institutional explanatory factors in understanding the dynamics of inflation and disinflation in Turkey.

The prolonged history of high inflation and the recent disinflation tendency in Turkey offer to economists, political scientists, sociologists, and historians a good opportunity to investigate their causes and effects both empirically and in an interdisciplinary fashion.

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