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Department of International Economic and Social Affairs

SOCIO-ECONOMIC DEVELOPMENT AND FERTILITY DECLINE IN TURKEY

Background Paper prepared for the Project on Socio-Economic Development and Fertility Decline

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II. DEVELOPMENT STRATEGY AND ITS CONSEQUENCES

A. Pattern of development

The essential determinants of the development pattern of Turkey were explained at some length earlier.

In the early 1960s, Five-Year Development Plans were adopted as an integral part of the development strategy. The development plans provided mandatory targets for the public sector and served as guidelines for private enterprises. The five-year development plans together with the annual implementation programmes constitute the framework within which government economic policy is formulated and implemented.

Primarily owing to the ease with which import substitution industrialization proceeded, Turkey succeeded in maintaining average annual rates of growth in GNP above 6 per cent during 1961-1977. If the years 1979 and 1980 are excluded, value added in industry in real terms has been increasing in all years since 1950.

However, dependence on imports of intermediate goods, investment goods and above all on petroleum for the maintenance of high growth rates in industry created serious difficulties for the Turkish economy. The current account deficit was aggravated by the 1973 petroleum crisis and the subsequent world-wide inflation. In the 1970s, the share of the imports in national income increased in comparison to the preceding years. The most important change noted in the import structure during the planned period was that the share of raw materials that increased largely at the expense of consumption and to a certain extent investment goods.

There has been no considerable growth in exports in real terms. Moreover the structure of exports did not change considerably.
Bulutay, in a recent study, evaluates the development of the Turkish economy during the period between 1950-1980 using a performance measure which contains in the numerator, the growth rates of income per capita and investment whereas the denominator consists of the product of the trade deficit in relative terms and the inflation rate. Employing this performance measure he distinguishes for consecutive periods (1950-1953, 1954-1969, 1964-1973, 1974-1980)' and suggests that the periods 1950-1953 and 1964-1973 may be referred to as successful and 1954-1969, 1974-1980 as unsuccessful (Bulutay, 1981).

B. The development and allocation of resources

1. Development of human resources

Fundamental to human resource development are education and training. Even prior to the recognition of the need for planning economic development per se, discussion was in progress regarding the establishment of an

educational programme to achieve certain definite development objectives. Several school reforms were, in fact, carried out at the time on the basis of such programmes. The "Maarif Teskilati Hakkinda Layiha" (the Educational Administration Bill) drafted by the "Ucüncü Heyet-i Ilmiye" (Third Scholastic Commission) in January 1926 contains the most significant basic educational programme of the Republican period.

Essentially the bill stipulated that:

(a) Schooling shall be divested of its "ivory tower" approach and shall be integrated with objective reality;

(b) Education at all levels shall be unified and co-ordinated;

(c) Education and training in productive areas shall be emphasized;

(d) All programmes shall be co-educational.

The objectives remained effective quite some time as guidelines for more specific programmes.

From 1939 onwards, policy formulation became vested in the "Egitim Surasi" (Council of Education). However, in general, implementation of those policies never attained a correspondingly significant rate of realization.

Reorganization of the educational system under an integrated umbrella programme had high priority in the preliminary stages of preparing the development plans. The "Egitim Milli Komisyonu" (the National Commission of Education) established with that objective in the late 1960s, set down in its report specific proposals for every echelon of the educational spectrum along the following basic tenets:

(a) Any serious attempt at economic development must necessarily be based on human resource (educational) development;

(b) The fundamental objective of education should be to develop rational and creative thought.

While pro-educationalist sentiment rooted in the late nineteenth century was thus given new voice, rather well-defined guidelines were also established for the forthcoming development plans.

The overall situation of the Turkish educational establishment at the beginning of the planned development period, which may be taken as the 1961-1962 school year, is summarized in table 1 below. From that table, it is immediately evident that despite all the sentiments and resolutions emphasizing the role of education in development, the rate of schooling actually realized remained rather low.

Table 1. Turkish educational situation at the beginning of the planned development period, 1961-1962 school year.

Stage of education	Number of schools	Number of teachers	Number of students	Rate of schooling (percentage)
Primary	26.320	68.438	3.062.030	71.4
Secondary	1.779	31.376	595.700	16.2
Higher	83	4.368	77.281	4.0

Source: Government of Turkey, Prime Ministry, State Planning Organization.

According to the 15-year perspective plan on which the First Five-Year Development Plan itself was based, the goals to be attained in education may be summarized as follows:

(a) All school age persons shall be provided the means for receiving an education within 15 years;

(b) A 360 per cent increase shall be realized in properly trained and educated manpower. This increase shall be effected to provide a balanced distribution of technical personnel at all levels;

(c) A 102 per cent increase in primary school attendance shall be realized by the end of 15 years, while this shall be 78 per cent for secondary schools, 447 per cent for secondary technical and vocational schools and 740 per cent for universities.

It cannot be said that all those goals were reached with equal success. Neither has it been possible to establish the balance mentioned, where overall goals have been more or less fulfilled. In fact, those long-term goals were abandoned by the beginning of the Third Five-Year Development Plan Period and replaced by revised strategies and objectives which in essence stipulated that interregional differences were to be eliminated while establishing equality of educational opportunity (third plan) and that the educational system, formal as well as extended, was to be recognized such as to attain an institutional structure consistent with the technological and economic basis of the country (fourth plan).

Revised or not, those strategies did not show much fundamental differences and their realization was dependent on such devices as the prediction of schooling ratios, the rational distribution of capital investment among the various educational levels and so on.

The overall progress in education attained throughout the planned period, in terms of capital investment, has been summarized in table 2 below.

A study of the last two columns of the table indicates that an inverse relationship between total investments and investments in education has occurred within the period under consideration and that the share of the latter has declined by more than half. However, it must be kept in mind that these indices pertain only to public investments and that there is a growing tendency in the private sector to make investments in or donations for educational facilities.

There are approximately 1.1 million new enrolments each year at the primary school level. Total enrolment at that level for the 1981-1982 school year was 5.8 million, resulting in a student/teacher ratio of 1:26 and a student/school ratio of 126:1; the same ratios were 1:44 and 127:1 for the 1962-1963 school year, respectively.

It is evident from these figures that while a significant improvement has been attained in the former ratio, the latter has remained virtually

Table 2. Capital investment in education during the planned period (index numbers)

Years	Total investments	Investments in education	Share of educational investments (percentage)	Index number
1963	100.0	100.0	10.6	100.0
1965	120.2	125.2	11.0	103.8
1970	211.2	203.5	10.1	95.3
1975	889.6	707.5	8.4	79.2
1980	7941.6	2788.3	3.7	34.9
1981	11071.3	5163.6	4.8	45.3
1982	15160.0	6113.1	4.3	40.6

Source: Government of Turkey, Prime Ministry, State Planning Organization and Ministry of National Education.

unchanged. However, this ratio is, in itself, rather low and may be assumed to derive from the large number of rural schools with small student bodies. On the other hand, the student/teacher ratio shows a pronounced difference from province to province. For example, it stands at 16:1 in Kirklareli, 17:1 in Bursa and 18:1 in Tekirdag, going up to 35:1 in Ankara, 45:1 in Bitlis and 53:1 in Mus.

Table 3 below summarizes the development attained in primary level education during the course of the planned period.

The high level of correspondence between the number of schools and the number of students enrolled is considered noteworthy here.

During the course of the plan Period, capital investments for primary or, in the most recent terminology, "fundamental" education have grown 58-fold. However, their share within overall educational investments have dropped from 34.6 per cent to 32.5 per cent. Moreover, since 1973, junior-level secondary education has also come to be considered as part of fundamental education, so that the actual share of primary education from this year on may be assumed to be even less.

There were roughly 1 million students enrolled in junior-level secondary or, in the new terminology, second-level fundamental-education institutions, for the 1981-82 school year, yielding a schooling rate--at 35.3 per cent--that remains below plan objectives. There has been a decline in enrolment for this level of education in recent years, resulting in an over-capacity of facilities. According to the State Planning Organization (SPO) data, out of a total of 4,175 public schools, 335 had student bodies under 30; 748 had between 31-60 students and 112 have been closed for lack of students during the 1981-82 school year. On the other hand, 22.2 per cent of such schools operated under double-loaded class schedules, indicating strong interregional disparities.

At the senior-level secondary education (lycee), the situation is slightly compounded by the structural diversity of the institution itself. On the one hand, there are those high schools still operating under what may be called a "classical" curriculum, while on the other hand, there are those with "specialized" curricula, i.e., technical-vocational high schools, religious high schools, the "Anadolu" high schools, private schools and so on.

Mostly as a result of the increasingly selective procedures involved in entering institutions of higher learning, there can be observed a more or less recent trend away from the classical type of high school towards particularly the technical-vocational and the "Anadolu" high schools, the former being considered a stepping-stone into industry and the latter, which also have the added benefit of intensive foreign language training, into universities and colleges. In the meantime, high school education through extensive and evening programmes also has gained in popularity. Table 4, below, gives numerical data on the development recorded for senior-level secondary education during the plan period.

Table 3. Development attained in primary education (index numbers)

School years	Number of schools	Number of teachers	Number of students
1962-1963	100.0	100.0	100.0
1965-1966	116.7	119.5	116.8
1970-1971	145.7	183.0	149.3
1975-1976	159.3	231.1	162.7
1980-1981	174.2	290.4	169.4
1981-1982	176.2	306.4	174.6

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

Table 4. Development attained in senior level secondary education during the course of the planned period (index numbers)

School year	Number of schools	Number of teachers	Number of students
1962-1963	100.0	100.0	100.0
1966-1967	115.9	145.5	118.3
1970-1971	170.0	254.4	236.7
1975-1976	463.4	471.3	319.5
1980-1981	733.6	881.1	376.1
1981-1982	714.7	918.2	338.4

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

The total number of classrooms at this level during the 1981-82 school year was roughly 35,000, to give an overall student/classroom ratio of 47:1. However, that ratio showed wide variations from school to school. The same can be said for teacher/student ratios which varied from 1:70 in Agri to 1:56 in Ankara, 1:12 in Balikesir, 1:10 in Adiyaman and 1:7 in Bolu (SPO, 1982).

Another indicator is the allocation of capital investment resources over the years. Table 5, below, gives such a comparison between overall secondary education investments and those allotted to technical-vocational education during the period 1963-1981.

On the other hand, the actual development observed in technical-vocational education during the plan period is summarized in table 6, below. A comparison of the figures given here with those in table 4 shows that the overall increase in the number of students attending technical-vocational schools was twice that of those attending classical high schools, with specific increases being 238 per cent and 591 per cent, respectively.

The student/school ratio, increasing from 161:1 in 1961-1962 to 350:1 in 1981-1982, for technical-vocational high schools is also noteworthy.

For Turkey, higher education in the modern sense began at the turn of the century, but particularly with the granting of limited autonomy to the "Dar-ul-funun" (now the University of Istanbul).

As the abode of free thought and free learning--the latter by virtue of being completely supported by public fundings--such institutions have always been the subject, if not the source, of much controversy in Turkish public and political life and have consequently undergone many changes since that time, particularly where their autonomy was concerned. None the less, those institutions still enjoy great esteem in the public mind, even if only for the prestige and other intangible benefits attributed to the degree itself.

In contrast to the early years of the Republic, where the majority of institutions of higher education were concentrated in the two principal cities of Ankara and Istanbul, there is now a marked trend towards increasing and dispersing such institutions as widely as possible throughout the country. Following even fairly recent figures, it is observed that the total number of faculties or equivalent units have shown a significant increase, from 69 to 165 between the academic years 1972-73 and 1980-81. Today, these faculties have been organized into more than 25 universities and academies.

There were a total of approximately 238,000 students enrolled in institutions of higher education during the 1981-82 academic year. While this is quite a high figure in itself, it represents only 6.5 per cent of the eligible age group, a rather low rate of schooling.

On the other hand, it may be said that there is a tangible trend away from auto-consumptive fields of study towards those that have a recognized

Table 5. Share of capital investments in education allotted to overall secondary and technical-vocational education during the planned period

Year	Share of overall secondary education		Share of technical vocational education	
	percentage points	index numbers	percentage points	index numbers
1963	7.8	100.0	26.0	100.0
1965	17.2	220.5	31.0	119.2
1970	18.2	239.7	23.0	88.5
1975 a/	4.2	58.9	26.0	100.0
1980	2.7	34.6	31.0	119.2
1981	3.9	50.0	34.0	130.8

Source: Government of Turkey, Prime Ministry, State Planning Organization.

a/ Junior level secondary education investments are excluded after 1973.

Table 6. Development in technical-vocational education during the course of the planned period (index numbers)

School year	Number of schools	Number of teachers	Number of students
1961-1962	100.0	100.0	100.0
1965-1966	111.2	114.0	147.8
1970-1971	159.8	135.7	292.8
1975-1976	211.8	183.7	563.7
1980-1981	292.5	385.4	672.8
1981-1982	319.6	363.2	691.2

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

market value. Such demand is most vividly expressed through the preferences of applicants to the centrally administered university entrance examinations. Table 7, below, summarizes this change in demand during the plan period.

The illiteracy rate among those six years old and over, which was more than 89 per cent (about 95 per cent for women and 82 per cent for men) at the onset of the Republic, has dropped to 45 per cent according to the results of 1970 population census and 38 per cent (about 49 per cent for women and 24 per cent for men) in 1975. The 1 per cent sample results of the 1980 census of population indicates that of the population 11 years of age, 31 per cent is illiterate. Those classified as "literate" were 29 per cent and 11 per cent in 1975 and 1980. The percentage distribution of population according to their educational attainment by provinces for 1975 is given in table 8.

As may be seen there are not only marked differences among sexes in terms of educational (and/or literacy) attainment but also provincial differentials are quite significant.

Among the economically active population (12 years old and over), the illiteracy rate was 44.8 per cent in 1970 and dropped to 37.1 per cent for 1975. Those having completed at least primary education comprised 43.7 per cent of that population in 1970 and 53.7 per cent in 1975, with an increase of 10 per cent. The largest changes in educational attainment were at secondary levels, with junior high school graduates increasing by more than 50 per cent and senior high school graduates by more than 60 per cent. The next largest change was recorded in the number of vocational school graduates, with an increase of about 48 per cent and the least change was observed for higher education.

2. Development of natural resources

Perhaps the most important of the natural resources of Turkey is land, specifically, arable land. In terms of usage, such land in Turkey currently has an overall distribution as shown in table 9, below.

According to an inventory taken between the years 1927-1930, it was determined that there existed 28 million hectares of arable land in Thrace and Asia Minor altogether. Until 1950, only 13 million hectares of this area had been brought under cultivation. With the combined effect of several factors today, land area under cultivation (i.e., excluding forest land, orchards and olive groves) has more than doubled to over 26 million hectares. Extensive mechanization, erosion control, more efficient cultivation methods, irrigation and drainage, combined with the widespread use of such inputs as fertilizer and high quality seed material--particularly where wheat and cotton are concerned--have been effective not only in extending the range of arable land, but also in rendering the country self-sufficient in feeding its rapidly growing population.

Another important natural resource is hydraulic potential, in terms of both power and irrigation. Experts estimate this potential to be about 88 m^3 annually, which converts to roughly 72 million kwh of power and an

Table 7. Distribution of university students among major fields of study (Percentage)

Field of study	1962	1982
Medical sciences	8.0	10.1
Social sciences (including administrative sciences, law and economics)	65.2	55.2
Engineering	21.9	23.6
Other	4.9	11.1

Source: Government of Turkey, Prime Ministry, State Planning Organization.

Table 8. Distribution of literacy levels and level of formal education completed by sex and province (population six years of age and over), 1975
(Percentage)

Province	Illiterate		Literate		of the literate those									
					Without any diploma		Primary scho. grad.		Junior high scho. grad. and equiv.		High schol grad. and equivalent		Higher education grad.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Total	24	49	76	51	27	31	56	58	8	6	6	5	2	1
Adana	22	48	78	52	27	33	56	55	9	7	6	5	2	1
Adıyaman	46	82	54	18	37	47	51	47	7	4	5	2	1	0
A. Karahisar	24	54	76	46	27	29	61	63	7	4	5	3	1	0
Ağrı	39	72	61	28	34	37	56	57	5	4	4	2	1	0
Amasya	25	51	75	49	31	35	54	57	8	5	6	3	1	0
Ankara	12	33	87	66	20	24	51	53	11	10	11	10	6	3
Antalya	21	45	79	55	24	27	65	65	5	4	4	3	1	0
Artvin	22	47	78	53	30	33	55	62	9	3	6	2	1	0
Aydın	23	46	77	54	25	27	63	64	7	5	4	4	1	0
Balıkesir	22	41	78	59	26	26	61	66	7	4	5	3	1	0
Bilecik	19	38	81	62	28	27	60	67	7	3	4	2	1	0
Bingöl	41	67	59	33	39	41	52	55	5	2	3	1	1	0
Bitlis	48	81	52	19	36	46	49	45	8	5	6	3	1	0
Bolu	20	45	80	55	30	32	59	62	6	3	4	2	1	0
Burdur	23	45	77	55	25	29	61	63	7	4	5	3	1	0
Bursa	19	39	81	61	24	26	61	64	8	5	5	3	2	1
Çanakkale	22	39	78	61	32	31	55	63	7	3	4	3	1	0
Çankırı	26	50	73	50	31	35	55	58	8	3	5	2	1	1
Çorum	33	58	66	41	35	40	54	55	6	2	4	2	1	0
Denizli	19	49	67	51	27	30	60	61	7	5	5	3	1	0
Diyarbakır	44	76	56	24	39	51	45	38	8	6	6	5	1	1
Edirne	19	38	81	62	28	29	60	63	6	5	5	3	1	0
Elazığ	28	58	72	41	30	36	52	53	10	6	7	4	1	0
Erzincan	24	53	75	47	29	36	56	57	8	4	6	3	1	0
Erzurum	32	62	67	37	30	37	55	55	7	4	6	3	1	0
Eskişehir	14	32	86	67	22	25	57	63	11	6	7	4	2	1

Table 8 (continued)

Province	Illiterate		Literate		of the literate those: Without any diploma		Primary scho. grad.		Junior high scho. grad. and equiv.		High schol grad. and equivalent		Higher education grad.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Gaziantep	28	63	72	37	35	45	53	46	7	5	4	4	1	0
Giresun	28	60	72	40	31	36	58	57	7	5	4	3	1	0
Gümüşhane	26	58	74	42	35	39	52	57	7	2	5	2	1	0
Hakkari	59	92	41	8	37	49	51	43	6	4	5	3	1	0
Hatay	26	59	74	41	33	39	52	48	8	7	5	5	1	0
Isparta	18	45	82	55	20	27	63	64	9	5	6	4	2	0
İçel	20	42	80	58	29	33	56	56	8	6	5	4	1	0
Istanbul	90	26	91	74	18	22	55	56	12	11	10	9	5	2
Izmir	15	33	85	67	19	22	62	62	9	7	7	7	3	1
Kars	32	63	71	36	33	44	53	48	9	5	5	3	1	0
Kastamonu	34	60	66	40	34	37	56	57	6	3	4	2	1	0
Kayseri	21	49	79	51	28	33	59	60	8	4	5	3	1	0
Kırklareli	17	33	83	66	26	28	61	65	7	4	5	3	1	0
Kırşehir	29	52	71	48	31	36	53	57	9	4	6	3	1	0
Kocaeli	11	38	64	62	25	30	55	57	10	7	8	6	2	1
Konya	20	46	80	54	27	31	60	63	7	3	5	2	1	0
Kütahya	25	50	75	50	28	30	60	64	7	3	4	2	1	0
Malatya	28	57	72	43	30	38	53	51	10	7	6	4	1	0
Manisa	24	48	76	52	26	27	64	66	6	4	4	3	1	0
Kahramanmaraş	32	65	67	35	32	40	55	51	7	5	5	3	1	0
Mardin	49	81	51	19	42	55	46	36	6	5	5	3	1	0
Muğla	21	42	79	58	25	27	64	66	5	4	4	3	1	0
Muş	44	80	56	20	42	49	47	45	6	4	4	3	0	0
Nevşehir	21	48	79	52	29	35	59	59	7	4	4	2	1	0
Niğde	27	58	73	42	33	39	56	53	6	5	4	3	1	0
Ordu	34	66	66	33	38	45	50	48	7	5	4	3	1	0
Rize	20	57	79	42	30	40	58	54	7	3	5	3	1	0
Sakarya	20	45	80	55	28	31	60	63	7	3	5	3	1	0
Samsun	28	57	72	42	33	38	54	53	7	5	4	4	1	0
Siirt	50	83	49	17	39	47	47	43	7	6	5	3	1	0
Sinop	33	55	67	45	37	37	54	57	5	4	4	2	1	0
Sivas	29	61	71	39	34	41	52	52	8	5	5	3	1	0

Table 8 (continued)

Province	Illiterate		Literate		of the literate those									
					Without any diploma		Primary scho. grad.		Junior high scho. grad. and equiv.		High schol grad. and equivalent		Higher education grad.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Tekirdağ	20	35	80	65	25	26	64	66	5	4	4	3	1	0
Tokat	30	56	70	44	29	32	60	62	7	3	4	2	1	0
Trabzon	22	60	78	40	32	40	52	50	9	6	6	3	1	0
Tunceli	30	59	69	41	38	47	47	47	9	4	6	2	1	0
Urfa	50	80	50	19	36	44	49	45	8	6	6	4	1	0
Uşak	27	53	73	47	27	30	59	61	8	5	5	3	1	0
Van	54	84	46	16	37	41	50	46	8	7	5	5	1	1
Yozgat	30	59	70	41	32	36	57	58	7	3	4	2	1	0
Zonguldak	22	52	78	48	29	37	58	54	7	5	5	4	1	0

Table 9. Arable land usage in Turkey, 1981
(Thousand hectares)

Under cultivation for field crops	16,700
Fallow land	8,200
Vegetable cultivation	570
Vineyards	800
Orchards	1,400
Olive groves	830
Forest land	20,200

Source: Government of Turkey, Prime Ministry, State Institute of Statistics, Statistical Pocket Book of Turkey, 1982.

irrigation capacity of over 100 million hectares. The main draw-back in developing this resource is the high seasonal variation in hydrological characteristics. However, this has not greatly hindered attempts to harness it and there still exist today reservoirs in working condition dating from the early seventeenth century. More serious undertakings may be said to have begun in 1950. Currently, there are in existence over 20 dams having reservoirs of over 5 km^2 surface area and a total reservoir area of over 1,400 km^2. None the less, only 15 per cent of the overall hydraulic power potential is thus developed.

Although there is no overwhelming abundance, it may be said that the mineral resources of Turkey are relatively large and varied. In some cases there is at least the potential for significant development in international terms, particularly where boron minerals and wolfram ores are concerned. In this vein, principal mineral resources, as known or estimated reserves, are given in table 10 below.

The exploitation of such mineral resources has been basic, implicitly or explicitly, to the development strategies and policies of Turkey beginning from late in the rule of the Ottoman Empire. During the early Republican era, the most significant impetus in that direction came from the public sector, with the founding in the 1930s of "Etibank" which was organized to exploit mineral resources and the "Maden Tetkik Arama Enstitutusu" (Institute for Mineral Assay and Exploration) which was to discover and evaluate the minerals. Investigations at the time showed that the principal minerals whose exploitation would be commercially viable--immediately or in the near future --were coal, copper, chromium and iron. Accordingly, almost all efforts were concentrated in those areas, as a result of which the index of total mineral output (1930=100) rose to 157 in 1935 and to 232 in 1940.

From that time onwards, the production of minerals destined mainly for local consumption or processing, for example coal and iron, has enjoyed a fair level of stability.

The production of those intended chiefly for export, such as chromium, pyrites, megnesite and borates, necessarily being dependent on foreign demand, has fluctuated from year to year.

During the years 1963 to 1972, an investment of about TL 10 billion (at 1971 prices) has been made in the mining sector and about TL 14 billion, between the years 1973-1979.

The primary shortage in the natural resources of Turkey is still petroleum, which puts the heaviest burden on the country's import expenditures.

3. Rural/urban allocation of resources

The principal economic activity in rural Turkey is agriculture. In regions where the size of holdings are predominantly medium to large, this generally takes the form of market agriculture.

Table 10. Principal mineral resources of Turkey

Mineral	Known or estimated reserves (tons)
Aluminum	132 692 000
Copper	176 143 000
Mercury	1 710 000
Iron	465 126 000
Manganese	1 030 000
Lead, zinc	3 580 000
Wolfram	10 000 000
Coal	5 083 949 000
Petroleum	10 000 000 a/
Calcium carbonate (marble)	76 000 000 m^3
Magnezite	7 800 000
Alunite	8 000 000
Sodium chloride	300 000 000
Barite	3 000 000
Perlite	3 290 000 000
Phosphates	336 000 000
Colemanite	10 960 000
Boron salts	480 000 000
Dolomite	200 000 000 (million)
Diatomite	108 870 000 m^3
Feldspar	7 300 000

Source: Government of Turkey, Prime Ministry, Institute for Mineral Assay and Exploration (IMAE) data.

a/ IMAE explorations only.

Typical in that respect are the Aegean, Marmara, Cukurova regions, a significant portion of the central Anatolia region and the vicinity of Gaziantep. In certain cases, agriculture enters into the international market. Examples of that type of activity are cotton and citrus (Mediterranean and Aegean), tobacco, raisins, figs and olives (Aegean), various industrial crops (Mediterranean, Aegean and Marmara) and hazel nuts cultivation (Black Sea).

In settlements of an urban character that have become established within those regions, economic activity is concentrated around small industries and maintenance, distribution and other services catering to the needs of such agricultural activity. Examples of such services are financial and agricultural credit institutions; outlets for agricultural supplies and other agricultural inputs; certain agriculture-oriented public services, maintenance and repair shops for agricultural implements and machinery. Those urban centres also serve as third--or fourth--echelon intermediaries for certain pertinent major industries located in or around the principal metropolitan areas. The level of development to be observed in those types of activities is more or less proportional to that of the cultivation being realized within the respective rural hinterland. In addition, it may be said that those small to medium urban centres maintain a marginal subsistence accruing from their intermediary role between rural and metropolitan economic activities.

As mentioned above, the principal concentrations of industries, commerce and services are located in and/or around large urban and metropolitan settlements where the greatest portion of the gross national product is created and where the largest accumulations of capital and work force occur.

Those urban and metropolitan centres take up the greatest share of resources in terms of other services as well, particularly public services such as health and education.

Especially in manufacturing there is a formation of significant and unbalanced concentrations. The largest industrial complex is located within a triangle formed by the three metropolitan centres of Istanbul, Izmit and Bursa (Marmara region). This is followed by the point complex of Izmir (Aegean region) and the linear complex of Ceyhan-Adana-Tarsus-Mersin (Mediterranean region).

The obvious balance in the allocation of resources between rural and urban areas and regions has inadvertently resulted in the emergence of certain development concepts and associated descriptive terminology such as "under-developed regions" or "high priority regions". On the other hand, spurned, particularly by central and south-east Anatolian business circles, it has also elicited a counter-movement that eventually brought about the evolution of certain more or less isolated secondary or even tertiary industrial centres such as Eskisehir and Kayseri (central Anatolia region), Gaziantep (south-east Anatolia region), Erzurum (Eastern Anatolia region) and Samsun and Trabzon (Black Sea).

Thus, the basic pattern in that respect may be outlined as follows:

(a) Metropolitan areas are predominant with regard to capital formation. This is also true where credit utilization is concerned;

(b) As a result of wage differentials and, perhaps even more important, job availability/opportunity, skilled labour has migrated to and has concentrated in the more highly developed metropolitan areas. This condition has enabled the indusrial establishments of such areas to reap significant benefits from external economies;

(c) The external economies of the developed regions in turn promulgate a more efficient and higher quality distribution and other services, all to the further advantage of the industrial/commercial complex established therein.

C. The evolution of technology

The Ottoman Government, which had been able to lay out the organizational, educational and economic establishment that made it possible to develop and implement the military technology for successfully laying siege to Constantinopole in the middle of the fifteenth century, was importing practially everything that had anything remotely connected with the term "technology" by the end of the nineteenth century. Symbolically, the first introduction that the residents of Istanbul had to electricity occurred when they boarded the new ferries of the "Sirket-i Hayriye" (a foreign-owned company operating franchises for public utilities and transportation in Istanbul) for the trip across the Bosphorous in the late 1800s. According to the industrial census of 1913, there existed, in the whole of the Ottoman Empire, only 269 establishments utilizing some form of non-human motive power.

Momentarily passing over the interim period, there is evidence that today, there are many organizations in both the private and public sectors that are able to at least successfully manipulate and modify, if not altogether innovate, new technologies with very little time lag, but in a limited number of fields. Typically, these are in the light-to-medium industries, such as electronics, textiles, clay and ceramics, as well as light machinery.

There are several organizations diversified and experienced enough to undertake the construction of industrial projects at home and abroad, particularly in the area of foodstuffs and chemicals, with the injection of very little imported technology. Though not completely self-sustaining, a similar situation exists in the automotive industry. Perhaps more important, there is no longer the crippling dread of not being able to "keep machinery running", so to speak, that was habitual in the earlier years of development.

In great part, the impetus for this evolution came from the large-scale etatist ventures of the 1930s and 1940s and to some extent, of the 1960s. Although based, again, on en block import of technologies, the ventures differed from those proliferating during the Ottoman era in that they also

served the secondary purpose of acting as training grounds for skilled and experienced personnel needed to embark on and sustain those less dependent on such technologies, i.e., they served as means for assimilating and disseminating the known technologies of the time, with the result that subsequent ideas were more easily and rapidly adopted as development progressed.

Though in many respects a controversial issue, it may nevertheless be upheld on the basis of net results, since the second most significant contribution to attaining the present levels of technology utilization was the almost phenomenal growth of the so-called assembly industries during the late 1960s and early 1970s. While in themselves net technology importers, the many small-scale peripheral industries they spawned evolved, mostly out of necessity, as net technology-innovators, though perhaps in very limited terms.

A third impetus was the influx of accumulated skill and "know-how", if not of any specific technology per se, by way of workers returning home from abroad. The attitudes and exposure of these returnees fostered greater receptivity and demand for domestic as well as imported technologies.

On the other hand, the more recent trend of entering the international market-place, with not just those commodities of traditional standing but with almost every competitive commodity, has created a marked demand for the utilization of the most up-to-date technologies in order to meet the standards and requirements of receiving countries.

Of course this evolution or transition is not as widespread as may be desired and there are still many industries operating with traditional methods, particularly where rural-agrarian markets are concerned. However, there is concurrently a gradual replacement of these with quasi-urban technologies and products. Such replacement also tends to render obsolete the spatial distribution of the traditional industries, from dispersed to centralized configurations. For example, local copper-smithing has all but given way to factory produced aluminiumware.

None the less, as long as market conditions support them, certain traditional, even hand technologies, such as carpet-weaving, will most likely continue to survive.

Again, pressing need has led to the realization that new technologies are in order in areas that were up until recently dominated by traditional ones, such as construction and energy conversion. Particularly where industrial and housing construction is concerned, there is a strong tendency to develop innovative domestic adaptations of existing foreign technologies.

Perhaps not surprisingly, it has been mainly into the superstructure and not the infrastructure of the country that modern technology has made the deepest and easiest inroads, with no little secondary effects--be they positive or negative--on the latter. Thus, while one might enjoy the latest programmes on the most sophisticated video system at the remotest roadside inn, one might not be able to make a telephone connection, for example, from the same place for two days, provided, of course that there is a telephone. While this is an extreme example, given to illustrate a point, similar discrepancies are commonplace.

Unfortunately, there exists no reliable data for making a more concrete assessment in this area.

D. Consequences of the development strategy

1. Rate and pattern of growth

The mid-1982 population of Turkey has been estimated to be rougly 46.3 million. This is exclusive of the expatriate population, which is about 2.1 million. Approximately 15.4 million persons were employed during the same year. Turkish economic planning has been predominantly industry-, and urban-, oriented. The percentage distribution of the economically active population among sectors according to the latest estimate is shown in table 11. The results of the 1970 and 1975 population censuses in terms of the economically active population are presented in tables 12 and 13.

According to the 1980 population census, 46.5 per cent of the population of Turkey resides in urban areas of more than 10,000. There are noteworthy regional differences in this ratio, however, as indicated in table 14, below.

The gross national product (GNP) of Turkey for 1982, at current prices, was roughly 8.7 trillion Turkish liras. The per capita GNP for the same year was calculated at 188.6 thousand Turkish liras or about $ 1,340. The pattern of development in per capita GNP during the plan period is summarized in table 15, below.

As further indicators, the percentage distribution of gross domestic product and the per capita gross domestic product among the various regions for the years 1975-1978 are given in tables 16 and 17, respectively.

Of even more significance here are the distributions of GDP and per capita GDP at the province level, which are given in tables 18 and 19, below.

The distribution of GNP among the major economic sectors is another aspect to be considered in evaluating the pattern of growth and has been summarized in table 20 for the planned period.

2. Patterns of ownership (agriculture and housing)

The changes in land tenure can be traced from the different sources of information such as agricultural censuses and surveys and with different coverage.

Small farm establishments are predominant in Turkish agriculture. The ratios of holdings under 50 decares were 61.8 per cent in 1950, 68.8 per cent in 1963 and reached 72.9 per cent in 1973. The land area of such holdings comprised 19.9 per cent of total land under ownership in 1950, 29.0 per cent in 1963 and 26.3 per cent in 1973. The average area under cultivation for small holdings less than 50 decares was 25.2 decares in 1950 and dropped to

Table 11. Distribution of the economically active population among sectors, 1982

Sectors	Percentage
Agriculture	61.3
Industry	12.0
Construction	3.8
Commerce	4.3
Transportation	3.2
Services	12.2
Unknown	1.8

Source: Government of Turkey, Prime Ministry, State Planning Organization estimate as of September 1982.

Table 12. Distribution of the economically active population by age, sex and sector

(Thousands)

Age group		Sector													
		Agriculture		Mining and quarrying		Manufacturing		Utilities		Construction		Transportation		Activities not adequately defined	
		1970	1975	1970	1975	1970	1975	1970	1975	1970	1975	1970	1975	1970	1975
12-19	Male	1180.7	1594.6	8.4	5.9	218.1	241.5	1.2	2.1	55.0	83.8	27.3	28.9	478	20.8
	Female	1347.0	1536.4	.9	.2	98.8	70.6	.2	.4	2.2	.8	3.3	2.1	16.8	9.0
20-29	Male	863.1	1164.2	28.8	35.2	279.4	337.3	3.8	6.5	109.3	150.0	99.4	165.9	65.6	47.9
	Female	1107.7	1156.5	1.1	.4	86.4	80.9	.3	.9	2.1	1.7	6.6	9.8	12.2	16.9
30-39	Male	967.1	976.3	38.3	30.3	244.0	257.1	4.4	4.2	124.2	121.1	114.9	155.6	61.7	30.7
	Female	1042.0	914.5	.9	.2	56.2	43.1	.2	.4	2.0	.8	3.0	2.9	10.0	7.7
40-49	Male	779.1	1005.3	23.6	30.0	152.7	190.6	2.9	3.0	82.1	103.9	68.6	95.1	41.1	22.9
	Female	703.5	825.8	.6	.2	30.3	31.3	.1	.3	1.2	.6	1.8	1.6	6.2	6.0
50-59	Male	547.9	596.5	5.6	6.7	65.1	77.5	1.0	1.1	33.2	42.7	23.5	28.1	21.1	10.4
	Female	466.6	471.2	.2	.1	10.7	15.6	.04	.2	.6	.4	.7	.9	4.3	4.3
60 and over	Male	690.6	871.4	2.2	2.2	38.6	55.8	.3	.8	18.5	26.0	9.8	11.0	17.3	35.3
	Female	533.1	580.1	.2	.2	7.5	16.1	.05	.3	.7	.6	.6	.8	4.9	19.5

Table 13. Distribution of the economically active population by economic activity and type of employment

Economic year activity		Total	Employee	Employer	Self-employed	Unpaid family worker	Unknown
Total	1970	15118.9	4172.7	105.5	4036.4	6804.3	-
	1975	17383.8	5386.5	145.2	4164.7	7670.2	17.2
Agriculture	1970	10230.5	601.7	22.5	2938.4	6667.9	-
	1975	11694.5	1020.6	32.1	3115.0	7514.1	12.7
Mining	1970	110.9	108.2	.6	1.6	.5	-
	1975	111.7	111.2	.0	.5	.0	.0
Manufacturing	1970	1287.8	830.7	22.6	351.2	83.4	-
	1975	1457.3	1066.1	37.6	276.5	76.0	1.2
Utilities	1970	14.5	14.5	.0	.0	.0	-
	1975	20.1	19.2	.1	.3	.5	.0
Construction	1970	431.2	410.7	1.7	17.4	1.3	-
	1975	532.4	463.4	11.0	52.2	5.6	.2
Wholesale and retail trade	1970	673.1	207.9	39.8	412.2	13.2	-
	1975	803.7	334.3	40.0	397.1	31.1	1.1
Transportation and communication	1970	359.6	210.0	2.5	138.7	8.5	-
	1975	482.9	258.3	6.9	196.1	21.1	.5
Finance, insurance, real estate	1970	145.8	122.4	2.1	.9	.5	-
	1975	221.7	195.5	3.8	19.2	3.0	.1
Community, social and personal services	1970	1556.7	1410.4	8.9	126.1	12.3	-
	1975	1828.2	1704.3	12.7	96.7	14.6	.5
Activities not adequately defined	1970	308.9	256.3	4.9	29.9	17.9	-
	1975	231.3	213.6	1.1	11.6	4.1	.9

Table 14. Urbanization rate by regions

Regions	Percentage
Aegean and Marmara	66.7
Central Anatolia	47.9
Mediterranean	43.8
Black Sea	25.0
Eastern Anatolia	30.9

Source: Government of Turkey, Prime Ministry, State Institute of Statistics, 1980 Census of Population.

Table 15. Per capita gross national product (GNP) at current purchaser's prices, 1962-1981

Year	Mid-year population	Per capita GNP (US dollars)
1962	28 933 000	220
1963	29 655 000	248
1964	30 394 000	258
1965	31 151 000	271
1966	31 934 000	315
1967	32 750 000	341
1968	33 585 000	369
1969	34 442 000	399
1970	35 321 000	386
1971	36 215 000	351
1972	37 132 000	453
1973	38 072 000	570
1974	39 036 000	778
1975	40 025 000	919
1976	41 039 000	1047
1977	42 078 000	1146
1978	43 144 000	1215
1979	44 236 000	1412
1980	45 356 000	1261
1981	46 505 000	1258

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

Table 16. Distribution of gross domestic product (GDP), by regions (at current producer's prices)

Regions	Percentage of overall GDP			
	1975	1976	1977	1978
Central Anatolia	19.66	19.66	20.07	19.63
Black Sea	12.56	12.39	12.49	12.24
Aegean and Marmara	44.23	44.15	43.24	44.38
Mediterranean	13.99	14.08	14.15	14.12
Eastern Anatolia	9.56	9.72	10.06	9.63
TOTAL	100.00	100.00	100.00	100.00

Source: Erdoğan Özotun, "Gross domestic product of Turkey by sources, by province, 1980".

Table 17. Relative magnitude of per capita gross domestic product (GDP) by regions (at current purchaser's prices)

Regions	Magnitude of regional GDP relative to overall GDP			
	1975	1976	1977	1978
Central Anatolia	84.91	84.77	86.59	84.76
Black Sea	79.26	79.18	80.76	80.15
Aegean and Marmara	156.43	155.35	150.16	150.76
Mediterranean	90.84	90.79	90.74	90.12
Eastern Anatolia	55.40	56.37	58.39	56.00
Overall	100.00	100.00	100.00	100.00

Source: Erdoğan Özotun, "Gross domestic product of Turkey by sources, by province, 1980".

Table 18. Rank order and percentage share in the gross domestic product by province (at current producer's prices)

Province	1975		1976		1977		1978	
	Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
Adana	3.18	4	3.53	4	3.45	4	3.52	4
Adıyaman	0.32	61	0.38	58	0.39	57	0.38	58
Afyon	0.98	26	1.02	25	1.00	25	0.95	24
Ağrı	0.31	63	0.34	62	0.33	62	0.32	62
Amasya	0.62	47	0.60	47	0.57	50	0.56	50
Ankara	7.29	2	7.11	2	7.39	2	7.36	2
Antalya	1.52	14	1.44	15	1.40	16	1.40	16
Artvin	0.43	56	0.44	55	0.44	55	0.44	55
Aydın	1.45	16	1.62	13	1.57	14	1.54	14
Balıkesir	2.08	11	2.07	11	1.92	11	1.90	11
Bilecik	0.33	60	0.35	59	0.35	61	0.33	60
Bingöl	0.19	66	0.22	65	0.20	65	0.19	65
Bitlis	0.24	64	0.26	64	0.27	64	0.26	64
Bolu	0.95	29	0.93	29	0.97	29	0.95	25
Burdur	0.54	50	0.50	51	0.49	52	0.48	52
Bursa	3.15	5	3.15	5	3.02	6	3.07	6
Çanakkale	0.97	27	0.97	27	0.96	30	0.92	28
Çankırı	0.42	57	0.40	57	0.39	58	038.	57
Çorum	0.87	34	0.91	31	0.97	28	0.95	26
Denizli	1.18	19	1.21	19	1.21	19	1.18	19
Diyarbakır	1.11	22	1.02	24	1.08	22	1.04	22
Edirne	0.90	30	0.95	28	0.92	32	0.89	31
Elazığ	0.73	44	0.78	41	0.84	40	0.86	38
Erzincan	0.45	53	0.45	53	0.51	51	0.49	51
Erzurum	1.05	24	1.10	22	1.13	21	1.09	21
Eskişehir	1.40	17	1.38	17	1.41	15	1.42	15
Gaziantep	1.58	13	1.42	16	1.58	13	1.59	13
Giresun	0.78	38	0.83	38	0.80	42	0.81	41
Gümüşhane	0.31	62	0.32	63	0.32	63	0.30	63
Hakkari	0.13	67	0.13	67	0.13	67	0.13	67
Hatay	1.34	18	1.36	18	1.39	17	1.37	17
Isparta	0.60	49	0.59	49	0.61	48	0.60	48
İçel	2.33	10	2.28	10	2.29	10	2.31	9
Istanbul	20.76	1	20.41	1	20.33	1	21.23	1
Izmir	6.26	3	6.09	3	5.93	3	6.18	3
Kars	0.84	37	0.88	35	0.87	36	0.84	37
Kastamonu	0.77	39	0.75	42	0.80	41	0.78	42
Kayseri	1.46	15	1.44	14	1.35	18	1.35	18
Kırklareli	0.70	45	0.72	45	0.70	45	0.69	44
Kırşehir	0.44	54	0.44	54	0.46	54	0.44	54
Kocaeli	2.91	7	3.03	7	2.92	7	3.19	5
Konya	3.07	6	3.14	6	3.07	5	3.01	7
Kütahya	1.06	23	1.08	23	1.06	23	0.92	29
Malatya	0.88	32	0.84	36	0.92	33	0.91	30

Table 18. (continued)

Province	1975		1976		1977		1978	
	Percentage	Rank	Percentage	Rank	Percentage	Rank	Percentage	Rank
Manisa	2.34	9	2.42	9	2.31	9	2.28	10
Maraş	0.87	33	0.84	37	0.88	35	0.86	33
Mardin	0.73	41	0.79	39	0.77	43	0.67	45
Muğla	0.84	36	0.90	32	0.85	38	0.82	39
Muş	0.34	59	0.35	60	0.35	60	0.32	61
Nevşehir	0.51	51	0.55	50	0.59	49	0.57	49
Niğde	0.73	42	0.79	40	0.86	37	0.83	36
Ordu	0.73	43	0.75	43	0.88	34	0.85	34
Rize	0.74	40	0.73	44	0.72	44	0.70	43
Sakarya	1.15	20	1.14	20	1.16	20	1.16	20
Samsun	1.83	12	1.86	12	1.81	12	1.70	12
Siirt	0.63	46	0.61	46	0.63	47	0.63	47
Sinop	0.34	58	0.35	61	0.37	59	0.35	32
Sivas	0.99	25	0.98	26	0.98	26	0.87	32
Tekirdağ	0.86	35	0.89	34	0.84	39	0.81	40
Tokat	0.88	31	0.89	33	0.93	31	0.85	35
Trabzon	1.13	21	1.11	21	1.05	24	1.02	23
Tunceli	0.23	65	0.17	66	0.19	66	0.17	66
Urfa	0.96	28	0.92	30	0.98	27	0.93	27
Uşak	0.46	52	0.42	56	0.40	56	0.41	56
Van	0.44	55	0.47	52	0.48	53	0.47	53
Yozgat	0.62	48	0.59	48	0.66	46	0.63	46
Zonguldak	2.77	8	2.58	8	2.60	8	2.61	8

Source: Erdogan Özotun, "Gross domestic product of Turkey by sources, by province, 1980".

Table 19. Relative magnitude of per capita gross domestic product by province (at current producer's prices) (Percentage)

Province	1975	1976	1977	1978
Türkiye	100.0	100.0	100.0	100.0
Adana	103.6	113.7	110.2	111.1
Adıyaman	37.2	44.0	45.4	44.1
Afyon	68.6	72.0	71.1	68.7
Ağrı	36.8	40.2	38.6	37.2
Amasya	78.2	77.6	74.8	74.4
Ankara	113.9	108.8	110.8	108.2
Antalya	91.3	85.7	83.2	82.7
Artvin	75.6	79.1	82.1	83.6
Aydın	96.3	108.1	106.2	105.4
Balıkesir	105.8	107.2	100.9	101.3
Bilecik	100.0	105.4	110.3	107.6
Bingöl	37.1	42.3	37.3	35.0
Bitlis	45.0	47.3	48.8	46.1
Bolu	89.3	88.7	93.9	93.2
Burdur	97.4	95.1	91.2	90.4
Bursa	131.9	131.8	126.6	128.7
Çanakkale	106.5	108.4	109.4	107.8
Çankırı	63.5	61.5	61.8	63.8
Çorum	63.3	67.2	73.0	71.9
Denizli	85.2	87.9	88.6	87.2
Diyarbakır	68.4	63.5	67.4	64.9
Edirne	107.3	114.3	112.2	109.7
Elazığ	69.9	91.7	81.1	79.9
Erzincan	63.1	64.8	74.7	74.5
Erzurum	56.4	59.4	61.5	59.7
Eskişehir	114.5	113.9	110.0	120.0
Gaziantep	88.8	79.1	87.3	87.5
Giresun	67.5	73.4	72.0	74.7
Gümüşhane	44.0	45.2	47.3	45.4
Hakkari	40.0	40.6	40.6	38.4
Hatay	72.3	72.0	71.9	69.7
Isparta	75.3	74.4	78.3	77.1
İçel	131.9	127.2	126.8	126.1
Istanbul	215.9	207.3	201.8	205.9
Izmir	151.4	146.6	142.1	147.4
Kars	48.0	62.3	51.2	49.1
Kastamonu	71.3	71.2	77.7	78.5
Kayseri	87.1	85.9	80.8	80.7
Kırklareli	103.6	112.1	113.2	108.3
Kırşehir	76.6	77.7	80.4	78.8
Kocaeli	242.9	249.6	236.8	254.0
Konya	82.9	88.9	87.4	85.8

Table 19. (continued)

Province	1975	1976	1977	1978
Kütahya	88.8	90.8	89.7	78.6
Malatya	61.4	58.8	64.1	63.6
Manisa	107.8	112.6	108.4	107.9
Maraş	56.3	54.5	54.2	55.0
Mardin	55.8	59.9	56.5	49.1
Muğla	84.6	91.2	86.3	83.9
Muş	54.0	55.6	57.3	51.7
Nevşehir	81.7	90.3	96.8	95.8
Niğde	63.8	69.3	74.7	72.1
Ordu	44.2	45.9	54.3	53.2
Rize	89.3	89.4	88.1	87.1
Sakarya	93.3	93.3	95.7	97.2
Samsun	81.3	83.2	81.3	76.6
Siirt	65.2	62.5	63.1	62.5
Sinop	51.8	53.3	58.7	56.1
Sivas	53.9	54.5	55.7	50.7
Tekirdağ	103.1	113.4	109.1	107.1
Tokat	59.8	60.9	63.8	58.5
Trabzon	63.6	62.9	59.7	58.7
Tunceli	54.0	42.5	47.2	43.0
Urfa	64.7	62.0	66.2	63.3
Uşak	79.2	73.7	72.3	73.5
Van	45.3	48.2	41.3	41.2
Yozgat	49.5	48.5	54.7	52.8
Zonguldak	134.2	125.5	126.8	127.8

Source: Erdogan Özotun, "Gross domestic product of Turkey by sources, by province, 1980".

Table 20. Gross national product by kind of economic activity
(in current producer's prices)
(Millions of US dollars)

Kind of economic activity	1962	Percentage	1963	Percentage	1964	Percentage	1965	Percentage	1966	Percentage
1. Agriculture	2323.4	36.5	2682.3	36.3	2667.8	34.0	2625.2	31.1	3177.7	31.5
2. Industry	1161.9	18.2	1343.6	18.2	1505.4	19.2	1712.7	20.2	2045.7	20.3
3. Others	2885.5	45.3	3363.6	45.5	3680.6	46.8	4112.1	48.7	4844.7	48.2
Gross national product	6370.8	100	7389.5	100	7853.8	100	8450.0	100	10068.1	100

	1967	Percentage	1968	Percentage	1969	Percentage	1970	Percentage	1971	Percentage
1. Agriculture	3333.7	29.8	3491.2	28.2	3757.0	27.3	3631.8	26.6	3358.8	26.4
2. Industry	2394.4	21.4	2717.7	21.9	3135.7	22.8	2902.5	21.3	2685.4	21.1
3. Others	5448.2	48.8	6180.3	49.9	6862.1	49.9	7098.1	52.1	6677.3	52.5
Gross national product	11176.3	100	12389.2	100	13754.8	100	13632.4	100	12721.5	100

	1972	Percentage	1973	Percentage	1974	Percentage	1975	Percentage	1976	Percentage
1. Agriculture	4241.6	25.2	5238.0	24.1	7673.5	25.3	9555.4	26.0	11206.0	26.9
2. Industry	3555.8	21.1	4521.0	20.8	7712.6	21.0	8585.6	21.0	8585.6	20.6
3. Others	9042.4	53.7	11937.8	55.1	16200.1	53.3	19529.4	53.0	21951.5	52.5
Gross national product	16839.8	100	21696.8	100	30376.8	100	36797.4	100	41743.1	100

	1977	Percentage	1978	Percentage	1979	Percentage	1980	Percentage	1981	Percentage
1. Agriculture	12364.2	25.6	12442.7	23.7	13443.0	21.5	12128.3	21.2	12016.9	20.5
2. Industry	9889.4	20.5	12162.0	23.2	14973.8	24.0	14477.9	25.3	15762.9	27.0
3. Others	25972.6	53.9	27799.8	53.1	34051.8	54.5	30599.4	53.5	30715.0	52.5
Gross national product	48226.2	100	52404.5	100	62468.6	100	57205.6	100	58494.8	100

Table 21. Socio-economic development indicators by province, 1980

Rank	Province	Indicator value	Rank	Province	Indicator value
1	Istanbul	0.61597	35	Çanakkale	0.89066
2	Ankara	0.68004	36	Kırşehir	0.89096
3	Izmir	0.72047	37	Giresun	0.89112
4	Adana	0.79167	38	Denizli	0.89275
5	Kocaeli	0.81140	39	Bolu	0.89286
6	Içel	0.82580	40	Artvin	0.89929
7	Bursa	0.83706	41	Uşak	0.90085
8	Eskişehir	0.84475	42	Siirt	0.90186
9	Konya	0.84583	43	Niğde	0.90315
10	Kayseri	0.84733	44	Afyon	0.90497
11	Balıkesir	0.84971	45	Çorum	0.90959
12	Rize	0.85035	46	Kars	0.91003
13	Zonguldak	0.85156	47	Çankırı	0.91200
14	Hatay	0.85520	48	Sivas	0.91369
15	Sakarya	0.85669	49	K. Maraş	0.91369
16	Gaziantep	0.85823	50	Diyarbakır	0.91447
17	Aydın	0.86448	51	Bitlis	0.91465
18	Trabzon	0.86740	52	Bilecik	0.91808
19	Antalya	0.86740	53	Urfa	0.91993
20	Samsun	0.87006	54	Tokat	0.92292
21	Manisa	0.87027	55	Kastamonu	0.92546
22	Isparta	0.97060	56	Gümüşhane	0.92606
23	Tekirdağ	0.87119	57	Van	0.92780
24	Edirne	0.87398	58	Ordu	0.92943
25	Kütahya	0.87720	59	Tunceli	0.93655
26	Elazığ	0.87873	60	Sinop	0.93758
27	Amasya	0.88094	61	Ağrı	0.94250
28	Malatya	0.88211	62	Yozgat	0.94710
29	Kırklareli	0.88285	63	Mardin	0.95087
30	Nevşehir	0.88484	64	Adıyaman	0.95195
31	Muğla	0.88586	65	Muş	0.95428
32	Erzurum	0.88640	66	Hakkarı	0.96773
33	Burdur	0.88656	67	Bingöl	0.97070
34	Erzincan	0.88705			

Source: Government of Turkey, Prime Ministry, State Planning Organization.

19.9 decares in 1973, indicating that there was a problem of decreasing size for such holdings. On the other hand, the 1970 Census of Agriculture results show that of all agricultural establishments not having their own land nearly 99.5 per cent are those in that category. This is significant in that of all holdings, only 3.31 per cent do not own their land.

The ratio of small- and medium-sized agricultural establishments with land holdings of between 50 and 500 decares was 36.8 per cent in 1950, but dropped to 30.7 per cent in 1963 and 26.3 per cent in 1973. However, the total area cultivated by those establishments rose from 54.8 per cent in 1950 to 58.3 per cent in 1973. Correspondingly, the average size of land holdings for that category rose gradually from 124 decares to 133 decares. The average size of the remaining large holdings was 1,357 decares in 1973.

In the meantime, the number and share of land holdings above 500 decares have been increasing in the central and eastern Anatolia regions while the share of those in the Black Sea, Aegean and Marmara regions have decreased. In the Mediterrenean region, although the number of large holdings has decreased, the total area of those holdings has increased. In the region where modern and even high technology agriculture is moving in rapidly, the pattern of land tenure is also changing towards few but large, integrated extensive and diversified establishments, such that the average size of holdings above 500 decares has increased from 514 decares in 1950 to 859 decares in 1973.

As the average size of holdings above 500 decares in the Aegean and Marmara regions remained practically unchanged, it increased from 1,206 to 1,381 decares in central Anatolia, from 1,914 to 1,853 decares in eastern Anatolia, and from 600 to 788 decares in the Black Sea region.

Modernization of agricultural production through the use of inputs such as fertilizers, pesticides, and the like, but particularly through mechanization, has been most conspicuous in regions where the transition from subsistence to commercial agriculture is most intensely advanced, notably in the Aegean river valleys, most coastal areas and in the Cukurova area around Adana in southern Turkey. On the other hand, that same process of "modernization" along with high population growth, has led to an increase in the number of landless families. There is also an observed trend for large landowners to lease small-size plots in order to effect greater control over all stages of production and marketing, so that not all of the increases in landless families noted above can be readily attributed to any single factor alone (Uner, 1980).

Housing comprises approximately 80 per cent of the annual construction activity, in terms of built floor area. The greatest segment of housing (nearly 70 per cent) consists of multi-unit, i.e., "apartment" type buildings. Other types of housing detached or semi-detached, have remained practically stagnant and may thus be said to have declined in the face of population growth. Balamir (1963) identifies the underlying reason for the large increase in multi-unit housing construction as the 1966 legislation regulating unit flat (condominium) ownership and points out that the most salient development thus fostered has been an upsurge in owner-occupancy of such dwellings. As a corollary, the same author mentions that rental housing construction has not been able to establish itself as an institution of any significance.

On the other hand, rental occupancy of dwellings tends to be higher in urban areas and the tendency has shown an increase during the early years of urban growth in Turkey, from 36 per cent in 1955 to 42 per cent in 1960. In urban areas where the population is more than 500,000, it was 56 per cent in 1968, but has rapidly declined at a rate of about 10 per cent annually in the years following in favour of ownership.

A study by Dinç (1973) shows that as early as 1973, the ratio of non-rent-paying households was 81.5 per cent of the country-wide total, with the remainder being rental occupants. It should be noted here, however, that there is no indication whether non-rent-paying households are owners or not.

A more recent study by Peker (1978) identifies owner--and rental--occupants for the years 1968 and 1973, and is summarized in table 22, below.

Although there are discrepancies between figures, the fact remains that there is a marked increase in owner occupied dwellings.

3. Changes in factor use and rewards

During the 20-year period between 1962 and 1982, employment in the agricultural sector declined by 15.7 per cent. The slack was taken up by other sectors in various proportions as shown in table 23, below.

For the first half of the period mentioned, employment in non-agricultural sectors rose by 5 per cent. This was only 4 per cent for the second half of the period.

More noteworthy is that it actually receded to 2.4 per cent during the interim 1975-1980. Of the overall growth in employment during the 20 years, 55.4 per cent occurred in services, 36.5 per cent in industry and construction and 8.1 per cent in transportation.

It is predicted that for a growth rate of 4 per cent in the gross domestic product during 1980-1985, employment will grow by 2.4. per cent.

On the other hand, according to the SPO, surplus manpower supply is estimated to be roughly 3 million. Of these only about 1 million are actively seeking employment. The open unemployment rate of 5.22 per cent in 1980 rose to 5.53 per cent in 1981. The decline in the rate of participation in the labour force from 72.7 per cent in 1970 to 65.3 per cent in 1980 and the migration of labour to middle eastern job opportunities have contributed to a further escalation in the unemployment figures. It is expected that unemployment will continue to increase unless a growth rate in GNP over 7 per cent can be attained.

Where growth in capital stock is concerned, the recession of the mid 1970s and the consequent curtailment in public investment programmes have resulted in some decline. There has been a real growth of about 3.5 per cent in 1981, the greatest share in that growth, with 5.7 per cent belonging to the public sector.

Table 22. Pattern of dwelling occupancy according to size of household, 1968 and 1973
(Percentage)

Size of household	Owner occupant		Rental occupant		Other
	1968	1973	1968	1973	1968
1	43.50	57.57	56.04	48.49	0.46
2	49.59	66.52	49.80	33.68	0.61
3	68.38	60.96	30.01	39.04	1.61
4	65.78	71.06	19.76	28.94	14.45
5	-	72.53	-	27.47	-
6	-	76.22	-	23.78	-
Overall	55.80	63.56	39.32	36.44	4.88

Source: M. Peker, "Conditions of housing in Turkey and their relationship to income", "Population structure and problems relating to population in Turkey", a 1973 survey, publication D-25, Ayyildiz Matbaasi (Ankara, University of Hacettepe, 1978).

Table 23. Distribution of the economically active population among sectors, 1962-1982
(Percentage)

Sector	1962	1982	Net change 1962-1982	
Agriculture	77.2	61.3	-15.3	
			Distribution of the decline in agriculture among other sectors	Relative magnitude of the distribution
Industry	8.3	12.0	3.7	25.0
- Mining	0.5	0.8	0.3	2.0
- Manufacturing	7.5	10.5	3.0	20.3
- Energy,gas,water	0.3	0.7	0.4	2.8
Construction	2.1	3.8	1.7	11.5
Transportation	2.0	3.2	1.2	8.1
Commerce	2.4	4.3	1.9	12.8
Banking	0.4	1.4	1.0	6.8
Other services	6.9	12.2	5.3	35.8
Unknown	.7	1.8	.	.
TOTAL	100.0	100.0	14.8	100.0

Source: Government of Turkey, Prime Ministry, State Planning Organization.

Public sector investments after 1980 have most notably intensified in the agricultural sector. Real growth in that sector has amounted to some 36.5 per cent. On the other hand, such investments have actually declined in the manufacturing sector by 10.5 per cent. In the private sector, investments have increased by 27.6 per cent in the energy sector, 20.7 per cent in mining and by 18.8 per cent in agriculture. The change in the share of GNP invested in capital stock over the years is shown in table 24. Also shown in the same table are the shares of the public and private sectors in the overall investments.

The distribution of capital investments among the economic sectors from 1975 to 1981 is depicted in table 25.

During the period 1963-1977, overall investment in capital stock increased at an annual rate of 10.2 per cent, while public sector investments increased by 11 per cent. More specifically, that rate was much lower, at 7.5 per cent, during the earlier part of the period (1963-1972) and showed a very steep increase, to 16.7 per cent, later on (1973-1977).

The rate at which public investments were being financed through public savings showed a gradual decline from 1973 onwards, up until 1979. Dropping to 25 per cent in 1979, that rate increased to 33.5 per cent in 1980 and to 64.4 per cent in 1981.

According to a study conducted by Ozotun in 1979, the overall share of wages and salaries in net domestic factor income fluctuates between 31-34 per cent. If the agricultural sector is excluded the overall share increases to 47 per cent. The generally small share of wages and salaries in domestic factor income points to an economic structure where small sized establishments and unpaid family workers are predominant. The validity of this statement, especially for the traditional sectors, is quite well known. In table 26, below, the share of wages and salaries in net domestic factor income by economic activity is presented.

4. Extent of concentration on income distribution

The income distribution shows a distinct imbalance in absolute as well as in relative terms. According to a study conducted in 1973, the share of the lowest 20 per cent of the population was around 3.5 per cent of total incomes while that of the highest was 56.5 per cent.

In the same study it was also pointed out that the most disproportionate group were farmers. Small farmers, which account for 28.5 per cent of the total, command 3.6 per cent of overall agricultural income whereas big farmers, accounting for 24 per cent of the total, receive 22.6 per cent.

There were regional inequalities in income distribution as well. While the coastal regions and central Anatolia receive their share of the total income proportionally to the percentage of households residing in those regions, the eastern Anatolia region fell far behind in its share of income whereas the Aegean and Marmara region had the largest shares.

Table 24. Share of the gross national product invested in capital stock and of the public and private sectors in capital stock investments
(Percentage)

Year	Private sector share	Public sector share	Share of GNP invested overall
1968/72	47.7	52.3	17.8
1973/77	49.9	50.1	19.8
1978	53.0	47.0	22.3
1979	50.0	50.0	21.6
1980	44.0	56.0	19.4
1981	42.6	57.4	19.5

Source: Turkish Central Bank, Annual Report, 1981.

Table 25. Distribution of capital investments among economic sectors, 1975-1981
(Percentage)

Sector	1975	1976	1977	1978	1979	1980	1981
Agriculture	10.3	13.7	12.7	11.1	8.5	7.5	9.3
Mining	3.3	4.0	3.8	4.4	5.4	4.5	5.4
Manufacturing	30.2	26.1	24.8	23.7	22.5	27.1	24.3
Energy	6.5	7.8	8.0	9.7	11.4	13.9	14.1
Transportation	20.7	21.3	23.3	23.8	19.8	15.5	16.3
Tourism	0.9	0.8	0.8	0.9	0.8	0.5	0.6
Housing	18.0	15.7	16.0	17.3	20.7	22.8	20.1
Education	3.3	3.6	2.8	2.6	2.0	2.1	2.6
Health	1.1	1.2	1.0	1.2	1.2	0.1	1.2
Other services	5.7	5.8	6.8	5.3	7.7	5.2	5.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Turkish Central Bank, Annual Report, 1981.

Table 26. Share of wages and salaries in net domestic factor income by economic activity

Sector	1968	1970	1974	1975	1976
Agriculture	7.3	6.3	4.9	4.8	4.4
Industry	48.4	55.9			
- Mining	81.3	78.1	82.6	103.6	103.4
- Manufacturing	45.7	54.3	47.3	54.4	59.3
- Utilities	38.8	44.3	42.1	37.5	45.5
Construction	38.2	40.4	44.7	42.9	44.5
Commerce	6.1	7.1	6.2	6.1	6.7
Transportation	37.3	42.0	27.3	26.0	28.4
Financial ins.	57.6	56.3	41.1	46.5	48.7
Housing	-	-	-	-	-
Social and personal services	41.5	38.5	30.0	28.7	30.5
Producer of public services	100.0	100.0	100.0	100.0	100.0
TOTAL	32.3	34.7	31.0	32.2	33.6

Source: Erdogan Özotun, "The structural change in the distribution of income and employment in Turkey", 1979.

Table 27. Income shares and percentage of household from the lowest income to highest income groups

Household percentage	Cumulative	Percentage of income	Cumulative
First	20	3.5	3.5
Second 20	40	8.0	11.5
Third 20	60	12.5	24.0
Fourth 20	80	19.5	43.5
Fifth 20	100	56.5	100.0

Source: Government of Turkey, Prime Ministry, State Planning Organization, "Distribution of income, 1973", 1978.

Table 28. Distribution of income and households by occupational groups, 1973
(Percentage)

Occupational group	Households	Total income
Farmers	44.0	41.2
Big businessmen, traders and professionals	0.8	5.5
Tradesmen	1.1	5.2
Unskilled workers	12.4	7.3
Government employees	11.5	12.7
Artisans and small traders	15.8	14.8
Others	14.4	13.3

Source: Government of Turkey, Prime Ministry, State Planning Organization, 'Gelir Dagilimi 1973', 1976.

Table 29. Distribution of households and income by region, 1973

(Percentage)

Region	Households	Total income
Central Anatolia	21.9	23.4
Black Sea coast	14.5	15.8
Aegean and Marmara	33.7	37.7
Mediterranean	15.2	13.2
Eastern Anatolia	14.7	9.9
TOTAL	100.0	100.0

Source: Government of Turkey, Prime Ministry, State Planning Organization, 'Gelir Dagilimi 1973', 1976.

As mentioned earlier, the gross national product at current prices mounted to some 8.7 trillion Turkish liras, resulting in a per capita GNP of L 188.9 thousand in 1982. The official gross minimum annual wages announced or the same year came to TL 120.0 thousand, which amounts to 63.3 per cent of er capita GNP. Using the figure for the average family size determined for 982, family income on a per capita GNP basis is calculated to be TL 499.0 housand annually. Taking the average rate of participation in family income s 1.8, family income on an official minimum annual wage basis, however, is alculated to be TL 216.0 thousand, which is only 43.3 per cent of the NP-based figure. When it is considered that per capita investments in apital stock amount to only 21.1 per cent of per capita GNP, the extent of he imbalance becomes self-evident.

There are no income distribution studies on a province basis. However, able 19 on per capita GNP by provinces may be taken as a quasi-indicator.

III. DEMOGRAPHIC STRUCTURE AND PATTERNS

A. Patterns of population growth

The first population census in the Republic of Turkey was conducted in 1927 and, beginning with the one in 1935, at regular five-year intervals thereafter. Table 30 shows the population of Turkey according to the censuses taken since 1927 and the annual intercensal growth rate.

As may be observed, in less than 60 years, the population of Turkey more than tripled. The population growth rate which was 2 per cent at the beginning of the period studied, showed a drop in the years just before and after the Second World War. That decline may be attributed to the fact that a significant proportion of the male population was mobilized during those years and the fertile age group was somewhat smaller because they were mostly the offspring born during the First World War. It can also be claimed without much error that mortality rates were quite high during the years of the Second World War in spite of the fact that Turkey did not take part in it.

A further observation that may be made along those lines is that the population growth rate increased after 1950 and reached a peak by the end of that decade. There has been a leveling-off and a downward trend recently.

The Turkish population, owing to the high levels of fertility sustained over long periods of time, has a young age structure. As may be observed from figures I, II and III, the population pyramids have large bases. On the other hand, they became markedly narrower towards the top as a consequence of high mortality rates in older ages and low life expectancy values.

When the population pyramids for the years 1935, 1950 and 1975 are compared, a gradual narrowing in the bases may be noticed which could be attributed to a decline in fertility rates. The portions that represent the ages 15-19 in 1935, 30-35 in 1950 and 55-59 in 1975 in the population pyramids respectively are relatively small owing to the effects of the First World War. The 35-39 age group in the 1975 population pyramid reflects the low fertility rates experienced during the Second World War.

A more general comparison of these three figures indicates a gradual change from a young age structure towards a relatively older one (see figures I, II and III).

Table 30. Population of Turkey, 1927-1980

Census year	Population (thousand)	Annual intercensal increase (0/00)
1927	13 648	-
1935	16 158	21.1
1940	17 821	19.6 a/
1945	18 790	10.6
1950	20 947	21.7
1955	24 065	27.8
1960	27 755	28.5
1965	33 391	24.6
1970	35 605	25.2
1975	40 384	25.0
1980	44 737	20.7

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

a/ Excluding the 208,116 persons added in the annexation of Hatay in 1939, this figure is 17.37.

Figure I. Population pyramid of Turkey, 1935

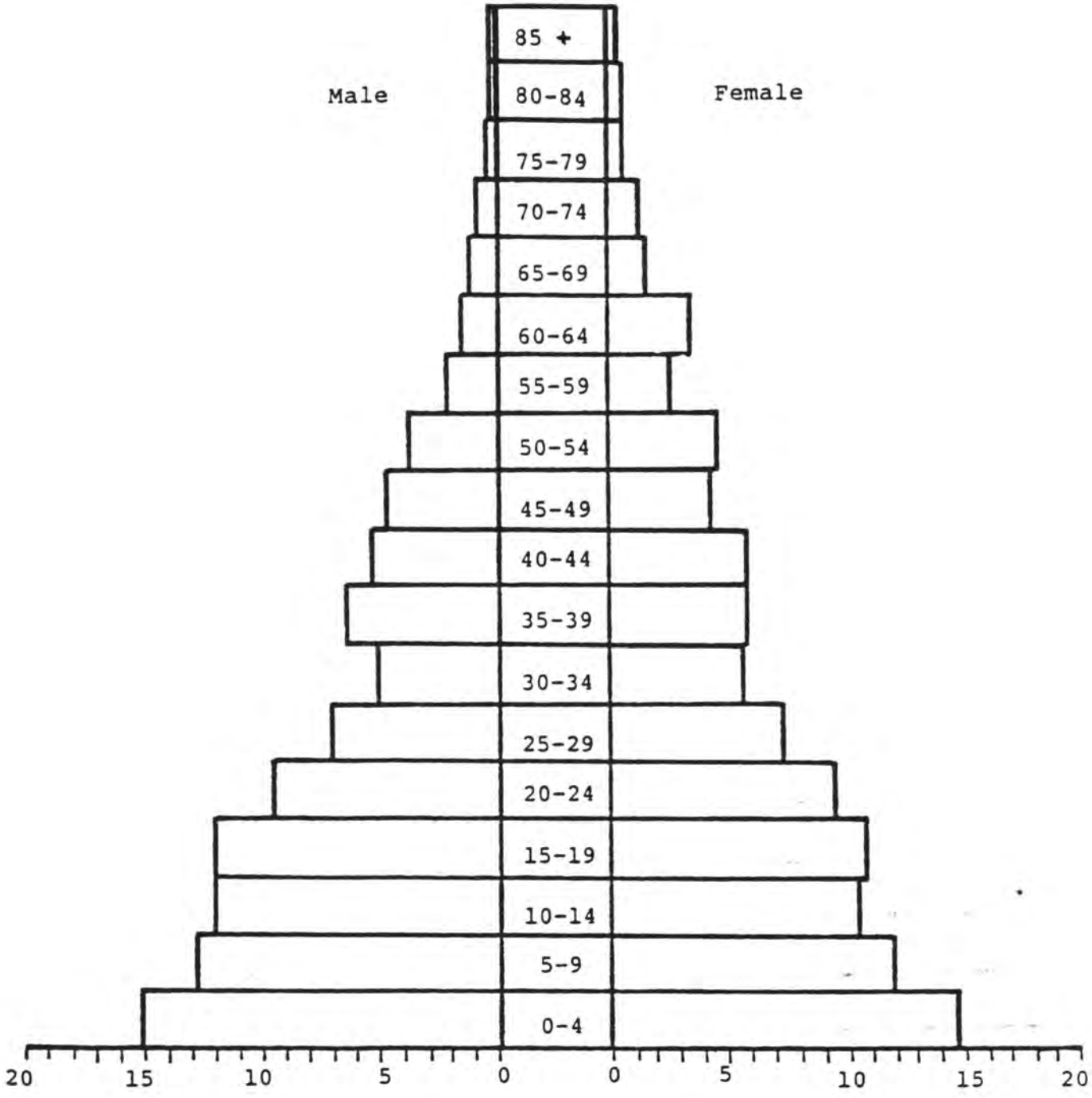


Figure II. Population pyramid of Turkey, 1950

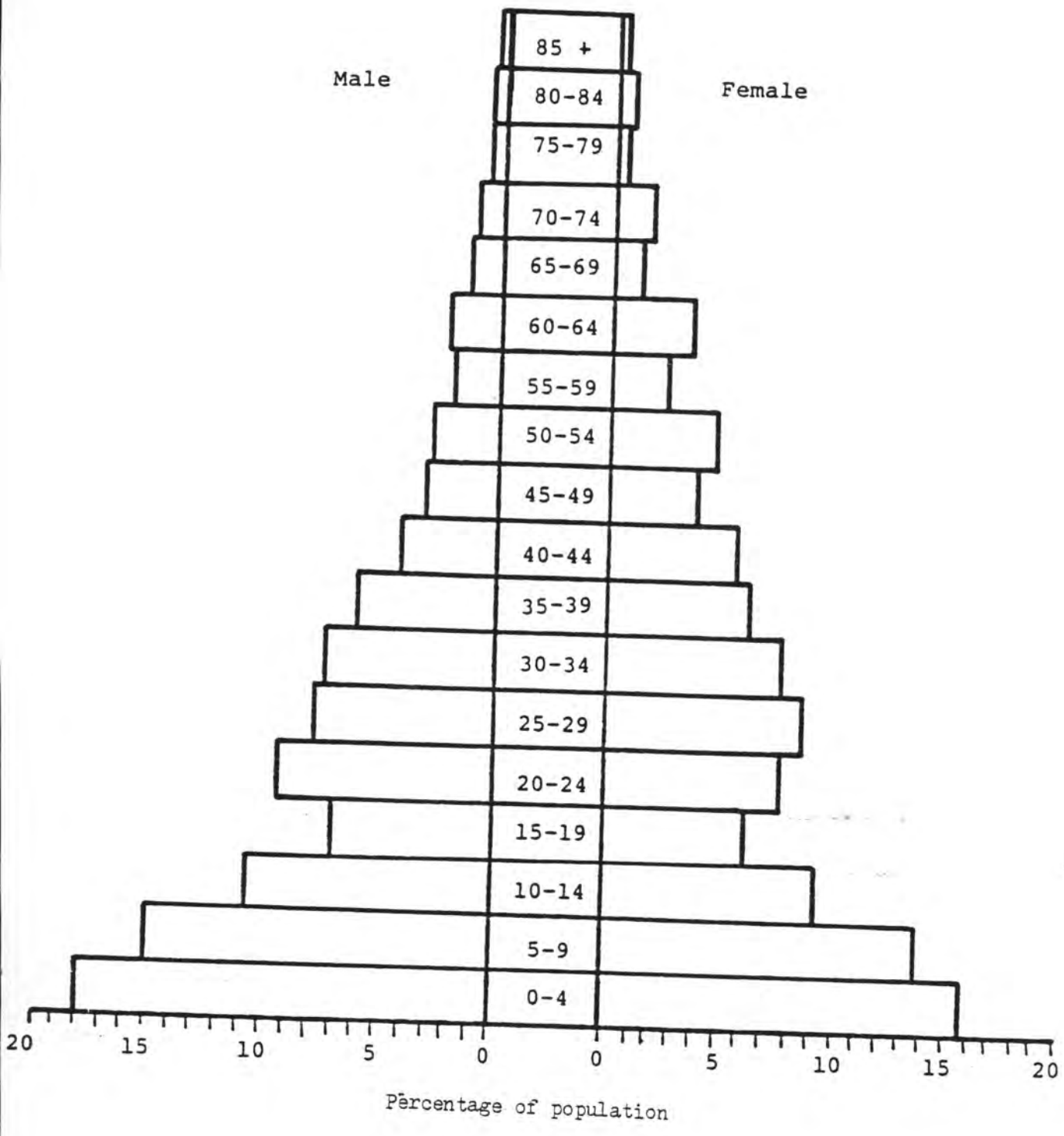


Figure III. Population pyramid of Turkey, 1975

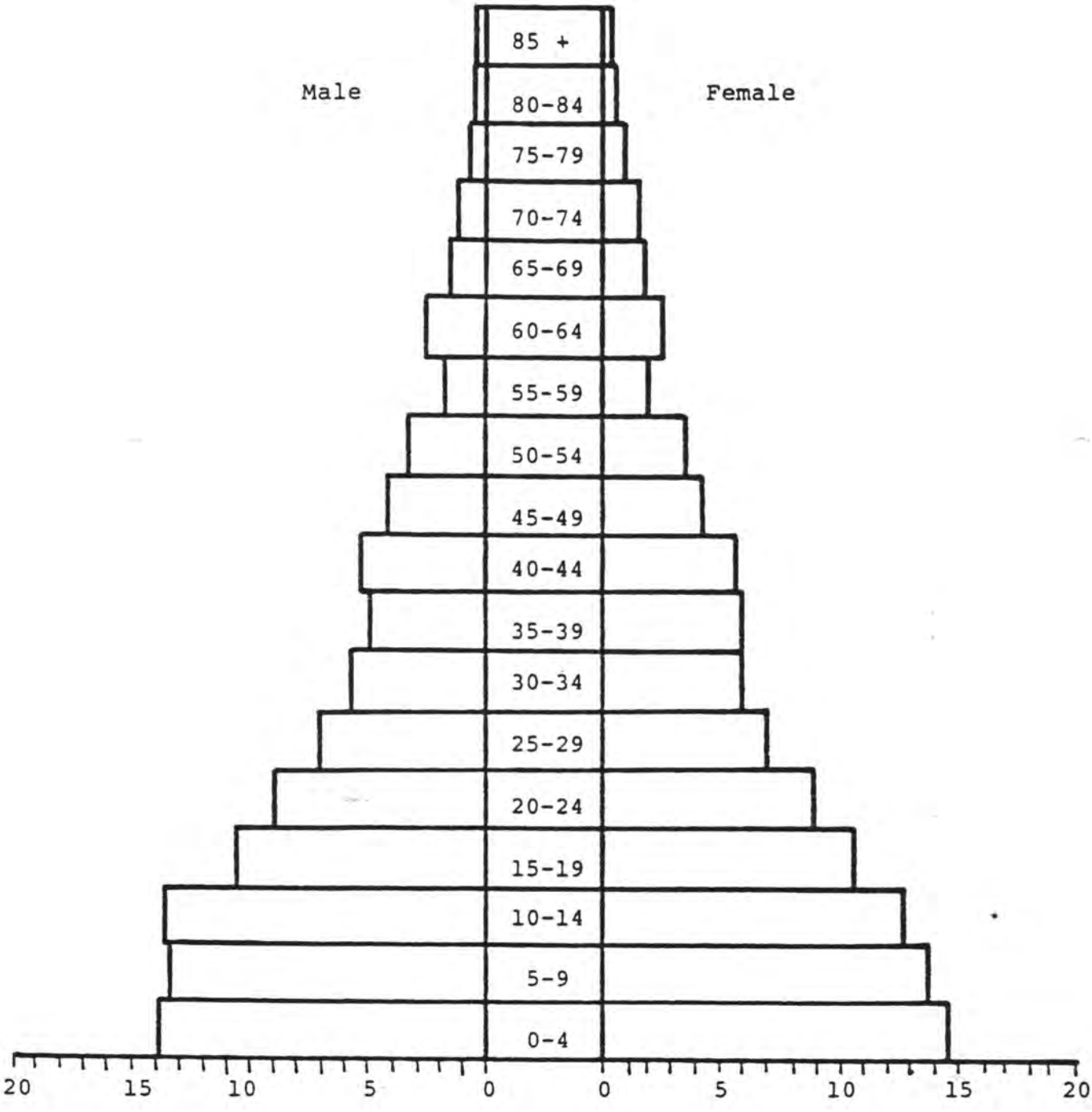


Table 31. Distribution of population by age group [a/]
(Percentage)

Age group	1935		1950		1975	
	M	F	M	F	M	F
0-4	18.11	15.85	15.05	14.48	14.10	14.23
5-9	15.33	13.78	12.72	11.88	13.33	13.38
10-14	10.74	9.11	12.12	10.38	13.53	12.51
15-19	7.07	5.94	12.08	10.75	10.79	10.38
20-24	7.48	7.82	9.41	9.35	8.98	8.55
25-29	7.87	8.81	6.91	7.22	7.18	6.88
30-34	7.40	7.84	4.98	5.67	5.70	5.70
35-39	6.16	6.23	6.54	5.77	5.03	5.61
40-44	4.10	5.79	5.24	5.72	5.28	5.38
45-49	3.07	3.85	4.75	4.28	4.26	4.10
50-54	2.86	4.70	3.70	4.53	3.27	3.40
55-59	2.05	2.39	2.04	2.50	1.85	1.96
60-64	2.22	3.63	1.87	3.45	2.59	2.80
65-69	1.27	1.28	1.05	1.47	1.56	1.82
70-74	1.15	1.54	0.79	1.33	1.33	1.63
75-79	0.46	0.46	0.32	1.47	0.58	0.71
80-84	0.40	0.60	0.25	0.45	0.38	0.56
85 and over						

Source: Government of Turkey, Prime Ministry, State Institute of Statistics.

a/ Adjusted for unknown age.

B. Patterns of nuptiality and marital fertility

Marriage and therefore divorce are still considered to be significant social institutions in Turkish society, not merely because they are important indicators of the social structure or because of their impact on the demographic structure of the population.

Before the adoption of the current Turkish Civil Code in 1926, marriages and divorces were conducted according to religious norms, and not only was polygamy permitted but repudiation by men was also practised.

After the Turkish Civil Code became effective in 1926, only marriages performed under an official register were granted legal recognition and as a corollary to that, religious nuptials were no longer valid. However, those who wished still conducted religious ceremonies after civil formalities were completed. Although the Civil Code has forbidden polygamous religious marriages, such marriages still exist, especially in rural areas, but are decreasing in comparison to past years (Timur, 1971).

The Turkish Civil Code has also set limitations on the age at first marriage. It was initially set at 18 for men and 17 for women. In 1938, with an amendment to the Civil Code, the age at first marriage was lowered to 17 and 15 for men and women, respectively. This amendment is still in effect. Only with the special decree of a judge may a man of 15 and a woman of 14 legally enter matrimony.

The Civil Code has given to the courts the authority for dissolution of marriages. Divorce is a complete dissolution of marriage by judicial decree which confers on the separating parties the right to remarry.

1. Nuptiality and structure of marriage

Almost all births in Turkey occur within marriage. Therefore, an analysis of marriage trends and patterns would reveal substantial data concerning fertility trends. Since the available annual data on marriage (legal and religious marriages) are not adequate for such purposes, inferences on trends and patterns of marriages can only be made for census years using population census data.

With the purpose of presenting changes in the marital status of the population since 1945, the percentage distribution of population by marital status is given in table 32. From that table it may be observed that with the exception of 1980, marriages in general comply with existing policies.

Table 32. Distribution of population by marital status (population 15 years of age and over)

(Percentage)

Year	Single	Married	Widowed	Divorced	Unknown	TOTAL
TOTAL						
1945	23.08	65.80	10.30	0.45	0.37	100.00
1950	22.26	67.36	8.84	0.76	0.78	100.00
1955	20.06	70.61	7.79	0.82	0.72	100.00
1960	18.22	73.14	7.26	0.84	0.54	100.00
1965	20.53	71.55	6.99	0.81	0.12	100.00
1970	22.20	68.58	6.04	0.66	2.52	100.00
1975	25.80	66.28	5.34	0.72	1.86	100.00
1980	24.72	68.94		6.34		100.00
MALE						
1945	30.06	66.80	2.50	0.32	0.32	100.00
1950	28.83	67.45	2.33	0.59	0.80	100.00
1955	26.58	70.01	2.21	0.66	0.54	100.00
1960	24.06	72.48	2.23	0.72	0.51	100.00
1965	26.45	70.43	2.29	0.70	0.13	100.00
1970	27.98	66.90	2.19	0.55	2.38	100.00
1975	30.70	64.45	2.04	0.54	2.27	100.00
1980	29.35	68.03		2.62		100.00
FEMALE						
1945	16.48	64.85	17.68	0.57	0.42	100.00
1950	15.94	67.27	15.09	0.93	0.77	100.00
1955	13.54	71.21	13.36	0.99	0.90	100.00
1960	12.29	73.81	12.37	0.96	0.57	100.00
1965	14.54	72.68	11.73	0.93	0.12	100.00
1970	16.42	70.26	9.90	0.78	2.65	100.00
1975	20.69	68.17	8.79	0.91	1.44	100.00
1980	19.82	69.91		10.27		100.00

When pro-natalist policies were in effect in 1945, the percentage of the married population ages 15 and over was 65.8. There was an increase in this proportion in 1950 and 1955, concomittantly with the "priority to agriculture" policy promulgated by the new Democratic Party government when it came to power in 1950, and it rose to 73.14 per cent in 1960. A part of this increase may be accounted for by declining widowhood. During the early 1960s, especially after the implementation of the First Five-Year Plan, the population policy of Turkey was reversed and, in the same vein, the First Population Planning Act was promulgated in 1965 (see annex I), which removed earlier limitations on birth control. On 25 May 1983 a new "Population Planning Law" was enacted (see annex II).

It may be observed that contrary to the share of the married population within the total population, the percentage of the single population decreased until 1960 and increased after that year.

Widowers comprise a little over 2 per cent of the total population 15 years old and over and this proportion does not show any significant changes over the years. The percentage of widows among the population 15 years old and over was as high as 17.68 per cent. Although this ratio declined to 8.79 per cent in 1975, it still is substantially higher than that of men. The fact is that life expectancy for women is higher and remarriages among widowed women are lower in comparison to widowers. It is also suspected that widowers declared themselves as single instead of widowed. According to a study conducted in 1976, 7.8 per cent of the marriages occurrred to men who were married more than once whereas this ratio was 6.0 per cent among women (Kocaman, 1981).

It may also be observed from table 32 that the rate of divorces increased parallel with marriages until the 1960s and a tendency to decrease prevailed until 1975.

Another relevant aspect of the population is the share of the married population in fertile ages. About two thirds of the total population of child-bearing age is married. As table 33 clearly indicates, the share of married women is higher than that of men in all census years. However, the common characteristic for both sexes is that they show an upward trend until 1960 and a downward trend after this period with the exception of 1980.

An analysis of the share of the married population at fertile ages (15-49) by age groups would reveal the age groups in which marriages are concentrated. Furthermore, the changes of these shares in different age groups would show marriage trends by age groups and an implicit rise in mean age at marriage.

Table 34 shows that marriage is a strong social institution in Turkey. More than 90 per cent of the population between the ages of 30 to 45 are married whereas this ratio is 50-60 per cent and 15 to 20 per cent for ages 20-24 and 15-20, respectively. At earlier ages there is a marked difference between the ratio of married men and women since men tend to marry in later ages. As can be seen, the percentage of married men at ages 15-19 changes between 8 to 19 per cent whereas this ratio is 20-40 per cent among women. A similar situation may be observed for the ages 20-24.

Table 33. Share of the married population in total population of child-bearing ages

(Percentage)

Year	Male	Female	Total
1945	55.74	71.75	63.88
1955	65.83	78.02	71.76
1960	68.19	80.27	74.04
1965	65.25	78.17	71.59
1970	62.05	74.05	67.97
1975	59.90	71.17	65.34
1980 a/	62.62	72.12	67.17

Source: General Censuses of Population, Government of Turkey, Prime Ministry, State Institute of Statistics.

a/ One per cent sample results of the 1980 Census of Population.

Table 34. Share of the married population by age group
(Percentage)

	Age groups						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
TOTAL							
1945	19.61	58.97	83.03	89.28	90.48	87.44	78.05
1955	27.71	66.79	85.72	90.56	91.45	89.72	87.12
1960	23.40	65.69	88.07	93.22	93.82	91.56	90.07
1965	18.13	62.34	87.82	94.09	94.49	92.95	90.35
1970	16.57	58.35	85.88	90.61	93.46	91.80	90.77
1975	14.81	54.55	82.65	87.00	92.71	90.15	90.89
1980 a/	14.48	53.41	86.46	94.01	95.09	94.30	93.47
MALE							
1945	19.09	41.98	73.10	87.36	91.51	92.38	92.76
1955	17.66	50.94	80.61	90.43	92.43	92.75	92.15
1960	15.02	48.44	82.12	92.19	94.57	94.44	94.12
1965	10.01	43.29	81.04	92.80	95.01	95.40	94.59
1970	9.88	40.79	79.57	89.91	93.47	93.34	93.84
1975	8.79	39.02	76.82	84.29	92.56	91.70	94.22
1980 a/	7.95	37.35	82.14	94.00	95.92	96.65	96.52
FEMALE							
1945	25.82	78.35	90.80	91.29	89.39	82.65	62.45
1955	39.23	84.04	90.52	90.69	90.48	86.47	81.53
1960	33.29	83.70	93.92	94.29	93.00	88.90	69.76
1965	27.33	82.70	93.98	95.38	93.94	90.39	85.95
1970	23.84	77.73	91.93	91.22	93.45	90.23	87.26
1975	21.43	71.79	89.09	89.87	92.86	88.54	87.23
1980 a/	21.38	71.57	91.09	94.02	94.21	91.85	88.99

Source: General Censuses of Population, Government of Turkey, Prime Ministry, State Institute of Statistics.

a/ One per cent sample results of the 1980 population census.

The highest proportion of the married population is in the 35-39 and 30-34 age groups for men and women, respectively. These groups show a pattern similar to the other age groups. The declining ratio of the married population after 1965 should, to a certain extent, be attributed to the rising ratio of the single population.

The declining share of the 15-19 age group in the married population since 1965 indicates that the age at first marriage has been rising. Post-war conditions (demobilization) and the relative improvement of economic conditions, especially in rural areas, led to earlier marriages and a consequent downward trend in the mean age of first marriage. The slight upward trend of the mean age of first marriage after 1965 may be explained by the rising standard of living and the resultant increase in school enrolment, the increasing proportion of women participating in the labour force, the growing rate of urbanization and, to a certain extent, the increasing inflationary pressures.

That change, though minor, has shown a similar trend in urban and rural areas alike.

In Turkey there is a marked difference between the mean age at first marriage of men and women. Men are inclined to marry later than women by 3-4 years; in urban areas this difference is closer to 5 years. Aside from the traditional conception of men as the provider, the difference can also be attributed to compulsory military service for all men in Turkey.

In general, marriages occur before the age of 25. Singulate ages at marriage calculated by taking into consideration marriages after the age of 25 give a higher value. Therefore it has been suggested that calculating the mean age at first marriage for those below the age of 25 may yield more plausible results. Employing the results of the 1968 and 1978 surveys the mean age at first marriage of the women married before the age of 25 by national total and places of residence are given in table 36. As may be observed, there are marked differences between tables 35 and 36. From both studies it is evident that women tend to marry in later ages in metropolitan areas and in large cities.

It may be claimed that the rises in the mean age at first marriage, however minor, have shortened the child-bearing period of women and thus has contributed to a decline in fertility. It could also be argued that this phenomenon is an implicit indicator of a more basic change in attitudes towards marriage. It would not be far off the mark to presume that people of older ages enter matrimony with better defined expectations and, it may be, even with preconceived fertility schedules.

2. Patterns and trends of marital fertility

Marriage patterns in a society influence population variables while themselves are being influenced by social and economic development. In the present section, patterns and trends in marital fertility will be analysed.

Table 35. Singulate mean age at first marriage

Year	Male			Female		
	Total	Rural	Urban	Total	Rural	Urban
1935	23.1	22.5	25.3	19.7	19.4	21.3
1945	23.7	--	--	19.6	--	--
1950	22.7	--	--	19.3	--	--
1955	22.6	22.1	24.0	18.9	18.6	20.3
1960	22.7	21.8	24.2	19.2	18.9	20.2
1965	23.4	22.4	24.5	19.6	19.2	20.4
1970	23.2	22.4	24.3	19.8	19.5	20.2
1975	23.6	--	--	20.4	--	--

Source: United Nations, Demographic Transition and Socio-economic Development, Population Studies, No. 65, (United Nations publication, Sales No. E.79.XIII.2).

Table 36. Mean age at first marriage of women married before the age of 25

Locality	1968	1978
National Total	17.1	17.7
Metropolitan areas	18.5	18.5
Large cities		18.4
Medium cities	17.6	17.9
Small cities		18.1
Districts	17.2	17.3
Large villages		17.2
Medium villages	16.2	16.9
Small villages		17.7

Source: Turkish Demography Survey, 1968 and Turkish Fertility Survey, 1978.

As was mentioned earlier, it can be assumed that virtually all births in Turkey occur to married couples. This being so, all Turkish fertility is fertility within marriage for which an appropriate measure of trends would be an index of marital fertility. It may also be useful to measure the level of marital fertility and its trend. A substantial number of births occur in marriages that are not conducted under an official register. However, the sources of data employed are not official records but results of censuses and surveys that are based on the declarations of people. Besides, at different intervals, laws are passed with the purpose of legally registering such marriages and births occurring to them. Since the establishment of the Republic 2,730,937 such marriages and 10,000,272 births were registered.

A suitable index of marital fertility is total marital fertility (TMF). TMF measures the average number of births women would have if they lived in a continuously married state from age 15 through 49.

The difference between total marital fertility and total fertility rate (TFR) - which is necessarily lower - results from women spending part of their reproductive years unmarried. The greater the extent of non-marriage during those years, the greater the difference between TMF and TFR. An index of proportions married, C_m, captures this factor (Bongaarts, 1978) as:

$$C_m = \frac{m(a)g(a)}{g(a)}$$

m (a) is the schedule of proportions married, by age (a) and,

g (a) is the age specific marital fertility rates for the ages (a), of reproduction.

When all women are married at all ages from 15 through 49, the value of the index is 1; when none is married, it is zero.

So long as there are no births outside marriage, the marriage index is a direct link between TMF and TFR, i.e., TFR = C_m (TMF). This relationship allows TMF to be estimated when the other two variables are already known, as in the case of Turkey. The results of all three indexes are presented in table 37 (F.C. Shorter and M.Macura, 1982).

Factoring the total fertility rate into two components, marriage and marital fertility, shows how the fertility came about. Although the exact date of turning points is impossible with the data available, the decline in marital fertility appears to have begun about 1950. The proportion married, however, was rising at the time and continued to rise for perhaps a half or a full decade. By around 1960, though, the marriage index also began to decline. Because of later timing in the marriage turnabout, the decline of total fertility did not get securely under way until about the mid 1950s.

Table 38 below shows the approximate relative contribution of the two factors to the decline of total fertility.

Table 37. National fertility indexes, 1935-1975

Period	Total fertility rate	Index of marriages	Total marital fertility
1935-40	6.66	.747	8.92
1940-45	6.55	.753	8.70
1945-50	6.85	.766	8.94
1950-55	6.85	.784	8.74
1955-60	6.54	.793	8.25
1960-65	6.10	.782	7.81
1965-70	5.63	.764	7.37
1970-75	5.05	.740	6.82

Source: F.C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

Table 38. Contribution of marriages and marital fertility to total fertility

	Total fertility rate	Index of marriage	Total marital fertility
1935-1940	6.66	.747	8.916
1945-1950	6.85	.766	8.943
Annual percentage rate of increase	0.28	0.25	0.03
Relative contribution to the increase in TFR(%)	100	89	11
1950-1955	6.85	.784	8.740
1970-1975	5.05	.740	6.820
Annual percentage rate of decline	1.52	0.29	1.24
Relative contribution to the decline in TFR(%)	100	19	81

Note: The periods for 1935-1940 and 1945-1950 are prepared on the basis of table 37; the rest is taken from Shorter and Macura, 1982.

The greater contribution to changes in marital fertility after 1950, accounting for 81 percent of the decline in total fertility, suggest that voluntary control of fertility within marriage has been more important than the reduction in the prevalence of a married state during the reproductive ages whereas the contribution of changes in the TMF was almost negligible before 1950. Nevertheless, the marital status of the female population remains an important factor. It accounted for 19 per cent of the decline up to 1970-1975, and the currently high marriage proportions make it a potential factor for future developments.

C. Fertility

1. Changes in fertility before 1960

In general, marriage is the determining factor for a woman's fertility. Voluntary and natural controls also affect fertility.

Theoretically, societies that practice no deliberate birth control reach a natural fertility schedule. The best known of such societies are the Hutterites, living in Northern America between the United States of America and Canada. The total fertility rate of the Hutterites is above 12 (12.440) (Coale, 1971).

Although the total fertility rate of the Hutterites is extremely high, it is still considerably lower than the theoretical biological limitations. Since a woman is fertile about 30 or more years she is physiologically capable of having more than 12 children. In fact, J. Bongaarts (Population and Development Review, vol. 1, No. 2, 1975) suggests that the upper limit may reach 40 children per woman.

Even in societies having a natural fertility schedule, owing to factors such as post-partum amenorrhea, which is usually related to the duration of lactation, coital frequency, sterility, involuntary wastages and gestation period, the biological limits are never realized.

Age-specific standard natural fertility rates are calculated by Coale and Trussell by taking into consideration parities for the average duration of marriage for age groups from 10-14 to 45-49.

With the age-specific standard natural fertility rates given above as the basis, standard fertility rates for Muslim societies, for example, can be calculated. Using pertinent data, a correction factor for marriage misreporting was calculated and by applying that factor to the rates in table 39, age-specific standards fertility rates for a Muslim society was obtained (see table 40).

Turkish fertility patterns in the 1930s and earlier are presumed to be similar to the schedule given in table 40 and started changing primarily from 1945-1950 onwards, moving linearly to the 1963 and consequent patterns. If these assumptions are considered valid, Turkey would be described as having a changing pattern of marital fertility that follows a cloclwise rotation (Shorter and Macura, 1982).

Table 39. Age-specific standard natural marital fertility rates

Age group	Natural marital fertility rate
10-14	.1350
15-19	.4112
20-24	.4694
25-29	.4418
30-34	.3988
35-39	.3226
40-44	.1668
45-49	.0252
Total fertility rate	
10-49	11.8530
15-49	11.1790

Source: Population Index, vol. 41, No. 2 (Office of Population Research, Princeton University; and Population Association of America, Inc., 1975), p.186, table 1.

Table 40. Age-specific standard natural fertility rates

Age group	Standard natural fertility rate
15-19	.429
20-24	.490
25-29	.461
30-34	.416
35-39	.336
40-44	.174
45-49	.026
Total natural fertility rate	11.660

Source: Population Index, vol.41, No.2 (Office of Population Research. Princeton University; and Population Association of America, Inc., 1975), p.203, table 8.

In Turkey, a pro-natalist policy was in effect until the 1960s. Heavy losses in the population preceding the establishment of the Republic, explained earlier, led to measures aimed at increasing the quantity and quality of the population. Incentives such as awarding money and medals to women having more than six children, tax reductions, child support and birth aid to government employees were implemented. In addition, the use of contraceptives was limited. Naturally, religious convictions also took their toll. The combination of those factors contributed to rapid population growth and high fertility levels until the 1960s.

As was mentioned earlier, the marital fertility rate began to level off and decreased after the 1950s and the total fertility rate only after 1955. The TMF, which was 8.94 during 1945-1950, became 8.74 and the TFR, which was 6.85 during 1950-1955, declined to 6.54 during 1955-1960 (see table 37).

It is suggested that the decline in fertility that set in before 1960 could be explained, not by changes in marital structure, but rather, by changes in age structure and the practice of some types of birth control (Berksan 1971 and Shorter, 1971).

2. Development in contraceptive use

A sensitivity towards population issues developed after the 1960s, especially after the beginning of the plan period and a change in population policies was foreseen. Four surveys were conducted between 1959 and 1963 with the purpose of determining the demographic structure of the country. Information on fertility and mortality as well as on the attitudes and practices of contraceptive use was collected (Fisek, 1971).

Consequently, a policy aiming at a controlled growth of population was adopted and, as mentioned, with the passing of the bill pertaining to population and family planning, the prohibition on the use of contraceptives was lifted.

In addition to the quinquennial population censuses, demographic surveys in 1963, 1968, 1973 and 1978 were conducted in order to supply the necessary data to policy makers and planners.

There seems to be a significant difference between the desired (ideal) and the actual number of children families have. According to the results of the four maternal demographic surveys mentioned above, the desired number of children was 3.18, 3.24, 2.61 and 3.03 for 1963, 1968, 1973 and 1978, respectively (Ozbay, 1975 and 1978 TFS). Although a fluctuation is observed, it can safely be said that the desired number of children is around 3 in Turkey. The actual number of children desired by currently married women according to their ages are presented in table 41 below. As may be seen, the number of children desired by younger women is less than 3.03, the mean value for Turkey, and it is considerably higher than that for women above the age of 30.

Table 41. Mean number of children desired by currently married women, 1978

By current age		By number of living children	
Current age	Number of children desired (mean)	Living children	Number of children desired (mean)
20	2.83	0	2.82
20-24	2.80	1	2.72
25-29	2.88	2	2.73
30-34	3.17	3	2.91
35-39	3.23	4	3.13
40-44	3.18	5	3.39
45 and above	3.25	6	3.50
		7	3.98
TOTAL		8	3.75
		9 and more	4.50
		TOTAL	3.03

Source: Turkish Fertility Survey, 1978.

There is a linear relationship between the desired and the living number of children. The women with one living child declare that they desire and prefer 2.82 children on the average whereas women with more than 9 living children claim that the ideal number of children for them is 4.50.

None the less, in general, it can be said that families have more children than they desire and their preferences is towards small families.

The results of the four national surveys 1963, 1968, 1973 and 1978 mentioned earlier also reveal the changes in contraceptive use in Turkey in the past 15 years.

The data suggest that traditional birth control devices were used to a certain extent even before the legalization of contraception in 1965. However, the impact of legalization and the consequent accessibillity is obvious. The effectiveness of the contraceptive "mix" has also improved with an increase in the number of women using modern methods. None the less, the practice of withdrawal still seems to be substantial.

Another dimension that must be considered is contraceptive use among married women by age groups. As may be seen from table 43 the proportion of women using some type of contraceptive method is increasing in all age groups except the 40-44 age group. While the difference between the 1973-63 is + 71 for those below the age of 20, it reaches + 201 for the 35-39 age group. It is suggested that the smallness of the difference for the 40-44 age group may be attributed to the unsystematic age misreporting between different studies.

3. Changes in fertility after 1960s

In censuses of population, data is collected and compiled by administrative divisions. By utilizing special tabulations of the 1965 census, Shorter has estimated fertility by provinces for a reference date around 1960 (see table 44).

Shorter, 1982, maintains that variation in age misreporting, child mortality within regions of the TDS, and census coverage between 1960 and 1965 may all be possible sources of error in provincial estimates. None the less, the broad tendencies of the results by province are probably valid and are a valuable complement to other social data at the provincial level. Infant mortality rates by provinces are also presented in table 44, as was the case in the original source, owing to a similar consideration.

However, Shorter, 1982, suggests that a subdivision along socio-economic dimensions would probably be more illuminating for the analysis of fertility differentials and changes and that census and survey reports typically do not exploit that potential. Furthering the modest soci-economic dimension that may be introduced by making an urban-rural distinction, he suggests six dimensions (see Map III). In his study, Istanbul and Izmir were combined into a single large division in order to create a sample size large enough for estimating the mortality parametres that are used for indirect estimation. Ankara was not included in that division because studies of fertility at the

Table 42. Contraceptive use among married women of child-bearing age

Contraceptive method	1963	1968	1973	1978 a/
IUD	0	1.6	2.3	4.0
Pill	1.0	2.2	4.3	5.6
Condom	4.3	4.4	4.7	8.1
Withdrawal	10.4	18.0	23.6	22.2
Other	12.0	12.9	10.1	14.5

Source: F. Özbay, 'Türkiye'de 1963, 1968 ve 1973 Yillarinda Aile Planlamasi Uygulamalarinda ve Dogurganliktaki Degismeler' (Changes in use of family planning and fertility in Turkey for the years 1963, 1968 and 1973). Paper presented at the Second Conference on Turkish Demography, Cesme, September 1975 and Turkish Fertility Survey, 1978.

a/ Women in child-bearing ages and at a risk.

Table 43. Contraceptive use among married women using any method, by age group (per thousand)

Years	Age at interview					
	-20	20-24	25-29	30-34	33-39	40-44
1963	89	153	259	279	241	175
1968	160	247	303	416	369	320
1973	160	281	435	458	442	314
Difference						
1973-1963	71	128	176	179	201	139

Source: F. Özbay, F. Shorter and S. Yener, "Accounting for the trend of fertility in Turkey", Demographic transition and Socio-economic Development, Population Studies No. 65 (United Nations publication, Sales No. E.79.XIII.2).

Table 44. Infant mortality and fertility indexes by province, circa 1967 and 1960

Province	Infant mortality, around 1967 (per thousand births)			Fertility, around 1960	
	Rural	Urban	Total	Crude birth rate (per thousand)	Total fertility rate (per woman)
(1)	(2)	(3)	(4)	(5)	(6)
1. Adana	128	123	125	46.7	7.10
2. Adıyaman	136	148	139	58.4	7.97
3. Afyon	189	149	180	49.2	6.91
4. Ağrı	149	146	148	59.9	9.19
5. Amasya	218	174	206	41.1	5.67
6. Ankara	177	134	147	40.5	5.52
7. Antalya	110	118	112	46.5	6.68
8. Artvin	165	136	161	44.8	6.15
9. Aydın	137	117	131	35.5	4.75
10. Balıkesir	160	121	148	35.5	4.83
11. Bilecik	173	162	169	35.8	4.72
12. Bingöl	146	170	150	63.5	9.40
13. Bitlis	134	140	136	65.0	10.10
14. Bolu	157	130	152	40.9	5.65
15. Burdur	144	123	138	41.0	5.83
16. Bursa	173	138	158	33.9	4.45
17. Çanakkale	142	116	136	32.4	4.52
18. Çankırı	192	149	184	52.6	7.10
19. Çorum	215	181	208	50.5	6.74
20. Denizli	148	118	140	42.1	5.68
21. Diyarbakır	136	144	139	56.4	8.59
22. Edirne	190	149	177	37.4	5.19
23. Elazığ	164	167	166	55.5	7.86
24. Erzincan	173	157	169	53.8	7.74
25. Erzurum	214	210	213	51.4	7.32
26. Eskişehir	195	146	171	40.7	5.71
27. Gaziantep	133	132	133	48.0	6.86
28. Giresun	115	104	113	53.7	7.27
29. Gümüşhane	182	159	179	53.8	6.78
30. Hakkari	140	136	139	67.7	10.56
31. Hatay	120	105	114	50.7	7.68
32. Isparta	158	116	144	40.0	5.86
33. İçel	141	122	132	43.8	6.54

Table 44. (continued)

Province	Infant mortality, around 1967 (per thousand births)			Fertility, around 1960	
	Rural	Urban	Total	Crude birth rate (per thousand)	Total fertility rate (per woman)
(1)	(2)	(3)	(4)	(5)	(6)
34. Istanbul	135	126	131	23.1	3.04
35. Izmir	130	121	126	29.8	3.99
36. Kars	197	170	192	58.0	8.84
37. Kastamonu	168	122	161	40.3	5.43
38. Kayseri	175	146	164	52.3	7.35
39. Kırklareli	196	140	178	35.1	5.13
40. Kırşehir	156	128	150	59.3	8.51
41. Kocaeli	143	131	137	35.1	4.96
42. Konya	167	142	159	51.3	7.37
43. Kütahya	183	159	178	37.2	4.84
44. Malatya	139	129	135	56.7	8.14
45. Manisa	145	132	141	36.1	4.93
46. Maraş	131	131	131	55.1	8.01
47. Mardin	125	129	126	60.1	8.65
48. Muğla	112	92	109	40.1	5.71
49. Muş	158	143	155	64.5	9.61
50. Nevşehir	151	142	149	54.1	7.54
51. Niğde	179	157	174	54.7	7.76
52. Ordu	137	121	134	58.8	7.49
53. Rize	101	101	101	52.1	7.05
54. Sakarya	139	127	136	40.3	5.72
55. Samsun	160	147	157	46.7	6.51
56. Siirt	142	134	139	61.9	8.98
57. Sinop	165	124	159	45.3	6.34
58. Sivas	198	170	191	54.6	7.44
59. Tekirdağ	175	142	164	35.1	5.05
60. Tokat	207	174	199	51.1	6.96
61. Trabzon	91	96	92	53.1	7.20
62. Tunceli	135	123	132	63.2	9.41
63. Urfa	109	118	113	56.8	8.15
64. Uşak	198	164	187	42.4	5.66
65. Van	155	127	147	63.5	9.52
66. Yozgat	169	149	166	54.0	7.54
67. Zonguldak	167	124	155	41.8	5.90
TOTAL	157	134	149	45.1	6.30

Source: F.C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

Map 3. Urban-rural and regional divisions of Turkey

Division: Urban (10,000-)
1. Istanbul and Izmir
2. Other west
3. Central and east

Rural (10,000)
1. West
2. Central
3. East

level of individual cities conducted in 1966-67 (TDS) show that Ankara had substantially higher fertility than either Istanbul or Izmir, which are cities similar in population size. The rank order was: (a) the cities of Istanbul and Izmir, (b) other urban areas (populations of 10,000 and over) and (c) rural areas (population under 10,000).

Table 45 represents a summary of population size and growth by divisions to set the background information for that analysis.

Crude birth rates for these divisions, estimated by using a method that depends upon an age distribution from a single census and child mortality for the period immediately preceding the census at five-year intervals, are presented in table 46.

In tables 47, 48 and 49, additional measures of fertility and marriage are presented to show urban-rural differentials that seem to have persisted in Turkey for some time. These appear to have been narrowing over the period covered, owing both to a slight rise iun urban fertility and to a decline in rural fertility. Shorter explains the rise in urban fertility since 1945 as a genuine finding and not as a statistical artefact connected with the definitions of urban and rural areas. During that period the urban population's age at first marriage and the prevalence of widowhood dropped.

In addition, substantial streams of migration to the cities of people with rural origins probably tended to raise the average level of urban fertility. For the components of urban fertility, see table 49.

4. Findings of the Turkish Fertility Survey on patterns and trends of fertility

The national nuptiality, marital fertility and age specific fertility rates recapitulated for 1960, 1968, 1973 and 1978 based on demographic surveys are presented in table 50. As may be observed, the proportion of currently married women in ages below 30 is decreasing while the reverse is true for ages above 30. On the other hand, age specific fertility rates of married women tend to decline for all ages. Fertility decline in younger age groups may be said to be in parallel with the proportion of married women in the ages. However, since the share of married women in older ages has increased other fertility reducing factors and, if table 43 is taken into consideration, to a certain extent expansion of contraceptive use among older women must have had some effect in that decline.

In the preceding sections the general trends and patterns of nuptiality and fertility in Turkey was discussed to a certain extent. A that stage, presentation of the findings of the most recent survey, namely, the Turkish Fertility Survey of 1978, seems to be in order

The distribution of ever married women under the age of 50, by the number of children ever born, is presented in table 51. One of the most striking points in the table is the fact that only 10 per cent of the ever married women never had any children. That ratio drops to 5 per cent in women within

Table 45. Population size and growth by six divisions, 1940-1970

Population unit	Census					
	1945	1950	1955	1960	1965	1970
Part A. Population size (in millions)						
National	18.8	20.9	24.1	27.8	31.4	35.6
Urban						
Istanbul-Izmir	1.06	1.21	1.57	1.83	2.15	2.77
Other west	.93	1.08	1.45	2.16	2.78	3.74
Central and east	1.45	1.61	2.37	3.28	4.41	6.21
Subtotal	3.44	3.90	5.39	7.27	9.34	12.72
Rural						
West	6.22	6.68	7.24	7.76	8.17	8.28
Central	5.47	6.12	6.67	7.39	7.99	8.26
East	3.66	4.25	4.77	5.34	5.89	6.33
Subtotal	15.35	17.05	18.68	20.49	22.05	22.87
Part B. Percentage of total population						
Urban						
Istanbul-Izmir	5.6	5.8	6.5	6.6	6.9	7.8
Other west	5.0	5.1	6.0	7.8	8.9	10.5
Central and east	7.7	7.7	9.9	11.8	14.0	17.4
Subtotal	18.3	18.6	22.4	26.2	29.8	35.7
Rural						
West	33.1	31.9	30.1	28.0	26.0	23.3
Central	29.1	29.2	27.7	26.6	25.5	23.2
East	19.5	20.3	19.8	19.2	18.8	17.8
Subtotal	81.7	81.4	77.6	73.8	70.2	64.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

Table 46. Estimated crude birth rates by six divisions, 1945-1968 (per thousand population)

Approximate date of estimate	Urban			Rural			National
	Istanbul and Izmir	Other west	Central and east	West	Central	East	
1945	18.7	26.0	32.8	39.2	56.5	56.0	45.2
1950	21.0	28.5	35.0	40.6	55.5	57.4	46.2
1955	22.5	29.8	36.8	42.2	55.0	59.8	46.7
1960	22.9	29.7	37.5	41.0	51.4	58.2	44.6
1965	22.8	28.9	37.0	38.5	48.9	56.2	42.3
1968	22.6	28.7	36.4	37.1	47.8	55.3	40.7

Source: F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

Table 47. Proportions married females by divisions of the population and standard marital fertility schedule, 1945-1968

Age group	Proportions married						Marital fertility[c/]
	1940[a/]	1950[a/]	1955	1960	1965	1968[b/]	
Istanbul and Izmir							
15-19	.143	.186	.232	.201	.192	.201	17.1
20-24	.503	.570	.647	.661	.653	.660	30.5
25-29	.680	.740	.785	.819	.843	.840	25.4
30-34	.778	.794	.830	.857	.881	.892	15.8
35-39	.780	.803	.814	.850	.869	.879	8.4
40-44	.733	.779	.797	.816	.834	.848	2.2
45-49	.662	.642	.730	.771	.775	.780	.5
Other urban							
15-19	.199	.241	.305	.276	.238	.232	21.6
20-24	.728	.757	.781	.791	.776	.763	29.3
25-29	.884	.886	.887	.910	.916	.913	22.1
30-34	.913	.914	.915	.928	.939	.940	12.8
35-39	.886	.895	.903	.918	.926	.932	9.6
40-44	.820	.840	.861	.876	.891	.897	3.9
45-49	.738	.769	.800	.829	.837	.846	.7
Rural							
15-19	.277	.336	.425	.360	.294	.279	19.6
20-24	.816	.849	.876	.867	.864	.848	23.6
25-29	.926	.928	.929	.959	.958	.953	20.4
30-34	.920	.921	.922	.959	.966	.964	17.7
35-39	.906	.916	.924	.947	.953	.954	13.2
40-44	.839	.860	.881	.904	.917	.922	4.6
45-49	.773	.805	.838	.873	.879	.886	1.0

Source: F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

a/ With the exception of Istanbul and Izmir, for which separate census data are available, estimates for 1945 and 1950 are based on the assumption that proportions married changed in each age group in each division from 1945 to 1955 in the same proportions as they changed in the national population.

b/ Based on interpolation between 1965 and 1970.

c/ From the National Population Survey of Turkey, 1963.

Table 48. Fertility and marriage indexes by divisions, 1945-1968

Date	Fertility and marriage indexes					First marriage indexes	
	Crude birth rate	Births (thousands)	Total fertility rate	Index of marriages	Total marital fertility	Proportion single (15-19)	SMAM[a/]
Istanbul Izmir							
1945	18.7	20	2.41	.558	4.32	.851	22.4
1950	21.0	25	2.65	.607	4.37	.808	21.5
1955	22.5	15	2.91	.657	4.43	.761	20.8
1960	22.9	42	2.96	.673	4.40	.792	21.1
1965	22.8	49	3.04	.681	4.46	.804	21.0
1968	22.6	45	2.99	.686	4.36	.785	21.1
Other urban							
1945	30.1	72	4.36	.691	6.31	.796	20.6
1950	12.4	87	4.31	.711	6.06	.754	20.1
1955	14.2	131	4.60	.734	6.27	.690	19.6
1960	14.4	187	4.72	.759	6.39	.719	19.9
1965	33.9	243	4.78	.731	6.54	.759	20.2
1968	33.5	281	4.70	.726	6.47	.772	20.5
Rural							
1945	49.4	758	6.99	.765	9.14	.718	19.5
1950	50.1	855	6.84	.787	8.69	.659	18.9
1955	51.3	957	6.86	.814	8.43	.568	18.5
1960	49.2	1009	6.82	.816	8.36	.635	18.9
1965	47.0	1036	6.78	.805	8.42	.703	19.5
1968	45.9	1028	6.73	.797	8.44	.736	19.8

Source: F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

a/ Refers to cohort passing age 15 during the five years preceding the date shown. Estimates of SMAM have an upward bias of up to one half year.

Table 49. Components of urban population growth, 1945-1970 (thousands) a/

Component	1945-1950	1950-1955	1955-1960	1960-1965	1965-1970	Total (millions)
Total increase	459	1.941	1.882	2.072	3.381	9.3
Births	510	695	988	1.303	1.680	5.2
Deaths	-329	-374	-454	-527	-600	-2.3
Natural increase	181	321	534	776	1.080	2.9
Reclassification	50	210	330	390	650	1.6
Migration	228	960	1.018	906	1.651	4.8
International	14	56	54	-121	-201	-0.2
Internal	214	904	964	1.027	1.852	5.0
Annual percentage growth rate	2.5	6.5	6.0	5.0	6.2	

Source: F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

a/ This table is based on Tekce's (1974) chapter on the components of urban population growth from 1935 to 1970. The most problematic estimates are the allocations of international migration to the urban or rural populations. For 1945-1960, Tekce divided international migration into urban and rural destinations on the basis of information on resettlement locations in Turkey for immigrant Turks. For 1960-1975, she used reports of the worker recruitment services to divide into urban and rural origins.

Tekce's estimates of the components of urban growth are revised here by using birth rates from the present report. Her death rate is the TDS estimate for 1966-67 (11 per thousand) extended backward in time by linear interpolation to an assumed value of 18 per thousand during 1945-1950. The assumed decline in the death rate was less steep in urban and rural Turkey, consistent with the estimates in figure IV. The net balance of internal rural-to-urban migration is an unknown in the overall balance equation for each period and is therefore estimated as a residual. Errors in other components affect the internal migration estimate.

Table 50. Nuptiality, marital fertility and age-specific fertility rates

Age group	Proportion of currently married women				Marital fertility rate				Age-specific fertility rates			
	1960	1968	1973	1978	1960	1968	1973	1978	1960	1968	1973	1978
15-19	.333	.286	.239	.217	.294	.254	.289	.323	.098	.073	.069	.093
20-24	.839	.790	.763	.720	.374	.334	.347	.348	.314	.244	.245	.259
25-29	.441	.939	.924	.905	.327	.301	.290	.245	.308	.283	.268	.218
30-34	.946	.924	.959	.935	.256	.242	.213	.170	.242	.224	.204	.154
35-39	.933	.942	.952	.952	.203	.194	.147	.116	.189	.183	.140	.101
40-44	.893	.905	.983	.927	.082	.097	.048	.024	.073	.088	.045	.038
45-49	-	-	-	.694	.014	.014	.010	-	.012	.012	.009	.002
Total rates	-	-	-	-	7.75	7.18	6.72	6.14	6.18	5.64	5.00	4.33

Source: 1) F. Özbay, "Türkiye'de Doğurganlık Düzeyine ve Değişmelerine Etki Eden Ara Değişkenler; Türkiye'de Nüfus Yapısı ve Sorunları, 1973 Araştırması", Hacettepe Üniversitesi Yayınları, D-25, 1978

2) F. Özbay, F. Shorter and S. Yener, "Accounting for the trend of fertility in Turkey", Demographic Transition and Socio-economic Development, Population Studies no. 65 (United Nations publication, Sales No. E.79.XIII.2).

3) Turkish Fertility Survey, 1978.

Table 51. Distribution of ever-married women according to the number of children ever-born by current age

(Percentage)

Current age	0	1-2	3-4	5-6	7-8	9	Mean	Mean for currently married women
20	49.3	47.6	3.2	-	-	-	0.67	0.67
20 - 24	16.4	56.3	24.1	3.1	.1	-	1.81	1.83
25 - 29	6.1	37.6	37.7	15.7	2.3	.5	2.99	3.00
30 - 34	4.1	19.6	34.1	23.7	13.5	4.9	4.28	4.31
35 - 39	2.0	12.0	26.6	25.0	19.7	14.7	5.48	5.51
40 - 44	2.9	9.1	24.4	23.9	19.0	21.6	5.96	6.01
45 - 49	2.4	9.6	20.2	22.0	19.8	25.6	6.30	6.43
All Ages	9.6	28.4	26.4	16.6	10.2	8.8	3.94	3.93

Source: Turkish Fertility Survey, First Report, vol. II, 1982.

the 25-34 age group and to 2-3 per cent in older ages. This suggests that primary sterility is quite low in Turkey. When women at all age groups are considered, the average number of children ever born is 3.94.

The average number of children born to women of ages 45-49, i.e., those who have completed their fertility is 6.30. The average number of children born increases regularly with age; it is 0.67 for women younger than 20 and, as was mentioned, 6.30 for those 45-49 years of age. The differences in the average number of children is 0.5 and 0.34 between the ages 40 to 44 and 45 to .9, respectively. These values suggest that fertility extends over a long period of time in Turkey.

Early marital fertility

Owing to the difficulties encountered in obtaining data on dates of marriage and first births, the Turkish fertility survey could not attain the desired level of success in determining the patterns and trends regarding early marital fertility. None the less, its findings are presented in table 52.

Generally speaking, there appears to be a negative relationship between the age-at-marriage and first birth interval. While it is 26 months for those who marry before the age of 15, the interval decreases to 18 months for those who marry after 20 years of age. That pattern becomes more explicit when duration of marriage is controlled.

Although it is not very clear, data suggest a positive relationship between the number of children born in the first five years of marriage and age-at-marriage. However, for women who are married over 20 years, the average number of children born during their first five years of marriage is relatively low. This may be explained by the Potter effect rather than reflect a real situation.

Recent marital fertility

The Turkish fertility survey also offers data on births occurring in the past five years, i.e., recent marital fertility. Since the average number of children born in the past five years is calculated on the basis of women who have continuously been in the married state for the past five years, there is inevitably a heavy bias in favour of the young cohort of women who have married early. Naturally there is a relationship between the number of children born in the past five years and the age of women. However, when all age groups are taken into consideration, the age at marriage does not seem to have a significant effect. It is observed that as age-at-first-marriage gets higher, fertility gets lower for women 30 and over. It may be presumed that that phenomena originates from the social and economic levels of women who marry late.

The pregnancies reported during the survey may also be suggestive about recent fertility. The data on pregnancies by ages, are presented in table 53. The data appears to be consistent with birth data obtained from birth histories of women.

Table 52. Measures of early marital fertility by age at marriage and marriage duration

Age at marriage \ Marriage duration	Mean length of interval (months)				Births in first five years				Childless after five years			
	5-9	10-19	20 and over	All	5-9	10-19	20 and over	All	5-9	10-19	20 and over	All
< 15	24.0	24.1	27.9	25.8	1.79	1.90	1.45	1.65	11	11	28	20
15 - 17	19.0	22.2	24.0	21.3	2.00	1.91	1.78	1.89	7	9	15	11
18 - 19	16.2	19.0	20.6	18.8	1.97	1.96	1.88	1.93	8	6	10	8
20 -	16.8	16.9	19.9	17.7	1.75	2.06	1.96	1.93	10	8	8	8
All	18.4	19.9	23.5	20.8	1.91	1.97	1.74	1.86	8	9	16	12

Source: Turkish Fertility Survey, First Report, vol. II, 1982.

Table 53. Currently married women reporting a current pregnancy

Current age	20	20-24	25-29	30-34	35-39	40-44	45-49	All
Percentage pregnant	30.2	22.8	16.1	9.9	4.5	2.4	0.4	12.9

Source: Turkish Fertility Survey, First Report, vol. II, 1982.

Differentials in fertility

Rural-urban and regional differentials

There appears to be a marked difference in rural, urban and regional fertility (see table 55). Rural women between the ages of 25 and 34 have, on the average, more than one child in comparison with those living in urban areas. The difference for the same age group exceeds two children when eastern and western regions are compared. For the 35-44 age group, the urban-rural difference is, on the average, two children and the east-west difference reaches three children. The differences become pronounced for the 45-49 age group.

Table 54, below, also demonstrates the existence of rural-urban differentials within regions. For example, the number of children ever born to urban women is about 70 per cent of rural women, for the 35-44 age group. For the same age group, the urban-rural differentials observed in eastern Anatolia (highest fertility levels) and western Anatolia (lowest fertility levels) are considerably below that level. On the other hand, urban-rural differentials become more pronounced in the Mediterranean and central Anatolia regions. This renders regional differences more interesting. The difference between western and central Anatolia originates from rural areas rather than urban. On the other hand, the difference between central and eastern Anatolia should be attributed to urban areas. When eastern and western Anatolia are compared, there are marked differences in both areas.

The age-specific fertility measures given in table 55 suggest that the urban-rural and regional differences are of long standing. That becomes more apparent when completed fertility and total fertility rates are compared. Completed fertility is the fertility realized by women at 45-49 years of age throughout their child-bearing life span. On the other hand, total fertility is the number of children women will have at the end of their child-bearing ages, if age-specific fertility rates persist until then. For 1978, the TFR, found as 4.3, is 30 per cent lower than completed fertility rates, which was 6.3 children. The overall decline in urban and rural areas is a little more than in urban areas. Regionally speaking, the most marked difference between TFR and the completed fertility rate can be observed in western Anbatolia (above 4 per cent). In eastern Anatolia, however, it was below 30 per cent.

Table 56 shows the urban-rural and regional differences in age-specific fertility rates. Urban and rural age-specific fertility rates have similar patterns. In both areas, fertility reaches its peak between the ages of 20-24 and rapidly declines after the ages of 25-29.

Fertility differentials according to socio-economic variables

The differentials in fertility by different age groups and socio-economic background variables are given in table 57. The literacy rate and the level of education completed appear to be important variables in respect of fertility. The number of children ever born changes according to educational attainmenmt. Illiterate women below 25 have, on the average, one child more than those with primary school education. In completed fertility that difference reaches four children.

Table 54. Births in the past five years to women continuously in a married state for the past five years by current age, living children five years of age and age at first marriage

Current age	Living children five years ago				Age at first marriage				
	0	1-2	3-4	Five and older	15	15-17	18-19	Five and older	All
20		-	-	-	-	.	.	.	-
20-24	1.82	1.62	-	-	1.57	1.79	(1.67)	.	1.71
25-29	1.44	1.41	1.31	-	1.48	1.36	1.42	1.39	1.40
30-34	1.09	1.06	1.00	1.16	1.18	1.07	1.00	0.97	1.05
35-39	-	0.52	0.60	0.98	0.84	0.69	0.65	0.59	0.60
40-44	(0.14)	0.13	0.23	0.60	0.43	0.39	0.39	0.32	0.37
45-49	-	0.08	0.06	0.22	0.16	0.15	0.12	0.14	0.14
All	1.43	1.10	0.64	0.64	1.01	0.96	0.84	0.72	0.90

Source: Turkish Fertility Survey, First Report, vol. II, 1982.

Table 55. Various indices of differentials in fertility by type of place and region

		Children ever born by current age					Women with marriage duration 10-19 years			
		25	25-34	35-44	45-49	Total fertility rate (1978)	Children ever born	Births in first five years	Births in five years	Total marital fertility rate
		(1)[a/]	(2)	(3)	(4)[a/]	(5)[b/]	(6)[a/]	(7)[c/]	(8)[d/]	(9)[e/]
All		1.47	3.57	5.71	6.30	4.33	4.4	1.97	1.01	5.24
All urban		1.35	3.00	4.68	5.01	3.67	3.8	1.89	0.78	4.30
All rural		1.60	4.25	6.61	7.33	5.06	5.0	2.04	1.24	6.27
West	Total	1.21	2.69	4.42	5.10	2.89	3.5	1.82	0.59	3.69
	Urban	1.12	2.41	4.08	4.73	-	3.3	1.82	0.55	3.54
	Rural	1.37	3.26	4.70	5.68	-	3.8	1.83	0.66	3.92
South	Total	1.39	3.53	5.41	5.98	3.77	4.3	2.00	1.06	5.46
	Urban	1.16	3.29	4.79	(4.93)	-	3.9	1.94	0.89	4.63
	Rural	(1.72)	3.84	6.16	(7.43)	-	4.8	2.05	1.26	6.54
Centre	Total	1.45	3.55	5.67	6.07	4.26	4.2	1.88	0.97	5.11
	Urban	1.46	2.92	4.51	4.42	-	3.5	1.73	0.67	3.94
	Rural	1.44	4.39	6.71	7.35	-	5.0	2.00	1.32	6.28
North	Total	1.71	4.17	6.45	7.13	4.99	5.1	2.17	1.25	6.37
	Urban	(1.58)	3.24	(3.91)	-	-	(4.3)	(2.16)	(0.91)	4.26
	Rural	1.75	4.64	7.33	(7.48)	-	5.4	2.17	1.40	7.09
East	Total	1.73	4.77	7.72	8.76	6.31	5.7	2.18	1.53	7.43
	Urban	1.66	4.40	7.15	-	-	5.5	2.19	1.44	6.84
	Rural	1.77	5.04	7.97	8.82	-	5.9	2.17	1.58	7.74

a/ Children ever born.
b/ Total fertility rate for the year preceding the survey (approx. 1978).
c/ Including any births classified as premarital.
d/ Computed for women continuously in the married state for past five years.
e/ Total marital fertility rate, see section IV for a description of the measure.

Table 56. Age-specific fertility rates by type of place and region, 1978

Age group	Total	Type of place		Region				
		Urban	Rural	West	South	Centre	North	East
15-19	.093	.083	.101	.073	.042	.101	.078	.130
20-24	.259	.227	.299	.221	.207	.268	.341	.283
25-29	.218	.197	.254	.149	.248	.211	.149	.311
30-34	.154	.135	.173	.073	.129	.162	.260	.224
35-39	.101	.065	.134	.052	.082	.092	.104	.188
40-44	.038	.027	.047	.010	.045	.018	.066	.109
45-49	.002	.000	.004	.000	.000	.000	.000	.016
Total fertility rate	4.33	3.67	5.06	2.89	3.77	4.26	4.99	6.31

Table 57. Differentials in fertility by socio-economic background variables

	Children ever born by current age				Women with marriage duration 10-19 years		
	25	25-34	35-44	45-49	Births in first five years of marriage	Births in past five years	Total marital fertility rate
Women's education							
Illiterate	1.86	4.48	6.67	7.13	2.07	1.34	6.56
Literate	1.53	3.49	5.17	5.83	1.97	0.90	6.56
Primary	1.27	2.88	3.91	3.92	1.86	0.64	3.88
Higher	0.97	1.72	2.76	(3.13)	1.57	0.35	2.71
Husband's education							
Illiterate	1.89	4.84	6.95	7.28	2.13	1.44	6.95
Literate	2.04	4.46	6.22	6.89	2.08	1.21	6.23
Primary	1.47	3.42	5.46	5.87	1.92	0.96	5.23
Higher	1.13	2.37	3.48	3.78	1.77	0.47	3.24
Couple's literacy							
None literate	1.96	5.03	7.22	7.46	2.18	1.48	7.28
Only one literate	1.83	4.37	6.36	6.87	2.05	1.31	6.37
Both literate	1.27	2.76	4.20	4.43	1.84	0.64	3.90
Woman's work status							
Not working	1.38	3.41	5.17	5.38	1.94	0.95	5.00
Family farm	1.65	4.26	6.62	7.33	2.03	1.19	6.02
Other farming	(2.13)	4.23	5.76	(7.14)	2.13	1.13	5.97
Services	(1.00)	(1.93)	4.16	(4.77)	1.54	(0.61)	3.49
Industry	(1.44)	2.58	4.16	(4.50)	1.89	0.56	3.65
Husband's employment status							
Unpaid worker	1.26	3.65	(6.27)	-	(1.62)	(1.47)	(7.08)
Employee	1.44	3.29	5.26	5.57	1.94	0.94	5.04
Self-employed	1.73	4.25	6.24	7.02	2.03	1.14	5.87
Employer	1.56	3.11	5.29	(5.22)	2.00	0.79	4.64
Size of place							
Metropolitan	1.34	2.52	4.05	4.51	1.80	0.57	3.52
Large city	1.18	3.05	4.56	(5.07)	1.84	0.82	4.34
Medium city	1.51	3.16	4.78	(5.76)	2.05	0.74	4.51
Small city	1.55	3.12	5.23	(6.38)	1.97	0.87	4.84
Town	1.43	4.10	6.22	5.77	1.97	1.16	5.93
Small village	1.58	4.06	6.60	6.96	2.17	1.03	5.88
Medium village	1.66	4.34	7.10	8.07	2.02	1.37	6.57
Large village	1.64	4.45	6.23	7.23	1.99	1.34	6.44

When the literacy status of couples are taken into consideration, there seems to be marked differences in fertility levels.

Although it is not definite, women's educational attainment seems to be more important or, it may also be inferred that literate women marry men with better education.

The examination of the occupational status of women and men reveals certain interesting results. In the 35-44 age group the highest fertility, with 6.6 children, may be observed among women who work in agricultural holdings as unpaid family workers. That category is followed by those who work in other agricultural jobs, with 5.8 children. The total number of children for those women who work in industry and services is 4.2 and those women are usually employed in urban areas. In addition, the wives of men of 35-44 years of age who are self-employed have a high fertility of 6.2 children. That is considered quite normal, since the category "self-employed" comprises mostly those in the agricultural sector and those working in marginal jobs.

Although the total fertility rate appears to show a consistent decline, at least in the past ten years, the fertility rates by age groups may be somewhat affected by omissions, errors in the reporting of age and misplacement in the dates of birth of children. These aspects will be examined more closely in the following section on the analysis of fertility rates by cohorts and periods.

Examination of cohort period fertility rates

The examination of birth history data, through the calculation of fertility rates by cohort and period, is also useful in assessing the quality of fertility information, as well as providing a better understanding of present and past trends in fertility behaviour.

Table 58 shows the fertility rates by birth cohort and period, cumulative rates by cohort and period and ratios of cumulative rates. Panel A of the table shows cohort-period fertility rates of birth cohorts defined by five-year age groups at the time of the 1978 Turkish Fertility Survey (TFS) and for five-year periods before the date of that study. For example, the cohort aged 30-34 at the time of the TFS had a fertility rate of 200 births per thousand women-years of exposure in the five years preceding that survey. It should be noted that that measure is different from conventional age-specific fertility rates, as births to the cohort 30-34 in the period 0-4 years from the TFS have occurred to women aged 25-34 at the time of birth of the child. a span of ten rather than five years. That rate can be compared diagonally with the rate of 246 for the cohort 35-39 in the period 5-9 years from TFS, when that cohort was also moving through the ages 25-34. Comparison of cohort-period rates at equivalent ages traced diagonally from the upper left-hand corner of panel A to the lower right-hand corner in table 58 shows rather a continuous decline over time except for the cohorts 40-44 and 45-49. For example, the cohort-period rate of 282 for the cohort 45-49 in the period 25-29 years before the survey, increased to 259 and to 295 and then declined

Table 58. Fertility rates by birth cohort and period, cumulative rates by cohorts (P_i) and periods (F_i) and ratios of cumulative rates (P/F)

Age of cohort at survey	Years before the survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
A. Cohort period fertility rates (per 1,000 women)							
15-19	29						
20-24	204	60					
25-29	249	248	54				
30-34	200	293	264	72			
35-39	134	246	329	295	81		
40-44	70	172	268	337	259	64	
45-49	26	103	202	297	354	232	37
B. Cumulative rates for cohorts (P_1)							
15-19	0.15						
20-24	1.35	0.31					
25-29	2.76	1.52	0.28				
30-34	4.17	3.17	1.70	0.38			
35-39	5.44	4.77	3.54	1.89	0.42		
40-44	5.87	5.52	4.66	3.32	1.63	0.34	
45-49	6.26	6.13	5.61	4.60	3.12	1.35	0.19
C. Cumulative rates for periods (F_1)							
15-19	0.15						
20-24	1.17	0.30					
25-29	2.41	1.55	0.28				
30-34	3.41	3.01	1.60	0.36			
35-39	4.08	4.24	3.25	1.84	0.43		
40-44	4.43	5.10	4.59	3.53	1.72	0.33	
45-49	4.57	5.62	5.59	5.01	3.50	1.49	0.20
D. P/F ratios							
15-19	1.00						
20-24	1.14	1.03					
25-29	1.15	0.98	0.97				
30-34	1.22	1.05	1.06	1.05			
35-39	1.33	1.12	1.09	1.03	0.98		
40-44	1.32	1.08	1.02	0.94	0.95	1.01	
45-49	1.37	1.09	1.00	0.92	0.89	0.90	0.95

to 264, 248 and 204 for the younger cohorts going through equivalent ages in more recent periods. In the absence of an actual rise in fertility for the ages 20-30, those data suggest that the older cohorts have either omitted reporting some births, displaced dates of births towards the survey date or misreported their ages.

In panel B of table 58, cohort-period rates accumulated over time for each cohort are shown. Those values correspond to the mean parity that the cohort achieved at the end of each period and are denoted by P_i.

Cumulative cohort rates show clearly a decline in fertility across cohorts. For example, the cohort 25-29 had a mean parity of 2.76 at the time of TFS, compared with the mean parity of 3.17 for the cohort 30-34 five years earlier. The cohort 40-44 hjad a mean parity of 5.87 at the time of the survey, compared with a mean parity of 6.13 for the cohort 45-49 five years earlier.

Panel C of table 58 shows cohort period rates accumulated over cohorts for each time period. These values correspond to the cumulative fertility that a synthetic cohort would achieve if the period rates prevailed and are denoted F_j. Cumulative period rates show a clear decline in fertility over time which has accelerated in the past ten and particularly the past five years before the survey. For example, in the five years prior to the survey, cumulative fertility up to the ages 40 to 44 was 4.43 children, compared with 6.13 children up to an equivalent age in the period 5-9 years before the survey.

Panel D of table 58 shows the ratios of cohort (P) and period (F) cumulative fertility rates, so called P/F ratios. Since, in the absence of fertility change or reporting errors those ratios equal unity the P/F ratios are used as indicators of omission and displacement errors in reports of births or as measures of fertility change. The P/F ratio in panel D indicate a fairly large decline in fertility, this can be observed for younger and older cohorts, though the latter may indicate a slight amount of omission, displacement of births or age misreporting which require a close examination of data.

Table 59 shows the magnitude of the proportional decrease in fertility for the past three periods at various ages. The largest decrease in fertility between the most recent periods is in the 15-19 age group (51.7 per cent). That is likely due to a rising age at first marriage but also may indicate a slight omission of births for that cohort as an increase for the two periods before that is observed. However, total fertility is only slightly affected by that change. For other cohorts, fertility declines are more pronounced between the two most recent periods. Of more importance is the large decrease observed in the 40-44 age group which is higher than for any other group above 15-19. In general, it may be noted that the percentage decline shows rather a regular trend with age. Howqever, a more detailed examination of rates for each cohort and each period, required in order to probe whether the decreases in fertility, especially for the older cohorts is a real one. Some authors demonstrated that even small displacements of the date of births and

Table 59. Decrease in the cohort period fertility rates for more recent periods, by age at the end of each period

(Percentage)

Age at end of each period	Decrease between periods	
	5-9 to 0-4	10-14 to 5-9
15-19	51.7	-11.1 (increase)
20-24	17.7	6.1
25-29	15.0	10.4
30-34	18.7	8.2
35-39	22.1	14.9
40-44	32.0	-

Source: Sunday Uner, "Evaluation of the Turkish Fertility Survey, 1978", World Fertility Survey Scientific Papers, No. 43 (London, April 1983).

overestimates of the birth interval, when cumulated, may create an important bias in fertility rates (Potter, 1977; Brass, 1978 and 1980). If the type of displacement consists in the transfer of the children's birth dates towards dates closer to the survey, the age curve of fertility for the cohort will be displaced towards older ages.

If that bias is greater, the older cohort and the more distant the birth from the date of survey, the comparison between the fertility experienced by the adjacent cohorts will show a greater decrease than the real one for the most recent period.

While the omission seems to mostly affect births in more distant periods, displacement of births may also cause biases for the period close to the date of survey.

It must be expected that that type of displacement will lead to some heaping of the births during some periods. Potter demonstrated that such kind of heaping occurs rather in the 5-9 year prior to a survey, and to a lesser degree between 10 to 14 years. The total estimated fertility for those periods does not differ much (see table 58).

D. Patterns and trends of mortality

Mortality statistics, still very inadequate especially in terms of coverage, were collected for all province centres and published for only 25 until 1949 and from then on for all province centres until 1957. Since 1957 mortality statistics have been collected for all province and district centres by causes and age groups. After 1973, rural areas falling within regions where socialization programmes were put into effect have also been included. However, under-reporting of infant and old-age mortality renders the data collected from those regions unsatisfactory.

Consequently, in Turkey, where vital registration and vital statistics are far from satisfactory, changes in mortality rates are estimated indirectly, using the results of sampling surveys and by reverse projection methods utilizing census data, after 1970.

1. Changes in infant mortality

Although the crude birth rates in Turkey are almost comparable with those of developed countries, infant mortality rates are quite different. The marked difference between infant and adult mortality rates leads us to consider those separately.

According to mortality statistics collected from province and district centres, in 1955 infant deaths accounted for 24 per cent of the total. That ratio was 30 per cent and 29 per cent in 1965 and 1975, respectively. Naturally, the ratio of infant deaths are expected to be considerably higher in rural areas where, by comparison, nutritional conditions and services such as health and education are poorer.

The infant mortality rates calculated by indirect methods by different researchers of Turkish demography since 1935 using survey and census results are given in table 60.

F. C. Shorter has estimated infant mortality rates by employing the reverse survival method (Shorter and Macura, 1982). It was suggested that in 1935-1940, 273 babies out of every thousand used to die before completing first year of age. That rate is thought to have increased between 1940 and 1945 with the impact of the Second World War. Later, with the improvement of social and economic conditions, infant mortality rates declined to 126 per thousand in 1970-75.

M. Macura has estimated, by examining pregnancy histories, that between 1950 and 1955, the infant mortality rate was 239-222, on the basis of the results of the 1968 Turkish Demographic Survey (Macura, 1975). The same author has employed the Brass method for estimating infant mortality rates for the period 1955-1968 and found rates of 197, 152 and 145 per thousand for 1955-1960, 1966-1967 and 1968, respectively.

Infant mortality rates were estimated by the State Planning Organization (SPO) for population projections by employing the Brass method for 1965-1970 and 1970-1975, utilizing the data collected by the 1970 and 1975 General Censuses of Population (Yener, 1973 and Yener and Kocaman, 1979). These estimates are a little lower than those suggested by Shorter and Macura. When sex differentiations are made for these rates with the aid of life tables, male infant mortality rates are found to be higher than females.

The results of the 1978 Turkish Fertility Survey is somewhat different. Nevertheless, the results of that survey and other studies have been given in table 61 to show the urban-rural differentials in terms of infant mortality rates.

The only data available on neo-natal mortality is obtained from the 1978 Turkish Demographic Survey. According to that survey, the neo-natal mortality rate is 60 per thousand and the post neo-natal mortality rate is 74 per thousand. Although there does not appear to be marked differences between those two rates in urban settlements, the situation is somewhat different in rural areas. Post neo-natal deaths seem to account for the urban-rural differentials in that respect.

In general, the main causes of infant mortality appear to be penumonia, measles and dysentery. In urban areas, diarrhoeal diseases, pneumonia, birth injuries, congenital anomalies and other causes of perinatal mortality are predominant whereas in addition to these, typhoid fever, diphtheria, measles, whooping cough, smallpox and such contagious diseases seem to account for the majority of infant deaths in rural areas. (Yener, 1981).

Infant mortality rates estimated for 1960 were presented along with fertility data in table 44. Used along with the data in table 48, which gives a more detailed presentation for rural and urban areas separately, it provides

Table 60. Infant mortality rates
(Per thousand)

Period	F. C. Shorter and M. Macura(1)	M. Macura(2)	State Planning Organization(3)		
	Total	Total	Total	Male	Female
1935-1940	273	--	--	--	--
1940-1945	306	--	--	--	--
1945-1950	260	--	--	--	--
1950-1955	233	239-222	--	--	--
1955-1960	203	197	--	--	--
1960-1965	176	--			
1965-1970	151[a/]	152-145	143	154	132
1970-1975	126	--	123	133	112
1975-1980	--	--	102	113	91

Sources: (1) F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey in 1935-1975 (Washington, National Academy Press, 1982).

(2) M. Macura, Components of Growth, the Population of Turkey, p. 41, table 2.

(3) Population Projections, State Planning Organization, 1982.

a/ For 1966/67, 152; for 1968, 145.

Table 61. Infant mortality rate estimates by urban and rural settlements

(Per thousand)

Years	Infant mortality rates		
	Total	Rural	Urban
1963 (1)	208	234	176
1966-1967 (1)	170	190-180	165
1966-1967 (2)	153	168	113
1973 (1)	155-150	165-160	150
1972-1977 (3)	134	146	119

Sources: (1) S. Cerit, "Population structure and problems relating to population in Turkey", a 1973 survey, p. 66.

(2) Vital statistics obtained from the population survey in Turkey, 1966-1967.

(3) Turkish Fertility Survey, 1978, vol. I.

Table 62. Neo-natal and post neo-natal infant mortality rates, 1972-1977

(Per thousand)

	Total	Urban	Rural
Neo-natal	60	89	62
Post neo-natal	74	61	84
Infant mortality	134	119	146

Source: Turkish Fertility Survey, 1978, vol. I, p. 79, table VIII-2.

valuable material. Estimates for the eastern rural area, which included the south-east in the earlier arguments, are not the highest even though social indicators consistently rank, especially in rural regions, lowest in Turkey, particularly during the period covered.

2. Life expectancy

Life expectancy at birth is a most general index of mortality that summarizes the average survival experience of persons born into the population up to the end of life. Estimates of infant and early childhood mortality are joined with estimates of mortality above age five for that general index; for example, two life table segments, one representing child mortality and the other adult mortality, are joined to form a single life table value that describes mortality in general.

The life expectancy value calculated for Turkey (see table 63) indicates an increasing trend from 1935 to 1980, with the exception of the Second World War period. Life expectancy at birth, which was 35.4 years in 1935-1940, had dropped to 31.4 in 1940-1945 and later sustained an upward trend reaching approximately 60 in recent years owing to the wide usage of modern drugs, expansion of health services, effective control of infectious diseases and, in general, improvement of social and economic conditions. For all periods in question, the value of life expectancy at birth is higher for females. That difference, which was three years in 1945-1950, has increased to six in recent years, presenting a pattern quite similar to those observed in developed countries. However, especially because of the high rate of infant mortality, the overall values remain eight to ten years below those of developed countries.

Like other measures of mrotality, adult mortality levels are also estimated by indirect methods, since death registration data are incomplete and unreliable.

The national life expectancy at age five for males and females were estimated, utilizing multiple reverse projection methods by F. Shorter and M. Macura from 1945 to 1975. The State Planning Organization has also computed life expectancy data at age five for the 1965-1970, 1970-1975 and 1975-1980 periods. The two sets of estimates are presented in table 64.

It may be observed that the values for both sexes show an upward trend with the exception of the war years. If the values for sexes are taken separately, life expectancy at the age of five for women is considerably higher than that for men, again with the exception of the war years.

As was mentioned earlier, a similar phenomenon is observed in developed countries. However, life expectancy at the age of 5 is five to six years higher in such countries.

Primary causes of adult mortality in Turkey are heart diseases, cancer and accidents. People above the age of five account for 96.10 per cent, 97.05

Table 63. Life expectancy at birth (e_o)[a/]

Period	F. C. Shorter and M. Macura (1)			State Planning Organization		
	Total	Female	Male	Total	Female	Male
1935-40	35.4	--	--	--	--	--
1940-45	31.4	--	--	--	--	--
1945-50	38.1	39.6	36.7	--	--	--
1950-55	43.6	45.2	42.0	--	--	--
1955-60	48.1	49.7	46.5	--	--	--
1960-65	52.1	53.7	50.5	--	--	--
1965-70	55.6	57.4	53.9	54.91	56.50	53.40
1970-75	58.9	60.4	57.1	57.88	59.99	55.88
1975-80	--	--	--	61.20	64.3	58.22

Sources: (1) F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

(2) Government of Turkey, Prime Ministry, State Planning Organization, Population Projections.

a/ (e_o) Mortality levels of adult population.

Table 64. Life expectancy at age five

Period	F.Shorter and M.Macura (1)		State Planning Organization (2)	
	Male	Female	Male	Female
1935-40	51.4	50.2		
1940-45	47.6	47.9		
1945-50	53.1	54.0		
1950-55	57.8	59.1		
1955-60	60.4	61.9		
1960-65	62.3	63.8		
1965-70	63.5	65.5	61.61	64.44
1970-75	64.3	66.6	62.33	65.60
1975-80	--	--	62.92	66.52

Sources: (1) F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

(2) Government of Turkey, Prime Ministry, State Planning Organization, Population Projections.

per cent and 75.11 per cent of those who die of heart diseases, cancer and accidents, respectively. (Yener, 1981).

According to the World Health Organization, maternal mortality covers deaths during pregnancy, labour and 42 days after the termination of pregnancy. Thus, it reflects the dangers mothers are exposed to during and after pregnancy and birth. Fisek estimated urban maternal mortality in 1967 (based on burial permits issued in provinces and districts) as 180.6 per 100,000 live births. Yener (1981) has estimated maternal mortality for Turkey as 207.5 per 100,000 live births; in the calculations she employed, by applying weights to them, the replies given as causes of death (miscarriage, complications of pregnancy, child birth and the puerperium) in 1974 TDS. Maternal mortality accounts for 29 per cent of female deaths, especially between the ages of 25 and 34 (Yener, 1981).

3. Trends of crude death rate

As is the case in many developing countries, there has been a substantial decline in crude death rates in Turkey since 1945. The crude death rate was estimated to be around 30-35 per thousand during the Second World War, owing mainly to factors such as the prevalence of contagious diseases, deterioration of nutritional conditions and lack of medication. In the following years, with the improvement in living standards, the expansion of public health services and the provision of modern medications, a considerable decline in overall mortality was experienced. The crude death rate, estimated at 10 per thousand is comparable to most developed countries in the world. However, it should also be remembered that developed countries have an older age structure whereas the age structure of Turkey is quite young and, in that respect, the mortality patterns of Turkey differ from those of developed countries.

Crude death rates as computed by different authors are given below (See Table 65).

E. Patterns and trends of migration

1. Internal migration

Rural-to-urban migration and consequent urbanization, which started around the 1950s and accelerated during the 1960s in Turkey, was welcomed at the beginning and was considered a potential force for development. Later, as that flow continued, the pressures on the infrastructure of rapid population growth in cities and the consequent oversupply in the labour market forced the opposite position to be taken by the Government.

Thus, rapid urbanization, which was welcomed and, to a certain extent, even encouraged in the beginning later became a phenomenon to be feared. So much so that policies designed to curb migration, such as centre villages, "köy-kent" (rural centre) projects aiming at intensifying public services and productive investments in areas having growth potential were initiated. However, none of those efforts achieved the desired level of success.

Table 65. Crude death rates
(Per thousand)

Periods	F. Kabadayı (1)	F. Shorter M. Macura (2)	State Planning Organization
1935-40	34.6	31.4	--
1940-45	39.6	33.9	--
1945-50	28.1	27.0	--
1950-55	20.7	23.5	--
1955-60	17.8	19.8	--
1960-65	14.7	16.4	15.3
1965-70	12.7	13.5	13.5
1970-75	--	11.6	10.1
1975-80	--	--	10.0

Sources: (1) Population of Turkey, its structure and problems, H.U.N.E.E., 1978, p. 29.

(2) F. C. Shorter and M. Macura, Trends in Fertility and Mortality in Turkey, 1935-1975 (Washington, National Academy Press, 1982).

(3) T. Kocaman and I. Ozaltin, "Report on the population sector", p. 8.

Both push and pull factors are important determinants of internal migration in Turkey, which is a relatively large country with significant regional socio-economic and demographic disparities that become amplified along its east-west axis. Among the push factors, a high rate of population growth in rural areas, an unequal distribution of land ownership, a high level of mechanization in agriculture especially in some regions, a scarcity of arable land, low levels of average agricultural income and the inadequacy of infrastructure may be singled out. With respect to pull factors, which seem to be more dominant, a complex of factors related to urbanization and, specifically, to major metropolitan centres are at work. In addition to employment opportunities in both industry and services, which is the major pull factor, access to better educational opportunities and other services are important (Unver, 1983).

Until the 1950s, the proportion of the population living in urban areas did not change in any significant way. As may be observed from table 66, about 18 per cent of the population lived in urban areas in the years 1940, 1945 and 1950. During that period, the insignificant difference between the rates of growth in urban (1.32 per cent) and rural (1.02 per cent) population also indicates that there was very little population movement.

After the 1950s, the share of the urban population steadily increased and reached to 46 per cent. While the growth rate of the urban population reached a high of 5.6 per cent, there was no significant change in that of the rural population.

S. Yener has computed that for 1960-1965, internal migration accounts for 42.62 per cent of urban population growth and has attributed 34.42 per cent to natural increase and 22.46 per cent to the increase in the number of settlements reaching the 10,000 mark (Yener, 1970). Accordingly, during 1960-1965, of the total 2,975,800 increase in the urban population, 884,000 (i.e., 42.62 per cent) are rural migrants. As may be seen, internal migration accounts for the bulk of urban population growth. For later years, different computations revealed the volume of rural-to-urban migration as 1,600,000 in 1965-1970 and 2,800,000 in 1970-1975 (Third and Fourth Development Plans).

The fabric of internal migration in Turkey must be considered from the point of view of the social and economic characteristics of the migrating population, since rural-to-urban migration not only implies demographic dimensions, but also denotes a structural change.

Information that rendered such an analysis possible was obtained from the 1970 Census of Population. Studies conducted provide information on the directions of flow, places receiving and sending migrants and the characteristics of the migrant population (Yener and Unver).

Yener determined that 107 out of every thousand people changed places of residence in 1965-1970 and that three metropolitan areas (Istanbul, Ankara and Izmir) account for 45 per cent of population movements.

Table 66. Urban and rural population in Turkey

Year	Total population	Urban[a]		Rural	
		Population	Percentage	Population	Percentage
1927	13 684 280	2 218 108	16.25	11 430 172	83.75
1935	16 158 018	2 683 872	16.61	13 474 146	83.39
1940	17 820 950	3 215 962	18.05	14 604 988	81.95
1945	18 790 174	3 466 046	18.45	15 324 128	81.55
1950	20 947 188	3 923 852	18.73	17 023 336	81.27
1955	24 064 763	5 425 125	22.54	18 639 638	77.46
1960	27 754 820	7 307 619 (1)	26.33	20 447 202	73.67
1965	31 391 421	9 383 161 (1)	29.89	22 008 260	70.11
1970	35 605 176	12 760 652 (1)	35.84	22 844 524	64.16
1975	40 347 719	17 176 103 (1)	42.57	23 171 616	57.43
1980	44 736 957	20 779 234 (1)	46.45	23 957 723	53.55

Source: Government of Turkey, Prime Ministry, State Institute of Statistics, General Censuses of Population.

a/ Localities having a population of 10,000 or more (metropolitan areas).

Broadly speaking, the major source areas for rural-to-urban migration are the northern, north-eastern, eastern and south-eastern provinces while terminus areas are the southern and western provinces. Focal receiving points are Istanbul, Ankara, Izmir, Adana, Gaziantep and Mersin. Erzurum, Elazig , Van and Zonguldak also receive some migration. There seems to be some areas of stability, however, amidst that general upsurge of interal migration in Turkey, such as Kirklareli, Usak, Mugla, Denizli, Elazig, Nevsehir, Giresun and Kocaeli. (see table 67).

In general, the migrant population has the following social, economic and demographic characteristics:

(a) Their fertility is lower than that of the areas from which they come (Gökgol-Kleine, 1979);

(b) They fall mostly within productive and fertile age groups;

(c) Males migrate more often than females and the literacy rate is significantly higher among males.

(d) Labour force participation among migrants is a little lower in comparison to the total population and they are generally occupied in the services sector and in secondary industries as wage earners.

For the past 20 years researchers have been defining as urban, those settlements having population of 10,000 and over. However, with the conviction that most of those places have fallen behind in contemporary changes and development, and therefore, fail to reflect an urban mode of life, an Urban Threshold Research was conducted recently with the purpose of formulating a new definition for urban areas. The results of the study suggest that in future studies it would be advisable to accept places with 20,000 inhabitants or more as urban (Cezik, 1982).

2. International migration

At the beginning of the 1960s, the international migration from Turkey to European countries first started as an emigration of only workers and then continued as a migration of workers and their families. Owing to the recession and consequent decrease in the demand of European countries in recent years the flow has subsided considerably. On the other hand, the emigration of workers to Middle Eastern and North African countries has gained momentum. Most of those workers are men and they generally work for Turkish businessmen or construction firms.

Between the years 1961 and 1971 about 790,300 workers were sent abroad, mostly to European countries. With the gradual decrease in the demand of receiving countries, the annual number of workers going abroad dropped to between 15,000 and 20,000 from 60,000 after 1974. About 184,000 workers went abroad 1974 and 1981, most of whom went to Middle Eastern and North African countries. Since 1961, the proportion of male workers going abroad is 84.72 per cent.

Table 67. Provincial population and migration ratio

Province	1975 population	1970-1975 In-migrant	1970-1975 Out-migrant	1970-1975 Net migration ratio
01 Adana	1 240 475	107 969	97 188	+ 0.009
02 Adıyaman	346 892	11 665	39 831	- 0.081
03 A.Karahisar	579 171	29 173	73 052	- 0.075
04 Ağrı	330 201	28 572	41 992	- 0.041
05 Amasya	322 806	22 460	40 486	- 0.056
06 Ankara	2 585 239	343 181	180 874	+ 0.062
07 Antalya	669 357	52 749	31 290	+ 0.032
08 Artvin	228 026	15 306	22 567	- 0.032
09 Aydın	609 869	41 167	33 546	+ 0.012
10 Balıkesir	789 255	42 647	61 269	- 0.024
11 Bilecik	137 120	15 759	29 703	- 0.102
12 Bingöl	210 804	16 423	20 306	- 0.018
13 Bitlis	218 305	17 379	36 640	- 0.083
14 Bolu	428 704	32 529	28 141	+ 0.010
15 Burdur	222 896	19 535	17 235	+ 0.010
16 Bursa	961 639	89 419	37 045	+ 0.054
17 Çanakkale	369 385	27 143	26 104	+ 0.003
18 Çankırı	245 468	17 490	35 011	- 0.071
19 Çorum	547 580	25 133	39 746	- 0.027
20 Denizli	560 916	29 956	29 993	- 0.000
21 Diyarbakır	651 233	33 843	43 567	- 0.015
22 Edirne	347 132	27 730	32 081	- 0.013
23 Elazığ	417 924	41 873	41 876	- 0.000
24 Erzincan	283 633	25 048	32 672	- 0.027
25 Erzurum	746 666	50 121	69 405	- 0.026
26 Eskişehir	495 097	45 545	40 154	+ 0.011
27 Gaziantep	715 939	41 921	33 130	+ 0.012
28 Giresun	463 587	35 435	37 637	- 0.005
29 Gümüşhane	293 673	19 184	28 259	- 0.031
30 Hakkari	126 036	11 591	17 112	- 0.044
31 Hatay	744 113	62 269	43 524	+ 0.025
32 Isparta	322 685	23 245	32 925	- 0.030
33 Içel	714 817	65 257	49 303	+ 0.022
34 Istanbul	3 904 588	683 540	242 298	+ 0.113
35 Izmir	1 673 966	232 949	45 438	+ 0.082
36 Kars	707 398	34 136	64 810	- 0.043
37 Kastamonu	438 243	25 583	40 579	- 0.034
38 Kayseri	676 809	60 517	41 743	+ 0.028
39 Kırklareli	268 399	22 720	22 476	+ 0.001
40 Kırşehir	232 853	15 106	20 768	- 0.024
41 Kocaeli	477 736	93 560	90 867	+ 0.006
42 Konya	1 422 461	69 505	83 584	- 0.009
43 Kütahya	470 423	27 085	57 281	- 0.043
44 Malatya	574 558	37 225	47 770	- 0.018
45 Manisa	872 375	55 066	47 835	+ 0.008
46 K. Maraş	641 480	34 133	40 227	- 0.009

Table 67 (continued)

Provinces	1975 population	1970-1975 In-migrant	1970-1975 Out-migrant	1970-1975 Net migration ratio
47 Mardin	519 687	17 999	31 664	- 0.026
48 Muğla	400 796	19 373	19 808	- 0.001
49 Muş	267 203	12 172	19 155	- 0.026
50 Nevşehir	249 308	15 263	14 911	+ 0.001
51 Niğde	463 121	27 175	57 257	- 0.065
52 Ordu	664 290	24 120	54 062	- 0.045
53 Rize	336 278	34 965	66 489	- 0.094
54 Sakarya	495 649	34 512	31 381	+ 0.006
55 Samsun	906 381	40 323	52 940	- 0.014
56 Siirt	381 503	20 108	24 812	- 0.012
57 Sinop	267 605	11 777	21 304	- 0.036
58 Sivas	741 713	36 759	70 650	- 0.046
59 Tekirdağ	319 987	35 501	25 820	+ 0.030
60 Tokat	599 166	23 882	36 268	- 0.021
61 Trabzon	719 008	56 063	70 357	- 0.020
62 Tunceli	164 591	12 312	29 883	- 0.107
63 Urfa	597 277	26 392	71 607	- 0.076
64 Uşak	229 679	15 688	15 443	+ 0.001
65 Van	386 314	21 916	20 162	+ 0.005
66 Yozgat	500 371	22 742	41 419	- 0.037
67 Zonguldak	836 156	42 145	34 563	+ 0.009

As may be observed from table 68, the total number of Turkish citizens abroad increased continuously and reached 2,242,517 in 1982, owing not only to migration but also because of births. The levelling off in recent years should also be attributed to return migration and to the decrease in out-migration.

The available statistical data is not sufficient to analyse in detail the demographic characteristics of Turkish citizens abroad by years. According to the available data in 1980, 52,286 Turkish babies were born and 2,655 Turkish citizens died outside of the country. Admitting the limitations of available data, the crude birth rate of Turks abroad was estimated at 25.89 per thousand and their crude death rate was found to be 1.31 per thousand.

The crude birth rates of Turkish citizens abroad appears to be lower than that in Turkey by 5 per thousand, which may be accepted at face value. But the extraordinarily low crude death rates calls for some explanation. It may result from the fact that Turkish citizens abroad have a relatively young age structure, and that they are people enjoying good health and the capacity to work.

F. A hypothesis on the demographic structure and development in Turkey

The different aspects of the demographic structure and development of Turkey discussed in the earlier sections are either based on or inferred from a wealth of studies. As was observed, particularly in terms of estimates, there are certain differences, however. At that stage, the introduction of a hypotheses of a Turkish demographer, A. Toros, on the demographic structure and development in Turkey is in order.

Toro's basic approach was that demographic phenomena derives from a process which has a certain set of determinants and consequences elusive as they may be.

He points out that Turkey has a variety of demographic data sources. Until now Turkey has conducted 11 censuses, all of which were quinquennial between 1935 and 1980 (the first census was conducted in 1927) using essentially similar de facto enumeration procedures. National-level data from the 1980 census is only available as a 1 per cent sample, but more complete tabulations at various degrees of comprehensiveness are available for earlier censuses. Two dual-record type national demographic surveys were conducted, the Turkish Demographic Survey of 1965-1968 and a similar survey in 1974-1975. Three national population surveys that included fertility histories and child information were conducted in 1963, 1968 and 1973. A Turkish Fertility Survey was conducted in 1978 in collaboration with the World Fertility Survey.

Birth registration is required in Turkey for legal purposes. However, the system is not used to generate national statistics on birth events. Death registration is also required. Owing to omissions, especially in terms of

Table 68. Number of Turkish citizens abroad

Years	Workers	Children (0-18)	Spouses of workers (not working)	Total number Turkish citizens
1978 (1)	--	--	--	1 614 842
1979 (1)	801 769	617 142	343 971	1 762 882
1980 (1)	888 162	741 557	389 711	2 019 430
1981 (1)	952 520	816 876	451 550	2 220 946
1982 (2)	979 010	816 931	446 576	2 242 517

Sources: (1) A. Barisik, SOPEMI, 1980, 1981, 1982, Report on Turkey, Government of Turkey, Prime Ministry, State Planning Organization.

(2) Report of the Sub-Committee on Problems of Workers Abroad, VBYKB (1984-1988), Özel Ihtisas Komisyonu Raporlarindan, p. 8, table III.

coverage, those statistics have very limited use. Marriage and divorce statistics are also compiled, but they, too, carry the same limitation.

Certain operations research projects have been conducted that greatly contributed to sheding light on the matter at hand such as Etimesgut Rural Health Project, Yozgat project, Tarsus I. and II.

As may be observed, there is quite an accumulation of demographic data in Turkey especially after the 1960s. Although the emphasis is on different dimensions, they are practically cotemporal and, if these studies were error-free, they would yield similar results; however, that is not the case.

Choosing the right data source for estimating the various parametres usually poses an almost insurmountable problem.

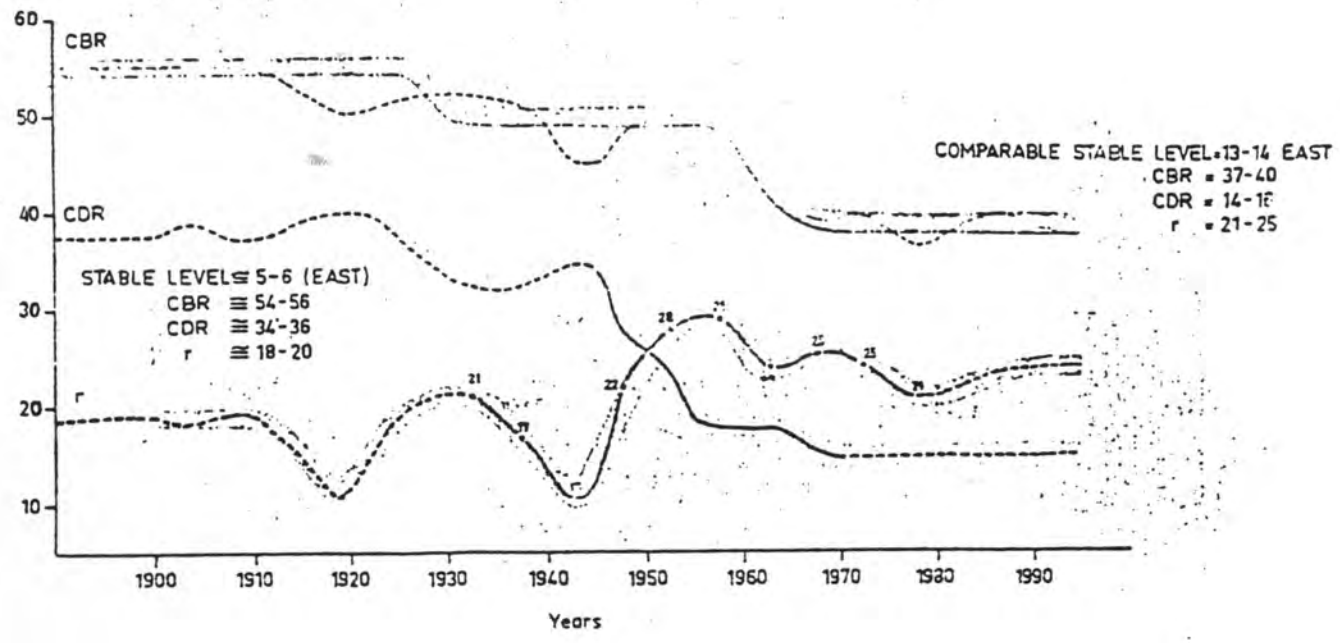
Toros suggests that censuses should be considered as the most reliable sources of data for mortality and fertility estimates, because they give total population and population growth rates at specific time intervals. When those rates are used with the age structure, mortality and fertility rates could be computed especially where direct measures are not available. Toros has plotted figure IV, and suggests, that it is quite compatible with what is meant by the term "demographic transition". The thick lines in the figure represents the general trend if the temporary fluctuations are disregarded. The author is not denying the importance of exogenous events, but is plotting what he calls "a natural path". The estimates plotted in the graph are based on three assumptions; (a) demographic transition is taking place in Turkey not in a stable and continuous fashion, but rather in a stepwise fashion; (b) fertility behaviour should not be considered on the basis of random events; on the contrary, it is the result of a decision-making process that changes when pertinent factors change; and (c) if these factors changed smoothly, fertility behaviour would have displayed a similar pattern. That is not the case in Turkey.

In preparing the graph, Toros first considered growth rates. Those rates, based on population censuses, display a slight decrease between 1930-1945, an increase in the period 1945-1960 and then a decline between 1960-1963 giving the impression of an oscillation. It is impossible to explain that phenomena with underenumeration in the 1960 census. If the period before the 1930s is taken into consideration, two points seem noteworthy. The growth rate of the 1930s should be higher than that of the 1920s, which marks the end of a long series of wars (the adverse effects of wars on fertility do not need to be mentioned here). That process makes a maximum and two minimum points inevitable. The decline during 1935-1945 could be attributed to the world economic crisis that followed the Second World War.

Toros anticipates a slight increase after the 1980s on the basis of two assumptions: (a) return migration is expected to accelerate in the coming years and (b) the amplitude of the oscillation mentioned above is more than 21 per cent.

The second curve that needs to be explained is the one representing mortality. The age distributions obtained from the censuses (after 1945) and

Figure IV. Crude birth rate, crude death rate and r in recent past in Turkey



Prepared in March 1978 by Aykut Toros, Ph.D.,
Hacettepe Institute of Population Studies.

model life tables are used to plot that curve. It is actually supported by a number of publications, especially those pertaining to earlier years. However, Toros suggests that assuming the earlier estimations are valid, those concerning more recent periods are not in conformity with his estimates, particularly those placing the crude death rate (CDR) around 10 per thousand. He argues that since almost every author agrees on high infant mortality rates, for the CDR to be around 10 per thousand, the adult mortality rates in Turkey must be lower than European rates and not only socio-economic conditions, but also the age structure of the Turkish population does not permit such a phenomena.

The third aspect that must be discussed in the graph is the crude birth rates. It is basically calculated by using population growth rates and crude death rates. It is a well known phenomena that in societies with high infant mortality rates, such as Turkey, it is impossible to obtain fertility rates solely by the declared "births occurring last year". The discrepancy between the indications obtained from censuses and surveys leads one to believe that estimations based on validated models might be more reliable. Toros suggests that the crude birth rates that he has estimated as 42 per thousand for the 1965-1970 period is supported by other authors. But then he goes on to argue that a 1 per cent per annum decline suggested by several authors for the recent years could not be valid since nothing that can account for such a radical change has occurred in Turkey during that time.

None the less, whether the exact rates or years coincide or not, certain broad generalizations on the patterns and trends of the demographic structure in Turkey may be drawn:

(a) With respect to birth, death and growth rates, Turkey has entered the twentieth century with a demographic structure similar to those suggested by the five to six levels of Eastern Model Life Tables. In other words, at the beginning of the century Turkey must have had a crude birth rate (CBR) of 54-56 per thousand, a crude death rate (CDR) of 34-36 per thousand and a growth rate (r) of 18-20 0/00;

(b) Between 1960-1970, Turkey attained a demographic structure similar to that of the 13-14 levels of Eastern Model Life Tables, i.e., a CBR of 37-40, a CDR of 14-16 and an "r" of 21-25;

(c) The decline in those rates occurred at two different points in time. If the exogenous effects of the Second World War are not taken into consideration, the first one occurred both in births and deaths during 1920-1930. The second decline took place at different times for births and deaths. Between 1945 and 1955, there occurred a serious decline in mortality and that decline continued to a certain extent up to the present. The decline in fertility rates began during 1960-1970 and continued. The effects of migration, especially around the 1970s, should not be neglected when the decrease in growth rates is considered;

(d) In the coming years certain oscillations may be expected in those rates owing to the change in the nature of migration and a certain escalation in return migration.

IV. STUDIES ON SOCIAL AND ECONOMIC DEVELOPMENT AND FERTILITY DECLINE: CONCLUSIONS AND IMPLICATIONS

Since the establishment of the Republic, Turkey has been a country of impressive social and economic development and rapid population growth. The development of the country is fairly well defined and the wealth of demographic data, especially in the past 20 years, has been instrumental in identifying population trends and patterns. While it is generally agreed that social and economic change have had an impact on demographic trends and patterns, it is hard to claim that concrete solutions, both as to the exact nature of those links and to the extent of the impact, are offered.

Most of the work done on the determinants of demographic changes and differentials in Turkey has relied on the demographic transition theory as a frame of reference. An evaluation of the transition theory per se which has been of very keen academic interest is beyond the scope of the present paper. In its most popular version the transition theory, widely adopted as a framework for historical generalization to tackle the complex phenomenon of demographic evolution of societies, identifies three distinct stages societies experience in terms of changes in demographic variables. The central propositon of the theory may be stated as follows (Coale and Hoover, 1958). High birth and death rates and low population growth rate are characteristics of low-income agricultural economies. As such economies realize a certain development, death rates begin to fall, the population growth rates tends to rise and remain far above death rates. However, in the later stages of economic development, fertility rates begin to fall as mortality rates become established at a low level. As fertility rates approach mortality rates, population growth rates return to moderate levels. Although mortality trends are taken into consideration to a certain extent, the transition theory is essentially a theory of fertility and its response to social and economic changes. Although it is realized that there may be a variety of transition experiences (with regard to trends, time sequences, speed and, by implication, to mechanisms contributing to them) it is generally assumed that what happened in the past in industrialized countries, for example, fertility decline as a consequence of economic development, will repeat itself in the less developed countries as they become more socially and economically developed.

Striving to explain thes complex relationship, a wealth of additional ideas were developed using the general macro-approach leading to the valid argument that the endogeneity of the population variable requires that macro-models be integrated with plausible models of micro-relations. As was mentioned earlier, there are not very many studies conducted in Turkey employing a micro approach.

Social and economic development comprises not only per capita income, but a number of what may be called "development variables", and an integrated change in those variables leads to the phenomenon, often referred to as "modernization" and, sometimes, as "structural change".

In considering Turkey's experience, the emergence of an industrial sector after the establishment of the Republic, but especially since the onset of the

plan period, attracts attention. However, what is more striking is the great expansion in agriculture in the past 50 years, which kept up with population growth. At the same time, the composition of the labour force changed in favour of non-agricultural and non-traditional sectors. Consequently, agriculture became more market-oriented, the economy became more money-oriented and GNP increased considerably.

Like other societies experiencing industrialization, mechanization of agriculture and growth, Turkey has also experienced a significant rural-to-urban migration In fact, Turkey has also witnessed an overwhelming emigration,, first to European countries and later to other (oil producing) Islamic countries. Whatever the causes and patterns of that phenomenon may be, the social structure of Turkish society changed rapidly, from a basically rural society to a substantially urbanized one in a relatively short period of time.

The literacy rates have gone up, most dramatically among the female population, primarily because of the changing status of women in society and a conscious government policy.

Labour became organized as industrialization gained momentum and social security schemes were expanded. Under the current system, government employees, labourers in work places and the self-employed are covered. Unfortunately, at the present time, the agricultural workers are not beneficiaries of the public social security system.

As was discussed previously, the Government has assumed an active role in promoting economic development in Turkey and thus has not only been instrumental in modernization, which is a by-product of development, but has imposed certain institutional changes by deliberate government policies and programmes.

In Turkey, as a whole, mortality rates have been falling at least since the Second World War; moreover, there is evidence that mortality differences between regions have been narrowing. Among factors that have contributed to this decline, one may cite better education, nutrition, improvement in hygiene, public health and sanitation as well as preventive and curative medicine.

There is every evidence that fertility has been declining, especially since the 1960s in Turkey. But it is also evident that there is a continuation of fertility differences between urban and rural areas and regions. In fact, it seems as if regional locations play a more significant role in the determination of provincial fertility rates than the size of the settlements. In general, provincial fertility is relatively low in the western and northwest regions of the country, whereas it gradually rises towards the east, which coincides with development levels of provinces.

Although limited in number, certain studies on the association between social and economic developments on fertility behaviour was conducted in Turkey.

There have been several studies assessing the relationship between income changes and fertility. However, the results of those studies should be considered with caution because of the scarcity of statistical data on income, especially at the province level. In two different studies, Timur and Karadayi, using the 1968 Turkish Demographic Survey, it was found that an inverse relationship existed between income and fertility. Tuncer believes that "the problems with these findings appeared to be a failure to control the other variables that move in the same direction as income". Kleine maintains the same view.

Tuncer, in his study using 1963 income and 1965 population census data did not find that per capita income had a significant direct impact on total fertility at the province level. Balamir, in his multi-variate analysis using 1970 data, arrived at the same conclusion.

Lieberman in his study on a Liebenstein-type approach, found that agricultural income is a significant fertility determinant. He concluded that fertility differences can be traced, in part, to differences in production circumstances of households that consider children to be more or less valuable as sources of family labour and income security.

In regard to changing labour force structure, especially labour force participation of women, studies on Turkish data are not very conclusive.

Farroq and Tuncer in their study investigating long-term relationship between fertility and various development variables at the province level covering the period 1935-1965, found that female labour force participation as such had no significant direct impact on provincial fertility. None the less, it was suggested that the female non-agricultural labour activity rate, heavily influenced by industrialization and urbanization levels, in turn, had an indirect impact on fertility by affecting marital rates and female literacy. The same study revealed that the place of employment also made a difference in family size. For example, some provinces where women are engaged in non-agricultural traditional activities (such as carpet weaving) high fertility rates were reported.

Timur and Karadayi, in two separate studies using the 1968 Turkish Demographic Survey (Hacettepe) data, arrived at the conclusion that the employment status of women living in urban areas made only a slight difference in their fertility.

This is not surprising on several accounts. The main sources of employment data are the population censuses and in the censuses all female population above a certain age in agricultural households are considered as engaged in agriculture unless they declare otherwise. Given the general condition, most of those women are unpaid family workers. The functionally extended families, especially in rural areas, usually provide the services of an elderly person in the family who takes care of the children. On the other hand, even for urban areas, although there are no adequate child-care institutions, child-care labour used to be relatively inexpensive. In other words, the conditions provide an early and/or cheap access to child care and the income foregone is not formidable.

As was mentioned earlier, mainly as a result of rural-to-urban migration, both owing to pull and push factors, Turkey has witnessed rapid urbanization and the formation of peri-urban areas seems to have slowed down recently. It was also pointed out that there are strong differences in fertility rates of urban and rural areas. These empirical data have led many researchers to believe that urbanization has a very strong impact on fertility for obvious reasons, such as increased cost of child-rearing, less or no need (or opportunity) for child labour, the necessity for both partners to work to support a home of any size, and the adoption of smaller family norms.

None the less, the findings of most of the studies do not support the hypothesis that the partial impact of urbanization on fertility is negative. Farroq and Tuncer in the study mentioned earlier, Tuncer in an independent study using 1965 data and Balamir again in the study mentioned above, found no significant relationship between fertility and various indexes of level of urbanization. In fact, in Tuncer's study the sign of the urbanization coefficient was positive. However, Kline suggests that migrants to urban areas alter their behaviour to approximate urban fertility levels.

Here, again, what must be considered are the indirect effects of urbanization on fertility through other variables. Farooq and Tuncer's findings indicate that urbanization has a significant impact on female literacy and marital rates. They also suggest that "given similar urbanization levels, the influence of single urban concentrations may be different from that of more evenly scattered urban centres; specifically, the latter pattern may be more conducive to lower fertility" (Tuncer, 1977). Kline also explains her finding as a result "better conditions, opportunities and adoption of urban values".

Timur has suggested that women coming from a rural background do not change their pattern of fertility easily, regardless of the size of their new residence, whereas those coming from middle-sized towns adopt more easily.

One factor which should be investigated further and which may yield very illuminating results would be the selective nature of immigrants; their age structure, the fact that they have higher literacy rates, their pioneering spirit and their migration history.

All the researchers working with Turkish data have pointed to an inverse relationship between literacy and the level of educational attainment (especially that of women) and fertility. However, the exact mechanism through which educational attainment influences fertility is not very clear. There is every indication that the utilitarian values of children decrease and the psychological ones increase; in general, more traditional values are replaced by more modern ones as the educational level of mothers increase. It would be reasonable to assume that other educational attainment-related variables, such as labour force participation in non-agricultural areas, thus access to old age security, opportunity costs, knowledge and practice of contraceptive use, changes in role and status of women in the family and society are also involved in that undeniable association.

Timur Karadayi, Tuncer and Farooq in their studies have come to the conclusion that birth rates are significantly influenced by the literacy and educational status of women. In fact, results of Tuncer and Farooq study in which they have investigated the long-term relationship between fertility and various "development variables" on province level data, indicated that only two variables had a direct or independent impact on fertility, femal literacy and female marital rates. They came to the conclusion that those two variables combined accounted for more than 70 per cent of the regional variance in crude birth rates.

Lieberman concluded that in agricultural households fertility was significantly and negatively related to the educational attainment of women. On the other hand, he found that it was not significantly related to the husband's educational level. Lieberman was not the only author who arrived at that conclusion; Balamir also suggested that female literacy was a far more significant predictor of fertility than male literacy.

Uner's analysis of the 1978 Turkish Fertility Survey supports the view that female literacy and educational attainment is still one of the most important determinants of fertility in Turkey.

Furthermore, Fisek and Shorter and Timur, in two independent studies, have shown that literacy and the degree of educational attainment have a stronger impact on fertility in cities than in rural areas.

As the social and economic structure of a society changes, marriage patterns are expected to respond (which in turn affects population variables). In Turkey, marriage still seems to be a strong institution and although there is some indication that age-at-first-marriage is rising, the data are not conclusive in terms of a downward trend towards proportion married. The defects of data and the prevalent practices (although declining) of marrying outside of civil law were discussed earlier.

Tuncer and Farooq concluded that the refined female marital rate was an important variable in explaining the variation in provincial fertility. However, although the value of the coefficient of the "marital rate" variables was very high for the earlier decades covered in their study, it dropped considerably for later ones. The authors attributed that to improved reporting, decreasing practice of traditional marriages and increases in the adult female expectation of life.

Berksan, on the other hand, maintains that the age-at-first-marriage and proportions did not change much during the same period and concludes that marital patterns did not play a significant part in changing fertility.

Lieberman in his study based on 252 countries found that marital fertility tended to be higher in areas where more people delayed marriages and that marital fertility was relatively higher in areas where the pressure on resources was less severe.

Changing patterns of family structure in Turkey is expected to have an impact on fertility. Karadayi, in her study, found no significant relationship between family type and fertility. On the other hand, Kline suggests that "the more traditional characteristic of patriarchal extended families suggest less controlled therefore, higher fertility. Whereas, less traditional, nuclear and partially extended families, where the role of women is no longer strictly limited to child-bearing and child-rearing, suggest lower fertility".

The value and role of children are also expected to influence family size. Kagitcibasi in her study concerning the value of children in Turkey concluded that the salient advantages and disadvantages of having children varied for different people. The value of children reportedly lay in the fact that they provided parents with such psychological satisfaction as affection, love, stimulation, novelty and fun together with old age security. She maintained that the "relation among traditional values such as continuing the family name, economic security, financial expectations from children and boy preference are positive and consistent with fertility related ideas and behavior".

She also suggested that "... with increased socio-economic development of the area of residence, increased mobility, increased education, higher income and better jobs (for women), the utilitarian value of children decreases, and their psychological value increases". Since the value of children are differentially related to their number, i.e., the economic value of children is cumulative whereas their psychological value is negatively asasociated with numbers, such as development would lead to lower fertility.

The disadvantages of having children were described as either child-centred (concern for the well being of the child) or parent-centred (economic disadvantages and restrictions on freedom). With increased education and better jobs (for women) the economic disadvantages are replaced by restrictions in freedom and child-centred disadvantages become more important, which in turn results in fertility decline.

It was already mentioned that Lieberman concluded that agricultural families with high output, therefore with a greater need for family labour, had more children on the average. His findings also supported the hypothesis that children are considered as old age security; participation in public or private pension schemes has a significant negative impact on fertility. He has also suggested that employer status and co-operative membership may have a negative effect on fertility although the relationships he found in the latter case were not statistically significant.

Both Kagitcibasi and Balamir suggest that Turkish people although they fail to attain it in general have a definite idea about the number of children they desire. That number is significantly lower than what they actually have.

The limited number of studies on the relationship between infant mortality and fertility strongly point to a positive effect. Balamir, using the 1970 Census of Population data, has constructed an index of infant

mortality corresponding to the ratio between children dead and children ever born for the women in the 20-29 age group. He maintains that infant mortality is positively and significantly related to fertility. Adalkha examined the relationship between the experience of infant mortality and fertility and reached the conclusion that those couples who have experienced infant mortality expect to have and actually do have more children. The findings of Kagitcibasi also strongly support that view.

As may be observed, there has been a considerable interest in social and economic determinants of Turkish fertility among researchers. However, as was mentioned earlier, most of the work done in the area has been aimed at determining the nature of gross relationships between fertility and number of general indicators of the level of social and economic development. In order to obtain a more comprehensive picture, an integrated macro-micro analysis of demographic response is needed, one that would not only include an additional number of variables, but could also explain the mechanisms through which intervening variables operate.

However, the fact remains that there has been a growing interest and sensitivity towards population issues in Turkey. Government policies, by necessity, need to include efforts to change economic and social structures in various respects. The desire to control population growth and other demographic variables was not only repeatedly expressed by various organs, but was also clearly stated by the President of the Republic, General K. Evren, in a recent speech.

Given the heterogeneous nature of the country and other findings cited above, it seems evident that national population policy packages must be supported by community-level programmes. The nature, extent and exact mechanisms of those community programmes (or a set of them) need to be further investigated. In places where traditional values are strongly maintained, legal and administrative measures of a general nature seem to have very little impact on fertility behaviour. Therefore, the emphasis should be placed on individuals, especially on women. The concensus appears to be that women are the crucial factor in explaining fertility changes and differentials although Turkey still seems very much to be a male-oriented society. Therefore, programmes aimed at improving the educational level and status of women may yield enormous benefits in that respect. It should be understood here that "education" in that context comprises dimensions other than the classical education. The role of the mass media, especially radio and television, should not be ignored as a means of providing such education.

Findings on the value of children have very significant policy implications. Though it may seem contradictory, it is necessary to emphasize the value of children, and the intensity of the psychological satisfaction that may be derived from "better quality" children. Through educational programmes, women may be made more aware of the disadvantages of children (cost of children, income foregone, anxieties related to them and so on). Of course, complementary to that, alternative sources of satisfaction should be introduced.

Since people have strong preferences as to the number of children they desire and it is generally lower than the realized fertility levels, it may be inferred that people are ready to use birth control technology. These changing attitudes must be met by offering extended health and birth control services. Along with educational programmes, those services will lower the infant mortality rate and help people attain the desired level of fertility.

There is no doubt that the extension of social security schemes, especially to cover the agricultural sector, will have far-reaching demographic implications.

On the whole, the association between social and economic development and demographic trends in Turkey remains a complex and fascinating phenomenon and seems to offer an endless source of research topics.

Annex I

POPULATION PLANNING LAW, Law No. 557, 1965

I. Basic provisions

Article 1. Population planning means taht individuals can have as many children as they wish whenever they want to. This can be ensured through preventive measures taken against pregnancy. Castration, sterilization, or the ending of pregnancies shall not be undergone unless medical necessities require it.

Article 2. Divulging the necessity of family planning to the public and the training, education and application connected with it shall be carried out with the collaboration of military, official and volunteer organizations according to the regulations prepared by the Ministry of Health and Social Welfare.

For this purpose the Ministry of Health and Social Welfare is authorized to establish special organizations and to take measures to distribute freely, or sell at a lower price, or have sold at a lower price to the needy, contraceptive materials and drugs.

The quality of drugs and materials to be used for population planning, and the regulation concerning its application, shall be determined by the Ministry of Health and Social Welfare after receiving the written opinion of the Commission which will also include members of the teaching staffs of medical schools.

II. Provisions in connection with sterilization and ending pregnancies under medical necessities

Article 3. The uterus may be evacuated upon a justified medical report based on objective symptoms and given by medical councils authorized by the Ministry of Health and Social Welfare. In cases in which pregnancy threatens or tends to threaten the mother's life, or the embryo or fetus cannot be developed normally, or in cases in which the child will be born with a serious infirmity, or for the following generations.

The uterus may also be evacuated by an authorized physician who observes the emergencency where, if an immediate intervention is not performed, the life or one of the vital organs is threatened.

However, the physician shall notify the provincial directorate of the Ministry of Health and Social Welfare in cities, and Public Health Officers in towns, before intervening, or if not possible inside 24 hours of the intervention and of its causes.

The basic principles and diseases related to the evacuation of the uterus by intervention and the places and institutions where this intervention can be performed, as well as what emergencies consist of, and the form and nature of the notification carried out will be determined by a regulation to be published by the Ministry of Health and Social Welfare.

Article 4. In case where it is medically proved that a woman should not be pregnant because of an infirmity or a disease, or a man or woman suffers from a grave inheritable disease, the necessary intervention for the elimination of their ability to procreate without impeding the satisfaction of their sexual needs can be carried out upon a justified report based on objective symptoms given by councils authorized by the Ministry of Health and Social Welfare. The principles and diseases related with the above-mentioned cases and places where intervention can be performed shall be determined in the regulation mentioned in article 3.

The intervention performed to cure any disease and causing by their nature castration or sterilization are not subject to this provision.

Article 5. The intervention mentioned in articles 3 and 4 can be performed upon written consent of the concerned person, if this person is a minor, the consent of his parents, if this person is a minor or has no ability of discernment and is, therfore under tutorship, the authorization of the Court of Peace is required.

In urgent cases in which authorization from the parent or Court of Peace will take time and a late intervention caused by this loss of time will threaten life or one of the vital organs, permission is not obligatory.

III. Provisions concerning penalties

Article 6. Individuals who manufacture or sell, or distribute in any manner, or who import for commercial reasons, or for this reason have in their possession drugs and materials not approved as contraceptives by the Ministry of Health and Social Welfare according to Article 2 of this law shall be punished by imprisonment for seven months to two years and be fined TL 2,000 to TL 10,000 (heavy fine), their factories shall be closed and their drugs and means shall be confiscated.

The drugs and means which are approved as contraceptives by the Ministry of Health and Social Welfare according to article 2 of this law shall be advertised in accordance with article 13 of Law No. 1262. Those who do not abide shall be punished by imprisonment from one to six months and be fined TL 500 to TL 2,000 (heavy fine).

Article 7. Those who commit acts which oppose articles 3, 4 and 5 of this law shall be fined from TL 500 to TL 1,000 (heavy fine), unless a more severe punishment is not provided by the Turkish Criminal Code and other laws containing penal provisions.

Article 8. The provision concerning the increase of population (birth) of the first paragraph of article 3, the word "contraceptive" or words which are at the beginning of article 152 and article 156 of the Law on Public Hygiene are abolished.

Article 9. Paragraph 2 of article 471 of the Turkish Criminal Code (Law No. 765) amended by Law No. 3036 shall be amended as follows:

Those who encourage the acts mentioned in the first paragraph (para. 1 of art. 471), or to make propaganda for the same purpose, shall be punished by imprisonment up to one year or shall be fined up to TL 1,000. If the above-mentioned act is committed in the aim of making profit these two punishments shall be pronounced concurrently.

Note: This means that any person who promotes or consents to male or female sterilization is subject to this penalty. It also means that no vasectomy will be performed unless a doctor can certify to it for medical reasons.

Article 10. Articles 1 and 2 of this law are to be effective (in force) on the date of the official publication. The other provisions are in effect three months after official publication.

Article 11. This law will be administered by the Council of Ministers.

Annex II

POPULATION PLANNING LAW, Law No. 2827

Acceptance date: 24 May 1983
Promulgated on : 27 May 1983

Purpose

Article 1. The purpose of this Law is to regulate the principles of population planning, termination of pregnancy and sterilization procedures, cases where emergency intervention is permitted and the acquisition, production and the procedures for approving acceptable contraceptive medicines and devices.

Population Planning

Article 2. Population planning is the freedom of individuals to decide the number and the timing of their children.

The State will take the necessary measures for the provision of education and services for population planning. Population planning will be achieved through implementing pregnancy prevention measures.

Termination of pregnancy and sterilization shall be carried out under state supervision and control.

Other than for the conditions stated in this Law pregnancies shall not be terminated, and sterilization and castration procedures shall not be employed.

Services for training, education and application (implementation) of population planning

Article 3. In order to inform the public of the need for population planning, and to carry out the services regarding the training, education and implementation of population planning, a regulation will be prepared by the National Defense, National Education and Social Security Ministries under the co-ordination of the Ministry of Health and Social Welfare. This regulation will be enacted by the Council of Ministers.

The primary institution to carry out the above mentioned activities regarding population planning is the Ministry of Health and Social Welfare, which in this pursuit will cooperate with the universities, Turkish radio and television organization, social security organizations, all state organizations and institutions, and professional organizations which have the qualifications of state institutions and voluntary organizations.

For this purpose, the Ministry of Health and Social Welfare is authorized to establish a special organization to obtain, to produce or to have others

produce the contraceptive medicines and devices; and to take measures for the free distribution of these medicines and devices either through its own organization, or by others, as well as for the sale of them at a value below their cost to those who are in need of them.

The production and/or the importation of contraceptive devices to Turkey is subject to the permission of the Ministry of Health.

The approval of the specifications of the contraceptive medicines and devices will be made by the Ministry of Health and Social Welfare upon the receipt of written comments of a commission which, in addition to others, includes medical school faculty members. Any medicine or device not approved by the Ministry of Health and Social Welfare through the above described procedure cannot be tried on a human being by an organization, institution or unit, including the medical schools of the universities.

The establishment and the functioning of the commission and, regarding pregnancy prevention methods, the training, work-plan and responsibility for providing services of physicians, nurses and midwives, will be determined by a regulation to be prepared and enacted by the Ministry of Health and Social Welfare (MOHSW).

Physicians, nurses anmd midwives will apply the contraceptives according to the conditions stated in this regualtion irrespective of the conditions stated in special laws.

Sterilization and castration

Article 4. Sterilization is the intervention made to take away the ability of a man or woman to have children without hampering with the satisfaction of their sexual needs.

The sterilization operation will be done on adults upon their request provided that there is no contradicting medical condition.

During a surgery, if a medical necessity for castration emerges for the cure of a disease, the castration operation can be done without obtaining the consent of the patient.

Termination of pregnancy

Article 5. If there is no medical reason to the contrary, the uterus may be vacated until the end of the tenth week of pregnancy.

If the gestation period is beyond 10 weeks then the uterus may be vacated only if the pregnancy presents, or will present, a danger to the life of the mother, or if the child to be born or the generations to follow will be damaged, and if this situation is stated in a written form based on objective findings by one obstetrician and gynaecologist specialist and one specialist from a related field.

In situations where the lack of immediate intervention will result in a danger either to life or to one of the vital organs, a physician assessing this situation will vacate the uterus. However, in this situation the physician who has intervened in the pregnancy must inform the Directorate of Health and Social Welfare in the provincial centres, and the government doctors in the local towns, of the identification of the woman, the intervention procedure and the justification for the intervention either prior to the intervention, or if this is not possible, within 24 hours of the intervention.

A regulation to be prepared will state the conditions which will constitute emergency situations; the format and the content of the notification; the format and the filing directions for the consent forms for those who request vacating of the uterus or sterilization; the places where these operations can be conducted, the required health (sanitation) and other conditions of those places, as well as issues regarding inspection and supervision of these places.

Permission for the termination of pregnancy

Article 6. The intervention stated in article 5 depends on the permission of the pregnant woman; for minors, on the permission of the parent together with the minor's consent for those who are under legal guardianships, either because they are minors or because they are mentally incapacitated, on the consent of the minor and the legal guardian, as well as on the permission of the justice of the peace. A permission from the pregnant woman who cannot make a conscious decision because of mental incapacity, however, is not required in order to vacate the uterus. If the individual whose consent is required as mentioned in the second paragraph of article 4 and the first paragraph of article 5 is married, then the consent of the spouse is required in order to vacate the uterus or for sterilization.

The acquisition of a permission from a parent or justice of the peace can be waived if the acquisition of such permission requires too much time, and if there is a danger to life or to one of the vital organs unless an urgent action is not undertaken.

Activities against item regarding the production, advertisement and propaganda of the medicines and devices

Article 7. Persons who domestically produce, distribute or bring to Turkey for commercial purposes, or who have possession for this purpose, those medicines and devices, which according to article 3 of this law are not accepted to have pregnancy prevention qualifications by the Ministry of Health and Social Welfare, shall be punished by imprisonment for seven months to two years and by a heavy fine of TL 30,000 to TL 150,000, the manufacturing unit will be closed and the medicines and devices will be confiscated.

The advertisement and propaganda of the medicines and devises, which are accepted to have the required pregnancy prevention qualification by the

Ministry of Health and Social Welfare according to article 3 of this law, must be done according to article 13 of Law No. 1262, dated 21 May 1928. Those persons who do not act according to this provision shall be punished by imprisonment for one month to 6 months and by a heavy fine of TL 7,500 to TL 30,000.

The use of undetermined (unpermitted) medicines and devices

Article 8. Those individuals, or the representatives of institutions, who act against the third paragraph of article 3, if the act does not warrant a heavier punishment, will be punished according to article 456 of the Turkish Penal Code. Even if the act is covered by the fourth paragraph of article 456 it still will be prosecuted.

Those who act against the fourth and fifth paragraphs of articles 3, 5 and 6, will be punished by a heavy fine not less than TL 50,000 unless the act warrants a heavier punishment.

Amended provisions of law

Article 9. Article 468 and the heading of chapter 4 of part 9 of the second book of Turkish Criminal Code No. 765, dated 1 March 1926 were amended as follows: "Crimes against wilfull and forced abortion".

Article 468. Whoever procures miscarriage of a woman's child without her consent shall be punished by heavy imprisonment for 7 to 12 years.

A person procuring miscarriage with the consent of a woman where the gestation period is beyond ten weeks, without medical necessity shall be imprisoned for two to five years. The woman giving consent for an abortion shall suffer the same punishment.

Where the act specified in the first paragraph has caused the woman's death, the offender shall be punished by heavy imprisonment for 15 to 20 years; punishment shall be heavy imprisonment from 8 to 12 years if such act caused her bodily injury.

If the act specified in the second paragraph has caused the woman's death, the offender shall be punished by heavy imprisonment for 5 to 12 years; if it caused her bodily injury the punishment shall be heavy imprisonment for 3 to 8 years.

Whoever performs certain acts for the purpose of abortion on a woman who is thought to be pregnant, without her consent, and as a result, causes death or bodily injury to the woman, shall be punished according to the provisions of articles 452 and 456.

Article 10. The first paragraph of article 469 of the Turkish Criminal Code, No. 765 dated 1 March 1926 was amended as follows:

Any woman who wilfully causes an abortion on herself when the gestation period is beyond ten weeks, shall be imprisoned for one to four years.

Article 11. Article 470 of the Turkish Criminal Code, No. 765, dated 1 March 1926 was amended as follows:

Article 470. Any person who has no authority to vacate the uterus perpetrates in an abortion in which the gestation period is less than ten weeks with the consent of the mother, shall be imprisoned for a minimum period of two years up to four years. If the abortion results with the death or bodily injury of the mother, this person will also be punished according to the provisions of articles 452 and 456.

The punishment of the offender who is not authorized to vacate the uterus and who acts against the first, second, third and fourth paragraphs of article 463, will be increased by one third.

If an authorized person gives medicine or provides devices for abortion to a woman who is thought pregnant and if he is actually involves in the process of vacating the uterus without the consent of the woman and causes bodily injury or death, he will be punished according to the provisions of articles 452 and 456. If the act is done with the consent of the woman the punishment will be reduced by one third.

Article 12. Article 471 of the Turkish Criminal Code, No. 756, dated 1 March 1926 was amended as follows:

Article 471. If a person sterilizes a man or a woman without their consent he shall be imprisoned for a minimum period of two years up to five years. If he causes bodily injury or death during the course of his action, he will also be punished according to the provisions of articles 452 and 456.

If the perpetrator is not authorized to do sterilization operations his punishment will increase by one third.

If the sterilization operation is done by an unauthorized person with the consent of the patient the perpetrator will be imprisoned for a minimum period of one year up to three years. If bodily injury or death occurs as the result of the operation, the perpetrator will also be punished according to the provisions of articles 452 and 456.

Repealed laws and provisions

Article 13. The law on Population Planning, No. 557, dated 1 April 1965 and the second paragraph of article 472 of the Turkish Criminal Code have been repealed.

Provisional Article. In the three months following the publication date of this law, new regulations and governing statutes will be drafted and put into force. Until then, the provisions of the regulations put into force according to the law on Population Planning, which are not contradictory to

this law will be in force. These are the regulations on terminating pregnancy when there is a medical necessity, and sterilization, and the book of statutes on Population Planning and the book of statutes on the in-service training activities of the General Directorate of Population Planning.

Validity

Article 14. This law shall come into force on the date of its publication.

Execution

Article 15. The Council of Ministers shall be responsible for the administration of this law.

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