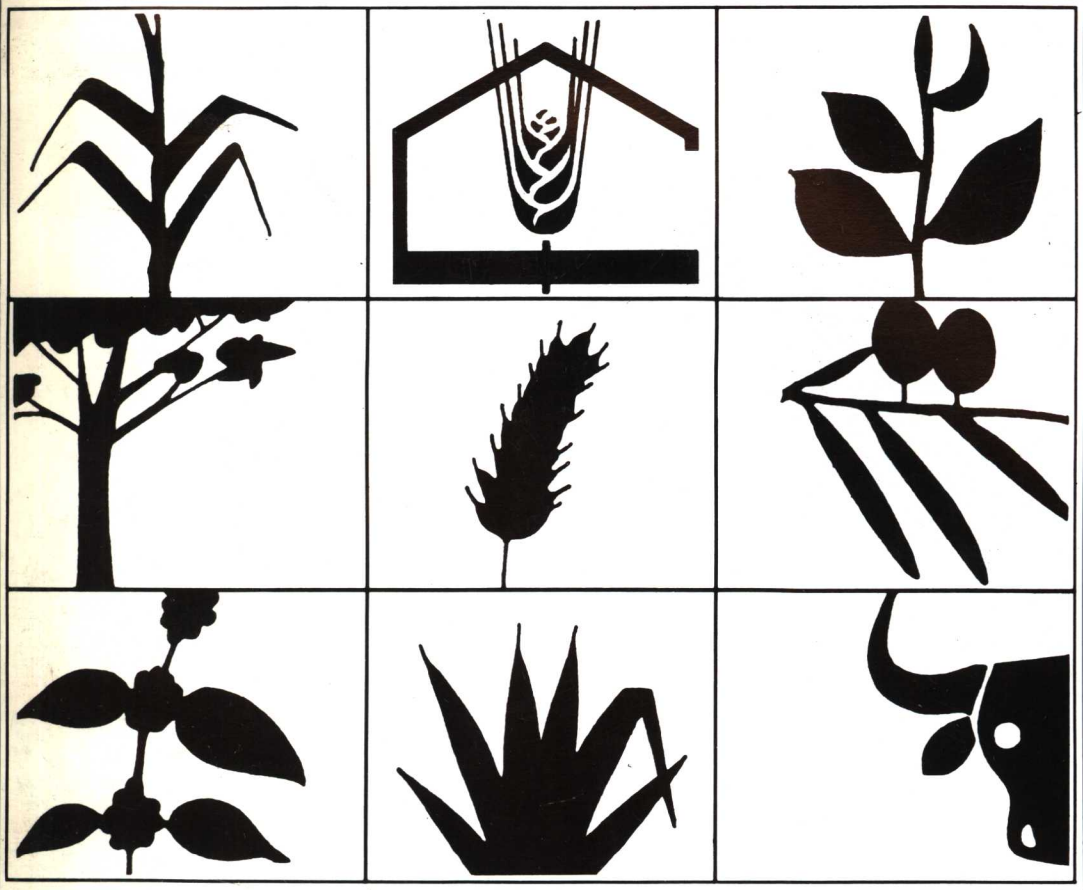
Tobacco: supply, demand and trade projections, 1995 and 2000



FAO ECONOMIC AND SOCIAL DEVELOPMENT PAPER

86

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1990

T O B A C C O: SUPPLY, DEMAND AND TRADE PROJECTIONS, 1995 AND 2000

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1/ This report has been prepared by the FAO Commodities and Trade Division. Grateful appreciation is extended to the World Health Organization whose financial assistance enabled the exercise to be undertaken, and to the USDA Foreign Agricultural Service (FAS) for data availability, inputs and advice provided by Mr Daniel J. Stevens, Agricultural Economist, FAS.

I. INTRODUCTION

1. Over the past decade, a number of trends have become apparent in the world tobacco economy which have implications for longer term developments in production, consumption and trade of raw leaf and tobacco products. As a result of steady growth in production in many developing countries and some particularly rapid increases in others, cultivation of the crop has become increasingly concentrated in these countries. Similarly, consumption of tobacco has continued to rise in most developing countries, whereas in high income countries as a group, there has been a decline. In per caput terms, average consumption in developed countries experienced a pronounced decline, though the absolute level remained considerably above that in developing countries where, however, it tended to rise. In trade, high income countries continued to account for about 81 percent of world imports of tobacco leaf and products, but in developing countries the net trade balance declined because imports grew more rapidly than exports.

2. Therefore, there was a need to examine the underlying factors affecting the world tobacco economy and to seek to quantify the impact of these trends over the longer term. At the request of the World Health Organization (WHO), particular attention was also given to analyzing consumption trends in order to assess the possible development of tobacco demand among the adult population in various countries of the world.

3. The present study is concerned with the market outlook to the year 2000. The base period for the projections is the decade 1974-76 to 1984-86 and, unless otherwise stated, comparisons of actual growth rates will refer to the average annual growth rates between 1974-76 and 1984-86, whereas discussion of projected growth rates will refer to the period from 1984-86. This projections study complements the report on "The economic significance of tobacco" issued as FAO Economic and Social Development Paper No. 85.

II. TRENDS IN PRODUCTION OF TOBACCO LEAF

4. World tobacco production increased at an annual rate of 1.8 percent between 1974-76 and 1984-86. Data for actual and projected production and the corresponding growth rates are contained in Annex Table 1 and 1 bis. A summary of production (farm weight), share of production and growth rates is given in Table 1.

5. Growth was principally in developing countries and much of that was in China. Growth for the remaining developing countries averaged just over one percent a year. This should be seen against the negative growth of 0.9 percent experienced by developed countries.

6. This disparity in growth resulted from several factors. Developed countries have experienced declining domestic use, increasing production costs, labour shortages, production control/price support schemes which restricted output and raised prices, and reduced exports as a consequence of the higher prices. Conversely, developing countries have gained from increasing domestic use, the availability of low cost labour, export demand, and relatively buoyant world tobacco prices resulting, at least in part, from price support programmes in developed countries. With its high value per unit of land, rural employment potential and foreign exchange earnings, tobacco production continued to be favoured by many developing countries.

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Table 1 - TOBACCO LEAF (farm weight): Actual production and growth rates

	Production		Growth rate per year	Share in total production	
	1974-76 average	1984-86 average		1974-76 average	1984-86 average
	(...thousand tons...)		(percent)	(.....percent.....)	
WORLD	**5 451.9**	**6 510.5**	**1.8**	**100.0**	**100.0**
Developing 1/	**3 143.5**	**4 407.9**	**3.4**	**57.7**	**67.7**
Latin America	689.1	714.1	0.4	12.6	11.0
Argentina	96.7	67.2	-3.6	1.8	1.0
Brazil	293.6	403.4	3.2	5.4	6.2
Mexico	69.3	62.6	-1.0	1.3	1.0
Africa	220.0	282.6	2.5	4.0	4.3
Malawi	32.9	72.3	8.2	0.6	1.1
Zimbabwe	91.7	116.9	2.5	1.7	1.8
Near East	288.1	237.7	-1.9	5.3	3.7
Turkey	234.3	172.7	-3.0	4.3	2.7
Far East	893.4	1 074.8	1.9	16.4	16.5
India	391.7	474.0	1.9	7.2	7.3
Indonesia	82.4	148.0	6.0	1.5	2.3
Korea, Rep. of	103.8	87.8	-1.7	1.9	1.3
Pakistan	66.8	84.9	2.4	1.2	1.3
Thailand	67.1	73.6	0.9	1.2	1.1
Asian CPE	1 052.9	2 098.7	7.1	19.3	32.2
China	992.1	1 999.0	7.3	18.2	30.7
Developed	**2 308.4**	**2 102.6**	**-0.9**	**42.3**	**32.3**
North America	1055.1	751.9	-3.3	19.4	11.5
Canada	101.4	80.9	-2.2	1.9	1.2
United States	953.7	671.0	-3.5	17.5	10.3
Western Europe	383.3	489.6	2.5	7.0	7.5
EEC	311.5	405.8	2.7	5.7	6.2
Greece	114.0	148.0	2.6	2.1	2.3
Italy	104.6	161.3	4.4	1.9	2.5
Eastern Europe and USSR	655.4	682.3	0.4	12.0	10.5
USSR	311.0	365.3	1.6	5.7	5.6
Eastern Europe	344.4	317.0	-0.8	6.3	4.9
Bulgaria	157.3	134.9	-1.5	2.9	2.1
Poland	97.4	103.3	0.6	1.8	1.6
Other Developed	196.4	164.1	-1.8	3.6	2.5
Japan	164.6	125.2	-2.7	3.0	1.9

1/ Including Oceania Developing.

7. Since the early seventies, the proportion of types of tobacco produced has changed. Production of light tobacco types (burley, flue-cured and other light air-cured) has increased more than the production of dark types of tobacco. As cigarettes are primarily made from light tobaccos, and the consumption of light type (particularly blended) cigarettes has increased at a much greater rate than that of other tobacco products, the changing nature of demand has resulted in the appropriate supply response. Thus, production between 1970-86 increased at an above average rate for burley (3.8 percent) and flue-cured (4.3 percent). Output of oriental leaf increased at an average rate of 2.5 percent, but with most of the growth occuring during the earlier years. The high labour requirements of oriental leaf have resulted in price rises with some buyers substituting burley or other light air-cured varieties. Countries which were producing burley or flue-cured tobacco or which were able to switch production, were in a better position to increase output during the period. Production is summarized in Table 2.

Table 2 - Rates of growth of total and per caput consumption and of adult population, 1974-76 to 1984-86

	World	Developing	Developed
	(.....percent per year.....)		
Total consumption	2.4	4.8	-0.4
Per caput consumption	0.1	1.9	-1.5
Population	2.3	2.8	1.1

8. Some of the major factors which affected production in the base period, and which are likely to influence future production, are discussed in the following paragraphs.

A. DEVELOPING COUNTRIES

Latin America and the Caribbean

9. Output in the region rose by only an average 0.4 percent during the review period. The increase was almost entirely due to Brazil with production declining in most other countries.

10. A price support fund in **Argentina** is maintained by a levy on cigarette sales. The size of the fund is relatively static and thus any increase in the amount of tobacco produced implies lower support prices. As the fund offered insufficient incentive to improve quality, export prospects were limited. Although production fell during the base period, a positive change was the reduced share of dark leaf tobacco which accounted for 50 percent of output in 1974-76 and less than 20 percent in 1984-86. The introduction of new cultural practices may assist in the improvement of yields and quality and a reduction in cost of production from the currently estimated US $1.85 per kg.

11. The major advances in growth of production in **Brazil** were made in the earlier years. The reduced growth rate of 0.6 percent annually from 1979 reflects a change of priorities from production increases to quality improvements. In general, there has been a substantial change from the

production of dark tobaccos to the production of light tobaccos which now account for about three-quarters of output.

12. The cost of production of light tobaccos in Brazil has been estimated at about US $1.35 per kilogram or about half the cost of production in the United States and among the lowest in the major tobacco exporting countries. This competitive advantage assists exports and stimulates production on land which, at present, could not produce crops providing returns comparable to those from tobacco.

Africa

13. About two-thirds of the leaf produced in Africa is grown in Malawi and Zimbabwe. The remaining output is divided among 20 countries.

14. **Zimbabwe** produces mainly flue-cured, primarily for export. Markets were lost during the years of trade sanctions, and average production of 117 000 tons between 1984-86 failed to match the peak of 138 000 tons in 1964. However, the growth rate has accelerated slightly during the eighties as the industry has attempted to recapture export markets. A very large proportion of the foreign exchange receipts of Zimbabwe is earned from tobacco which also provides the main source of employment. The advantage of lower labour costs may have lessened in recent years and the rising cost of imported inputs plus the increased cost of transportation of output may have reduced Zimbabwe's competitive advantage.

15. **Malawi** benefited from the problems incurred by Zimbabwe as it provides a replacement source of tobacco. Thus, a very satisfactory growth rate of 8.2 percent was achieved during the review period. Growth has moderated somewhat in recent years.

16. As with Zimbabwe, the national benefits of tobacco production are substantial and the problems faced in marketing (as both are landlocked countries) are similar. In addition, there is an extreme shortage of fuel wood to support flue-cured and fire-cured processing.

Near East

17. **Turkey** accounts for about three-quarters of regional production. Production is almost exclusively of oriental leaf (experimental production of burley has shown limited prospects whilst that of flue-cured has failed) with 55 percent destined for export. The replacement, by some buyers, of oriental leaf by burley or light air-cured varieties has severely affected export prospects.

Far East

18. **India** is the largest producer within the region. The bulk of its output has been consumed domestically and, with recent consumption increases exceeding those for production, the proportion of the crop used nationally has increased from 88 percent in 1974-76 to 93 percent in 1984-86.

19. The growth rate of production of flue-cured tobacco in **Indonesia** was, at 9.0 percent, well in excess of that for tobacco as a whole. During the base period, Indonesia replaced the Republic of Korea as the second largest producer in the region. More than 80 percent of output is used domestically.

20. Output in the **Republic of Korea** has fallen since the mid-seventies with the decline averaging 1.7 percent per year. Growers receive guaranteed prices, which tend to be relatively high (although the cost of production may be somewhat higher than in other developing countries) for their sales to the State Tobacco Monopoly.

Asian Centrally Planned Economies

21. Accounting for 30 percent of world output and almost half of the production of developing countries, **China** is by far the largest producer in the world. Almost all the tobacco produced, principally flue-cured leaf, is consumed domestically. Attempts are being made to improve quality.

22. Although the average rate of growth during the review period was over seven percent, there have been wide fluctuations in production and, consequently, stocks. Small crops in 1979 and 1980 reduced stocks and increased prices led to production increasing by 77 percent in 1981 and 46 percent in 1982. The resulting high level of stocks caused a reduction in prices which contributed to lowered (by 37 percent) output in 1983. The pattern continued with a record crop in 1985 causing stocks to double by the end of that year. The subsequent price fall resulted in production being reduced by nearly 30 percent in 1986. With provincial autonomy, the large number of growers and rapid consumption growth, it is difficult to stabilize production in China. Production costs are not readily available but are believed to be low relative to other major producers.

B. DEVELOPED COUNTRIES

North America

23. **The United States** now accounts for about 10 percent of world production (and a third of production by developed countries). Price support measures resulted in a fall in the competitiveness of domestically produced tobacco with less expensive imported leaf being substituted; imports rose from 93 000 tons in 1970 to a peak 243 000 tons in 1982 and have since stabilized at around 200 000 tons annually. The impact of that substitution was amplified by reduced domestic consumption and slightly declining exports.

24. Following the amendment of the price support programme, support prices for flue-cured and burley tobacco were reduced by 15 percent. This together with a revised adjustment mechanism in order to slow future increases in support levels and thus to match output more closely to expected use, should stimulate growth in both the domestic and export sectors.

25. Prices paid for United States leaf reflect quality. Costs of production are high compared to developing countries - the cost of producing flue-cured tobacco in 1986 was estimated at US $2.33 per kg, with the average cost of burley production at US $2.74 - however, these costs may be among the lowest in developed countries. Cash returns to farmers are relatively good compared to other realistic possibilities.

26. **Canada** also experienced a decline in output although this was limited to, on average, 2.2 percent. Both domestic use and exports have also fallen, by more than 1 percent per annum. Data on costs of production are not readily available. However, it is thought that Canada is a

relatively high cost producer of (mainly flue-cured) tobacco. Costs and loss in yields are incurred by the necessity of glass cover for seedlings and the liability to frost damage both early and late in the season. Nevertheless, alternatives are limited.

Western Europe

27. Regional output increased by 2.5 percent annually during the base period. Producers in the European Community, assisted by the Common Agricultural Policy (CAP) which encourages production through a system of support prices, premiums to buyers and export restitution payments, recorded an average increase of 2.7 percent. Notwithstanding only moderate increases in support prices over the past few years, tobacco remains a profitable crop, with few realistic alternatives, in many areas. The Community accounts for over three-quarters of output in the region. Countries such as the Federal Republic of Germany and France, where the possibilities of economic alternatives are more readily found, have recorded decreases throughout the review period.

28. The tobacco CAP has been beset by two continuing problems. First, with production failing to adjust to demand, larger stocks have accumulated. Second, much of the tobacco grown is of varieties and grades which are not highly desirable. Amendments have now been made to the CAP which should reduce these problems.

29. **Italy**'s production has increased almost continually since the inception of the tobacco CAP in 1970. However, production of burley and flue-cured types have fallen whilst that of dark types has increased. Thus, surpluses remain a constant problem. Production of tobacco (mainly oriental leaf) in **Greece** has increased by 2.6 percent annually but the failure to adjust to the requirements of the domestic industry for tobacco for blended cigarettes resulted in record stocks at the end of 1986. Stocks at that time amounted to 375 000 tons (three times those in 1970) and were equivalent to about three years use for domestic and export purposes.

30. **Spain**'s production of the varieties suitable for blended cigarettes, which was insignificant in the early seventies, accounted for over half of output in 1986. As a result, stocks have kept relatively low - equivalent to production for about a year or domestic consumption for six months.

Eastern Europe and the USSR

31. The region as a whole accounts for half of world oriental production with the USSR first, and Bulgaria fourth, among producers of this tobacco type. Local cigarette production ensures strong demand and the production of oriental tobacco (a proportion of this is semi-oriental with lower production costs than the traditional variety) has increased in the region whilst decreasing elsewhere.

Other developed countries

32. Production in **Japan** fell by an average 2.7 percent annually during the base period. High producer prices and mediocre quality resulted in stocks in 1978 amounting to 572 000 tons (much of low quality) - equivalent to domestic use for over two and a half years. Although stocks fell to 74 000 tons at the end of 1986, they still represented almost the same cover for domestic use as in 1978, since consumption also declined.

III. TRENDS IN CONSUMPTION OF TOBACCO AND FACTORS AFFECTING DEMAND

33. The following analysis refers to final consumption rather than intermediate use of leaf by processors. It differs from previous studies in that an attempt has been made to estimate consumption per caput (adults - aged 15 and over) for each country. In cases where actual data are not available, the numbers of population aged 15 or over, published by the United Nations, have been used as the basis for calculation. Data for actual and projected consumption and the corresponding growth rates are shown in Annex Table 2 (aggregate) and Annex Table 3 (per caput).

34. In cases where consumption in raw leaf equivalent is not available data are derived from the conversion of tobacco product consumption or sales statistics (noting that conversion will vary between countries and throughout time). For countries for which those data were not available, apparent consumption was calculated from production and net trade in leaf and products. Although these figures give a general indication of magnitudes and changes over time, annual data may not always be correct because of difficulties in adjusting for stock change.

35. The consumption of tobacco is related to many factors. Among these are population, real incomes, prices, taxes, tariff and non-tariff measures, anti-smoking activities and, in some instances, the availability of tobacco products.

36. Anti-smoking activities and measures to restrict smoking are relatively new phenomena but are understood to influence consumption considerably - particularly in developed countries. These activities were started in the early sixties following the publication of a number of studies on the relationship between smoking and health. There is evidence to suggest that anti-smoking campaigns may be one of the principal factors affecting demand. Although they are gaining some momentum in developing countries, measures such as the banning of tobacco advertising or the printing of health warnings have not yet generally had a significant effect on consumption.

37. The effects of price and income changes differ significantly between developed and developing countries. In developed countries, especially those with high average personal incomes, there is evidence to suggest that changes in income and/or price have comparatively little effect on consumption. Although unavailability of data limits the scope of analysis in developing countries, evidence is available to indicate that changes in price affect demand markedly. Surveys on family expenditure do indicate that although changes in consumption of tobacco as a result of changes in income are low, they are higher than is the case in developed countries.

38. In many developed countries, and in an increasing number of developing countries, taxes are a substantial proportion of the retail price. Taxes and duties have risen considerably in developed countries in recent years. These increases have tended to affect cigarettes more than other tobacco products. Substantial rises tended to encourage smokers to change to other tobacco products. However, these changes were generally only short-lived. In developing countries the substitution of hand-made for manufactured cigarettes, following price increases for the latter, is generally more pervasive. However, with handmade cigarettes consumption forming a larger part of total consumption in developing countries, the effects of changes in price and income tend to generate significant substitution movements in both directions.

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39. Quantitative restrictions and trade regulations also affect the consumption of tobacco. These measures include: import prohibition, quotas, licences, regulations, concerning the mixture of local and imported tobacco, and policies adopted by state monopolies for the purchase and distribution of tobacco (which will influence consumption through their effects on availability and price).

40. There is wide variation between countries on the scope and level of customs tariffs on tobacco. Normally, duties will affect consumption through the price system but the effects may run deeper if, for instance, the intention is to protect local production from imports. Comparison of tariffs between countries and over time is difficult because of the considerable differences in the kind of tax applied and the description of the product within each class. However, in connection with the Uruguay Round of negotiations on international trade, the GATT Secretariat prepared a compendium of tariffs including those on tobacco for a large number of developed countries 1/. Annex Tables 11 and 12 present some of the data on tobacco given in that document. Information for only some of the tariff classes for leaf tobacco and products, mainly those for which the value of trade in a given country in 1984 was substantial, has been extracted from the GATT report. For each tariff class only the Most Favoured Nations (MFN) tariff levels are shown for two periods, i.e. before the Tokyo Round in 1973 (MFN 1973) and in 1984 (MFN 1984). In general, it appears that the incidence of tariffs for the countries shown is higher for tobacco products than for leaf, and there has been a slight tendency for the incidence of tariffs on tobacco to decline over time.

41. The overall increase in the consumption of tobacco has coincided with the increase in world adult population. Overall growth in consumption per caput was only 0.1 percent annually during the review period. As shown in Table 2, the decline in consumption (totally and per caput) in developed countries has been little more than matched by the growth of consumption in developing countries.

42. A comparison of consumption and its growth rates, both aggregate and per caput, between 1974-76 and 1984-86 is given in the Table 3.

43. Some of the major findings from Table 3 are as follows:

a) aggregate consumption rose by 2.4 percent a year, from an average 4.7 million tons in 1974-76 to an average 6.0 million tons in 1984-86;

b) developing countries accounted for 49 percent of consumption in 1974-76 and 61 percent in 1984-86;

c) developing countries had a positive annual growth rate of 4.8 in aggregate terms but only 1.9 percent in per caput terms;

d) developed countries experienced a negative growth rate of 0.4 percent in aggregate terms, this increased to 1.5 percent in per caput terms.

1/ See GATT document MTN/NG6/W/12/Add.1 of 29 February 1988.

Table 3 - Comparison between aggregate and per caput consumption growth rates, 1974-76 to 1984-86

	AGGREGATE CONSUMPTION			PER CAPUT CONSUMPTION		
	1974-76 average	1984-86 average	Growth rate 1974-76 to 1984-86	1974-76 average	1984-86 average	Growth rate 1974-76 to 1984-86
	(thousand tons)		(percent per year)	(..... kg .....)		(percent per year)
WORLD	**4703.0**	**5968.9**	**2.4**	**1.83**	**1.85**	**0.1**
Developing 1/	**2285.4**	**3645.2**	**4.8**	**1.32**	**1.59**	**1.9**
Latin America	349.9	373.2	0.6	1.85	1.48	-2.2
Argentina	56.3	42.4	-2.8	3.05	2.01	-4.1
Brazil	133.6	156.6	1.6	2.06	1.82	-1.3
Mexico	43.8	47.2	0.8	1.36	1.03	-2.7
Africa	113.7	153.9	3.1	0.63	0.63	0.1
Algeria	14.7	21.1	3.7	1.75	1.78	0.2
Morocco	12.0	22.6	6.5	1.31	1.75	2.9
Nigeria	12.7	21.8	5.6	0.36	0.44	2.1
Near East	157.5	229.3	3.8	1.49	1.62	0.9
Egypt	22.4	49.3	8.2	1.03	1.74	5.4
Turkey	60.2	65.5	0.8	2.51	2.09	-1.8
Far East	732.7	980.9	3.0	1.12	1.15	0.3
India	310.4	395.4	2.4	0.83	0.82	-0.1
Indonesia	75.5	137.9	6.2	0.96	1.35	3.5
Korea, Rep.of	51.7	76.8	4.0	2.35	2.71	1.4
Pakistan	58.0	84.9	3.9	1.42	1.50	0.5
Thailand	57.4	63.9	1.1	2.44	1.95	-2.2
Asian CPE	931.6	1 907.9	7.4	1.55	2.39	4.4
China	868.6	1 812.9	7.6	1.55	2.44	4.6
Developed	**2 417.6**	**2 323.7**	**-0.4**	**2.88**	**2.48**	**-1.5**
North America	670.4	601.4	-1.1	3.76	2.91	-2.5
Canada	64.0	58.0	-1.0	3.83	2.91	-2.7
United States	606.4	543.5	-1.1	3.75	2.91	-2.5
Western Europe	753.9	702.1	-0.7	2.71	2.33	-1.5
EEC	652.9	603.8	-0.8	2.75	2.34	-1.6
France	113.3	106.4	-0.6	2.83	2.45	-1.4
Germany, F.R.	153.3	124.6	-2.1	3.17	2.41	-2.7
Italy	92.8	87.1	-0.6	2.20	1.89	-1.5
United Kingdom	112.0	91.6	-2.0	2.59	2.00	-2.5
Eastern Europe and USSR	627.1	703.5	1.2	2.31	2.38	0.3
USSR	406.3	455.6	1.2	2.16	2.18	0.1
Eastern Europe	220.8	247.9	1.2	2.66	2.84	0.7
Poland	88.3	93.4	0.6	3.42	3.36	-0.2
Oceania	35.2	31.4	-1.1	2.93	2.17	-2.9
Australia	28.4	25.8	-1.0	2.88	2.15	-2.9
New Zealand	6.8	5.6	-1.9	3.15	2.26	-3.3
Other Developed	331.0	285.3	-1.5	3.26	2.45	-2.8
Japan	292.0	248.2	-1.6	3.46	2.63	-2.7

1/ Including Oceania Developing.

44. Some of the principal factors which influenced consumption in some major markets are as follows:

A. DEVELOPING COUNTRIES

Latin America and the Caribbean

45. Although aggregate consumption increased during the base period, this was due to increases during the first years. Price increases and a reduction in the growth of real incomes contributed to a subsequent decline.

46. Similarly, while aggregate consumption in **Brazil**, which accounts for over 40 percent of the market in Latin America, increased for the whole period, it declined between 1981-85 reflecting a reduction in real incomes, the imposition of taxes on cigarettes in 1982 (now representing more than 75 percent of the retail price) and a slowdown in population growth.

47. **Argentina** experienced both a reduction in aggregate and per caput consumption. Reductions in real incomes, price increases following the relaxation of price controls and slow population growth were contributory causes. Taxes represent over 70 percent of the retail price.

48. Although aggregate consumption in **Mexico** rose, per caput consumption fell with reductions in the growth of real earnings, price increases and slower population growth, diminishing growth during the latter years of the period.

Africa

49. Sharp reductions in real incomes restricted the growth of consumption per caput. Only continuing rises in population allowed some aggregate growth.

50. Almost 45 percent of consumption in the mid-eighties took place in **Algeria, Morocco** and **Nigeria.**

Near East

51. Aggregate consumption more than doubled between 1970 and 1986. Reductions in real incomes contributed to a slackening of growth in the eighties.

52. The growth of aggregate consumption in **Turkey** fell during the eighties to about half the rate of the seventies. This reflects slower growth in population (consumption per caput fell) and increases in real price although import restrictions, which had previously restricted growth, were lifted in 1984. Cigarette advertising is only permitted in the press and some restrictions on public smoking were recently imposed.

53. Growth in aggregate and per caput consumption was very strong in **Egypt** during the review period. However growth has diminished during the recent years reflecting reduced growth in incomes and population. There are now limitations on advertising with health warnings printed on cigarette packs.

54. Growth in the remainder of the region has been mixed. Although consumption has slackened in Iraq and Saudi Arabia, growth for the whole

base period was in excess of 8.0 percent annually. Aggregate growth was slower in Islam Republic of Iran and Syria with consumption per caput declining since the mid-seventies.

Far East

55. Consumption in **India** grew from 253 000 tons in 1970 to almost 400 000 tons in the mid-eighties. Sustained growth in real incomes plus stable prices assisted aggregate growth but increased taxes resulted in slower growth at the end of the period. Leaf imports are restricted to 6 percent of the value of cigarette exports. Although tobacco advertising on government media is banned, the level of anti-smoking activity is considered low.

56. Demand in **Indonesia** expanded strongly during the base period. A contributory cause was that taxes on domestic tobacco products were reduced to counter competition from unofficial imports. The potential for further growth may be limited by the considerably reduced growth of real incomes during the mid-eighties.

57. Tobacco consumption, in aggregate, in the **Republic of Korea** almost doubled between 1970 and 1986. Although prices after 1982 were kept constant, the rate of growth slowed in the eighties with anti-smoking activity affecting consumption. Imports of cigarettes, insignificant prior to 1986, were increased in 1986 and 1987 as a concession to trading partners and the legal status of the tobacco monopoly has been changed in order to allow the manufacture of foreign brands of cigarettes under licensing.

58. Population increase in **Pakistan** resulted in strong aggregate growth. There was a reduction in consumption per caput of 2.2 percent in **Thailand** but increased population resulted in positive aggregate growth.

Asian Centrally Planned Economies

59. **China** accounts for about 30 percent of world tobacco consumption - up from 18 percent in 1970. Apparent consumption grew at an average annual rate of 7.6 percent during the review period with some acceleration during the second half. Factors responsible for the strong growth were rising real incomes, stable prices and increased availabilities following a leaf shortage in 1979-81. Per caput growth was lower - an average 4.6 percent per annum in spite of relatively limited anti-smoking activity, although there is no advertising for cigarettes and there are designated "no smoking days". Leaf imports are subject to a 50 to 70 percent tariff with products being charged 150-180 percent.

B. DEVELOPED COUNTRIES

North America

60. Aggregate consumption was reduced by about 10 percent in total during the base period with consumption per caput falling at an average rate of 2.5 percent a year.

61. Aggregate and per caput consumption in the **United States** fell during the base period. Both the growth of real incomes and population declined. Although total taxes were reduced, an intensification of anti-smoking measures, including the banning of advertising on television and radio, contributed to the fall of consumption.

62. The increase in anti-smoking activities, higher taxes and prices and declining population growth rates contributed to the fall in aggregate and per caput consumption in **Canada**.

Western Europe

63. Aggregate consumption fell by about 2.0 percent a year during the late seventies. Some recovery took place in the 1980s with the result that the fall in aggregate consumption during the base period was contained at 0.7 percent per annum. Consumption per caput between the mid-seventies and mid-eighties fell at double that rate. Consumption in the European Community, which accounts for about 85 percent of use in the region, followed the same overall trend.

64. Although the sharp decline in aggregate consumption in the **Federal Republic of Germany** which took place in the late seventies was arrested in the early eighties, aggregate and per caput consumption fell during the base period.

65. The situation in the **United Kingdom** was similar with increased taxation and an expansion of anti-smoking measures contributing to the decline. The decline was more moderate in **France** and **Italy**.

66. Nine of the twelve members of the European Community levy taxes in excess of 70 percent of retail prices. The other three countries, Greece, Luxembourg and Spain, levy taxes in excess of 53 percent.

Eastern Europe and the USSR

67. Aggregate consumption increased by 1.2 percent annually over the base period whilst per caput consumption experienced a modest 0.3 percent average annual increment.

68. Although aggregate consumption in the **USSR** increased by 1.2 percent annually during the whole base period, growth slackened during the eighties with a reduction in the growth of real incomes and population. Anti-smoking campaigns have recently been intensified.

69. Reductions in consumption per caput in **Poland** and **Romania** have been more than counter-balanced by increases elsewhere in eastern Europe. Thus, regional growth per caput was 0.7 percent annually and 1.2 percent in aggregate.

Oceania

70. Consumption per caput in **Australia** and **New Zealand** fell substantially at 2.9 percent and 3.3 percent respectively during the base period.

Other developed countries

71. Consumption in Japan fell strongly during the base period following a slowing in the growth of real incomes and population and an increase in anti-smoking measures. Some stabilization of the market has been notable for recent years.

IV. DEVELOPMENTS IN MANUFACTURING

72. Most tobacco usage is for cigarette production using an estimated 80 percent or more of leaf. The importance of cigarette production, the relative decline in other tobacco products and the availability of data for cigarettes leads to concentration in this study on developments in the manufacture of cigarettes.

73. In 1986, 50 percent of cigarettes were produced in developed countries. These countries produced about one-third of total leaf but accounted for 85 percent of world exports of cigarettes. The apparent imbalance is explained by the capital intensive nature of production and the requirements for research and development and the specialised supply of materials.

74. Developing countries generally use older technology which may be less efficient in operation and material usage. In some instances, the finished product may suffer from a lack of consistency. Thus, developing countries have generally been operating at a disadvantage which is now being redressed with the result that the share of cigarette production of developing countries rose from 33 percent in the early seventies to 50 percent in 1986. During the same period, exports rose from 8 to 15 percent of this total.

75. Cigarette output between 1970 and 1986 is given in Table 4. Annual growth rates were as follows:

	Percent
World	3.0
World (excluding China)	1.9
Developing countries	5.6
China	8.7
Developed countries	1.1

76. The better relative performance of developing countries has principally resulted from their increased consumption whereas consumption in many developed countries has declined. Additionally, many of the population of developing countries are rural dwellers with home-produced and consumed tobacco forming a high proportion of use. As disposable incomes rise, a switch may be made to factory-produced cigarettes. The analysis of data, covering only commercially produced tobacco products, indicates substantial increases during periods of economic expansion. Thus, an increase in the output of factory made cigarettes may lead to an overstatement of consumption if the net effect (namely a deduction for the reduced consumption of home made cigarettes) is not considered. The reverse effect may occur during periods of economic decline.

77. Cigarettes may be classified into four broad categories (there are additional variations with some cigarettes unique to an area):

- Virginia, made only from flue-cured tobacco, with maintained popularity in the United Kingdom and many members of the Commonwealth;

- dark tobacco (French style) which were popular in French, Portuguese and Spanish speaking countries. There has now been a substantial replacement by blended cigarettes;

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