

SECTORAL ACTIVITIES PROGRAMME

Working paper

The world tobacco industry: Trends and prospects

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to stimulate discussion and obtain comments

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Executive summary

This paper is essentially on cigarette manufacturing. Its focus is on the 1990s. Where appropriate, reference is made to other tobacco products, and to the production of and the trade in tobacco.

Tobacco is grown in more than 100 countries. China is the world's leading producer. Other principal suppliers are the United States, India, Brazil, Turkey, Zimbabwe and Malawi. Tobacco products are consumed all over the world. Most tobacco is used for smoking. Tobacco is the essential ingredient for cigarettes, pipes, cigars, roll-your-own, *bidis*, and *kretek* cigarettes. Tobacco is also used for smokeless tobacco such as snuff and chewing tobacco. Over 80 per cent of world tobacco is used for cigarettes.

Among cigarettes, the worldwide share of the "American blend" (a mixture of Virginia, Burley and Oriental tobaccos) is increasing, and that for dark cigarettes is in decline. China accounts for 30 per cent of world production and consumption of cigarettes by volume. At 12 per cent of the total, the United States is the world's second largest producer. Other principal suppliers are Japan, Indonesia, Brazil and Germany. Following many decades of steady growth, in the 1990s the growth of world demand for tobacco products came to a halt. Demand in the more developed countries is in decline. In the less developed countries its growth has slowed down.

The world cigarette market is becoming more concentrated by company. The three largest companies sell close to two-thirds of the world's total. In individual countries, the degree of concentration can be much higher. The tobacco companies have reacted to the stagnation of demand in their traditional markets in three ways: consolidation (the recent period has seen a wave of mergers and acquisitions), diversification (exploring new markets and new market segments), and raising productivity.

Governments face a dilemma. They have an economic and a social interest in tobacco. It provides jobs, tax revenue and (for some) foreign exchange earnings. But governments also have a duty to protect their population's health. Treating people for smoking-related illnesses can be costly. In practice, governments cope with these conflicting pressures by discouraging demand in several ways (and with varying degrees of intensity). Raising cigarette tax is a favourite. Some have sued the tobacco companies in an effort to recover the cost of treating people for smoking-related illnesses.

Worldwide employment prospects in the tobacco processing industry are not bright. Consolidation, privatization, higher productivity and stagnating demand growth together have a dampening effect on employment prospects. Jobs in countries with high costs and declining demand look particularly vulnerable. But in an open world economy it is ultimately up to the large corporations to decide where to concentrate production, and which market will be supplied from where.

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1. Introduction

Tobacco products are being chewed, snuffed, and (mostly) smoked all around the world. People have been consuming tobacco products for centuries. Tobacco is also grown in many places. Originally from the Americas, since 1492 it has spread far and wide. Today, tobacco is grown in over 100 countries.

No other product has stimulated demand for tobacco as much as the cigarette. Until the 1870s, cigarettes were mainly rolled by hand. Today, they are made by machines. Thanks to these machines, which can produce hundreds if not thousands of sticks per minute, cigarettes have become an article of mass consumption. In the process, cigarettes have become the main tobacco product (box 1). Today, over 80 per cent of tobacco grown is used for cigarettes. The world market for cigarettes is dominated by a low and steadily diminishing number of suppliers.

Box 1. Tobacco usage

It is useful to distinguish smoking from smokeless tobacco. Smokeless tobacco is tobacco that is consumed in an unburned form. The main types of smokeless tobacco are snuff and chewing tobacco. Snuff is powdered tobacco that can be inhaled through the nose or taken orally. It is popular in the United States and in Scandinavia. *Plug*, *loose-leaf* and *twist* are the main types of chewing tobacco used in Western Europe and North America but their use is in decline. *Pan* chewing (or *betel quid*) chewing is popular in South and South-East Asia.

Cigarettes are the most popular type of smoking tobacco, as indeed of all tobacco. They can be without filter, but most are sold with filter-tips. They are machine made, but an important (sub-market) segment consists of Roll-Your-Own (RYO) cigarettes. *Bidis* are popular in India, where eight times as many *bidis* are sold as cigarettes (but sales of cigarettes are increasing more rapidly). *Bidis* consist of a small amount of tobacco wrapped in *temburni* leaf and tied with a small string. *Cheroots* are small cigars made of heavy-bodied tobacco; they have no wrapper and contain a single binder. *Kreteks* are indigenous cheroots containing tobacco, cloves and cocoa. *Kreteks* are very popular in Indonesia, where three times as many *kreteks* as cigarettes are being produced. Cigars come in many shapes and sizes from cigarette-sized cigarillos to 10 g. double coronas. Lastly, pipe smoking is one of the oldest methods of smoking tobacco. Pipes are smoked around the world but they differ in size, shape and material used. Certain water pipes allow a number of people to smoke simultaneously from the same pipe.

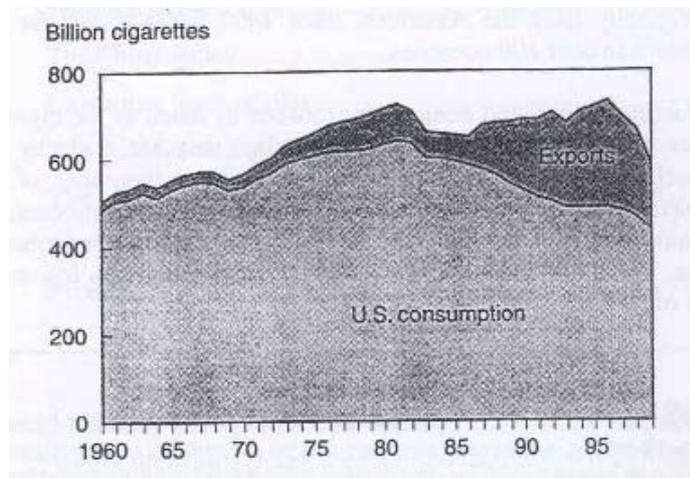
Sources: Corrao et al., 2000; WHO, 1997.

The tobacco industry is no longer growing at the steady pace of the years prior to 1990 (Chapter 2). World cigarette demand was virtually flat in the 1990s. Demand is weak in the established markets of the OECD area. In North America it has been declining since the early 1980s (figure 1). US cigarette companies also face the problem of litigation (section 3.3); they are defendants in hundreds of lawsuits.

But the picture is not all bad for the large tobacco companies. Profits are good.¹ In the 1990s, the more internationally-oriented among them saw huge increases in sales volume. They “conquered” large shares of the East European and Russian markets when these countries liberalized their trade and investment regimes and privatized their former state monopolies. China, at one-third of the world market by volume, is the big prize that so far has escaped them. But in China their market share can only go up. The question is how far and how fast this will take place.

¹ Among the 150 largest US companies, Philip Morris was the only one to show average earnings growth per share of over 15 per cent per year for the period 1960-99 and for each of the subperiods (1960-80; 1970-90; and 1980-99) (FUW 25/4/01).

Figure 1. Components of demand for US cigarette production (1960-99)



Source: Gale et al., 2000 (based on USDA).

This paper is essentially a paper on cigarette manufacturing. Its focus is on the 1990s. It pays special attention to the most recent period. Where appropriate, reference is made to other tobacco products, and to the production and trade of tobacco. The paper is organized as follows. The second part of this introduction discusses the relationship between tobacco and cigarettes. Chapter 2 considers world demand for, production of and trade in tobacco and cigarettes. Chapter 3 discusses the role of the tobacco companies, particularly that of the large multinationally operating groups, in production and trade. Governments for their part face a dilemma. The production and marketing of tobacco and tobacco products generate employment and tax revenues. But the consumption of cigarettes can be harmful to health. Treating people for smoking-related illnesses is expensive. How governments cope with this dilemma is the subject of Chapter 4. Chapter 5 is on employment in the tobacco-processing industry. Hundreds of thousands of people are active in the tobacco industry. Will their number decrease, and if so, where will this occur? Employment in tobacco *growing* is counted in the millions. Though not the subject of this paper,² the last section of Chapter 5 will make a few remarks on employment in tobacco growing. Chapter 6 offers some conclusions.

1.1. Tobacco and cigarettes

Tobacco is an essential ingredient for cigarettes, cigars, RYO (roll-your-own) tobacco, pipe tobacco, cigars, snuff and chewing tobacco. That is not to say that the *value* of tobacco in cigarettes and other tobacco products is necessarily high. In fact, in many OECD countries its share in total value is low compared to that of taxes, advertising and

² The paper will also not consider other tobacco-related jobs, such as those in leaf dealing; in the production of cigarette machines, paper and packaging materials and filters; in advertising, wholesale trade and transportation; or in retail trade activities such as supermarkets, petrol service stations and special tobacco outlets.

retailing: in the US, in 1997, tobacco made up only 4 per cent of the total (Gale et al., 2000). With taxes rising, this percentage is likely to drop even further.

Most tobacco is used for cigarettes. In the early 1990s, it was estimated that at least 80 per cent of tobacco leaf was used for cigarettes (FAO, 1990). Today, this might well be higher as demand for cigarettes is seen to outgrow that for other tobacco products.

Demand for tobacco is thus in large part determined by demand for cigarettes. The volume of tobacco sold in the world can be expected to closely follow increases (or decreases) in the demand for cigarettes. That is not to say that demand for tobacco increases at the same pace as that for cigarettes. Historically, the amount of tobacco used per cigarette has decreased as a result of the increased use of filter tips; of the smaller diameter of cigarettes; and of reduced waste due to more efficient packing technologies. In addition, the proportion of leaf that can be used has increased through advanced processing technology (FAO, 1990).

1.1.1. Different types of cigarettes use different types of tobacco³

Neither tobacco nor cigarettes are a homogeneous product. Due to the different conditions (type of soil, rainfall, irrigation, climate) in the various tobacco growing regions, tobacco leaves vary in size, thickness, colour, and flavour. Factors like the environment, the leaf's position on the stalk, harvesting, curing (i.e. drying), handling and processing, all influence the quality of the leaf and ultimately the smoking product. The sugar and nicotine ratios of the leaf account for the overall aroma and flavour of the tobacco leaf. The quality of the leaf is determined by its colour, texture, body, thickness, strength, flavour, aroma, rate of burn and processing qualities. Quality is expressed in grades. The US Department of Agriculture (USDA) recognizes 117 official grades of tobacco (see also Annex 1).

There are basically four types of cigarettes: Virginia ("flue-cured");⁴ "American" blend; dark; and oriental cigarettes. The latter two, dark (traditionally popular in French-, Spanish-, and Portuguese-speaking countries) and oriental (traditionally popular in the Eastern Mediterranean, Eastern Europe and the (former) USSR) have lost ground to the first two. Virginia (or "English") cigarettes are made almost entirely from flue-cured Virginia tobaccos. They are popular in the UK and in its former colonies. The American blend is currently the most popular type of cigarettes. Its world market share continues to grow. The main tobacco components of the American blend are flue-cured Virginia (approx. 50 per cent), Burley and Oriental (around 12 per cent). In addition, each cigarette brand uses a specific mix of tobaccos (and other ingredients such as sugar and aromatic substances) to give it its characteristic taste and to set it apart from its competitors.

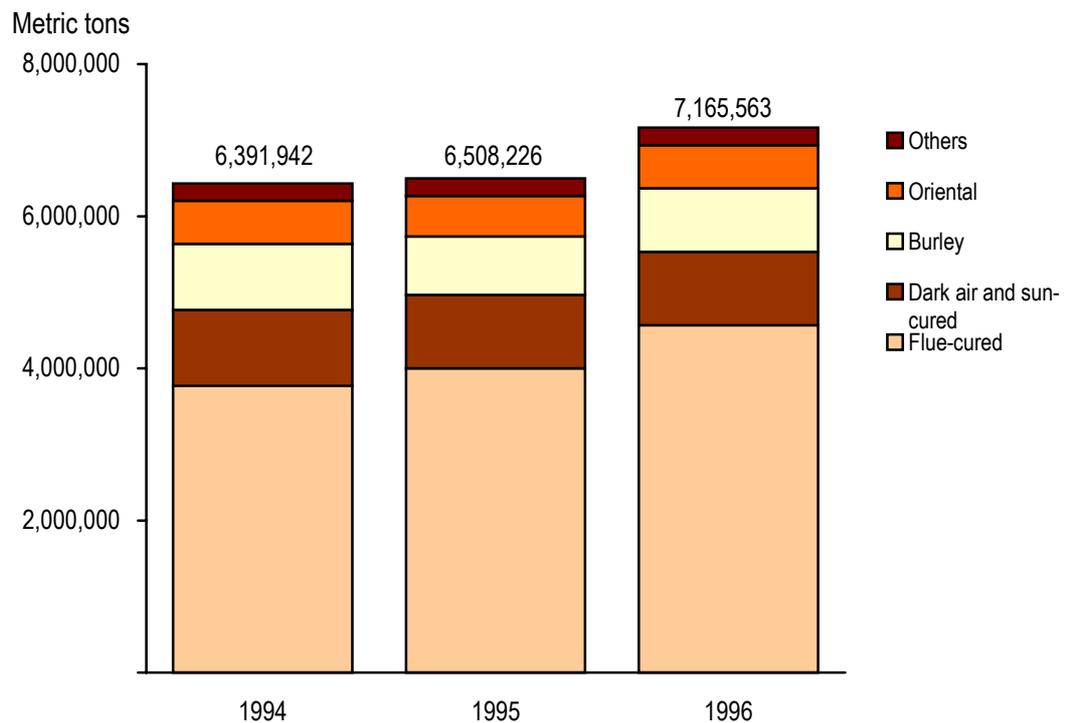
Virginia flue-cured is thus the main source of cigarette tobacco today. Its share in total unmanufactured tobacco has increased as a result of the popularity of Virginia and American Blend cigarettes (figure 2). Originally from the (US) state of Virginia, today it is grown in many countries. US leaf is considered to be the best ingredient for providing quality, flavour and aroma to cigarettes but it is expensive. Its high price (compared to non-US tobaccos) was once justified by its superior quality, but the quality of leaf from

³ This section is based on FAO, 1990; Gale, 2000; and Dimon, 1999.

⁴ The term "flue-cured" comes from the artificial curing (or drying) system by which metal pipes ("flues") are used to distribute heat in curing barns as a means to remove all of the natural sap and moisture from tobacco leaves.

other countries has improved. Therefore it is no longer as important as it was for manufacturers of quality cigarettes to use a high proportion of US tobaccos in their blend. Nonetheless, demand for US tobaccos is still considerable. Manufacturers are reluctant to change the mixture of tobaccos in their blend for fear of altering the taste and losing loyal customers. For existing brands, changes in the sources of supply will thus occur gradually (providing a degree of stability to the world tobacco trade). A more rapid way of reducing the use of expensive leaf is by including less of it in new brands or new variations of the general brand (e.g. in “light” cigarettes).

Figure 2. World unmanufactured tobacco production by type (metric tons; 1994-96)



Source: USDA/FAS, June 1996.

2. Consumption, production, and international trade

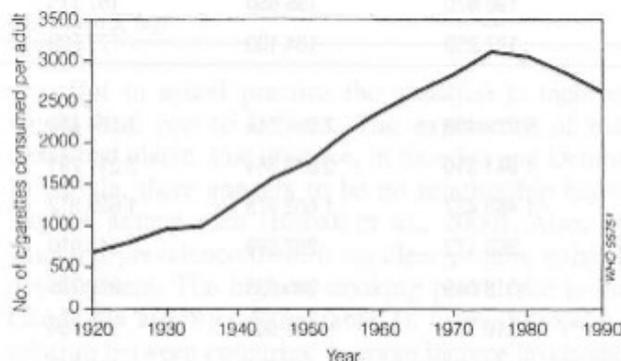
In the world of tobacco and cigarettes many configurations co-exist. Malawi is an important producer of tobacco, but it exports 98 per cent of its crop. The Netherlands grows no tobacco of its own. Yet it is one of the world's top exporters of cigarettes and cigars. The United States is a leading importer *and* exporter of tobacco as well as a leading exporter of cigarettes. And there is China, the world's largest producer of raw tobacco, and the world's largest consumer and producer of cigarettes whose participation in world trade of tobacco and cigarettes is very modest (see also box 2 on the China factor). We shall start with a discussion of demand and of demand trends. Data on world tobacco consumption and world cigarette production by country are available. But data on demand for cigarettes by country are more difficult to obtain. With the help of production and trade data "apparent demand" can be calculated. The second part of this chapter considers production and international trade.

2.1. Consumption

Worldwide, the production of tobacco and the consumption of tobacco products increased steadily until the early 1990s. Between the early 1970s and the early 1990s tobacco production increased by around 50 per cent in volume terms. Cigarette consumption and production increased at a slightly faster pace. Between 1990 and 1995, production of and demand for cigarettes grew at a more modest rate. Tobacco production reacted to this weakening of demand with a lag. After 1996, consumption appears to have declined. The Asian and the Russian crises dampened demand as did the drastic price increases in the US following the Master Settlement Agreement (section 3.3). On balance, according to the USDA, world tobacco consumption (at 6.5 million metric tons) and world cigarette production (at 5.5 million pieces) were no higher in 1999 than they were in 1991.

It should be kept in mind, however, that slow overall growth does not necessarily mean that demand growth for all countries or all categories of tobacco and cigarettes was slow. "American Blend" cigarettes have gained in market share. As a result, demand for the tobaccos that make up the American Blend has been above average (see also section 1.1.1). Per capita demand for cigarettes in the industrialized countries started to decline in the early 1980s (figure 3). After 1995, demand growth in the countries outside the OECD area slowed down and no longer compensated for declining demand in the industrialized countries.

Figure 3. Average annual cigarette consumption per adult in industrialized countries (1920-90)



Source: WHO, 1997

Table 1. World's leading unmanufactured tobacco producing, trading, and consuming countries (metric tons; dry weight; calendar years)

	1995	1996	1997	1998	1999*
Production					
World total	5 541 142	6 563 927	7 720 562	6 438 201	5 926 859
China, People's Republic of	2 082 600	2 910 600	3 613 350	2 521 100	2 023 000
India	528 390	506 475	561 330	572 200	587 600
United States	513 247	619 432	729 139	626 504	571 526
Brazil	323 500	365 900	485 100	373 150	476 150
Turkey	170 070	190 391	250 836	217 570	215 640
Indonesia	145 650	150 450	148 775	175 825	185 005
Exports					
World total	1 759 091	1 981 981	2 004 521	1 907 289	1 949 663
Brazil	256 300	282 500	319 000	300 500	318 000
United States	209 482	222 316	221 512	211 917	230 000
Zimbabwe	174 289	195 958	159 941	168 804	205 500
Turkey	136 392	170 098	160 360	128 808	125 500
Malawi	99 057	95 555	111 449	135 300	107 600
Greece	133 000	130 250	103 000	97 179	100 000
Imports					
World total	1 778 246	1 949 282	1 960 464	1 858 915	1 712 450
Germany ¹	209 761	235 855	222 080	230 000	217 463
United States ²	199 088	326 454	306 838	246 762	200 000
Russian Federation	148 110	148 000	184 900	200 830	165 000
United Kingdom	141 467	166 027	157 689	149 756	147 000
Japan	115 072	85 634	90 469	91 500	92 950
Netherlands	89 075	97 368	105 358	84 813	84 813
Consumption					
World total	6 305 704	6 453 712	6 374 201	6 287 785	6 282 163
China, People's Republic of	2 208 554	2 313 705	2 289 834	2 306 757	2 342 000
United States	699 200	706 688	673 927	634 412	662 488
India	463 920	472 326	476 850	483 360	478 310
Russian Federation	142 320	150 055	175 100	180 460	190 560
Indonesia	183 050	196 670	195 650	187 115	180 505
Japan	196 900	197 250	184 100	177 500	179 750
Ending Stocks					
World total	5 789 570	5 879 493	7 084 745	7 184 410	6 587 119
China, People's Republic of	1 390 866	1 941 310	3 079 364	3 211 291	2 807 691
United States	1 446 555	1 463 437	1 603 975	1 630 912	1 509 950
Turkey	320 595	268 172	292 898	313 010	334 150
Japan	370 251	318 049	280 235	252 735	221 681
Brazil	276 900	210 700	231 500	162 950	176 350
Italy	192 710	140 634	141 900	148 547	153 372

* Estimate; ¹ Unified Germany; ² General imports (actual arrivals). Source: USDA/FAS (Dec. 1999).

On the whole, world demand and world production develop more or less in parallel. But this is clearer for cigarettes than it is for tobacco. Cigarettes are unsuitable for long-term stockholding. Their quality deteriorates rapidly and this is a powerful incentive for producers to adjust to changes in demand without too much delay. Other things being equal, trends in world cigarette production can act as a fair indicator of world cigarette demand.

That is not the case with tobacco. Tobacco stocks at year-end can be as high as the volume of production in that year (table 1). There are several reasons for this. First, tobacco can be stocked for a longer period than cigarettes before its quality starts to decline. Second, tobacco is an agricultural product. This makes it hard to predict with much precision the production volumes of different types and of different growing regions. Indeed, tobacco production volumes can vary considerably from one year to the next. Most manufacturers use a blend of different tobaccos in their product. Therefore they cannot risk having a shortage in a component part of their blend. They thus need sufficient stocks to tide them over from one harvest to the next. Lastly, stocks serve as a price-stabilization mechanism. Stocks do not just prevent supply shortages; they also prevent undue price increases following a poor harvest of a particular type of tobacco.

For individual countries and regions, demand for cigarettes is determined by a number of factors, including price, real incomes, macroeconomic developments, government efforts to discourage consumption (discussed in Chapter 4), as well as a range of structural and cultural factors. Retail price increases and a slowing economy have a negative effect on the demand for or the expenditure on tobacco products (but this sensitivity differs by each nation's level of development and by socio-economic group). It may, but it need not lead to a reduction in the number of cigarettes consumed. People may simply buy cheaper cigarettes ("downtrading"). They buy local instead of imported cigarettes; popular instead of premium brands.

Structural and cultural factors also play a role. Why do people smoke, and why do they smoke the number of cigarettes that they do? On the whole, the average cigarette smoker is more likely to be male rather than female, with a low rather than a high income, and with fewer rather than more years of education. Far more smokers are found in less developed than in more developed countries (table 2).

Table 2. Estimated number of smokers in the world (early 1990s) (in millions)

Countries	Males	Females	Total
Developed countries	200	100	300
Developing countries	700	100	800
World	900	200	1100

Source: WHO, 1997.

But in actual practice the situation is more complicated than these stylized facts would lead one to believe. The experience of many countries contradicts the picture described above. For instance, in Sweden and Denmark more women smoke than men do. In Russia, there appears to be no relationship between smoking and either education or income among men (Bobak et al., 2000). Also, among the countries with the highest smoking prevalence there is no clear pattern, either by geographical region or by level of development. The highest smoking prevalence is found in such low-income countries as Cambodia and Viet Nam (table 3). In the European Union, there appears to be no strong relation between countries' average income levels and cigarette consumption (table 4).

Table 3. Estimated smoking prevalence among men (selected countries)

Income group	Country	Smoking prevalence
Low income	Cambodia	80
	Viet Nam	73
	China	63
	Bangladesh	60
	Sri Lanka	55
Lower-middle income	Latvia	67
	Russian Federation	67
	Dominican Republic	66
	Tonga	65
	Turkey	63
	Fiji	59
	Tunisia	58
	Panama	56
	Algeria	53
	Indonesia	53
	Samoa	53
	Estonia	52
	Lithuania	52
	Bolivia	50
Upper-middle income	Saudi Arabia	53
	South Africa	52
	Seychelles	51
	Poland	51
High income	Korea, Rep. of	68
	Japan	59
	Kuwait	52

Source: Bobak, 2000.

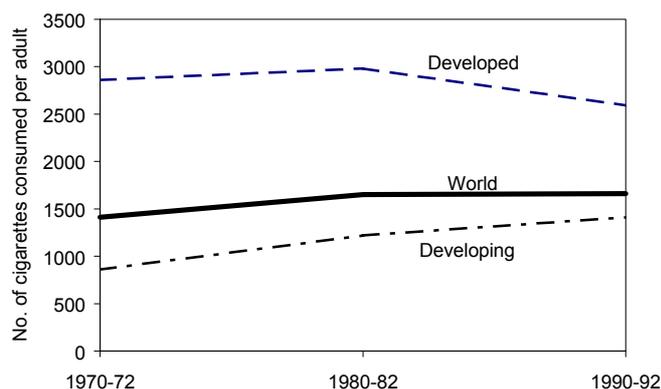
Table 4. EU cigarette consumption, 1996

Country	Average cigarette consumption per day by adults aged over 15
Greece	9.3
Ireland	6.4
Spain	6.1
Germany	5.5
Austria	5.4
Portugal	5.4
France	5.2
Italy	5.0
Belgium	4.9
United Kingdom	4.8
Denmark	4.2
Netherlands	3.4
Sweden	3.2
Finland	3.0

Source: CGE, No. 452, July 2000 (based on INSEE).

Something similar can be said for trends. More men may be smoking cigarettes than women, but prevalence among women is on the increase. In the industrialized world, consumption per adult may be higher than in the developing world, but since the early 1980s it has been in decline (figure 3) and the gap between these two groups of countries is narrowing (figure 4). Between 1970 and 1990 per capita consumption grew particularly fast in the Far East (Annex table 1), but it levelled off in the 1990s in China and the Republic of Korea.

Figure 4. Trends in annual per adult cigarette consumption in developed and developing countries (1970-92)



Source: WHO, 1997.

What about demand in individual countries? In the absence of precise demand data we need to calculate “apparent demand” by deducting net exports (i.e. gross exports less imports) from domestic production. However, this figure may differ from real demand for two reasons. First, it takes no account of the variation in year-end stocks held by cigarette traders, wholesalers and retailers. Second, and more important, “apparent” demand takes no account of the share of demand that is satisfied by smuggling. Smuggled cigarettes take up a large share of the market in several countries (Chapter 4).

Table 5 gives data on apparent demand for the world’s main markets. It shows that China is by far the largest market for cigarettes, followed by the United States, Japan, Russia, Indonesia, Germany, Turkey, Brazil, India and the Republic of Korea. Demand in Indonesia and Turkey is increasing fast.

These data can be a poor indicator of value, though. Quality and prices differ from one tobacco and from one cigarette to another. US tobaccos, in particular, fetch high prices in the market. The quality of many Asian tobaccos, on the other hand, can be much lower. Their price may be one-half, or even one-third of US tobaccos. So in value terms, the share of the US is higher than the volume figures would seem to imply.

Box 2. The China factor

China plays a key role in the world tobacco industry. The country accounts for over 30 per cent of world consumption and production of cigarettes. Its share of tobacco production is around 36 per cent. Virtually self-sufficient in both tobacco and cigarettes, it is nonetheless a principal market for exporters of cigarette machines and cigarette paper. And because of the huge size of the Chinese market (between 300 and 350 million people smoke cigarettes), foreign tobacco companies are more than keen to sell their products there. The problem is that import barriers are high and joint ventures few (wholly owned production is excluded). Domestic demand growth is slow; more and more anti-smoking laws are being introduced. Production in 1998 was no higher than in 1993. Exports of tobacco or cigarettes have been few so far (but small amounts for China can be sizeable on a world scale).

Tobacco is also very important for China. Together, the production, processing and trade of tobacco and cigarettes provide employment to millions of people and a sizeable income to central, provincial and local governments alike. The tobacco trade and industry in China is controlled by a state monopoly run by the China National Tobacco Corporation (CNTC). The CNTC is highly profitable. Its profits amounted to the equivalent of more than US\$11,000 million in 1999. CNTC has been the State's top revenue generator for many years. It controls over 97 per cent of the Chinese market.

In anticipation of China's joining the World Trade Organization (and the resulting lowering of import barriers), the Chinese tobacco industry is undergoing a restructuring and modernization process. New, faster machines are being installed in an effort to raise productivity and quality. These also make more efficient use of raw material: in certain cases the amount of tobacco used per cigarette was found to have dropped by as much as one-third. Fewer machines are needed thanks to the higher levels of productivity attained. The number of production plants is also going down. From 180 in the early 1990s, the number of factories in operation had been reduced to 136 by 1999. Their number is expected to drop further, to around 100 in the early 2000s.

Source: Various.

Table 5. World cigarette production volume, net exports (NE) and apparent consumption (AC). Selected countries and years (1,000 million pieces)

Country	1985	1990	1995	1998	NE-98	AC-98
France	67	53	46	44	-40	84
Germany	165	164	221	178	40	138
Italy	78	65	50	52	-43	95
Netherlands	46	65	100	116	86	30
Spain	77	79	76	70	-12	82
United Kingdom	123	112	156	160	80	80
Switzerland	23	27	42	37	23	24
Bulgaria	92	82	74	46	15	31
Poland	90	81	101	95	3	91
USSR	381	350	141*	179*	-52	231
Egypt	47	41	42	47	1	46
Rep. of South Africa	28	32	37	36	-	36
Canada	63	46	51	50	1	49
Mexico	46	50	46	47	-	47
United States	665	670	746	716	197	519
Argentina	39	33	41	42	-	42
Brazil	146	160	173	178	73**	105
China	1178	1650	1735	1675	20	1655
India	80	85	95	106	1	105
Indonesia	106	155	186	214	17	197

Country	1985	1990	1995	1998	NE-98	AC-98
Japan	303	268	262	250	-69	319
Rep. of Korea	75	86	87	96	-6	102
Pakistan	38	38	32	45	-3	48
Philippines	62	71	57	75	-	75
Turkey	61	62	99	114	8	105
Total	4860	5344	5598	5608		

Note: * Russia; ** No import data available.
Source: TJI/USDA and own calculations based on TJI/USDA.

2.2. Production and international trade

Table 6 gives data on the share of major regions and countries in the volume of world production of unmanufactured *tobacco*. Asia, at around 60 per cent of the total, is the main tobacco producing region with China alone accounting for 36 per cent. China's share of world production, which had risen rapidly in the 1980s, was no higher in 1998 than it was in 1990. The shares of India, South America (mainly Brazil), and particularly Africa (Zimbabwe, Malawi) have not stopped increasing. The share of Europe (including Eastern Europe) declined (Italy's production dropped by one-third between 1990 and 1997) and that of the US remained more or less the same. By 1997, the developing countries accounted for 80 per cent of world production, compared to 53 per cent 30 years earlier (TJI, 5/97; and figure 5).

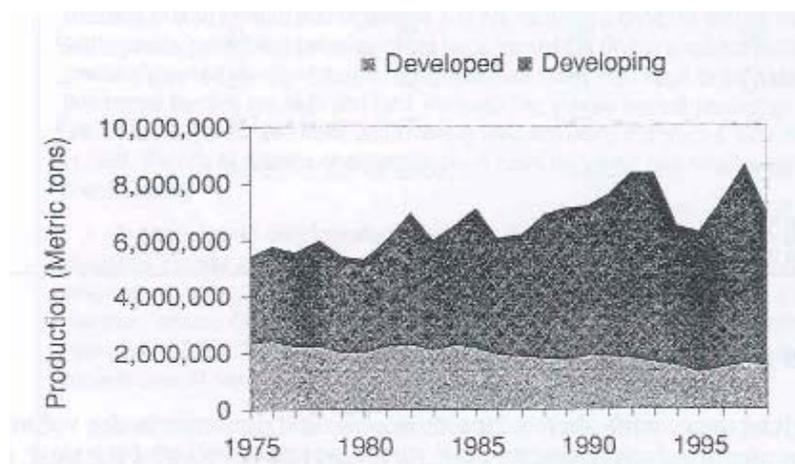
Table 6. World unmanufactured tobacco: Production volume by main regions and countries (percentage; selected years)

	1985	1990	1995	1998*
Asia	56.9	61.0	62.8	59.9
(China)	(31.6)	(37.2)	(36.5)	(36.1)**
(India)	(6.9)	(8.0)	(8.9)	(9.1)**
(Turkey)	(2.6)	(4.3)	(3.6)	(3.8)**
Africa	4.4	5.2	7.5	7.5
(Zimbabwe)	(1.6)	(1.9)	(3.3)	(3.0)
(Malawi)	(1.1)	(1.4)	(2.1)	(2.0)
South America	7.7	8.2	8.8	9.2
(Brazil)	(5.7)	(6.2)	(6.3)	(6.2)
North America	13.5	13.1	12.4	14.1
(United States)	(10.0)	(10.4)	(9.0)	(10.4)
Europe	17.1	12.7	9	10
(including former USSR)				
Total	100	100	100	100
Million tonnes	6.85	7.106	6.354	7.066

Note: * Provisional figures. ** 1997.

Source: Own calculations based on TJI/USDA.

Figure 5. Tobacco production by developed and developing countries (1975-98)



Source: Jacobs et al., (2000), based on FAO.

Cigarette producers make intensive use of domestic tobaccos. Nonetheless, around 30 per cent of world tobacco production (mainly high quality tobaccos) is traded internationally. There are several reasons for this. First, some large tobacco growing countries (Malawi, Zimbabwe, Tanzania) manufacture very few tobacco products of their own. Second, some important cigarette and cigar producing countries do not grow any tobacco domestically. The Netherlands (one of the world's top cigarette and cigar exporters) is a case in point. Others (Japan, Germany, Russia) do not produce enough to satisfy demand. A third reason is that most cigarettes sold today are blended cigarettes, i.e. they contain a mixture of different tobaccos. Few cigarette producing countries grow all of these tobaccos.

Most *cigarettes* are now consumed and produced in Asia. This is no surprise in view of that region's high share of world population. Within Asia, China alone produces 30 per cent of world total. The increasing share of Asia has taken place at the expense of Europe and North America, which saw their share of the world total decline. The share of South America and Africa has remained stable since 1985 (table 7).

In China, domestic demand for cigarettes is largely satisfied by domestic production. Official figures indicate that the country trades very little. Exports and imports make up less than 2 per cent of national demand or production. India is in a similar situation (see also table 5).

In other countries, domestic demand is also mainly satisfied by domestic production but, in addition, they are sizeable exporters. The United States is a good example. It imports few cigarettes, but it exports one-third of its production (see also figure 1). It is the world's leading exporter, accounting for over 20 per cent of world exports. Exports became steadily more important for US producers in the 1980s when domestic demand started its long decline (see figure 1). In the late 1990s, however, US producers of cigarettes (and US farmers) came to face serious problems when cigarette exports weakened (following weak demand in East Asia and Russia and the relocation of some production to Europe) at a time when domestic demand was hit by the price hikes following the Master Settlement Agreement (see section 3.3).

Table 7. World cigarette production volume by main region and main producing country (percentage; selected years)

	1985	1990	1995	1998
Asia	43.5	49.8	50.4	50.9
(China)	(24.2)	(30.4)	(31)	(29.9)
Europe	29.8	25.6	24.7	24.9
(Including former USSR)				
North America	16.9	15.6	15.7	15.1
(United States)	(13.6)	(13.1)	(13.3)	(12.8)
South America	5.2	5	5.1	5.2
Africa	3.6	3.4	3.4	3.5
Total	100	100	100	100

Source: own calculations based on TJI.

Certain countries export most of their production. In 1998, UK production was 160 billion pieces. It exported 125 billion pieces in that year. The Netherlands exported 103 billion pieces out of total production of 116 billion pieces.

A last category consists of countries that rely to a great extent on imports to satisfy domestic demand. Examples are Russia (in the 1990s), Japan (which also produces cigarettes domestically) and some countries in the Middle East (which do not have any production of their own).

International trade flows in cigarettes are explained by several factors. They can be the result of temporary supply mismatches: local producers may not produce the type or the quality of cigarettes that the market requires (more demand for the American blend, less for dark cigarettes). Or demand may be growing far away from where installed capacity is located (e.g. because a market hitherto closed to imports is opening up), with output only slowly reacting to the new situation. In Russia, the multinational tobacco companies installed much new capacity in the 1990s. Slowly, expanded domestic production came to replace imports. A worsened macroeconomic situation may lead to reduced volumes of demand for cigarettes, including demand for imported cigarettes. Sustained periods of prosperity may have the opposite effect. Official pressure may be another factor: pressure by the United States Trade Representative (USTR) is widely seen as having contributed to the opening up of the Japanese, (Rep. of) Korean, and Taiwanese markets to imported cigarettes. Or it may simply be cheaper to produce in certain locations, either because local tobaccos are cheaper (an important factor given how many governments encourage manufacturers to use local tobaccos in their cigarettes), because local labour costs are lower, or because labour productivity is at a high level.

Increasingly, however, trade flows are explained by corporate strategies. Barriers to international and regional trade and investment flows have come down, and continue to come down nearly everywhere. This enables the large companies to concentrate production in fewer locations. In such circumstances, decisions by the large tobacco companies increasingly determine which market is being supplied from where.¹ It is to these company strategies that we now turn.

¹ Reemtsma, for example, internationalized its sales rapidly in the 1990s. From 35 per cent in 1991, international sales increased to 76 per cent of sales in 1999. Interestingly, in 1991 exports from Germany made up 64 per cent of those international sales. But by 1999, exports accounted for no more than 21 per cent of international sales, the balance being supplied from production at locations outside of Germany (Reemtsma AR, 1999).

3. The company response

The OECD-based tobacco companies have reacted to stagnating demand on their traditional markets in basically three ways: consolidation (the industry is increasingly dominated by a small number of relatively large players), diversification, and increasing productivity. Consolidation and diversification are the subject of this chapter. Productivity is discussed in Chapter 5.

3.1. Consolidation

Consolidation in the tobacco industry had been taking place for quite some time, but it accelerated in the late 1990s. Also, the size of the “deals” has become steadily bigger. Concentration can make a critical contribution to profitability through marketing (“global” brands), manufacturing and distribution. By producing high volumes at fewer locations, and by merging distribution activities, companies benefit from economies of scale. “The cigarette business needs volume to be profitable”¹ (see also Chapter 5). Companies with large sales in the quality brand segment (with high margins) are particularly attractive take-over targets as are those with a presence in fast-growing emerging markets.

Consolidation takes various forms. Smaller companies have been absorbed by their larger competitors. Austria Tabak took over the cigarette activities of Swedish Match, and was then taken over by Gallaher. Former state monopolies (such as Portugal’s Tabacaria or those operating in Central and Eastern Europe, and in Central Asia) have come under the control of the large multinationals. And, in an effort to broaden their market base, companies that previously were little active abroad have gone on a shopping spree outside of their national market (see also section 3.2). In the process, the degree of concentration of the industry has reached high levels, both at the national level (see table 8 for some examples) and worldwide. In 1999, three companies (CNTC at 30 per cent; Philip Morris at 17 per cent, and BAT at 16 per cent) controlled close to two-thirds of world cigarette production.

Table 8. Concentration in the tobacco industry (market share of the dominant supplier; selected countries)

Country	Percentage
Korea, Democratic Rep. of*	100
Iraq*	100
Algeria*	100
Madagascar*	100
Uganda	100
Zambia	100
Sri Lanka	99
Malawi	99
Mauritius	99
Sierra Leone	99

¹ According to Mr. Ulrich Herter, BAT’s Managing Director in an interview with TJI (3/99, p. 56).

Country	Percentage
Honduras	99
Nicaragua	98
Trinidad and Tobago	98
China*	97
Denmark	97
Korea, Republic of*	95
Ghana	92
Nigeria	92
Portugal	90
Thailand*	87
Kenya	87
Lithuania	85
Republic of South Africa	85
Egypt	85
Brazil	83
Venezuela	81
Czech Republic	81

* State-owned or state-controlled.
Sources: TJI; Corrao, 2000.

The tobacco industry is no stranger to high levels of concentration. In many countries the State monopoly was the exclusive producer and/or seller of tobacco products. In certain cases, this situation has barely changed (table 8). But in the worldwide privatization wave of the 1990s, many state tobacco companies were privatized either in whole or in part (the latter usually as a prelude to full privatization at a later date).

Many of these privatized companies were absorbed by multinationals or would-be multinationals. At first called in to supply farming advice, and manufacturing and marketing know-how, the multinationals would soon enter into joint ventures with or take an equity stake in the state-owned companies. They ended up taking over the whole company when it became clear that few local investors (including the State) had the resources available (or were willing to spend the ones that they had) for the much needed investments in new equipment to allow it to reach the levels of quality and productivity needed to compete in the more open trading environment (trade liberalization often accompanied privatization).

For the privatized companies, collaboration with the large tobacco companies was beneficial for a number of reasons. This collaboration helped them to modernize their production facilities; introduce modern distribution, management information and control systems; and provide training for their employees. The stronger financial position of the new parent company enabled them to invest in the replacement of assets, and in information technology. Lastly, the transfer of know-how helped them to reduce tobacco waste, achieve higher tobacco blend homogeneity, reduce cigarette weight variation and lower energy consumption.

At the national level, high levels of concentration make the dominant supplier a force to be reckoned with. Worldwide, concentration has placed considerable market share into the hands of a few players, enhancing their market power vis-à-vis their suppliers and subcontractors.

3.1.1. Effects of consolidation on suppliers²

Just like the cigarette manufacturers, their suppliers (the leaf dealers; the machinery and paper producers) must also cope with the consequences of slowing demand growth for tobacco products. But they have other problems too. Manufacturers need fewer machines as a result of a better use of capacity and the higher productivity levels achieved thanks to high-speed cigarette and packing machines (see box 7 in Chapter 5 on productivity in the tobacco processing industry). There is also more competition: China is developing its own machinery and cigarette paper industry.

In reaction, suppliers have felt obliged to rationalize production and raise productivity in an effort to maintain profitability. And they, too, have become involved in mergers and takeovers. Concentration has increased among leaf dealers³ as well as in the cigarette paper⁴ and machinery industry. Following similar moves by their customers, the suppliers to the tobacco processing industry also strive to become global players.

Such a development ties in neatly with the strategies of the tobacco multinationals. Similar to what is occurring in other industries,⁵ the tobacco companies seek to do business with fewer suppliers but in the framework of long-term agreements. BAT has set up regional supply chains to maximize efficiency gains and achieve synergy benefits. It is building alliances with strategic suppliers, with global agreements established for tow, board and film materials.

3.2. Diversification

In addition to taking over competitors, tobacco companies have tried to reduce their dependence on traditional, slow growing markets through diversification. This diversification has several dimensions: diversification (1) by market segment; (2) by target group; (3) by tobacco product; (4) by non-tobacco product; and (5) by geographical region. In part (and sometimes in large part) diversification has been achieved through mergers and acquisitions (see above, section 3.1)

Diversification by market segment. Cigarettes are sold in different categories, from the premium, highly-priced, high-margin category to the brandless (“generic”), low-margin type. The high margins of the premium cigarettes make them attractive to produce and sell. Companies with strong, well-established, international brand names have shown to be attractive take-over candidates. But by also offering cigarettes in the B- and C-category, companies reduce their vulnerability to demand slowdowns in times of crisis, when customers “trade down”, i.e. when they buy cheaper rather than more expensive cigarettes.

Diversification by target group. Women and young people are prime target groups. The proportion of smokers among women is far lower than that among men. By successfully targeting women, a manufacturer can raise its overall market share. Many women see smoking as a symbol of women’s liberation. Manufacturers promote their

² Sources TJI and BAT AR, 1999.

³ For instance, Dimon, the world’s second largest leaf dealer (and itself the result of the 1995 merger of Dibrell Brothers and Monk-Austin Inc.) acquired Intabex in 1997.

⁴ Production of cigarette paper has accumulated around three groups which together supply more than half the world market outside China (TJI, 3/99).

⁵ See van Liemt, 1998.

cigarettes as a symbol of emancipation and independence. Some young women believe that smoking keeps them slim. Manufacturers produce (long, slim) cigarettes especially for their female customers.

“Women are the tobacco industry’s prime target, especially in countries where they are experiencing improvements in their economic, social and educational status. Cigarettes are being promoted as both a “passport” to a better life and a symbol of emancipation, independence and success” (Corrao et al., 2000, p.32).

In many European countries, there is an overall trend towards girls smoking slightly more than boys (ibid.).

For obvious reasons, young people are the other promising category of (potential) smokers from the companies’ point of view. Most people start smoking when they are young. Nonetheless, while targeting young people may make good commercial sense, it has become highly controversial in recent years. The smoking habits of young people have moved to the centre of the debate on smoking and health. Many of the actions aimed at discouraging demand for tobacco products (Chapter 4) target youth (no ads in youth magazines; no pictures of young people in ads; no TV ads early in the evening; retail access control and education programmes). The large tobacco multinationals have indicated that they are sensitive to the debate surrounding young smokers. In many countries tobacco companies no longer advertise their products to a young audience. It is uncertain, however, to what extent their more general adverts are picked up by young people.

Diversification by tobacco product. Imperial Tobacco, for example, has targeted the roll-your-own (RYO) market for expansion. It dominates both the supply of tobacco and that of cigarette paper for this market. Through a string of acquisitions, Altadis became the world’s leader in premium cigars.

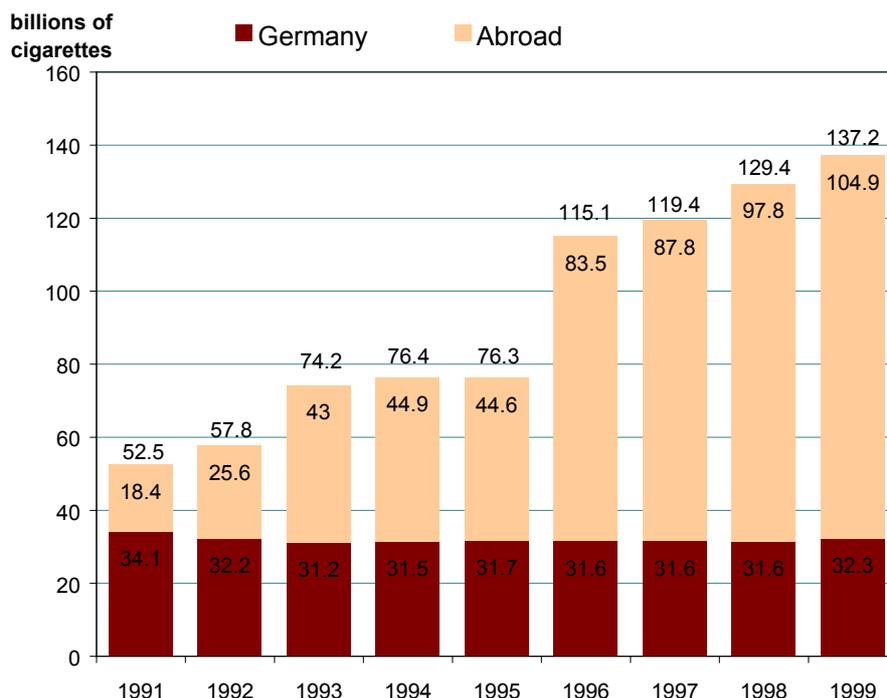
Diversification by non-tobacco product. Food products are a favourite for tobacco companies seeking to diversify. R.J. Reynolds bought Nabisco (which, in turn, was later acquired by Kraft). Philip Morris owns Kraft and Miller breweries. Japan Tobacco derives a (small) part of its sales from food. Logistics and wholesaling are another favourite. At Austria Tabak, wholesaling of tobacco and other products (and the operation of vending machines) make up a large share of turnover. Over 20 per cent of Altadis’ earnings originate in its logistics division. Skandinavisk Tobakskompagni owns the largest wholesaler of consumer goods in Denmark. BAT tried financial services (but, since 1998, is a pure tobacco company again).

Diversification into food and other activities makes the tobacco companies less dependent on (slow-growing) sales of tobacco products. But the profit margins in these industries are usually well below those attained in tobacco processing. Producing and marketing cigarettes remain the more profitable activities.

Diversification by geographical market. OECD-based tobacco companies are keen to reduce their dependence on their stagnant home markets and establish a presence in markets where growth is above average. After having “conquered” many markets in Latin America, Central and Eastern Europe, and the Central Asian republics in the 1990s, their focus is shifting to the Far East. All the major tobacco companies now have a presence in Poland, Russia and the Central Asian republics. Austria Tabak, which gained a presence in Estonia when it acquired the cigarette activities of Swedish Match, also has a 67 per cent market share in Guinea. The company was considering entering Asian markets when it was taken over by Gallaher in June 2001. Through this take-over and the acquisition in 2000 of Liggett-Ducat, the Moscow cigarette maker, Gallaher greatly reduced its dependence on the UK market. Similarly, Japan Tobacco became a world player when it acquired the

international activities of R.J. Reynolds. Thanks to a relentless internationalization drive, Germany's Reemtsma now sells less than one-third of its total in its home market (compared to over 60 per cent in 1991) (see also figure 6). It is now active in several Central and Eastern European countries and, in 1999, it acquired Cambodia's Paradise Tobacco Company. BAT is building a cigarette company in Viet Nam and in the Republic of Korea.

Figure 6. Reemtsma: Cigarette sales worldwide (1991-99)



Source: Reemtsma/AR/99.

3.3. Litigation

The rationalization that follows consolidation, the various forms of diversification, and their strengthened hand vis-à-vis their suppliers should all help the remaining companies to maintain their profitability and, where possible, increase it. There is, however, one dark cloud on the horizon: litigation. Litigation means that the industry cannot do without the assistance of a sizeable number of legal experts. This is a cost factor. But in view of the sometimes enormous damages claimed by plaintiffs this would appear to be money well spent.

Box 3. Litigation: State of play

“... Our tobacco business will continue to be a lightning rod for criticism and controversy, and will face significant legal, legislative and regulatory challenges, for many years to come.”¹

Around the world, the tobacco industry is involved in hundreds of lawsuits. Most of these take place in US courts (but the number of lawsuits outside of the US is on the increase). Most of the defendants are the large US companies. The (compensation and punitive) damages sought involve many billions of US dollars. The vast majority of these cases have been dismissed. Some have been settled out of court. In very few cases the verdict has gone against the tobacco companies (these are being appealed). But when this does happen, it can be very costly. In the (collective) Engle case² in Florida, the verdict won amounted to over 144,000 million US dollars.

Plaintiffs can be any of three groups: (1) individuals or groups of individuals suffering from smoking-related illnesses; (2) relatives of people who have died from such illnesses; and (3) provincial and state governments and health care insurance companies attempting to recover the costs of the treatment of smoking-related illnesses.

The history of tobacco litigation has been summarized in three waves. The first (in the 1950s) and the second wave (that started in the 1980s) consisted of individual personal injury suits. The third wave of tobacco litigation that began in 1994 was different in that litigation was no longer limited to individual claims by individual smokers. For the first time, States and other third-party payers of medical costs sued the tobacco industry (Ciresi et al., 1999).

Most of the cases are brought in US courts and involve US citizens or entities on the one hand, and the US tobacco companies on the other. But the practice is spreading to other countries where local and internationally operating companies are being taken to court.³ On the whole, courts outside of the US have been reluctant to hear this kind of case. “Class action” suits are not common in legal systems outside the US. Also, the damages that have been awarded are typically below US levels. In turn, this has tempted non-US parties to sue US tobacco companies in US courts.⁴

¹ Mr. Geoffrey Bible, Chairman and CEO of Philip Morris in his letter to shareholders in Philip Morris/AR/1998, p. 4.

² This was the first, collective, “class-action” lawsuit to go to trial in the US. The “class” consists of all Florida residents and citizens, and their survivors, who claim to have suffered, presently suffer, or have died from diseases and medical conditions caused by their addiction to cigarettes that contain nicotine (Philip Morris/AR/1998). In “collective” lawsuits, one plaintiff can institute proceedings on behalf of a group of people who have all suffered the same injury, without their having to prove their injuries individually. The bigger the group, the higher the claim (Reemstma/AR/ 1999).

³ Philip Morris alone is involved in hundreds of smoking-related lawsuits. For an overview of the different types of suits, the arguments of the plaintiffs and the defence, as well as progress in the courts, see Philip Morris’ Annual Reports/Notes to Consolidated Financial Settlements/Contingencies/Overviews of Tobacco-related Litigation.

⁴ Whether the United States product liability system will spread to Europe or not is a question highly relevant to the tobacco industry. Bergkamp and Hunter (1996) think that the answer to this question is no. They give several reasons. For instance, in the United States, compensatory damages awarded can be many times higher than in Europe. Punitive damages are rarely awarded in Europe. This makes it much less attractive for European lawyers than for US lawyers to start a lawsuit (US lawyers typically receive some 30 per cent of the sum awarded). Also, the litigation threshold in product liability cases is much lower in the US, where winning defendants are not permitted to recoup their costs from the plaintiff, than in Europe, where they are.

The costs of the many lawsuits and the risk that sizeable damages may need to be paid have a depressing effect on the prices of tobacco company shares quoted in the stock market. Tobacco companies have comparatively low price/earnings (p/e) ratios. As long as companies operating or selling in the US market are more likely to be involved in lawsuits and more vulnerable to the high damages claimed by plaintiffs, they would appear to be at a competitive disadvantage vis-à-vis their competitors operating only in the rest of the world. This disadvantage may, however, be smaller than would appear at first sight. Through drastic price increases, the US tobacco companies were able to pass on to their customers the cost involved in the Master Settlement (box 4).

The large number of lawsuits is bad news for the tobacco companies. They are costly, require management attention and they depress the share price. They also give the industry a poor image, a serious matter for companies which rely so much on the “feel good” factor in the marketing of their products. The tobacco companies want to be seen as good

corporate citizens.⁶ Where appropriate they are keen to settle. There have been litigation settlements in the past. But nothing compares with the 1998 Master Settlement Agreement (MSA).

Box 4. The US Master Settlement Agreement (MSA)

In November 1998, the US cigarette manufacturers agreed to reimburse US states for smoking-related health costs, thereby ending the uncertainty of continuing lawsuits. They agreed to pay the remaining 46 states, the District of Columbia, and various territories¹ US\$206,000 million over 25 years to compensate them for the costs of treating smoking-related illnesses and to fund anti-smoking programmes. They agreed to pay, over a five-year period, a sum of US\$1,450 million earmarked for anti-smoking campaigns and US\$250 million over 10 years for setting up a national public health foundation, which will work towards deterring minors and youths from smoking. Manufacturers also agreed to limitations on advertising and to limits on sporting event sponsorship. As part of the MSA, they are committed to work cooperatively with the tobacco growers' community to address concerns about the potential impact of the MSA on that community. To that end, in January 1999, they agreed to participate in the establishment of a US\$5,150 million trust fund to be administered by the tobacco growing states.

¹ The manufacturers had previously settled similar claims brought by Mississippi, Florida, Texas and Minnesota. The US Federal Government is not a party to the Master Settlement. In September 1999, the Federal Government filed a lawsuit of its own against various cigarette manufacturers in an effort "to recover an unspecified amount of health costs for tobacco-related illnesses allegedly caused by defendants' fraudulent and tortious conduct and paid for by the government under various federal health care programs" (Philip Morris/AR/1999).

Source: Various.

⁶ The industry has offered to lend support to the (UN) World Health Organization (WHO) in its fight to eradicate malaria and in AIDS prevention, and to finance (UN) International Labour Organization (ILO) projects to combat child labour.

4. Governments and tobacco

Governments face a dilemma. On the one hand, tobacco-growing and processing can make a considerable contribution to employment (the subject of the next chapter), tax revenue and foreign exchange receipts. In many developing and formerly centrally-planned economies, the tobacco companies have made sizeable and most welcome investments when other investors were reluctant to do so. On the other hand, governments have the obligation to protect the population's health. Smoking can be harmful to health. Treating people for smoking-related illnesses is expensive. This can lead to heated debates within the same government as each sector defends the interests it believes it should represent. How do governments cope with this dilemma?

4.1. Tax income, foreign exchange earnings and direct foreign investment

The economic importance of tobacco-growing and processing differs from country to country. At the national level, cigarette (sales and import) tax can be a main source of government revenue. In Russia, cigarette tax revenue contributes around 8 per cent to the financing of the state budget (TJI 6/99).

When the government owns the industry, it receives profits in addition to tax. That is why, in so many countries, State monopolies continue to control cigarette trade and production (see also table 8). In China, profits from state-owned CNTC amounted to the equivalent of US\$11,000 million in 1999. CNTC has been the Chinese State's top revenue generator for years. Japan Tobacco earned more than US\$400 million for the Japanese State in the fiscal year ending March 2000 (BW, 28 May 2001). The monopolies can also play a social function. In Italy, several of the state monopoly's factories are placed in areas hit by high unemployment (TJI 3/98).

Then there are balance of payments issues to consider: many low-income countries rely on the export of cash crops such as tobacco to pay for the service of their foreign debt. Tobacco exports made up close to 10 per cent of Cuba's exports in 1997-98. In the case of Tanzania it was 15 per cent, in Zimbabwe over 25 per cent and in Malawi tobacco exports made up two-thirds of commodity exports (UNCTAD, 2000).

People smoke. But whether they smoke domestically produced cigarettes using home-grown tobacco or use imported cigarettes and tobaccos can make a world of difference when foreign exchange is scarce. That explains why so many countries try to limit the importation of cigarettes and encourage domestic producers to use local tobaccos, for instance, by providing a favourable tax treatment to companies that use a minimum percentage of home-grown tobaccos.

The cigarette companies have also been a prime source of investment in the formerly centrally-planned countries of Central and Eastern Europe, and Central Asia. When others were reluctant to invest, those companies saw the possibilities offered by a combination of pent-up consumer demand, outdated production facilities and the association with "freedom" and "western style" living that so appealed to the people in these countries after many years of central planning and little consumer choice. After having lobbied successfully for the "opening up" of Asian markets such as Japan and the Republic of Korea, the large tobacco companies are eagerly waiting for the opening up of the other economies (notably China) that continue to restrict imports from and/or investments by foreign tobacco companies.

Tobacco growing, processing and exports can thus make a significant contribution to national employment and national income. Yet, however important tobacco growing and processing may be at the national level, its full economic and social significance is best grasped at the local or regional level. In some regions, tobacco is grown side by side with

the crop which is the main source of income; its contribution to overall income is modest. But in many others, tobacco is a main source of income and employment (see also section 5.3).

4.2. Public health

Tobacco growing and tobacco processing may bring considerable economic and social benefits, but the treatment of smoking-related illnesses is costly. Cigarette smoking causes cancer. It is addictive. The WHO estimates that tobacco products cause around 3 million deaths per year. Cigarette smoking is the major cause of preventable mortality in developed countries. In the mid-1990s, about 25 per cent of all male deaths in developed countries were due to smoking. Among men aged 35-69 years, more than one-third of all deaths were caused by smoking. The costs of treating all these people are clearly enormous (WHO, 1997).

So far, smoking has not had the same impact on mortality among women and among people from developing countries. There is an approximate 30-40 year time lag between the onset of persistent smoking and deaths from smoking. The effects of the greater incidence of smoking among these two groups will thus be felt with a lag, but it seems reasonable to believe that its impact on them will not differ fundamentally from that on developed country males.

It may be argued that smokers willingly take a certain health risk when enjoying their smoke. They like the taste and all the other things that they associate with smoking. But this does not apply to environmental tobacco smoke (ETS) or "second-hand smoke". Smoke gets in your eyes. In your clothes. And in your lungs. Non-smokers cannot escape from smoke in badly ventilated areas. To be exposed to other people's tobacco smoke can be a nuisance in addition to being a health risk for non-smokers.

4.3. The way out of the dilemma

Governments are thus faced with conflicting pressures. How do they cope? In practice, governments have opted for several strategies (which are often followed simultaneously). A recent strategy consists of seeking compensation for the costs of treating smoking-related illnesses. It has been followed with success in the United States, as we saw in section 3.4. Governments also set rules regarding the maximum content of hazardous substances in cigarettes. Most of all, however, governments try to discourage demand for what is, as the industry does not tire of telling us, essentially a legal product. This is done in a variety of ways, with some governments applying particular vigour and others taking a more relaxed approach. On the whole, however, the trend is clear: governments' rules on smoking are becoming ever more restrictive. The use of tobacco products is being discouraged in several ways.

Limitation of the space where smoking is allowed. This is done above all to protect non-smokers from involuntary exposure to tobacco smoke. Smoking is being prohibited in public places (particularly health care and educational facilities) and in mass transport. Legislation requires restaurants to reserve space for non-smokers.

Limitation by age group. It is prohibited to sell tobacco products to people under a certain age.

Limitations on points of sale. The use of vending machines is being restricted because these cannot discriminate against sales to young people.

Health warnings stating that tobacco is harmful to health have become obligatory. The warnings must be placed on packets and in ads, with the authorities prescribing the text and the minimum space allotted to the warning in the ad or on the packet.

Education. Governments sponsor education and public information programmes on smoking and health.¹

Advertising bans. Restrictions concern the location of ads, the media used (no billboards, no ads in the printed media or in cinemas), the images presented (no young people, no cigarette packets), and the time when broadcasting is allowed (not during hours when children watch television).

The manufacturers are unhappy with these restrictions, and in particular with the ban on advertising. In their view, it is not proven that such a ban discourages demand for cigarettes (as its proponents claim). They are concerned about its effect on the value of their prime asset, the brand name (box 5).

Box 5. The ban on advertising and the value of the brand name

The authorities of many countries restrict advertising to discourage demand for cigarettes. If anything, they expect it to discourage young people from starting to smoke. In Italy, direct and indirect tobacco advertising have been banned for a long time. In France, the 1991 "Loi Evin" forbids all forms of tobacco advertising. The EU intends to ban virtually all tobacco advertising by 2006.

Tobacco companies contest such bans. To them, advertising is a key means for maintaining loyalty to the brand and for persuading existing smokers to switch brands. Advertising does not increase overall consumption or cause anybody to start smoking.

Advertising is the key to the image of glamour, sophistication, freedom, and healthy, outdoor living that the tobacco companies want their product to be associated with. It supports existing brands and is an essential tool for establishing new brands. The success of a tobacco company is driven by the power of its brand portfolio.¹ As in other consumer goods industries, brands are often the most valuable asset that companies have. BAT describes itself as "one of the world's largest trade mark owners". Philip Morris attributes its success to the power of its "global brand portfolio".¹ The value of Marlboro, Philip Morris' most valuable and the world's leading cigarette brand, has been put at US\$21,000 million.

Advertising bans may have a negative effect on the value of existing brands, but their impact on potential new entrants (brands, companies) is even greater. It takes millions of US dollars to introduce a new tobacco product. Who wants to do so when you can't even advertise its name?

In practice, the tobacco companies have proven to be quite resourceful in compensating for the effects of the advertising bans (even though it is becoming steadily more difficult to do so). Their strategies range from quickly introducing new cigarette brands before a ban comes into effect; to "brand stretching" or "trademark diversification";² and "borrowing" an existing brand name that was not previously associated with cigarettes.³ The sponsorship of sports and cultural events, particularly international sports events, has become popular. Formula One motor racing, which is followed by millions of people on television around the globe, is a very attractive tool for the marketing of existing and would-be worldwide brands.

¹ See the 1999 BAT and Philip Morris Annual Reports.

² Such as "Marlboro" country or "Camel Adventures".

³ Reemtsma sells BOSS and DAVIDOFF cigarettes (Reemtsma, 1999, AR) and Altadis "Omar Sharif" and "Alain Delon" cigarettes (Altadis, AR 2000).

Source: Various.

4.4. Taxation

Raising the tax on tobacco products is a component of virtually every government's tobacco policy. On the surface, it is an attractive component because it raises the price of tobacco products (and thus discourages demand) *and* it raises government revenue (and keeps the treasurer happy). In actual practice, the situation can be more complicated. First, a flat tax per packet would act as a regressive tax as it weighs more heavily on people with

¹ In Thailand, the no-smoking campaign involves singers, actors and actresses as models for young people (TJI, 6/96).

a low income. This effect is exacerbated by the fact that, in developed countries, this group of people uses tobacco more intensively than people with high incomes. Second, overall demand for cigarettes may decline so steeply that increased revenue through the higher tax per packet is outweighed by the lower sales volume.

However, the main constraining factor is that, as a result of the tax increases, prices become so high compared to those of surrounding countries that legally sold cigarettes are being substituted for smuggled ones.² In the mid-1990s, contraband goods made up 80 per cent of the Estonian market (TJI 5/99). In 1993, they made up 60 per cent of the Quebec market – a year later the Canadian Government was forced to cut back taxation. Worldwide, smuggled cigarettes were estimated to account for 5 per cent of global cigarette production and 30 per cent of international cigarette trade in 1994 (WHO, 1997) (see also box 6).

Box 6. Smuggling

“About 20 per cent of cigarettes and 80 per cent of hand-rolling tobacco now consumed in the UK is smuggled product... Within the past 4-5 years this trade has developed from “white van” cross-Channel black marketeering by small opportunists... It now involves organized criminal gangs who are finding it easier and more profitable than drug smuggling and are sourcing vast supplies in containers ...”¹

Smuggling, the illegal import of cigarettes, is a major headache for the governments of many countries. Smuggled cigarettes make up or have made up over a quarter of the local market in such diverse countries as Estonia, Latvia, the Philippines, Ukraine, and the UK.

Loss of tax revenue in the country of final destination is but one effect of the high incidence of smuggling. It also undermines government efforts to discourage the consumption of cigarettes through higher prices. It leads to the corruption of public officials and agencies, and paves the way for other, more serious forms of smuggling (drugs, people). It is said to lead to criminal behaviour² and to help foment criminal and terrorist activities.

Governments naturally try to combat smuggling but the higher the price difference with the neighbours the more attractive the country becomes as a destination for smugglers. Smuggling cigarettes can be a hugely profitable business.³ Governments must thus commit resources to additional surveillance of their borders, resources that many do not have. Making the use of tax banderoles obligatory can be another solution (but these are known to have been forged by the smugglers). In Brazil, where the treasury suffers from lost revenue due to the fact that many cigarettes exported to Paraguay are smuggled back into the country, the government introduced a 150 per cent *export tax* on cigarettes in 1999.

The position of the tobacco companies is ambivalent. The companies benefit from the sales of smuggled products originating in their factories just as they do from any other sales. Smuggling also helps establish their brand name in the country of destination, which can be very useful when the brand is not (yet) legally available there. But the position of those companies which sell through “normal” channels is different. They lose market share. As such, they become the government’s allies: both have an interest in combating illegal imports.

Whether smuggling takes place with the knowledge or the collaboration of the tobacco companies is a moot point. The companies claim that they neither control nor have any influence over smuggled products. However, certain governments have indicated that they are not convinced of their innocence.⁴

¹ CGE, March 2000, p. 161.

² In Italy, the armoured-vehicle convoys of smugglers “show no hesitation in running police off the road” (CGE, Italy, February 2000, p. 135).

³ Earnings are estimated to be in the range of US\$600,000 per truckload destined for the British Isles.

⁴ The Canadian Government successfully sued one of the US tobacco companies, which it accused of aiding smugglers who redirected exported Canadian cigarettes back into Canada (TJI/1/99, p. 7; also TJI 1/00, p. 4). Following a two-year investigation by its anti-fraud unit, the European Union announced that it would sue US tobacco companies in an attempt to recover customs revenues lost through cigarette smuggling (TJI/5/00, p. 4).

² An extreme case is the situation in Latvia in 1995 when the excise tax was raised to a level 15 times that of Lithuania, its immediate neighbour (TJI 6/99).

5. Employment in the tobacco industry

Worldwide, the tobacco-processing industry employs hundreds of thousands of people. However, due to a combination of slow demand growth, consolidation, and higher productivity, this number is unlikely to increase by much in the near future. Fewer people are needed per unit of production. The industry is becoming less intensive in the use of labour. Tobacco *growing*, in contrast, gives work to millions of people. It continues to be a highly labour-intensive activity. The scope for productivity increases in tobacco growing would appear to be more limited than those in tobacco processing.

5.1. Employment: the figures

Over a million people are employed in the world tobacco industry (ISIC 314 or 16). But of this number a high percentage is employed in just three countries: China, India and Indonesia (table 9). The large number employed in China comes as no surprise in view of the large number of cigarettes (one-third of the world total) produced there. Still, the productivity gap with the United States is striking. China produces roughly three times as many cigarettes as the US, but it needs over nine times as many people to produce them. In the other two countries the scope for productivity improvements would appear to be even higher.

5.2. Employment trends

Table 10 gives employment data for selected OECD countries. Following considerable job losses in the 1980s,¹ these data show that, in the 1990s, employment in the tobacco industry declined in all cases (except for Poland which registered a small increase). In Australia, Germany, Hungary, the Republic of Korea and Turkey, employment declined by one-third or more in the seven-year period 1990-97. In most countries, the number of establishments in the industry also declined, in some cases quite substantially (Turkey, Denmark, Germany, Hungary, the Republic of Korea and the United Kingdom). The data given are for the tobacco industry as a whole, encompassing also other tobacco products than cigarettes (although the latter is usually its main component). Comparisons with cigarette production volumes are therefore not all that meaningful because they do not take account of changes in the volume of production in these other tobacco products. Nonetheless, it is noteworthy that in many cases cigarette production decreased far less than employment in the tobacco industry. In some cases, employment went down when production increased.

¹ In the US and the UK alone, close to 40,000 jobs were lost in that decade, according to the OECD.

Table 9. Employment in the tobacco industry (1990s*)

Albania	967 (c)	France	4 500 (0)	Nigeria	1 500 (u)
Algeria	–	Gabon	50 (c)	Norway	596 (c)
Argentina	2 700 (l)	Germany	12 000 (T)	Pakistan	40 000 (l)
Armenia	1 125 (c)	Ghana	1 121 (c)	Panama	180 (l)
Australia	1 600 (o)	Greece	2 800 (o)	Papua New Guinea	2 598 (c)
Austria	1 200 (o)	Grenada	17 (c)	Paraguay	–
Azerbaijan	1 497 (c)	Guatemala	500 (u)	Peru	400 (l)
Bangladesh	27 155 (c)	Haiti	–	Philippines	12 800 (l)
Belarus	–	Honduras	3 409 (c)	Poland	12 400 (o)
Belgium	3 000 (l)	Hungary	2 100 (o)	Portugal	1 200 (o)
Bolivia	205 (c)	India	415 000 (l)**	Romania	5 200 (l)
Bosnia Herzegovina	676 (c)	Indonesia	224 000 (u)***	Russian Federation	12 900 (c)
Brazil	18 000 (l)	Iran Islamic Rep.	10 500 (c)	Senegal	–
Bulgaria	13 100 (c)	Ireland	1 000 (o)	Serbia Montenegro	–
Burkina Faso	–	Israel	600 (c)	Sierra Leone	–
Burundi	181 (c)	Italy	14 100 (o)	Singapore	770 (c)
Cambodia	1 952 (c)	Jamaica	803 (c)	Slovak Republic	1 000 (l)
Cameroon	567 (c)	Japan	7 100 (o)	Slovenia	1 000 (l)
Canada	4 000 (o)	Jordan	1 000 (l)	South Africa	3 000 (c)
Cape Verde	40 (c)	Kazakhstan	–	Spain	9 300 (o)
Central African Republic	465 (c)	Kenya	916 (c)	Sri Lanka	3 500 (l)
Chad	–	Korea Rep.	4 300 (o)	Suriname	88 (c)
Chile	500 (u)	Kyrgyz Republic	1 110 (u)	Sweden	800 (o)
China	280 000 (l)	Lao PDR	–	Switzerland	–
Hong Kong, China	630 (l)	Latvia	358 (c)	Tajikistan	–
Colombia	1 100 (l)	Lebanon	–	Tanzania	5 000 (c)
Congo, Dem. Rep.	–	Lithuania	–	Thailand	31 708 (c)
Congo, Rep.	–	Macedonia FYR	6 000 (l)	Trinidad and Tobago	166 (c)
Costa Rica	600 (u)	Madagascar	–	Tunisia	2 669 (c)
Côte d'Ivoire	–	Malawi	6 000 (c)	Turkey	22 600 (o)
Croatia	2 680 (c)	Malaysia	5 200 (l)	Turkmenistan	–
Cuba	–	Mali	–	Uganda	–
Cyprus	280 (l)	Mauritius	189 (c)	Ukraine	3 000 (c)
Czech Republic	1 000 (l)	Mexico	4 700 (o)	United Kingdom	8 000 (o)
Denmark	1 400 (l)	Moldova	2 293 (c)	United States	31 000 (o)
Dominican Republic	–	Morocco	2 500 (T)	Uruguay	468 (c)
Ecuador	380 (u)	Mozambique	389 (c)	Uzbekistan	–
Egypt, Arab Rep.	18 300 (u)	Myanmar	2 000 (u)	Venezuela RB	2 861 (c)
El Salvador	250 (c)	Nepal	4 660 (c)	Viet Nam	–
Estonia	–	Netherlands	5 400 (o)	Yemen	961 (c)
Ethiopia	950 (u)	New Zealand	500 (o)	Zambia	961 (c)
Finland	700 (o)	Nicaragua	–	Zimbabwe	5 600 (l)

Note: * Figures are for the 1990s (i.e. 1990 or the most recent year in that decade). ** Only factory workers. *** Including *kretek* cigarettes.

(–) Not available.

Sources: OECD (o); ILO (l); UNIDO (u); TJI (T); Corrao (c).

Table 10. Employment in the tobacco industry of selected OECD countries (1990 to latest; x 1,000 people)

	Employment		Establishments		Annual cigarette production x 1,000 million	
	1990	1997	1990	1997	1990	1997
Australia	2.9 ⁴	1.6 ⁸	–	–	32.7	30.7
Austria	1.4	1.2	15	13	15	20
Denmark	1.55	1.4	17	12	11.4	12.3
France	5.2	4.5 ⁷	–	–	55.5	46.9
Germany	19.3 ¹	13	57	33	221.1	182
Hungary	3.4	2.1	13	8	28.2	27.1
Ireland	1.31	1.0 ⁷	6	6	7.9	7.9
Netherlands	5.9 ³	5.4	15	11	81	116
New Zealand	0.6 ²	0.5 ⁸	4	7	6.3	6.3
Poland	11.0 ³	12.4 ⁷	–	–	86.6	95.2
Rep. of Korea	7.2	4.3	20	14	92	92.7
Spain	10.6 ⁵	9.3	36	37	77.5	74.6
Sweden	1.1	0.86	9	8	9.8	7.2
Turkey	32.1	22.6	50	37	60.5	112
United Kingdom	9 ⁵	8	43	25	126.5	170.2
United States	41	31.0	–	–	709.7	719

¹ 1991; ² 1991-1992; ³ 1992; ⁴ 1992-93; ⁵ 1993 ⁶ 1995; ⁷ 1996; ⁸ 1996-1997.

Note: Only those countries were selected for which data for at least five consecutive years were available.

(-): not available.

Source: OECD, 1999; TJI/USDA

This downward trend in employment barely changed after 1997, the latest year for which OECD data are available. Demand in the OECD area has not grown (Chapter 2). If anything, consolidation of the industry appears to be accelerating (Chapter 3). More jobs have gone or are under threat. Consolidation intends to enhance the competitiveness of the merged companies and usually involves plant closures and redundancies. Production (but also research and development) is being concentrated in fewer sites. Overlap in distribution can lead to considerable job cuts. In December 2000, Altadis, the company formed out of SEITA of France and Tabacalera of Spain announced the closure of 8 of its 14 Spanish factories (and the construction of two new plants). Out of a total of 7,000, 2,000 jobs would be lost. On the French side, SEITA announced that 1,400 jobs, or one-third of its workforce, would be shed (FT, 21/12/00). In 1999, following its acquisition of Rothmans, BAT closed or announced the closure of factories in Singapore, Spain, Suriname, Papua New Guinea, Nicaragua, Switzerland, Australia, Malaysia, South Africa and the UK (BAT AR, 1999). BAT plans to concentrate on fewer and bigger factories with greater manufacturing capacities.

Directly and indirectly, the combination of privatization and trade liberalization appears to accelerate this downward employment trend. In many countries, the tobacco companies are or were state-owned or state-controlled. Often they were monopolies (Chapter 4) with below average productivity due to high staffing levels, outdated equipment and/or idle capacity. When these companies are being privatized and prepared for operating in a more competitive environment, their employment levels tend to suffer. The Italian state monopoly ETI, which had already cut the number of its manufacturing

plants from 21 to 17 in the mid 1990s, plans to reduce the number of production sites to 4 by 2003 and to lay off 3,300 employees to a planned level of 1700 by the end of 2003. These measures are designed to restore both the competitiveness and the financial performance of ETI prior to its privatization (TJI/2/00).

Jobs in OECD area plants look particularly vulnerable because demand is stagnating or declining. Exports, which make up a significant share of production in certain countries, suffer when previous export markets expand their own production (the case of US exports to Russia, for example). On the other hand, several of the OECD plants already produce at high levels of productivity.

But the effects of consolidation and productivity increases are not limited to the mature OECD markets. Privatization, together with trade and capital liberalization, are leading to a search for productivity increases everywhere, with potential negative effects for employment (although the cost advantages of productivity increases are smaller in low labour cost countries). In China, the number of production plants declined from 180 to 136 during the 1990s and their number is expected to drop to around 100 in the first decade of the 21st century (see box 2 on the China factor).

5.2.1. Productivity

The cigarette industry has experienced spectacular productivity increases in the past century. The production capacity of the most modern cigarette machines increased from 250 cigarettes per minute (cpm) to 16,000 cpm in less than a century (box 7). But such high-speed machines alone cannot ensure high productivity increases. Or, as Mr. Ulrich Herter, BAT's managing director put it: "... high speed is not an end in itself. It is important to get the right logistics around the machine..." (TJI 4/95 p.26). The layout of the plant needs to be adjusted to ensure that such high volumes are actually achieved. Production is being concentrated in fewer plants. Reemtsma's Berlin plant produced annually 3.65 billion cigarettes when it was inaugurated in 1959. Today, it produces ten times that volume (with a little over three times the number of employees) (Reemtsma AR 1999). Philip Morris' modern facility at Bergen op Zoom in the Netherlands produces 90 billion cigarettes annually with just 1,900 people. If such high levels of productivity were to become the norm, there would appear to be considerable further scope for downward adjustment of employment in the world tobacco processing industry.

Box 7. Productivity in the tobacco processing industry

Until the 1870s, all cigarettes were rolled by hand. Particularly dexterous (women) workers could roll four cigarettes per minute. The first cigarette machine, introduced in 1867, could produce 60 cigarettes a minute. It caused a sensation and had two effects. First, fewer people were needed to make the same number of cigarettes. Second, it enabled cigarettes to be produced on a large scale, thus paving the way for them to be marketed on a massive scale. In subsequent years these two effects (high productivity and mass marketing) continued to reinforce each other.

The capacity of cigarette machines did not stop increasing: 250 cigarettes per minute (cpm) in 1910; 1,000 cpm in 1921; 1,300 cpm by 1930; 1,500 cpm by 1955; 1,750 cpm by 1965. Then capacity started to accelerate with a handful of competitors producing ever faster machines. Production of cigarettes per minute increased to 4,000 by 1968; 5,000 in 1976; 7,200 in 1982; and 10,000 cpm in 1988. Still, there proved room for greater speed and by 1999 the fastest machines could produce 16,000 cigarettes per minute.

Clearly, few producers reach such high levels. But those that do have a competitive advantage. In an open market, producers who can afford them and can master the logistical problems involved in operating them efficiently will want to purchase the new machines to bridge the gap with their more efficient competitors. This can be expected to lead to further concentration and to production in fewer plants (it only makes economic sense to use high speed machines when production volumes are high). And it may well lead to greater concentration by company. Large companies are more likely to have the need to produce high volumes, the know-how to organize production efficiently, and the financial resources to invest in these machines (Source: based on TJI).

5.3. Some remarks on employment in tobacco-growing

Tobacco is grown in over a hundred countries. It is a labour-intensive crop that provides work and income to millions of people. Over 80 per cent of world tobacco is produced in developing countries and regions (Chapter 2). The share of these countries in world production and exports is growing, but it is a slow process. There are limits to the possibilities of changing one tobacco for another in existing blends (see section 1.1.1).

Also, many governments consider tobacco growing a strategic activity. Governments support tobacco growing in various ways. Some subsidize production. Others oblige cigarette manufacturers to use a certain percentage of home-grown tobacco (or provide manufacturers with financial incentives to do so). Yet others oblige the state monopoly to buy up all (or all unsold) domestically grown tobacco (sometimes at high prices). In short, in many cases either the tax payer or the smokers are asked to subsidize domestic tobacco production.

As is the case with other types of agricultural activity, these governments support tobacco growing for economic (contribution to government revenue), social (it provides employment to many people), strategic (they don't want to depend on imports in times of war or crisis) and political (tobacco farmers may have a decisive vote in a decentralized political system) reasons. Not infrequently, a combination of these factors is at work.

The opportunities for productivity enhancement in tobacco growing would appear to be more limited than those in the tobacco industry. Tobacco growing will thus continue to occupy many people. But how their number will develop in the future is hard to say with precision. Stagnant demand for tobacco makes it likely that, worldwide, the number will go down. Just where this will occur depends on the circumstances of each country and region. People involved in the production of high quality tobaccos at competitive cost of the type for which demand prospects are good would appear to be in a more favourable position than others. But whatever changes do take place, they are bound to occur slowly.

Nonetheless, the authorities in many places are concerned about the effects that a drastic slow-down in demand for tobacco might entail. Often the question is raised whether tobacco can be replaced by an alternative crop that matches its earnings per hectare or per person. Such questions must consider technical aspects (for instance, the sloping, rocky soils that are used for growing oriental tobaccos may be unsuitable for other crops); skill problems (farmers may have no experience in the growing of alternative crops) and "sunk costs" (farmers may have invested heavily in installations that are specific for tobacco). How easy or difficult is it to find alternative jobs for the people involved in tobacco growing? How are tobacco prices expected to develop compared to those of alternative crops? All these questions can only really be answered case by case, region by region, and country by country. Only detailed case-studies can be the basis of a meaningful discussion.

6. Conclusion

Demand for cigarettes and other tobacco products is influenced by two conflicting trends. On the one hand, the smoking prevalence of women is much lower than that of men; and that of developing country adults lower than people in industrialized countries. Even small increases in the percentage of women who smoke, and small increases in the proportion of smokers in developing countries would significantly raise world demand. On the other hand, more and more governments¹ try to discourage demand for tobacco products. How these different pressures will affect the volume of demand in the near future is hard to predict. The current uncertain macroeconomic outlook is a further complicating factor. A return to the pre-1990 growth rates looks unlikely though.

In this uncertain situation, two scenarios are possible for the tobacco companies. In the best scenario, privatization and trade and investment liberalization continue as they did in the 1990s. The companies are allowed to enter hitherto closed markets where their superior manufacturing, distribution and marketing skills and deep pockets will lead them to conquer greater market shares. Litigation and demand discouragement remain within manageable proportions. High levels of concentration at the national level remain acceptable and increase internationally, enabling them to become ever more efficient and to lower costs. More Indonesian and Indian smokers switch to (white) cigarettes.

The worst-case scenario would be radically different. Privatization, and trade and capital liberalization, come to a halt. Chinese exporters become important competitors in the Asian market. Litigation becomes an ever greater threat, with claims so high that they threaten the very existence of the companies concerned. Efforts to discourage cigarette smoking are highly successful. Indonesian smokers stick to their *kretek* cigarettes and Indian smokers to their *bidis*. This latter scenario is the less likely of the two. But it cannot be discarded.

The prospects for further employment growth in the tobacco processing industry look dim, however. Even if demand were to increase on a significant scale, this demand impulse would most likely be outweighed by the effects of consolidation and further productivity increases. High cost countries with stagnant demand; countries preparing for market opening; and countries on the verge of privatizing their state-owned companies look particularly vulnerable.

¹ Assisted and inspired by the World Health Organization (WHO) which has come to play a leading role in coordinating efforts to reduce the consumption of tobacco products.

Annex

Standard grading system for flue-cured and Burley tobacco

Standard grading system for flue-cured tobacco					
Colour symbols					
L	Lemon	KR	variegated red or scorched	KV	variegated greenish
LL	whitish-lemon	V	greenish	KM	variegated mixed
F	Orange	KL	variegated lemon	G	green
FR	orange red	KF	variegated orange	GR	green red
R	Red	KD	variegated dark red	GK	green variegated
K	Variegated			GG	grey green

Groups				Qualities			
B	Leaf	P	primings	1	choice	4	fair
H	Smoking leaf	M	Mixed-group	2	fine	5	low
C	Cutters	N	nondescript	3	good	6	poor
X	Lugs	S	scrap				

Source: Dimon, 1999 (based on USDA).

Standard grading system for Burley tobacco					
Colour symbols					
L	buff	D	dark red	VR	greenish red
F	tan	K	variegated	G	green
FL	tannish buff	M	mixed	GF	green tan
FR	tannish red	V	greenish	GR	green red
R	red	VF	greenish tan		

Groups				Qualities			
X	flyings	T	tips	1	choice	4	fair
C	lugs of cutters	M	mixed	2	fine	5	low
B	leaf	N	nondescript	3	good		
		S	scrap				

Source: Dimon, 1999 (based on USDA).

Annex table 1. Estimated annual per capita consumption of cigarettes per adult 15 years of age and over, selected countries, 1970-72 to 1990-92, ranked according to consumption in 1990-92

Country	1970-72 Per capita consumption	Rank	1980-82 Per capita consumption	Rank	1990-92 Per capita consumption	Rank
Poland	3 010	11	3 400	6	3 620	1
Greece	2 640	16	3 440	4	3 590	2
Hungary	2 940	13	3 320	7	3 260	3
Japan	2 950	12	3 430	5	3 240	4
Republic of Korea	2 370	20	2 750	15	3 010	5
Switzerland	3 700	2	3 060	10	2 910	6
Iceland	2 940	14	3 230	9	2 860	7
Netherlands	3 150	6	3 290	8	2 820	8
Yugoslavia	2 330	21	3 030	12	2 800	9
Australia	3 410	4	3 440	3	2 710	10
United States	3 700	3	3 560	2	2 670	11
Spain	2 190	22	2 440	21	2 670	12
Canada	3 910	1	3 800	1	2 540	13
New Zealand	3 060	9	2 890	13	2 510	14
Ireland	3 050	10	3 030	11	2 420	15
Germany	2 430	18	2 420	22	2 360	16
Belgium	3 090	7	2 880	14	2 310	17
Israel	2 060	23	2 400	23	2 290	18
Cuba	2 690	15	2 630	17	2 280	19
Bulgaria	1 770	35	1 880	36	2 240	20
United Kingdom	3 250	5	2 740	16	2 210	21
Austria	2 390	19	2 620	18	2 210	22
Saudi Arabia	1 220	52	1 940	35	2 130	23
France	1 860	31	2 080	29	2 120	24
Turkey	1 950	29	2 250	25	2 100	25
Luxembourg	3 090	8	2 580	19	2 080	26
Portugal	1 440	40	1 800	41	2 010	27
Syrian Arab Republic	950	63	1 730	45	2 000	28
Italy	1 800	34	2 310	24	1 920	29
Venezuela	2 060	24	2 210	26	1 920	30
Denmark	2 050	25	2 050	31	1 910	31
China	730	72	1 290	56	1 900	32
Suriname	1 160	56	1 870	37	1 870	33
Norway	2 030	26	1 950	33	1 830	34
Mauritius	1 310	48	1 940	34	1 830	35
Trinidad and Tobago	1 440	41	1 960	32	1 780	36
Philippines	2 010	27	2 190	27	1 760	37

Country	1970-72 Per capita consumption	Rank	1980-82 Per capita consumption	Rank	1990-92 Per capita consumption	Rank
Colombia	1 880	30	1 790	42	1 750	38
Tunisia	1 380	44	1 590	49	1 750	39
Finland	2 000	28	1 800	40	1 740	40
South Africa	1 340	46	1 600	48	1 720	41
Uruguay	1 630	38	1 720	46	1 700	42
Jordan	1 020	61	1 840	39	1 680	43
Malaysia	1 400	42	2 040	30	1 630	44
Singapore	2 510	17	2 550	20	1 610	45
Argentina	1 810	33	1 770	43	1 610	46
Algeria	950	64	1 580	50	1 600	47
Fiji	1 150	57	1 650	47	1 590	48
Romania	1 740	36	2 130	28	1 550	49
Sweden	1 700	37	1 840	38	1 550	50
Brazil	1 330	47	1 750	44	1 500	51
Nicaragua	1 380	45	1 440	52	1 460	52
India	1 010	62	1 310	55	1 370	53
Costa Rica	1 850	32	1 520	51	1 340	54
Iraq	1 250	51	1 090	64	1 280	55
Cambodia	940	65	1 260	58	1 220	56
Albania	1 220	54	1 230	59	1 220	57
Egypt	730	73	1 180	61	1 210	58
Indonesia	500	83	950	72	1 180	59
Chile	1 310	49	1 380	53	1 130	60
Guyana	1 220	53	1 280	57	1 130	61
Paraguay	1 190	55	1 030	68	1 100	62
Thailand	810	69	1 080	66	1 050	63
Senegal	430	88	760	79	1 050	64
El Salvador	1 260	50	1 030	67	1 010	65
Dominican Republic	910	66	1 010	69	1 010	66
Bangladesh	510	81	680	82	990	67
Mexico	1 600	39	1 370	54	970	68
Democratic People's Republic of Korea	1 050	60	1 210	60	960	69
Panama	1 150	58	950	71	960	70
Iran (Islamic Republic of)	900	67	1 160	62	930	71
Morocco	680	75	1 120	63	920	72
Congo	880	68	890	73	900	73
Ecuador	650	77	830	74	870	74
Jamaica	1 400	43	990	70	860	75
Honduras	1 090	59	1 080	65	850	76

Country	1970-72 Per capita consumption	Rank	1980-82 Per capita consumption	Rank	1990-92 Per capita consumption	Rank
Sierra Leone	460	86	810	76	810	77
Yemen	470	85	570	88	810	78
Viet Nam	N/A	111	790	77	790	79
Angola	740	71	740	80	740	80
Cameroon	270	98	590	87	740	81
Côte d'Ivoire	800	70	810	75	710	82
Benin	640	78	770	78	650	83
Pakistan	630	79	720	81	640	84
Lao People's Democratic Republic	510	82	600	86	600	85
Haiti	170	104	630	85	580	86
Nepal	170	105	290	103	580	87
Kenya	420	89	560	89	500	88
Togo	560	80	480	92	490	89
Madagascar	270	99	470	93	460	90
Mozambique	370	95	460	94	460	91
Zimbabwe	700	74	660	83	430	92
Bolivia	400	92	560	90	430	93
Sri Lanka	460	87	520	91	430	94
Zambia	500	84	430	96	430	95
Liberia	390	93	420	97	420	96
United Republic of Tanzania	380	94	370	99	370	97
Nigeria	290	97	350	100	370	98
Peru	410	90	390	98	350	99
Guatemala	660	76	640	84	340	100
Malawi	200	102	330	101	330	101
Uganda	300	96	300	102	300	102
Zaire	220	101	240	105	270	103
Ghana	410	91	440	95	250	104
Niger	110	108	100	110	170	105
Sudan	170	106	150	108	150	106
Myanmar	90	109	140	109	150	107
Solomon Islands	250	100	250	104	140	108
Afghanistan	150	107	160	107	140	109
Ethiopia	60	110	70	111	90	110
Cape Verde	200	103	220	106	N/A	111

Source: WHO.

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