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# International Smoking Statistics

Web Edition

A collection of worldwide historical data

## Austria

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Barbara Forey, Jan Hamling,  
John Hamling, Alison Thornton, Peter Lee

P N Lee Statistics & Computing Ltd  
17 Cedar Road  
Sutton SM2 5DA, UK  
[www.pnlee.co.uk](http://www.pnlee.co.uk)

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Corrections for survey source 6 to product codes, 1990, 1994 and 1998, Table 4, and to notes. Corrections to notes for survey source 14. Minor text changes. Tables 4Ext and 6Ext and Figure 3Ext added to Excel workbook. (Note that calculations of ‘% total sales’ (Tables 6-8) and of ‘adult (15+) estimates’ (Tables 4Ext, 6Ext and 8, Figures 3-4) have not been updated with the revised population data; there may be discrepancies for 2000-2001, but these will be very minor.)

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<sup>1</sup> See footnotes to Figures

## Preface

International Smoking Statistics is a collection of smoking data covering most of Europe and various other economically developed countries. The second edition (published by Wolfson Institute of Preventive Medicine and OUP, 2002, [www.oup.co.uk/isbn/0-19-850856-5](http://www.oup.co.uk/isbn/0-19-850856-5)) included data for 30 countries up to 1995. Since 2006, work has been ongoing to make individual country updates available online. Please register at [www.pnlee.co.uk](http://www.pnlee.co.uk) if you wish to be informed when updates are posted.

The methods used in the web edition are essentially unchanged from those of the second edition, although some minor changes are included in the online Methods chapter. Readers are strongly recommended to consult the Methods chapter.

The two main types of data presented are sales data and survey data. We give the results of the original authors as closely as possible, whilst presenting them in a uniform format.

Sales data give the total national consumption of tobacco. Data on sales of cigarettes and of all tobacco products are presented, usually from about 1920. Estimates of the consumption of hand-rolled cigarettes are included where possible, as are data on the types of manufactured cigarettes sold. The Tobacco Research Council provided most of the sales data until 1973, while later sales data were obtained from government and industry sources.

Survey data provide information on the prevalence and amount of smoking according to age and sex. These were obtained from a wide variety of surveys. Some survey data are available for the early part of the 20<sup>th</sup> century, but for most countries they are available only from the 1950s or 1960s onwards.

In additional tables we calculate further statistics by combining sales and survey data using certain standardized assumptions. The figures are intended to provide an easily interpretable summary of the data presented in the tables, and the commentary has deliberately been kept to a minimum.

### Downloads

Updates currently available to download from [www.pnlee.co.uk](http://www.pnlee.co.uk) include:

Methods, including

Appendix I: *Estimated size of adult population;*

Appendix II: *Comparisons of manufactured and hand-rolled cigarettes and differences in the way they are smoked;*

Appendix III: *Consumption category estimation;*

Comparisons between countries;

Updated country chapters (see *Methods* for current list);

Tables from each updated chapter, in Excel format, including extended versions of Tables 4 and 6 and Figure 3 for chapters issued since January 2011;

Supplement 1: *Estimation of sex-specific smoking statistics by standardized age groups and time periods.* [The web edition comprises a brief Update

Note, together with tables (in Excel format only) for the countries with a chapter in the web edition. The original Supplement 1 to the second edition (an extended version of Appendix IV to the second edition) is also available and gives a full description and tables for the other countries].

Also available from the same source are:

Supplement 2 to the second edition: *Estimating past smoking habits by an indirect method. An investigation into a method based on recall, with application to Great Britain.* [This supplement is an extended version of Appendix V to the second edition];

IMASS, a comprehensive Excel database system, based on WHO mortality data and smoking statistics from Supplement 1. The IMASS system includes powerful routines for creating graphs and tables.

## Acknowledgements

We would like to acknowledge the tobacco industry for their financial support and for providing some of the sales data in International Smoking Statistics.

We would also like to thank the many government and research organizations and individuals who supplied much of the information included.

We thank Yvonne Cooper, Pauline Wassell and Diana Morris for maintenance of our references database.

We are indebted to G. F. Todd, past director of the Tobacco Research Council, who, shortly before he died in 1988, had prepared a draft report from which the first edition of International Smoking Statistics developed.

Professor Nicholas Wald was an editor of earlier editions, and we thank him for his support and encouragement.

We alone bear the responsibility for the analysis and interpretation of the data presented.

## Introduction

### Sales data

See Tables 1-3 and *Notes on sources of sales data*.

Sales data are available from 1923. In the 1920s and 1930s the consumption of manufactured cigarettes per adult remained fairly stable, varying around 2-3 cigarettes per day. After an increase around the beginning of the Second World War, consumption fell sharply to about 1 cigarette per day in 1946. Consumption then rose steadily until the late 1970s when it reached around 7 cigarettes per day, then fell, dropping to about 5.5 cigarettes per day by the mid-1990s. Since then, there have been substantial fluctuations which may, at least in part, be attributable to levels of smuggling and cross-border sales.

Consumption of hand-rolled cigarettes per adult, estimated from all sales of cigarette tobacco, fell from around 1 cigarette per day in 1923 to 0.3 in 1933, but rose again to the same level during the Second World War. After that, consumption was very low until about 1980, and has risen since, although remaining much lower than of manufactured cigarettes. Our estimates may be too high, since in Germany, comparison of sales of fine-cut (cigarette) tobacco with sales of cigarette paper suggest that only about 70% of cigarette tobacco was used for hand-rolled cigarettes (see also *Notes on sources of sales data*, p. 29).

The consumption of all tobacco products combined followed a similar trend to that of manufactured cigarettes, but the post-war increase was slower, so that the 1920s level of 6 g per adult per day was not reached again until the mid-1960s. Consumption exceeded 7 g per adult per day between the mid-1970s and mid-1980s and fell to below 6 g by the mid-1990s. In 1923, 32% of all tobacco consumed was in manufactured cigarettes, increasing steadily to 97% by 1990, followed by a slight drop due to increasing consumption of cigars and hand-rolling tobacco. In 1960, only 9% of manufactured cigarettes were filtered, but this rose rapidly to 76% in 1970 and has exceeded 95% since 1980.

### Survey data

See Tables 4-8 and *Notes on sources of survey data*.

National data on adult smoking are only available from 1972. Earlier data relate only to Vienna, where the smoking prevalence in 1954 was substantially higher than the later national results. Results are available from the Mikrozensus (source 1) on a consistent basis between 1972 and 1997, and show that the prevalence of regular smoking among men aged 15 years and over decreased somewhat from 38% to 30%, while among women it increased from 10% to 19%. Another 6-10% of men and 4-7% of women smoked occasionally. Some more recent surveys (including sources 10 and 16, and the 1999 Mikrozensus which had some methodological differences from earlier years) suggest a marked increase in prevalence, with some estimates exceeding 40% for men and 30% for women, but this is not supported by other surveys (sources 14, 15).

Based on the Mikrozensus results of 1972-1997, the prevalence of smoking increased fairly consistently among women in all age groups. The decrease among men was more marked for men aged 50 years and over. When reported separately by the Mikrozensus, smoking prevalence among older teenage boys was much

higher than among girls. However, school-based surveys show little difference between the sexes among younger teenagers until the mid-1990s, while more recent surveys show the prevalence increasing more among girls than among boys. For instance, the prevalence of weekly smokers age 15 rose from about 20% in 1984-1990 to 30% in 1994 in both sexes, but then rose again in girls only to 37% in 2001 (source 6).

Comparison of survey and sales data suggests that surveys under-reported consumption by about 40% in the 1970s, gradually reducing to 25% in the mid-1990s. However, in view of the fluctuations in both sales and survey data since then, some surveys have substantially over-reported. Since 1972, the estimated number of cigarettes smoked per person per day (sales-adjusted) has fallen, apart from some fluctuations around 2000, from about 12 to about 5 for men; for women, it increased from 2 to 4 by the early 1980s, and then remained steady.



**Table 1.1** Total annual sales of tobacco products, 1923-1973

Year	Manufactured cigarettes		Cigars		Cigarette tobacco tonnes	Pipe tobacco tonnes	Chewing tobacco tonnes	Snuff tonnes	All tobacco products tonnes
	tonnes	millions	tonnes	millions					
1923	3 180	2 935	730	158	1 680	3 950	230	140	9 890
1924	3 860	3 741	910	205	1 410	3 990	270	140	10 570
1925	4 040	3 973	950	216	1 360	3 900	320	140	10 700
1926	4 450	4 395	910	204	1 320	3 860	320	140	10 980
1927	4 540	4 512	860	201	1 410	3 580	360	140	10 890
1928	4 760	4 800	910	209	1 450	3 400	410	140	11 070
1929	4 760	4 925	910	207	1 540	3 220	410	140	10 980
1930	4 670	4 809	910	206	1 590	3 180	360	140	10 840
1931	4 810	4 940	770	175	1 180	3 130	360	140	10 390
1932	5 170	5 512	640	144	730	2 990	360	90	9 980
1933	4 850	5 102	540	122	640	3 040	360	90	9 530
1934	4 450	4 658	450	107	730	3 220	320	90	9 250
1935	4 260	4 452	450	104	860	3 080	270	90	9 030
1936	4 170	4 332	450	106	1 090	3 080	270	90	9 160
1937	4 040	4 211	450	103	1 090	3 040	270	90	8 980
1938	4 810	5 004	540	129	1 180	2 950	270	90	9 840
1939	6 400	6 395	640	157	1 180	2 860	230	50	11 340
1940	7 800	7 810	680	175	1 410	2 990	320	90	13 290
1941	9 250	9 249	730	176	1 680	3 490	410	90	15 650
1942	8 570	8 561	590	147	1 540	3 310	360	50	14 420
1943	8 160	8 168	500	121	1 860	2 450	320	50	13 340
1944	6 530	6 510	360	94	1 450	2 040	140	50	10 570
1945	2 540	2 554	140	37	540	450	50	0	3 720
1946	2 220	2 244	230	62	50	230	50	0	2 770
1947	2 860	3 136	270	57	0	230	50	0	3 400
1948	3 860	3 923	360	72	0	410	50	50	4 720
1949	4 760	4 781	320	60	0	1 270	90	50	6 490
1950	5 940	5 953	270	58	90	1 360	140	50	7 850
1951	6 620	6 609	320	66	140	1 320	140	50	8 570
1952	6 890	6 913	320	72	180	1 180	90	50	8 710
1953	7 120	7 132	320	76	180	1 130	90	0	8 850
1954	6 350	6 329	320	77	180	1 040	90	0	7 980
1955	7 170	7 144	360	85	180	1 000	90	0	8 800
1956	7 940	7 918	410	89	180	910	90	0	9 530
1957	8 350	8 349	360	94	180	860	50	0	9 800
1958	8 800	8 899	360	98	180	820	50	0	10 210
1959	9 210	9 295	360	98	180	770	50	0	10 570
1960	9 480	9 451	360	96	180	730	50	0	10 800
1961	9 620	9 284	360	101	180	730	50	0	10 930
1962	9 710	9 719	590	103	180	680	50	0	11 200
1963	10 120	10 101	450	91	180	640	50	0	11 430
1964	10 430	10 436	410	86	180	640	50	0	11 700
1965	10 840	10 827	410	85	180	590	50	0	12 070
1966	11 520	11 507	410	83	180	640	50	0	12 790
1967	11 790	11 771	410	82	180	640	50	0	13 060
1968	12 020	11 982	410	80	180	590	0	0	13 200
1969	12 430	12 379	410	84	140	500	0	0	13 470
1970	13 060	13 037	410	80	140	450	0	0	14 060
1971	13 610	13 603	410	77	90	410	0	0	14 510
1972	13 470	13 451	410	69	90	320	0	0	14 290
1973	14 510	14 499	360	68	90	320	0	0	15 290

Source: see *Notes on sources of sales data: Sales data before 1974*, p. 29

**Table 1.2** Total annual sales of tobacco products, 1974-2010

Year	Manufactured cigarettes		Cigars		Fine-cut tobacco tonnes	Pipe tobacco tonnes	Chewing tobacco tonnes	Snuff tonnes	All tobacco products tonnes
	tonnes	millions	tonnes	millions					
1974	14 419	14 419	348	63	67	286	9	6	15 135
1975	13 975	13 975	322	59	60	257	9	5	14 627
1976	14 415	14 415	314	57	54	241	9	6	15 038
1977	14 705	14 705	299	54	52	231	6	7	15 300
1978	15 127	15 127	283	52	46	223	2	6	15 687
1979	15 670	15 670	281	51	45	211	2	6	16 214
1980	15 515	15 515	273	50	52	204	2	7	16 053
1981	15 721	15 721	262	48	65	202	1	8	16 259
1982	15 540	15 540	237	43	96	200	1	8	16 082
1983	15 878	15 878	221	40	115	188	1	8	16 411
1984	15 550	15 550	210	38	136	180	1	8	16 085
1985	15 645	15 645	202	37	135	168	1	7	16 150
1986	15 645	15 645	193	35	146	151		8	16 143
1987	15 233	15 233	189	34	146	140		7	15 716
1988	14 496	14 496	183	33	147	129		8	14 963
1989	14 079	14 079	183	33	149	119		8	14 538
1990	14 401	14 401	178	32	152	114		8	14 853
1991	14 737	14 737	172	31	153	112		9	15 183
1992	14 319	14 319	167	30	155	107		9	14 758
1993	13 782	13 782	157	29	156	100		10	14 204
1994	14 077	14 077	152	28	162	94		10	14 495
1995	13 245	13 245	158	29	163	89		10	13 665
1996	12 875	12 875	166	30	169	88		11	13 308
1997	13 589	13 589	186	34	190	93		11	14 070
1998	15 503	15 503			217	95			
1999	15 933	15 933			222	93			
2000	15 544	15 544	292	53	229	89			16 154
2001	15 032	15 032	325	59	241	86			15 684
2002	11 532	11 532	341	62	253	85			12 211
2003	11 143	11 143	352	64	251	86			11 832
2004	11 143	11 143	402	73	259	85			11 889
2005			424	77	304	53			
2006			435	79	422	45			
2007			435	79	390	38			
2008			446	81	443	36			
2009			451	82					
2010			446	81					

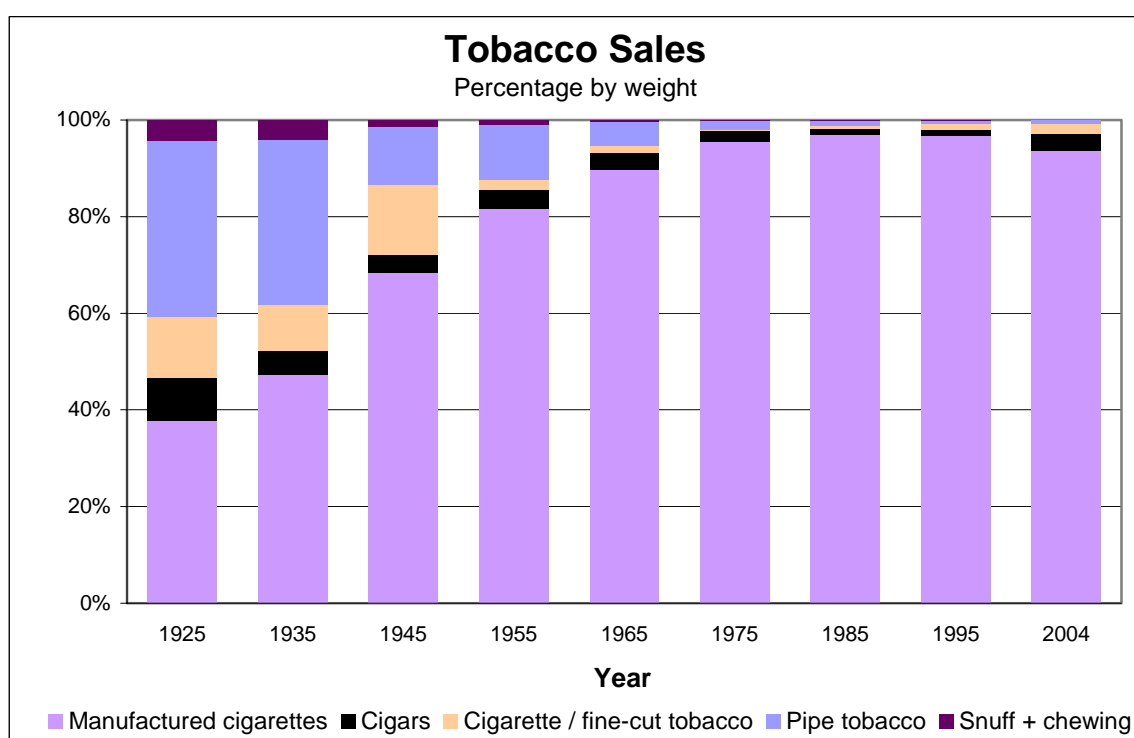
Source: see *Notes on sources of sales data: Sales data for 1974 onwards*, p. 29

**Table 1.3** Percentage of sales of tobacco in different forms (by weight), selected years

Year	Manufactured cigarettes	Cigars	Cigarette / fine-cut tobacco	Pipe tobacco	Snuff and chewing tobacco
	%	%	%	%	%
1925	37.8	8.9	12.7	36.4	4.3
1935	47.2	5.0	9.5	34.1	4.0
1945	68.3	3.8	14.5	12.1	1.3
1955	81.5	4.1	2.0	11.4	1.0
1965	89.8	3.4	1.5	4.9	0.4
1975	95.5	2.2	0.4	1.8	0.1
1985	96.9	1.2	0.8	1.0	0.1
1995	96.9	1.2	1.2	0.7	0.1
2004	93.7	3.4	2.2	0.7	

Source: calculated from Tables 1.1 & 1.2

**Figure 1** Percentage of sales of tobacco in different forms (by weight), selected years



Source: Table 1.3

**Table 2** Sales of cigarettes (including estimated number of hand-rolled cigarettes) and of all tobacco products.  
Annual total and average per adult (age 15 years and over) per day

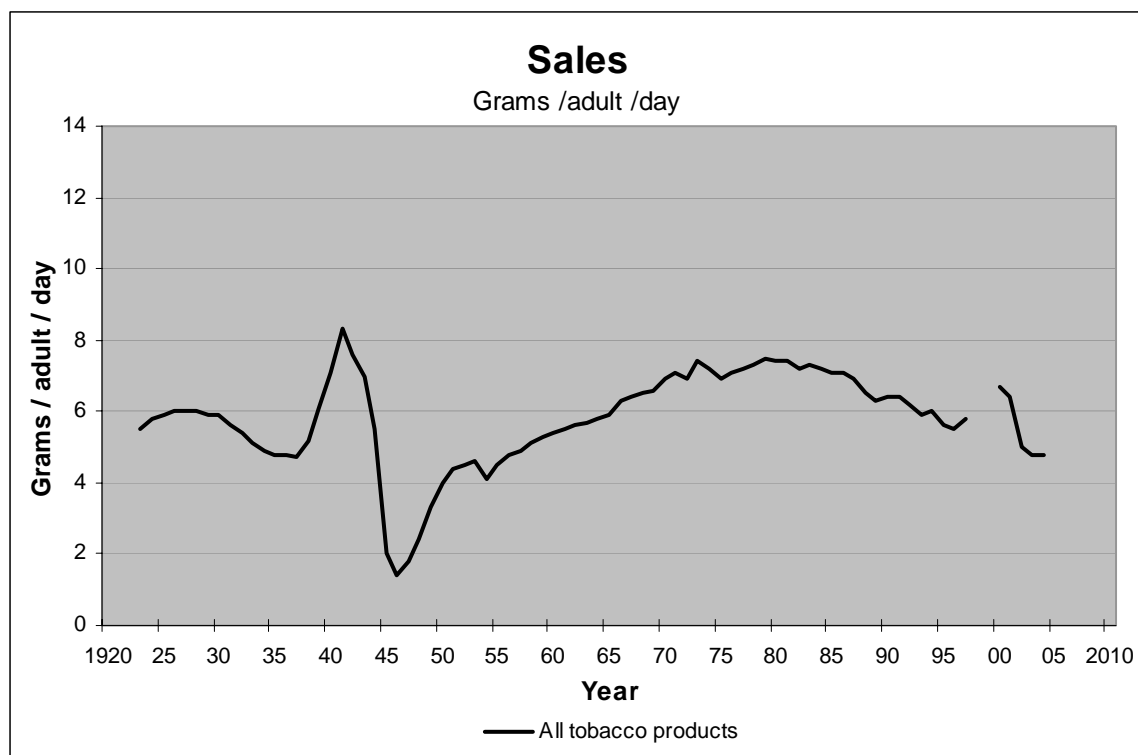
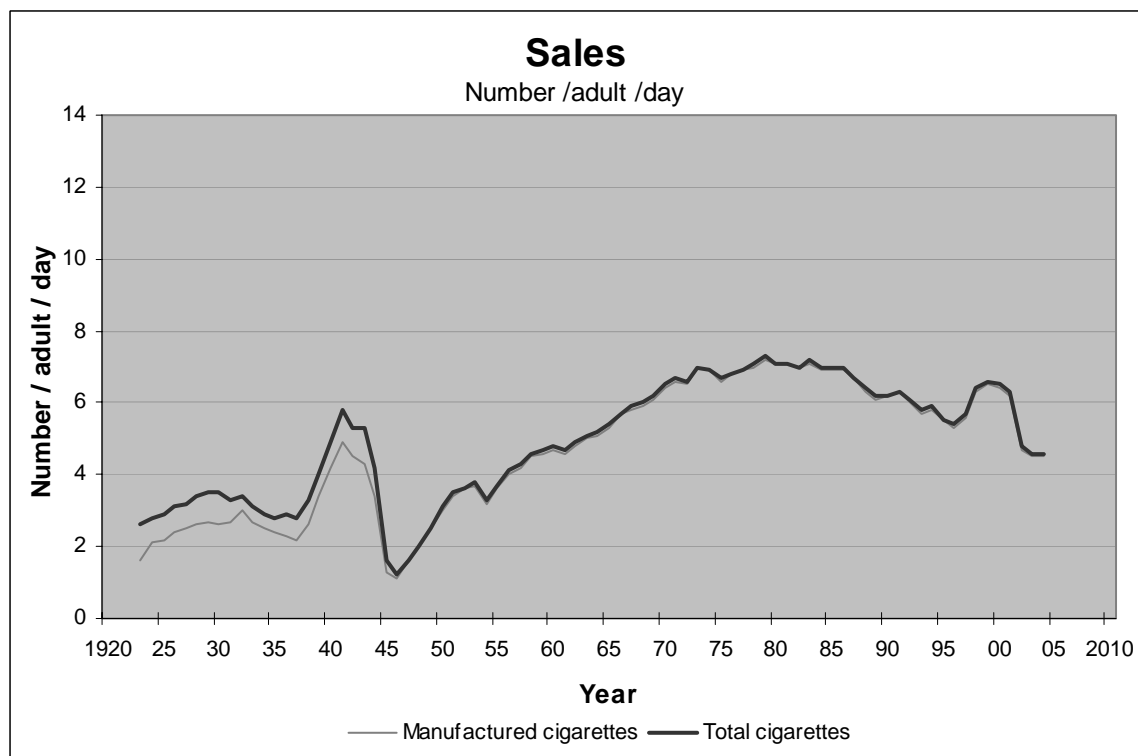
Year	Manufactured Cigarettes		Hand-rolled cigarettes		Total cigarettes		All tobacco products	
	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual tonnes	Grams/ adult/day
1923	2 935	1.6	1 680	0.9	4 615	2.6	9 890	5.5
1924	3 741	2.1	1 410	0.8	5 151	2.8	10 570	5.8
1925	3 973	2.2	1 360	0.7	5 333	2.9	10 700	5.9
1926	4 395	2.4	1 320	0.7	5 715	3.1	10 980	6.0
1927	4 512	2.5	1 410	0.8	5 922	3.2	10 890	6.0
1928	4 800	2.6	1 450	0.8	6 250	3.4	11 070	6.0
1929	4 925	2.7	1 540	0.8	6 465	3.5	10 980	5.9
1930	4 809	2.6	1 590	0.9	6 399	3.5	10 840	5.9
1931	4 940	2.7	1 180	0.6	6 120	3.3	10 390	5.6
1932	5 512	3.0	730	0.4	6 242	3.4	9 980	5.4
1933	5 102	2.7	640	0.3	5 742	3.1	9 530	5.1
1934	4 658	2.5	730	0.4	5 388	2.9	9 250	4.9
1935	4 452	2.4	860	0.5	5 312	2.8	9 030	4.8
1936	4 332	2.3	1 090	0.6	5 422	2.9	9 160	4.8
1937	4 211	2.2	1 090	0.6	5 301	2.8	8 980	4.7
1938	5 004	2.6	1 180	0.6	6 184	3.3	9 840	5.2
1939	6 395	3.4	1 180	0.6	7 575	4.0	11 340	6.1
1940	7 810	4.2	1 410	0.8	9 220	4.9	13 290	7.1
1941	9 249	4.9	1 680	0.9	10 929	5.8	15 650	8.3
1942	8 561	4.5	1 540	0.8	10 101	5.3	14 420	7.6
1943	8 168	4.3	1 860	1.0	10 028	5.3	13 340	7.0
1944	6 510	3.4	1 450	0.8	7 960	4.2	10 570	5.5
1945	2 554	1.3	540	0.3	3 094	1.6	3 720	2.0
1946	2 244	1.1	50	0.0	2 294	1.2	2 770	1.4
1947	3 136	1.6	0	0.0	3 136	1.6	3 400	1.8
1948	3 923	2.0	0	0.0	3 923	2.0	4 720	2.4
1949	4 781	2.5	0	0.0	4 781	2.5	6 490	3.3
1950	5 953	3.0	90	0.0	6 043	3.1	7 850	4.0
1951	6 609	3.4	140	0.1	6 749	3.5	8 570	4.4
1952	6 913	3.6	180	0.1	7 093	3.6	8 710	4.5
1953	7 132	3.7	180	0.1	7 312	3.8	8 850	4.6
1954	6 329	3.2	180	0.1	6 509	3.3	7 980	4.1
1955	7 144	3.6	180	0.1	7 324	3.7	8 800	4.5
1956	7 918	4.0	180	0.1	8 098	4.1	9 530	4.8
1957	8 349	4.2	180	0.1	8 529	4.3	9 800	4.9
1958	8 899	4.5	180	0.1	9 079	4.6	10 210	5.1
1959	9 295	4.6	180	0.1	9 475	4.7	10 570	5.3
1960	9 451	4.7	180	0.1	9 631	4.8	10 800	5.4
1961	9 284	4.6	180	0.1	9 464	4.7	10 930	5.5
1962	9 719	4.8	180	0.1	9 899	4.9	11 200	5.6
1963	10 101	5.0	180	0.1	10 281	5.1	11 430	5.7
1964	10 436	5.1	180	0.1	10 616	5.2	11 700	5.8
1965	10 827	5.3	180	0.1	11 007	5.4	12 070	5.9
1966	11 507	5.7	180	0.1	11 687	5.7	12 790	6.3
1967	11 771	5.8	180	0.1	11 951	5.9	13 060	6.4
1968	11 982	5.9	180	0.1	12 162	6.0	13 200	6.5
1969	12 379	6.1	140	0.1	12 519	6.2	13 470	6.6
1970	13 037	6.4	140	0.1	13 177	6.5	14 060	6.9
1971	13 603	6.6	90	0.0	13 693	6.7	14 510	7.1
1972	13 451	6.5	90	0.0	13 541	6.6	14 290	6.9
1973	14 499	7.0	90	0.0	14 589	7.0	15 290	7.4
1974	14 419	6.9	67	0.0	14 486	6.9	15 135	7.2
1975	13 975	6.6	60	0.0	14 035	6.7	14 627	6.9
1976	14 415	6.8	54	0.0	14 469	6.8	15 038	7.1
1977	14 705	6.9	52	0.0	14 757	6.9	15 300	7.2
1978	15 127	7.0	46	0.0	15 173	7.1	15 687	7.3
1979	15 670	7.2	45	0.0	15 715	7.3	16 214	7.5

**Table 2** (continued)

Year	Manufactured Cigarettes		Hand-rolled cigarettes		Total cigarettes		All tobacco products	
	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual tonnes	Grams/ adult/day
1980	15 515	7.1	52	0.0	15 567	7.1	16 053	7.4
1981	15 721	7.1	65	0.0	15 786	7.1	16 259	7.4
1982	15 540	7.0	96	0.0	15 636	7.0	16 082	7.2
1983	15 878	7.1	115	0.1	15 993	7.2	16 411	7.3
1984	15 550	6.9	136	0.1	15 686	7.0	16 085	7.2
1985	15 645	6.9	135	0.1	15 779	7.0	16 150	7.1
1986	15 645	6.9	146	0.1	15 791	7.0	16 143	7.1
1987	15 233	6.7	146	0.1	15 379	6.7	15 716	6.9
1988	14 496	6.3	147	0.1	14 643	6.4	14 963	6.5
1989	14 079	6.1	149	0.1	14 228	6.2	14 538	6.3
1990	14 401	6.2	152	0.1	14 553	6.2	14 853	6.4
1991	14 737	6.3	153	0.1	14 890	6.3	15 183	6.4
1992	14 319	6.0	155	0.1	14 474	6.1	14 758	6.2
1993	13 782	5.7	156	0.1	13 938	5.8	14 204	5.9
1994	14 077	5.8	162	0.1	14 238	5.9	14 495	6.0
1995	13 245	5.5	163	0.1	13 407	5.5	13 665	5.6
1996	12 875	5.3	169	0.1	13 044	5.4	13 308	5.5
1997	13 589	5.6	190	0.1	13 779	5.7	14 070	5.8
1998	15 503	6.3	217	0.1	15 720	6.4		
1999	15 933	6.5	222	0.1	16 155	6.6		
2000	15 544	6.4	229	0.1	15 773	6.5	16 154	6.7
2001	15 032	6.2	241	0.1	15 273	6.3	15 684	6.4
2002	11 532	4.7	253	0.1	11 785	4.8	12 211	5.0
2003	11 143	4.5	251	0.1	11 394	4.6	11 832	4.8
2004	11 143	4.5	259	0.1	11 402	4.6	11 889	4.8
2005			304	0.1				
2006			422	0.2				
2007			390	0.2				
2008			443	0.2				

Source: Manufactured cigarettes and all tobacco products, Tables 1.1 and 1.2. Hand-rolled cigarettes, see *Notes on sources of sales data: Estimates of numbers of hand-rolled cigarettes for 1923-2005*, p. 29. Population, see *Population*, Methods p. 14.

**Figure 2** Sales of (i) manufactured and total<sup>1</sup> cigarettes and (ii) all tobacco products. Average per adult (aged 15 years and over) per day



<sup>1</sup> Includes estimated hand-rolled cigarette consumption  
Source: Table 2

**Table 3** Manufactured cigarettes: percentage of total sales as filter cigarettes; sales-weighted average machine yields per cigarette of tar (SWAT), and nicotine (SWAN)

Year	Filter %	SWAT mg/cig	SWAN mg/cig
1960	8.8	33.67	1.95
1961		36.51	1.73
1962	35.0	32.38	1.26
1963	41.0	30.91	1.85
1964	44.6	26.83	1.33
1965	47.5	27.32	1.34
1966	53.7	23.73	1.04
1967	60.0	21.57	1.06
1968	66.6	22.26	1.02
1969	71.4	22.25	0.96
1970	75.7	21.50	0.95
1971	79.2	19.50	0.93
1972	82.1	18.40	0.86
1973	84.9	18.10	0.83
1974	87.0	18.70	
1975	88.9	18.30	0.78
1976	90.9	16.30	
1977	92.6	15.30	0.72
1978	93.6	14.60	
1979	94.4	14.10	
1980	95.1	14.40	0.70
1981	96.0	12.90	
1982		12.80	0.65
1983		12.70	0.68
1984		12.80	
1997	99.5		
1998	99.5		

Source: see *Notes on sources of sales data: Plain/Filter cigarette sales*, p. 30, *Tar machine yield of cigarettes*, p. 30 and *Nicotine machine yield of cigarettes*, p. 30

**Table 4M** Prevalence of smoking, males: selected surveys by age  
(continues on p. 18)

Year	Source	Product	Frequency	Age Groups																	All ages														
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+										
54	5	UC	A	78																															
54	5	A	A	83																															
72	1	UC	R	36																															
72	1	A	R	39																															
72	1	A	A	43				56		49		44		49		46		42					45												
77	3	A	R	37					35					32							35														
77	3	A	A	51					46					39							45														
78	2	UC	R	41					36					39		36							38												
78	2	UC	A	60					42					44		39							47												
79	1	UC	R	34																															
79	1	A	R	35																															
79	1	UC	A	39																															
79	1	A	A	25			43		51		53		51		46		40		40		42		38		33		33		34		25		41		
81	4	UC	U	39					33					29							33														
83	6	U	R	6		17																													
86	1	A	R	35																															
86	1*	UC	A	38																															
86	1	A	A	21		39		47		52		53		47		47		36		34		35		31		27		27		22		40			
86	6	U	*	3		12																													
86	6	U	R	7		18																													
86	6	U	A	19		29																													
90	6	U	*	3		15																													
90	6	U	R	5		23																													
90	6	U	A	11		29																													
91	1	UC	R	40					46					33		23		12					36												
91	8	UC	R	38					33					32		29																			
94	6	U	R	8		29																													
95	7	UC	R	34					45					44		45		34		23					39										
95	7	UC	A	44					53					54		47		36		27					46										
95	10	MC	U	31					52					34		22							36												
95	10	TC	U	35					52					36		23							37												
95	10	A	U	36					53					39		24							39												
97	1	A	R	27			37		37		39		38		33		35		29		24		18		15		13		9		30				
97	1*	UC	A	37					47		45		45		44		39		37		31		27		18		16		15		9		35		
97	1	A	A	14			30		45		48		45		46		45		40		40		33		28		19		17		15		11		36
97	13	UC	*	0	1	3																			1										
97	13	UC	R	1	4	8																			5										
97	13	UC	A	8	16	14																			14										
98	6	A	*	5		20																													
98	6	A	R	10		30																													
98	14	UC	R	40					36					41		37		21		15		11		0		33									
98	14	A	R	41					36					42		38		22		15		12		1		33									
98	14	A	A	49					44					49		44		25		18		14		5		39									
99	1	U	R	45					48					47		42		33		26		23		22		41									
99	1	U	A	57					59					56		50		40		32		29		27		50									
99	8	UC	R	36					36		42		37		28		35		28		21		34												
99	9	U	R																																
99	10	U	U	45					57					51		31							46												
99	14	UC	R	37					39					39		35		20		14		11		0		31									
99	14	A	R	37					39					40		36		20		15		13		2		32									
99	14	A	A	49					46					47		44		24		19		16		6		39									



**Table 4F** Prevalence of smoking, females: selected surveys by age  
(continues on p. 19)

Year	Source	Product	Frequency	Age Groups																	All ages				
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+
54	5	UC	A	26																					
54	5	A	A	26																					
72	1	UC	R	10																					
72	1	A	R	10																					
72	1	A	A	21				28	20	15	14	12	5					13							
77	3	A	R	24				14				7					14								
77	3	A	A	40				21				9					22								
78	2	UC	R	16				16				12	6						14						
78	2	UC	A	31				26				17	8						23						
79	1	UC	R	14																					
79	1	A	R	14																					
79	1	UC	A	17																					
79	1	A	A	14	26	35	32	34	22	17	12	15	13	9	6	5	2	17							
81	4	UC	U	31				24				15					22								
83	6	U	R	4	19																				
86	1	A	R	18																					
86	1*	UC	A	21																					
86	1	A	A	15	27	37	38	35	31	30	18	14	12	10	9	6	3	21							
86	6	U	*	3	11																				
86	6	U	R	6	17																				
86	6	U	A	13	27																				
90	6	U	*	1	12																				
90	6	U	R	4	20																				
90	6	U	A	9	26																				
91	1	UC	R	28				32				18			8			3	21						
91	8	UC	R	30				25			20			13											
94	6	U	R	7	31																				
95	7	UC	R	30				36			34			22			9			24					
95	7	UC	A	38				44			40			29			12			10	30				
95	10	MC	U	30				35				30			11					25					
95	10	TC	U	30				36				30			11					25					
95	10	A	U	30				36				30			11					25					
97	1	A	R	17				24	26	28	30	27	22	22	14	8	6	8	3	19					
97	1*	UC	A	24				30	33	34	37	33	27	25	16	9	8	9	4	23					
97	1	A	A	13			21	28	30	33	34	37	33	27	25	16	9	8	9	4	23				
97	13	UC	*	1	1	2																			1
97	13	UC	R	2	4	7																			4
97	13	UC	A	5	14	14																			12
98	6	A	*	3	26																				
98	6	A	R	8	36																				
98	14	UC	R	23				26			30			22			11			4	2	0	19		
98	14	A	R	23				26			30			22			11			4	2	0	19		
98	14	A	A	35				32			38			28			15			5	3	0	24		
99	1	U	R	37				40			39			34			26			19	19	20	32		
99	1	U	A	50				50			48			42			32			25	25	26	41		
99	8	UC	R	39				28	31	30	17	13	15	3						24					
99	9	U	R	40				35			10														
99	10	U	U	39				48				26			13					30					
99	14	UC	R	27				23			31			21			12			4	2	2	19		
99	14	A	R	27				23			31			21			12			4	2	2	19		
99	14	A	A	38				32			38			27			16			4	3	2	25		

**Table 4M** (continued from p. 16)  
Prevalence of smoking, males

Year	Source	Product	Frequency	Age Groups																	All ages																		
				12	13	14	15	16	17	18	19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64		65 - 69	70 - 74	75 - 79	80+														
00	14	UC	R								39					38					37				21				13				12	0	32				
00	14	A	R								39					39						38				21				14				14	0	32			
00	14	A	A								48					50						48				45				25				17	2	40			
01	6	A	*																																				
01	6	A	R																																				
01	14	UC	R																																				
01	14	A	R																																				
01	14	A	A																																				
02	10	M	C	R																																			
02	10	TC	R																																				
02	10	A	R																																				
02	10	M	C	U																																			
02	10	TC	U																																				
02	10	A	U																																				
02	12	UC	R																																				
03	11	UC	*																																				
03	11	UC	A																																				
04	16	A	R																																				
04	16	A	A																																				
06	15	M	C	R																																			
06	15	U	R																																				

Source: see *Notes on sources of survey data*, p. 30  
 Product: MC = manufactured cigarettes  
 TC = total cigarettes (including hand-rolled)  
 UC = cigarettes (type unspecified)  
 A = all products

Frequency: A = all smokers (including occasional)  
 R = regular or daily smokers  
 U = unspecified  
 \* = refer to *Notes on sources of survey data*, p. 30  
 All ages: relates to ages reported; as given in original source

**Table 4F** (continued from p.17)  
Prevalence of smoking, females

Year	Source	Product	Frequency	Age Groups																	All ages				
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+
00	14	UC	R							25		25		29		20		14		4		1	0	19	
00	14	A	R							25		25		29		20		14		4		1	0	19	
00	14	A	A							41		30		37		25		18		5		2	0	24	
01	6	A	*		2				25																
01	6	A	R		7				37																
01	14	UC	R							24		23		29		19		14		4		2	0	18	
01	14	A	R							24		23		29		19		14		4		2	0	18	
01	14	A	A							40		31		37		24		17		4		2	0	24	
02	10	MCR								39		31		36						10				26	
02	10	TC	R							40		32		36						10				26	
02	10	A	R							40		32		36						10				26	
02	10	MC	U							47		40		42						14				32	
02	10	TC	U							48		41		42						14				33	
02	10	A	U							48		41		42						14				33	
02	12	UC	R																						
03	11	UC	*							41															
03	11	UC	A							56															
04	16	A	R							39		42		47		42		39		39		24		10	37
04	16	A	A													46									
06	15	MCR								28		24		21						9		2		19	
06	15	U	R							29		25		21						9		2		19	

Source: see *Notes on sources of survey data*, p. 30  
 Product: MC = manufactured cigarettes  
 TC = total cigarettes (including hand-rolled)  
 UC = cigarettes (type unspecified)  
 A = all products

Frequency: A = all smokers (including occasional)  
 R = regular or daily smokers  
 U = unspecified  
 \* = refer to *Notes on sources of survey data*, p. 30  
 All ages: relates to ages reported; as given in original source

**Table 5M** Number of cigarettes smoked per smoker per day, males:  
selected surveys by age

Year	Source	Product	Estimated	Age Groups																	All ages											
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+							
72	1	UC	E	18																												
78	2	UC	E	22																												
79	1	UC	E	21																												
81	4	UC	E	19					23					21						21												
86	1	UC	E	20																												
91	1	UC	E	17					21					22					20		17		20									
95	7*	UC		24																												
95	10	TC	E	15					20					23					20					20								
97	1	UC	E*	13			16		19		19		20		21		23		23		22		21		18		19		14		20	
98	6	UC		0.7	2.9																											
98	14	UC	E*	17					21					21					23					22		19		21		10		21
99	1	UC	E*	11					15					16					16					14		13		9.8		7.7		14
99	14	UC	E*	18					22					22					24					23		22		17		10		22
00	14	UC	E*	19					22					22					24					23		21		16		0.0		22
01	14	UC	E*	19					21					23					23					24		21		21		0.0		22
02	10	TC	E	15					17					20					18					18								
03	11	UC	E	12																												
04	16	UC	E*	20																												
06	15	UC		16					20					21					17					12		19						

Source: see *Notes on sources of survey data*, p. 30  
 Product: MC = manufactured cigarettes  
 TC = total cigarettes (including hand-rolled)  
 UC = cigarettes (type unspecified)  
 A = all products  
 U = unspecified

Estimated: E = mean estimated from percentage distribution  
 (see also *Consumption category estimation*, Methods p. 11, and Appendix III)  
 \* = refer to *Notes on sources of survey data*, p. 30  
 All ages: relates to ages reported; as given in original source

**Table 5F** Number of cigarettes smoked per smoker per day, females:  
selected surveys by age

Year	Source	Product	Estimated	Age Groups																	All ages																		
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+														
72	1	UC	E	13																																			
78	2	UC	E	17																																			
79	1	UC	E	15																																			
81	4	UC	E	13					15					15						14																			
86	1	UC	E	15																																			
91	1	UC	E	13					16					17					16					11			15												
95	7*	UC		19																																			
95	10	TC	E	13					15					16					13						14														
97	1	UC	E*	11			14		15		15		15		16		16		17		16		16		15		15		12			15							
98	6	UC		0.4		2.9																																	
98	14	UC	E*	14					15					18					19					19					13					15		0.0			17
99	1	UC	E*	9.5					11					13					12					11					9.3					8.3		7.4			11
99	14	UC	E*	14					15					17					18					20					15					15		9.7			16
00	14	UC	E*	14					14					19					18					19					14					9.7		0.0			17
01	14	UC	E*	14					14					17					19					21					17					17		0.0			16
02	10	TC	E	15					14					16					14								15												
03	11	UC	E	13																																			
04	16	UC	E*	17																																			
06	15	UC		12					15					16					15					12			14												

Source: see *Notes on sources of survey data*, p. 30  
 Product: MC = manufactured cigarettes  
 TC = total cigarettes (including hand-rolled)  
 UC = cigarettes (type unspecified)  
 A = all products  
 U = unspecified

Estimated: E = mean estimated from percentage distribution  
 (see also *Consumption category estimation*, Methods  
 p. 11, and Appendix III)  
 \* = refer to *Notes on sources of survey data*, p. 30  
 All ages: relates to ages reported; as given in original source



**Table 6F** Number of cigarettes smoked per person per day, females:  
selected surveys by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales									
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70	75	80+					
72	1	UC	1.3																		56%T									
78	2	UC	2.3																		65%T									
79	1	UC	2.1																		59%T									
81	4	UC	3.9					3.5					2.2						3.1	64%T										
86	1	UC	2.7																		67%T									
91	1	UC	3.8					5.1					3.0					1.2		0.4	3.1	80%T								
95	10	TC*	3.8					5.3					4.7					1.4					3.6	98%T						
97	1	UC*	1.9			3.3	3.7	4.1	4.5	4.2	3.5	3.7	2.2	1.2	1.0	1.1	0.3					2.8	75%T							
98	6	UC	0.0		1.0																		**							
98	14	UC*	3.2					3.8					5.3					4.2					2.2		0.5	0.3	0.0	3.1	75%T	
99	1	UC*	3.5					4.5					4.9					4.2					3.0		1.8	1.6	1.5	3.6	71%T	
99	9	UC*	14														7.5	8.9	11	13	9.9	12	9.0	4.5	7.3	5.6	4.9	7.0		**
99	14	UC*	3.7					3.5					5.4					3.7					2.4		0.6	0.3	0.2	3.1	74%T	
00	14	UC*	3.5					3.5					5.5					3.7					2.7		0.5	0.1	0.0	3.1	77%T	
01	14	UC*	3.3					3.1					4.8					3.5					3.0		0.6	0.3	0.0	2.9	77%T	
02	10	TC	6.1					4.5					5.6					1.4									3.9	108%T		
03	11	UC	5.4																						**					
04	16	UC*	6.4																		161%T									
06	15	MC*	3.5					3.5					3.4					1.4					0.3	2.7	85%M					

**Table 7F** Number of cigarettes smoked per person per day, sales-adjusted, females:  
selected surveys<sup>1</sup> by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales								
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70	75	80+				
72	1	UC	2.3																		56%T								
78	2	UC	3.5																		65%T								
79	1	UC	3.5																		59%T								
81	4	UC	6.1					5.5					3.5						4.9	64%T									
86	1	UC	4.0																		67%T								
91	1	UC	4.7					6.4					3.8					1.6		0.5	3.9	80%T							
95	10	TC*	3.9					5.4					4.8					1.4					3.7	98%T					
97	1	UC*	2.5			4.4	5.0	5.4	6.0	5.7	4.7	4.9	3.0	1.6	1.3	1.5	0.4					3.8	75%T						
98	14	UC*	4.3					5.1					7.0					5.6					2.9		0.7	0.4	0.0	4.1	75%T
99	1	UC*	4.9					6.3					6.9					5.9					4.2		2.5	2.2	2.0	5.1	71%T
99	14	UC*	5.1					4.8					7.3					5.0					3.3		0.8	0.4	0.3	4.2	74%T
00	14	UC*	4.6					4.5					7.1					4.8					3.5		0.7	0.2	0.0	4.0	77%T
01	14	UC*	4.2					4.1					6.3					4.5					3.8		0.8	0.4	0.0	3.8	77%T
02	10	TC	5.6					4.2					5.2					1.3									3.6	108%T	
04	16	UC*	4.0																		161%T								
06	15	MC*	4.2					4.2					4.0					1.7					0.3	3.2	85%M				

1 Based on those surveys in Table 6 with data for both sexes and age range at least 21-64 (see *Cigarette consumption per person*, Methods p. 11)

Source: *Notes on sources of survey data*, p. 30  
 Product: MC = manufactured cigarettes  
 TC = total cigarettes (including hand-rolled)  
 UC = cigarettes (type unspecified)  
 A = all products  
 U = unspecified

All ages: relates to ages reported; as given in original source  
 % Total sales: estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined used as adjustment factor in Table 7  
 \*\* = cannot be calculated  
 -- = adjusted by original author

\* = refer to *Notes on sources of survey data*, p. 30

**Table 8** Estimated<sup>1</sup> prevalence of smoking and estimated<sup>1</sup> number of cigarettes per person per day (unadjusted and sales-adjusted): summary of Tables 4, 6 and 7. Males and females aged 15 years and over

Year	Source <sup>2</sup>	Product <sup>3</sup>	Prevalence <sup>4</sup>				Number of cigarettes										
			Manufactured cigarettes		Total cigarettes <sup>5</sup>		All products <sup>6</sup>		Unadjusted <sup>7</sup>			Sales-adjusted <sup>8</sup>		Total cigarettes <sup>9</sup>			
			M	F	M	F	M	F	number/ person/day	Total sales %	Manufactured cigarettes number/ person/day	Total cigarettes <sup>9</sup> number/ person/day	M	F			
1954	5	UC+A			78	26	83	26									( 5.6 1.5 )
1972	1	UC+A			36	10	38	10	6.5	1.3	56						11.7 2.3
	1	A					45	14									
1977	3	A					35	13									
	3	A					45	21									
1978	2	UC			37	12			7.6	2.1	65						11.6 3.2
	2	UC			46	20											
1979	1	UC+A			33	13	35	14	6.9	2.0	59						11.8 3.4
	1	UC+A			38	17	41	17									
1981	4	UC			33	20			6.6	2.8	64						10.3 4.4
1986	1	UC+A					34	17	6.9	2.7	67						10.3 4.0
	1	UC+A			38	21	40	21									
1991	1	UC			36	21			7.2	3.1	80						9.0 3.9
1995	7	UC			39	23											
	7	UC			45	29											
	10	MC+TC+A	36	25	38	25	39	25	7.4	3.6	98	( 7.2 3.9 )					7.6 3.7
1997	1	UC+A					30	19	5.8	2.8	75						7.8 3.7
	1	UC+A			35	23	36	23									
1998	14	UC+A			33	18	33	18	6.7	3.1	75						9.0 4.1
	14	A					39	24									
1999	1	UC+U					41	32	5.9	3.6	71						8.3 5.0
	1	U					50	41									
	9	UC+U					29	29		8.7							
	10	U					46	29									
	14	UC+A			31	19	32	19	6.8	3.1	74						9.2 4.2
	14	A					39	25									
2000	14	UC+A			32	19	32	19	7.0	3.1	77						9.0 4.0
	14	A					40	24									
2001	14	UC+A			31	18	32	18	6.8	2.9	77						8.8 3.7
	14	A					39	24									
2002	10	MC+TC+A	34	26	37	26	38	26	6.6	3.9	108	( 5.9 3.6 )					6.1 3.6
	10	MC+TC+A	40	32	42	33	44	33									
2004	16	UC+A					39	34	8.2	6.5	161						5.1 4.1
	16	A					49	46									
2006 <sup>10</sup>	15	MC+U	26	19			27	19	4.8	2.7	85	5.7 3.2					

See footnotes on next page



**Table 8** (continued)

- 1 Surveys covering an age range of at least 21-64 are included. Any gaps in the data for ages 15-20 and 65 years and over are filled in by assumed extensions to the age distribution, given in *Notes on sources of survey data*, p. 30. Method: see *Summary of adult smoking*, Methods p. 13.
- 2 See *Notes on sources of survey data*, p. 30
- 3 Product: MC = manufactured cigarettes, TC = total cigarettes (including hand-rolled), UC = cigarettes (type unspecified), A = all products, U = unspecified. Frequency of smoking is indicated by: regular or daily smokers in normal type, all smokers (including occasional) in bold, unspecified in italics
- 4 From Table 4
- 5 This column includes prevalence of smoking classified as UC = cigarettes (type unspecified)
- 6 This column includes prevalence of smoking classified as U = unspecified product
- 7 From Table 6
- 8 From Table 7, except data in parentheses, which are derived from the prevalence of smoking from Table 4 as described in *Summary of adult smoking*, Methods p. 13
- 9 Number of cigarettes classified as UC = cigarettes (type unspecified) has been adjusted to total cigarette sales and included in this column
- 10 Calculations based on 2004 manufactured cigarette sales, and 2005 population

**Figure 3** Estimated prevalence of smoking of (i) manufactured cigarettes, (ii) total cigarettes and (iii) all tobacco products; by year of survey. Males and females aged 15 years and over

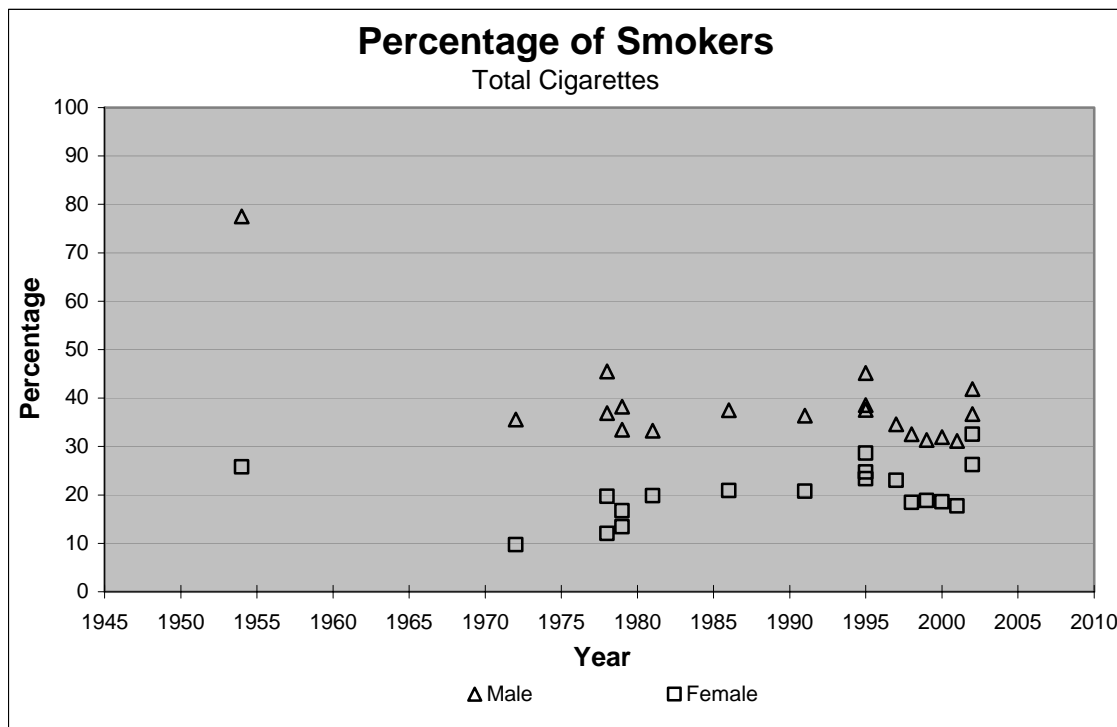
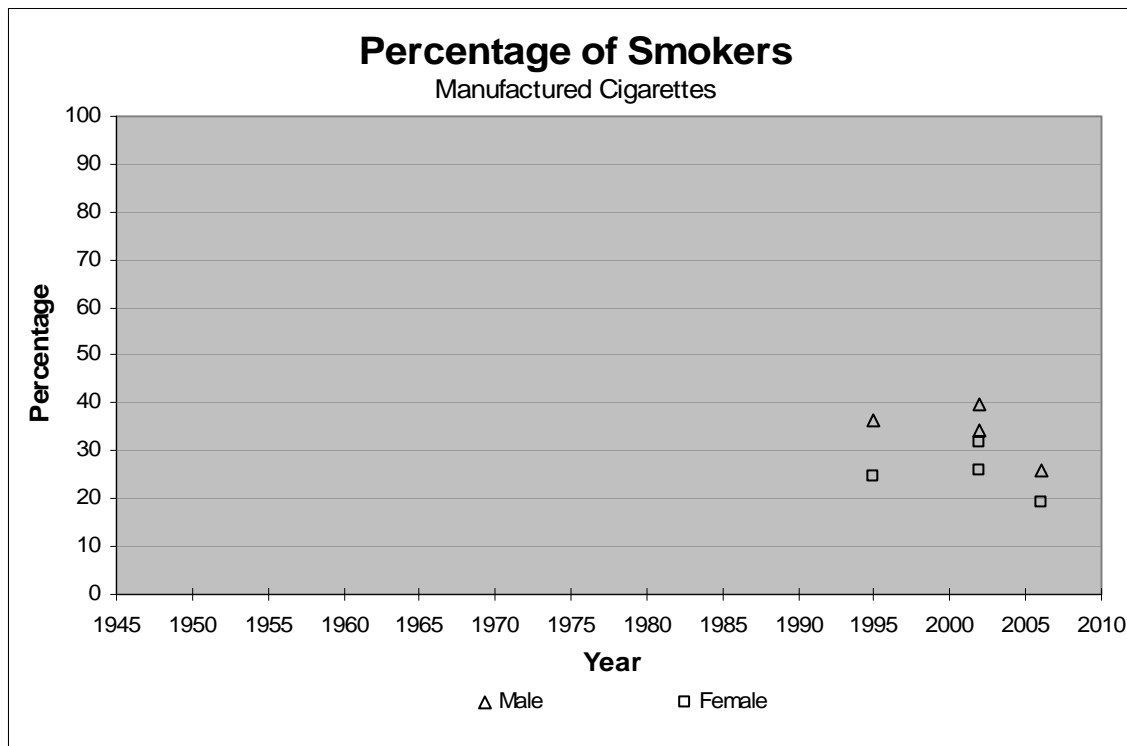
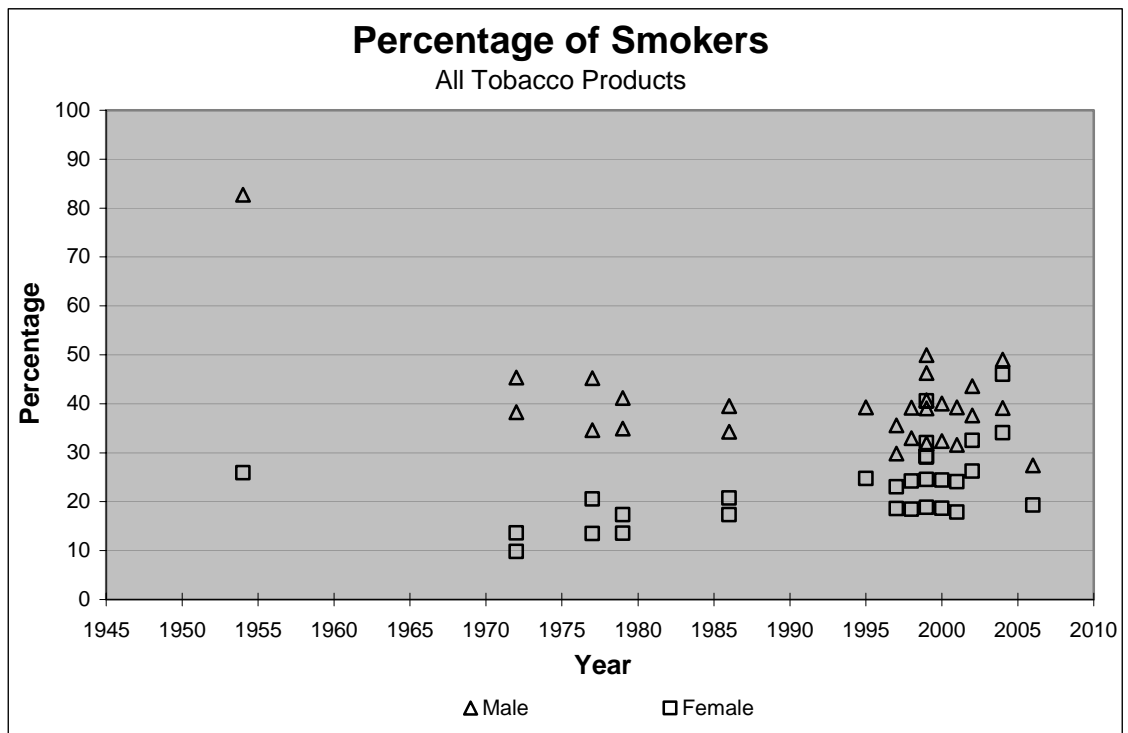
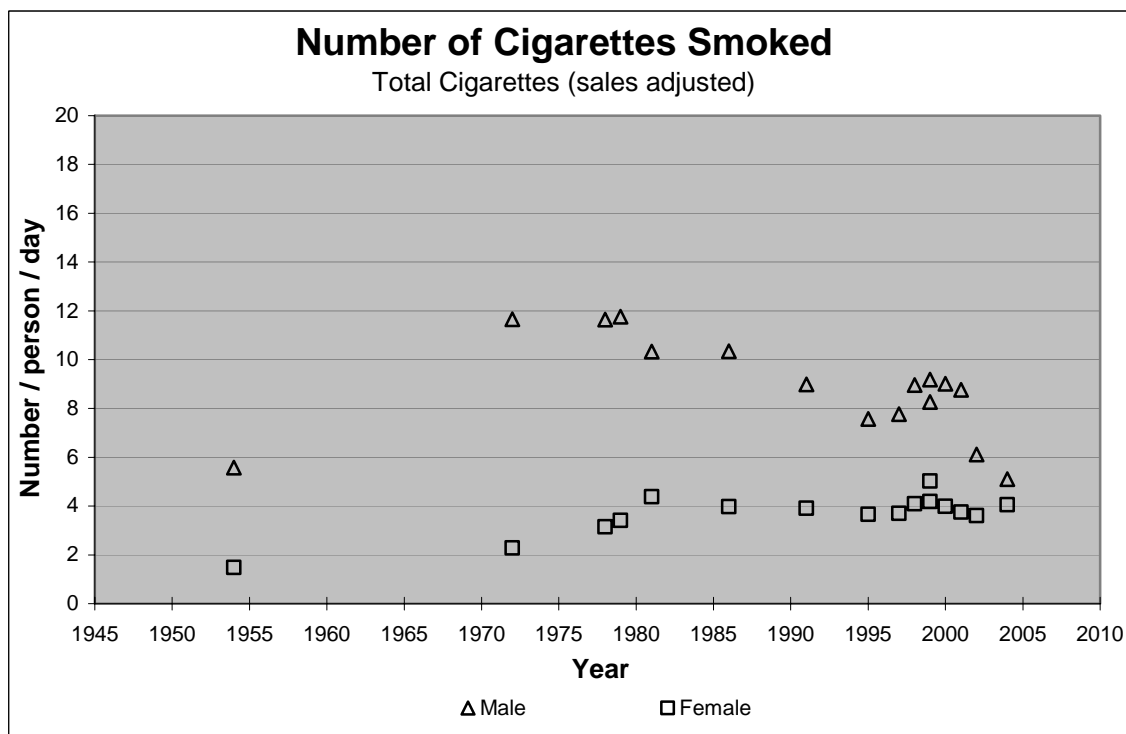
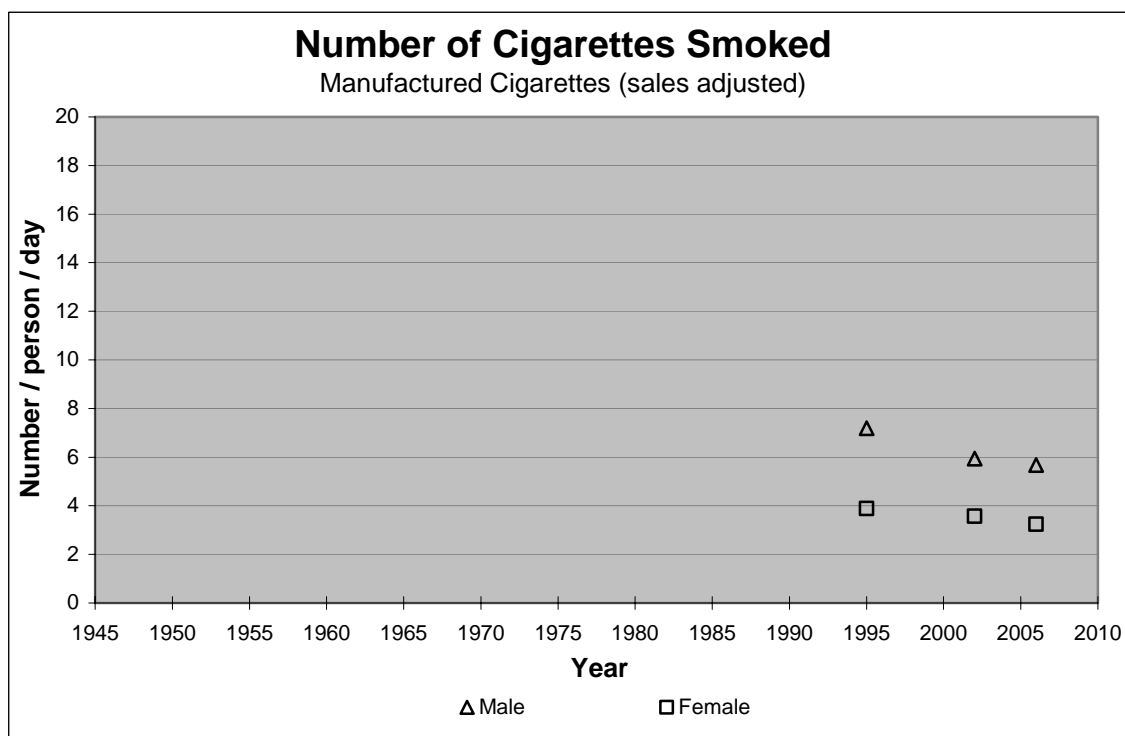


Figure 3 (continued)



Source: Table 8  
See also customisable version of Figure 3 in the Excel workbook

**Figure 4** Estimated number of (i) manufactured cigarettes and (ii) total cigarettes smoked per person per day, sales-adjusted; by year of survey. Males and females aged 15 years and over



Source: Table 8

## Notes

### Notes on sources of sales data

The data presented in the tables and figures were obtained from several sources, details of which are given below, together with estimations and related assumptions. Full citations of the sources are given on p. 34 under *References*.

#### *Sales data before 1974*

##### RP6

Data by weight, originally given to nearest 100 000 pounds, have been converted to tonnes and given to nearest 10 tonnes (100 000 lbs = 45.359 tonnes).

Notes as given in RP6:

Details of the numbers and weight of cigarettes and cigars and of the weight of other manufactured tobacco products consumed were either provided by the Austrian Tobacco Monopoly or obtained from the annual reports of the Monopoly.

#### *Sales data for 1974 onwards*

1970-1997: Austria Tabak

1998 onwards: Manufactured cigarettes: US Department of Agriculture (USDA) (2006);

Cigars: Bundesverband der Zigarrenindustrie (2007, 2011)

Pipe and hand-rolling tobacco: Verband der Deutschen Rauchtobakindustrie

Data for cigarettes and cigars were given in numbers and have been converted to weight assuming an average of 1 g per cigarette (Austria Tabak) and 5.5 g per cigar (based on 1970-1973 values in RP6).

Data for cigarettes from USDA (shown in Table 1.2 for 1998 onwards) refer to domestic consumption. Data for earlier years from USDA are similar to those shown in the Table (e.g. for 1997, USDA 13 205; Austria Tabak 13 589), and so the sharp increase between 1997 and 1998 cannot be attributed to the change in data source.

No data for cigars are available for 1998-1999, and the total consumption has not been calculated for those years. No data for sales of chewing tobacco or snuff are available after 1997; as they were low in the preceding years, the total consumption for 2000-2004 has been calculated without them.

Up to 1994, Austria Tabak had a monopoly of the tobacco market. Since then, the market share of other suppliers is estimated to have increased to 10% of official sales (Uhl *et al* (2005)).

In 1995, the contraband market share was estimated as 15% (Joossens and Raw (1998)). In 1998, the permitted private import of cigarettes was reduced from 200 to 25 cigarettes, and border controls were tightened. This may account for some increase in domestic sales as consumers shifted from private imports or smuggling to legal domestic purchases in the late 1990s. However illegal cigarette imports were still high (USDA (2000, 2001)).

The level of smuggling rose after the accession to the EU of eastern European countries, and was estimated as 11% in 2004 (Agence France Presse (2005)) and 20% in 2005 (APA Economic News Service (2005a, 2005b)). A limit of one carton daily for personal imports from Czech Republic or Slovenia has been proposed from 2008 (Austria Today (2007)).

#### *Estimates of numbers of hand-rolled cigarettes for 1923-2005*

We have taken as our estimate of hand-rolled cigarette consumption all sales of cigarette tobacco, at 1 g per cigarette. This may be an overestimate: in neighbouring Germany, where sales of cigarette papers are also known for 1961-1985, we have used 70% of fine-cut (cigarette) tobacco as our estimate of hand-rolled cigarette consumption.

*Plain/Filter cigarette sales*

1960: Klus and Kuhn (1978)

1962-1981: Maxwell (Successive years)

1997-1998: Maxwell (1998)

According to USDA (2006), production of filter cigarettes has exceeded 98% of total productions since 1987.

*Tar machine yield of cigarettes*

1960-1969: Flamm *et al* (1975)

1970-1984: Austria Tabak

The tar yield per cigarette was limited to 15 mg from 1995, to 12 mg from 1998 and to 10 mg from 2004 (Harkin *et al* (1997), ASPECT (Analysis of the Science and Policy for European Control of Tobacco) Consortium (2004)).

In 1997, the distribution of the tar values of cigarettes sold was: up to 6 mg 10.9%, 7-9 mg 35.4% and 10-12 mg 53.7% (Austria Tabak).

According to Kuhn and Klus (1976), the standard for smoke determination developed in the early 1960s by the Austrian Consumers' Association "Verein für Konsumentenberatung" was similar to international standards except that shorter butt lengths were specified (15mm for a plain cigarette or the filter tipping overwrap + 4mm for a filter cigarette), because of the tendency to smoke cigarettes to a small butt length.

*Nicotine machine yield of cigarettes*

1960-1973: Flamm *et al* (1975)

1975, 1977: Klus and Kuhn (1978)

1980-1983: Klus (1986) (data read from graph)

**Notes on sources of survey data**

Each source of survey data—either an individual survey or a series of surveys repeated over a number of years—is cited by a source number. This number is shown in the tables and corresponds to the source numbers given below, where details of the source publication and of the survey methodology are given. Full citations of the sources are given on p. 34 under *References*.

**Source number**

- 1 Friedl (1980a, 1980b, 1987), Österreichischen Statistischen Zentralamt (1996), Statistik Austria (2002)**
  - a. Mikrozensus for Austrian Central Statistical Office. Sample of households (not including institutionalized population), targeting about 1% of all households. Sample size about 60 000 persons. Personal interviews, of which about 30% are proxy interviews with another household member. Completion of the smoking section is not compulsory, and non-response rates were (1972) 1.6%, (1979) 2.7%, (1986) 4.9%.
  - b. According to Uhl *et al* (2005) the 1999 survey was not fully comparable with earlier years because it differed in the wording of questions (which previously had been consistent), and in the sequence of questions, which in 1999 followed health-related questions.
  - c. In 1997, the survey included 15 year olds for the first time, but results were generally presented for age 16+ for comparability with earlier years.
  - d. For 1999, the highest age groups shown (Tables 4-7) are 75-84 and 85+.
  - e. Results marked \* in Table 4 (for 1986 and 1997, for product UC) are derived from the prevalence of smoking and the percentage of smokers smoking cigarettes, but it is unknown whether this includes mixed smokers (i.e. cigarettes *and* cigars or pipes).
  - f. Consumption category estimation based on (up to 1997) 1-10, 11-20, 21-40, and 41+ cigarettes/smoker/day, or (1999) 1-10, 11-20 and 21+ cigarettes/smoker/day. Up to 1991, this refers to daily cigarette smokers; for 1997 and 1999 it refers to daily smokers and, as the first category may include pipe/cigar only smokers, this may overestimate.
  - g. Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.

- 2 Gredler *et al* (1981)**
- Survey on behalf of the Austrian Heart Foundation. Sample size 2 002.
  - Consumption category estimation based on 1-10, 11-20, 21-40, and 41+ cigarettes/smoker/day.
  - Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.
- 3 Kunze *et al* (1980)**
- Study for Bundesministeriums für Gesundheit und Umweltschutz. Lowest age limit not stated.
  - 99% of smokers smoked cigarettes.
- 4 Gredler and Kunze (1981)**
- Part of survey assessing public awareness and attitudes to a national anti-smoking campaign. Sample size 2 004, representative sample.
  - Consumption category estimation based on 1-10, 11-20, and 21+ cigarettes/smoker/day.
  - Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.
- 5 Ossadnik (1955)**
- Survey of smoking habits of adults in Vienna, partly by questionnaire, partly by interviews. Sample sizes, questionnaires (males) 2 883, (females) 3 643; interviews (males) 340, (females) 370.
- 6 Aarø *et al* (1986), Nutbeam and Aarø (1990), King and Coles (1992), King *et al* (1996), Currie *et al* (2000, 2004)**
- Part of the HBSC (Health Behaviour in School-Aged Children) Study, a collaborative cross-national research study sponsored by the WHO. School classes or schools were randomly selected, targeting age groups 11 (not presented here), 13 and 15. The target sample size in each age group was 1 000 – 1 500.
- | Year      | Mean age      |       |               |       | Sample size   |               |        |
|-----------|---------------|-------|---------------|-------|---------------|---------------|--------|
|           | Target age 13 |       | Target age 15 |       | Target age 13 | Target age 15 | Total* |
|           | Boys          | Girls | Boys          | Girls |               |               |        |
| 1983-1984 | 13.0          | 12.9  | 14.8          | 14.8  | 967           | 1 013         |        |
| 1985-1986 |               |       |               |       | 1 308         | 653           |        |
| 1990      |               | 13.3  |               | 15.2  |               |               | 2 984  |
| 1994      |               | 13.3  |               | 15.2  | 1 788         | 1 815         |        |
| 1998      |               | 13.2  |               | 15.5  | 1 818         | 1 376         |        |
| 2001      |               | 12.8  |               | 14.8  | 1 584         | 1 298         |        |
- \* Includes age 11
- Number of cigarettes per smoker per day (Table 5, 1998 only) is derived from the median number smoked per week.
  - Smokers marked as frequency \*: smoked daily. Regular smokers: smoked once a week or more. All smokers: includes those smoking less than once a week.
- 7 Haidinger *et al* (1998)**
- Survey funded by the Austrian Cancer Society using a representative quota sample of Austrians. Personal interview at home. Sample size 2 065, response rate 86%
  - Cigarettes per smoker (Table 5) refers to regular smokers who had smoked for at least 10 years. As these smokers are older and are likely to smoke more heavily than all smokers combined, we have not presented our estimates of cigarettes per person (namely 9.4 for males and 4.5 for females) in Table 6; the corresponding calculation of % total sales would be 124%. The original authors report a calculated % total sales of 99%, based on both regular and occasional smokers.
- 8 Ulmer *et al* (2001b), Strong and Bonita (2003) (quoting personal communication from H Ulmer)**
- Surveys in province of Vorarlberg, as part of WHO CINDI (Countrywide Integrated Noncommunicable Diseases Intervention) program. Two-stage random sampling. Personal interview at home and medical examination at GP's office. In each wave, 2 400 persons were invited to participate. Sample sizes achieved for the interview section were (males) 920 and (females) 943 in 1991, and (males) 786 and (females) 764 in 1999.

- b. Regular smokers: smoked more than 1 cigarette per day.
- c. The number of cigarettes per day (sexes combined) was 19 in 1991 and 17 in 1999.
- d. Prevalence rates for 1991 (Table 4) read from graph. Prevalence rates for 1999 are weighted (by original authors) to 1991 Census population.

#### 9 Ulmer *et al* (2001a)

- a. Innsbruck Women's Health Study. Representative sample of women residing in Innsbruck, with oversampling of those aged 60+. Personal interview at home. Sample size 609, response rate 62.5%.
- b. The mean cigarettes per person (Table 6) are taken from an Appendix, but the percentile points also shown there appear incompatible with the prevalence data (shown in Table 4). We have therefore not calculated cigarettes per smoker, as the estimates would be unreasonably large.
- c. Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.

#### 10 Reif and Marlier (1998), Melich (2006), Christensen (2004), European Commission (2006, 2007)

- a. Eurobarometer Surveys commissioned by the European Commission to monitor public opinion in the European Union. Some Eurobarometer surveys include questions on smoking habits. Sample size 1 000.
- b. The sample consisted of people aged 15 and over who were resident in the country and had the nationality of any of the member states.
- c. In 2005, the prevalence of smoking (sexes combined, age 15+) was 37% for packeted cigarettes, 3% for roll-up cigarettes and 2% for cigars or pipe. 0% reported using chewing tobacco or snuff. In 2006, the figures were 29%, 2%, 2%, and 0% respectively. 84% of smokers smoked regularly in 2005, 81% in 2006. (Special Eurobarometer 239, 272c)
- d. Consumption category estimation based on <5, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39 and 40+ cigarettes/smoker/day.
- e. For 1995 the calculation of cigarettes per person was based on prevalence of smoking (daily and non-daily) and number of cigarettes per daily smoker, so may overestimate.

#### 11 Hibell *et al* (2004)

- a. Nationally representative survey forming part of ESPAD (European School Survey Project on Alcohol and Other Drugs). Target age 15-16. Approximately 90% of this age group were still enrolled in school (86% in the grades 9-10 included in the survey). Anonymous questionnaire completed in class. Teachers present, but anonymity of questionnaires guaranteed.

	Sample size		Participation rate (%)	
	Boys	Girls	Classes	Pupils
2003	1 340	1 062	76	90

- b. Smokers marked as frequency \*: smoked 1 or more cigarettes per day in the previous 30 days. All smokers: smoked in the previous 30 days.
- c. Consumption category estimation based on 1-5, 6-10, 11-20, 21+ cigarettes/smoker/day.

#### 12 Kapusta *et al* (2006)

- a. Survey during medical examination which is obligatory for assessment for National Service. Carried out in 7 districts in Lower Austria, including rural (Zwettl, Lilienfeld, Waidhofen/Thaya) and urban (St Poelten city, St Poelten vicinity, Wien Umgebund) areas. Anonymous self-completion questionnaire on tobacco, alcohol and drug use. Participants were assured that responses would have no impact on their National Service assessment. Sample size 1 902. Response rate 100%, but 2% omitted due to incomplete or inconsistent replies on tobacco use.
- b. The question "how many cigarettes do you smoke per day" had possible answers "non-smoker", "≤10", "11-20" etc, and those who answered other than "non-smoker" were reported (by the original authors) as regular smokers.

#### 13 Zidek *et al* (2000)

- a. Survey of all 7<sup>th</sup> and 8<sup>th</sup> grade schoolchildren in Urfahr-Umgebung, a district of Upper Austria. Part of the ISAAC (International Study of Asthma and Allergies in Childhood) project. Sample size (boys) 776, (girls) 727, response rate 93%.
- b. Smokers marked as frequency \*: smoked at least daily. Regular smokers: smoked at least weekly. All smokers: smoked at least monthly.



**14 Eurostat (2005, (accessed August 2007))**

- a. European Community Household Panel (ECHP), a longitudinal survey, centrally designed and co-ordinated by the Statistical Office of the European Communities (Eurostat). The survey started in 1994 (1995 in Austria) and smoking was first included in 1998. Participants were age 15+ and living in private households. In each wave, the original participants are contacted again (except if previously refused or incapacitated), and new respondents are also added.

Year	Number of respondents	Original respondents remaining (%)
1998	6 561	71
1999	6 246	64
2000	5 801	58

- b. Highest age groups shown (Tables 4-7) are 75-84 and 85+.  
 c. Consumption category estimation based on two categories, 1-19 and 20+ cigarettes/smoker/day, and resulting figures should be regarded with caution.

**15 Klimont et al (2007)**

- a. Health Interview Survey by Statistics Austria and Bundesministerium für Gesundheit, Familie und Jugend. Conducted March 2006-February 2007. Multistage sampling, including persons living in institutions. Personal interviews using CAPI (computer assisted personal interview). Proxy interviews were conducted for persons unable to answer due to health reasons and covered only health topics. Sample size 15 474, response rate 63%. Results are weighted (by original authors) according to 5-year age group and sex to the Austrian population.
- b. The percentage of smokers smoking each product often (multiple answers possible) was as follows:

	Males			Females		
	15-59	60+	all ages	15-59	60+	all ages
manufactured cigarettes	96	88	95	99	99	99
hand-rolled cigarettes	7	6	7	4	1	4
pipe	2	3	3	1	0	1
cigar/cigarillo	5	9	5	2	0	1
other	1	1	1	1	0	1

- c. Manufactured cigarette smokers: smokers who often smoke manufactured cigarettes.  
 d. Calculation of cigarettes per person based on percentage of smokers of manufactured cigarettes and number of cigarettes per cigarette smoker (type unspecified), so may underestimate.

**16 Uhl et al (2005)**

- a. Nationally representative survey referred to as “Repräsentativerhebung 2004”, concerning alcohol, tobacco and illegal drug use. Face-to-face interviews with one person per household. Response rate 21%, the low rate being explained partly by the survey period occurring mainly in the summer months (July – September). Sample size 4 546.
- b. The authors comment that the consumption indicated by the survey corresponds closely to the consumption indicated by sales data (incorporating the assumption that 15% of consumption is of smuggled origin). However, by our method of calculation, the consumption indicated by the survey exceeds sales by 61% (Tables 6-8).
- c. All smokers (frequency A in Table 4): smoked daily, or occasionally in last month.  
 d. Consumption category estimation based on up to 10, 11-20 and 20+ cigarettes/smoker/day; as the first category is assumed to include pipe/cigar only smokers, this may overestimate.

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