
International Smoking Statistics

Web Edition

A collection of worldwide historical data

Romania

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¹ See footnotes to Tables

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¹ 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) 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 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 20th 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.

In this chapter, the survey data are largely reproduced from the 2nd edition, which covered the years up to 1995, subject to a few amendments for consistency with the Web edition. For the subsequent years, only certain multinational surveys have been added. No searches for country-specific sources or surveys were undertaken.

Downloads

Updates currently available to download from <http://www.pnlee.co.uk/iss.htm> 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 a customisable version of Figure 3;

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].]. No update to Supplement 1 is planned for countries (including Romania) which have only been partially updated for the web edition.

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];

An updated version of Appendix V Bibliography. [This bibliography lists published papers that use an indirect method for estimating past smoking habits based on recall];

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

Years considered

In this chapter the sales data have been fully updated but the survey data are largely reproduced from the 2nd edition, which covered the years up to 1995, with only certain multinational surveys added for the subsequent years.

Sales data

See Tables 1-3, Figures 1 and 2 and *Notes on sources of sales data*.

Consumption of manufactured cigarettes per adult was 0.5-1 cigarette per day during the 1920s and 1930s. By 1960 it had increased to 4 cigarettes per day and, apart from a dip due to shortages in the late 1980s, it continued to rise slowly, reaching 6 cigarettes per day in the late 1990s. Consumption data from the mid 1980s onwards should be regarded with caution because of the size of illegal trade, and also because of changing bases of information. Recent estimates (by KPMG, adjusting for cross-border sales, counterfeit and contraband) suggest that consumption per adult had fallen to around 4 cigarettes per day.

Consumption of all tobacco products per adult was about 4 g per day in the 1920s, falling to 2.5 g in the 1930s. At that period, around 20-25% of tobacco was used in manufactured cigarettes, with most of the remainder used in hand-made cigarettes and in pipes. With the exception of cigar consumption for the years 2007-2011, no data on products other than cigarettes are available after 1960, and consumption was reported to have been almost exclusively of manufactured cigarettes. Some usage of hand-rolled cigarettes has been reported recently, but at a very low level.

The proportion of manufactured cigarettes that were filtered had risen to 90% by the early 1980s, but dropped to only 25% in the late 1980s due to shortages of materials, only returning to around 90% in the early 2000s.

Survey data

See Tables 4-8, Figures 3 and 4 and *Notes on sources of survey data*.

At the time of writing the 2nd edition, much of the survey data presented came from individual regional epidemiological studies, mainly of respiratory diseases, and the results may not be representative of the population generally. Between 1969 and 1995, estimates of the prevalence of smoking among those aged 15 years and over were in the range 30-55% for men. For women, estimates were in the range 1-16%, showing some increasing trend. In all age groups more men than women smoked.

Comparison of sales and survey data was possible in one case, where consumption from a local survey scaled up by the whole population under-reported consumption by over 40%. Between 1970 and 1995, the estimated number of cigarettes smoked per person per day (sales-adjusted) was about 9-10 for men. For women it increased from 0.5 to 2.5 in the same period.

The multinational surveys added in this edition, referring to 1996 onwards, suggest that the prevalence of smoking among men aged 15 years and over has fallen slightly to 30-40%, while among women it has continued to rise slightly to

15-20%. The estimated number of cigarettes smoked per person per day (sales-adjusted) fell to about 6 for men and to 2 for women. These results should be regarded with caution due to the uncertainty of the sales data, and the limited surveys considered.

Table 1.1 Total annual consumption of tobacco products, 1920-1935

Year	Manufactured cigarettes		Cigars tonnes	Smoking mixtures tonnes	All tobacco products tonnes
	tonnes	millions			
1920	819	819	193	7 965	8 977
1921	1 763	1 763	204	9 662	11 629
1922	2 239	2 239	282	15 483	18 004
1923	2 722	2 722	145	12 701	15 568
1924	3 889	3 889	177	11 503	15 569
1925	3 826	3 826	157	11 863	15 846
1926	4 077	4 077	174	12 217	16 468
1927	4 255	4 255	177	10 529	14 961
1928	3 907	3 907	188	12 969	17 064
1929	4 042	4 042	123	9 631	13 796
1930	3 015	3 015	98	9 250	12 363
1931	2 597	2 597	72	8 174	10 843
1932	2 404	2 404	64	8 698	11 166
1933	2 349	2 349	66	8 692	11 107
1934	2 179	2 179	73	8 337	10 589
1935	2 297	2 297	77	8 775	11 149

Source: see *Notes on sources of sales data: Consumption data before 1960*, p. 31.

Table 1.2 Total annual sales or consumption of tobacco products, 1960-2013

Year	Manufactured cigarettes		Cigars		All tobacco products tonnes
	tonnes	millions	tonnes	millions	
1960		20 733			
1961		21 870			
1962		22 098			
1963		21 209			
1964		22 399			
1965		23 000			
1966		25 000			
1967		24 500			
1968		25 200			
1969		25 700			
1970		26 000			
1971		26 200			
1972		27 000			
1973		28 000			
1974		29 000			
1975		30 000			
1976		31 000			
1977		32 000			
1978		33 000			
1979		33 500			
1980		34 000			
1981		35 000			
1982		36 000			
1983		35 800			
1984		35 800			
1985		36 000			
1986		35 750			
1987		29 400			
1988		31 525			
1989		32 100			
1990		32 100			
1991		23 500			
1992		27 500			
1993		36 040			
1994		37 000			
1995		41 300			
1996		32 500			
1997		31 500			
1998		33 000			
1999		40 000			
2000		40 000			
2001		37 488			
2002		37 671			
2003		37 997			
2004		37 400			
2005		34 200			
2006		30 500			
2007	31 100	31 100	6	2	31 106
2008	32 700	32 700	12	4	32 712
2009	32 910	32 910	9	3	32 919
2010	27 520	27 520	9	3	27 529
2011	27 670	27 670	12	4	27 682
2012		27 110			
2013		26 560			

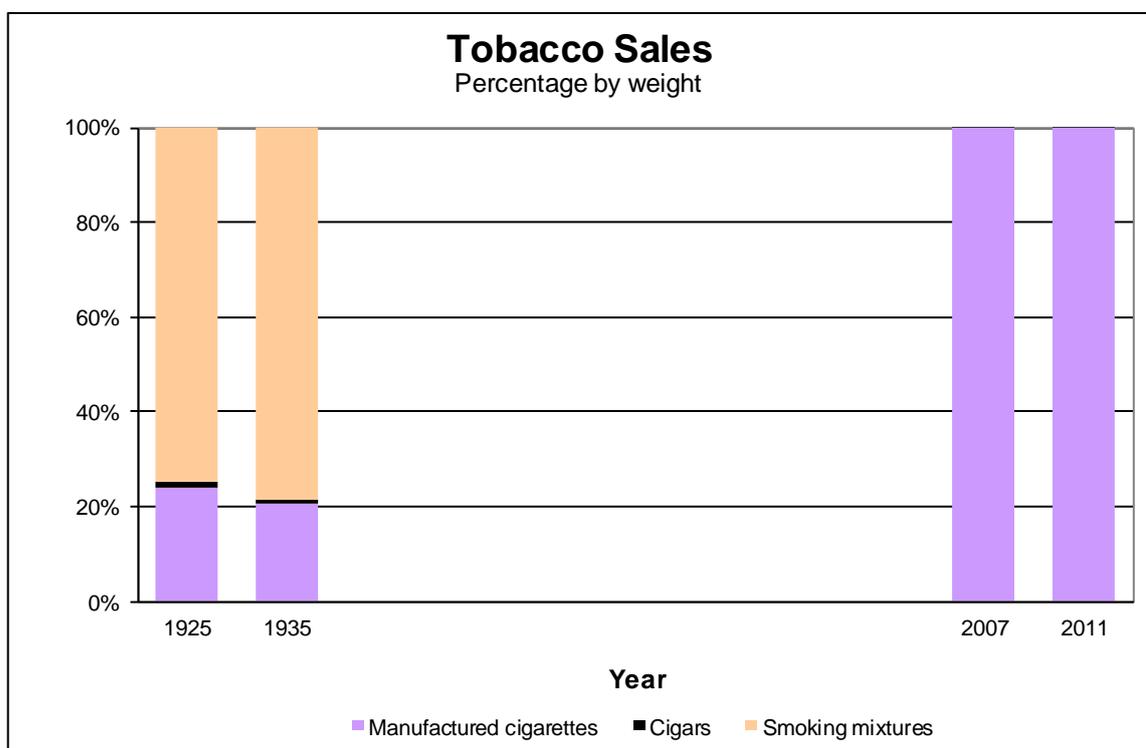
Source: see *Notes on sources of sales data: Sales and consumption data for 1960 onwards*, p. 31.

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

Year	Manufactured cigarettes %	Cigars %	Smoking mixtures %
1925	24.1	1.0	74.9
1935	20.6	0.7	78.7
2007	100.0	0.02	-
2011	100.0	0.04	-

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 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
1920	819	0.2					8 977	2.2
1921	1 763	0.5					11 629	3.0
1922	2 239	0.6					18 004	4.6
1923	2 722	0.7					15 568	3.9
1924	3 889	1.0					15 569	3.9
1925	3 826	0.9					15 846	3.6
1926	4 077	1.0					16 468	3.9
1927	4 255	1.0					14 961	3.5
1928	3 907	0.9					17 064	4.0
1929	4 042	0.9					13 796	3.2
1930	3 015	0.7					12 363	2.8
1931	2 597	0.6					10 843	2.4
1932	2 404	0.5					11 166	2.4
1933	2 349	0.5					11 107	2.4
1934	2 179	0.5					10 589	2.3
1935	2 297	0.5					11 149	2.4
1960	20 733	4.3						
1961	21 870	4.5						
1962	22 098	4.5						
1963	21 209	4.3						
1964	22 399	4.4						
1965	23 000	4.5						
1966	25 000	4.9						
1967	24 500	4.7						
1968	25 200	4.7						
1969	25 700	4.8						
1970	26 000	4.7						
1971	26 200	4.7						
1972	27 000	4.8						
1973	28 000	4.9						
1974	29 000	5.0						
1975	30 000	5.2						
1976	31 000	5.3						
1977	32 000	5.4						
1978	33 000	5.6						
1979	33 500	5.6						
1980	34 000	5.7						
1981	35 000	5.9						
1982	36 000	6.0						
1983	35 800	5.9						
1984	35 800	5.8						
1985	36 000	5.8						
1986	35 750	5.7						
1987	29 400	4.6						
1988	31 525	4.9						
1989	32 100	5.0						

Table 2 (continued)

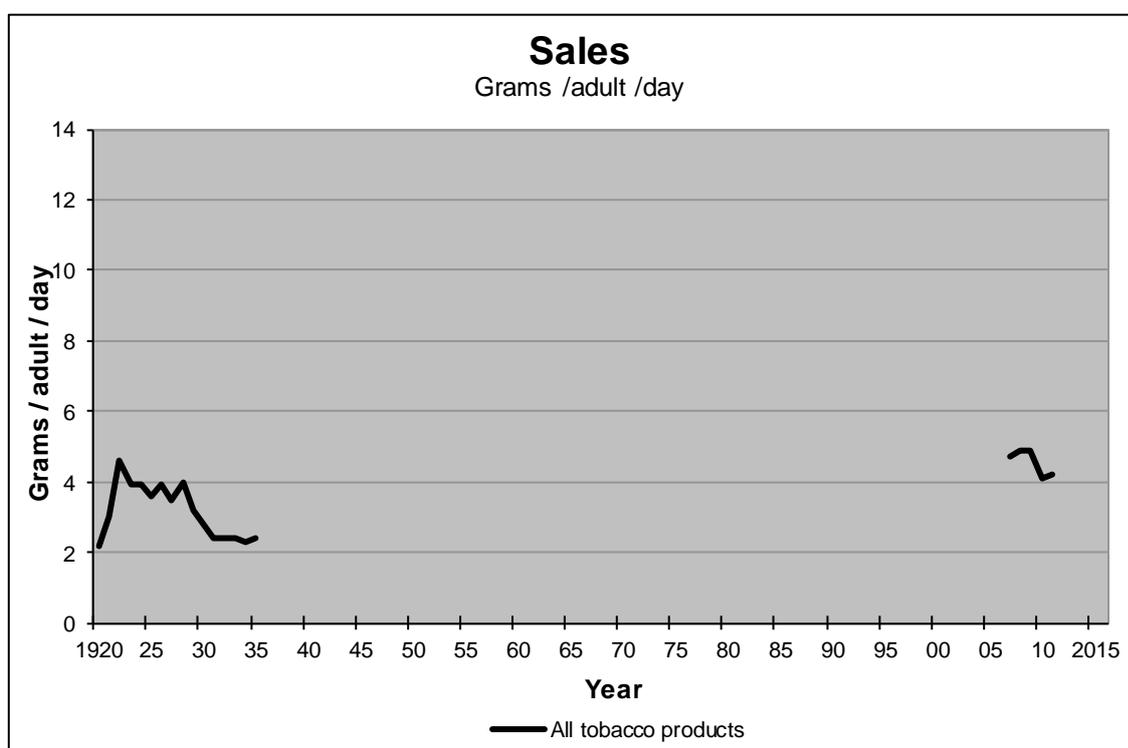
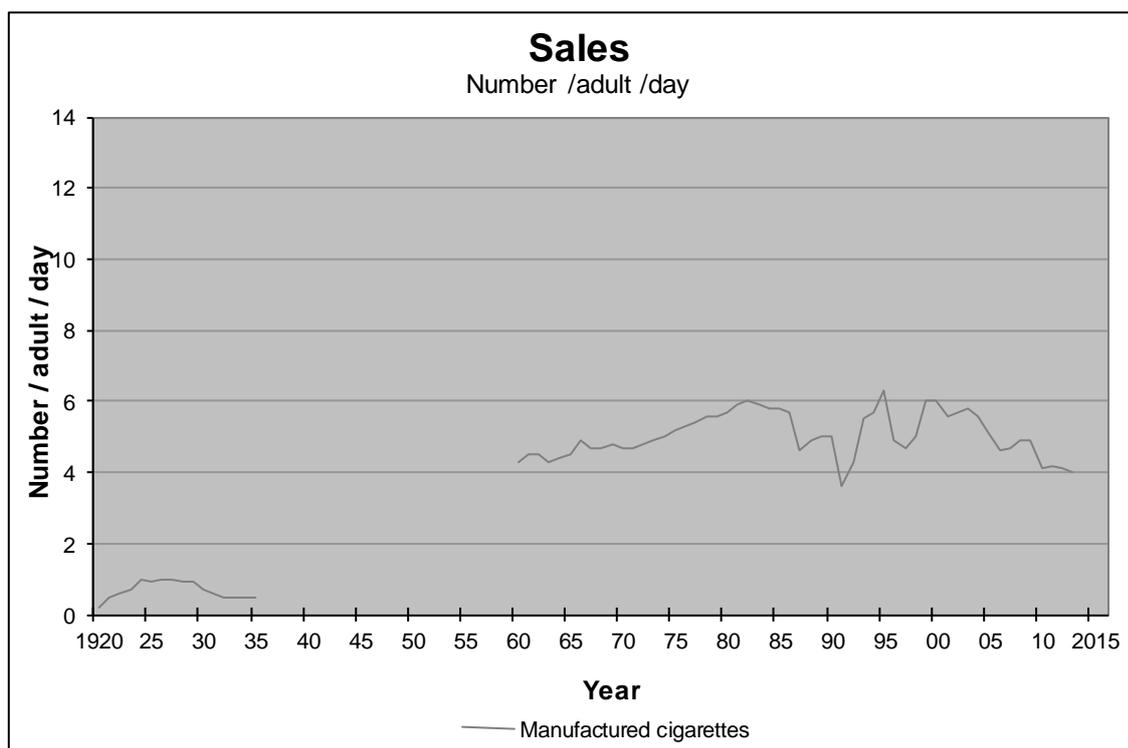
Year	Manufactured cigarettes		Hand-rolled cigarettes		Total cigarettes		All tobacco products	
	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual tonnes	Grams/ adult/day
1990	32 100	5.0						
1991	23 500	3.6						
1992	27 500	4.3						
1993	36 040	5.5						
1994	37 000	5.7						
1995	41 300	6.3						
1996	32 500	4.9						
1997	31 500	4.7						
1998	33 000	5.0						
1999	40 000	6.0						
2000	40 000	6.0						
2001	37 488	5.6						
2002	37 671	5.7						
2003	37 997	5.8						
2004	37 400	5.6						
2005	34 200	5.1						
2006	30 500	4.6						
2007	31 100	4.7					31 106	4.7
2008	32 700	4.9					32 712	4.9
2009	32 910	4.9					32 919	4.9
2010	27 520	4.1					27 529	4.1
2011	27 670	4.2					27 682	4.2
2012	27 110	4.1						
2013 ¹	26 560	4.0						

¹ Per adult data based on 2012 population.

Source: Manufactured cigarettes and all tobacco products, Tables 1.1 and 1.2. Population, see *Population*, Methods p. 14.

Columns for hand-rolled cigarettes, and for total cigarettes including hand-rolled are shown as standard for all chapters, although for Romania no estimates are available, see *Notes on sources of sales data, Estimates of numbers of hand-rolled cigarettes*, p. 33.

Figure 2 Sales of (i) manufactured cigarettes and (ii) all tobacco products.
Average per adult (aged 15 years and over) per day



Source: Table 2.

Table 3 Manufactured cigarettes: percentage of total as filter cigarettes

Year	Filter		
	% of Consumption	% of Sales	% of Production
1972	22		
1973	24		
1974	29		
1975	33		
1976	35		
1977	34		
1978	35		
1979	36		
1982			90.0
1983			50.0
1984	65		90.0
1985			90.3
1986			80.6
1987	65		65.5
1988			25.1
1989		27	25.0
1990			25.0
1991			45.2
1992			33.3
1993			44.2
1994			54.5
1995			56.1
1996			63.4
1997			70.2
1998			69.2
1999			87.0
2001		88	

Source: see *Notes on sources of sales data: Plain/Filter cigarette consumption, sales and production*, p. 34.
There is also limited information in the *Notes on Menthol cigarette sales*, p. 34, *Slim cigarette sales*, p. 34 and *Tar, nicotine and CO machine yields of cigarettes*, p. 34.

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
68	1	U	U	37																				
69	2	U	U	52																				
69	3	U	U	41																				
70	4	UC	R	10				47			44		34		37		25				33			
71	5	U	U	41																				
71	6	UC	*	33																				
71	8	UC	R					44		41		41		31		33		23				34		
71	9	U	U	53																				
71	10	U	U	52																				
76	7	UC	*	46																				
80	11	U	U	26				68			70		54		47		39				56			
80	12	U	U	28				58			72		69		50		42				55			
80	13	U	U	28				53			57		51		49		39				49			
80	14	U	U	19				32			36		34		33		31				34			
80	15	U	U	32				57			53		47		42		40				47			
80	16	U	R	3																				
80	16	U	A	30																				
80	18	M	C	48																				
82	17	UC	R	11																				
84	19	U	U	31																				
87	20	UC	R					51			41		41		30						38			
87	20	UC	A					54			46		45		33						42			
87	20	A	A					54			46		45		33						42			
87	21	U	*	14				34																
89	22	U	A	44																				
92	23	U	U	21																				
94	22	U	A	*				62			*										43			
95	24	U	U	38																				
95	25	U	U	46																				
95	26	U	U	49																				
95	27	U	U	44																				
95	28	U	U	39																				
97	20	U	U	46																				
99	30	UC	*	20																				
99	30	UC	A	31																				
00	33	U	R	19				43			47		41		28		16		7		2		32	
00	33	U	A	35				57			60		52		36		22		12		*		44	
02	31	U	U	50				53			52		27						44					
03	30	UC	*	23																				
03	30	UC	A	32																				
04	32	UC	*	7																				
04	32	UC	A	27																				
04	32	A*	A	28																				
05	31	M	C	18				53			48		24						37					
05	31	T	C	18				53			48		24						37					
05	31	A	R	18				53			48		24						37					
05	31	M	C	28				57			53		27						42					
05	31	T	C	28				57			53		28						42					
05	31	A	U	28				57			53		28						42					

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
68	1	U	U	12																			
69	2	U	U	9																			
69	3	U	U	1																			
70	4	UC	R	0			3		5		4		9		4			4					
71	5	U	U	3																			
71	6	UC	*																				
71	8	UC	R						10		11		9		11		8		7			9	
71	9	U	U																				
71	10	U	U																				
76	7	UC	*																				
80	11	U	U	6			13		14		10		7		4			10					
80	12	U	U	7			21		24		17		9		7			18					
80	13	U	U	7			15		16		10		8		6			13					
80	14	U	U	0			6		8		5		3		3			4					
80	15	U	U	10			24		22		17		15		9			18					
80	16	U	R	3																			
80	16	U	A	25																			
80	18	MC	R	13																			
82	17	UC	R	4																			
84	19	U	U	7																			
87	20	UC	R						23		20		14		8					15			
87	20	UC	A						29		23		16		9					17			
87	20	A	A						29		24		16		9					17			
87	21	U	*				6		12														
89	22	U	A	11																			
92	23	U	U	8																			
94	22	U	A				*		25				*					15					
95	24	U	U	22																			
95	25	U	U	15																			
95	26	U	U						16														
95	27	U	U	28																			
95	28	U	U	41																			
97	20	U	U						29														
99	30	UC	*	10																			
99	30	UC	A	20																			
00	33	U	R	9			18		17		10		5		2		2		*		10		
00	33	U	A	19			30		26		16		8		3		3		*		18		
02	31	U	U	42			27		18				6					19					
03	30	UC	*	15																			
03	30	UC	A	26																			
04	32	UC	*	6																			
04	32	UC	A	20																			
04	32	A*	A	20																			
05	31	MC	R	13			27		20				8					18					
05	31	TC	R	13			27		20				8					17					
05	31	A	R	13			27		20				8					17					
05	31	MC	U	22			32		22				9					20					
05	31	TC	U	22			32		22				9					20					
05	31	A	U	22			32		22				9					20					

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	25	30	35	40	45	50	55	60		65	70	75	80+
06	29	A	*		3		16																		
06	29	A	R		5		20																		
06	31	MC	R					30			46		46						27						38
06	31	TC	R					30			46		46						27						38
06	31	A	R					30			46		46						27						38
06	31	MC	U					35			52		50						31						42
06	31	TC	U					35			52		50						31						42
06	31	A	U					35			52		50						31						42
07	30	UC	*				19																		
07	30	UC	A				27																		
08	34	TC	R					18		44	44	44		30		15	8	2							33
09	31	MC	R					48		42		45							26						39
09	31	TC	R					43		39		39							26						36
09	31	MC	A					50		42		46							27						40
09	31	TC	A					43		39		39							26						36
09	31	A	A					50		42		46							27						40
09	32	UC	A			18																			
09	32	A*	A			18																			
10	29	A	*		4		18																		
10	29	A	R		9		25																		
10	35	TC	R								33														
10	35	TC	A					31		49		35							18						35
11	30	UC	*				19																		
11	30	UC	A				29																		
11	36	A	R					29		45		37							12						35
11	36	MC	A					30		48		38							13						37
11	36	TC	A					31		48		39							13						37
11	36	A	A					31		48		39							13						37
12	31	MC	R					31		49		42							25						38
12	31	TC	R					33		49		41							27						38
12	31	A	R					31		49		40							25						37
12	31	MC	A					33		51		42							26						39
12	31	TC	A					34		51		42							28						40
12	31	A	A					34		52		41							26						39
14	29	A	*		6		14																		
14	29	A	R		8		20																		

Source: see *Notes on sources of survey data*, p. 34
 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. 34
 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+
70	4	UC		2.0				14		11		11		16		7.3					13				
87	20	UC						10		9.8		9.0		12							10				
99	30	UC E		7.1																					
00	33	UC E*		12				13		13		15		15		13		*		*		13			
03	30	UC E		8.8																					
05	31	TC E		7.1				11		12		9.6					10								
06	31	TC E		11				13		12		13					13								
07	30	UC E		11																					
08	34	TC E*		13				14		13		14		13		13		12		*		14			
09	31	TC		12				12		13		12					12								
10	35	MC		11																					
10	35	TC		11																					
11	30	UC E		9.6																					
11	36	TC		12				15		14		*					14								
12	31	TC		12				12		13		11					12								

Source: see *Notes on sources of survey data*, p. 34
 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. 34
 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+			
70	4	UC								0.0													0.5	64% ^m				
87	20	UC											2.3		2.0		1.3		1.0				1.5	**				
99	30	UC								0.7														**				
00	33	UC*											1.0		2.2		2.3		1.4		0.8		0.3	*	*	1.3	57% ^m	
03	30	UC								1.3																	**	
05	31	TC											1.0		2.9		2.5				0.7					1.7	70% ^m	
06	31	TC											2.8		2.9		2.4				0.8					2.1	80% ^m	
07	30	UC								1.7																	**	
08	34	TC*											0.9		2.2		1.8		1.7		0.7		0.2		0.2	*	1.2	70% ^m
09	31	TC											2.3		2.8		2.1				1.3					2.1	80% ^m	
10	35	TC															1.9										94% ^m	
11	30	UC								1.7																	**	
11	36	TC*											1.7		3.6		2.6				*					2.4	106% ^m	
12	31	TC											2.4		3.6		2.3				1.7					2.5	101% ^m	

Source: *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 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,
 ** = cannot be calculated
 -- = adjusted by original author

Table 7M Number of cigarettes smoked per person per day, sales-adjusted, males: selected surveys¹ 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
70	4	UC				1.6				11		12		9.0		11			7.1			9.0	64% ^m	
00	33	UC*				4.8				13		15		13		9.1		4.7	2.0		*	9.9	57% ^m	
05	31	TC				2.6				12		10		5.1								7.8	70% ^m	
06	31	TC				5.8				8.5		8.3		4.0								6.7	80% ^m	
08	34	TC*				3.9				12		11		11		7.3		3.5	1.8		*	8.3	70% ^m	
09	31	TC				7.3				8.7		8.6		5.4								7.5	80% ^m	
10	35	TC				6.4																		94% ^m
11	36	TC*				4.5				8.0		7.1		1.7								6.2	106% ^m	
12	31	TC				5.3				7.5		6.9		3.7								6.0	101% ^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. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: Adjustment factor used, estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined
 -- = adjusted by original author

Table 7F Number of cigarettes smoked per person per day, sales-adjusted, females: selected surveys¹ by age; with percentage total sales

Year	Source	Product	Age Groups																		All ages	% Total sales	
			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
70	4	UC				0.0				0.7		0.9		0.7		2.1				0.5		0.8	64% ^m
00	33	UC*				1.8				3.9		4.0		2.4		1.4		0.5		*	*	2.3	57% ^m
05	31	TC				1.4				4.1		3.5		3.5		1.0						2.4	70% ^m
06	31	TC				3.5				3.7		3.0		3.0		0.9						2.6	80% ^m
08	34	TC*				1.3				3.2		2.6		2.4		1.0		0.3		0.2	*	1.8	70% ^m
09	31	TC				2.9				3.5		2.7		2.7		1.6						2.6	80% ^m
10	35	TC				2.1																94% ^m	
11	36	TC*				1.6				3.4		2.4		2.4		*						2.3	106% ^m
12	31	TC				2.4				3.5		2.3		2.3		1.7						2.5	101% ^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: See *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: Adjustment factor used, estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined
 -- = adjusted by original author

Table 8 Estimated¹ prevalence of smoking and estimated¹ 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 ²	Product ³	Prevalence ⁴				Number of cigarettes								
			Manufactured cigarettes		Total cigarettes ⁵		All products ⁶		Unadjusted ⁷			Sales-adjusted ⁸			
			M	F	M	F	M	F	Number/ person/day	Total sales %	Manufactured cigarettes number/ person/day	Total cigarettes ⁹ number/ person/day			
						M	F		M	F	M	F			
1969	2	U					44	7							
	3	U					34	1							
1970	4	UC			35	4			5.8	0.5	64	9.0	0.8		
1971	5	U					41	3				(9.2	0.5)		
1980	11	U					52	9				(10.3	1.4)		
	12	U					55	14				(9.7	2.0)		
	13	U					48	10				(10.0	1.7)		
	14	U					31	4				(10.6	1.1)		
	15	U					46	16				(9.0	2.6)		
	18	MC	48	13								(9.6	2.1)		
1984	19	U					31	7				(10.0	1.8)		
1989	22	U					44	11				(8.4	1.7)		
1994	22	U					43	15				(8.9	2.5)		
1995	25	U					46	15				(10.1	2.6)		
2000	33	UC+U					32	10	5.6	1.3	57	9.9	2.3		
	33	U					44	18							
2002	31	U					45	21				(8.5	3.1)		
2005	31	MC+TC+A	37	17	37	17	37	17	5.6	1.7	70	8.0	2.5		
	31	MC +TC +A	42	20	42	20	42	20							
2006	31	MC+TC+A	38	16	38	16	38	16	5.4	2.1	80	6.7	2.6		
	31	MC +TC +A	42	20	42	20	42	20							
2008	34	TC			33	9			5.8	1.2	70	8.3	1.8		
2009	31	MC+TC	39	17	36	17			6.0	2.1	80	7.5	2.6		
	31	MC+TC+A	40	20	36	18	40	20							
2010	35	TC			33	17			6.0	1.9	94	6.4	2.1		
	35	TC			37	18									
2011	36	TC+A					35	15	6.6	2.4	106	6.2	2.3		
	36	MC+TC+A	37	17	37	17	37	17							
2012	31	MC+TC+A	37	20	38	20	37	20	6.0	2.4	101	5.9	2.4		
	31	MC+TC+A	39	21	39	21	39	22							

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, shown in the extended versions of Tables 4 and 6 in the Excel tables workbook. Method: see *Summary of adult smoking*, Methods p. 13. Exceptionally, calculation is based on the *All ages* value from Tables 4 6 and 7 in those surveys for which some age-specific data are not available (age groups marked as * in Table 4, 6 and 7)
- 2 See *Notes on sources of survey data*, p. 34.
- 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 Estimated from data in Table 4 (see also extended version of Table 4 in the Excel tables workbook)
- 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 Estimated from data in Table 6 (see also extended version of Table 6 in the Excel tables workbook)
- 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 As hand-rolled cigarette consumption is assumed negligible, all sales-adjustment is to manufactured cigarettes.

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

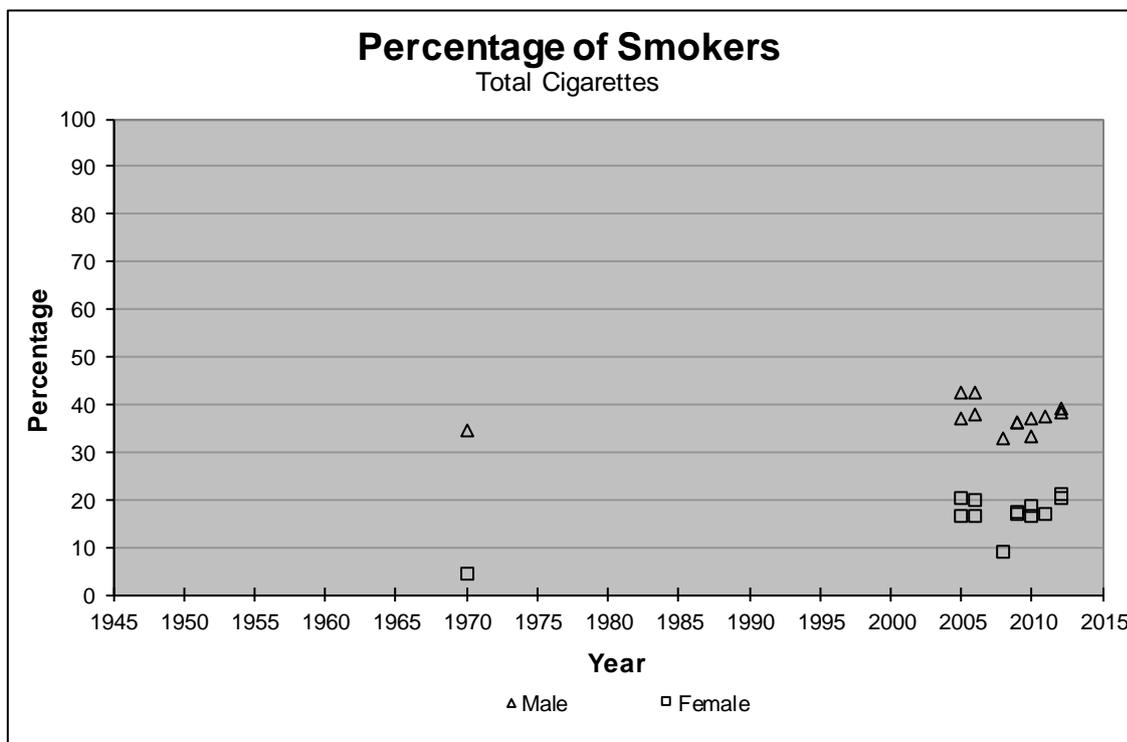
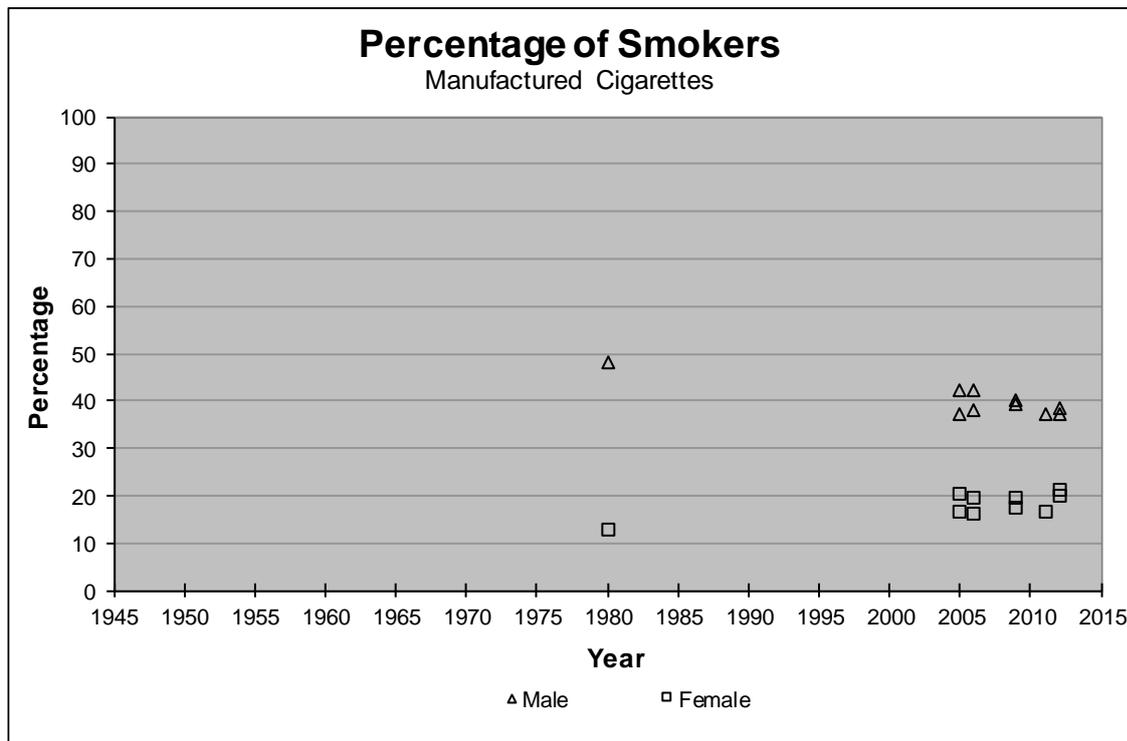
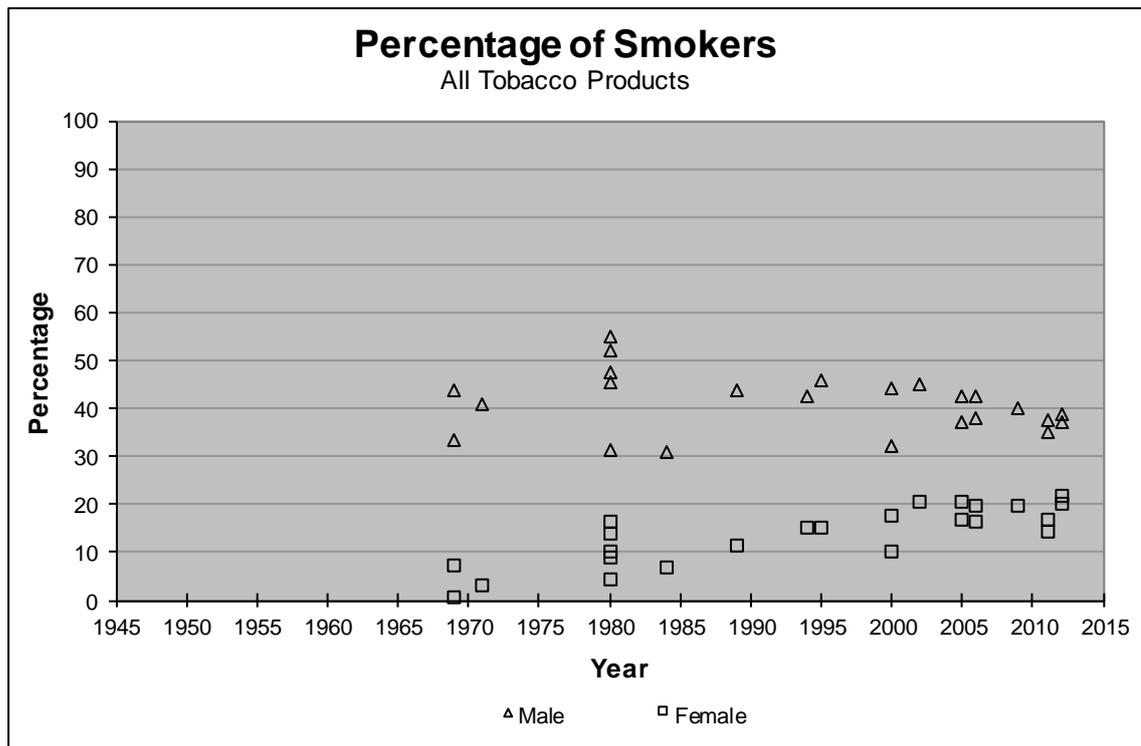


Figure 3 (continued)



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

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. 39 under *References*.

Consumption data before 1960

Hutson (1937)

See Table 1.1.

Data, originally given to the nearest 1 000 pounds, have been converted to tonnes and given to the nearest tonne (1 000 lbs = 0.45359 tonnes). No information is available on the average weight of cigarettes. For conversion from weight to numbers we assumed an average cigarette weight of 1 g. Hutson commented that smoking mixtures were used in making hand-made cigarettes and in pipes, and that “insignificant quantities of snuff” were also consumed.

Euromonitor International (2015c) noted that a tradition of pipe smoking associated with the intellectual class dated back to the beginning of the 20th century.

Sales and consumption data for 1960 onwards

Cigarettes:

1960-1981: US Department of Agriculture (USDA) Economic Research Service (1996)

1982-2003: USDA (2005)

2004-2006: KPMG (2012)

2007-2014: KPMG (2014, 2015)

Cigars: Bundesverband der Zigarrenindustrie (2013)

See Table 1.2

Data for cigarettes and cigars were given as numbers. Data for cigarettes for 1960-1981 refer to production, with imports and exports believed to be zero or negligible. Data for cigarettes for 1982-2003 refer to consumption, calculated as production plus imports minus exports. For 2004-2006, they refer to legal domestic sales, and as such include outflows (e.g. cross-border purchases) from the country. For 2007 onwards, they refer to estimated total consumption, i.e. adjusting for cross-border purchases, and including estimated counterfeit and contraband.

For most years, information is available for cigarettes only. In 1983, Barnea and Barnea noted that in “modern” times tobacco consumption has been almost exclusively of ready-made cigarettes, the consumption of other forms of tobacco having been abandoned. In 2012, KPMG listed Romania among a group of countries where products other than cigarettes had accounted for less than 5% of total legal tobacco sales in 2008, and where no robust source of data was available for the years since. Euromonitor International (2015a, 2015b, 2015c) reported that there had been some market for hand-rolling and for cigars in recent years, and that smokeless tobacco sales were banned when Romania joined the EU.

For conversion to weight, we have used the standard assumption of 1g per cigarette, and have arbitrarily assumed 3g per cigar. Other products have been assumed negligible and ignored in the calculation of total tobacco.

Zatonski (1991) stated that frequently during 1987 few cigarettes at all were available. Cigarette consumption was said to be being held at an artificially low level because production could not satisfy demand. Similarly in 1994, Horne reported that the supply of cigarettes fell short of demand.

Estimates of smuggling and cross-border sales

No information on the market share of non-legal sales of cigarettes is available before the 1990s, although a director of the Romanian Tobacco Monopoly (RTM), quoted by John (1993), commented that “the contraband market was always present”, and Zatonski *et al*, writing in 1991, noted that significant quantities of Western cigarettes were imported unofficially.

The table below summarises estimates of the market share (%) of illicit or non-domestic cigarettes. The sources of the estimates and basis of the percentages as originally described are shown below the table.

	Source														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1993	9														
1995		20													
1998			8-13												
2001				≤25											
2005					9.5										
2006					15.1	10	5-8	16.7	16						
2007										12	7.1 (Q3)	7.2			
2008											12.1 (Q2)	9.6	15.4		
2009											11.6 (Q2), 16.2 (Q4)	13.8	20.6		
2010											22.3 (Q2), 18.9 (Q4)	19.2	27.6	26.3	
2011											12.6 (Q2), 12.5 (Q4)	11.1	15.3		
2012											11.4 (Q2), 11.2 (Q3), 11.1 (Q4)	9.3	13.3		
2013											9.1 (Q2), 11.1 (Q4)	10.9	13.7		
2014												15.6	16.2		
2015													15.7		
2016														17.8	

Sources:

1. John (1993), calculated from illegal imports as % of total sales, based on approximate estimates by the Romanian Tobacco Monopoly (RTM). The company spokesman commented that contraband now [since the end of Communist rule] takes two forms: cigarettes which avoid paying duty, and pirate cigarettes manufactured to look like leading international brands.
2. Merriman *et al* (2000) quoting World Tobacco File (1994). Smuggling, as % of sales.
3. Prislopeanu (1998). Contraband as % of total consumption.
4. Bozicevic *et al* (2004) quoting ERC Group PLC (2001). Smuggled cigarettes, as % of consumption.
5. Xinhua New Agency (2007) quoting a study by BAT. Smuggled cigarettes, as % of sales. Cigarette smuggling was reported to have intensified in Romania since the increase in excise tax in 2006 and the resulting price rise.
6. Rompres (2006), quoting a trade conference on the black market. Smuggled cigarettes, as % of sales, April.
7. Mediafax (2012). Cigarette smuggling as % of the total market in May, before the introduction of a “sin tax” on tobacco. Cigarette smuggling “almost doubled” after the tax was introduced.
8. Shafey *et al* (2009) quoting Euromonitor International (2007). Smuggled cigarettes, as % of legal sales.
9. Xinhua News Agency (2007) quoting the Fraud Investigation Department of the Romanian General Police Inspectorate. Black market cigarettes, as % of sales. KPMG (2011) reports the same figure as relating to BAT data for 2007.
10. Rompres (2008) quoting BAT and JTI. Black market, as % of total value of market. Efforts by the authorities had cut smuggling significantly in the previous 6 months.
11. KPMG (2014, 2015), Baltic News Service (2015). Non-domestic cigarettes, based on an ‘empty packs’ survey for PMI by an independent agency. The survey collected at least 18 600 packs per year from 47 towns and cities, with results weighted by population. “Q” = quarter. KPMG (2015) noted that this survey focused on urban areas, which tend to have lower incidence of non-domestic cigarettes than rural areas.
12. KPMG (2014, 2015). The share of total cigarette consumption that was counterfeit or contraband, based on KPMG’s EU Flow Model, manufacturers’ data and (until 2013)

- Synovate/Ipsos non-domestic (legal) research, or (2014) the Novel study (see next source) and national visitor number statistics.
13. Novel Research (2016) for 2008-2014, and Romania-Insider.com (2015a, 2015b, 2015c), Business Review (2016) for 2015-16. Illicit cigarettes as % of consumer market. However KPMG describe these as “non-domestic market”, implying they also include legal cross-border purchases. Results shown are averages of 4-6 market research surveys conducted throughout each year for BAT and JTI (January only for 2016). The highest level for an individual survey was 36.2% in January 2010, following a steep rise in excise duty at the end of the 3-year transitional period from joining the EU (Nagy (2012)). Regional differences were reported from 2013, with the highest levels generally in the west, northwest and northeast regions (e.g. Romania-Insider.com (2013a, 2013b, 2013c, 2014). KPMG (2011) described the 2009 and 2010 results as based on analysis of packs collected from consumers, while KPMG (2014) described the project as a household interview programme that sampled over 15 000 respondents in 150 statistically representative rural and urban areas in 2013.
 14. Gilmore *et al* (2014) quoting Euromonitor International (2011). Illicit cigarette trade volume, as % of total volume. Gilmore *et al* (2014) noted that concerns have been raised by Skafida *et al* (2014) and Blecher *et al* (2015) about the quality of Euromonitor data on illicit trade.

“Illicit whites” are defined as brands manufactured legally, usually outside the EU, and smuggled into another market where they have limited or no legal distribution and are sold without payment of tax. Their share of total consumption was estimated as <1% for 2007-2009, 2-3% for 2010-2012 and 4% in 2013-2014 (KPMG (2015)). The Novel Research study included illicit whites for the first time in the July 2013 study, and found that they formed the largest share of the cigarette black market (e.g. 35.0% in July 2013, and 49% in Sep 2014, Romania-Insider.com (2013b, 2014))

KPMG (2014) estimated that legal non-domestic sales, i.e. cross-border and duty-free sales, made up only 1.3% - 2.5% of total sales in Romania during 2007-2013.

Some Eurobarometer surveys enquired about contact with smuggled cigarettes and cross border purchasing. In 2008, 7.4% of Romanian respondents had, in the previous 6 months, often seen cigarettes being sold that they thought were smuggled, with a further 11.9% seeing them occasionally Gallup Organisation Hungary (2009). In 2012, 11% of Romanians reported having purchased tobacco products abroad in the previous year European Commission (2012).

A multinational survey in 2010 was reported by PPACTE (Gallus *et al* (2012) and Joossens *et al* (2014), see survey source 35). The Romanian sample size was 1 080 of which 265 were current smokers, who reported the sources of cigarettes bought in the previous 30 days (as percentages of the total number bought), summarised as follows:

Source	Proportion of cigarettes bought (%)	
	Smokers aged 15-24	All smokers
Legal shops	90.8	88.1
Vending machines	0.0	0.0
Internet	0.0	0.0
Other countries/duty free	0.1	1.0
Smuggled (markets, door-to-door sellers etc)	6.5	8.4
Offered by peers	2.6	2.5

13.9% of current smokers reported having bought smuggled cigarettes (more than 1% of their total purchasing) in the previous 30 days. Participants were asked to show their most recently bought pack. Of the packs shown, 91.3% had a local tax stamp. Packs identified as illicit (defined as purchased from an illicit source or at an extremely low price, or lacking the appropriate health warning or tax stamp), comprised 10.7% of manufactured cigarette packs.

Estimates of numbers of hand-rolled cigarettes

In the PPACTE study in 2010 (details in the section *Estimates of smuggling and cross-border sales*, p. 32), among current cigarette smokers, 98.4% smoked only factory made cigarettes, none smoked only roll-your-own, and 1.6% smoked both types. When participants were asked for their most-recently bought pack, no hand-rolled packs were shown.

No other information on hand-rolled cigarette consumption is available, and it has been assumed to be negligible.

Plain/Filter cigarette consumption, sales and production

Consumption:

1972-1979: Barnea and Barnea (1983)

1984: Boddewyn (1986)

1987: Zatonski (1991)

Sales: Rompres (2003)

Production: USDA (2005)

See Table 3.

The data from Barnea and Barnea (1983) are described as percentages of both consumption and production. The fluctuations in the data shown in the mid 1980s may be associated with difficulties in the cigarette supply around that time (see *Sales and consumption data for 1960 onwards*, p. 31). Zatonski (1991) stated that, in the years before 1987, filter cigarettes represented a “much greater” percentage but that in 1987 there was a lack of imported items such as filters and paper.

Supporting evidence comes from various survey-based sources. In 1975, based on a review of a series of field surveys, Racoveanu *et al* reported that about half of male smokers and nearly all female smokers smoked filter cigarettes. Later, a survey in 2000 showed that 81% of smokers preferred filter, 13% plain and 6% used both types (Mercury Marketing and Research Consultancy, quoted by Rompres (2000)).

Menthol cigarette sales

Around 1999-2001, menthol cigarettes accounted for 15.4% of the total cigarette market (Giovino *et al* (2004) quoting ERC Group PLC (1999, 2001)). By 2010, this had dropped to 3.4% of market share Oxford Economics (2012) and by 2012 it had decreased further, to 3% of total consumption KPMG (2013).

Slim cigarette sales

In 2012, slim cigarettes made up 18% of total consumption KPMG (2013).

Tar, nicotine and CO machine yields of cigarettes

Barnea *et al* (1974) gave the tar yields of the six most popular brands in Romania. These had a range of 16.2-25.5 mg tar per cigarette and a nicotine content (not yield) of 1.60-2.40% of the weight of tobacco in the cigarette. Woudenberg (1979) reported that there were legal restrictions on maximum yields of tar, nicotine and CO, and that the CO yield of cigarette smoke was subject to government testing. Barnea and Barnea (1983) gave the nicotine content of Romanian cigarettes as in the range 1.37-1.60%. Didilescu (1994) gives the tar yields and nicotine contents of two popular cigarette brands (1990) as:

Brand	Carpați	Snagov
Quality*	common	superior
Tar (mg)	16	14
Nicotine concentration	1.53%	1.55%

*as described by Barnea and Barnea (1983).

World Health Organization (2007) reported that, since 2006, regulations have limited the yield per cigarette of tar to 10 mg, of nicotine to 1 mg and of CO to 10 mg, in line with the Tobacco Product Regulation Directive 2001/37/EC implemented since joining the EU in 2007.

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. 39 under *References*.

As mentioned in the preface, the survey data in this chapter are largely reproduced from the 2nd (print) edition, which covered the years up to 1995, subject to a few

amendments for consistency with the Web edition most notably using more recently published material for source 20 (MONICA). For the subsequent years, only certain multinational surveys have been added (sources 29-36). No searches for country-specific sources or surveys were undertaken.

Source number

1 **Manu *et al* (1970)**

- a. Part of a study of chronic bronchitis in a district of Bucharest 1968-1969. Sample size (males) 380, (females) 620, which was 25% of the population aged 30+ in the district. Response rate 74%.

2 **Racoveanu *et al* (1970)**

- a. Study of bronchitis in 3 districts. Year not stated.

Location	Description	Sample size
Bucharest	Capital city, clerical workers	197
Sf Gheorghe	Fishing village in Danube delta	180
Fundata	Mountain village, principally shepherds and forestry workers	216

- b. Assumed extensions to age distribution for percentage smokers are shown in the extended version of Table 4 in the Excel tables workbook.

3 **Barnea *et al* (1974)**

- a. Study of chronic bronchitis in 12 districts, which differed in geography, customs and occupation. Lower age limit not stated. Sample size 37 050, of which 30 262 and 24 910 were age 10+ and 20+ respectively.
- b. Assumed extensions to age distribution for percentage smokers (females only) are shown in the extended version of Table 4 in the Excel tables workbook.

4 **Golli (1971)**

- a. Survey in the suburban district of Craiova. Sample size (males) 1 329, (females) 1 613, which was 93% of the adult population.

5 **Benjamin (1978) quoting Barnea *et al* (1972) (no details of reference)**

- a. Age group not stated (adults). Year not stated, 1971 assumed.
- b. Cigarettes were said to be the main mode of smoking, with cigars and pipes rarely used. The average daily consumption (presumably for the sexes combined) was about 15 cigarettes.

6-7 **Steinbach *et al* (1982)**

- a. The Bucharest Multifactorial Prevention Trial of Coronary Heart Disease. Results shown as source 6 are from initial screening of a random sample of 5 000 men from 4 districts of Bucharest, response rate 80%; source 7 from a randomly selected control group of 5 000 men from a 5th district, first examined 5 years later.
- b. Smokers marked as frequency *: smoked 15+ cigarettes per day.

8 **Dușu *et al* (1972)**

- a. Study of respiratory symptoms in a district of Bucharest. Sample size (males) 780, (females) 1 024.
- b. There were no pipe or cigar smokers.

9 **Racoveanu *et al* (1975) quoting Nicolaescu *et al* (1972)**

- a. Study of general population in Bucharest. Year not stated, 1971 assumed. Sample size (males only) 1 685.

10 **Racoveanu *et al* (1975) quoting Racoveanu *et al* (1973)**

- a. Study in the general population in Hunedoara, a highly industrialized city. Year not stated, 1971 assumed. Sample size (males only) 636.

11-15 Barnea and Barnea (1983) quoting Barnea *et al* (1980)

- a. Study in 5 towns.

	Town	Description	Sample size	
			Males	Females
11	Hunedoara	Old industrial town	2 899	1 043
12	Petroșani	Old industrial town	1 024	1 015
13	Pitești	Recently developed town	1 431	1 473
14	Slatina	Recently developed town	1 207	1 239
15	Bucharest	Capital city	2 003	2 165

16 Barnea and Barnea (1983)

- a. Study in school pupils in two provincial towns, Oradea and Craiova. Lower age limit 10. Sample size 1 075.
- b. Regular smokers: 'steady smokers'. All smokers: 'attempted to smoke'.
- c. There is a discrepancy with results presented by Barnea (1981).

17 Barnea and Barnea (1983)

- a. Study of school pupils in Bucharest. Lower age limit 10.
- b. Regular smokers: smoked at least 4 cigarettes per week.

18 Mackay (1994)

- a. No original source. Age group not stated.

19 Zatonski (1991)

- a. No original source. Age group not stated (adults).

20 Tolonen *et al* (2000), Kuulasmaa *et al* (1998), Wolf *et al* (1998), Molarius *et al* (1999)

- a. Surveys using interviewer-administered questionnaires in one region, forming part of WHO MONICA Project. Only the first phase was covered by international reports, and information for the 1997 phase is taken from an abstract (Marin-Tarlea
- et al*
- (1998)) :

Region	Phase	Participation rate (%)		Sample used*		Date
		Males	Females	Males	Females	
Bucharest	1	73	80	701	872	Jan 1986-Dec 1987
	3			807	904	

* 'Sample used' includes age 25-64, all other figures are for age 35-64 only

Tunstall-Pedoe (2003) reported that the surveyed area was part of Bucharest and possibly a neighbouring rural area, that there were problems with non-receipt of data according to MONICA protocol requirements, and that the conduct of the study was affected by a catastrophic earthquake.

- b. The *All ages* column (Tables 4-7) relates only to age 35-64 and is standardized to the world population.
- c. Regular cigarette smokers: smoked cigarettes daily. All smokers: smoked cigarettes daily or occasionally, or smoked 1 g pipe tobacco or 1 cigar per week.
- d. For phase 1, Marin-Tarlea *et al* (1998) gave the prevalence of smoking (definition not specified) for age 25-64 as 44.5% for men and 19.4% for women, as shown in earlier editions of this report.

21 Mihăilescu (1994)

- a. Study at 3 high schools in Bucharest. Approximate ages corresponding to school grades X and XII. Sample size (grade X) 246, (grade XII) 284.
- b. Smokers marked frequency *: smoked daily.

22 Didilescu (1996), Didilescu *et al* (1997)

- a. Results from Centrul de Calcul, Statistică Sanitară and Documentare Medicală al Ministerului Sănătății.
- a. The *All ages* values refer to ages 15+; age-specific data are not available for the age groups marked *.

23 World Health Organization (1997)

- a. No original source. A secondary school in Bucharest, age group not stated.

24 Didilescu (1996), Didilescu and Marica (2000)

- a. Study by Institutul de Pneumoftiziologie in 1995-1996 on pupils in 10 crowded towns. Approximate ages (14, 16, 18) corresponding to school grades VIII, X, XII. Sample size 8 817.

25 Toma (1997)

- a. No original source. Age group and year not stated.

26 USDA (1996)

- a. Market survey.
b. It is also reported that smoking prevalence is higher in urban areas (35%) than rural (27%).

27-28 Ciufecu *et al* (1997a, 1997b)

- a. Studies of smoking knowledge and behaviour among grade 9-12 pupils at two high schools. Year not stated, 1995 assumed.

Location		Sample size	
		Males	Females
27	Sebeş, Alba	69	59
28	Bucharest	44	79

29 Currie *et al* (2008, 2012), Inchley *et al* (2016)

- a. 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
2006	13.6	15.5	1 440	1 605
2010	13.1	15.1	1 726	2 002
2014	13.1	15.1	1 240	1 442

- b. Smokers marked as frequency *: smoked daily. Regular smokers: smoked once a week or more. All smokers: includes those smoking less than once a week.

30 Hibell *et al* (2000, 2004, 2009, 2012)

- a. Nationally representative survey forming part of ESPAD (European School Survey Project on Alcohol and Other Drugs). Survey of pupils in school grades 9-10, selecting those born within a target year, thus age 15-16 at the time of the survey. Military, religious schools and non-Romanian-speaking schools (about 10% of all schools) were excluded from the sampling frame. At least 93% of 15-16 year-olds were still in school in each survey year, with 79% in the surveyed grade. Anonymous questionnaire completed and sealed in an envelope by the pupil, in class. Teachers usually not present.

Date	Sample size		Participation rate (%)			Target year of birth	Average age
	Males	Females	Schools	Classes	Pupils		
May 1999	960	1 433	–	94	92	1983	15.4*
Jun 2003	1 823	2 548	99	100	84	1987	15.9
May-Jun 2007	1 099	1 208	100	98	84	1991	15.9
Jun 2011	1 279	1 491	–	100	79	1995	16.0

* as given by Hibell *et al* (2000), although the 2004 report said that ages as given in the 2000 report were systematically 0.5 years too low.

- b. In 2004, Hibell *et al* (2004) reported that, for 1999, all surveyed students had mistakenly been included in the Romanian analysis, not just those from the target year of birth, making the results not directly comparable with other ESPAD countries. However the prevalence of smoking (last 30 days) showed no difference between the original report (Hibell *et al* (2000)) and the figure when recalculated restricted to the target year.
c. Smokers marked as frequency *: smoked 1 or more cigarettes per day in the previous 30 days. All smokers: smoked at least one cigarette in the previous 30 days.
d. Consumption category estimation based on 1-5, 6-10, 11-20, 21+ cigarettes/smoker/day.

- 31 Mohedano-Brethes and Soufflot de Magny (2005), Christensen (2008), Papacostas (2009, 2012), European Commission: TNS Social and Opinion (2014)**
- 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 approximately 1 000.
 - These surveys provide results that are comparable across countries. However, they have been criticised for having small sample sizes and for generating “estimates that are in some cases widely discrepant from more substantive national sources” (Bogdanovica *et al* (2011)).
 - In 2002 (Candidate Country Eurobarometer), the sample consisted of citizens of the country, and thereafter 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.
 - Frequency U (in Table 4) represents positive answers to questions such as “Do you smoke cigarettes?” or “You smoke packeted cigarettes”. From 2005-2006 an additional question made it possible to identify regular smokers also; our estimates of regular cigarette smoking assume that the proportion smoking regularly applies equally to smokers of each product, which may cause anomalies. From 2009 the questionnaire format clearly asked about regular and occasional smoking and so frequency codes R and A are used.
 - In 2012, questions on what product or amount “do/did you smoke” were put to both current and ex smokers, and our estimates of prevalence for products TC and MC (Table 4), and of cigarettes per smoker (Table 5), assume that responses by current smokers relate to their smoking habits at the time, rather than throughout their lives.
 - 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. Exact values for cigarettes/smoker/day are available for 2009 (see also Appendix III) and 2012.
- 32 Centers for Disease Control and Prevention (CDC) (2016), Warren *et al* (2008)**
- Global Youth Tobacco Survey (GYTS). National school-based surveys targeting ages 13-15, using standardised data collection procedures. We show results restricted to 13-15 year olds where available, although it is not always clear from the original sources whether the whole sample or only ages 13-15 are included.
- | | Response rate (%) | | | | Sample size
(age 13-15) |
|------|-------------------|---------|----------|---------|----------------------------|
| | Schools | Classes | Students | Overall | |
| 2004 | 100 | 100 | 58 | 58 | 2 504 |
| 2009 | 100 | 100 | 94 | 94 | 2 982 |
- Smokers marked as frequency *: smoked daily. All smokers: smoked on at least one day in the last 30 days. Prevalence for product A* refers to current users of any tobacco product (i.e. may include smokeless tobacco users).
 - It was also reported that, in 2002, 7.7% of boys and 4.3% of girls used tobacco products other than cigarettes, with 7.1% of boys and 3.3% of girls using cigars. In 2008, 3.0% of boys, and 1.9% of girls used products other than cigarettes.
- 33 Eurostat (2007)**
- Surveys collated by Eurostat as the 2004 round of data collection on Health Interview Surveys. In Romania, the Health Interview Survey. National household survey, excluding residents of institutional premises. Target sample 9 018 households, 21 220 persons. Response rate 92% households, 99% individuals. Achieved sample 21 000.
 - The *All ages* values refer to ages 15+; age-specific data are not available for the age groups marked *. The highest age groups shown are 75-84 and 85+.
 - Consumption category estimation based on two categories, 1-19 and 20+ cigarettes/cigarette smoker/day, and resulting figures should be regarded with caution.
 - Calculation of cigarettes per person based on percentage smokers (product unspecified), and number of cigarettes per cigarette smoker, so may overestimate.
- 34 Eurostat (2013)**
- European Health Interview Surveys, coordinated by EUROSTAT, Wave 1. The Romanian arm of the survey was conducted in May-Jun 2008. Individuals living in private households. Smoking behaviour was obtained through self-completion questionnaires. Sample size 18 172, response rate 89%, 16% proxy respondents.
 - The *All ages* values refer to ages 15+; age-specific data are not available for the age groups marked *. The highest age groups shown are 75-84 and 85+.
 - Regular cigarette smokers: smoked manufactured or hand-rolled cigarettes daily.
 - Consumption category estimation based on two categories, 1-19 and 20+ cigarettes/smoker/day, and resulting figures should be regarded with caution.

- 35 Gallus *et al* (2012, 2014)**
- Surveys by PPACTE in 2010 in 18 European countries. Coordinated by DOXA, the Italian branch of the GALLUP International Association. Face-to-face interviews using computer-assisted personal interviewing. The survey in Romania used multi-stage random sampling. Age range 15+. Sample size 1 080, response rate 54%.
 - One section of the survey involved asking to see the subject's most recently bought pack of cigarettes or hand-rolling tobacco. All smokers showed a 20-pack of cigarettes.
 - Among current cigarette smokers, 98% smoked only factory made cigarettes, 0% smoked only roll-your-own, and 2% smoked both types.
 - Use of smokeless tobacco was reported by 0.2% of men and 0.0% of women.
 - Cigarettes per smoker relates to all smokers rather than regular smokers.
- 36 Irimie (2012), Ministry of Health Romania (2013)**
- Global Adult Tobacco Survey (GATS). Part of an international program under the WHO Framework Convention on Tobacco Control (FCTC), using standard protocol. In Romania, it was conducted in 2011 as a multi-stage household survey, with one person age 15+ selected from each household. Results are weighted to be nationally representative of the non-institutionalised population. Sample size (households sampled) 5 629, (completed interviews) 4 517. Overall response rate 89%.
 - Regular smokers: smoked daily. All smokers: smoked daily or less than daily.
 - The *All ages* values refer to ages 15+; age-specific data are not available for the age groups marked *.
 - Consumption per smoker (Table 5) refers to consumption per daily cigarette smoker. Calculation of cigarettes per person (Table 6) based on prevalence of cigarette smoking (daily or non-daily) and number of cigarettes per daily cigarette smoker, so may overestimate.

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§ Original paper not obtained, but information taken as quoted by another author