

Section 6
Economic and Other Implications of Tobacco Control

Chapter 15
Employment Impact of Tobacco Control

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Employment Impact of Tobacco Control

Adoption and implementation of effective tobacco control policy interventions are often influenced by concerns over the potential employment impact of such policies. This chapter examines employment issues and discusses the following:

- An overview of current tobacco-related employment, including employment in tobacco growing, manufacturing, wholesale and retail sales, and tobacco-expenditure-induced employment
- Trends in tobacco-related employment including the shift toward low- and middle-income countries
- Impact of globalization, increased workforce productivity, and new technologies on tobacco-related employment
- Impact of tobacco control policies on overall employment and how this impact varies based on the type of tobacco economy in specific countries.

Econometric studies show that in most countries tobacco control policies would have an overall neutral or positive effect on overall employment. In the few countries that depend heavily on tobacco exporting, global implementation of effective tobacco control policies would produce a gradual decline in employment. Around the world, employment in tobacco manufacturing has decreased primarily because of improvements in manufacturing technology, allowing more tobacco products to be manufactured by fewer workers, and by the shift from state-owned to private ownership, which requires companies to operate in a more competitive environment.

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Introduction

The World Health Organization (WHO) has projected that smoking could lead to as many as 8 million deaths per year by 2030.¹ Tobacco control policies such as increased taxes and comprehensive smoke-free laws are effective in curbing tobacco use, but some policymakers are reluctant to implement such measures for fear they might lead to significant employment losses. This chapter reviews the existing evidence on the employment effects of tobacco control policies, focusing on how and to what extent these policies affect employment, and how the effects of these policies on employment levels vary between countries.

Current Status of Tobacco Employment

The tobacco industry generates jobs in many economic sectors. One way to classify these jobs is by their level of dependence on the tobacco industry: jobs that are directly dependent on tobacco, jobs that are partially dependent on tobacco, and jobs that are indirectly related to tobacco, referred to as tobacco-expenditure-induced jobs. Employment in tobacco growing and manufacturing falls into the first category. Tobacco growing is a labor-intensive enterprise, which encompasses all aspects of tobacco work on farms, including initial land preparation, delivery of cured tobacco, and preliminary leaf processing. Tobacco manufacturing is less labor intensive but also involves a range of activities, including reordering, blending, and cutting tobacco leaf and delivering packaged tobacco products to the wholesaler. Jobs in tobacco growing and manufacturing, often referred to as core-sector employment, are the primary focus of this chapter.

Employment that is partially dependent on tobacco includes tobacco wholesaling and retailing, specifically jobs such as transporting tobacco products, doing warehouse work, and selling tobacco products to the end consumer. These kinds of jobs, although related to the tobacco industry, are less dependent on the industry because many wholesalers and retailers derive only a small portion of their revenues from the distribution of tobacco products. The number of stores that sell tobacco products exclusively is small in some countries, such as the United States,² and relatively large in others, such as the People's Republic of China.³ However, the equipment and resources that specialty stores use for tobacco products are not unique and can be shifted to nontobacco alternatives.

Indirect employment, or employment that is supported indirectly by tobacco expenditures, includes jobs in sectors that supply inputs and materials (e.g., agricultural chemicals, machinery) to the core tobacco sectors, and jobs in other sectors of the economy that are supported by what tobacco industry workers spend on consumer goods and services with the income earned in their tobacco-dependent jobs. Tobacco use also generates employment in the health care industry because of illnesses caused by tobacco.

Directly Dependent Employment

Tobacco Farming

Although tobacco is grown in approximately 124 countries,⁴ a large proportion of the world's tobacco is grown in the small number of countries that have suitable conditions for tobacco cultivation and the necessary skills and technology. Thus, employment in tobacco growing is concentrated in a small number of countries. In 2013, 10 countries grew 81.3% of the world's tobacco leaf; China alone accounted for 42.4%.⁴

As noted in chapter 10, estimating the number of people working in tobacco growing and the extent of their dependence on tobacco agriculture is challenging, and data are limited. The International Labour Organization (ILO), an agency of the United Nations with representation from governments, employers, and workers, began collecting data on the tobacco sector in 1995. A 2003 ILO report⁵ estimated that 40 million people were involved in tobacco growing and leaf processing worldwide, with the largest numbers employed in tobacco growing in China (35 million), India (850,000), Brazil (723,000), Turkey (586,616), and Malawi (586,000). However, the method used by the ILO to derive these estimates was not well described and may have overestimated jobs in this area by including part-time tobacco farmers. Moreover, tobacco growing is seasonal, and tobacco farmers typically grow other crops or engage in other economic activities. Full-time equivalents (FTEs) could be used to convert the number of part-time farmers into a full-time base, but such a conversion was not performed for the ILO estimate.

In 2014, the ILO provided updated information, based on data collected from 64 countries for the period 2000–2013.⁶ The ILO noted that the available data are limited and fragmented, and warned that “despite best efforts, data in the report should be interpreted with utmost caution.”^{6,p.ix} The report indicated substantial drops in employment in tobacco leaf growing between 2000 and 2013 for several countries, including Turkey (583,500 in 2000 to 66,500 in 2012), Brazil (462,800 in 2002 to 342,200 in 2009), and the United States (51,700 in 2002 to 14,100 in 2007). In contrast, increases were seen in Argentina (32,300 in 2000 to 58,400 in 2010), India (62,800 in 2001 to 89,300 in 2013), and Zimbabwe (8,500 in 2000 to 56,900 in 2011). The ILO data on employment in tobacco leaf growing included full-time, part-time, and seasonal workers as well as contributing family members, and reflected both small holdings and farms in which tobacco is not the primary product.

Other reports on employment in tobacco farming further highlight the considerable variability and imprecision of these estimates. For example, Hu and colleagues⁷ estimated the number of tobacco growing workers in China at 17.5 million for 2006, roughly half the estimate of the earlier ILO study. Estimates may differ based on the data source used (the type, quality, and availability of data vary greatly from country to country and even within individual countries) and the methods used to estimate components of direct tobacco employment. Iglesias,⁸ for example, highlighted the discrepancy in estimates of the number of jobs associated with tobacco farming in Brazil, contrasting a figure of 582,000 from the Brazilian Tobacco Growers Association (AFUBRA) with a figure of 290,400 from the Brazilian Institute for Geography and Statistics (IBGE).

Jacobs and colleagues⁹ emphasize that the most important statistic in terms of employment is not the absolute number of people employed in tobacco farming, but the percentage employed in tobacco farming relative to the total agricultural labor force. Even in countries that rely heavily on tobacco production, the share of tobacco-farming employment in the total agricultural employment is small. In Malawi in 1990, for example, tobacco-growing labor measured in FTE figures was less than 3% of the total agricultural labor force FTEs. Additionally, in contrast to sectors where jobs are full-time and year-round, tobacco farming is characterized by the extensive use of seasonal workers, part-time workers, unpaid family labor, and other informal laborers.

Tobacco Manufacturing

Tobacco product manufacturing, which includes production of cigarettes and other tobacco products, is estimated to have employed more than 1.2 million workers worldwide in recent years.¹⁰ This estimate is derived from data reported for 73 countries, including all major tobacco-manufacturing countries, in the

United Nations Industrial Development Organization (UNIDO) database, with the most recent year reported varying from 2010 to 2014 (see Table 15.1). However, this estimate does not appear to include employment in informal tobacco product manufacturing. In India, for example, bidi manufacturing employs an estimated 4.2 million people, the vast majority working in the informal sector rather than in organized factories.¹¹

As with tobacco farming, employment in tobacco product manufacturing is concentrated in a few countries. Based on data from the years 2010–2014, about 80% of tobacco-manufacturing employment was concentrated in three countries: India (34.7%), Indonesia (27.2%), and China (16.9%).¹⁰ In most countries, the share of tobacco-manufacturing employment as a percentage of total employment was less than 0.5%⁸; this was true in India even when those employed in the bidi sector are included.¹¹

Partially Dependent Employment: Tobacco Product Wholesale and Retail Sales

Estimating global employment in tobacco wholesaling and retailing is difficult because tobacco product distribution varies by country. In some countries, tobacco wholesaling is a part of the manufacturing process, and employment in this sector is captured by jobs in tobacco manufacturing. In other countries, such as the United States, separate entities distribute tobacco products from manufacturers to retailers. Existing estimates of employment in tobacco wholesaling are subject to additional limitations. For example, the ILO estimated that tobacco wholesaling employed 99,606 people in the United States in 1997,¹² but noted that this includes both those primarily engaged in wholesaling tobacco products as well as those who distribute other products.

The ILO also estimated that 155,451 people were employed in the tobacco retail sector in the United States in 1997.¹² As with the wholesale data, this figure includes those employed in tobacco specialty stores and in more diverse retail outlets. Most tobacco products are sold by retailers who also sell nontobacco products. For example, in the United States in 2014, less than 20% of cigarettes were sold through tobacco specialty stores, the remainder being sold largely through convenience stores (including those at gas stations), groceries, mass merchandise stores, and pharmacies.² Similarly, in Australia, the vast majority of tobacco retailers also sell nontobacco products; about 80% of cigarettes sold in Australia in 2014 were sold in nonspecialty outlets.¹³

Indirectly Related Jobs: Tobacco-Expenditure-Induced Employment

Tobacco-expenditure-induced employment is often estimated by using input–output models, and such studies find that tobacco is weak in generating jobs in other sectors of the economy. For example, Ahsan and Wiyono¹⁴ compared the employment-multiplier effect of the tobacco industry with other industries in Indonesia and found that the cigarette-manufacturing sector ranked 48th out of 66 sectors, with an employment multiplier of 4.68. That is, if a new cigarette manufacturer in Indonesia employed 1,000 workers, 4,680 jobs would be generated in other sectors in the economy as a result. Tobacco farming, which ranked 30th in expenditure-induced employment, has an employment coefficient of 1.05, whereas rice milling and sugar factories have multiplier effects of 13.57 and 13.41, respectively. Therefore, if Indonesian smokers were to spend money on food instead of cigarettes, the increased demand for food would generate jobs in food industries and have a much larger employment-multiplier effect, creating many more new jobs in the economy than would be lost due to reduced cigarette sales.

Trends and Regional Shifts in Tobacco-Related Employment

Although consistent and comprehensive data are not available to document trends in regional or global employment, evidence strongly suggests that tobacco's contribution to global and regional employment has decreased over the years. In its 2014 report, the ILO showed that employment in tobacco growing has declined over time in most major tobacco-growing countries.⁶ For example, the ILO estimated that the number of tobacco-farming households in China, the top tobacco-leaf-producing country, fell from 6.4 million in 1998 to 1.5 million in 2010.⁶ Similarly, a study conducted in Indonesia, another major tobacco-leaf producer, estimated that the number of FTE tobacco farmers fell by 21%, from 564,300 in 1996 to 444,500 in 2001.¹⁴ In the United States, employment in tobacco growing declined from 51,700 workers in 2002 to 14,100 in 2007.⁶

Global employment in tobacco manufacturing has also declined over time in most major tobacco-producing countries¹⁵ despite increases in cigarette production.¹⁶ For example, in the United States, the leading country in tobacco-manufacturing employment in the Americas, employment in tobacco manufacturing fell by 34% from 1990 to 2013.¹⁰ Similarly, tobacco-manufacturing employment in Turkey, the leading European country in tobacco-manufacturing employment, fell by 85% from 1990 to 2014.¹⁰ Employment in tobacco manufacturing in China, the world's leading cigarette-producing country,¹⁷ fell by nearly 25% between 1990 and 2010.⁶

Employment in India, the country with the largest number of tobacco-manufacturing workers in the world, rose sharply in the 1970s, peaked in 1997, and then slowly declined until 2005, when employment stabilized. In contrast, over the last few decades, tobacco-manufacturing employment has increased steadily in Indonesia, which employs the second-largest number of tobacco-manufacturing workers in the world, rising by more than 96% between 1970 and 2004, then remaining relatively flat.¹⁰ Although the absolute number of jobs in tobacco manufacturing in Indonesia has increased, the manufacturing sector as a whole has seen a much greater increase in the number of jobs; therefore, the share of total manufacturing employment accounted for by tobacco manufacturing fell from approximately 27% in 1970¹⁸ to 7% in 2014.¹⁰

As shown in Table 15.1, significant regional shifts have occurred in the global distribution of tobacco-manufacturing employment, most of which involves the manufacture of cigarettes.¹⁰ The proportion of global employment in tobacco manufacturing located in the Americas and Europe has declined dramatically since 1970. At the same time, the share of employment in the South-East Asia and Western Pacific Regions has risen sharply since 1970. Many factors have contributed to the regional shifts in tobacco employment, such as globalization as well as the adoption of new technology and the resulting increase in productivity. Moreover, regional shifts in manufacturing have largely paralleled trends in consumption patterns: The share of global tobacco-manufacturing jobs has fallen in markets where tobacco consumption is declining and risen where consumption is increasing.

Table 15.1 Regional Distribution of Tobacco Product Manufacturing Employment, by WHO Region, 1970–2014

WHO Region	1970		1980		1990		2000		2010–2014	
	n	%	n	%	n	%	n	%	n	%
African	30,694	13.7	49,209	3.7	25,097	1.8	4,626	0.4	13,192	1.1
Americas	122,502	14.7	150,321	11.4	94,371	6.7	61,221	4.8	67,407	5.4
Eastern Mediterranean	41,485	5.0	56,302	4.3	35,614	2.5	23,569	1.8	21,685	1.7
European	321,202	38.4	321,378	24.4	212,455	15.1	135,149	10.5	67,007	5.4
South-East Asia	273,741	32.7	526,410	40.0	709,785	50.6	762,620	59.4	839,457	67.4
Western Pacific	46,476	5.6	213,695	16.2	325,623	23.2	296,275	23.1	236,721	19.0
Total	836,100		1,317,315		1,402,945		1,283,460		1,245,469	

Notes: Countries reporting data vary for any given year. Percentages shown are of total tobacco product–manufacturing employment.

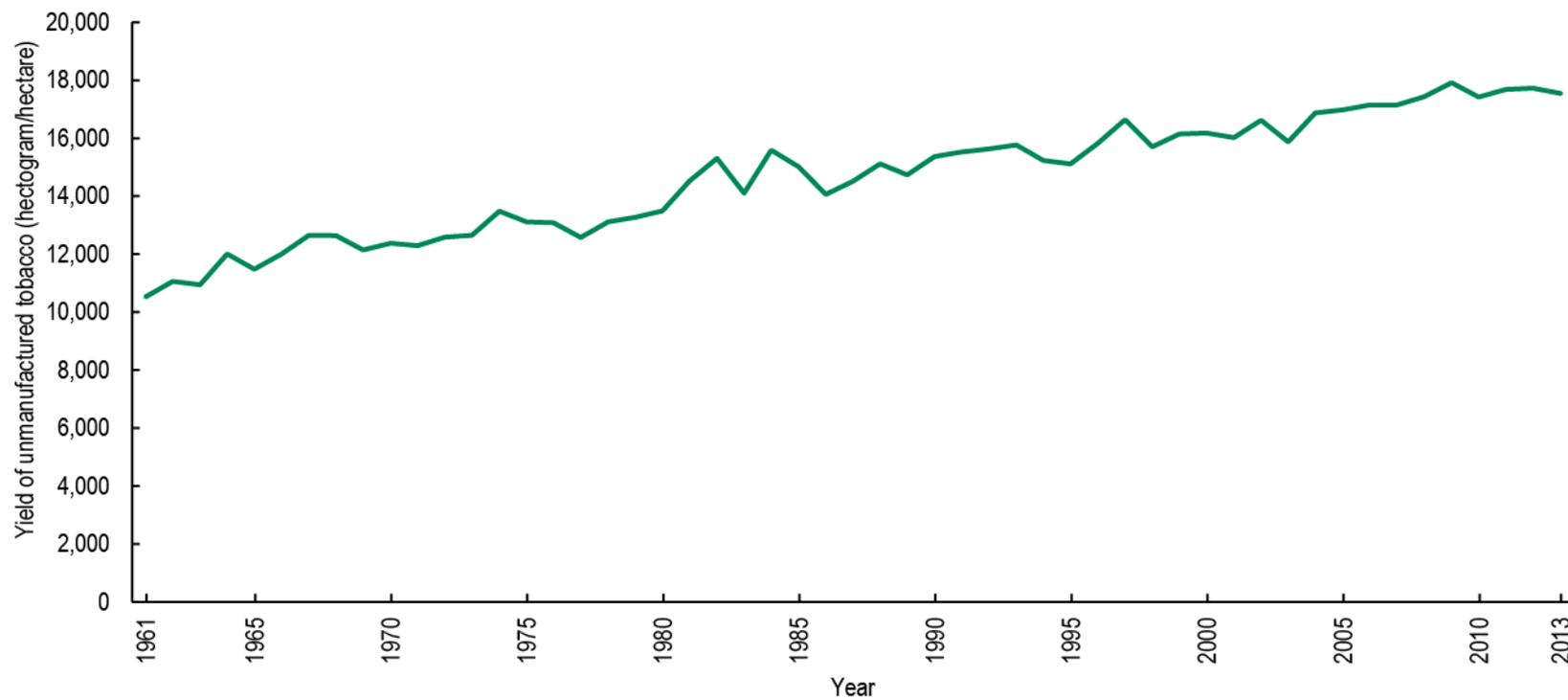
Source: UNIDO 1970–2014.¹⁰

Technological Advances and Productivity Increases

Adoption of new technology has played a major role in increasing productivity in both tobacco growing and cigarette manufacturing, reducing the number of people needed to produce a given amount of tobacco leaf or number of cigarettes. In tobacco growing, tobacco leaf yield per hectare has increased steadily since 1961⁴ (see Figure 15.1), while mechanization (e.g., the use of mechanical harvesters) has greatly reduced labor requirements.¹⁹ For example, in the United States, tobacco harvest labor at flue-cured tobacco farms declined from 118 hours per acre in 1979 to 77 hours per acre in 1987 due to a shift from conventional barns to labor-saving bulk and big box barns.¹²

In tobacco manufacturing, the adoption of new, more capital-intensive production facilities has also decreased the demand for labor. From 1980 to 2000, global cigarette production rose by nearly 33%¹⁶; in contrast, global tobacco-manufacturing employment fell by 2.6%.¹⁰ The experience of individual countries is often more dramatic. For example, in the United Kingdom of Great Britain and Northern Ireland, 3% more cigarettes were produced in 1998 than in 1980, with 75% less labor.⁵ Two studies provide further evidence of a decline in employment as a result of new technology and increased productivity. Godfrey and Hartley²⁰ examined the type of job losses (skilled versus unskilled workers) in the tobacco industry between 1963 and 1985 in the United Kingdom. They found that the loss of 16,200 jobs (about 83.5% of all tobacco-manufacturing jobs) during this time period could be attributed to new technology. Another study in the United Kingdom examined changes in employment between 1980 and 1990 and concluded that productivity improvements in the tobacco-manufacturing industry represented a major reason for job losses.²¹

Figure 15.1 Global Yield of Tobacco Leaf, 1961–2013



Source: FAOSTAT 1961–2013.⁴

The ILO also notes the powerful negative influence of privatization and trade liberalization on tobacco-related employment:

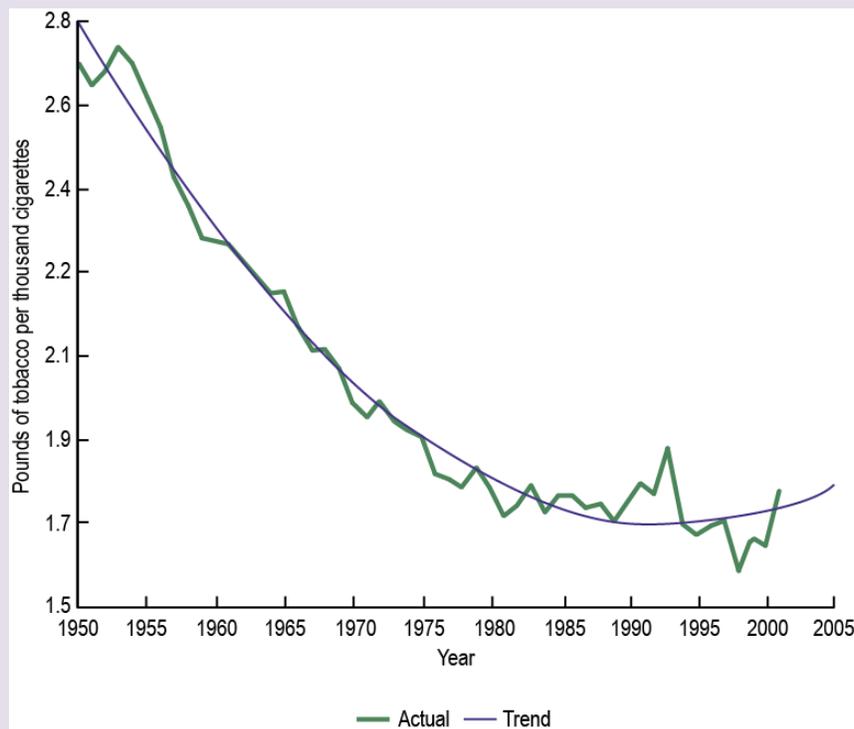
Directly and indirectly, the combination of privatization and trade liberalization appears to accelerate this downward employment trend. In many countries, the tobacco companies are or were state-owned or state-controlled. Often they were monopolies with below average productivity due to high staffing levels, outdated equipment and/or idle capacity. When these companies are being privatized and prepared for operating in a more competitive environment, their employment levels tend to suffer.^{5,p.46}

Box 15.1: Employment in Tobacco: The Influence of Technology and Globalization in the United States

In the United States, a range of factors have contributed to decreased employment in both tobacco growing and tobacco manufacturing; these include reduced prevalence of tobacco use, technological advances, and increased use of imported tobacco in manufactured cigarettes.

Technological advances have reduced the demand for tobacco leaf and, subsequently, the demand for labor in both farming and manufacturing. Technological changes in the U.S. tobacco industry now make it possible to reduce waste by using reconstituted tobacco, opened and cut ribs, and “expanded tobacco” in the tobacco blend, which has resulted in lower demand for tobacco leaf.⁴⁶ This trend is illustrated in the figure below, which shows that the weight of tobacco per 1,000 cigarettes declined substantially between 1950 and 1980. The amount of tobacco in each cigarette was about 40% less in 2003 than in about 1960.⁴⁷

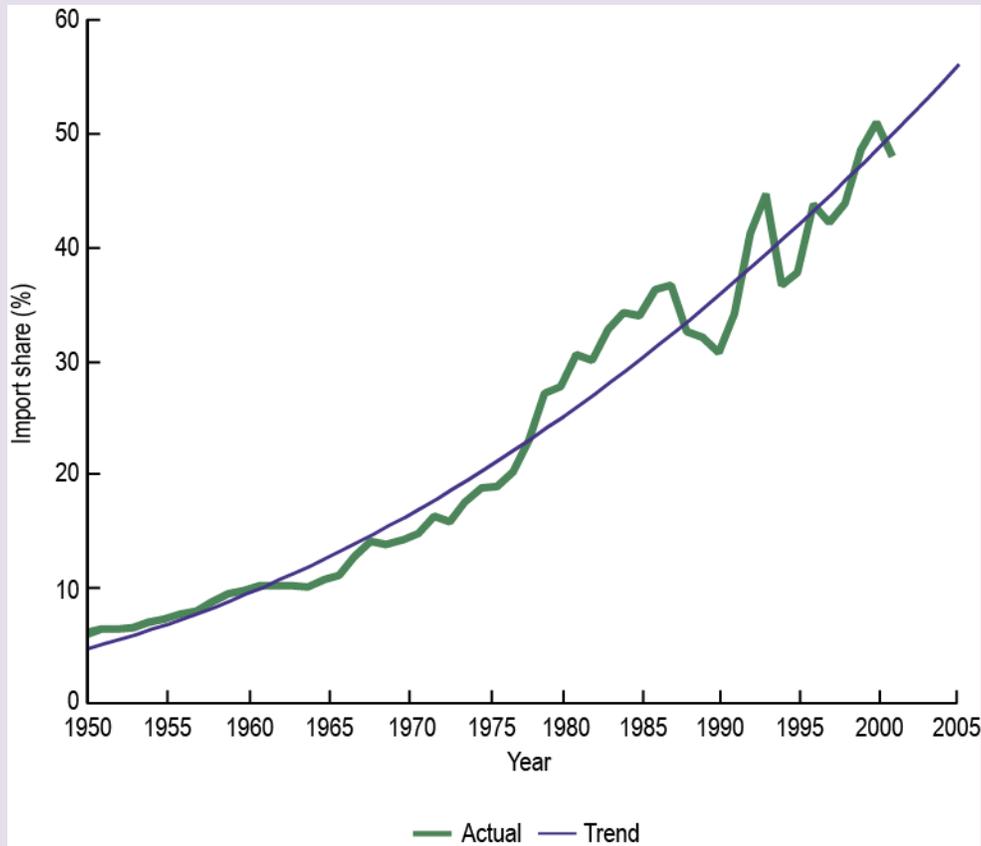
Tobacco Content of U.S.-Manufactured Cigarettes



Note: Trend $R^2 = 0.97$.
Source: Womach 2003.⁴⁷

In addition, it has become easier for U.S. cigarette manufacturers to substitute less-expensive imported tobacco leaf for more costly U.S.-grown tobacco. Capehart⁴⁸ has noted that producers outside the United States have dramatically improved the quality of their tobacco leaf through improved cultivation and marketing techniques. As the figure below shows, the share of imported tobacco in U.S. cigarettes grew markedly between 1960 and the early 2000s. In 1950, imported tobacco constituted 6% of U.S. manufactured cigarettes; by 2001, 48% of the tobacco content in U.S. cigarettes was imported.⁴⁷

Share of Imported Tobacco in U.S.-Manufactured Cigarettes



Note: Trend $R^2 = 0.97$.
 Source: Womach 2003.⁴⁷

Measuring the Impact of Tobacco Control Policies on Employment

Studies examining the effect of tobacco control policies on employment typically focus on jobs in the entire tobacco sector and estimate *gross employment impact*, or they take into account the effect on employment in other industries caused by redirection of resources from tobacco to other goods and service to obtain the *net employment impact*.

Gross Employment Impact

Studies estimating the gross employment impact of tobacco control policies rely on counting direct and indirect tobacco-related employment. Employment data on tobacco farming are available either directly through national agricultural statistics or indirectly using labor productivity data that is then converted to FTEs. Figures on tobacco product manufacturing employment are obtained from governmental statistical data by sector or industry. Tobacco wholesale and retail jobs are estimated on the basis of the tobacco share of the total wholesale or retail trade.

Studies sponsored by the tobacco industry tend to estimate the gross employment effects of tobacco control policies.^{22–25} Gross estimates of economic activities associated with tobacco production and sales overestimate tobacco's contribution to the economy.²⁶ Decreases in tobacco expenditures do not disappear from the economy; rather, they are redistributed to the consumption and production of other goods and services, generating income and employment in other sectors. Industry-sponsored studies occasionally acknowledge this fact. For example, in its 1984 study, Chase Econometrics stated:

It can be argued, of course, that without the tobacco industry, the expenditures on, and resources devoted to, the production of tobacco products would simply be shifted elsewhere in the economy. That is, if consumers were faced with no available tobacco products, they would reallocate their spending to other goods and services. This reallocated spending would generate additional business opportunities in other sectors of the economy along with the associated employment and incomes. Therefore, except for transitional problems and differential industry levels of productivity, *the aggregate economic results would be substantially the same . . .* [T]he compensatory responses that *would occur* automatically within the economy and within the Chase Econometrics U.S. Macroeconomic Model in a total impact-type of study were *constrained from taking place within this analysis* [emphasis added].^{27,p.3}

Net Employment Impact

Studies estimating the net impact of tobacco control policies on employment recognize that decreases in tobacco expenditures would mean increases in expenditures on other goods and services. These studies simulate the change in employment from a reduction or elimination of tobacco consumption and apply it to formal models, such as a static input–output model or a dynamic regional economic model. Both models contain interdependencies or relationships among industry sectors or subsectors in the economy, and both can be used to simulate the effect of an external policy change on outputs and employment in each sector of the economy.

Studies using an input–output model first estimate the change in final consumer demand for goods and services resulting from a reduction in tobacco expenditures. They then calculate the induced changes in outputs based on input–output tables that describe the flow of goods and services in the economy in a matrix form. These studies then convert changes in outputs to changes in employment to obtain the employment impact. This model, however, relies on some restrictive assumptions and thus does not account for price adjustments and alternative resource allocations (e.g., imports, exports). The dynamic macroeconomic model relaxes some of these assumptions to allow prices to adjust in response to changes in product demand and changes in demand for the inputs into production. This model incorporates inter-industry transactions (input–output tables) and subsequent changes in demand for final products in response to price changes (econometric modeling). Most studies that examine the net

impact of tobacco control policies have been conducted by researchers not affiliated with or supported by the tobacco industry.^{14,28–37}

The employment impact of tobacco control policies on different sectors of the economy will differ depending on the type of policy being examined. Increases in tobacco taxes will generate jobs in sectors where the government spends its tax revenues and, for those users who quit or reduce their tobacco expenditures in response to higher taxes, in the sectors where the money once spent on tobacco is being spent on other goods and services. Non-price measures that reduce the demand for tobacco products—such as comprehensive bans on advertising and promotion, mass media countermarketing campaigns, restrictions or bans on smoking in public places, and increased access to cessation interventions and other support to smokers (such as pharmacotherapy or quitline services)—will generate jobs according to the spending patterns of smokers who quit.

Studies that have empirically examined the spending patterns of recent tobacco quitters have suggested that in high-income countries (HICs) such as the United Kingdom, additional jobs tend to be created in more labor-intensive industries, including recreation, entertainment, education, and communications; in lower income countries such as Indonesia, what would have been spent on tobacco tends to be spent on higher quality food, education, housing, and health, thus generating jobs in those sectors.^{14,29} The net impact of tobacco control policies on national employment depends on the magnitude of both job losses and job gains when released tobacco expenditures are redistributed in the economy.

A complete examination of the impact of tobacco control policies on employment also includes economic activity in the health care sector that is generated by treating the diseases caused by tobacco use. In the United States from 2009 to 2012, the estimated average annual cost for direct medical care for adults with smoking-attributable illness was between 132.5 billion and 175.9 billion U.S. dollars.³⁸ Medical treatment of illnesses attributable to tobacco generates jobs and income in the health care industry. Tobacco control measures that decrease smoking and reduce smoking-related diseases would gradually lead to a decline in health care expenditures attributable to tobacco. As in the case of tobacco product expenditures, however, resources not spent on health care would be saved and ultimately redistributed to the consumption of other goods and services and create alternative jobs in other sectors of the economy. Less illness attributable to tobacco also means that people would live longer; as a result, some health care jobs associated with caring for illnesses attributable to tobacco would be replaced by jobs in geriatric care.³⁹

Barkey²⁸ examined the impact of eliminating both tobacco production and tobacco use on employment in the U.S. state of Indiana. He used a dynamic regional economic model for an analysis that accounted for resources released (1) from economic activities directly related to the tobacco industry, (2) from expenditures on drugs and medical services used to treat illnesses related to the use of tobacco, and (3) from economic costs of morbidity and mortality attributable to tobacco use that result in early retirement and death. This study found that if Indiana became a tobacco-free state, jobs in the health care and retail sectors would decline as an initial impact in the very short run, but employment would soon start growing again as investments and population growth stimulated the overall economy. Despite job losses in the health care and retail sectors in the short run, the impact of being a tobacco-free state on overall employment in the first year would be positive. As Barkey explains, “every other industry shows some job gain, reflecting the shifting pattern of consumer spending in the tobacco-free economy, as well as the lower business costs that obtain when tobacco-related health care costs are eliminated.”^{28,p.21}

Types of Tobacco Trade Economies

The net effect of tobacco control efforts on employment depends on the relative size of job losses in the tobacco industry and on job gains in other industries to which smokers' expenditures have transferred. This process in turn depends on (1) the labor-intensity of tobacco growing and manufacturing compared with other industries and (2) the extent to which the products, inputs, and services are imported or provided by domestic firms, again comparing the tobacco industry to the industries where smokers spend their money instead.

When tobacco control policies reduce the demand for cigarettes, a country is likely to have lower employment losses if that country imports a significant percentage of the cigarettes smoked and/or leaf used to make them. In addition, the extent to which products and services purchased instead of tobacco are locally made determines the size of the gains in employment in these other sectors. Conversely, the more the tobacco leaf and other inputs and cigarettes are nationally grown and/or produced relative to the local content of the things people buy instead, the greater the likelihood that there will be a net employment loss locally.

Thus, countries face different employment effects based on the types of tobacco trade economies they have. Depending on the share of imports and exports, a country has one of four types of economies: net exporters, balanced or self-contained economies, net importers, and mixed economies.

A country is considered a net exporter if its production of tobacco leaf or cigarettes exceeds its domestic consumption. Because tobacco employment in net-exporter countries is geared more to the export of tobacco leaf or cigarettes, employment losses are possible if the global demand for these products falls. Domestic tobacco control measures that decrease local consumption will have smaller effects on employment in these countries because the amount of economic activity associated with domestic tobacco use would be redistributed in the economy as consumers purchase alternative goods and services. The relative effects of global and domestic policies will depend on the share of production that is exported. If the vast majority of a country's tobacco leaf or cigarette production is exported, then changes in domestic policies will have little impact, and changes in global policies will have a greater impact. In addition, effects on employment could be greater for net exporters of tobacco leaf than for net exporters of cigarettes because, as noted previously, tobacco growing is more labor-intensive than tobacco manufacturing.

A country has a balanced tobacco economy if its domestic production of tobacco leaf or cigarettes is used primarily for local consumption and it is largely self-sufficient in tobacco. In these countries, most tobacco-related jobs are related to growing and manufacturing for domestic use. Global tobacco control efforts, therefore, would have little effect on national employment. Tobacco-related jobs would be affected only by policies that reduce domestic tobacco consumption.

Net importers are countries that produce less tobacco leaf or cigarettes than they consume. After implementation of domestic tobacco control measures, those net importers that have little tobacco growing or production of their own would see employment grow. If domestic demand for cigarettes fell, expenditures released from tobacco consumption would generate net employment gains in the production of other goods and services. Policies that reduced tobacco use in other countries would be expected to have little or no effect on their domestic employment, given that they produce and export little or no tobacco leaf or tobacco products.

A country has a mixed tobacco economy if it is a significant grower or producer and also imports and/or exports a substantial share of tobacco leaf or tobacco products. For example, the United States grows a significant amount of tobacco (more than 271,000 tonnes in 2011) but also exports and imports large amounts (more than 187,000 tonnes in exports and 171,000 tonnes in imports in 2011).⁴ Changes in both domestic and global tobacco control policies would likely affect employment in countries with mixed economics, given their domestic production and involvement in global trade.

Table 15.2 lists the top 10 countries and areas, based on quantity, for both tobacco leaf and cigarettes, for each of the four types of tobacco economies, among 146 countries and areas that produce, grow, import, and/or export more than a minimal amount of tobacco leaf or cigarettes. Among these 146 countries and areas, fewer than 25% are categorized as net exporters of cigarettes. The fraction of net exporters of tobacco leaf is even smaller because tobacco farming is concentrated in a small number of countries. Additionally, countries that are net exporters/importers of tobacco leaf are not necessarily net exporters/importers of cigarettes. For example, among the top net exporters of tobacco leaf, only India is also one of the top net exporters of cigarettes. Similarly, only Japan is among the top net importers of both tobacco leaf and cigarettes.

The employment effects of reduced demand for tobacco can also vary for different regions within a country. In regions where tobacco farming or production is concentrated, reduced tobacco demand could lead to a net employment loss. However, some or all jobs lost in tobacco regions of a country might be replaced by job gains in regions that are not involved in tobacco farming or production; the effect on national employment depends on the magnitude of the net loss or gain. Most empirical studies of the employment effects of tobacco control policies focus on national employment rather than on employment at the regional level, which limits our knowledge in this area.

Evidence on the Effects of Tobacco Control Policies on Employment

Table 15.3 summarizes studies that have examined the effects of tobacco control policies on net employment. Overall, these studies found that employment losses were relatively concentrated, whereas employment gains tended to spread throughout the economy. Reductions occurred in core tobacco sectors, including tobacco farming and manufacturing; in tobacco-related sectors, such as wholesaling and retailing; and in ancillary sectors, such as the paper and pesticide industries. How the funds once spent on tobacco are allocated to other goods and services helps determine the sectors that could experience job increases. For example, with increased prevention and control of tobacco use in the United Kingdom, a substantial increase in jobs would occur in the distribution (i.e., wholesale, retail, and vehicle distribution), hotel, and catering sectors.²⁹ In Canada employment would increase in printing and publishing, transportation, wholesale, finance and real estate, and business and other services.³⁰ In Indonesia the top six sectors that would experience increased employment include other food crops, rice, tea, coffee, sugarcane, and root crops.¹⁴

Table 15.2 Types of Tobacco Economies, Selected Countries and Areas, 2011

Net importers	Net exporters	Balanced	Mixed
Tobacco leaf			
Russian Federation	Brazil	China	United States
Netherlands	India	Pakistan	Germany
United Kingdom	Malawi	Bangladesh	Indonesia
Malaysia	Argentina	Democratic People's Republic of Korea	Belgium
Ukraine	Zimbabwe	Lao People's Democratic Republic	France
Japan	Tanzania	Myanmar	Poland
Republic of Korea	Italy	Cuba	Turkey
South Africa	Mozambique	Syria	Philippines
Switzerland	Thailand	Rwanda	Viet Nam
Paraguay	Zambia	Cameroon	Spain
Cigarettes			
Japan	Germany	China	China, Hong Kong Special Administrative Region
Italy	Indonesia	Russian Federation	Greece
Spain	Poland	United States	Singapore
France	Viet Nam	Brazil	Kazakhstan
Thailand	Republic of Korea	Egypt	Czech Republic
Iran	Philippines	Pakistan	Australia
Saudi Arabia	Netherlands	Argentina	Portugal
Canada	Turkey	Algeria	Malaysia
Serbia	India	Belarus	Lithuania
Morocco	Ukraine	Venezuela (Bolivarian Republic of)	Kenya

Note: Country classifications are based on the differences between production, exports, and imports.

Sources: FAOSTAT 2011⁴ and Euromonitor International 2011.¹⁷

Table 15.3 Net Employment Impact of Tobacco Control Policies: Studies

Studies	Model and assumptions	Conclusions
Scotland: McNicoll and Boyle 1992 ³¹	Static input–output model Domestic consumption expenditures were eliminated. Expenditures were allocated by the average expenditure pattern. No change occurred in government spending.	Net gain of 7,869 jobs in 1989
United States (Michigan): Warner and Fulton 1994 ³⁶	Dynamic regional economic model Domestic consumption expenditures were eliminated, and the rate of consumption decline from 1992 to 2005 doubled. Expenditure was allocated by the average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.	Net job gains: 5,600 in 1992 and 1,500 by 2005; with the consumption decline, 300 in 1992 and 880 by 2005
United States (Indiana): Barkey 2005 ²⁸	Dynamic regional economic model Domestic consumption expenditures and tobacco production in 2003 were eliminated. Expenditures were allocated by the average expenditure pattern. Tobacco-induced health care expenditures were released and reallocated. Excess mortality caused by tobacco use was accounted for.	Net gain of 178,200 jobs in 2050, the end of the simulation period. Milestones are 18,000 jobs in 2005; 50,700 jobs in 2010; 97,000 jobs in 2020; 132,000 jobs in 2030; and 159,400 jobs in 2040
United States: Warner and colleagues 1996 ³⁷	Dynamic regional economic model Domestic consumption expenditures were eliminated, and the rate of consumption decline from 1993 to 2000 doubled. Expenditures were allocated by the average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.	Net job gains: 47 in 1993 and 133,000 by 2000; with the consumption decline: 78 in 1993 and 19,719 by 2000
United Kingdom: Buck and colleagues 1995 ²⁹	Static input–output model This model describes a 40% decline in tobacco product expenditures. Expenditures were allocated by recent quitter, nonsmoker, former smoker, and average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.	Net gain of 155,542 jobs; or 115,688 full-time equivalent jobs in 1990 with the recent quitter expenditure and the same government spending
Canada: Irvine and Sims 1997 ³⁰	Static input–output model This model describes a 20% decline in tobacco product expenditures. Expenditures were allocated by the average expenditure pattern. Government spending was reduced.	Net loss of 6,129 jobs in 1995
South Africa: Van der Merwe and Abedian 1999 ⁴⁹	Static input–output model Domestic consumption expenditures were eliminated, and the rate of consumption decline in 1995 doubled. Expenditures were allocated by recent quitter and average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.	Net gain of 50,236 jobs occurred in 1995 by eliminating tobacco expenditures, with consumers acting as recent quitters and the same government spending

Table 15.3 continued

Studies	Model and assumptions	Conclusions
Zimbabwe: Van der Merwe 1998 ³⁵	Static input–output model Domestic consumption expenditures and tobacco production in 1980 were eliminated. Average input–output pattern changed, and all tobacco production was shifted to alternative agriculture products. Because of increases in other taxes, no change in government spending occurred.	Net loss of 87,798 jobs in 1980, and 47,463 jobs when all output goes to alternative agriculture products
Bangladesh: Van der Merwe 1998 ³⁴	Static input–output model Domestic consumption expenditures and all tobacco production for tobacco products and bidis in 1994 were eliminated. Average input–output pattern changed, and all tobacco production was shifted to alternative agriculture products. Because of increases in other taxes, no change in government spending occurred.	Net gain of 10,989,192 jobs in 1994
Bulgaria: Petkova and colleagues 2003 ³³	Static input–output model Domestic consumption expenditures and tobacco production in 1999 were eliminated. Average input–output pattern changed, and all tobacco production was shifted to alternative agriculture products. Because of increases in other taxes, no change in government spending occurred.	Net loss of 5,567 jobs in 1999
Egypt: Nassar and Metwally 2003 ³²	Static input–output model A 10% increase in cigarette prices and a one unit increase of education level (as a proxy for non-price tobacco control measures) occurred. Expenditures were allocated by the average expenditure pattern. Because of increases in other taxes, no change in government spending occurred.	Net gain of 6,108,517 jobs in 1997 for the price increase, and net gain of 6,000,134 jobs in 1997 under non-price measures
Indonesia: Ahsan and Wiyono 2007 ¹⁴	Static input–output model Percentage increases of 25%, 50%, and 100% occurred in the cigarette tax. Expenditures were allocated by the average expenditure pattern.	Net gain of 84,340 jobs with a 25% tax increase; net gain of 140,567 jobs with a 50% tax increase; and net gain of 281,135 jobs with a 100% tax increase

Note: For more information about the issues summarized in this table, see Jacobs et al. 2000⁹ and Food and Agriculture Organization of the United Nations 2003.⁵⁰

Source: This table was adapted from Jacobs et al. 2000.⁹

With only a few exceptions, studies assessing the net employment impact of reductions in tobacco use resulting from tobacco control policies have concluded that the overall number of jobs would increase. This would be particularly true for countries that are net importers of either tobacco leaf or cigarettes, given that money spent on tobacco products tends to leave the country. In most cases, the net impact on jobs, positive or negative, is a very small share of overall employment, typically well below 1%. For example, Petkova and colleagues³³ estimated that net job losses in Bulgaria were less than 0.2% of total

employment in 1999, while Buck and colleagues²⁹ estimated that net job gains in the United Kingdom in 1990 were less than 0.6% of total employment that year.

In sum, studies find that net importers and countries with a balanced tobacco economy would not experience net employment declines as a result of a decrease in tobacco consumption in response to effective domestic and global tobacco control policies. In contrast, net exporters that depend heavily on tobacco could be susceptible to employment losses due to effective global tobacco control policies, although domestic policies would have little impact.

It should be noted that all studies have simulated sudden cessation or a sharp reduction in cigarette consumption. In reality, declines in tobacco consumption as a result of tobacco control policies occur gradually, allowing the economy to adjust slowly during this transition. In fact, tobacco-growing communities have made economic adjustments for decades.^{40,41} For example, a survey of tobacco farmers in the United States indicated that not only are tobacco farms increasingly more diversified, but younger and more educated generations of tobacco farmers are also less interested in choosing tobacco farming as a career.⁴² Finally, to the extent that there are concerns about the employment impact of tobacco control efforts, governments can allocate resources to programs that help people involved with tobacco growing and manufacturing make the transition to other sustainable livelihoods. For example, in the “sin tax” reform legislation adopted in the Philippines in 2012, 15% of the new revenues generated from significantly increased tobacco taxes was earmarked to help tobacco farmers and workers move to other economically viable alternatives.⁴³ Similarly, the U.S. state of Maryland used funds from the 1998 Master Settlement Agreement to fund the Tobacco Transition Payment Program, a voluntary program to allow the state’s tobacco farmers to permanently transition away from tobacco growing but remain in agriculture; 94% of the state’s tobacco growers took advantage of the program.⁴⁴

Summary

The tobacco industry generates jobs directly and indirectly in many economic sectors. Employment in tobacco farming is concentrated in the few countries that are major producers of tobacco leaf, and research has shown that the share of agricultural employment in tobacco farming has declined over the years. Global employment in tobacco manufacturing, also concentrated in a few countries, has been relatively stable over time despite a considerable increase in global production. Tobacco manufacturing’s share of total manufacturing employment tends to be small and is declining in most countries. Technology has played a major role in increasing productivity in both tobacco growing and manufacturing, allowing fewer workers to grow more tobacco leaf and produce more manufactured tobacco products. Privatization, the shift from state to private ownership, has also tended to reduce employment by requiring companies to operate in a more competitive environment.

Research on the impact of tobacco control policies on employment focuses on the impact on the tobacco sector (gross employment impact), or considers employment impact in the tobacco sector along with other economic sectors to which expenditures might be redirected (net employment impact). Studies of net impact provide a more complete picture of the effect of tobacco control policies on employment. The effect of tobacco control policies on employment depends in part on the country’s type of tobacco trade economy, as categorized by its share of imports and exports: net exporters, balanced economies, net importers, or mixed economies. Employment effects also differ depending on whether the particular tobacco control policy of interest impacts the domestic or global tobacco market.

For the vast majority of countries, studies have found that tobacco control policies have had no effect or a small net positive effect on national employment. For the few countries that rely heavily on tobacco exports, the economy would incur a transition cost as a result of global tobacco control efforts. Tobacco farmers in particular could be affected negatively because of the labor-intensive nature of tobacco farming, their investments in equipment for tobacco production, and because of a lack of resources to help them adapt to the changing environment. However, domestic tobacco control measures in these countries would have little effect on national employment.

The challenge of transitioning from tobacco-related employment to other viable economic activities would be moderate in the long term. The addictive aspect of smoking means that reductions in tobacco consumption would occur gradually. In fact, the transition to a smaller tobacco economy has been ongoing in HICs since the 1950s as a result of a steady decline in cigarette consumption and because of technological improvements. Improvements in technology and the tobacco industry's pursuit of increased productivity have led to significant decreases in employment in the tobacco core sector. As Schelling⁴⁵ noted decades ago, in general, the gradual transition away from tobacco farming and manufacturing to other economic activities would mean that today's tobacco farmers would not lose their jobs, but that fewer children of tobacco-farming families would become tobacco farmers themselves. This remains true today.

Research Needs

Policymakers are sometimes reluctant to implement tobacco control measures for fear that they will have a negative impact on employment. For this reason, high priority should be given to developing accurate and comprehensive data on the number of people employed in both tobacco growing and tobacco manufacturing. Studies should specify the methods used to estimate employment; for example, to accurately measure FTE employment in tobacco growing, it is important to account for both seasonal and part-time work. Additional studies of the factors influencing employment in tobacco growing and manufacturing, including the impact of technological advances and economic globalization, as well as the potential influence of tobacco control policies, would be informative. Studies of the effect of tobacco control policies on employment should consider the net impact of these policies, which takes into account that losses in the tobacco sector may be offset by increases in other sectors of goods and services.

Conclusions

1. The number of jobs that depend on tobacco—tobacco growing, manufacturing, and distribution—is low and has been falling in most countries.
2. Adoption of new production technologies and improved production techniques, together with the shift from state to private ownership in many countries, has reduced employment in both the tobacco-farming and -manufacturing sectors.
3. In nearly all countries, national tobacco control policies will have either no effect or a net positive effect on overall employment because tobacco-related job losses will be offset by job gains in other sectors.
4. In the few countries that depend heavily on tobacco leaf exports, global tobacco control policies could lead to job losses, but these losses are expected to be small, gradual, and unlikely to affect the current generation of tobacco farmers in these countries.

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