

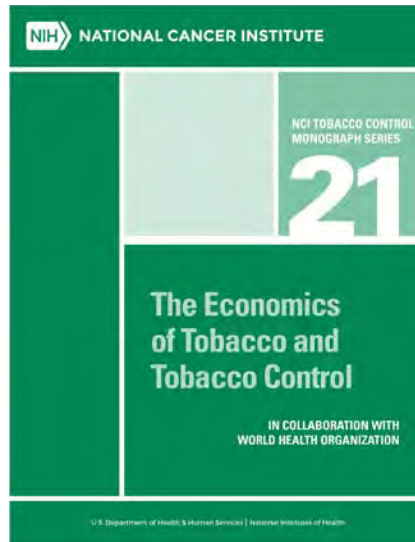
Monograph 21: The Economics of Tobacco and Tobacco Control

NCI Tobacco Control Monograph Series

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Contributors

- Senior Editors
 - Frank Chaloupka, University of Illinois at Chicago
 - Geoffrey Fong, University of Waterloo
 - Ayda Yürekli, World Health Organization (former position)
- More than 60 authors from major world regions contributed, and more than 70 served as reviewers



Monograph Contents

The monograph contains the following 17 chapters:

1. Overview and Conclusions
2. Patterns of Tobacco Use, Exposure, and Health Consequences
3. The Economic Costs of Tobacco Use, With a Focus on Low- and Middle-Income Countries
4. The Impact of Tax and Price on the Demand for Tobacco Products
5. Design and Administration of Taxes on Tobacco Products
6. The Impact of Smoke-Free Policies
7. The Impact of Tobacco Industry Marketing Communications on Tobacco Use
8. The Impact of Information on the Demand for Tobacco Products

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9. Smoking Cessation
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11. Policies Limiting Youth Access to Tobacco Products
12. Tobacco Manufacturing Privatization and Foreign Direct Investment and Their Impact on Public Health
13. Licit Trade in Tobacco Products
14. Tobacco Tax Avoidance and Tax Evasion
15. Employment Impact of Tobacco Control
16. The Impact of Tobacco Use and Tobacco Control Measures on Poverty and Development
17. Ending the Epidemic

Major Accomplishments

This volume:

- Presents extensive new evidence from low- and middle-income countries (LMICs) and highlights the unique challenges of implementing tobacco control measures in LMICs
- Examines global tobacco control efforts since the 2003 adoption and 2005 entry into force of the World Health Organization Framework Convention on Tobacco Control
- Discusses new infrastructure issues ranging from privatization to trade liberalization and evolving trends in tobacco use and the tobacco product market.

The monograph confirms that **effective, evidence-based tobacco control interventions**—such as increased taxes; complete bans on tobacco marketing; comprehensive smoke-free policies; dissemination of information on the health consequences of tobacco use; and many other types of interventions—**make sense from an economic as well as a public health standpoint.**

Major Conclusions

The monograph's 9 major conclusions are as follows:

1. The global health and economic burden of tobacco use is enormous and is increasingly borne by LMICs.
2. Failures in the markets for tobacco products provide an economic rationale for governments to intervene in these markets.
3. Effective policy and programmatic interventions are available to reduce the demand for tobacco products and the death, disease, and economic costs that result from their use, but these interventions are underutilized.
4. Policies and programs that work to reduce the demand for tobacco products are highly cost-effective.

Major Conclusions (continued)

5. Control of illicit trade in tobacco products, now the subject of its own international treaty, is the key supply-side policy to reduce tobacco use and its health and economic consequences.
6. The market power of tobacco companies has increased in recent years, creating new challenges for tobacco control efforts.
7. Tobacco control does not harm economies.
8. Tobacco control reduces the disproportionate burden that tobacco use imposes on the poor.
9. Progress is now being made in controlling the global tobacco epidemic, but concerted efforts will be required to ensure that progress is maintained or accelerated.

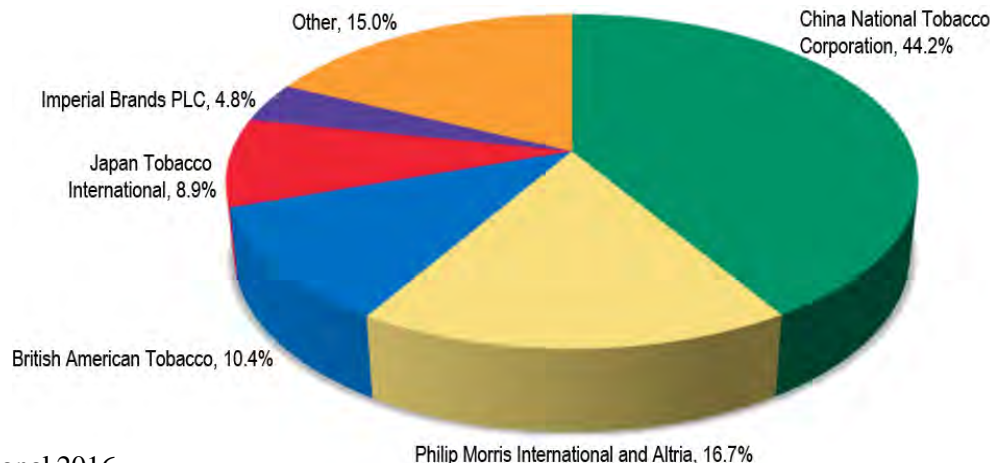
The Global Tobacco Economy

- The 2013 tobacco leaf market was valued at US\$ 19.1 billion.
- The 2013 tobacco product market was valued at US\$ 783 billion.
- Tobacco farming accounts for only a small share (<3%) of the global tobacco market.
- Trade in tobacco leaf accounts for a very small proportion (<1%) of global agricultural imports and exports, and very few countries rely heavily on earnings from trade in tobacco leaf.
- The vast majority of workers in the tobacco production chain are tobacco farmers doing highly labor-intensive work on small family farms, which are increasingly located in LMICs. In contrast, cigarette manufacturing—the higher value phase of the chain—is highly mechanized and dominated by a few large multinational corporations largely based in HICs.

The Global Tobacco Economy (continued)

- Global cigarette production is now dominated by 4 multinational companies and the China National Tobacco Corporation, which alone accounts for over 40% of the global cigarette market share.
- In 2013-2014, **global tobacco excise taxes generated nearly US\$ 269 billion in government revenues**, yet governments spent less than US\$ 1 billion on tobacco control.
 - High-income countries spent the most on tobacco control (US\$ 1.26 per capita), and low- and middle-income countries spent considerably less.

Global Cigarette Market Share Distribution, 2014



Source: Euromonitor International 2016.

Opportunities to Reduce the Tobacco Epidemic

- **Tax increases** that raise the price of cigarettes by 10% will reduce overall tobacco use by between 2.5% and 5.0% in most countries.
- There is a consensus that helping small farmers switch from tobacco to alternative crops can be a **useful part of sustainable local economic development programs** and can help overcome barriers to adopting and implementing strong tobacco control policies.
- Implementing and enforcing strong measures to control illicit tobacco trade would **enhance the effectiveness of significantly increased tobacco taxes and prices and strong tobacco control policies** in reducing tobacco use and its health and economic consequences.
- In nearly all countries, national tobacco control policies will have either **no effect or a net positive effect** on overall employment because any tobacco-related job losses will be offset by job gains in other sectors.
- The WHO FCTC Protocol to Eliminate the Illicit Trade in Tobacco Products, adopted in November 2012 and ratified by 24 countries (as of October 2016), **aims to eliminate all forms of illicit trade in tobacco products** by using a combination of national measures and international cooperation.

Findings in LMICs

- On a national level, substantial economic resources are lost due to tobacco-related illnesses, premature disability, and death. These **losses are especially harmful in LMICs**, where economic resources are urgently needed for economic and social investment.
- Much of the recent evidence indicates that demand for tobacco products in LMICs is **at least as responsive to price as demand** in HICs, and likely more responsive.
- Tobacco is grown in **124 countries**, but by far the largest proportion of tobacco (92% in 2013) is grown in LMICs; **more than 40%** of the world's tobacco is produced in China alone.
- Increased liberalization of trade has contributed to **increased tobacco use in LMICs**. During the period when trade in tobacco products was liberalized, most LMICs had weak or no tobacco control measures in place.

Chapter Conclusions

Chapter 2. Patterns of Tobacco Use, Exposure, and Health Consequences

1. There are about 1.1 billion smokers in the world, and about 4 in 5 smokers live in LMICs. Nearly two-thirds of the world's smokers live in 13 countries.
2. Substantial progress has been made in reducing tobacco smoking in most regions, especially in HICs. Overall smoking prevalence is decreasing at the global level, but the total number of smokers worldwide is still not declining, largely due to population growth. Unless stronger action is taken, it is unlikely the world will reach the WHO Member States' 30% global reduction target by 2025.
3. Globally, more than 80% of the world's smokers are men. Differences in prevalence between male and female smokers are particularly high in the South-East Asia and Western Pacific Regions and in LMICs.
4. Globalization and population migration are contributing to a changing tobacco landscape, and non-traditional products are beginning to emerge within regions and populations where their use had not previously been a concern.

Chapter 2. Patterns of Tobacco Use, Exposure, and Health Consequences (continued)

5. An estimated 25 million youth currently smoke cigarettes. Although cigarette smoking rates are higher among boys than girls, the difference in smoking rates between boys and girls is narrower than that between men and women. Smoking rates among girls approach or even surpass rates among women in all world regions.
6. Worldwide, an estimated 13 million youth and 346 million adults use smokeless tobacco products. The large majority of smokeless tobacco users live in the WHO South-East Asia Region. Smokeless tobacco use may be undercounted globally due to scarcity of data.
7. Secondhand smoke exposure remains a major problem. In most countries, an estimated 15%–50% of the population is exposed to secondhand smoke; in some countries secondhand smoke exposure affects as much as 70% of the population.
8. Annually, around 6 million people die from diseases caused by tobacco use, including about 600,000 from secondhand smoke exposure. The burden of disease from tobacco is increasingly concentrated in LMICs.

Chapter 3. The Economic Costs of Tobacco Use, With a Focus on Low- and Middle-Income Countries

1. The economic costs of tobacco use are substantial and include significant health care costs for treating the diseases caused by tobacco use and the lost productivity that results from tobacco-attributable morbidity and mortality.
2. In high-income countries, lifetime health care costs are greater for smokers than for nonsmokers, even after accounting for the shorter lives of smokers.
3. Evidence on the economic costs of tobacco use in low- and middle-income countries is limited but growing; the comprehensiveness of these studies varies greatly within and across countries, as do the existing cost estimates.
4. Past and current trends in tobacco use, together with improvements in health care systems and access to health care, suggest that the economic costs of tobacco use in low- and middle-income countries are likely to increase considerably in coming years.
5. The public's share of tobacco-attributable economic costs varies significantly among countries, reflecting differences in the role of government in providing health care.

Chapter 4. The Impact of Tax and Price on the Demand for Tobacco Products

1. A substantial body of research, which has accumulated over many decades and from many countries, shows that significantly increasing the excise tax and price of tobacco products is the single most consistently effective tool for reducing tobacco use.
2. Significant increases in tobacco taxes and prices reduce tobacco use by leading some current users to quit, preventing potential users from initiating use, and reducing consumption among current users.
3. Tobacco use by young people is generally more responsive to changes in taxes and prices of tobacco products than tobacco use by older people.
4. Demand for tobacco products is at least as responsive and often more responsive to price in low- and middle-income countries as it is in high-income countries.

Chapter 5. Design and Administration of Taxes on Tobacco Products

1. Governments have a variety of reasons for taxing tobacco products, including generating revenue and improving public health by reducing tobacco use. Although price and tax measures are among the core demand reduction measures of the WHO FCTC, they are among the least implemented.
2. Almost all governments tax tobacco products, applying a variety of different taxes and using different tax structures. The different taxes and tax structures vary in their impact on public health. Relying on import duties to generate revenue is not an effective tax policy and does not substantially affect public health. More reliance on high, uniform, and specific excise taxes on tobacco products will have the greatest public health impact.

Chapter 5. Design and Administration of Taxes on Tobacco Products (continued)

3. Because of the low share of tax in the retail prices of cigarettes and the relative inelasticity of demand for tobacco products, increases in tobacco taxes will ensure higher revenues.
4. A number of countries dedicate part of their tobacco tax revenues for health promotion and/or tobacco control. Dedicating part of tobacco tax revenues for comprehensive tobacco control or health promotion programs (i.e., earmarking) increases the public health impact of higher tobacco taxes.
5. An effective tax system is one that is well-designed and -administered. A well-designed system sets appropriate tax rates to achieve public health and revenue objectives; a well-administered system ensures high tax compliance and minimizes tax avoidance and evasion.

Chapter 6. The Impact of Smoke-Free Policies

1. Comprehensive smoke-free policies reduce exposure to secondhand smoke; compliance with these policies is generally high, and public support for them is strong.
2. Comprehensive smoke-free policies in workplaces reduce active smoking behaviors including cigarette consumption and smoking prevalence.
3. Overall, rigorous empirical studies (largely from high-income countries) using objective economic indicators find that smoke-free policies do not have negative economic consequences for businesses, including restaurants and bars, with a small positive effect being observed in some cases. Findings from the limited existing research conducted in low- and middle-income countries are generally consistent with those from high-income countries.

Chapter 6. The Impact of Smoke-Free Policies (continued)

4. Around the world, the tobacco industry is the greatest obstacle to enacting comprehensive smoke-free policies, often by arguing, despite strong evidence to the contrary, that smoke-free policies harm businesses.
5. Other economic benefits of smoke-free policies for businesses include increased worker productivity, health care savings, reduced cleaning and maintenance costs, and reduced insurance costs.

Chapter 7. The Impact of Tobacco Industry Marketing Communications on Tobacco Use

1. Tobacco companies engage in a wide variety of marketing activities, ranging from traditional advertising, promotion, and sponsorship to emerging marketing techniques in the digital arena. These marketing activities have the potential to affect key populations, such as young people and women, particularly in low- and middle-income countries, who may be particularly susceptible to these efforts.
2. The weight of the evidence from multiple types of studies done by researchers from a variety of disciplines and using data from many countries indicates that a causal relationship exists between tobacco company marketing activities and tobacco use, including the uptake and continuation of tobacco use among young people.
3. In high-income countries, comprehensive policies to ban the marketing activities of tobacco companies are effective in reducing tobacco use, but partial marketing bans have little or no effect.
4. Comprehensive policies to ban the marketing activities of tobacco companies leads to larger reductions in tobacco use in low- and middle-income countries than in high-income countries.

Chapter 8. The Impact of Information on the Demand for Tobacco Products

1. Imperfect understanding of the impact of cigarette smoking and other tobacco use on health, particularly in low- and middle-income countries, provides an economic rationale for interventions to disseminate information about the addictive and harmful nature of tobacco products.
2. Tobacco industry disinformation practices have directly contributed to the information failures associated with consumers' imperfect knowledge of the risks of disease and addiction.
3. Well-designed and -implemented anti-tobacco mass media campaigns are effective in improving understanding about the health consequences of tobacco use, building support for tobacco control policies, strengthening social norms against tobacco use, and reducing tobacco consumption among youth and adults.

Chapter 8. The Impact of Information on the Demand for Tobacco Products (continued)

4. School-based tobacco education programs, when implemented as part of comprehensive tobacco control programs, can improve knowledge, contribute to denormalizing tobacco use, and help prevent tobacco use. Emerging evidence suggests that school-based programs can be as or more effective in reducing tobacco use among young people in low- and middle-income countries, where knowledge of the hazards of tobacco use is lower compared with high-income countries.
5. Large pictorial health warning labels on tobacco packages are effective in increasing smokers' knowledge, stimulating their interest in quitting, and reducing smoking prevalence. These warnings may be an especially effective tool to inform children and youth and low literacy populations about the health consequences of smoking.

Chapter 8. The Impact of Information on the Demand for Tobacco Products (continued)

6. Plain (standardized) packaging (i.e., devoid of logos, stylized fonts, colors, designs or images, or any additional descriptive language) reduces the appeal of tobacco products, enhances the salience of health warnings, minimizes consumers' misunderstanding of the harms of tobacco, and has contributed to a decline in tobacco use in Australia, the first country to implement plain packaging.
7. The stock of information about the harms of tobacco use is subject to potential erosion over time (wear-out) and needs to be replenished and maintained.

Chapter 9. Smoking Cessation

1. Rates of tobacco cessation among current tobacco users will need to increase in order to significantly reduce the health consequences of tobacco use worldwide, in both the short and mid term.
2. Tobacco control policies, such as increased taxation, anti-smoking media campaigns, and comprehensive smoke-free policies, increase the demand for tobacco dependence treatment and the rates of subsequent cessation.
3. Research from high-income countries demonstrates that a number of effective and cost-effective tobacco dependence treatments can increase the likelihood of successful cessation. Relatively little evidence is available on the effectiveness and cost-effectiveness of tobacco dependence treatments in low- and middle-income countries and on the transferability of effective interventions from high-income countries to low- and middle-income countries.
4. Demand for cessation support exists in low- and middle-income countries, but in most of these countries, cessation services and products are often of limited availability or accessibility, or are unaffordable for most of the population.

Chapter 10. Tobacco Growing and Tobacco Product Manufacturing

1. In 2013, ten countries accounted for most of the world's tobacco leaf production (80%); China alone produced more than 40% of the world's tobacco leaf. Tobacco is increasingly grown in low- and middle-income countries, and many of these countries export a large proportion of the world's tobacco leaf.
2. In the past, governments have sought to control price and quantity in the tobacco leaf market through quotas and pricing restrictions and to provide technical assistance to tobacco growers, along with other agricultural producers. Although most high-income countries have reduced or eliminated subsidies for tobacco growing, many low- and middle-income countries still provide support for the tobacco-growing sector.
3. The vast majority of workers in the tobacco production chain are tobacco farmers doing highly labor-intensive work on small family farms, which are increasingly located in low- and middle-income countries. In contrast, cigarette manufacturing—the higher value phase of the chain—is highly mechanized and dominated by a few large multinational corporations largely based in high-income countries.

Chapter 10. Tobacco Growing and Tobacco Product Manufacturing (continued)

4. Tobacco growing is relatively profitable, but farming of other crops has the potential to be as or more profitable than tobacco growing. Alternatives to tobacco growing tend to be highly specific to a country or region. Policies that encourage crop diversification or substitution are useful as part of a comprehensive tobacco control strategy, but alone they will have little impact on tobacco use.
5. Changes in product design—often made in response to consumer concerns about the adverse health consequences of tobacco as well as to reduce costs to the manufacturer—have likely contributed to increased tobacco use.
6. Product regulation is a rapidly developing component of a comprehensive tobacco control strategy. Regulation of tobacco products is a highly technical area, which poses many challenges for regulators, including challenges relating to the diversity of products, the ability of the tobacco industry to respond quickly to changing market conditions, and the need for sufficient capacity for testing and enforcing regulatory measures; addressing these issues is likely to be particularly challenging for low- and middle-income countries.

Chapter 11. Policies Limiting Youth Access to Tobacco Products

1. Information failures in the market for tobacco products are particularly pronounced during the ages at which most tobacco use begins, providing an economic rationale for interventions to limit youth access to tobacco products.
2. Youth access policies, when consistently enforced, can reduce commercial access to tobacco products among underage youth. Sufficient resources are needed to implement and enforce these policies well enough to effectively limit youth access to commercial sources of tobacco.
3. Evidence from high-income countries indicates that strongly enforced youth access policies that successfully disrupt the commercial supply of tobacco products to underage youth can reduce youth tobacco use, although the magnitude of this effect is relatively small.
4. Emerging research suggests that youth access policies can also be effective in reducing youth tobacco use in low- and middle-income countries, although the amount of reduction is unclear.

Chapter 12. Tobacco Manufacturing Privatization and Foreign Direct Investment and Their Impact on Public Health

1. Over the past few decades, the privatization of domestic tobacco companies and direct investment by multinational tobacco companies, particularly in low- and middle-income countries, have contributed to the globalization of the tobacco industry.
2. The impact of privatization on public health is varied and is influenced by the strength of domestic regulation. Some countries have implemented strong tobacco control measures after privatization, leading to reductions in tobacco use. However, in the majority of countries, privatization leads to significantly greater efficiency and production, massive marketing campaigns, and increased cigarette consumption—particularly among women and young people.

Chapter 12. Tobacco Manufacturing Privatization and Foreign Direct Investment and Their Impact on Public Health (continued)

3. China's state tobacco monopoly is a market leader, with over 40% of global cigarette market share, almost all of which is consumed domestically. The China National Tobacco Corporation appears poised to expand beyond domestic sales by using foreign direct investments, partnerships with multinational tobacco companies, development of an international supply chain to support its premium brands, and by other means.
4. Increasingly, the tobacco industry is using trade and investment treaties to challenge innovative tobacco control policies. The tobacco industry also uses the threat of litigation, with its attendant costs, and lobbying campaigns to deter governments from advancing tobacco control policies, especially in low- and middle-income countries.

Chapter 13. Licit Trade in Tobacco Products

1. Trade in tobacco leaf accounts for a very small proportion (<1%) of global agricultural imports and exports, and very few countries rely heavily on earnings from trade in tobacco leaf.
2. Although many countries participate in either the export or import of manufactured cigarettes, these products account for only a very small share of overall global trade in goods and services.
3. International, regional, and bilateral trade agreements have reduced tariff and non-tariff barriers to trade, increased trade in tobacco leaf and tobacco products, and contributed to the globalization of the tobacco industry.

Chapter 13. Licit Trade in Tobacco Products (continued)

4. Increased liberalization of trade has contributed to increased tobacco use in low- and middle-income countries. During the period when trade in tobacco products was liberalized, most low- and middle-income countries had weak or no tobacco control measures in place.
5. Recent World Trade Organization decisions involving challenges to domestic tobacco control policies suggest that governments can address public health concerns associated with increased liberalization of trade in tobacco leaf and tobacco products by adopting and implementing effective tobacco control policies and programs that apply evenly to domestic and foreign tobacco growers and manufacturers.

Chapter 14. Tobacco Tax Avoidance and Tax Evasion

1. Tax avoidance and tax evasion, especially large-scale smuggling of tobacco products, undermine the effectiveness of tobacco control policies and reduce the health and economic benefits that result from these policies.
2. In many countries, factors such as high levels of corruption, lack of commitment to addressing illicit trade, and ineffective customs and tax administration, have an equal or greater role in explaining tax evasion than do product tax and price differentials.
3. Illicit trade has sometimes included the involvement of tobacco companies themselves.
4. Experience from many countries demonstrates that illicit trade can be successfully addressed, even when tobacco taxes and prices are raised, resulting in increased tax revenues and reduced tobacco use.
5. Implementing and enforcing strong measures to control illicit tobacco trade would enhance the effectiveness of significantly increased tobacco taxes and prices and strong tobacco control policies in reducing tobacco use and its health and economic consequences.

Chapter 15. Employment Impact of Tobacco Control

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 any 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.

Chapter 16. The Impact of Tobacco Use and Tobacco Control Measures on Poverty and Development

1. Tobacco use and its consequences have become increasingly concentrated in low- and middle-income countries and, within most countries, among lower socioeconomic status populations.
2. Tobacco use in poor households exacerbates poverty by increasing health care costs, reducing incomes, and decreasing productivity, as well as diverting limited family resources from basic needs.
3. By reducing tobacco use among the poor, tobacco control policies can help break the cyclical relationship between tobacco use and poverty.
4. Tobacco control efforts that are integrated with other public health and development policies can improve the overall health of the poor and can help achieve the Sustainable Development Goals.
5. Lower income populations often respond more to tobacco tax and price increases than higher income populations. As a result, significant tobacco tax and price increases can help reduce the health disparities resulting from tobacco use.

Chapter 17. Ending the Epidemic

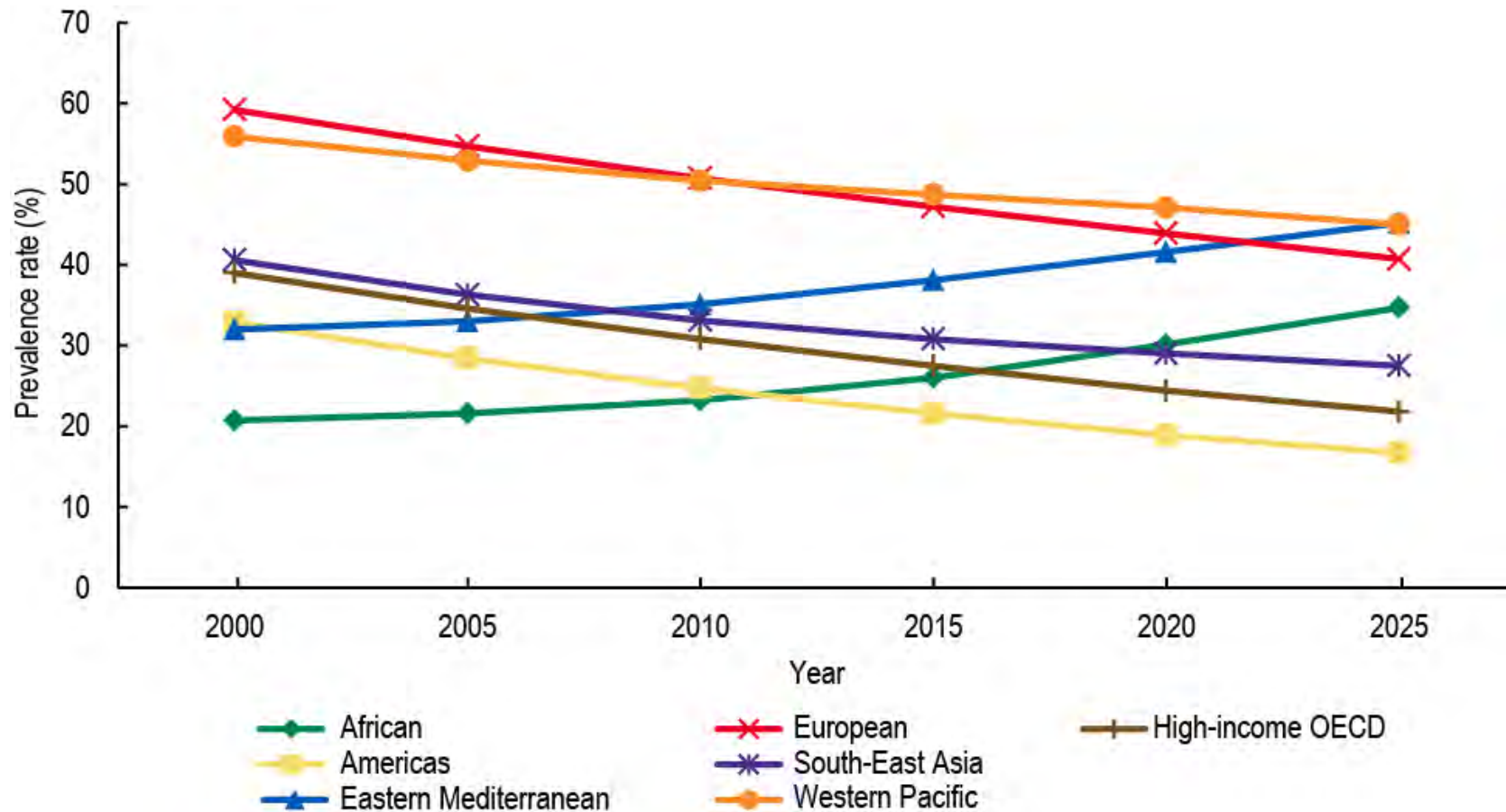
- Tobacco use remains the single largest preventable cause of death in the world. It is responsible for around 6 million deaths and likely over US\$ 1 trillion in health care costs and lost productivity each year.
- The economic and public health burden of tobacco is expected to continue to rise, at least in the near term, as tobacco mortality rises and increasingly shifts from HICs to LMICs.
- Governments have the tools to reduce tobacco use and the death, disease, and economic costs that it imposes, but most have fallen far short of effectively implementing these tools.
- Government fears that tobacco control will have an adverse economic impact are not justified by the evidence.

The science is clear; the time for action is now.

Major Trends and Conclusions

Monograph Figures and Tables

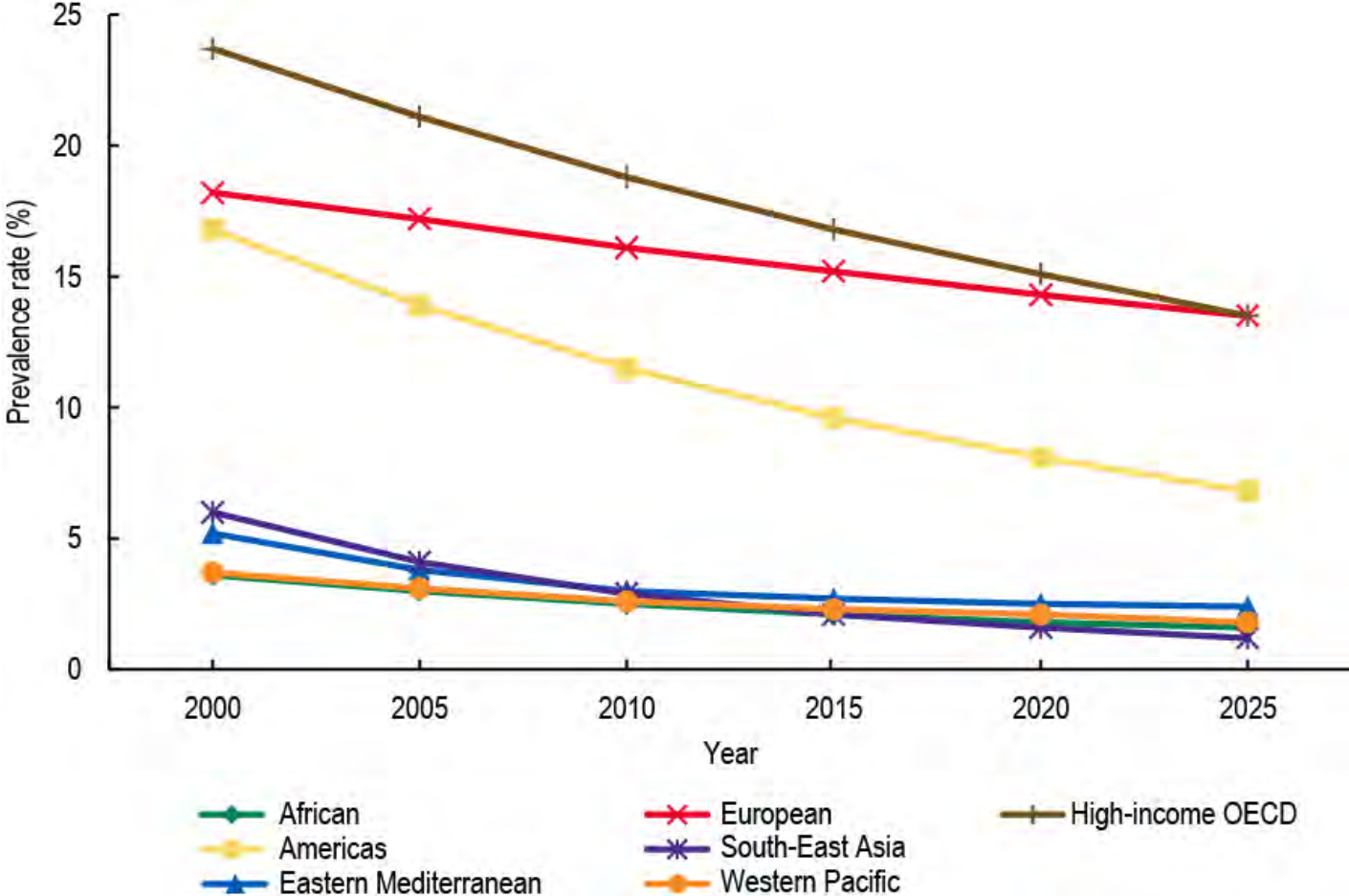
Figure 2.1. Estimated and Projected Prevalence Rates for Tobacco Smoking, by WHO Region, Males, 2000–2025



Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions. Projections are shown for the years 2015, 2020, and 2025.

Source: Based on data from World Health Organization 2015

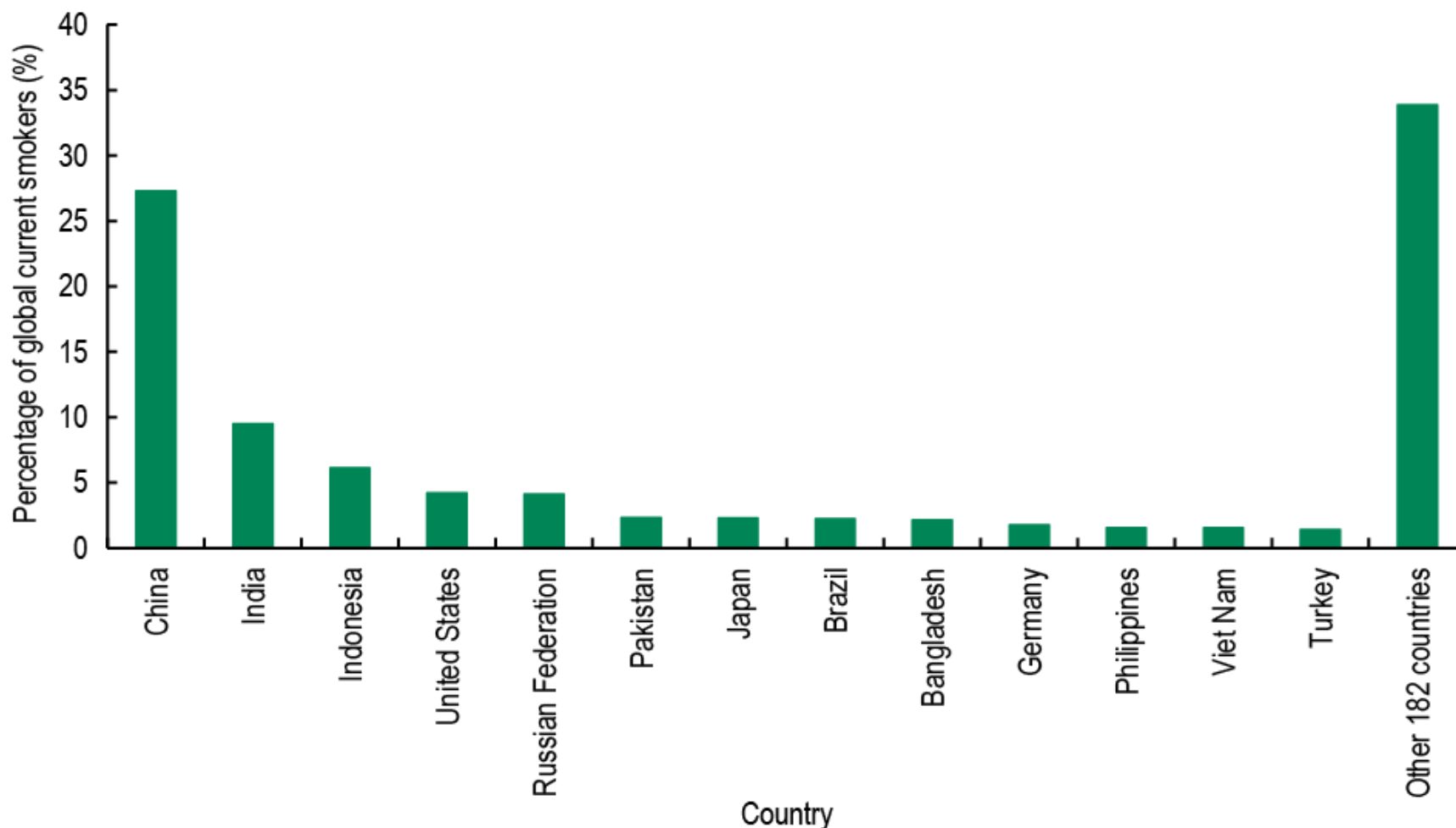
Figure 2.2. Estimated and Projected Prevalence Rates for Tobacco Smoking, by WHO Region, Females, 2000–2025



Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions. Projections are shown for the years 2015, 2020, and 2025.

Source: Based on data from World Health Organization 2015.

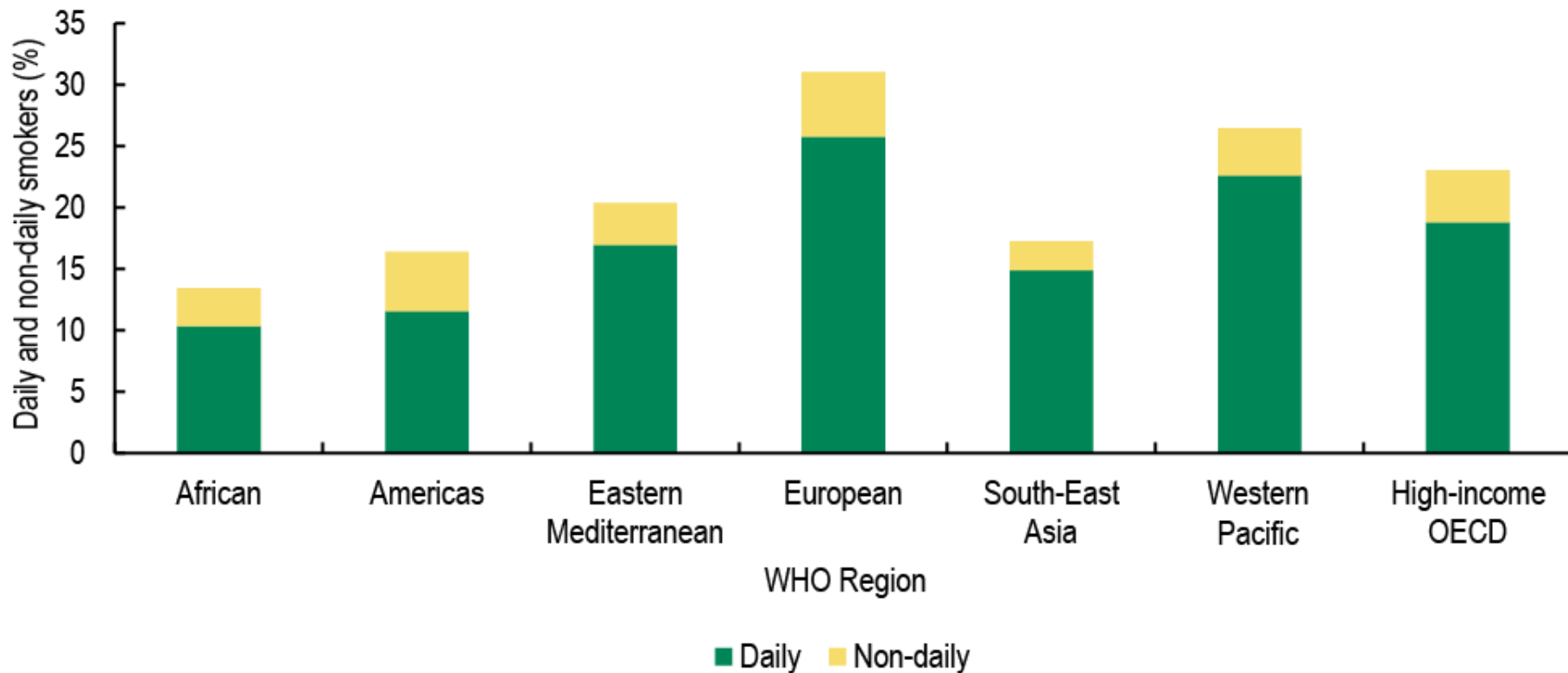
Figure 2.3. Percentage of Global Current Tobacco Smokers Age 15 Years and Over, by Country, 2013



Note: Data for the United States and Japan only include cigarette smokers.

Source: World Health Organization 2015

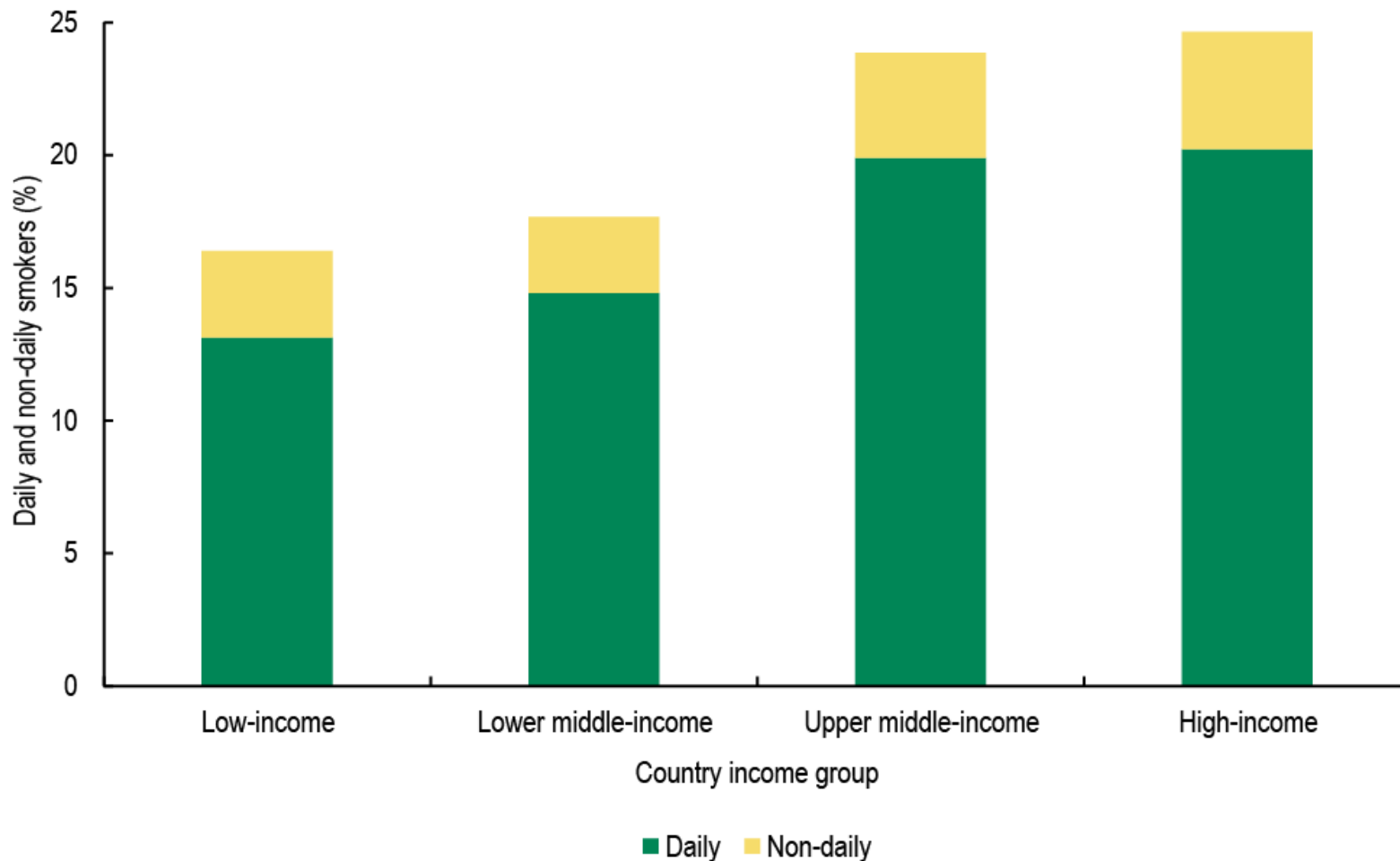
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Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions.

Source: World Health Organization 2015

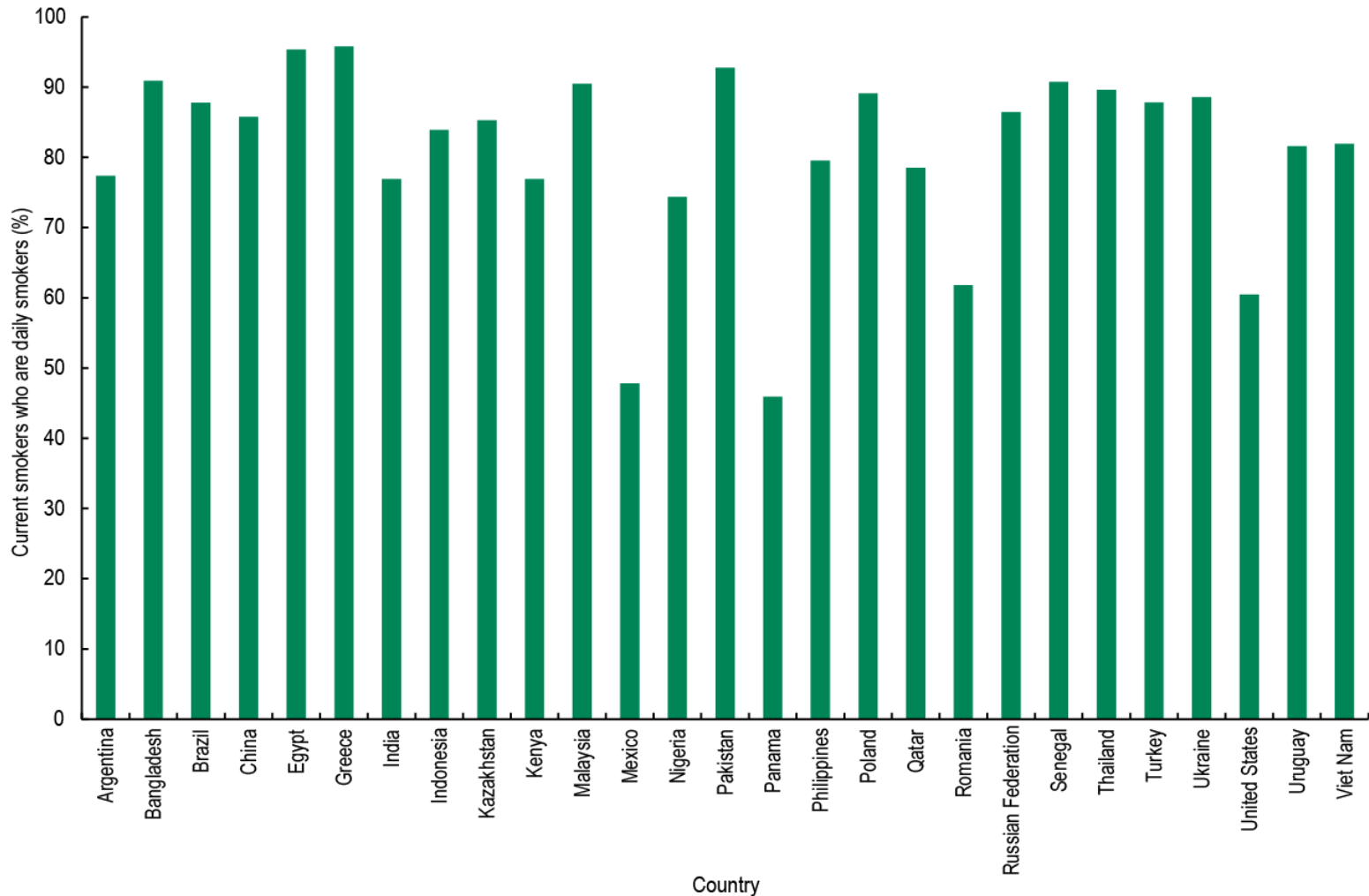
Figure 2.5. Percentage of People Age 15 Years and Over Who Currently Smoke Tobacco Daily and Non-daily, by Country Income Group, 2013



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

Source: World Health Organization 2015

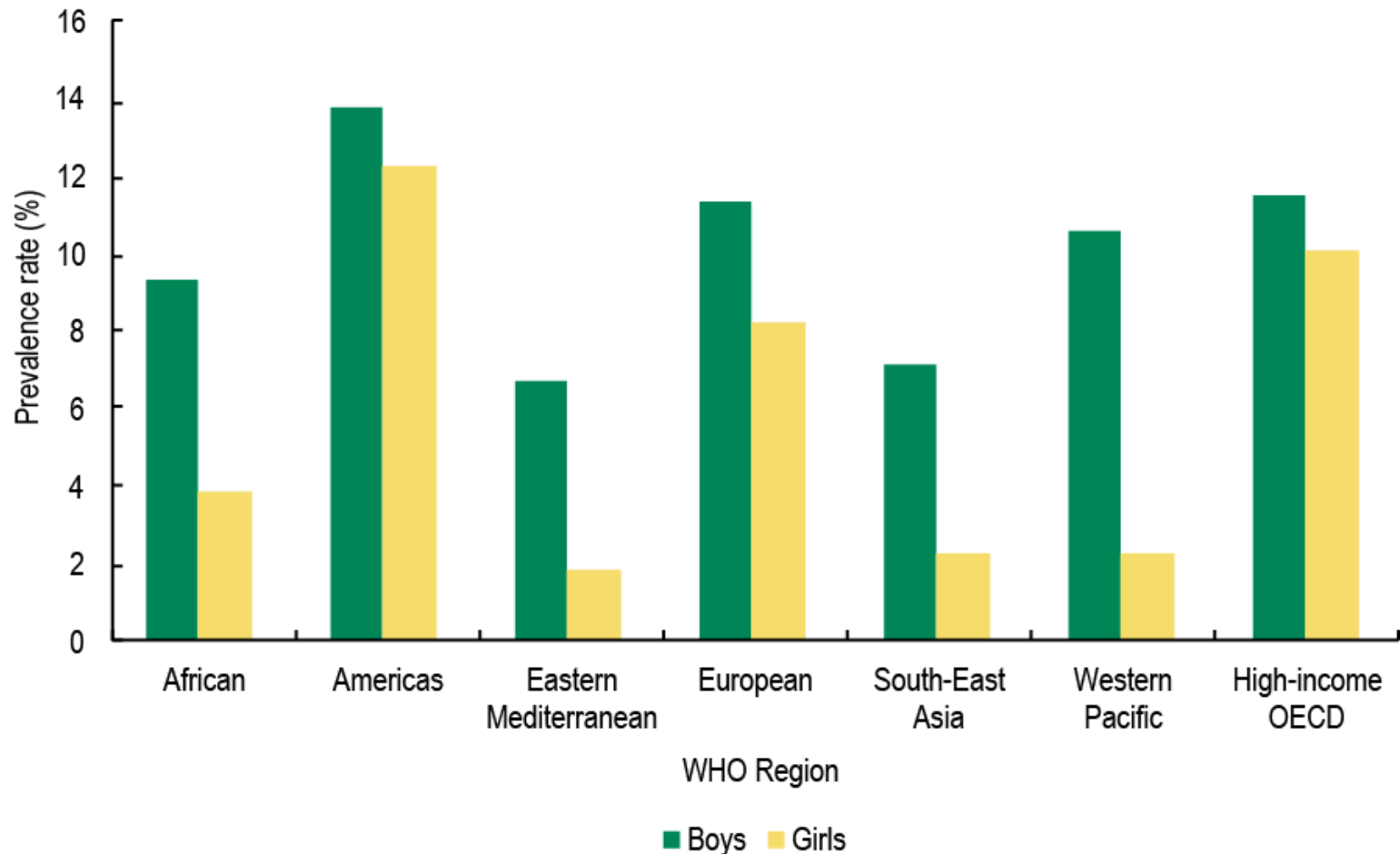
Figure 2.6. Percentage of Current Smokers Age 15 Years and Over Who are Daily Tobacco Smokers, by Country, 2008–2014



Notes: Current smoking is the sum of the prevalences of daily and non-daily smoking. Data presented for the United States is for smokers age 18 and older based on the National Adult Tobacco Survey.

Sources: Global Adult Tobacco Survey 2008–2014.¹⁵ National Adult Tobacco Survey 2013–2014.

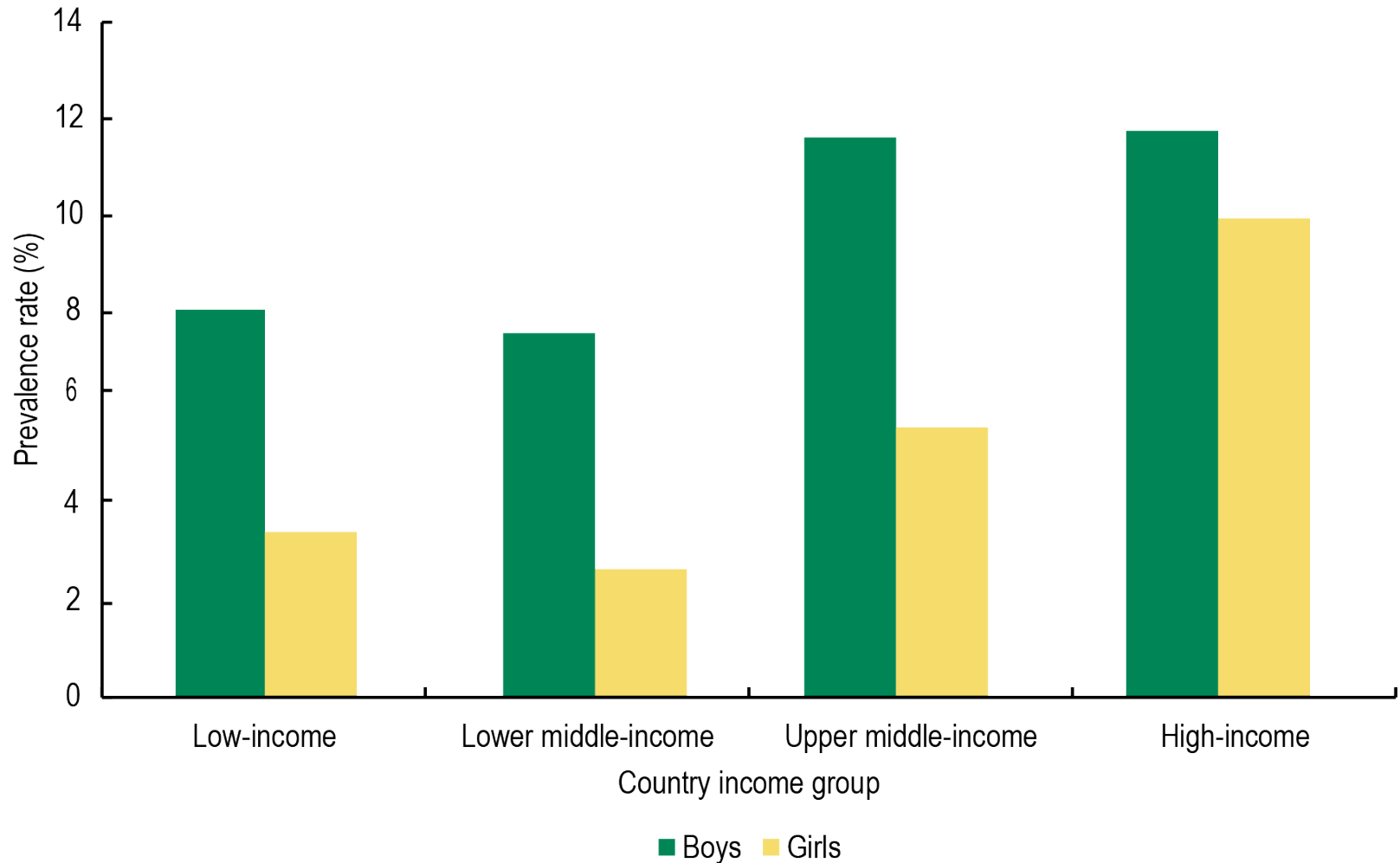
Figure 2.7. Prevalence of Current Cigarette Smoking Among Youth, by WHO Region, 2007–2014



Notes: WHO = World Health Organization. OECD = high-income countries as defined by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions. The number of users was calculated by applying the prevalence rates to the United Nations–provided population estimates for the year 2010.

Sources: Global Youth Tobacco Survey 2007–2014. Health Behaviour in School-Aged Children 2013–2014.

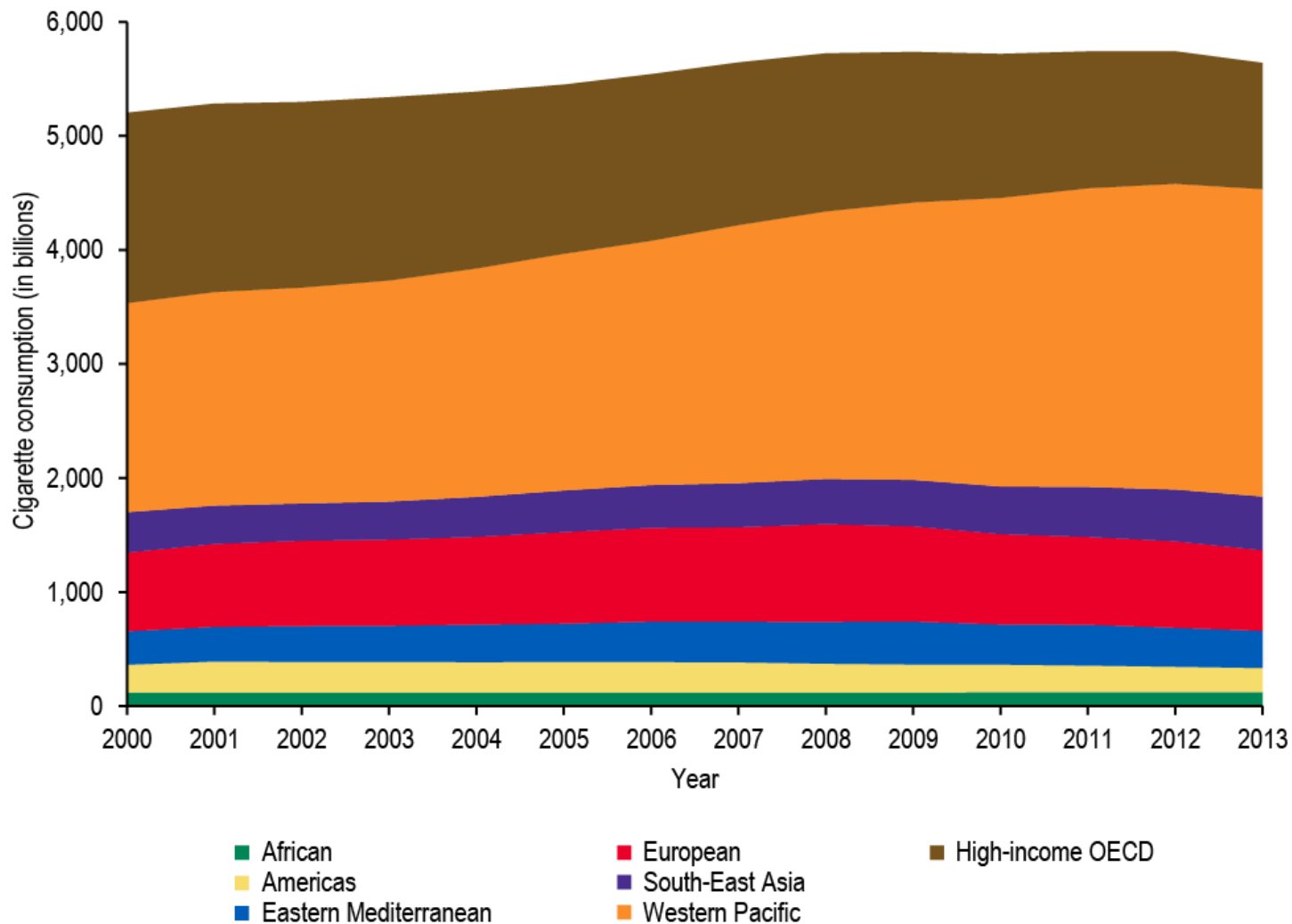
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Notes: Country income group classification based on World Bank Analytical Classifications for 2014. The number of users was calculated by applying the prevalence rates to the United Nations–provided population estimates for the year 2010.

Sources: Global Youth Tobacco Survey 2007–2014. Health Behaviour in School-Aged Children 2013–2014.

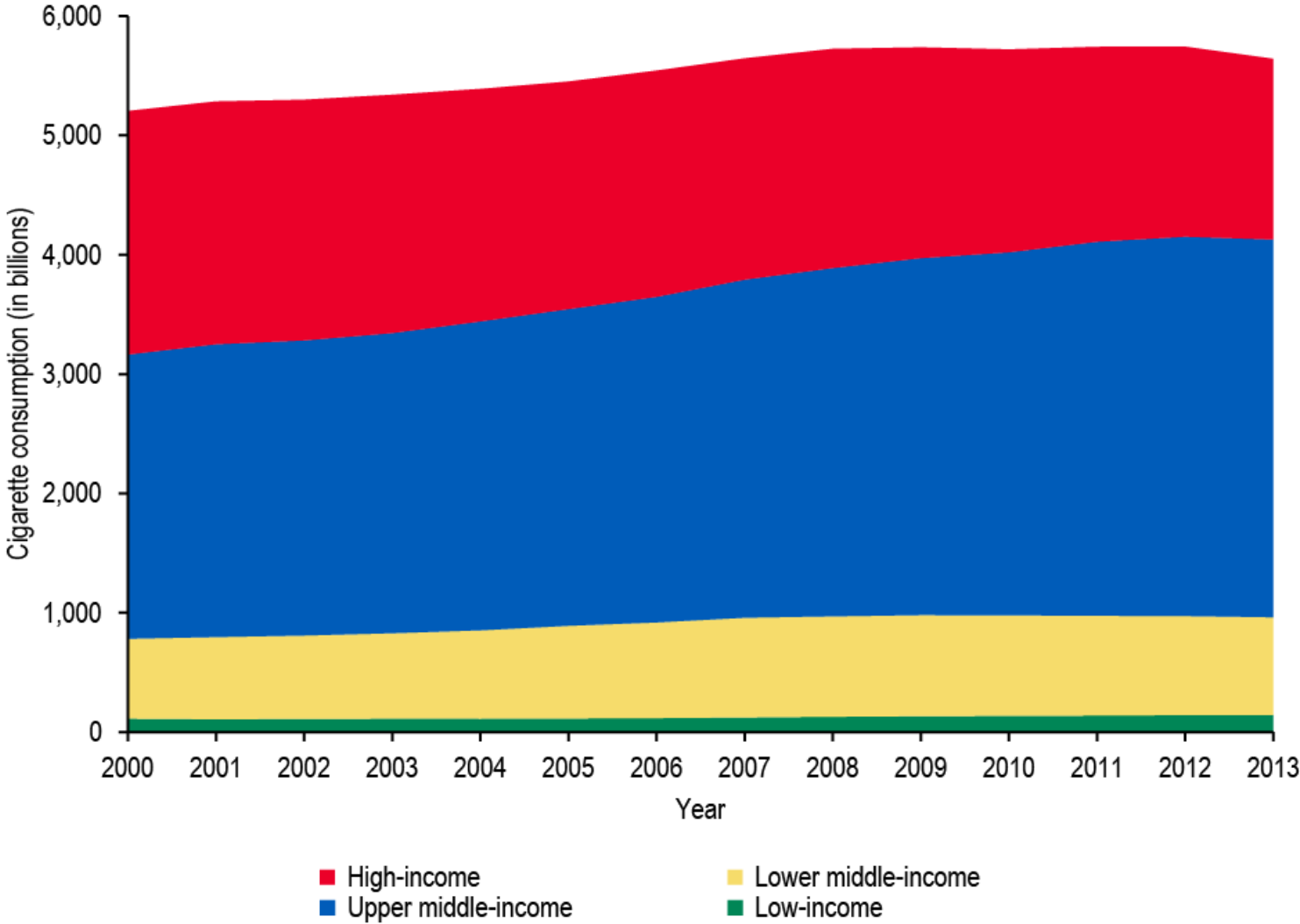
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Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions.

Source: Euromonitor International 2016

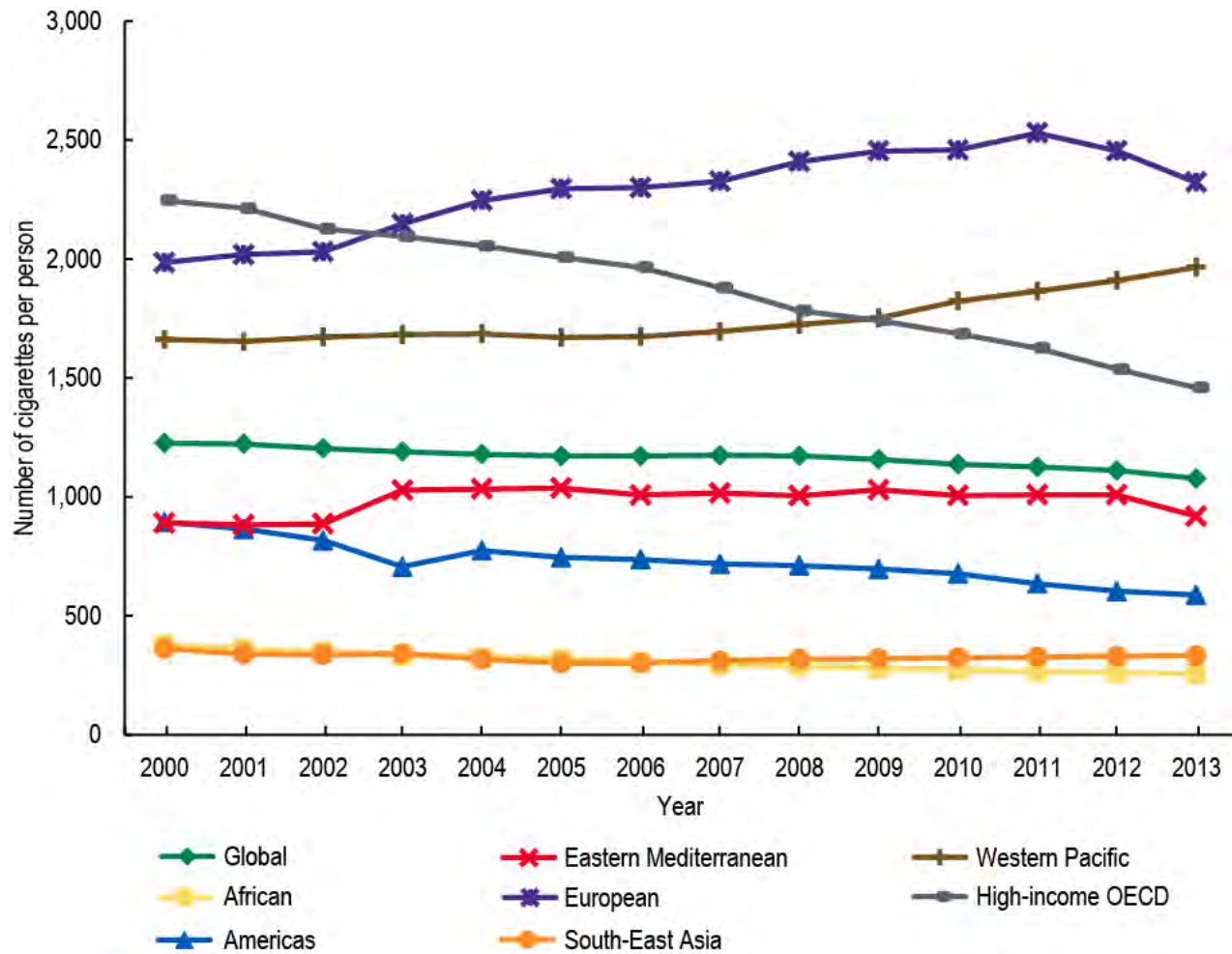
Figure 2.10. Global Consumption of Cigarette Sticks (in Billions), by Country Income Group, 2000–2013



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

Source: Euromonitor International 2016

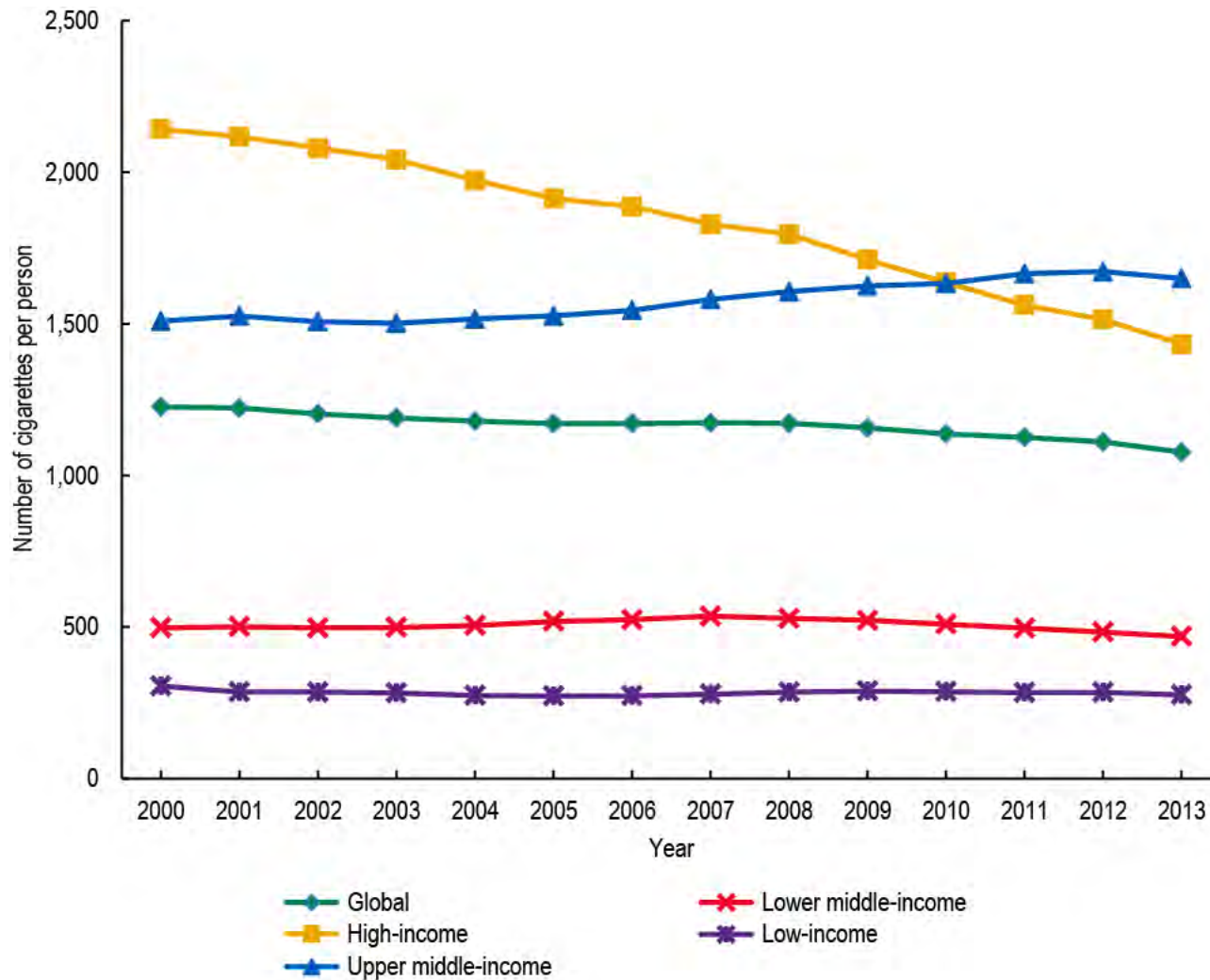
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Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions.

Source: Based on data from Euromonitor International 2016

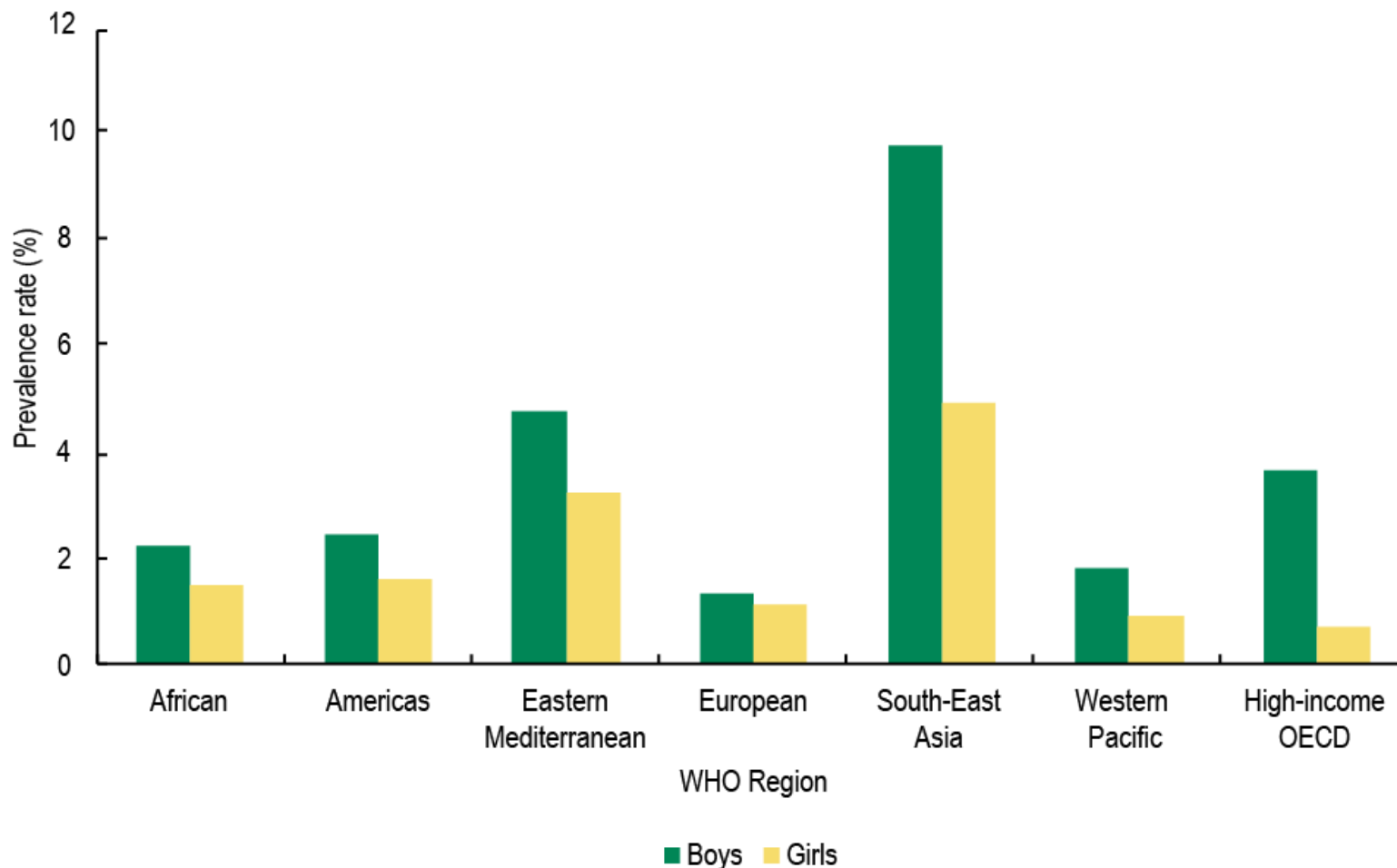
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Note: Country income group classification based on World Bank Analytical Classifications for 2013.

Source: Based on data from Euromonitor International 2016.

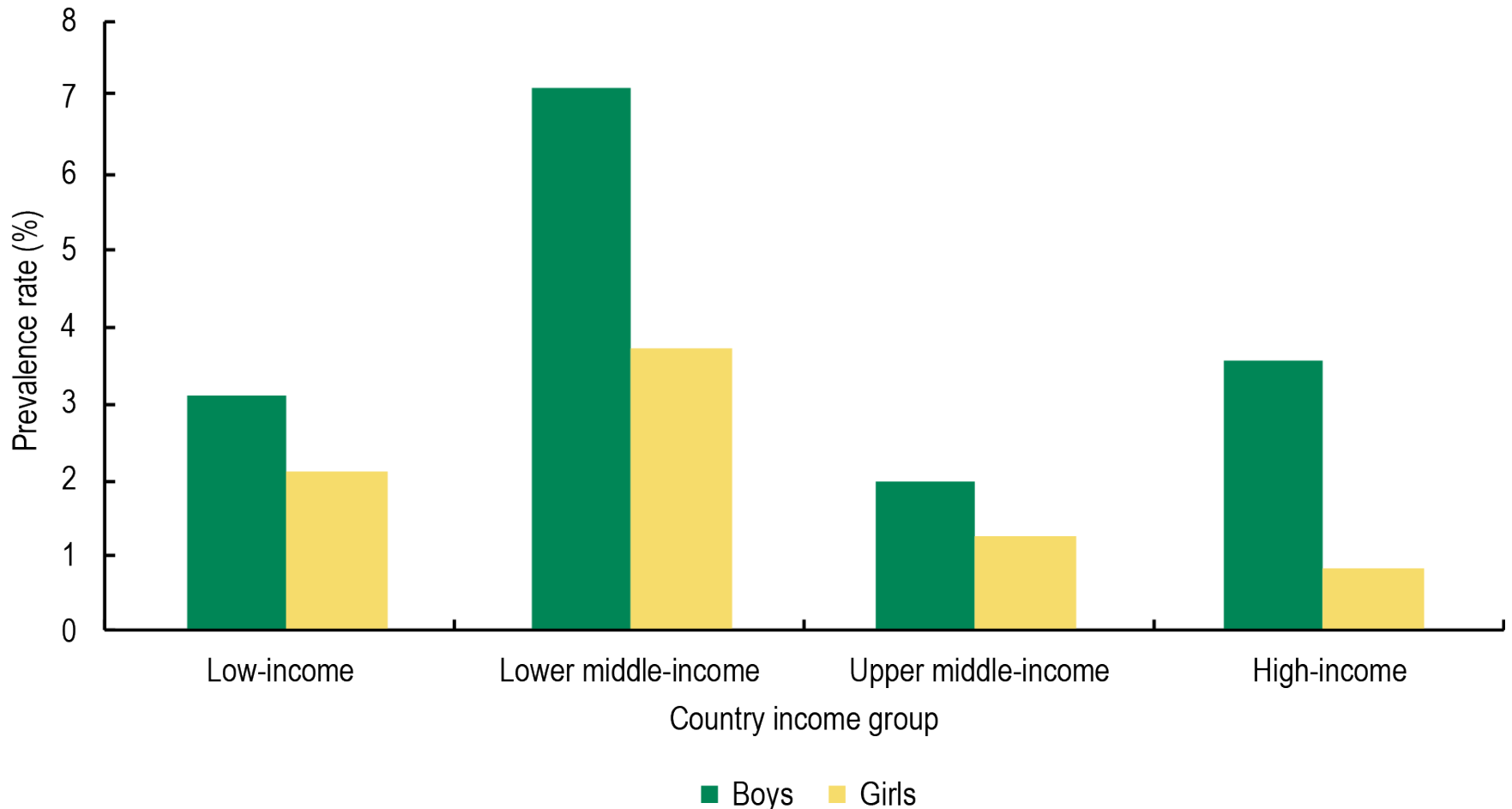
Figure 2.13. Prevalence of Smokeless Tobacco Use Among Youth Ages 13–15 Years, by WHO Region, 2007–2014



Notes: WHO = World Health Organization. High-income OECD countries = countries defined as high-income by the Organisation for Economic Co-operation and Development. High-income OECD countries are excluded from their respective regions. The number of users was calculated by applying the prevalence rates to the United Nations–provided population estimates for 2010.

Source: Based on data from Global Youth Tobacco Survey 2007–2014

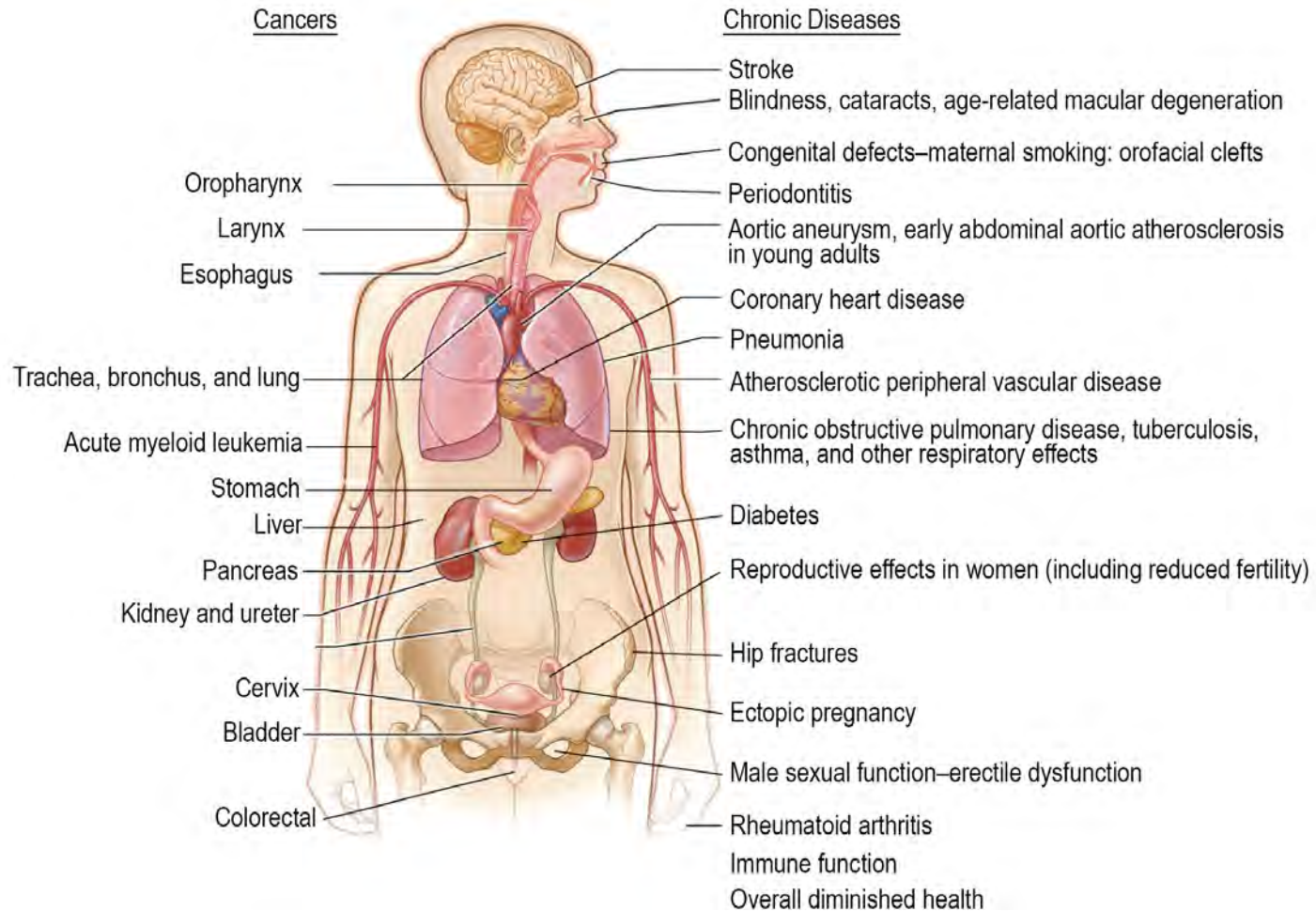
Figure 2.14. Prevalence of Smokeless Tobacco Use Among Youth Ages 13–15 Years, by Country Income Group, 2007–2014



Notes: Country income group classification based on World Bank Analytical Classifications for 2014. The number of users was calculated by applying the prevalence rates to the United Nations–provided population estimates for 2010.

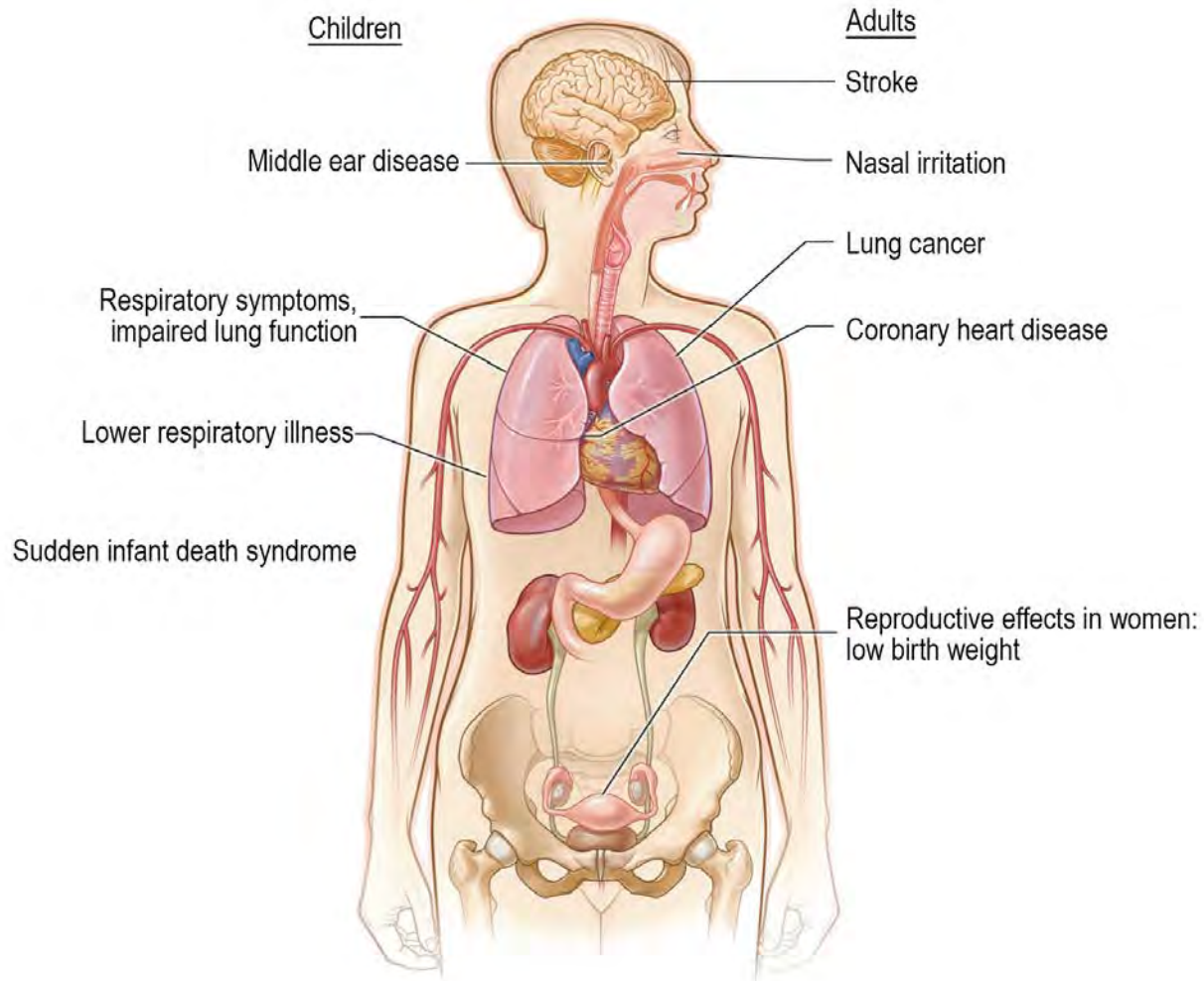
Source: Based on data from Global Youth Tobacco Survey 2007–2014

Figure 2.15. Health Consequences Causally Linked to Smoking



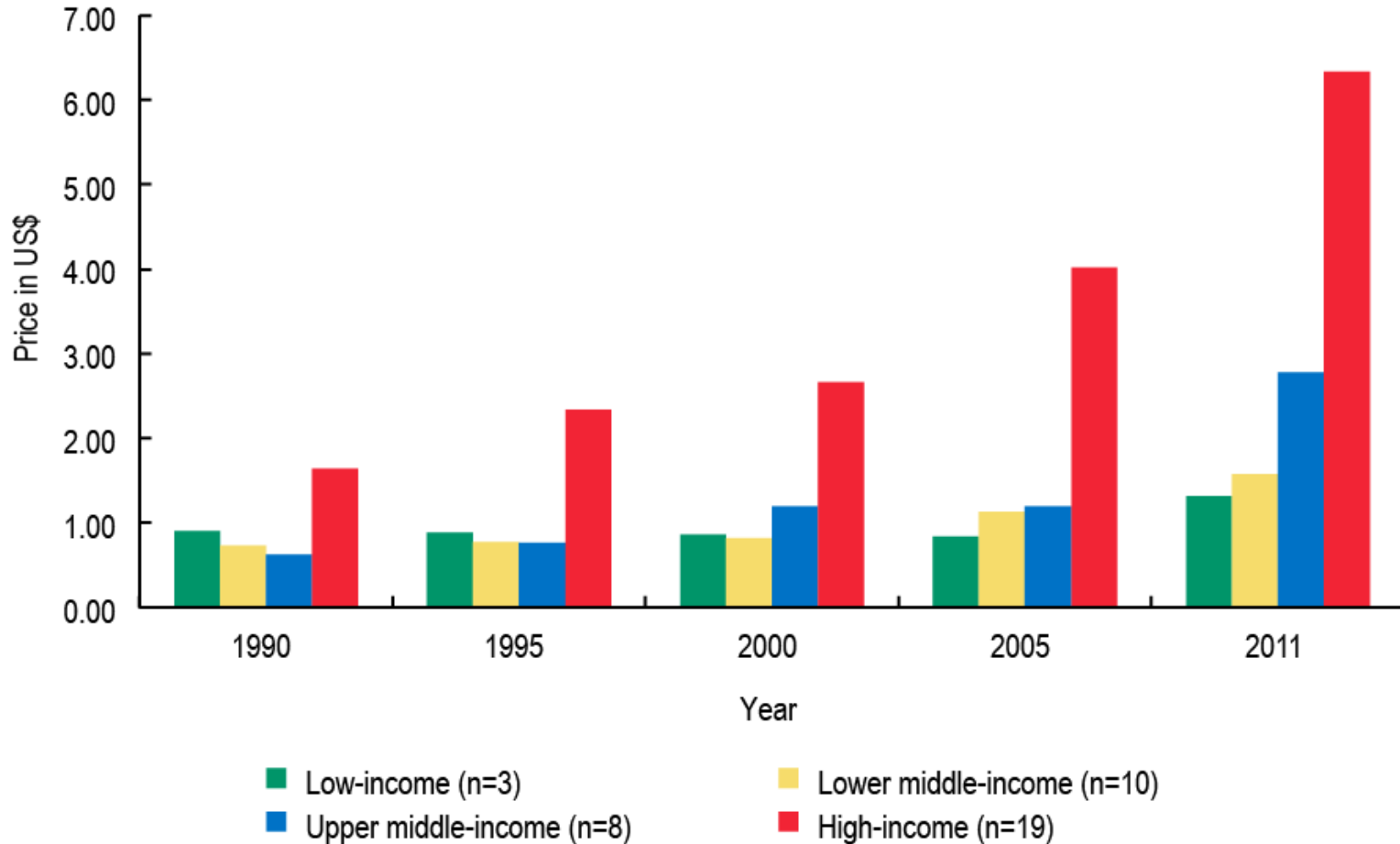
Source: Centers for Disease Control and Prevention 2014

Figure 2.16. Health Consequences Causally Linked to Secondhand Smoke Exposure



Source: Centers for Disease Control and Prevention 2014

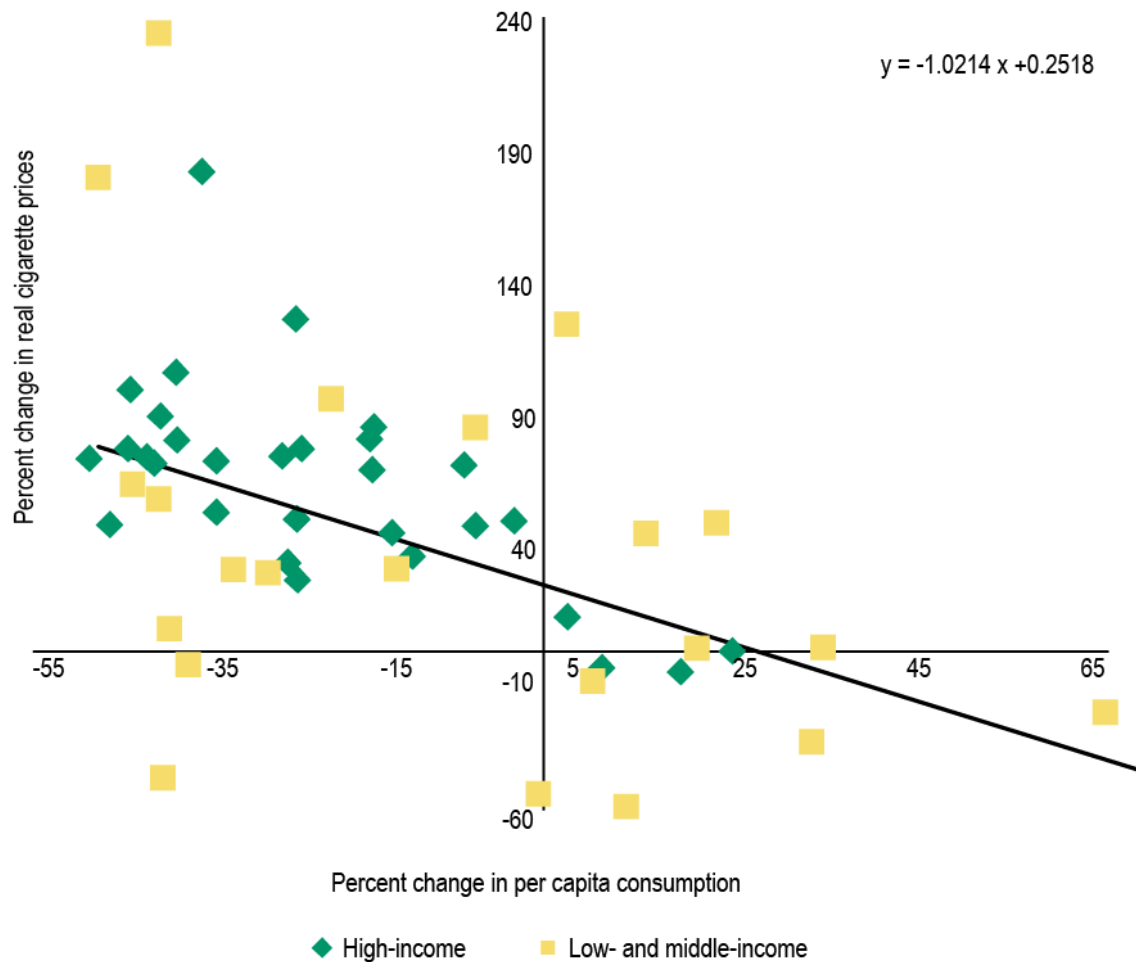
Figure 4.1. Median Price of a Pack of Cigarettes, by Country Income Group, 1990–2011



Notes: Using the official exchange rate, the prices of local brands of cigarettes, as collected by the Economist Intelligence Unit, were converted to U.S. dollars (not adjusted for inflation). Countries were discarded from the dataset if more than approximately one-third of the time series data were missing, if the country experienced a serious bout of hyperinflation or introduced a new currency, or if price data were so unstable over time that they were simply not credible. With these countries removed, the subsequent analysis was performed on 40 countries. Data were collected from large urban areas and may not reflect the full range of prices within the country.

Source: Economist Intelligence Unit 2012.

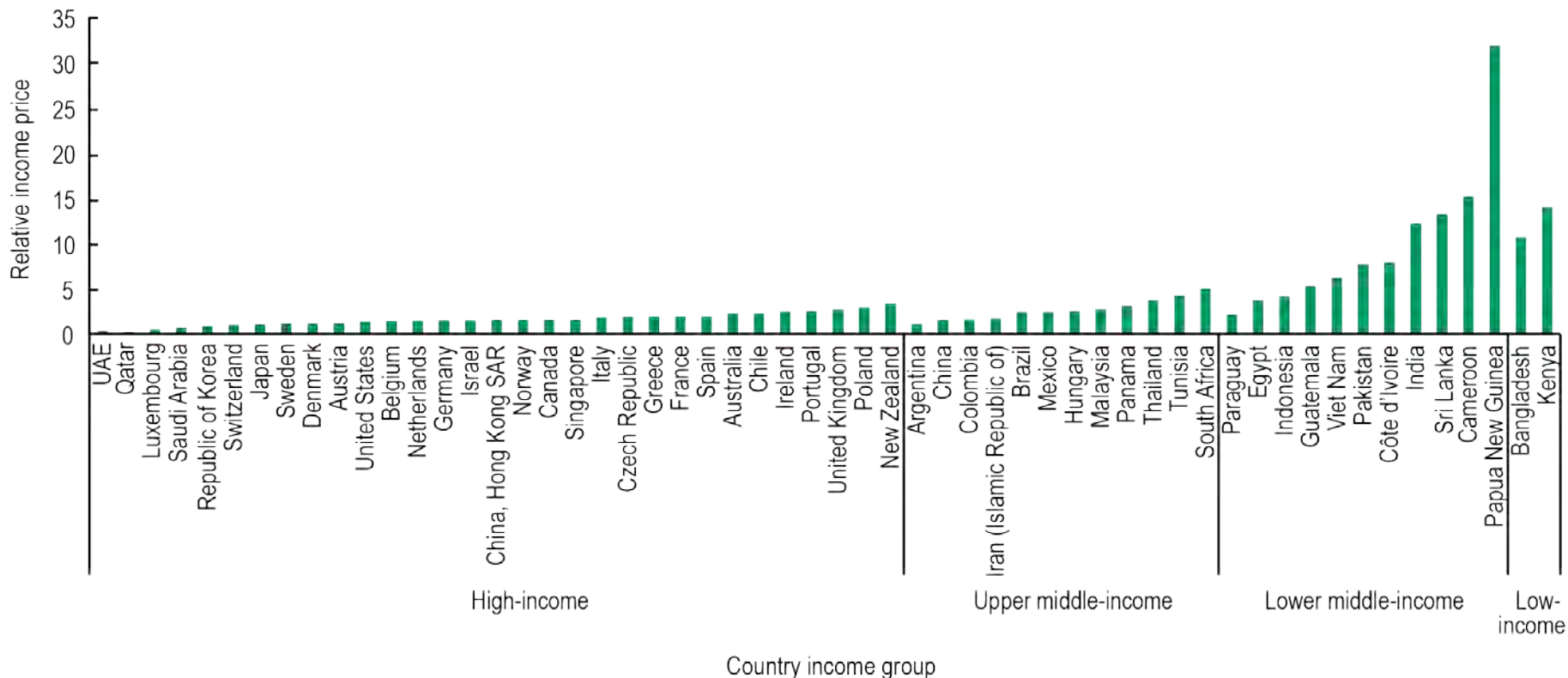
Figure 4.2. Percentage Change in Real Cigarette Prices Versus Percentage Change in Per Capita Consumption of Cigarettes, 1996–2011



Note: Country income group classification based on World Bank Analytical Classifications for 2011.

Sources: Economist Intelligence Unit 2012.³¹ ERC Group 2011

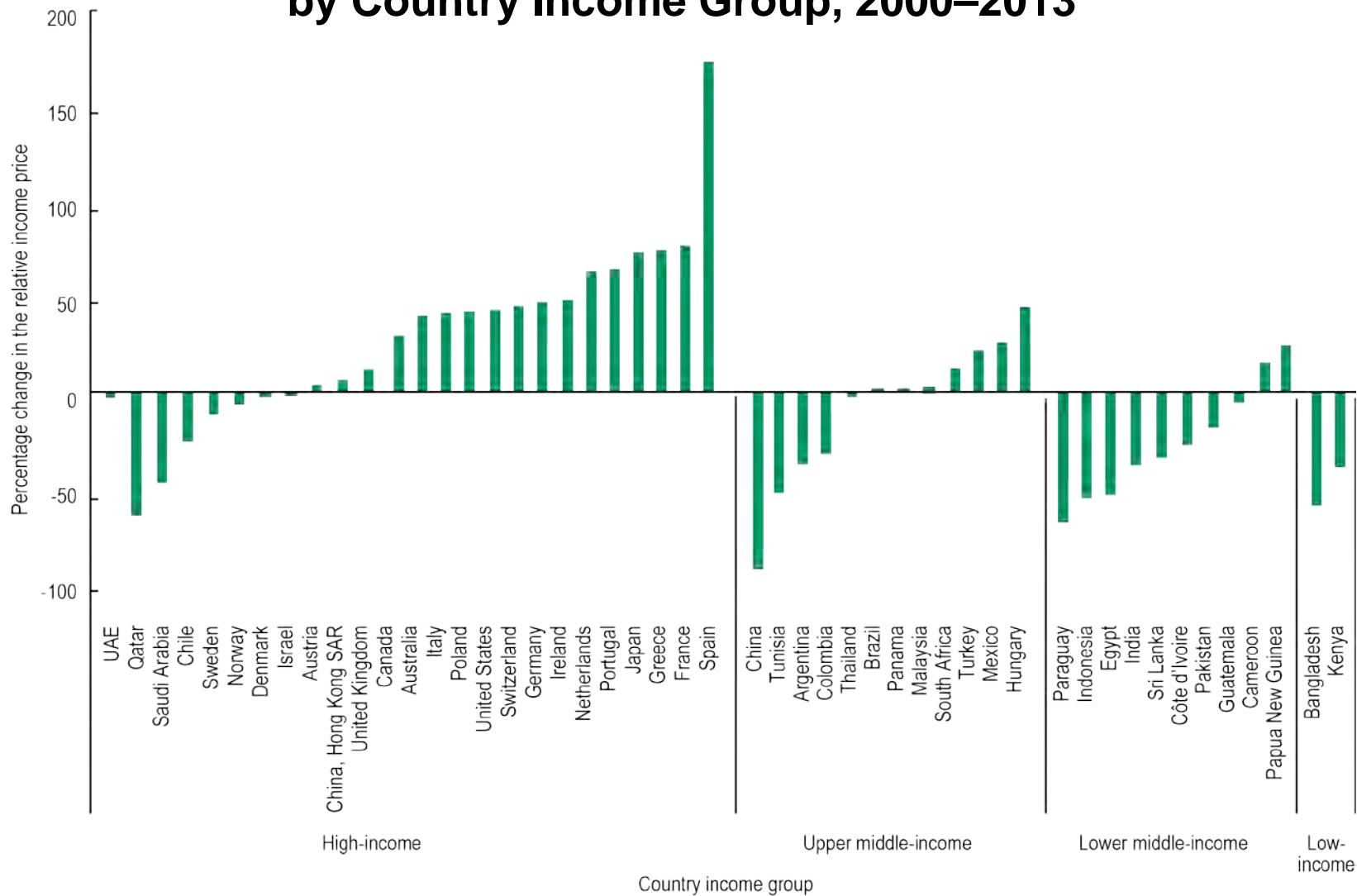
Figure 4.3. Cigarette Affordability in Selected Countries, by Country Income Group, 2013



Notes: Relative income price is the percentage of annual per capita GDP required to buy 100 packs of cigarettes. Country income group classification based on World Bank Analytical Classifications for 2013. UAE = United Arab Emirates. SAR = Special Administrative Region.

Source: Adapted from Blecher and van Walbeek 2009 using data from Economist Intelligence Unit 2015.

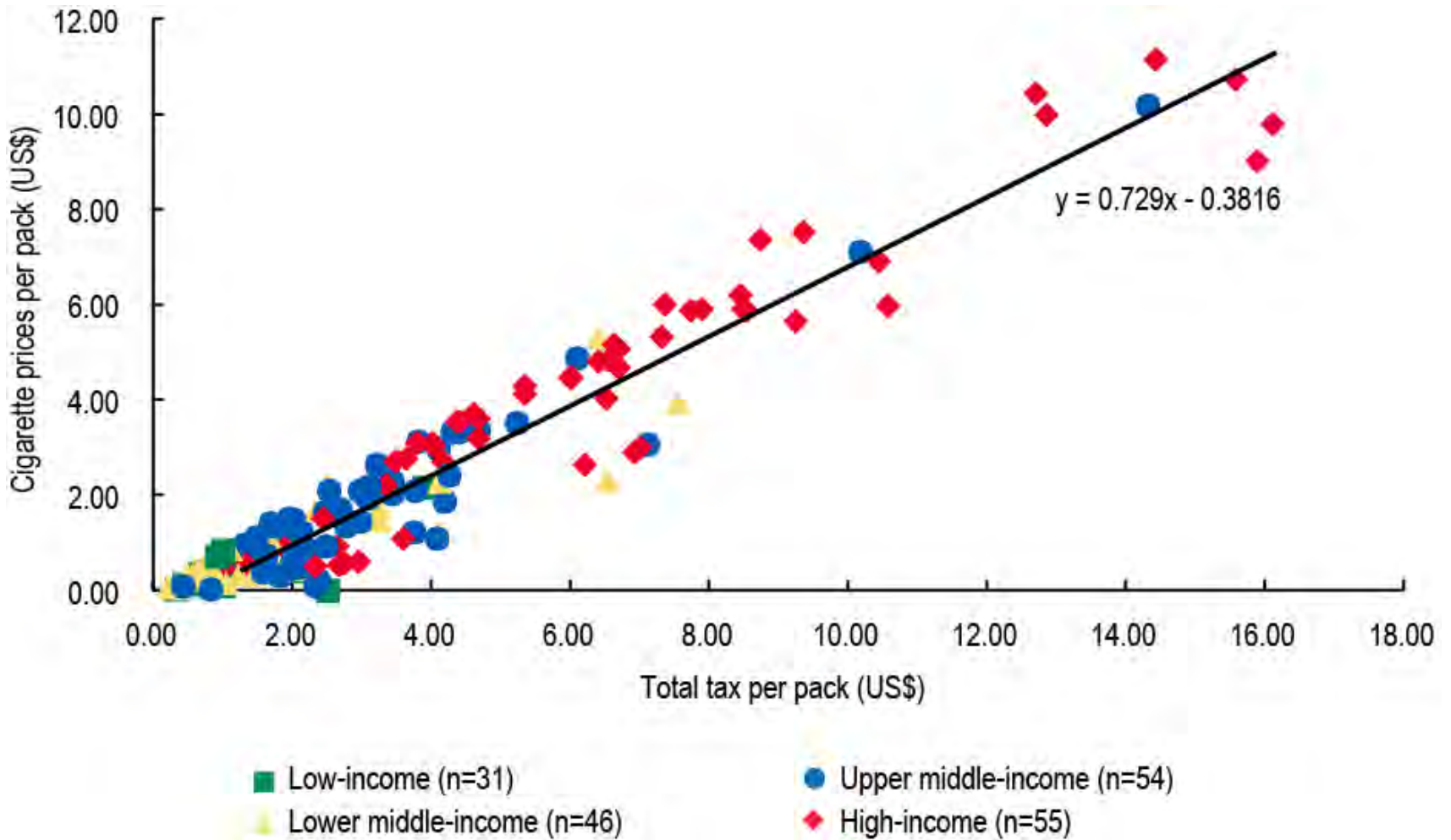
Figure 4.4. Percentage Change in Cigarette Affordability, by Country Income Group, 2000–2013



Notes: Relative income price is the percentage of annual per capita GDP required to buy 100 packs of cigarettes. Country income group classification based on World Bank Analytical Classifications for 2013. UAE = United Arab Emirates. SAR = Special Administrative Region.

Source: Economist Intelligence Unit 2015

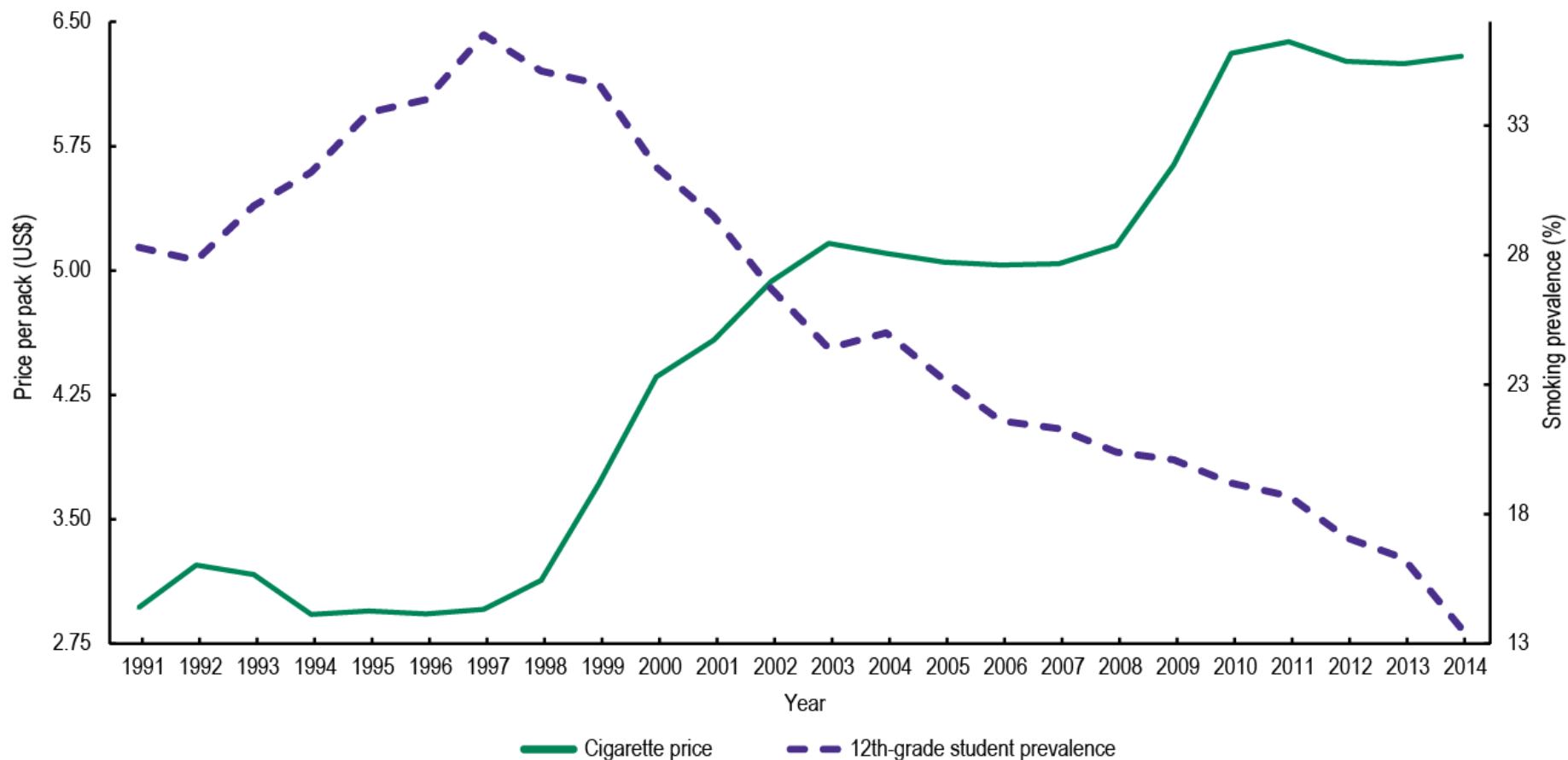
Figure 4.5. Price of a Pack of Cigarettes Versus Total Tax on Cigarettes, by Country Income Group, 2014



Note: Country income group classification based on World Bank Analytical Classifications for 2014.

Source: World Health Organization 2015.

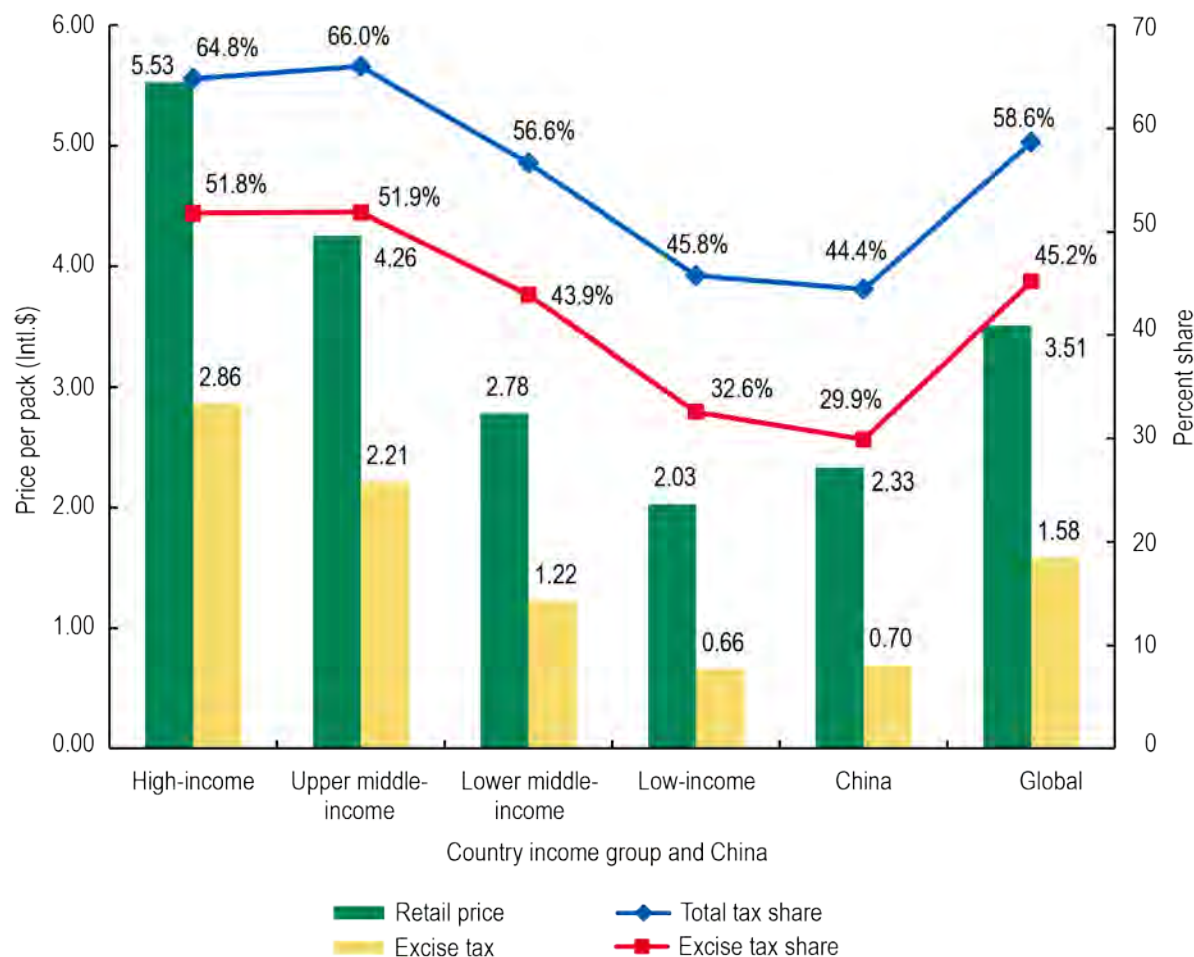
Figure 4.6. Inflation-Adjusted Cigarette Prices and Prevalence of Youth Smoking in the United States, 1991–2014



Note: Currency adjusted for inflation using a 2014 base.

Sources: Johnston et al. 2016. Orzechowski and Walker

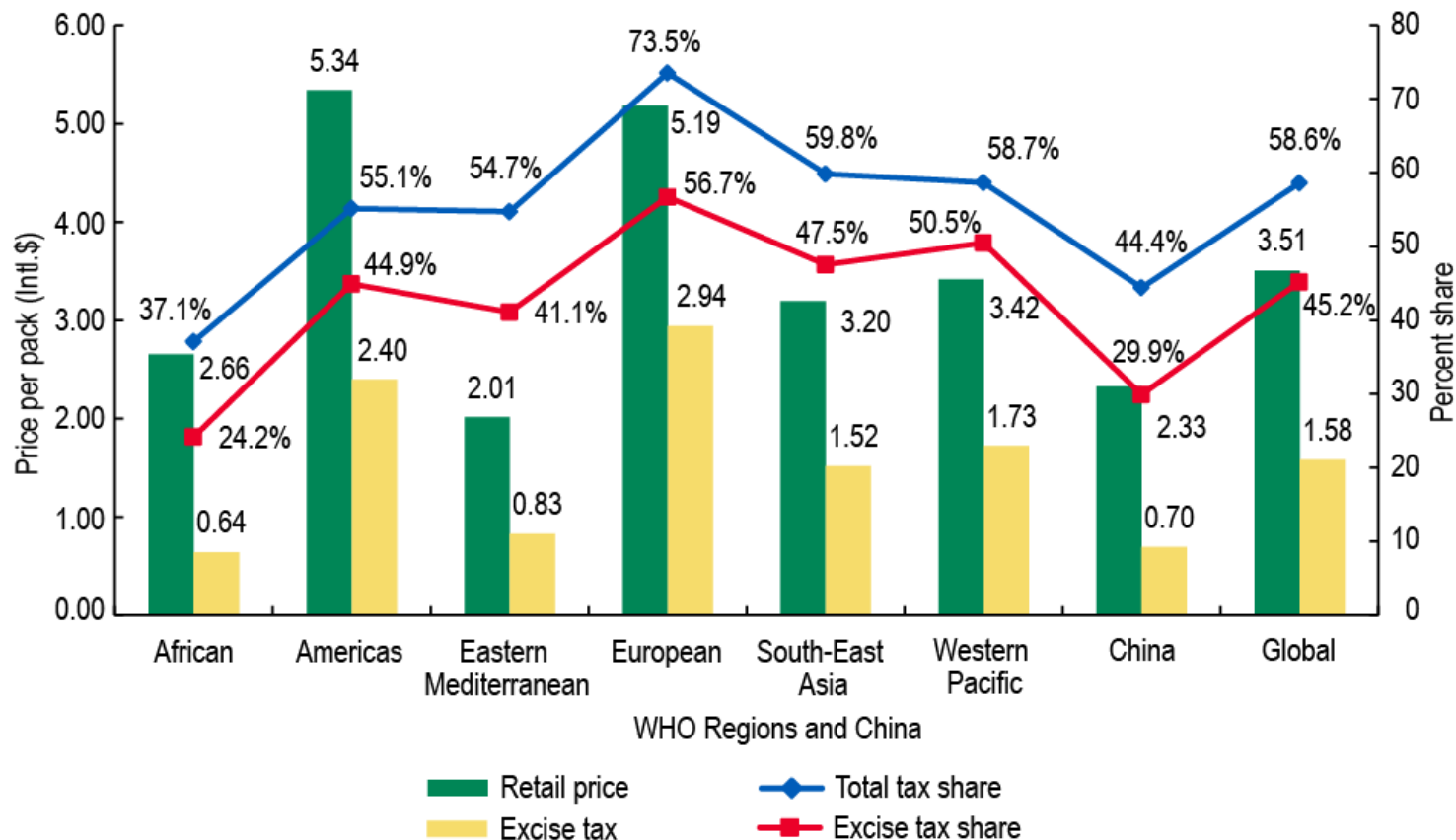
Figure 5.1. Price per Pack in International Dollar Purchasing Power Parity (PPP) of Most Popular Brand and the Share of Excise and Total Tax in Price, by Country Income Group, 2014



Notes: Averages were weighted by number of current cigarette smokers in each country. Because of its large population, China's estimates were removed from the upper middle-income grouping and displayed separately. Country income group classification was based on World Bank Analytical Classifications for 2014.

Source: Based on data from World Health Organization 2015.

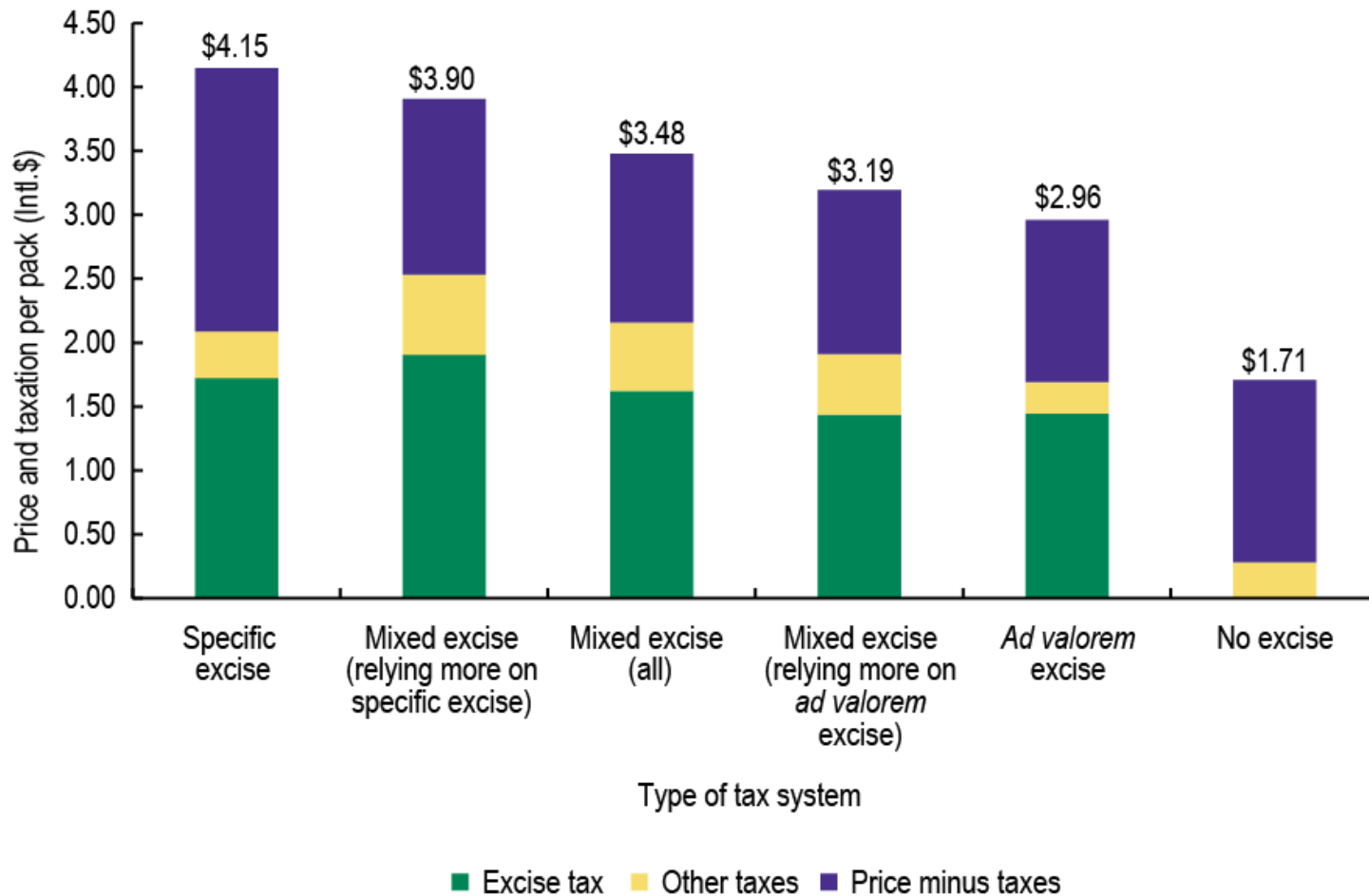
Figure 5.2. Price per Pack in International Dollar Purchasing Power Parity (PPP) and the Share of Excise and Total Tax in Price, by WHO Region, 2014



Notes: Averages were weighted by number of current cigarette smokers in each country. WHO = World Health Organization.

Source: Based on data from World Health Organization 2015.

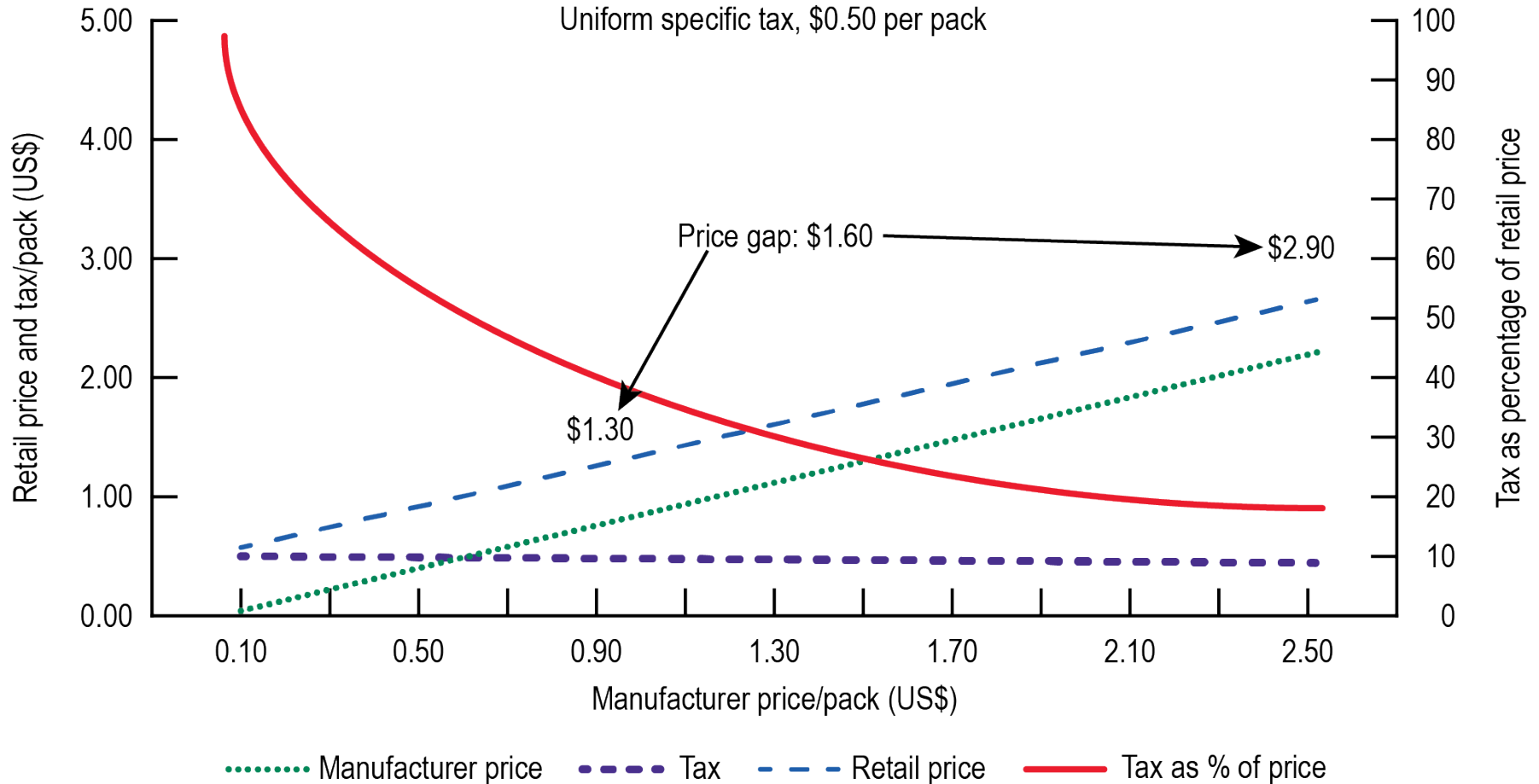
Figure 5.3. Price per Pack in International Dollar Purchasing Power Parity (PPP) and the Share of Excise and Total Tax in Price, by Tax Structure, 2014



Note: Averages were weighted by number of current cigarette smokers in each country.

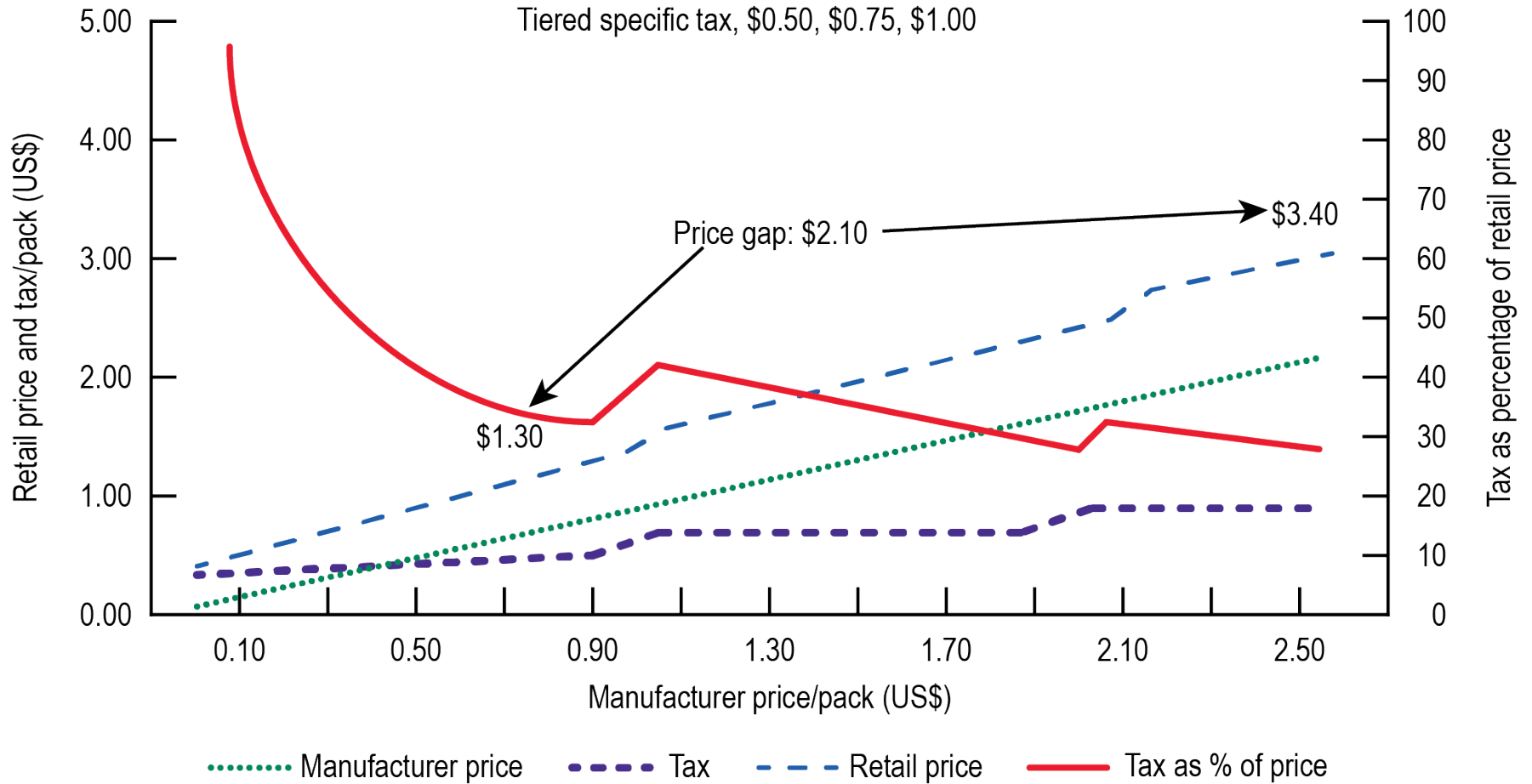
Source: Based on data from World Health Organization 2015

Figure 5.4. Uniform Specific Tax and Price Gap Between Cigarettes



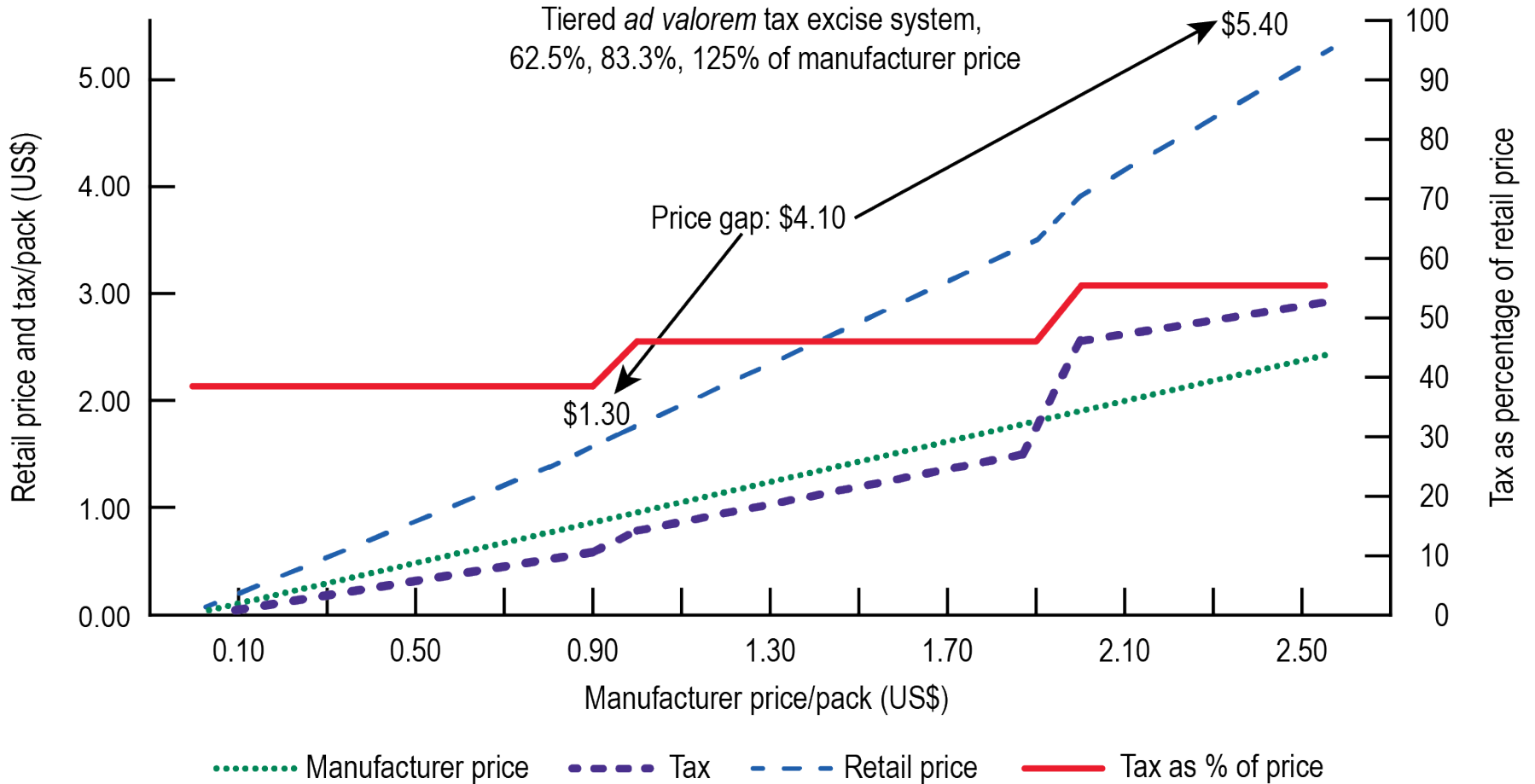
Source: World Health Organization 2010

Figure 5.6. Price Gap in a Tiered Specific Excise System



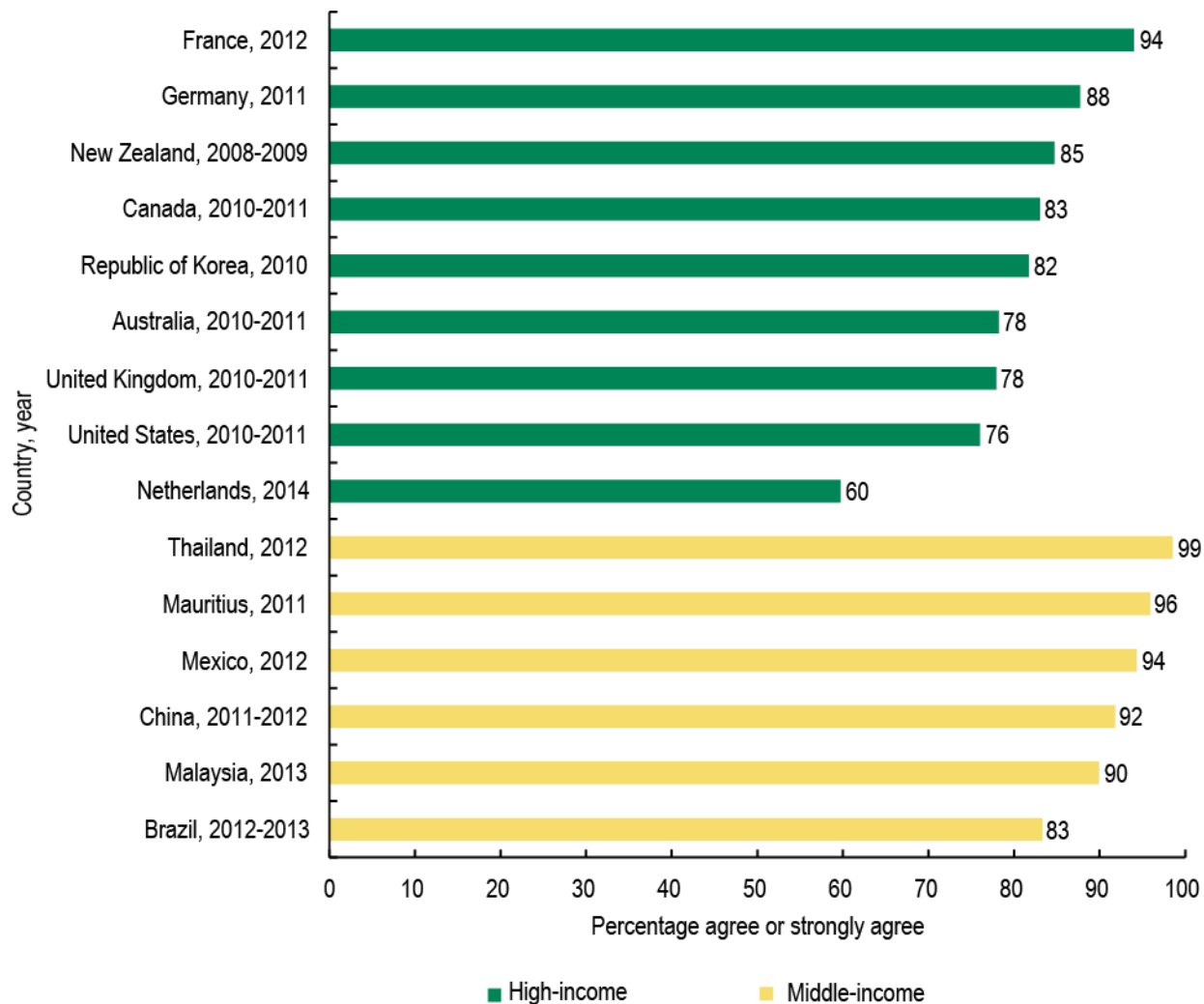
Source: World Health Organization 2010

Figure 5.7. Price Gap in a Tiered *Ad Valorem* Excise System



Source: World Health Organization 2010

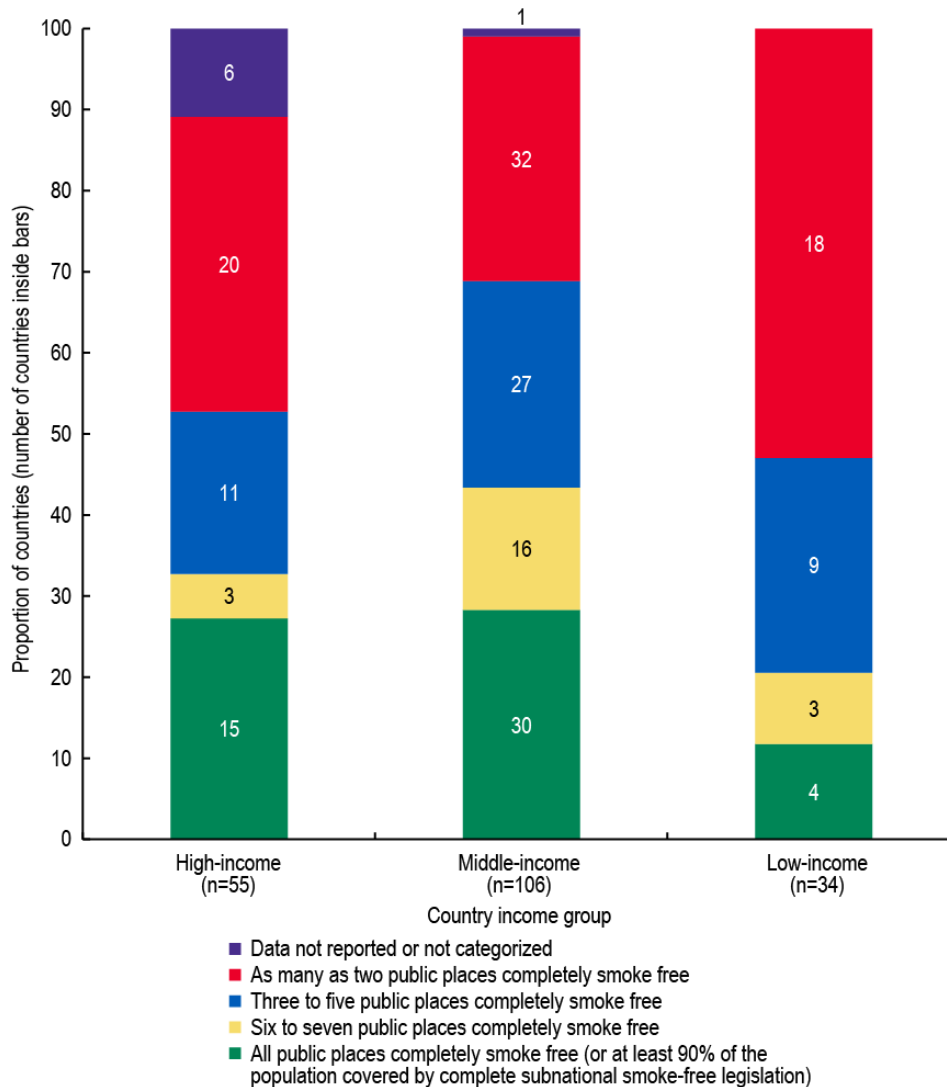
Figure 6.1. Percentage of Smokers in Middle-Income and High-Income Countries Who Agree That Cigarette Smoke Is Dangerous to Nonsmokers



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

Source: Based on unpublished data from the International Tobacco Control Policy Evaluation Project 2015.

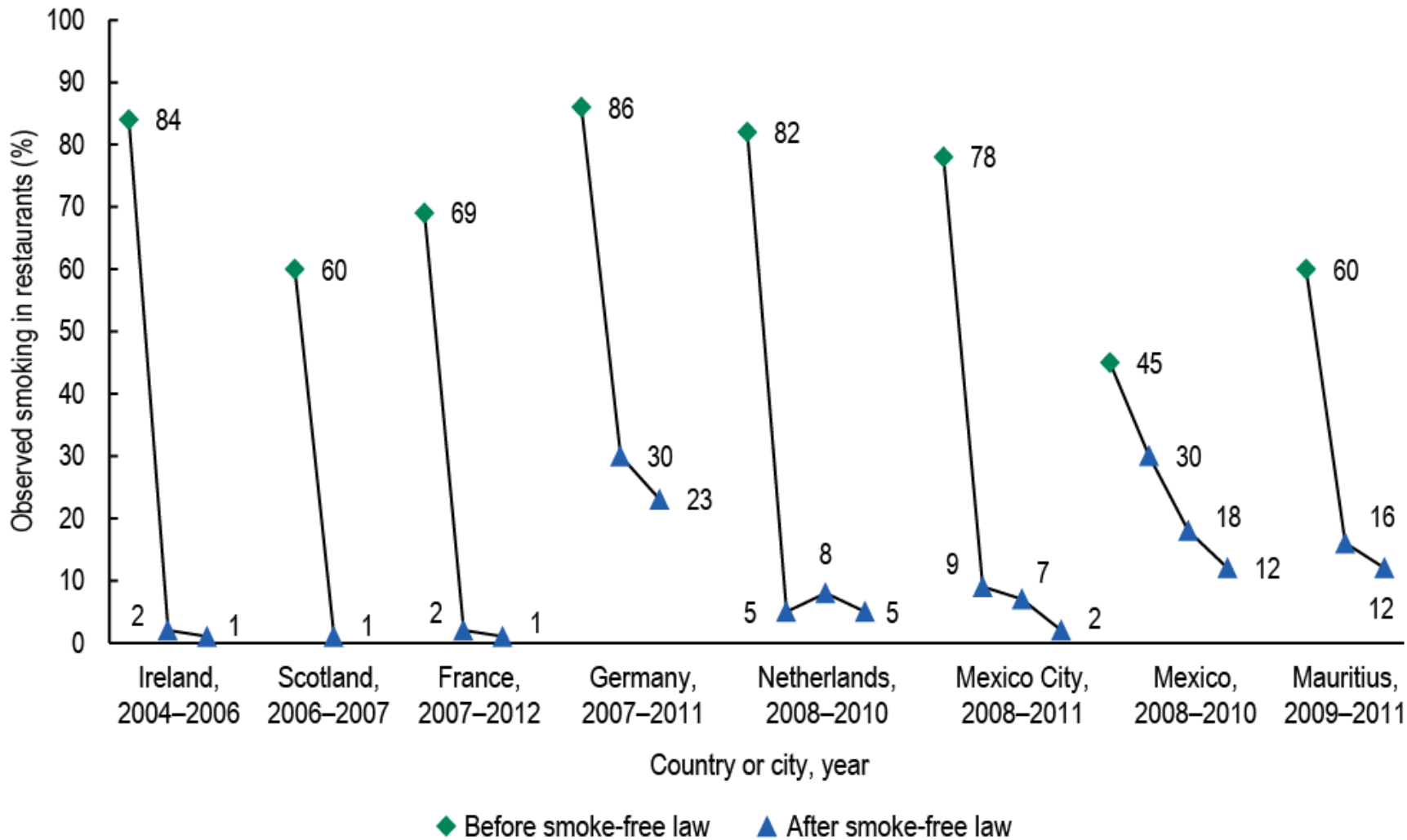
Figure 6.3. Smoke-Free Laws: Global Coverage, by Country Income Group, 2014



Note: Country income group classification based on World Bank Analytical Classifications for 2014.

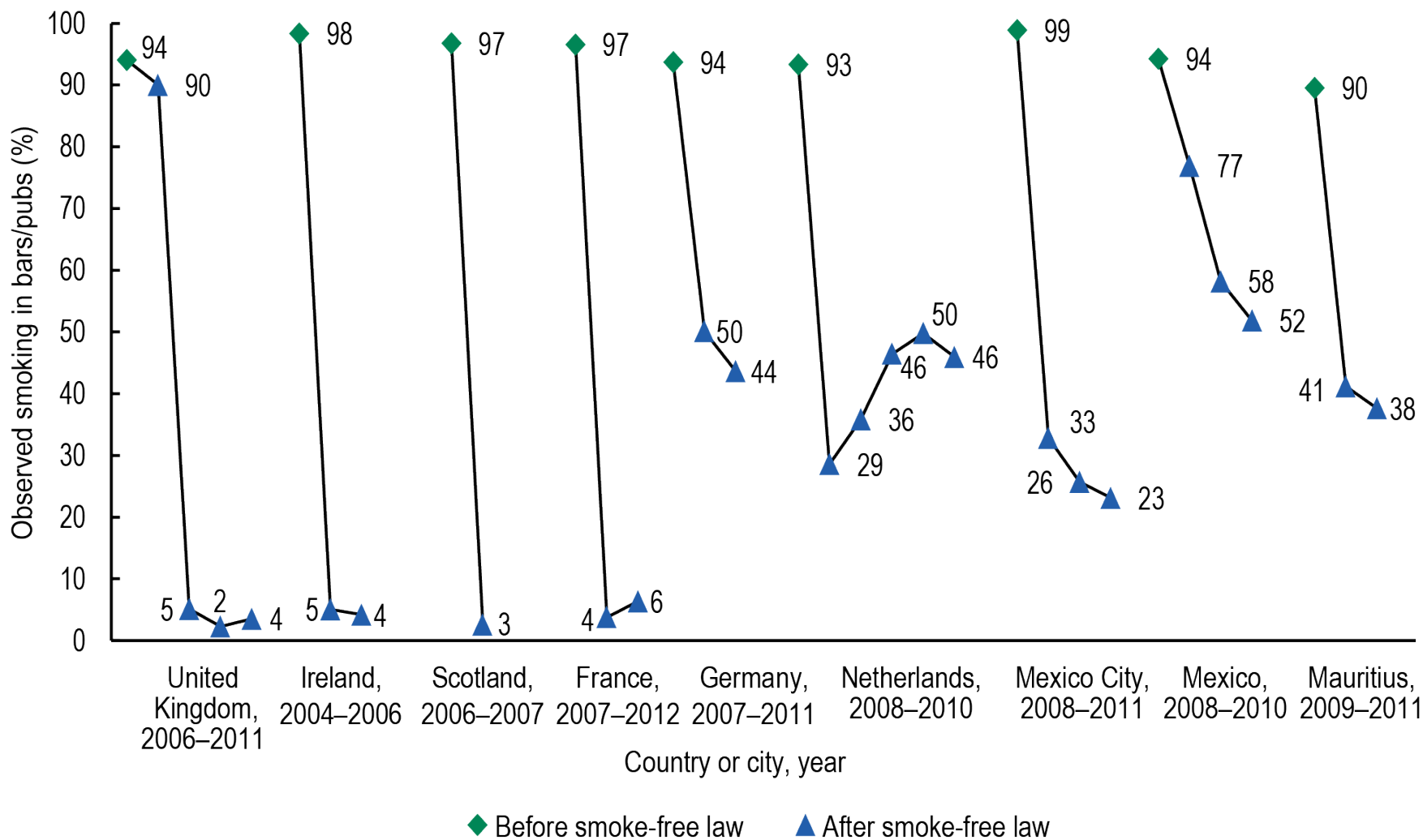
Source: World Health Organization 2015

Figure 6.4. Prevalence of Observed Smoking in Restaurants Before and After Smoke-Free Laws



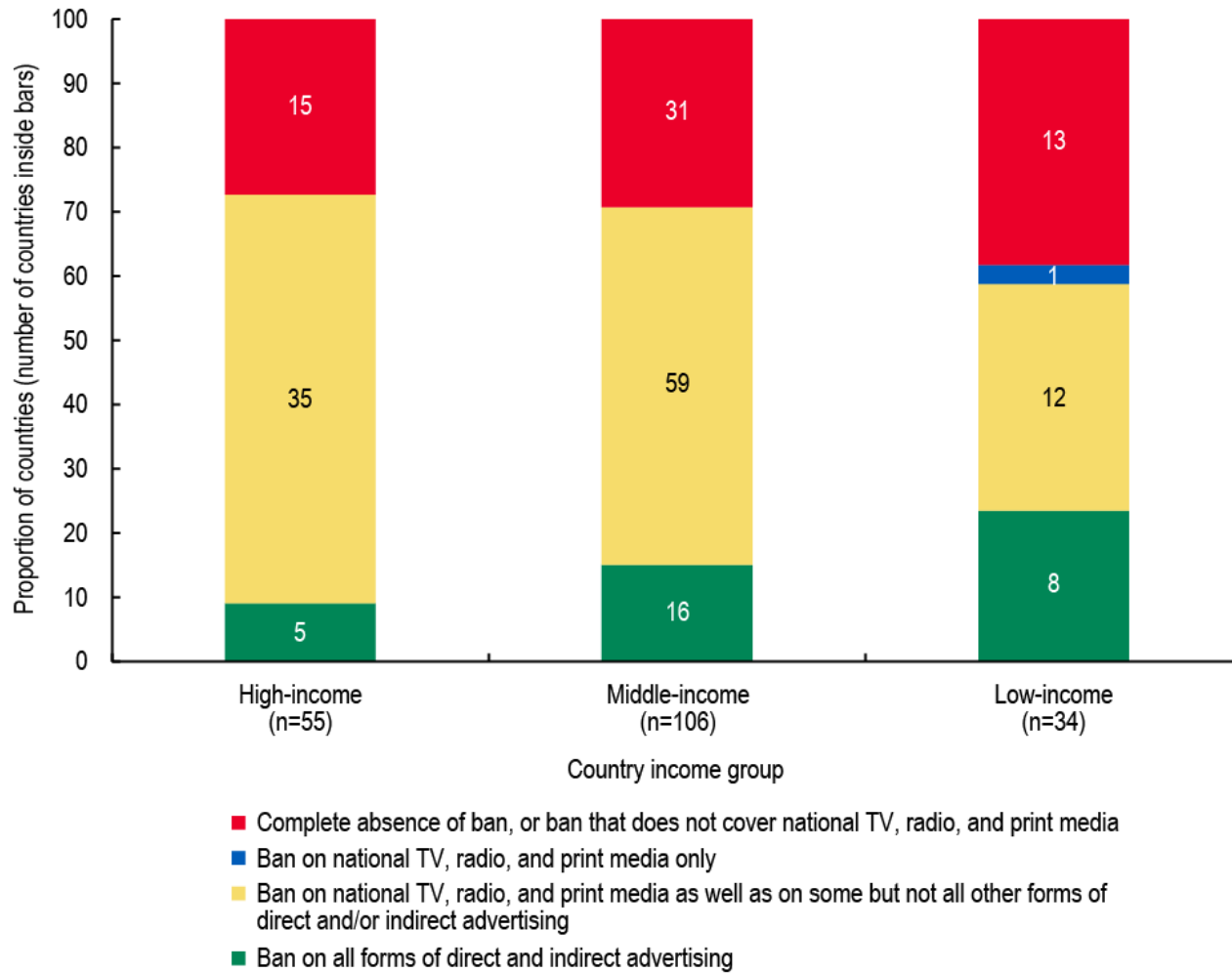
Source: World Health Organization Western Pacific Region and University of Waterloo, ITC Project 2015

Figure 6.5. Prevalence of Observed Smoking in Bars/Pubs Before and After Smoking Bans



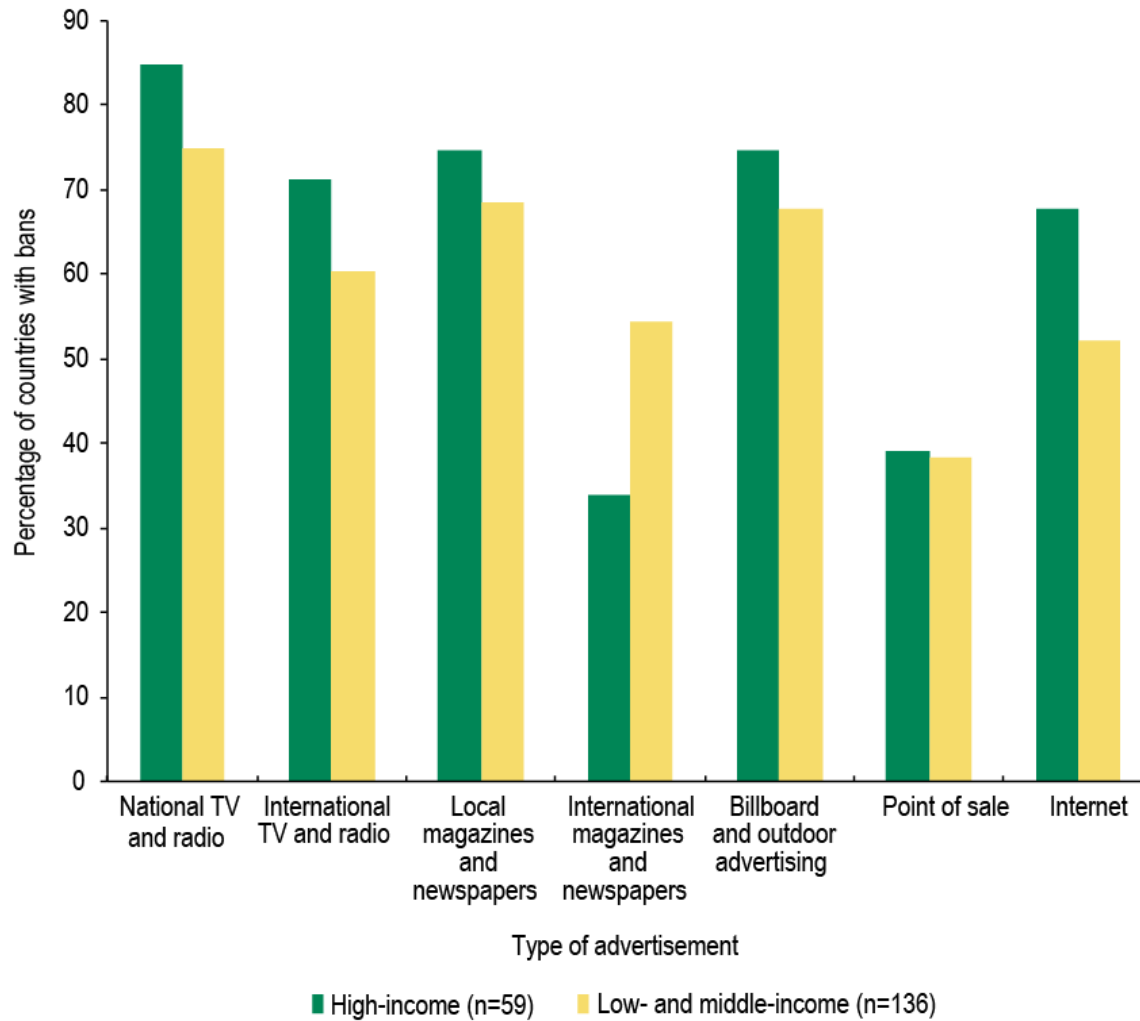
Source: Fong 2011

Figure 7.1. Bans on Advertising, Promotion, and Sponsorship, 2014



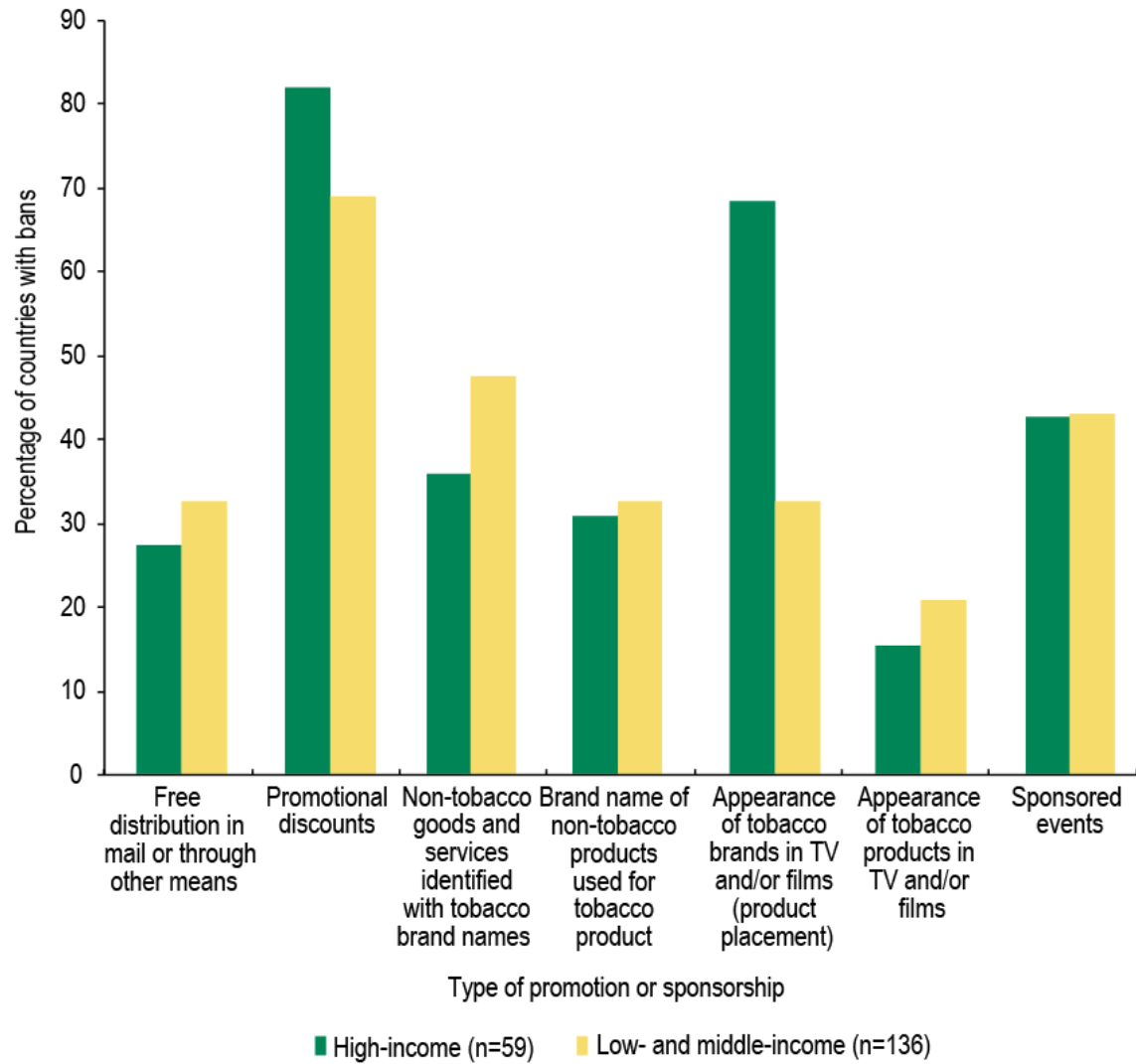
Source: World Health Organization 2015

Figure 7.2. Global Prevalence of Bans on Tobacco Product Advertising, 2014



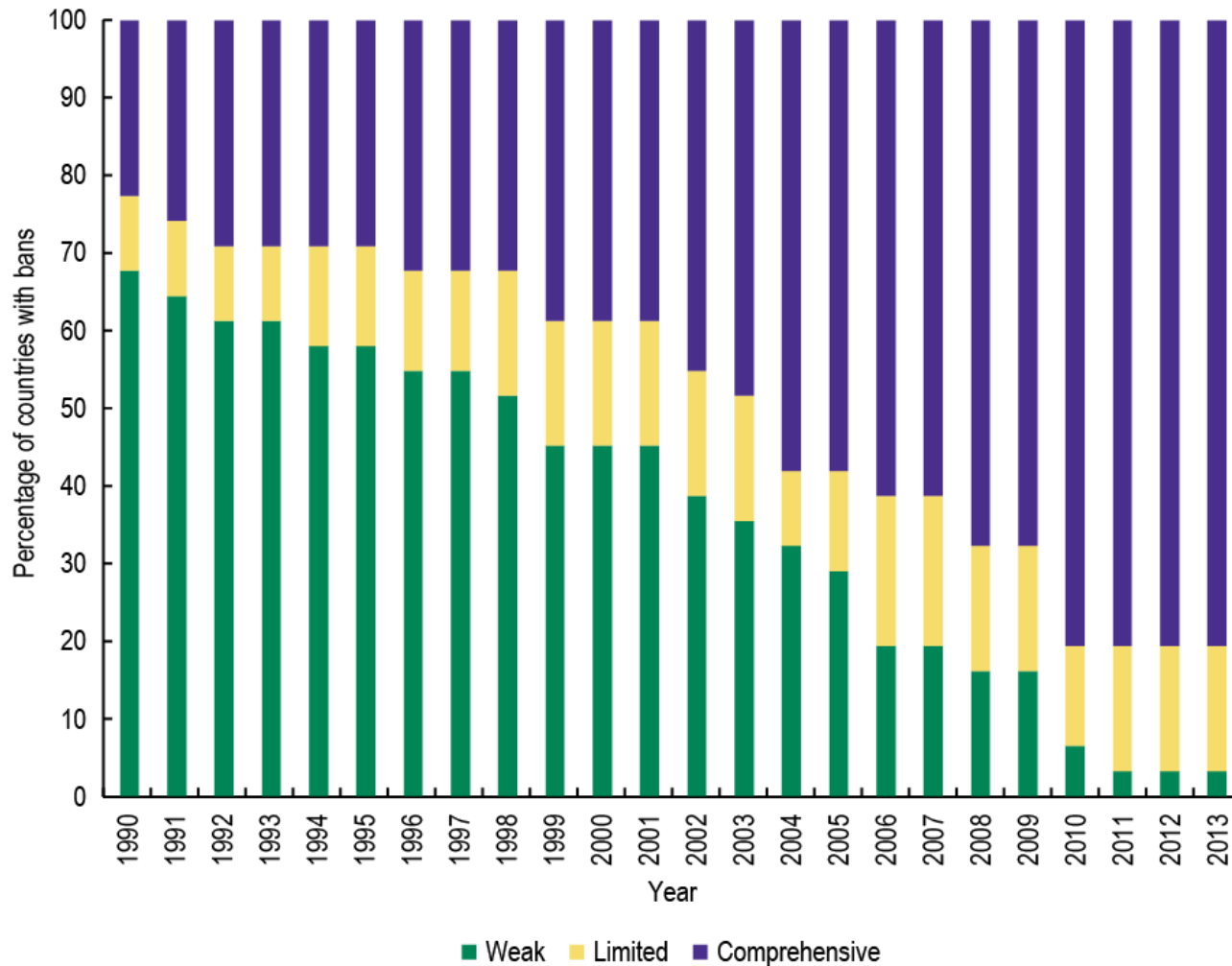
Source: World Health Organization 2015

Figure 7.3. Global Prevalence of Bans on the Promotion and Sponsorship of Tobacco Products, 2014



Source: World Health Organization 2015

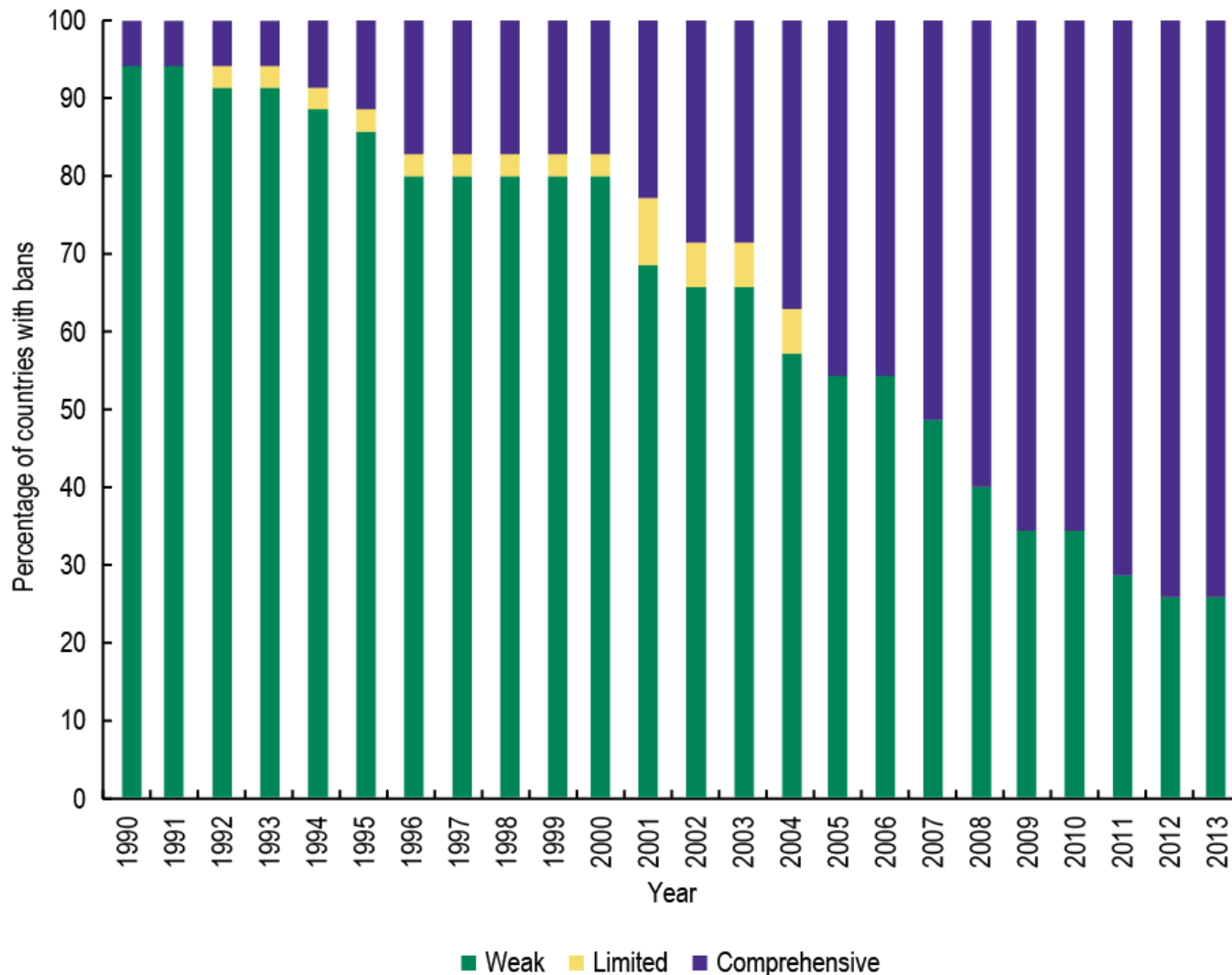
Figure 7.4. Weak, Limited, and Comprehensive Tobacco Advertising Bans in High-Income Countries, 1990–2013



Note: n=31.

Sources: Based on data from ERC Group 1990–2013 and Economist Intelligence Unit 1990–2013

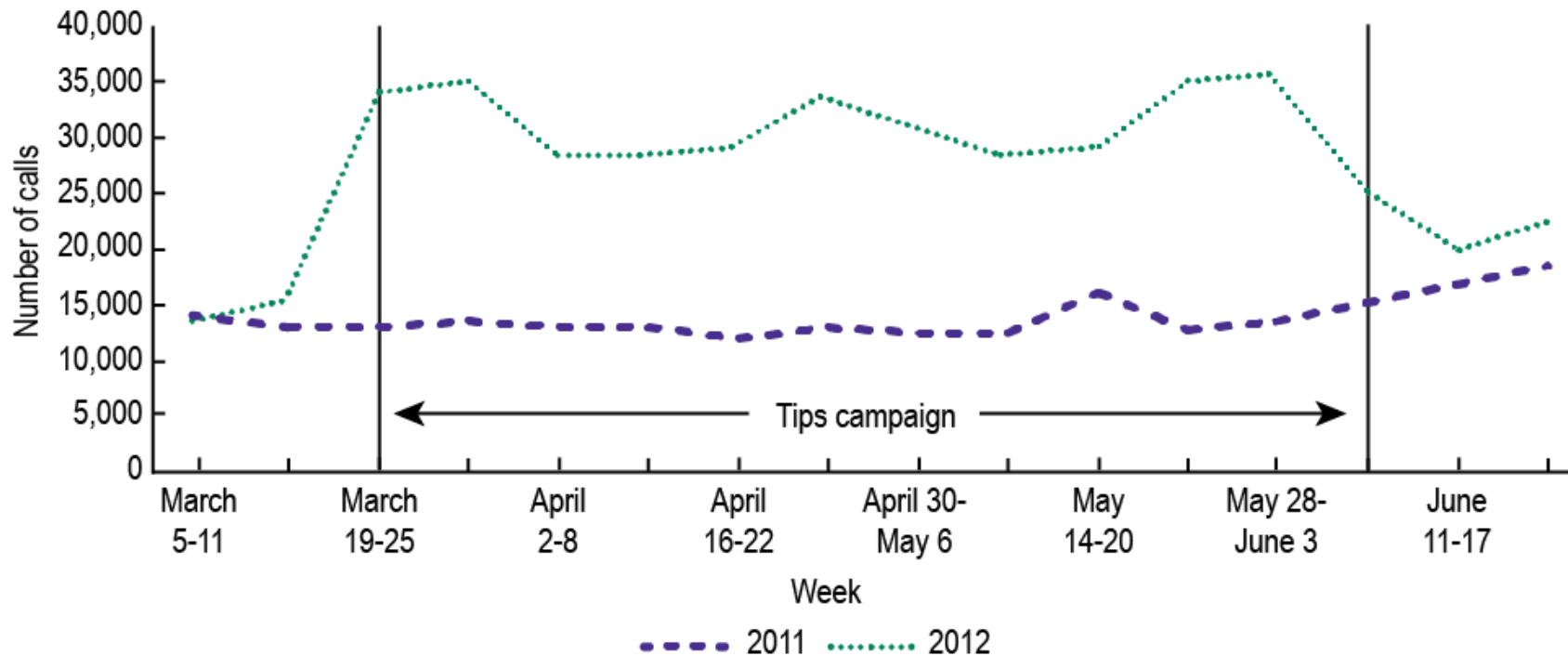
Figure 7.5. Weak, Limited, and Comprehensive Tobacco Advertising Bans in Low- and Middle-Income Countries, 1990–2013



Note: n=35.

Sources: Based on data from ERC Group 1990–2013 and Economist Intelligence Unit 1990–2013

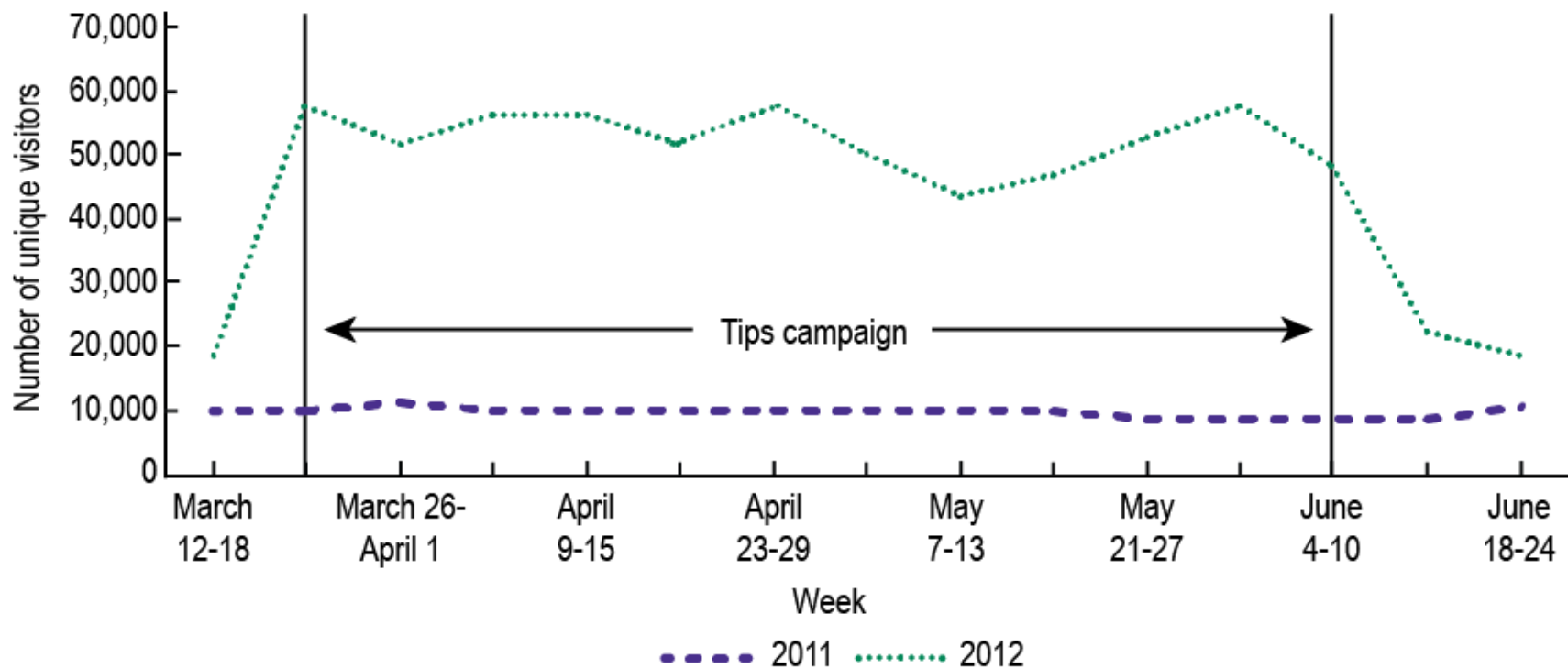
Figure 8.1. Number of Weekly Telephone Calls to the National Quitline Portal Around the Airing of the Centers for Disease Control and Prevention's Tips From Former Smokers Campaign



Notes: The Tips campaign ran from March 19 to June 10, 2012. Data for May 30 to June 19, 2011, were imputed using straight-line regression.

Source: Centers for Disease Control and Prevention 2012

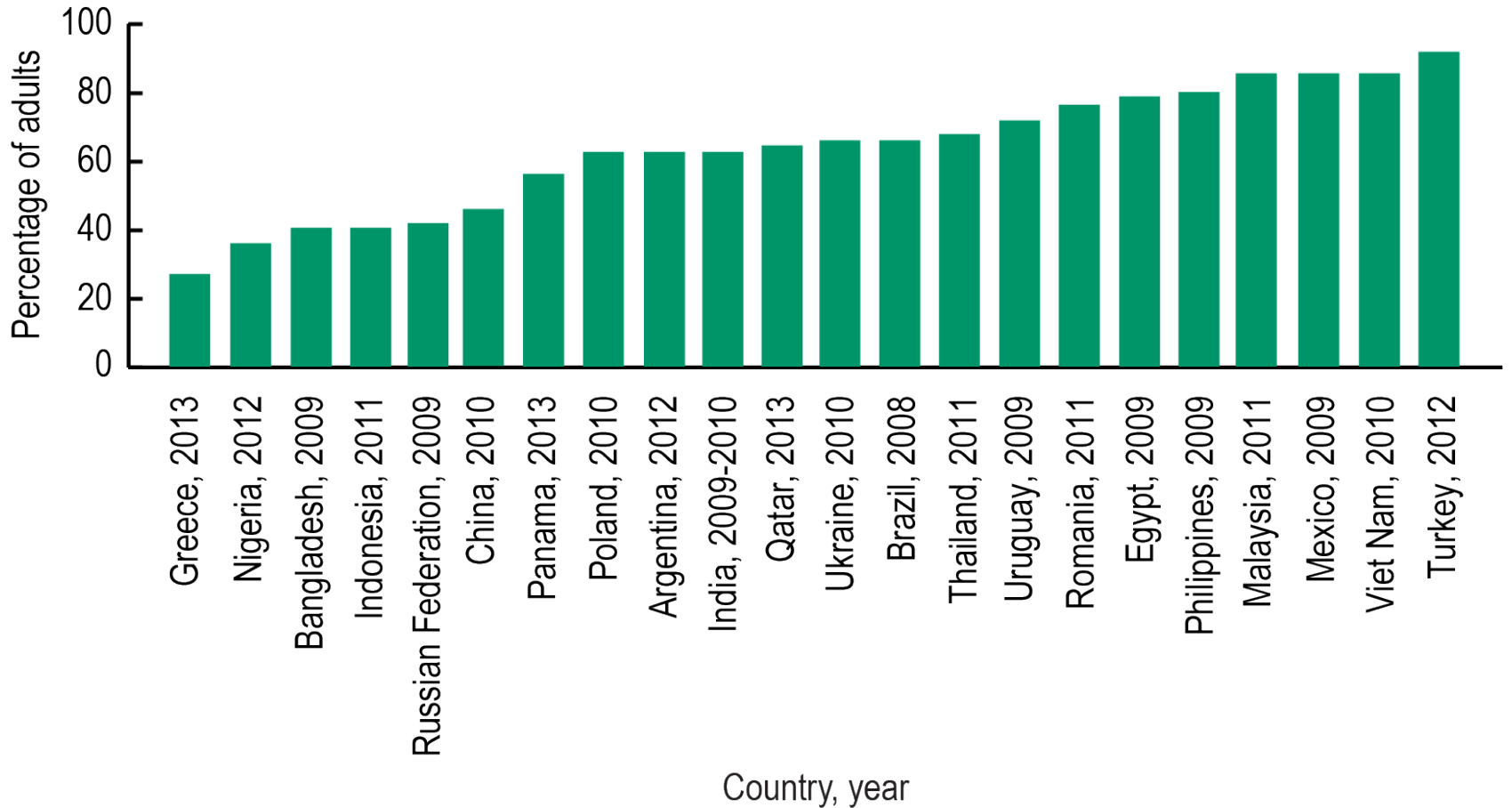
Figure 8.2. Number of Weekly Unique Visitors to the National Cancer Institute's Smokefree.gov Around the Airing of the Centers for Disease Control and Prevention's Tips From Former Smokers Campaign



Notes: The Tips campaign ran from March 19 to June 10, 2012. Data for 2011 and 2012 were collected by Google Analytics.

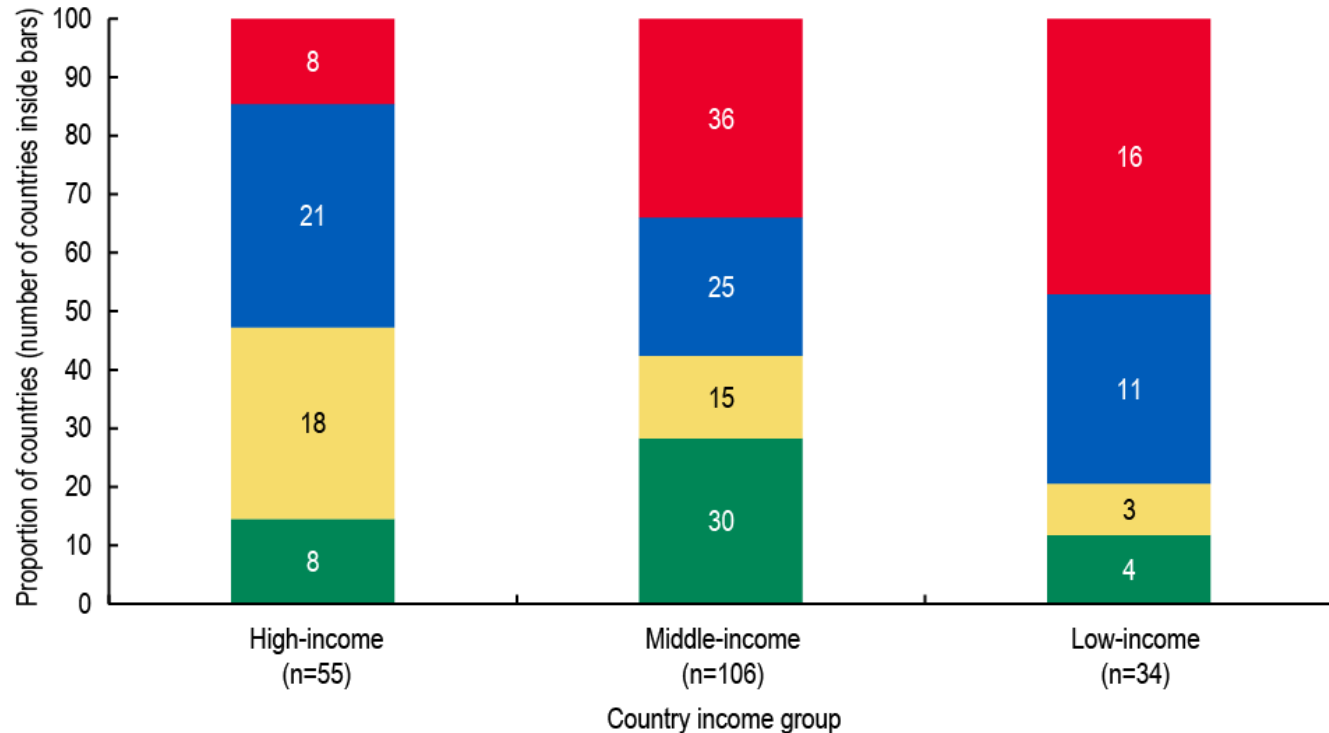
Source: Centers for Disease Control and Prevention 2012.

Figure 8.4. Percentage of Adults Who Noticed Anti-Smoking Information on Television or Radio, 2008–2013



Source: Eriksen et al. 2015

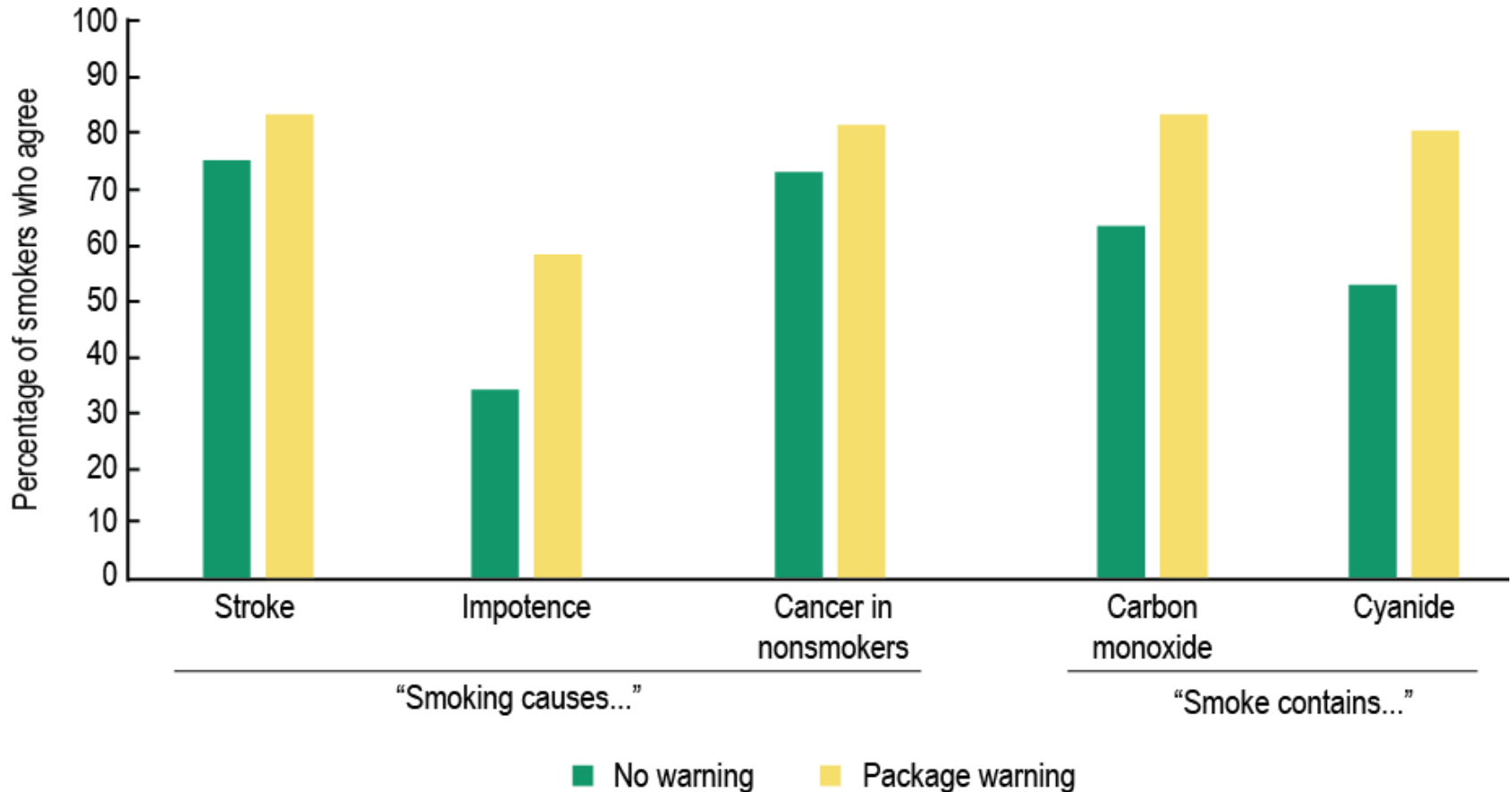
Figure 8.5. Types of Health Warning Labels in Use Around the World, by Country Income Group, 2014



- No warnings or small warnings
- Medium-sized warnings missing some characteristics OR large warnings missing many appropriate characteristics
- Medium-sized warnings with all appropriate characteristics OR large warnings missing some appropriate characteristics
- Large warnings with all appropriate characteristics

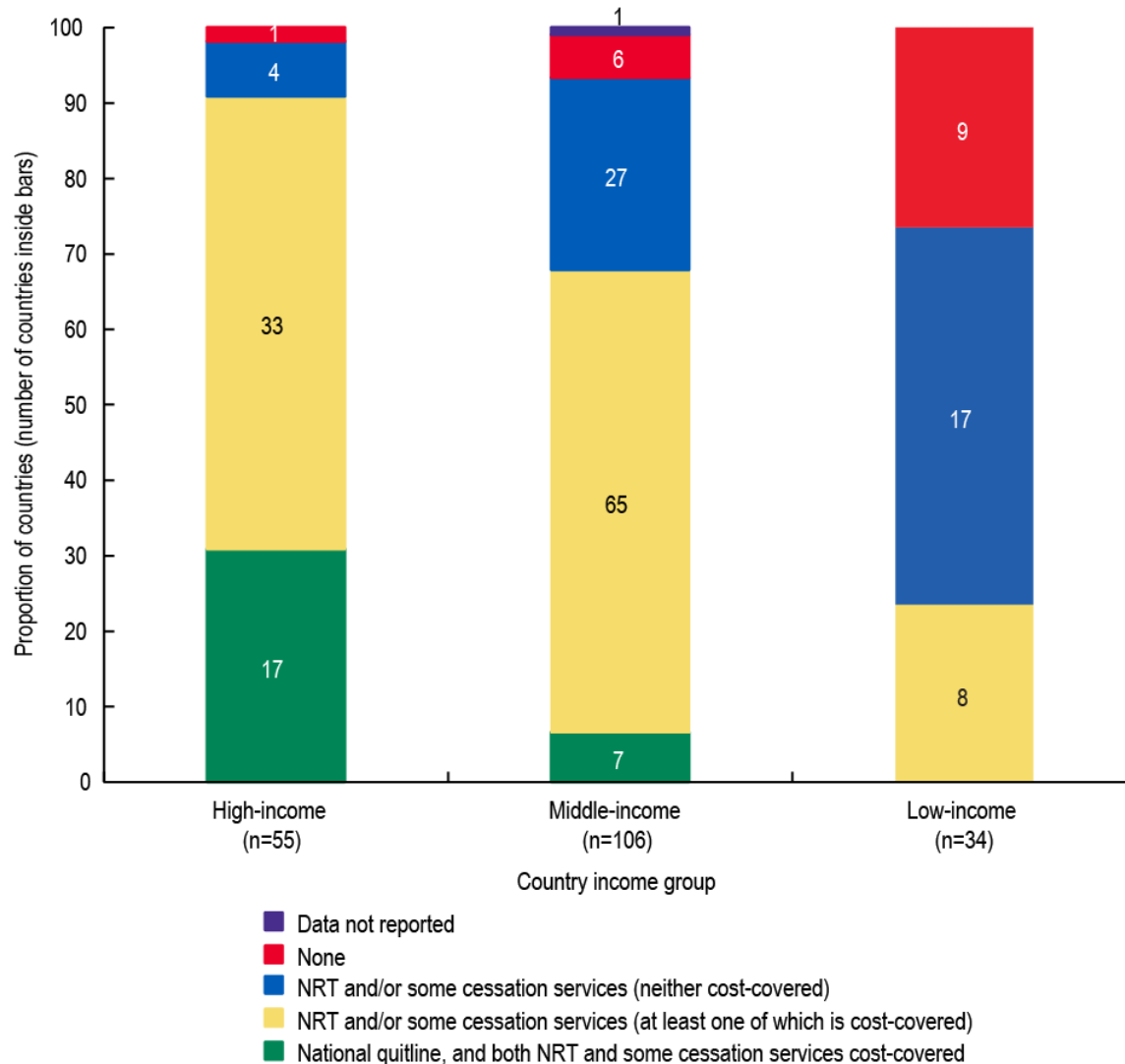
Source: World Health Organization 2015

Figure 8.6. Knowledge About the Harms of Tobacco Use: Comparison of Countries With and Without Health Warning Labels on Particular Topics



Sources: World Health Organization 2011, based on data from Hammond et al. 2006

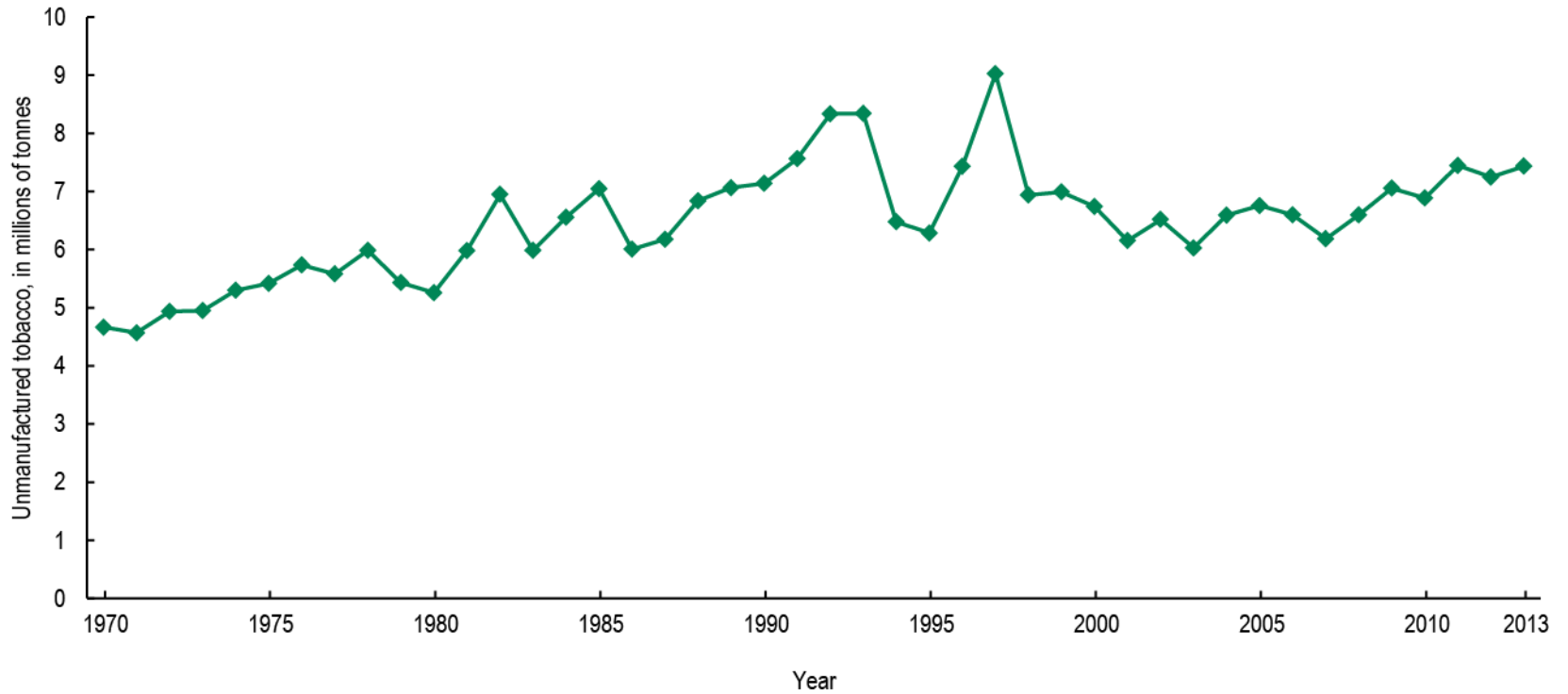
Figure 9.1. Smoking Cessation Treatment: Cost Coverage, by Country Income Group, 2015



Notes: NRT = nicotine replacement therapy. Country income group classification based on World Bank Analytical Classifications for 2013.

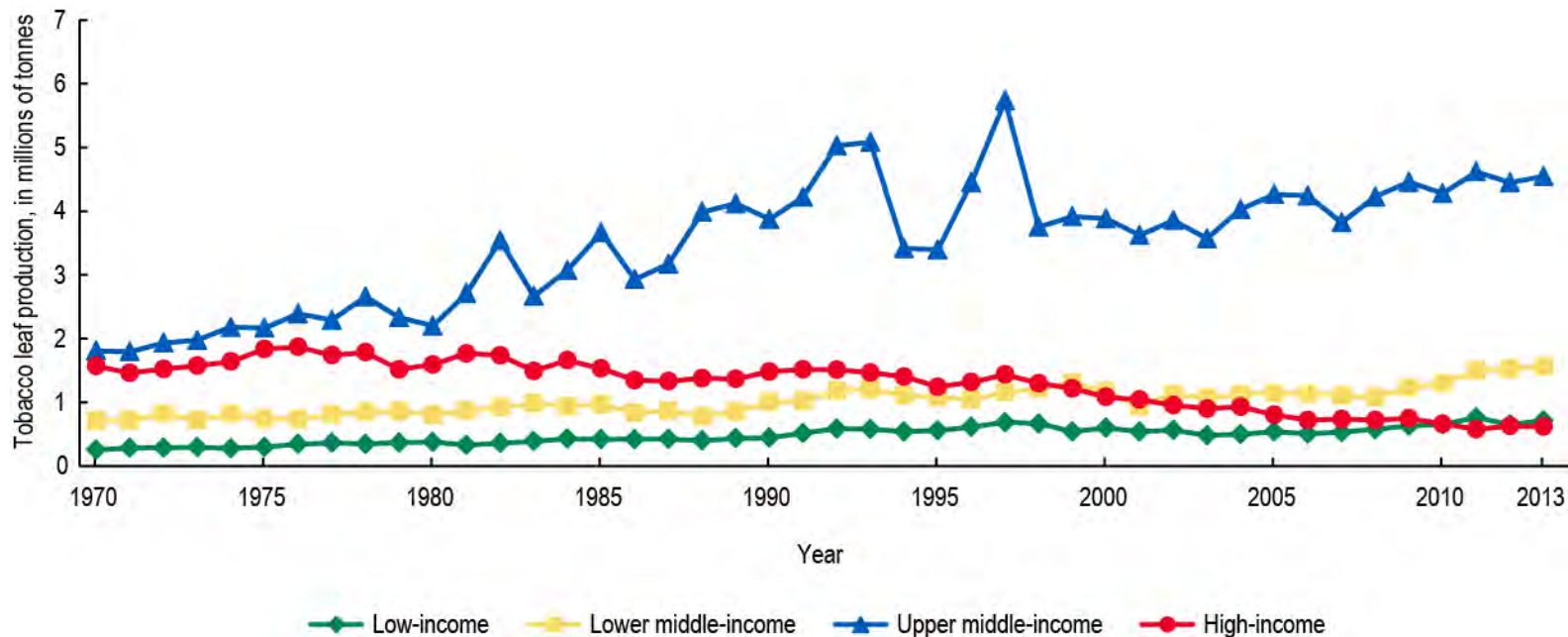
Source: World Health Organization 2015

Figure 10.1. Global Tobacco Leaf Production, 1970–2013



Source: FAOSTAT 1970–2013

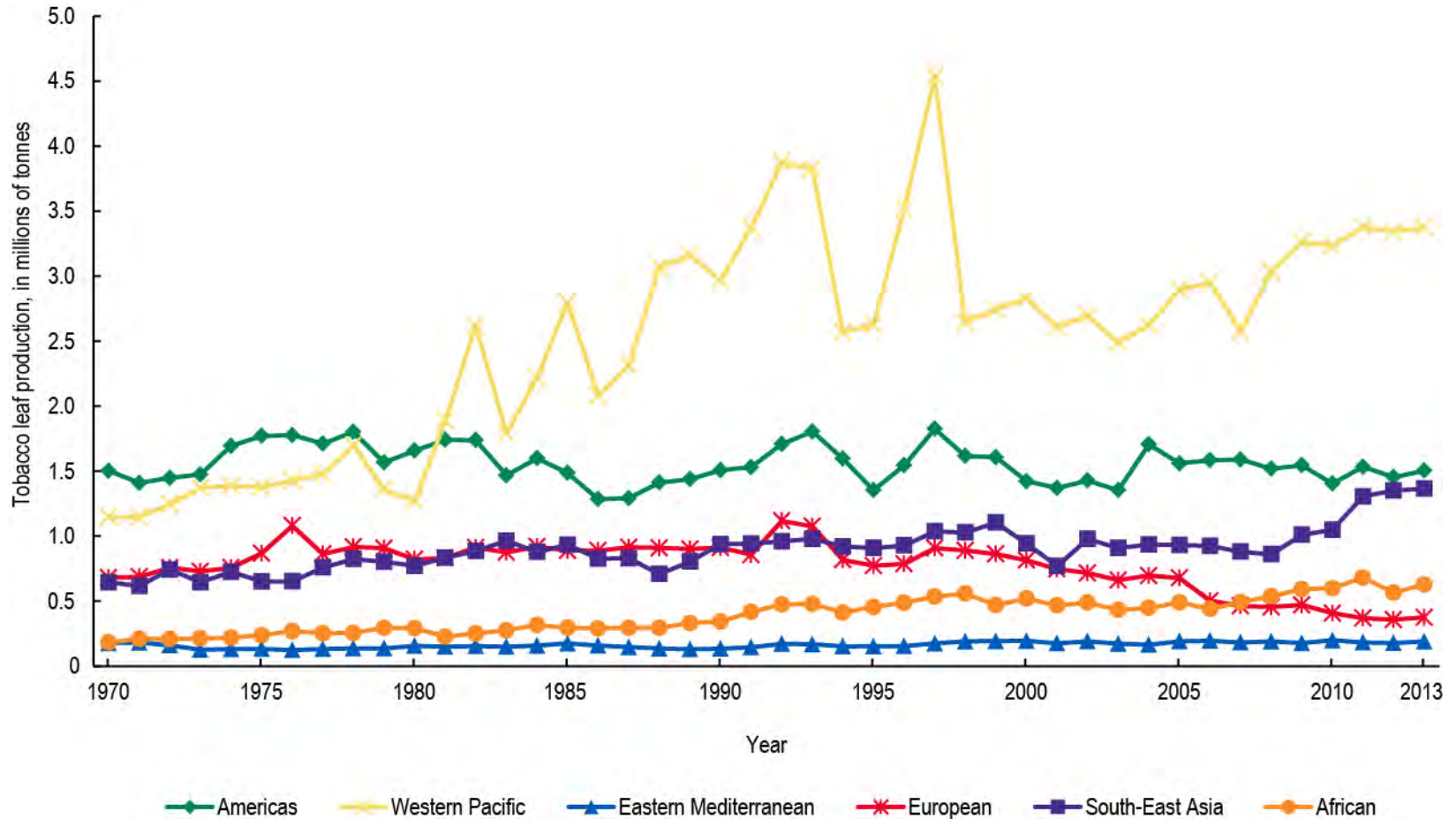
Figure 10.2. Global Tobacco Leaf Production, by Country Income Group, 1970–2013



Note: Country income group classification based on World Bank Analytical Classifications for 2013.

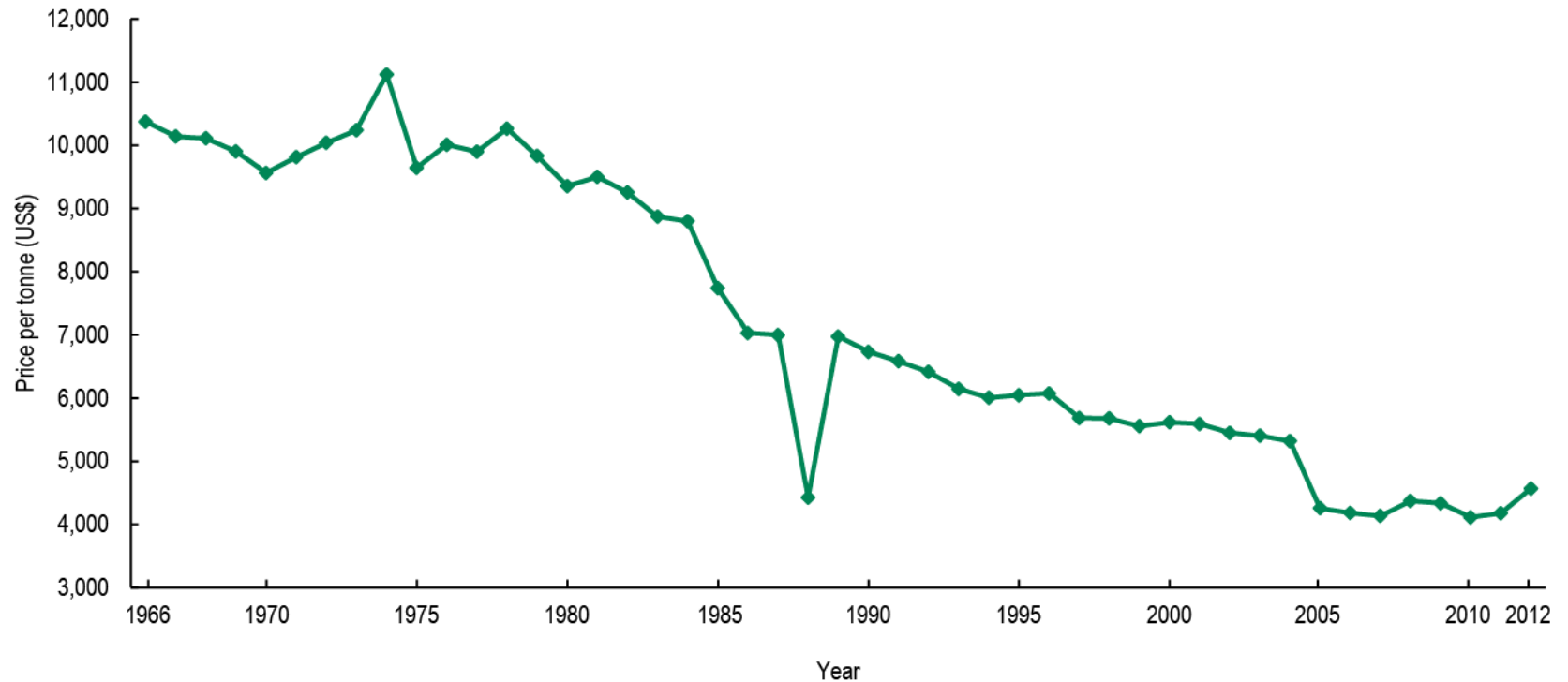
Source: FAOSTAT 1970–2013

Figure 10.3. Global Tobacco Leaf Production, by WHO Region, 1970–2013



Source: FAOSTAT 1970–2013

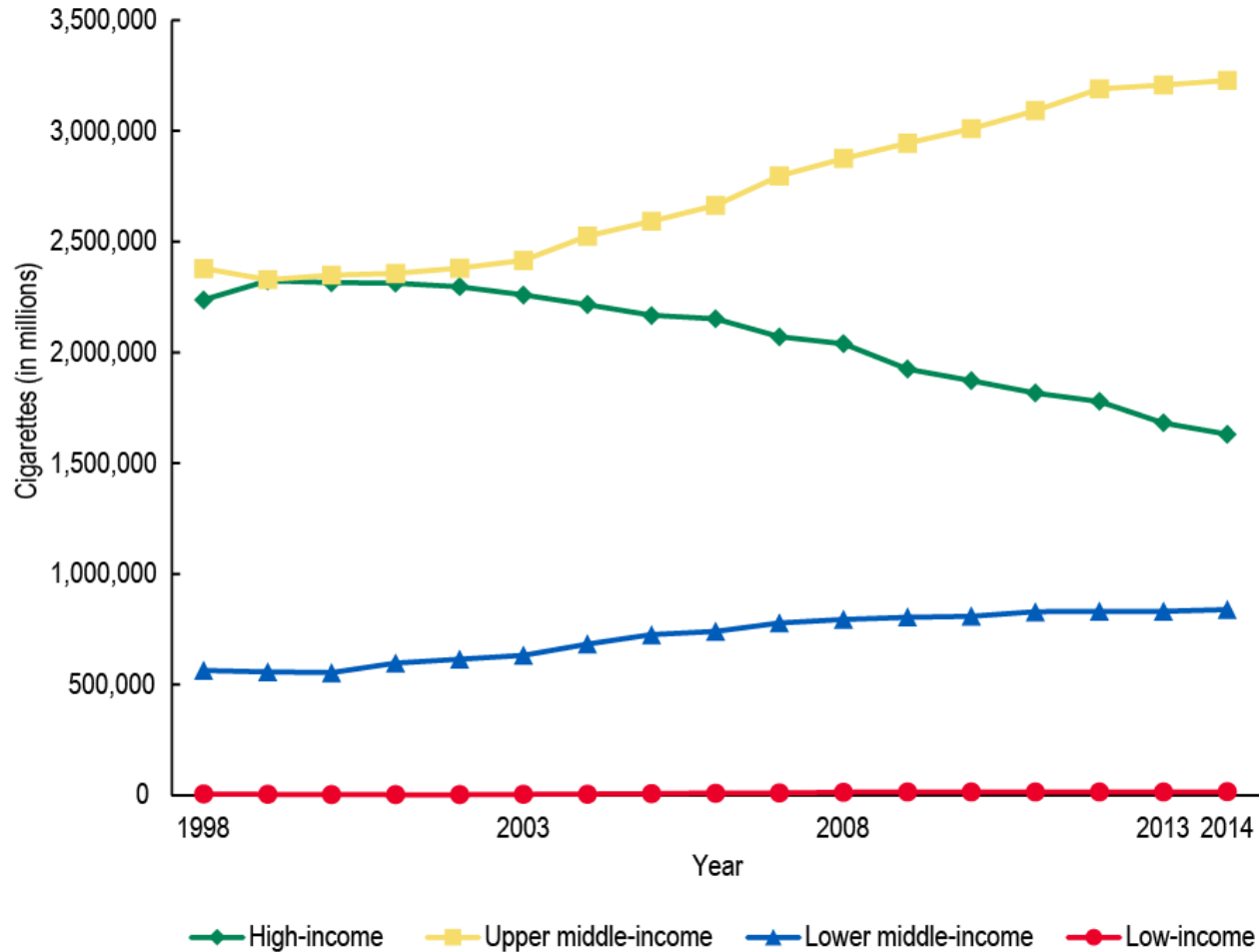
Figure 10.4. Inflation-Adjusted Tobacco Leaf Prices in the United States, 1966–2012



Note: Tobacco leaf prices adjusted for inflation using 2012 U.S. dollars.

Sources: U.S. Department of Agriculture, Economic Research Service 1966–1990,¹⁴¹ FAOSTAT 1991–2012,⁸ and U.S. Department of Labor 2014

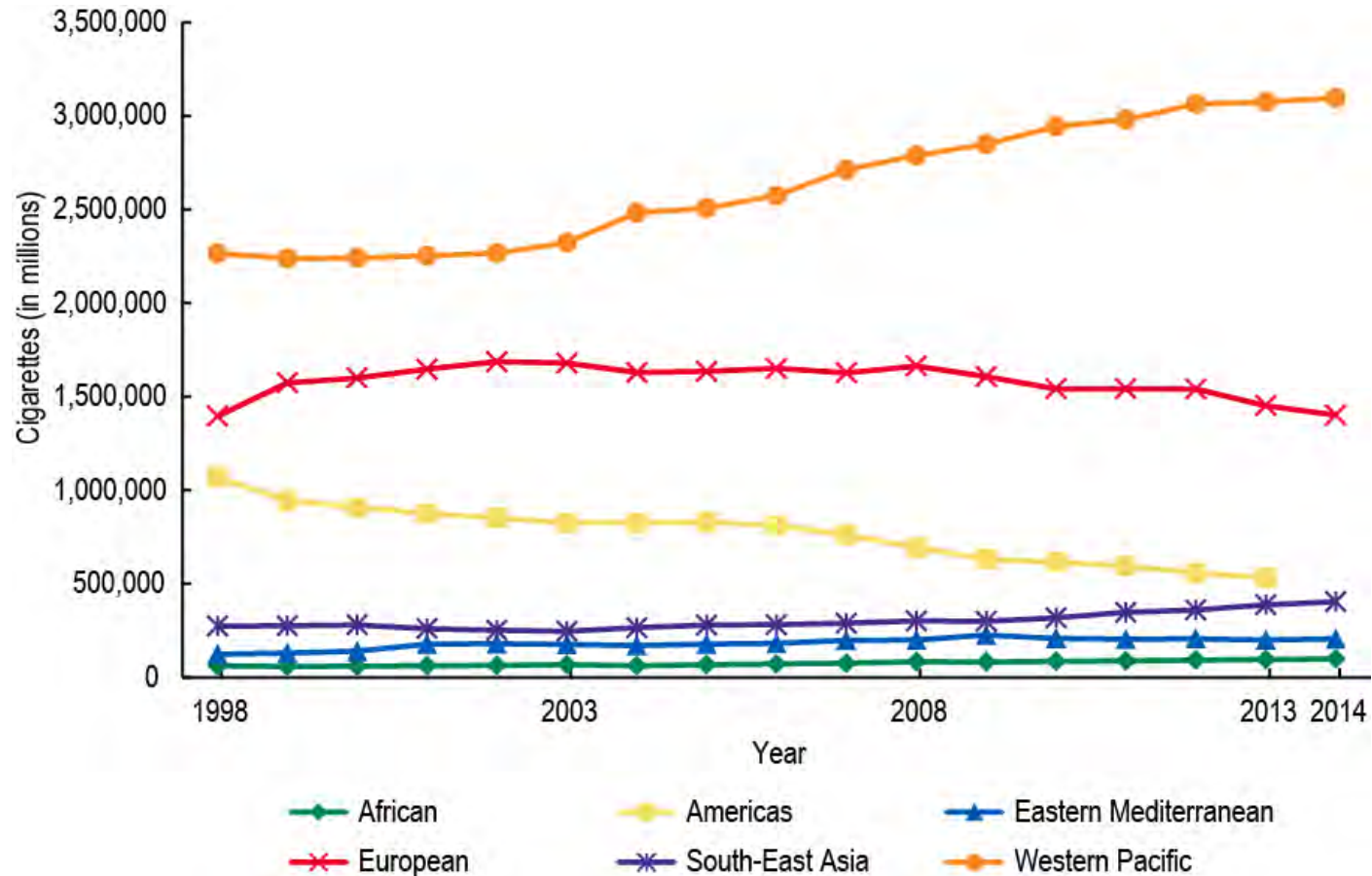
Figure 10.5. Cigarette Production, by Country Income Group, 1998–2014



Notes: Data from a total of 74 countries are shown. Only one country is included in the low-income group (Kenya). Country income group classification based on World Bank Analytical Classifications for 2014.

Source: Euromonitor International 1998–2014

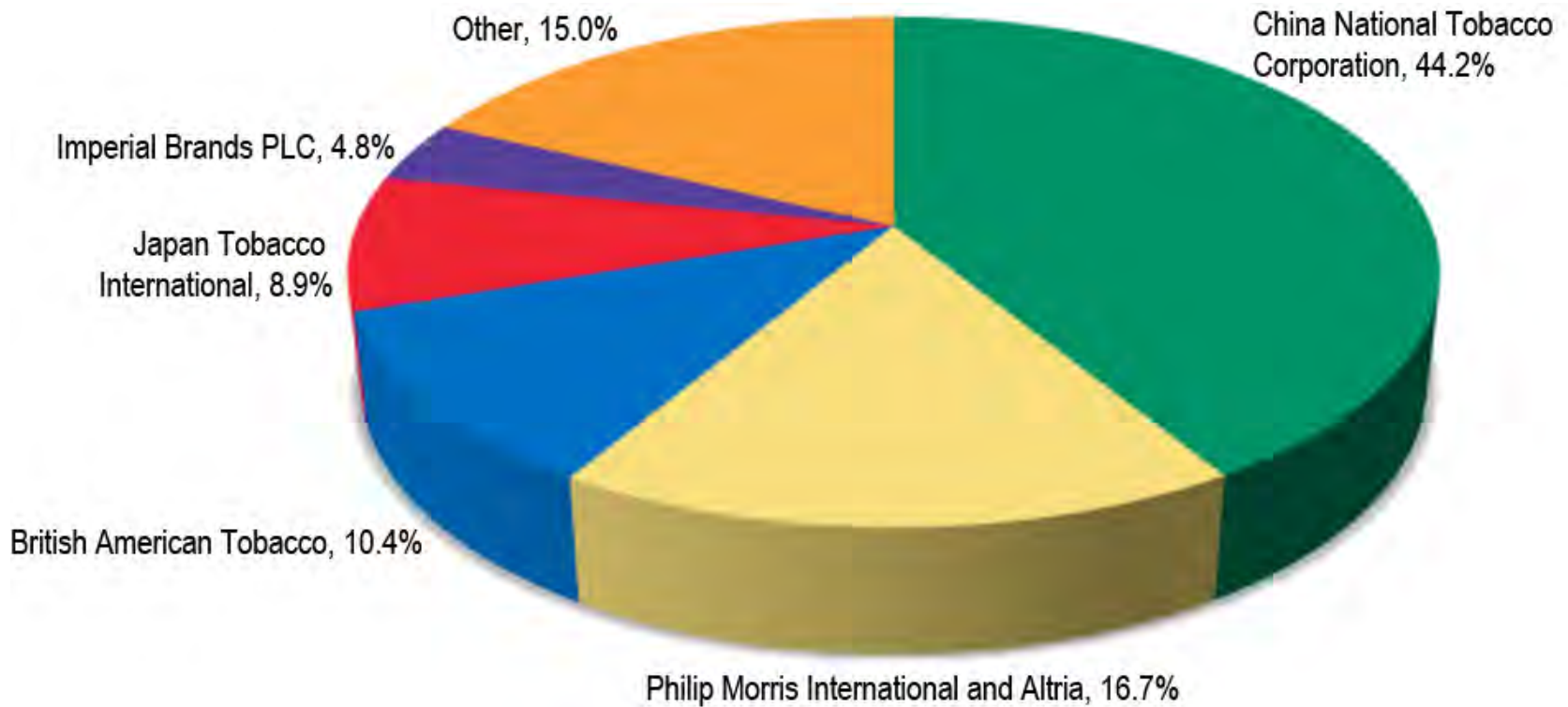
Figure 10.6. Cigarette Production, by WHO Region, 1998–2014



Notes: Data from a total of 74 countries are shown.

Source: Euromonitor International 1998–2014

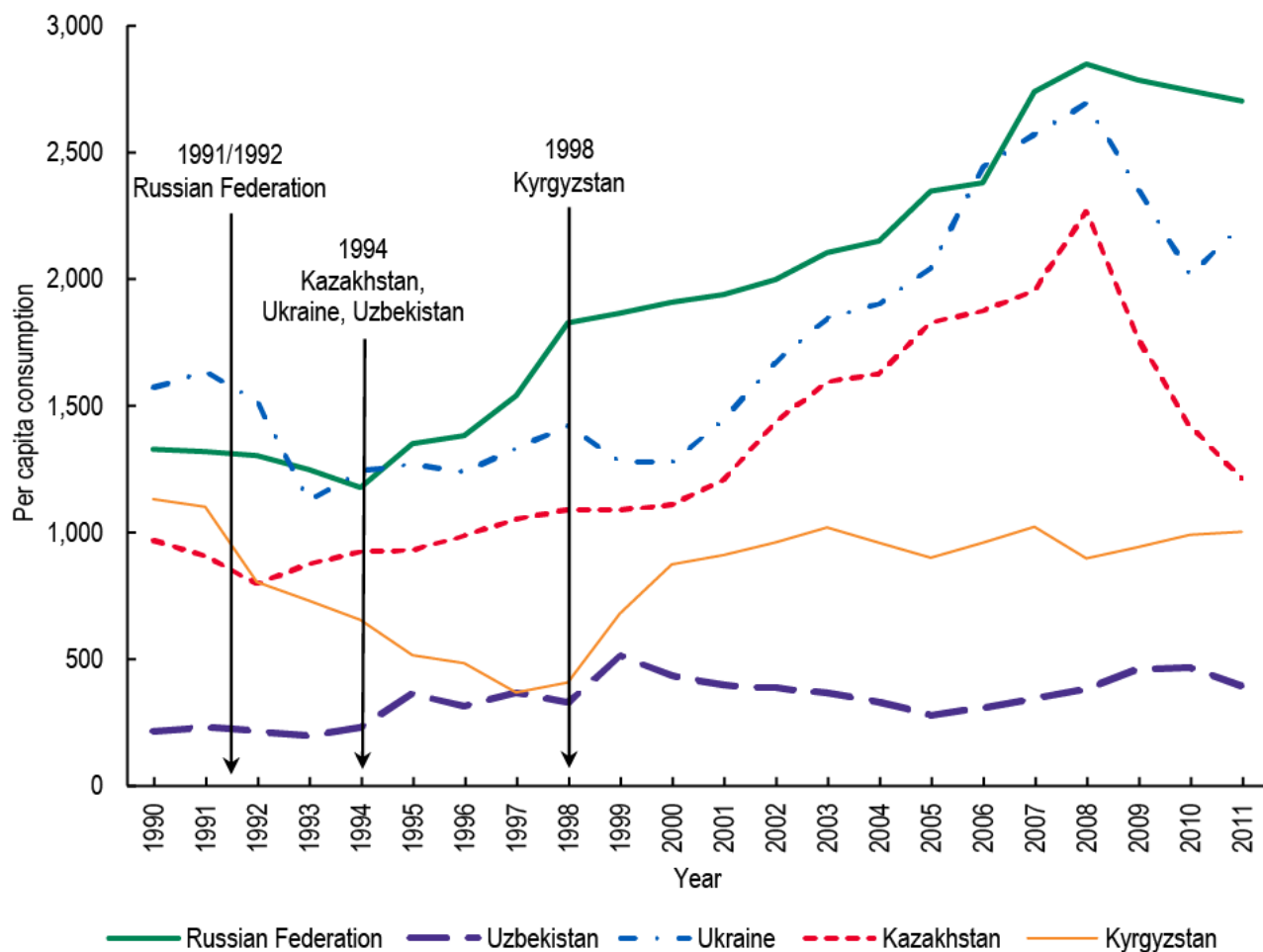
Figure 12.2. Global Cigarette Market Share Distribution, 2014



Note: Philip Morris International includes Philip Morris USA.

Source: Euromonitor International 2016

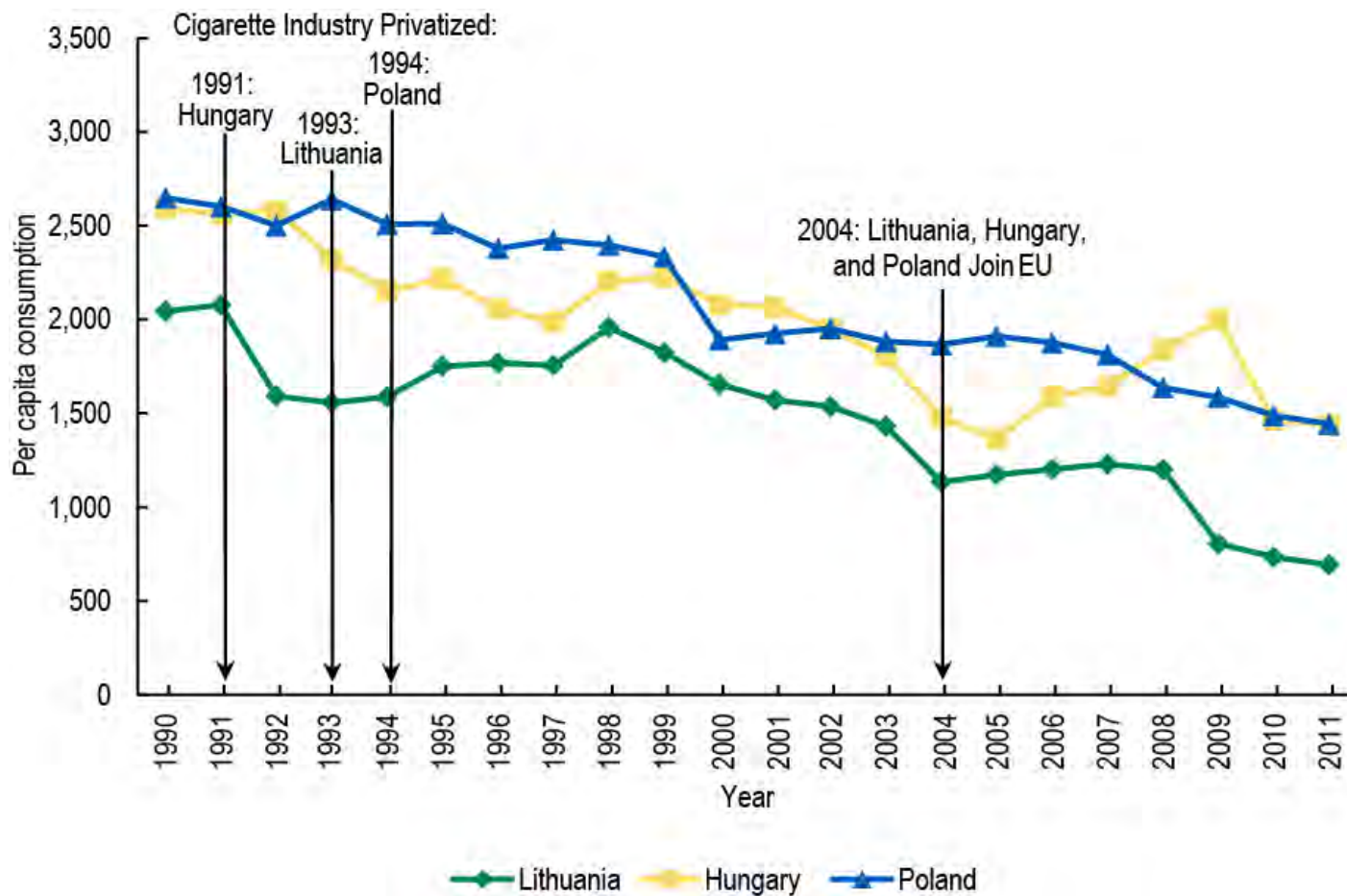
Figure 12.3. Per Capita Consumption of Cigarettes in Selected Countries of the Former Soviet Union, and Year When Privatized Cigarette Production Began, 1990–2011



Note: Multinational tobacco companies (MTCs) entered the market in Ukraine in 1992, but production did not start until 1994. Similarly, negotiations between MTCs and Kyrgyzstan began in 1994, but the MTC did not start production until 1998.

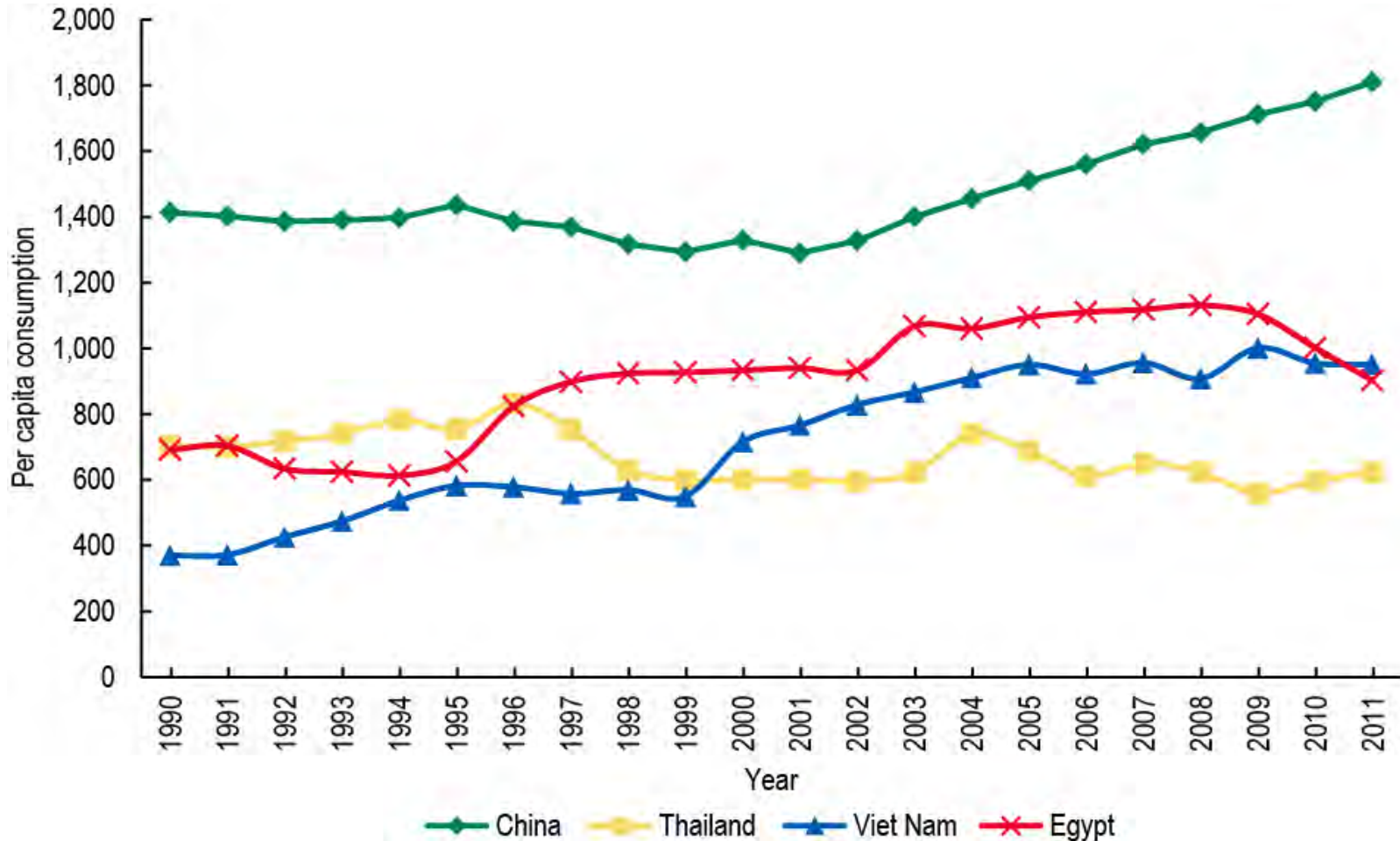
Source: ERC Group 2011

Figure 12.4. Per Capita Consumption of Cigarettes in Lithuania, Hungary, and Poland, and Year When Privatized Cigarette Production Began, 1990–2011



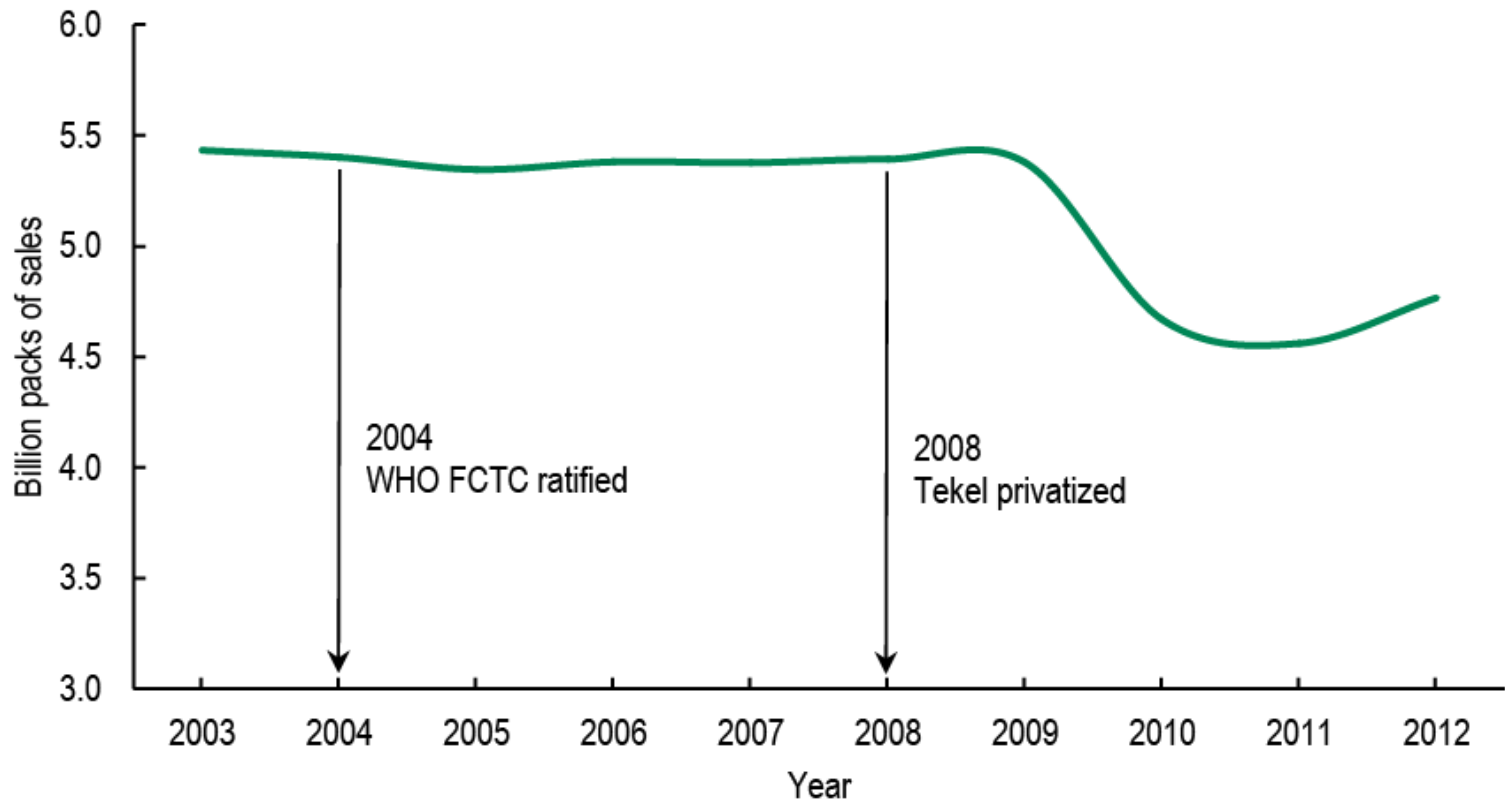
Sources: ERC Group 2009 and 2011

Figure 12.5. Per Capita Consumption of Cigarettes in Four Countries (China, Egypt, Thailand, and Viet Nam) With State-Owned Tobacco Enterprises, 1990–2011



Source: ERC Group 2011

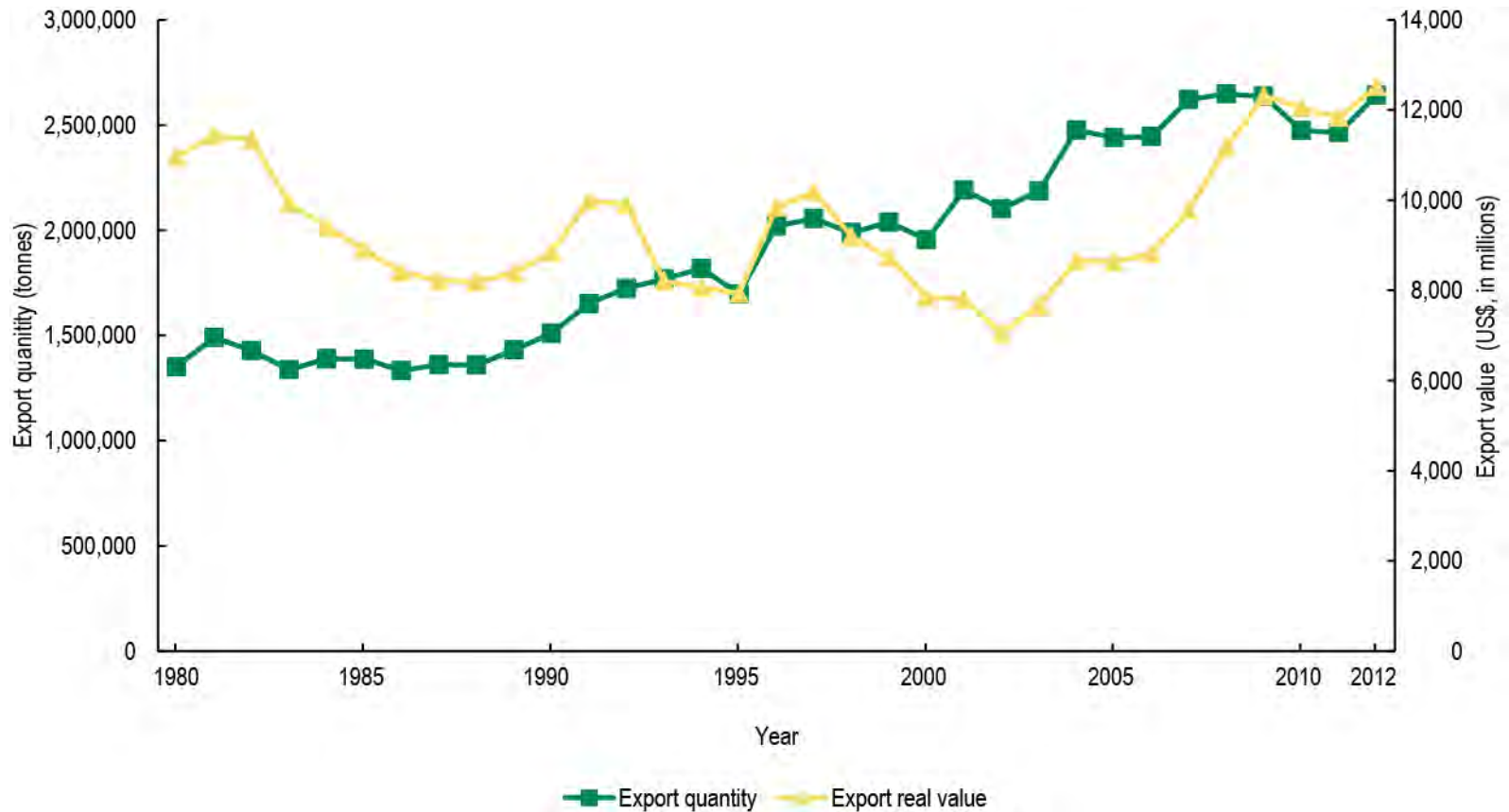
Figure 12.6. Sales of Packs of Cigarettes Before and After Privatization of Tekel in Turkey, 2003–2012



Notes: Sales refers to sales of cigarettes made by all producers, including multinational tobacco companies and Tekel. WHO FCTC = World Health Organization Framework Convention on Tobacco Control.

Source: Euromonitor International 2016

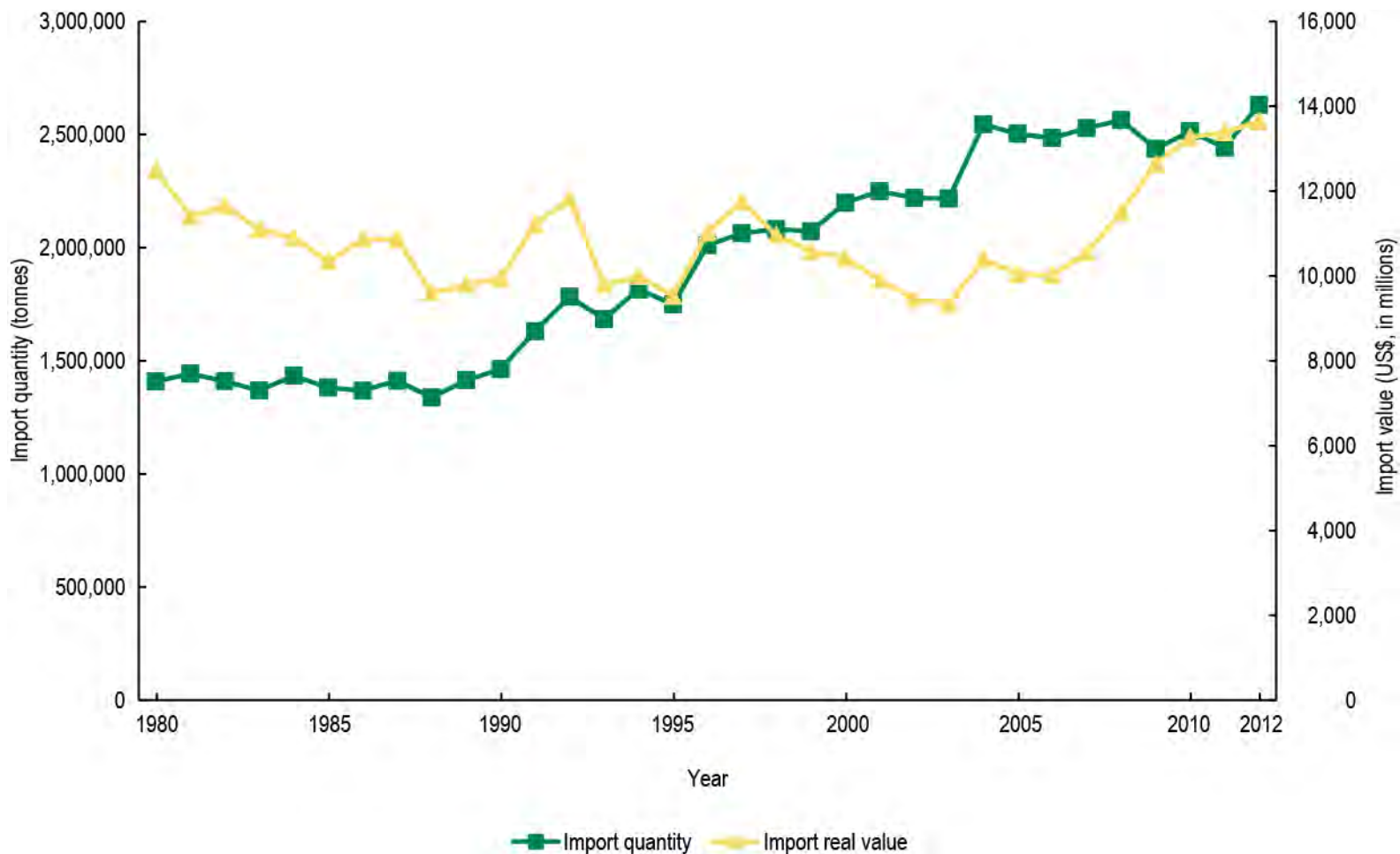
Figure 13.1. Global Tobacco Leaf Exports, Quantity and Inflation-Adjusted Value, 1980–2012



Note: Export value adjusted for inflation using 2012 U.S. dollars.

Source: FAOSTAT 1980–2012

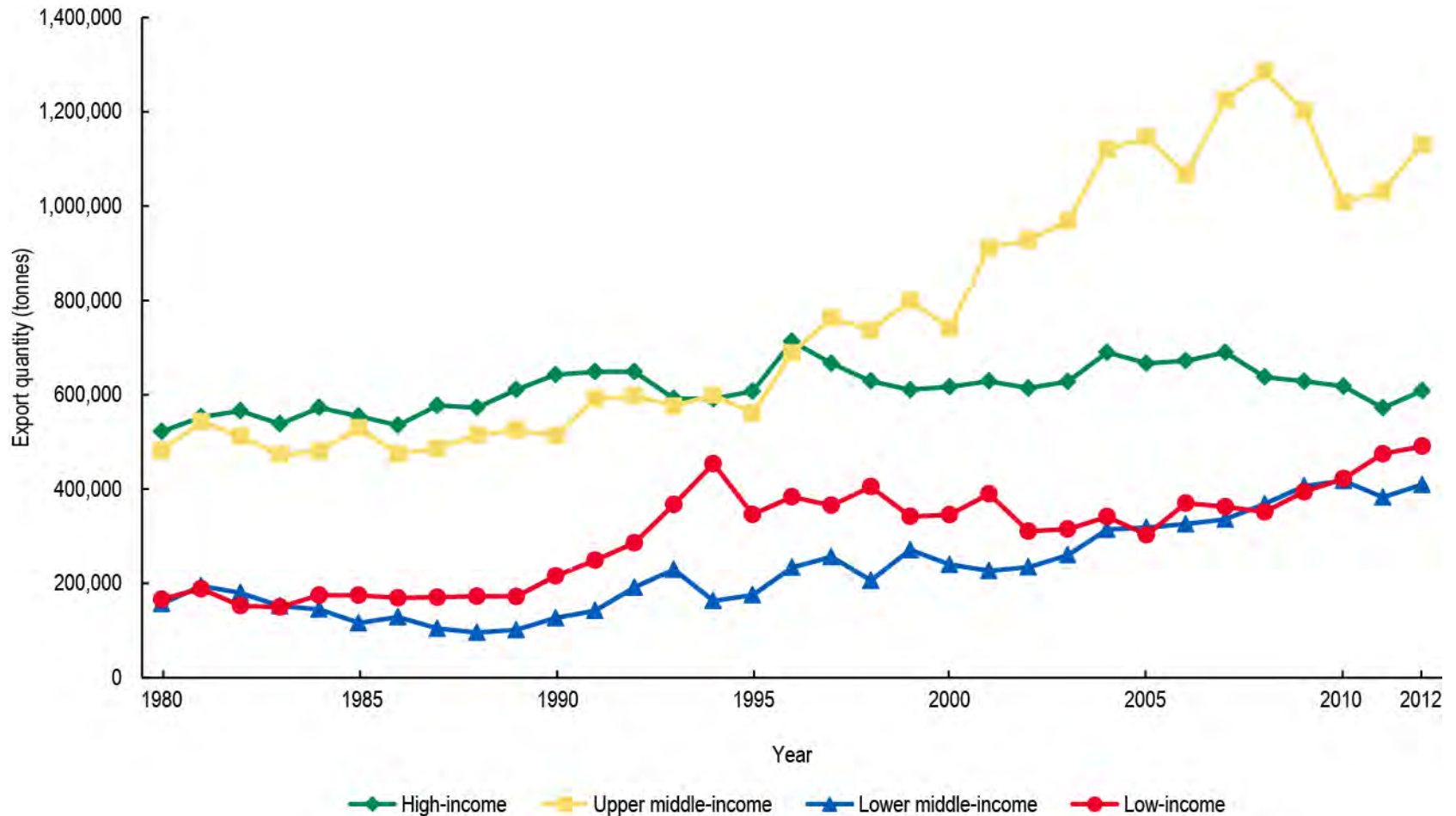
Figure 13.2. Global Tobacco Leaf Imports, Quantity and Inflation-Adjusted Value, 1980–2012



Note: Import value adjusted for inflation using 2012 U.S. dollars.

Source: FAOSTAT 1980–2012

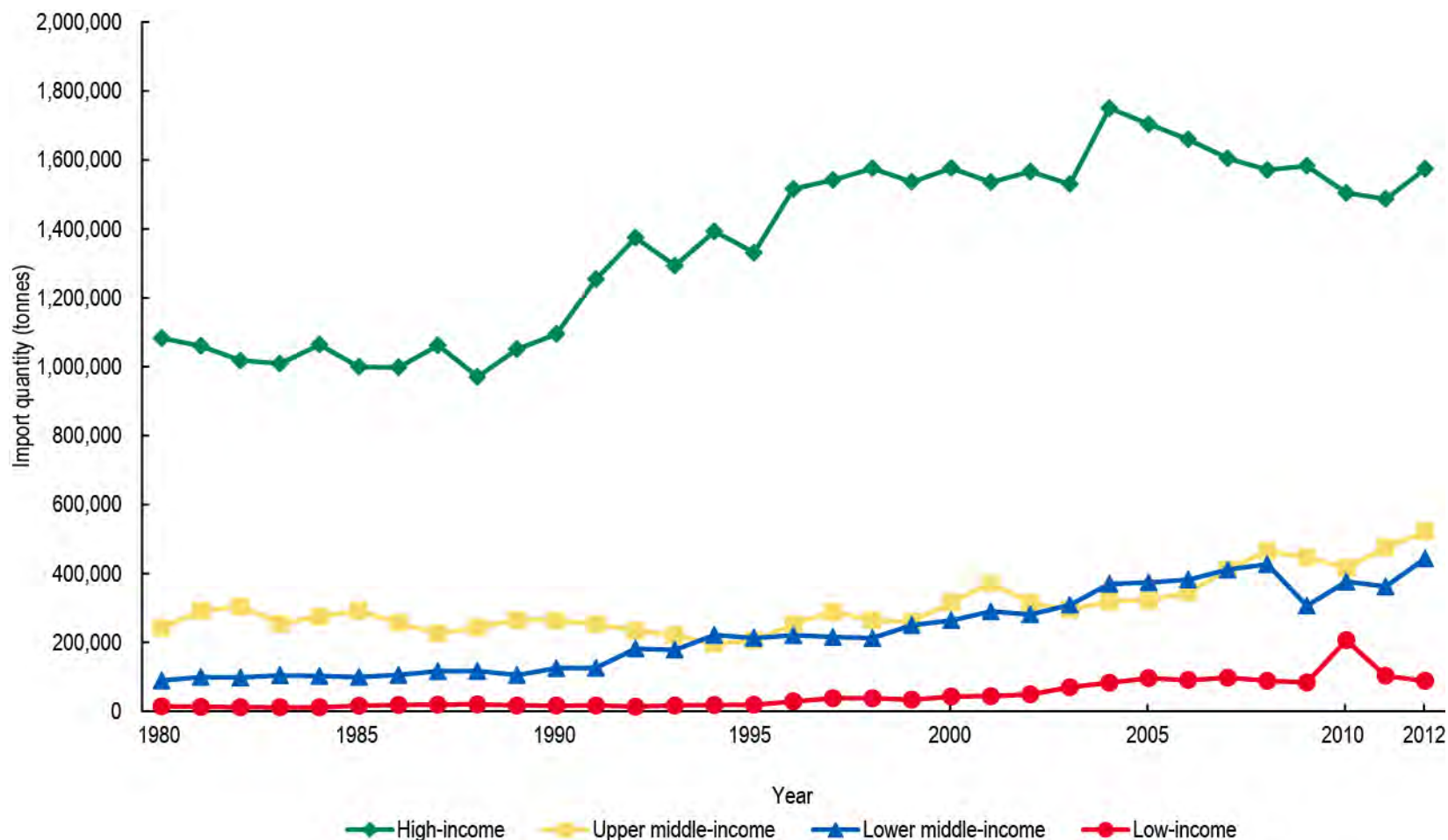
Figure 13.3. Tobacco Leaf Export Quantity, by Country Income Group, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

Source: FAOSTAT 1980–2012

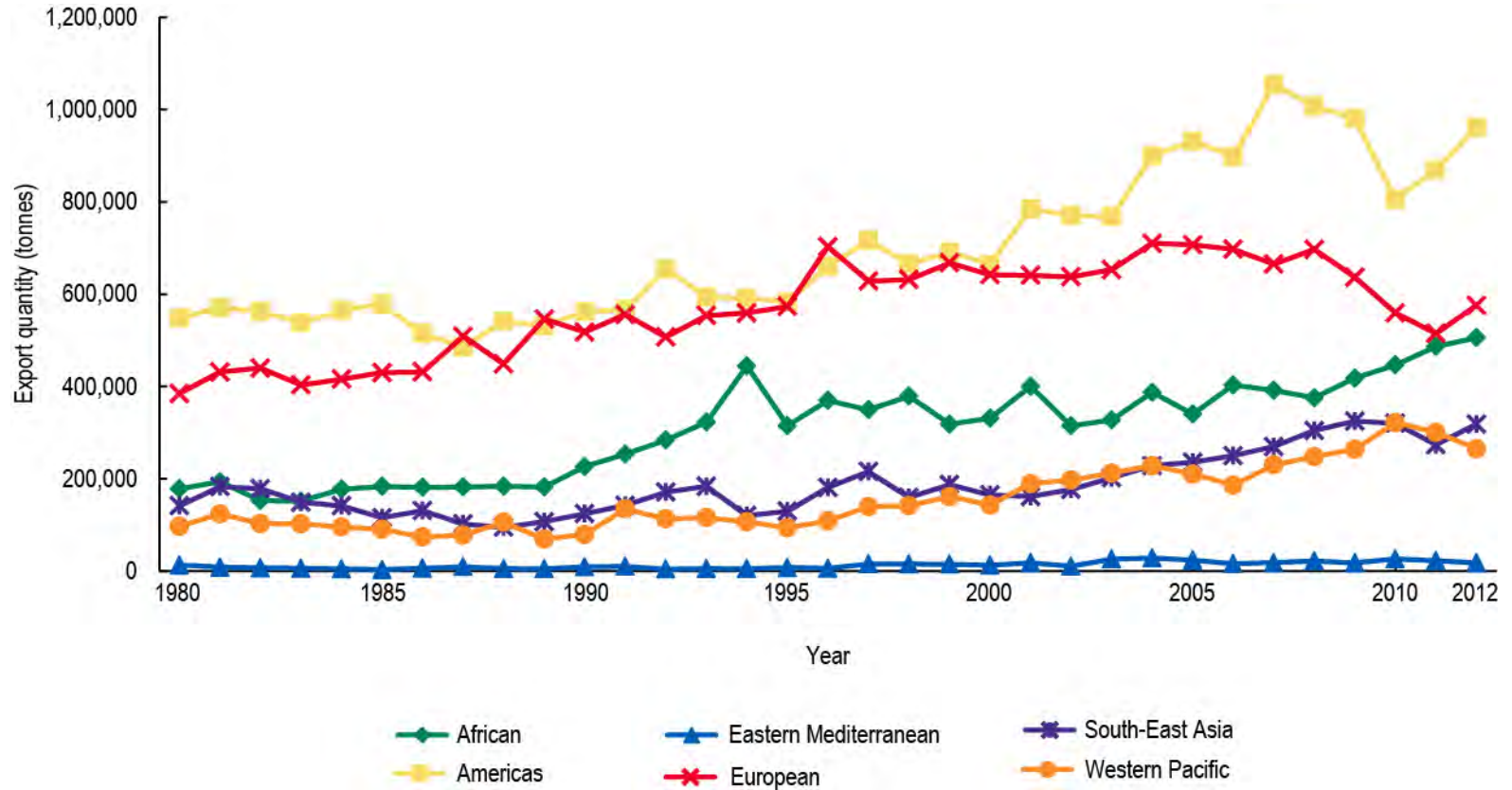
Figure 13.4. Tobacco Leaf Import Quantity, by Country Income Group, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

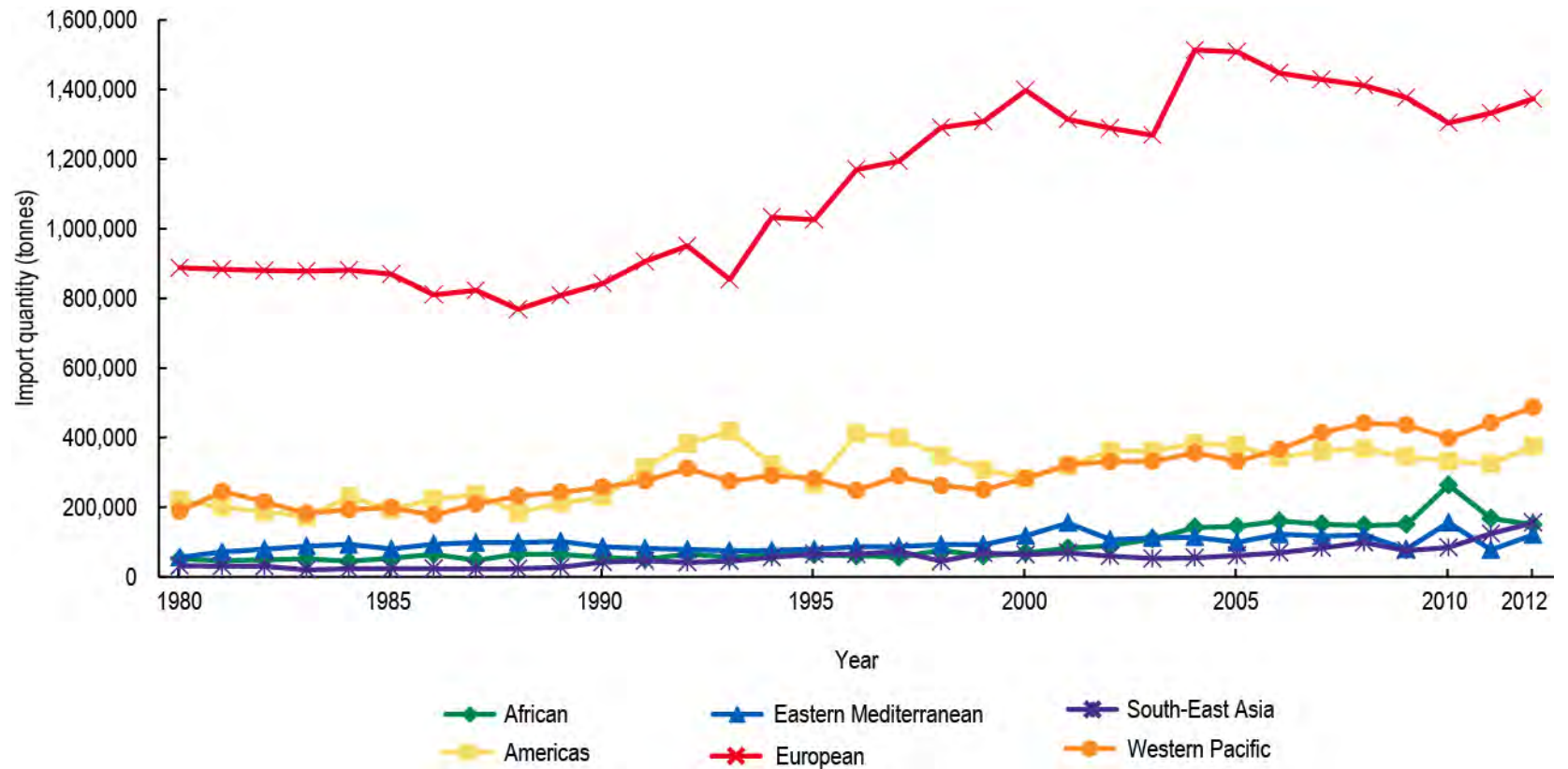
Source: FAOSTAT 1980–2012

Figure 13.5. Tobacco Leaf Export Quantity, by WHO Region, 1980–2012



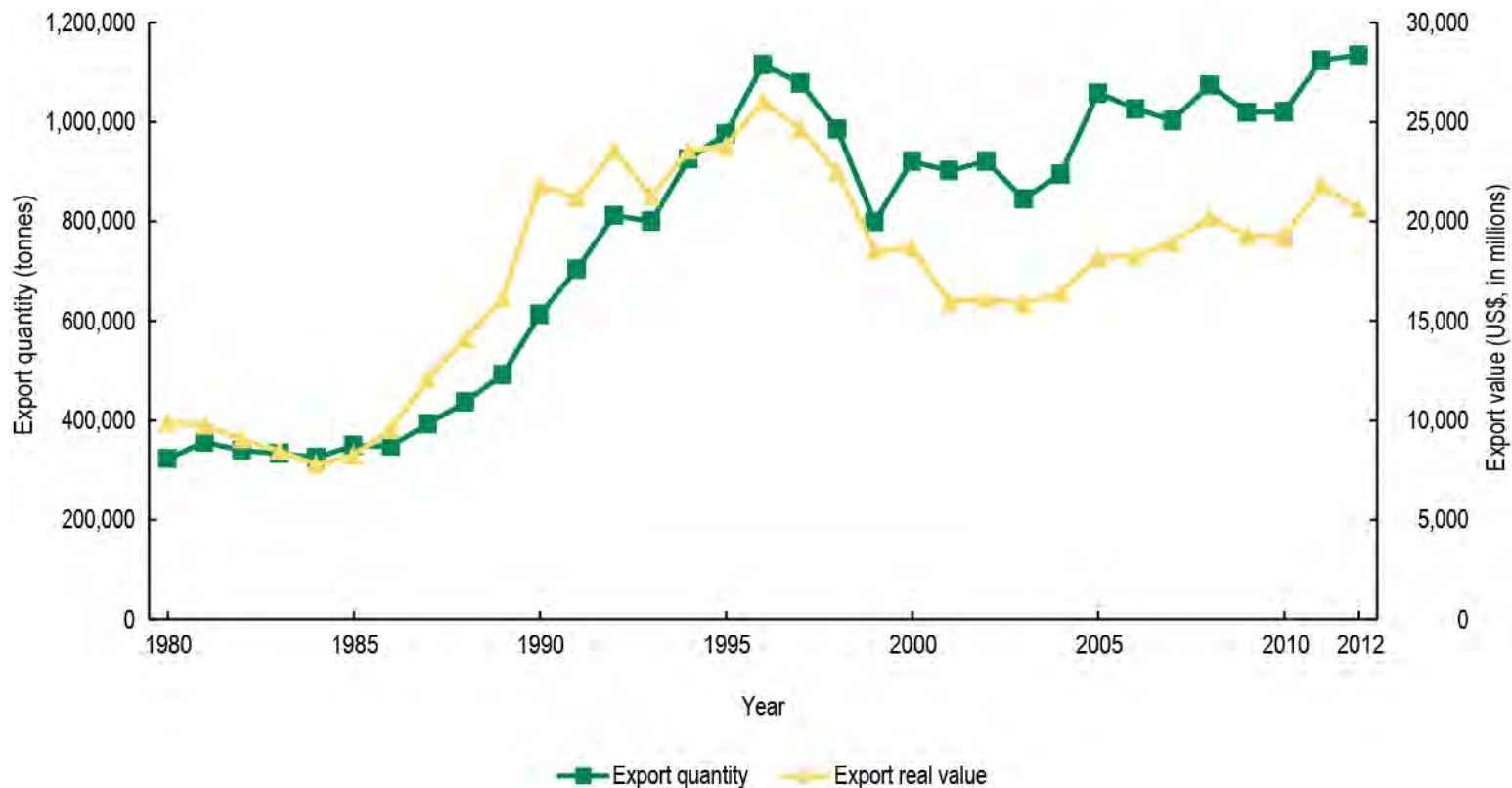
Source: FAOSTAT 1980–2012

Figure 13.6. Tobacco Leaf Import Quantity, by WHO Region, 1980–2012



Source: FAOSTAT 1980–2012

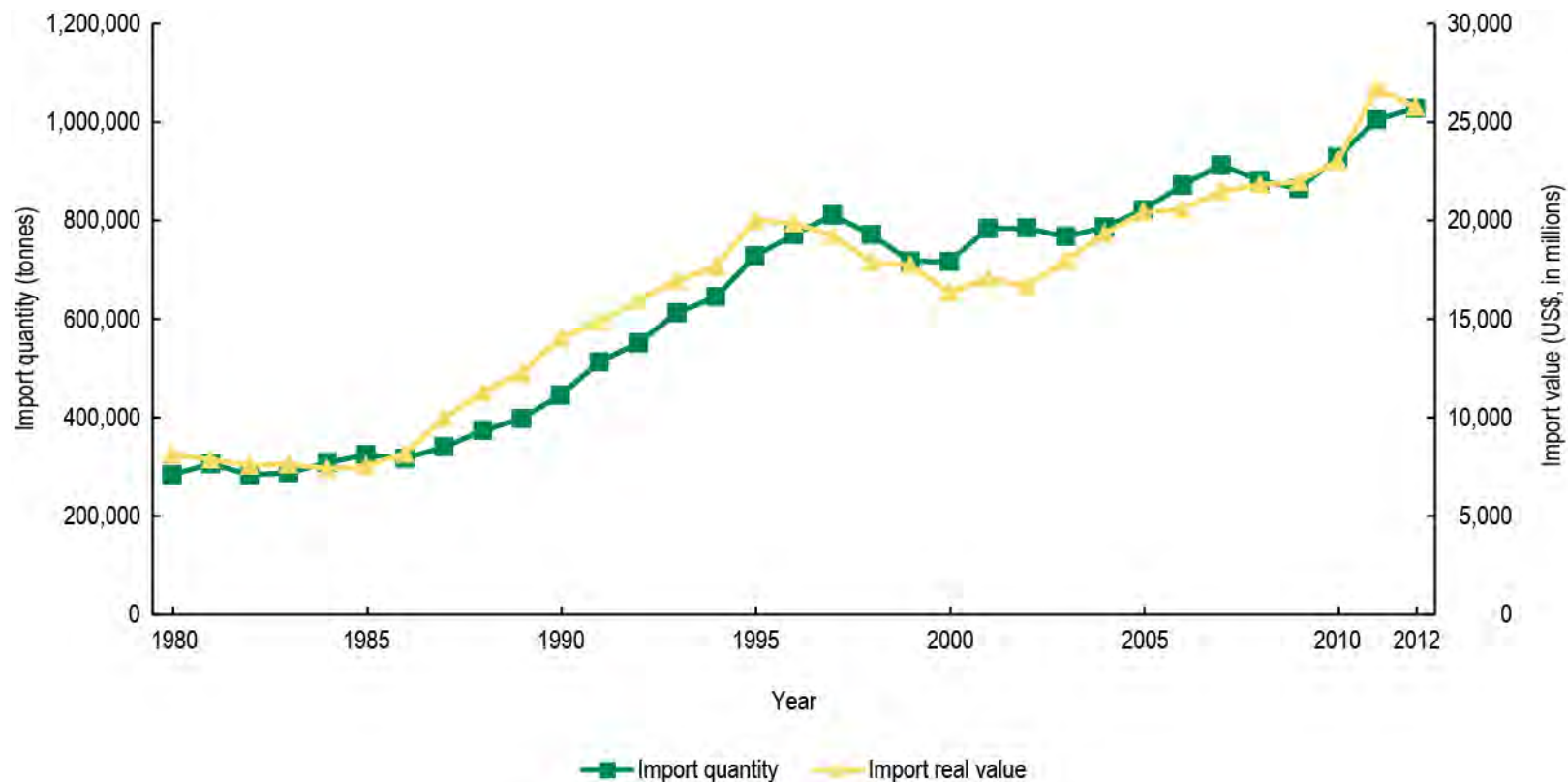
Figure 13.7. Global Cigarette Exports, Quantity and Inflation-Adjusted Value, 1980–2012



Note: Export value adjusted for inflation using 2012 U.S. dollars.

Source: FAOSTAT 1980–2012

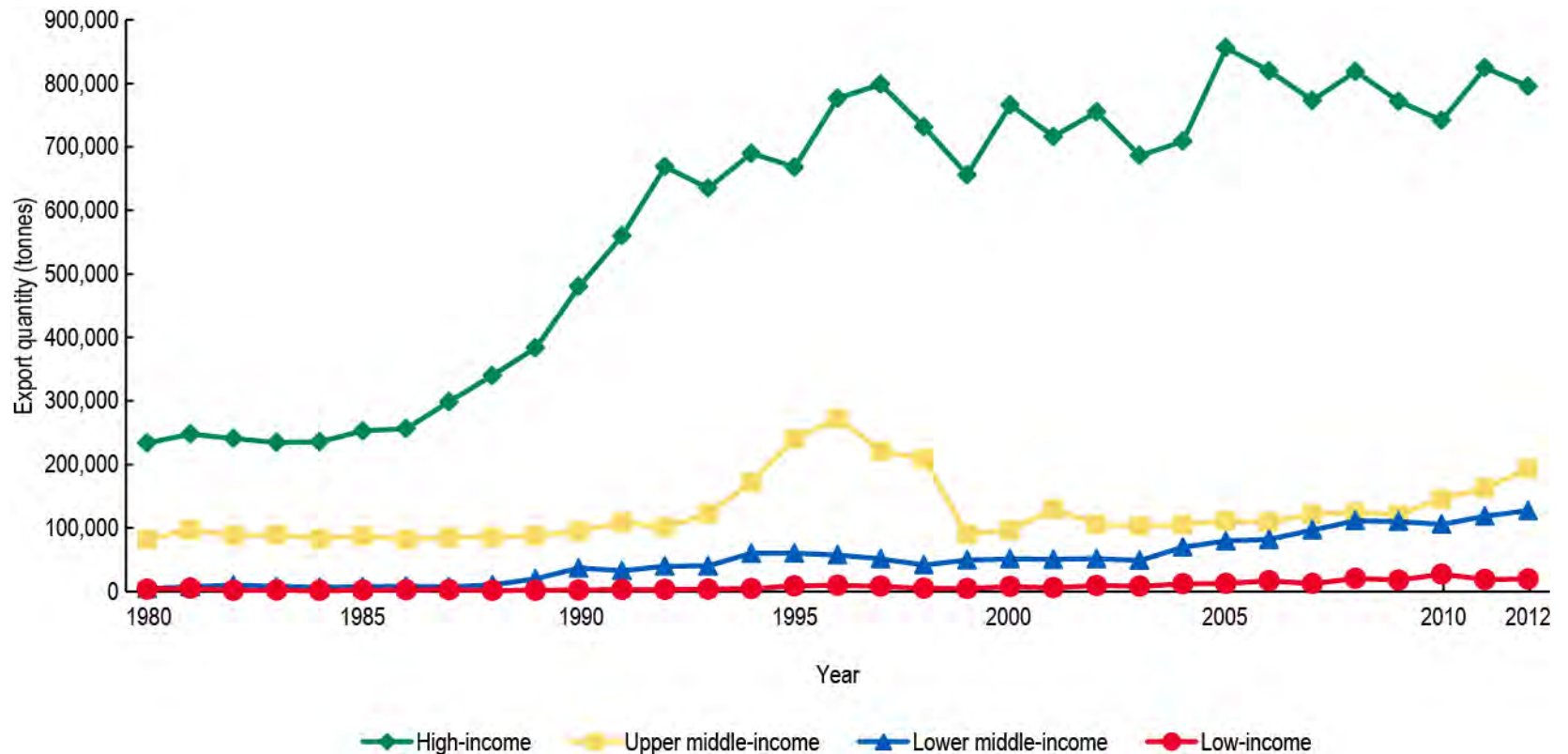
Figure 13.8. Global Cigarette Imports, Quantity and Inflation-Adjusted Value, 1980–2012



Note: Import value adjusted for inflation using 2012 U.S. dollars.

Source: FAOSTAT 1980–2012

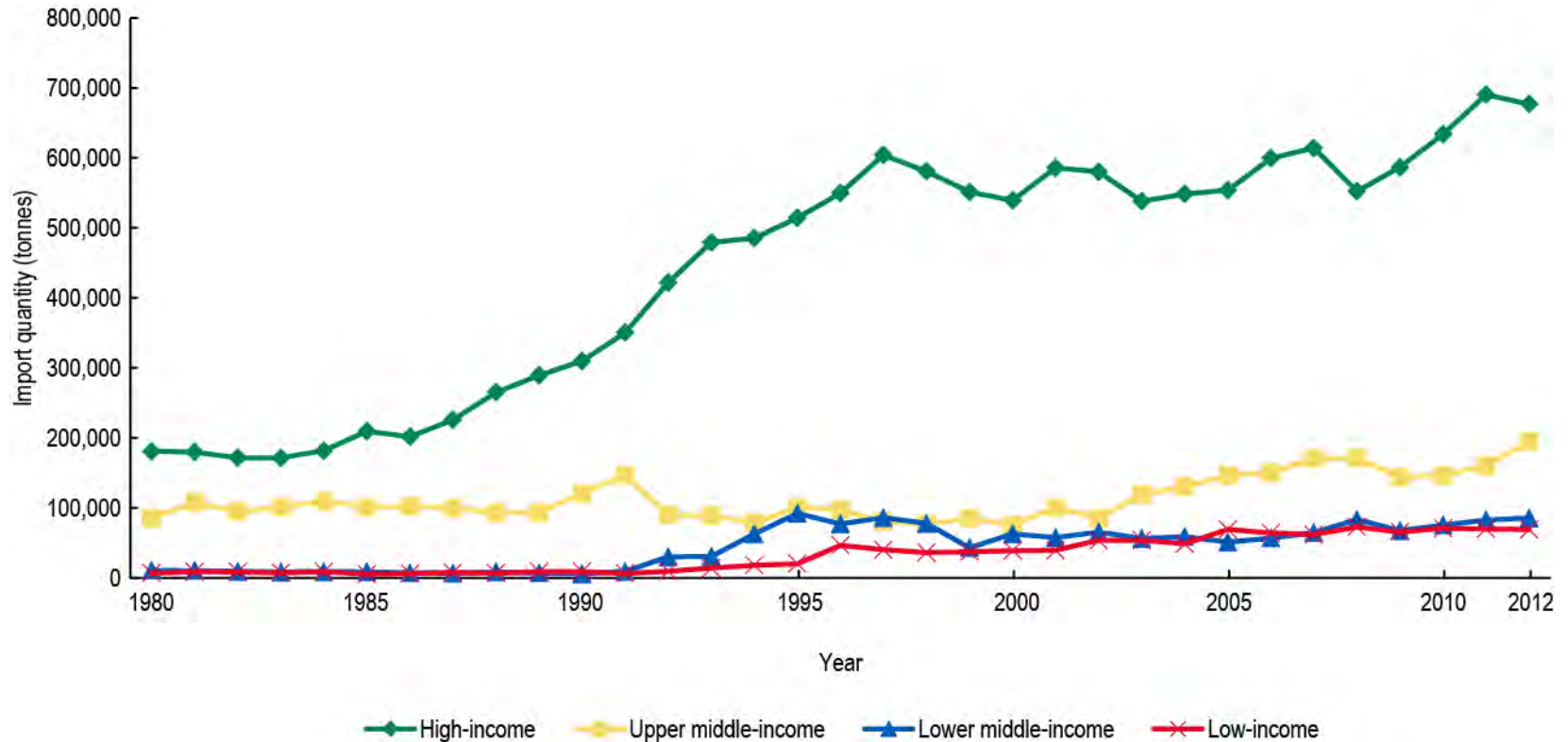
Figure 13.9. Cigarette Export Quantity, by Country Income Group, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

Source: FAOSTAT 1980–2012

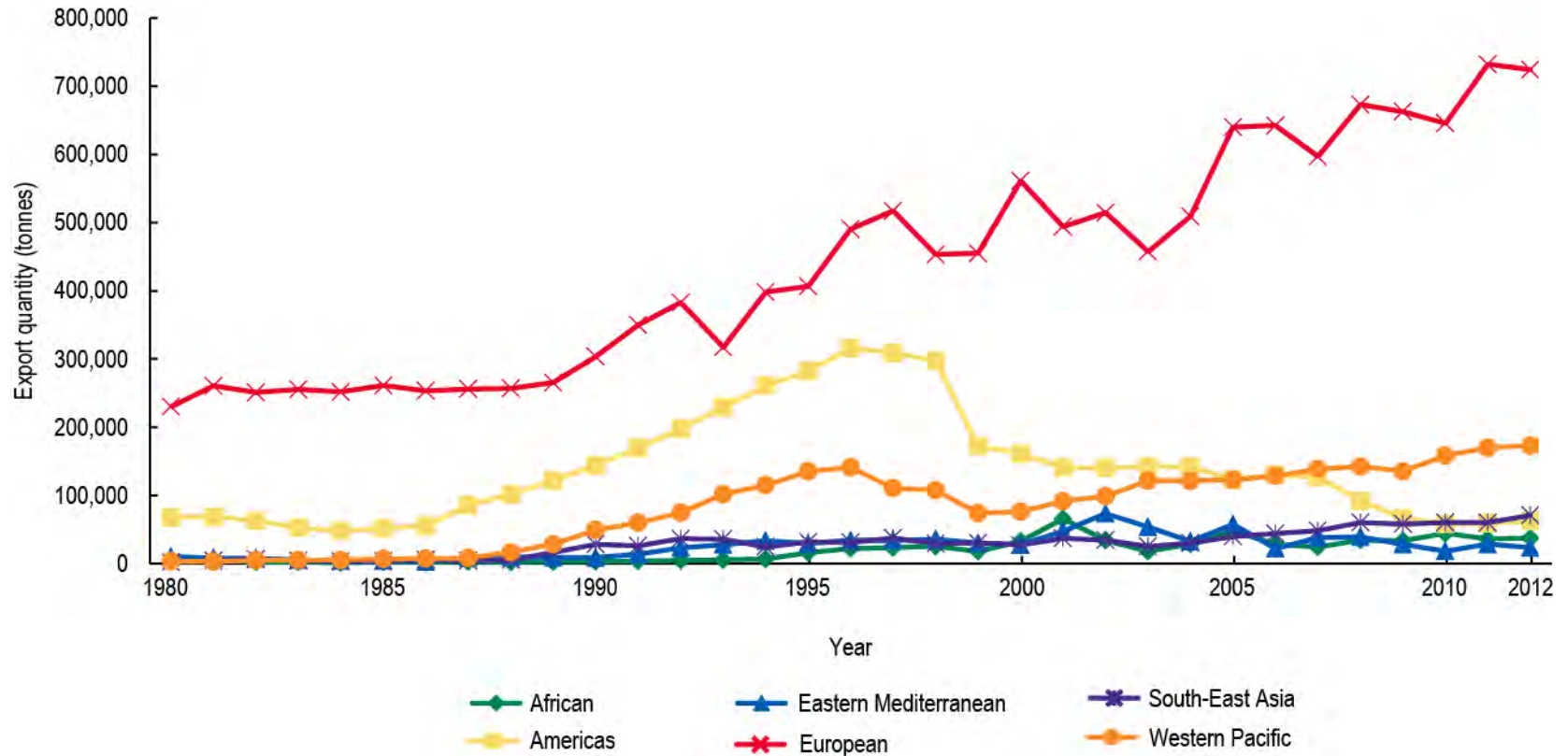
Figure 13.10. Cigarette Import Quantity, by Country Income Group, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

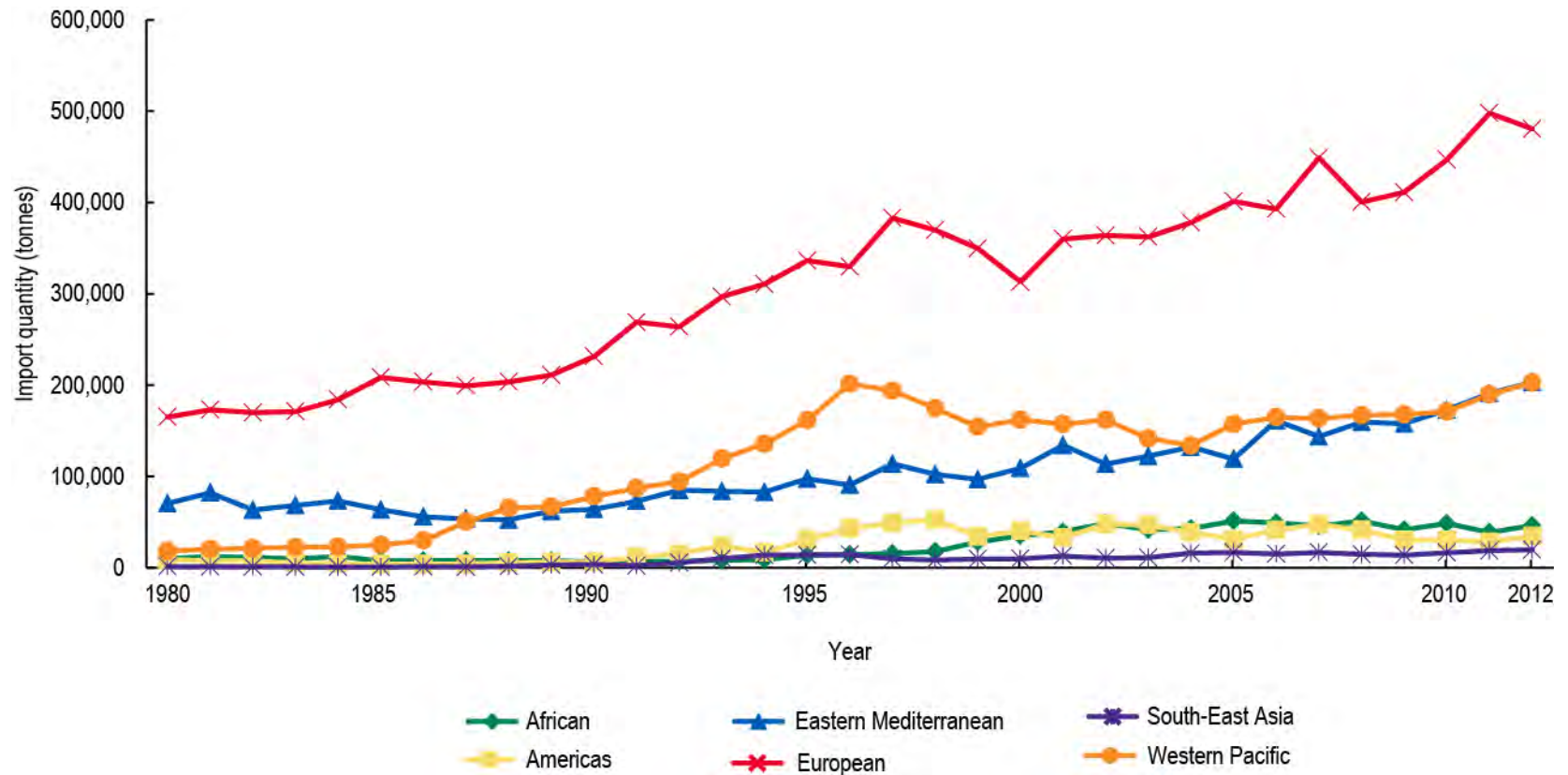
Source: FAOSTAT 1980–2012

Figure 13.11. Cigarette Export Quantity, by WHO Region, 1980–2012



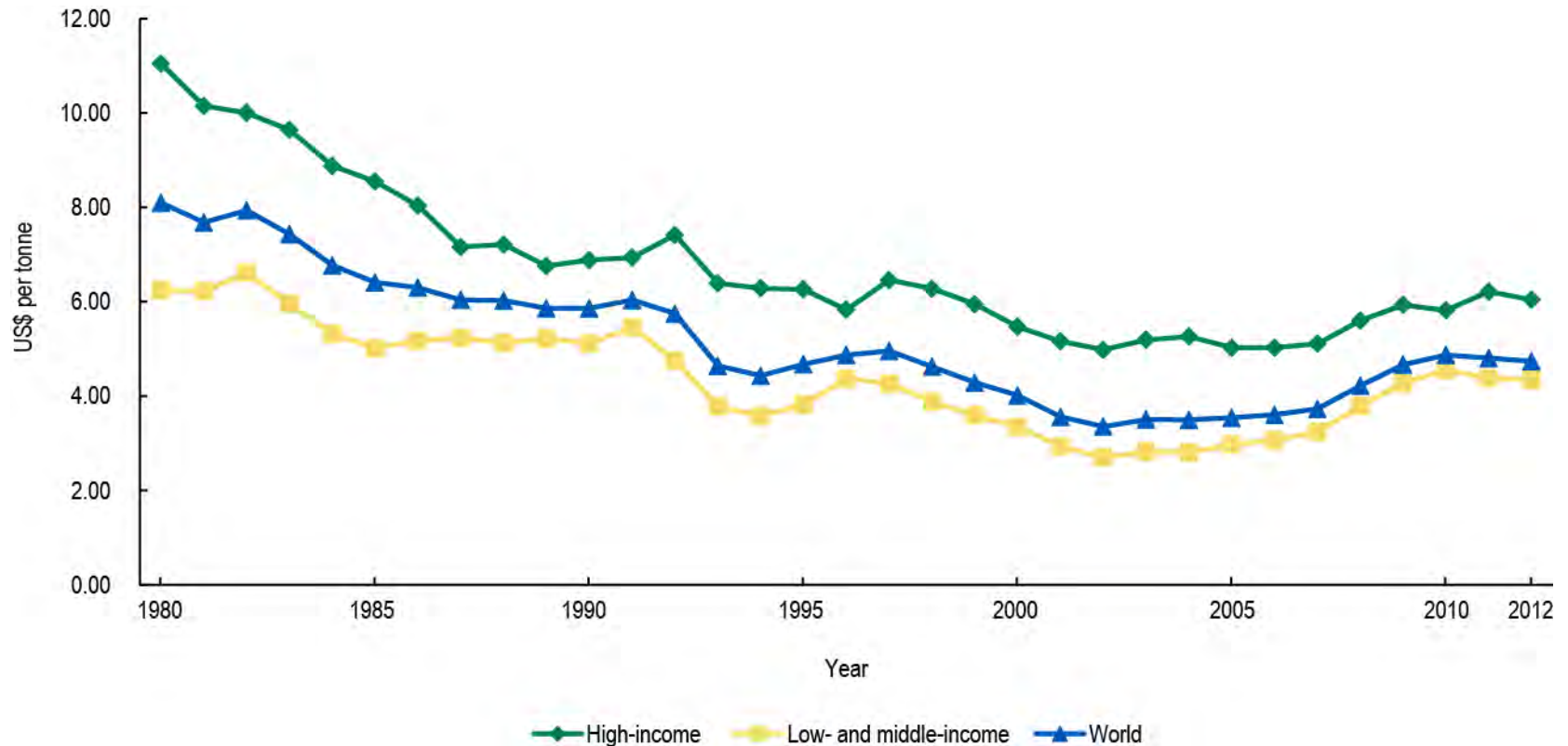
Source: FAOSTAT 1980–2012

Figure 13.12. Cigarette Import Quantity, by WHO Region, 1980–2012



Source: FAOSTAT 2015

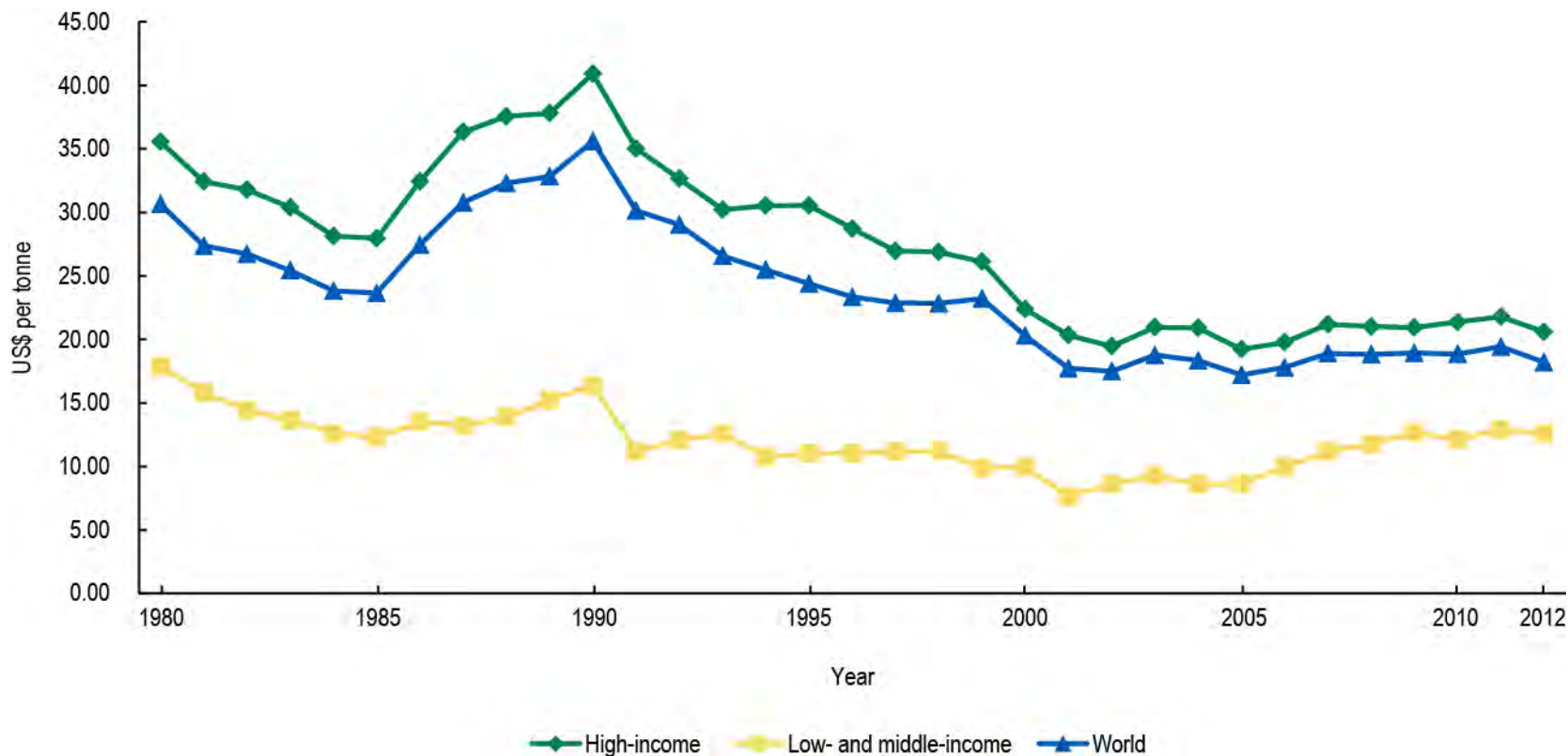
Figure 13.13. Real Price of Tobacco Leaf Exports for High-Income Countries and Low- and Middle-Income Countries and at the Global Level, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

Source: FAOSTAT 1980–2012

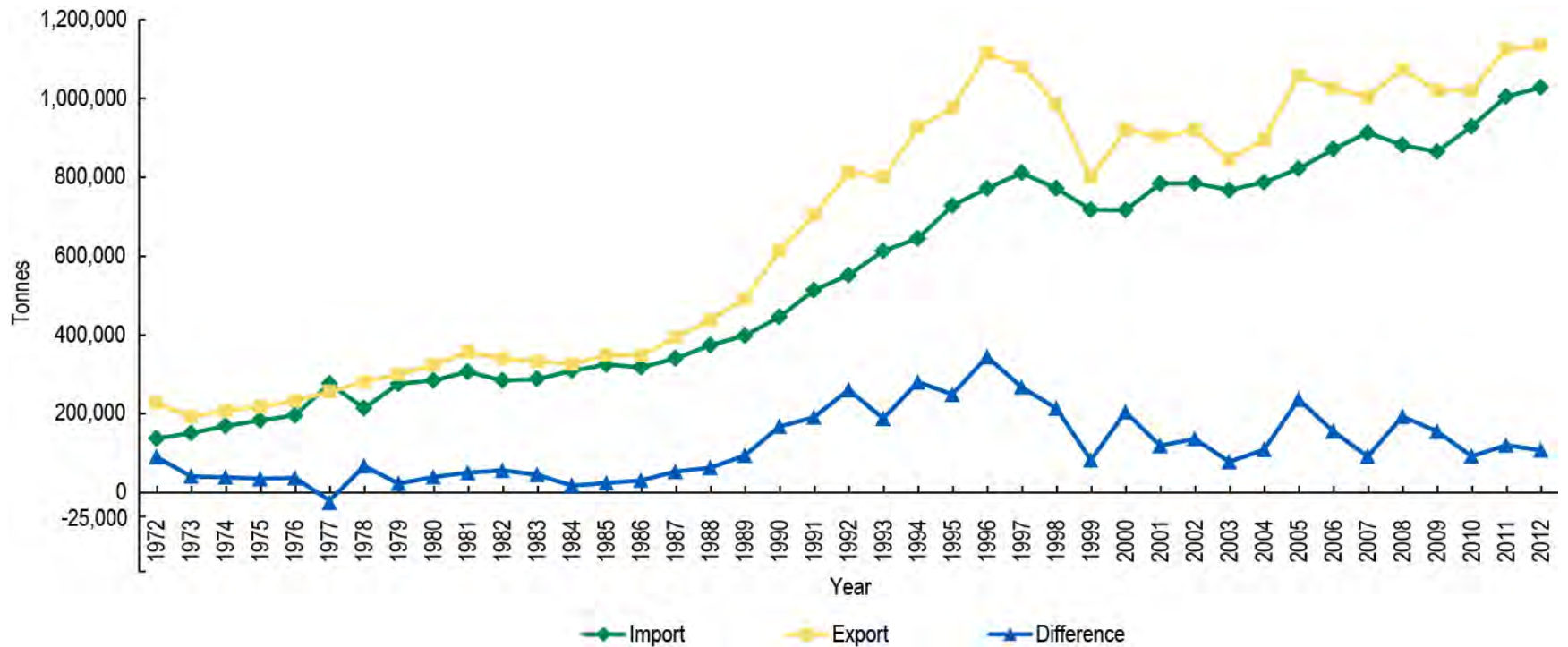
Figure 13.14. Real Price of Cigarette Exports for High-Income Countries and Low- and Middle-Income Countries and at the Global Level, 1980–2012



Note: Country income group classification based on World Bank Analytical Classifications for 2012.

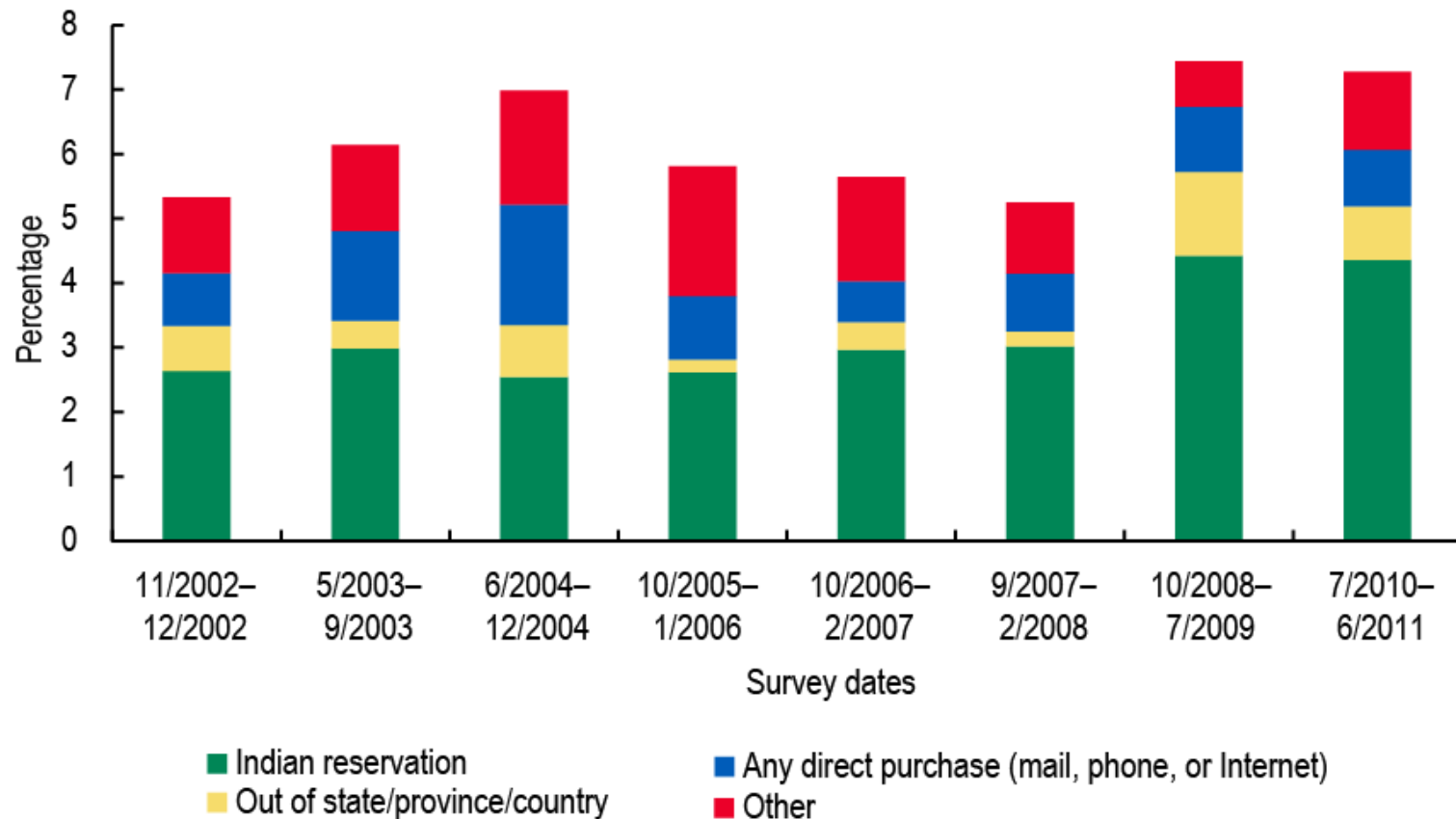
Source: FAOSTAT 1980–2012

Figure 14.3. Global Cigarette Exports and Imports and the Trade Discrepancy Between Them, 1972–2012



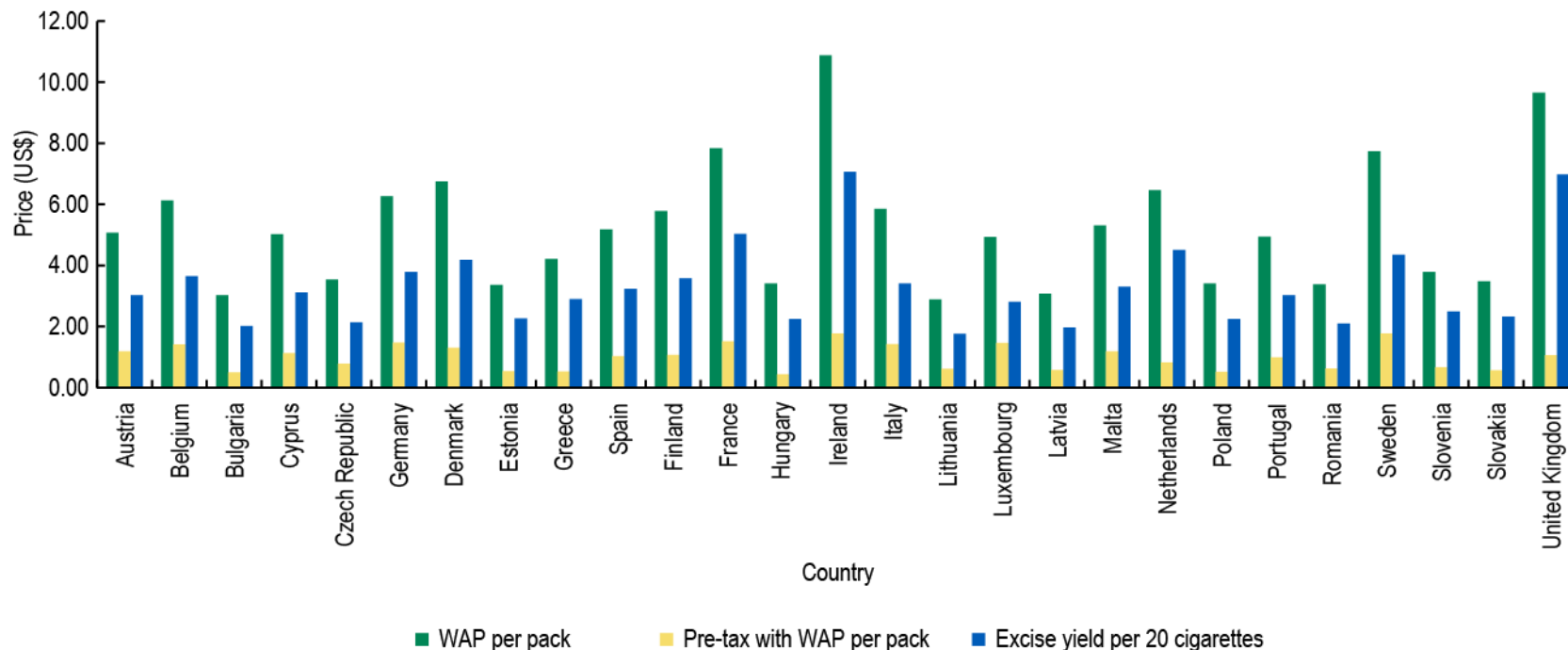
Source: FAOSTAT 1972–2012

Figure 14.4. Tax Avoidance by U.S. Smokers at Last Purchase, November 2002–June 2011



Source: Guindon et al. 2014

Figure 14.6. Taxation and Weighted Average Price on a Pack of 20 Cigarettes, in U.S. Dollars, in Selected EU Countries, 2012-2013



Note: WAP = weighted average price. Price per pack shown in 2012 U.S. dollars.

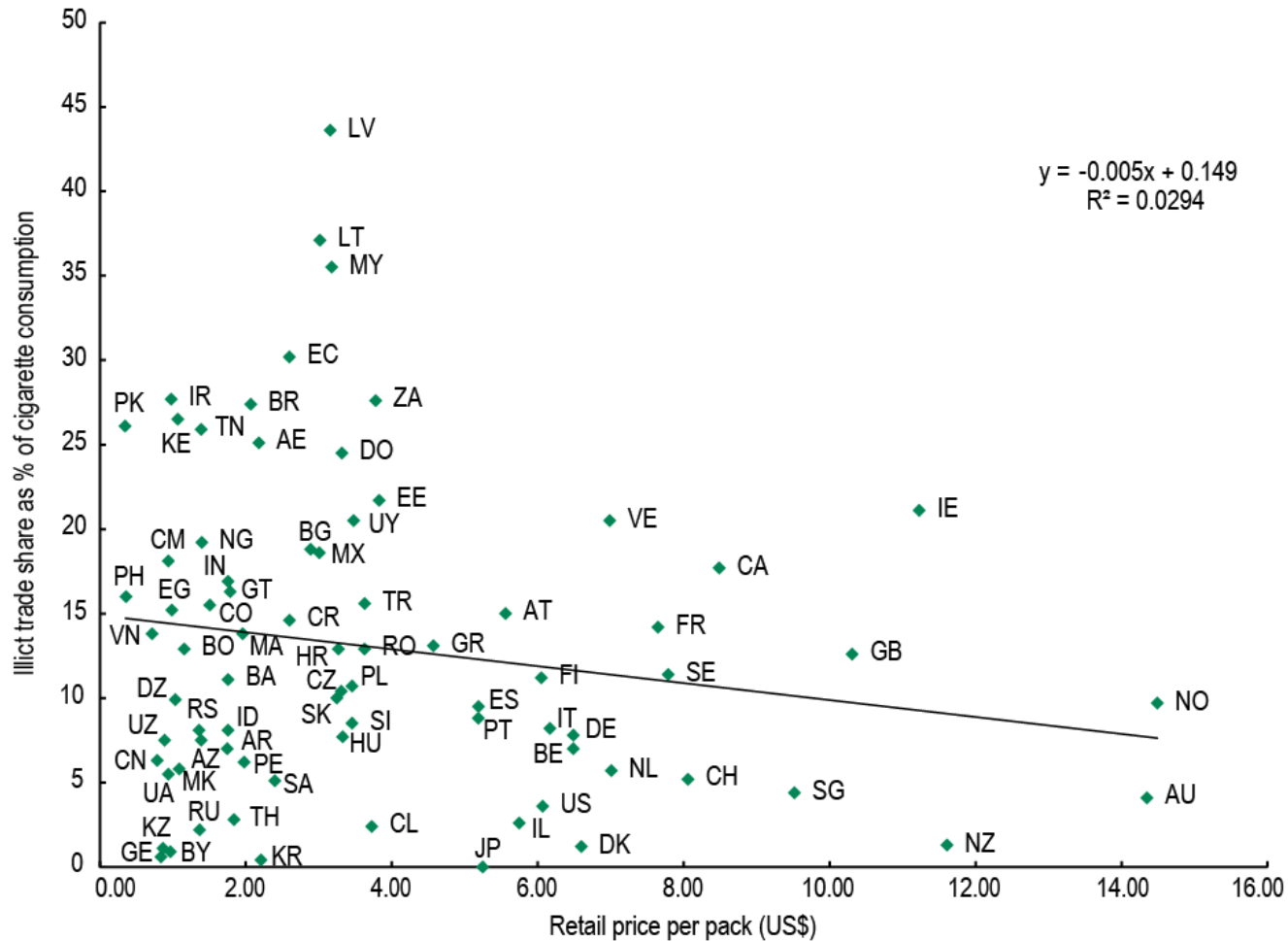
Sources: European Commission 2012-2013 and World Health Organization 2013

Figure 14.7. Illicit Trade Versus Retail Price for the Most Popular Brands, by Country Income Group, 2007



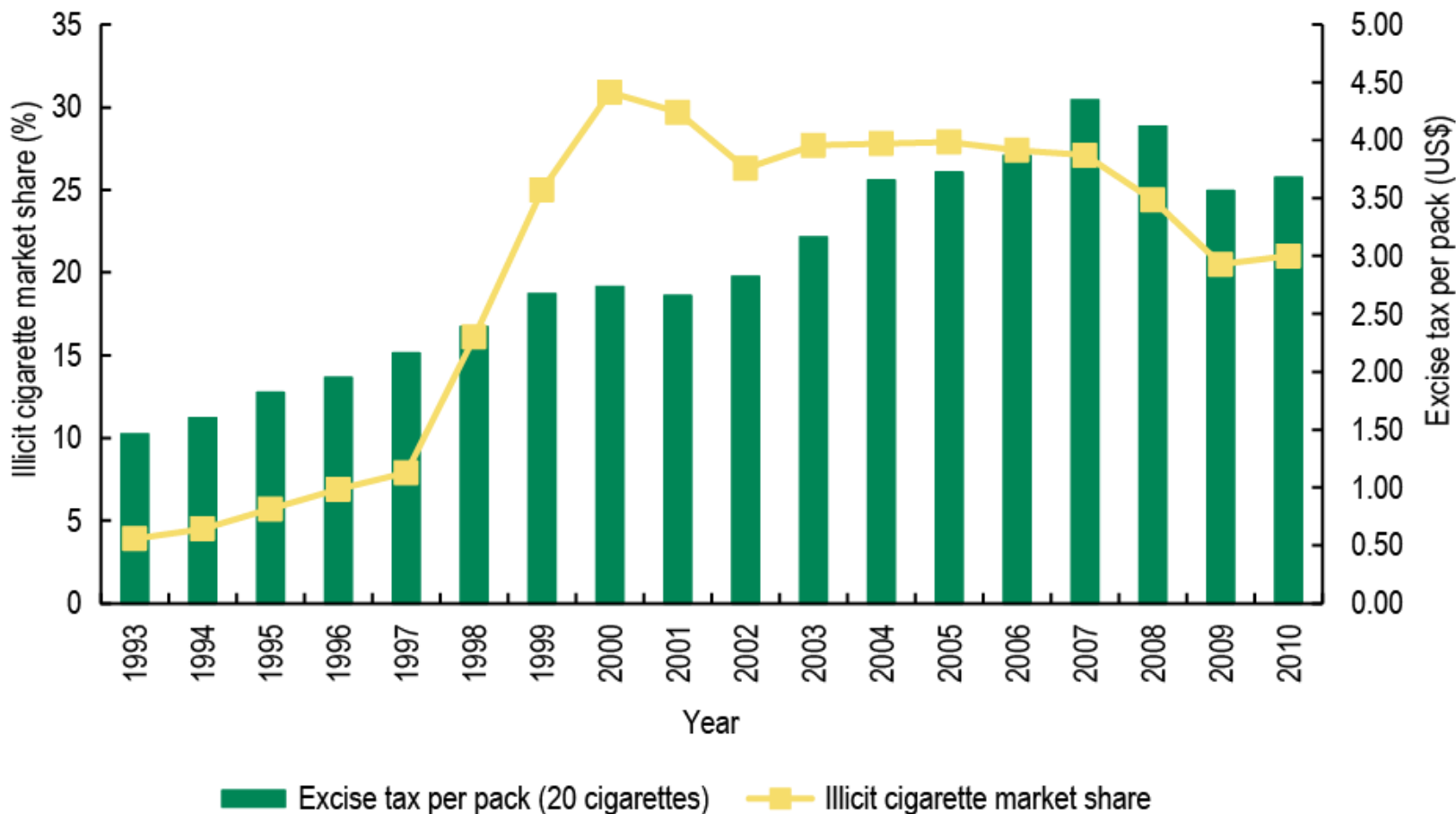
Source: Joossens et al. 2009

Figure 14.8. Share of Illicit Trade Versus Retail Prices of the Most Popular Brands, by Country, 2012



Sources: World Health Organization 2013 and Euromonitor International 2012

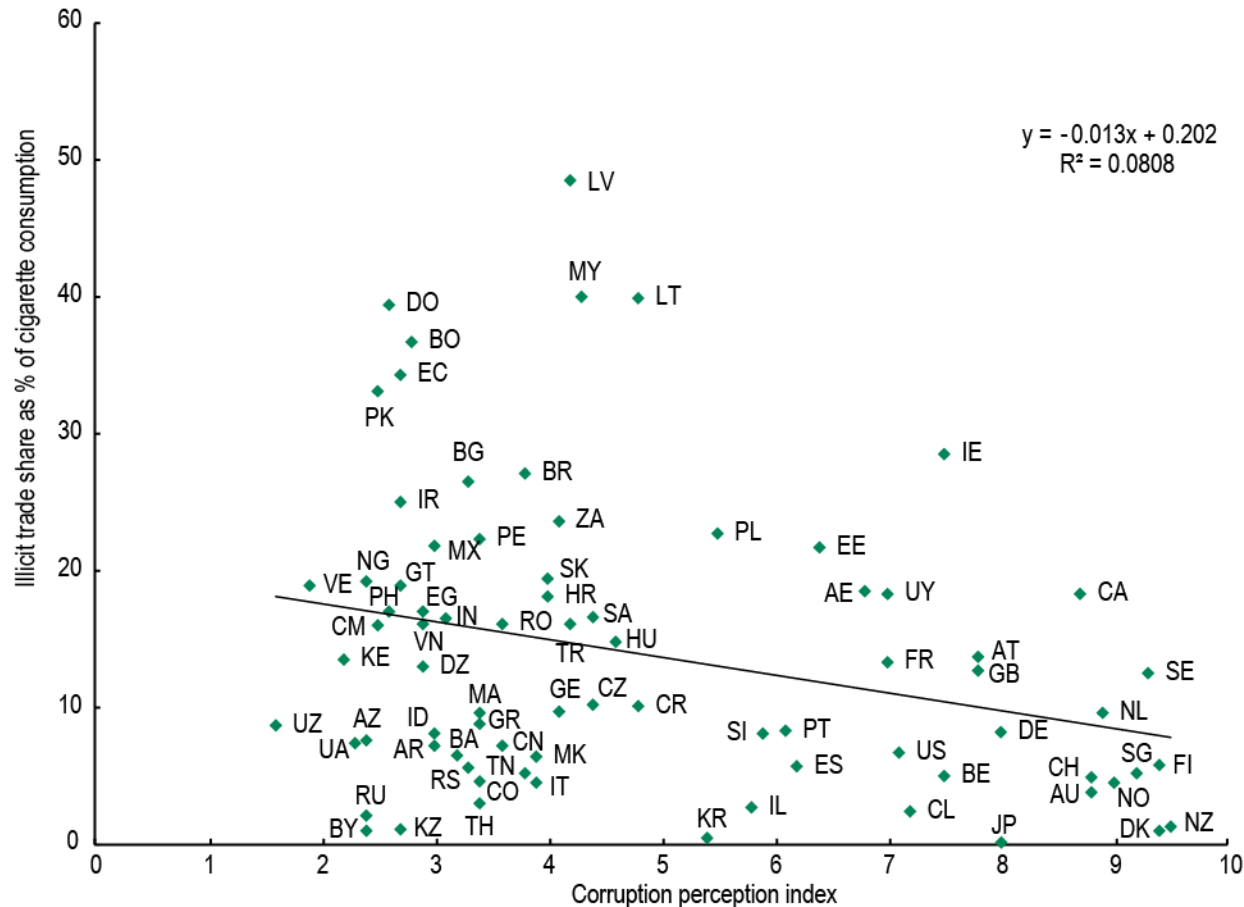
Figure 14.9. Cigarette Taxes and *ESTIMATED* Illicit Cigarette Market Share, United Kingdom, 1993–2010



Note: Prices were converted to U.S. dollars.

Sources: Her Majesty's Customs and Excise 2015 and ERC Group 2011

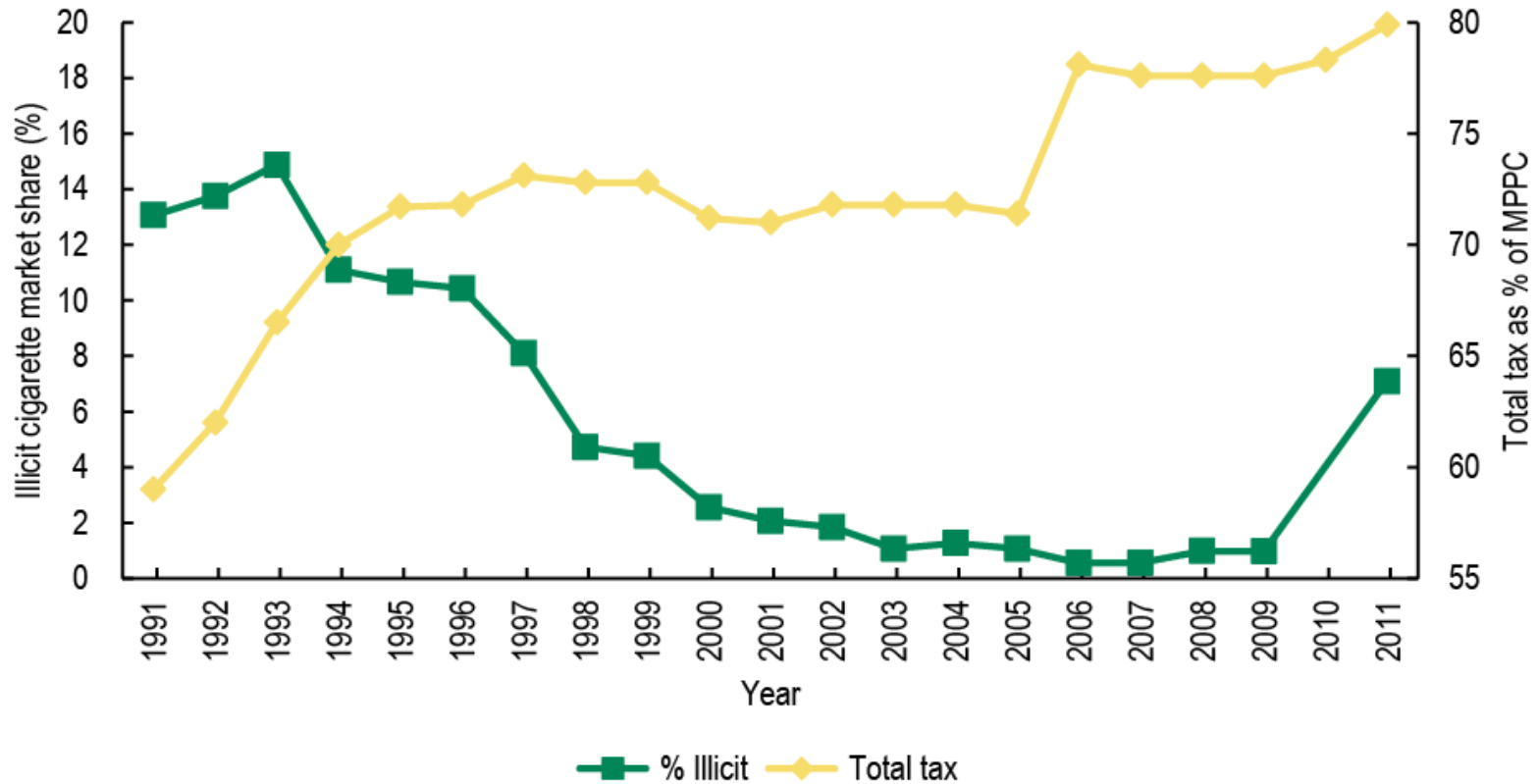
Figure 14.10. Share of Illicit Trade Versus Corruption, by Country, 2011



Note: Lower scores on the corruption perception index indicate higher levels of corruption.

Sources: Euromonitor International 2011 and Transparency International 2011

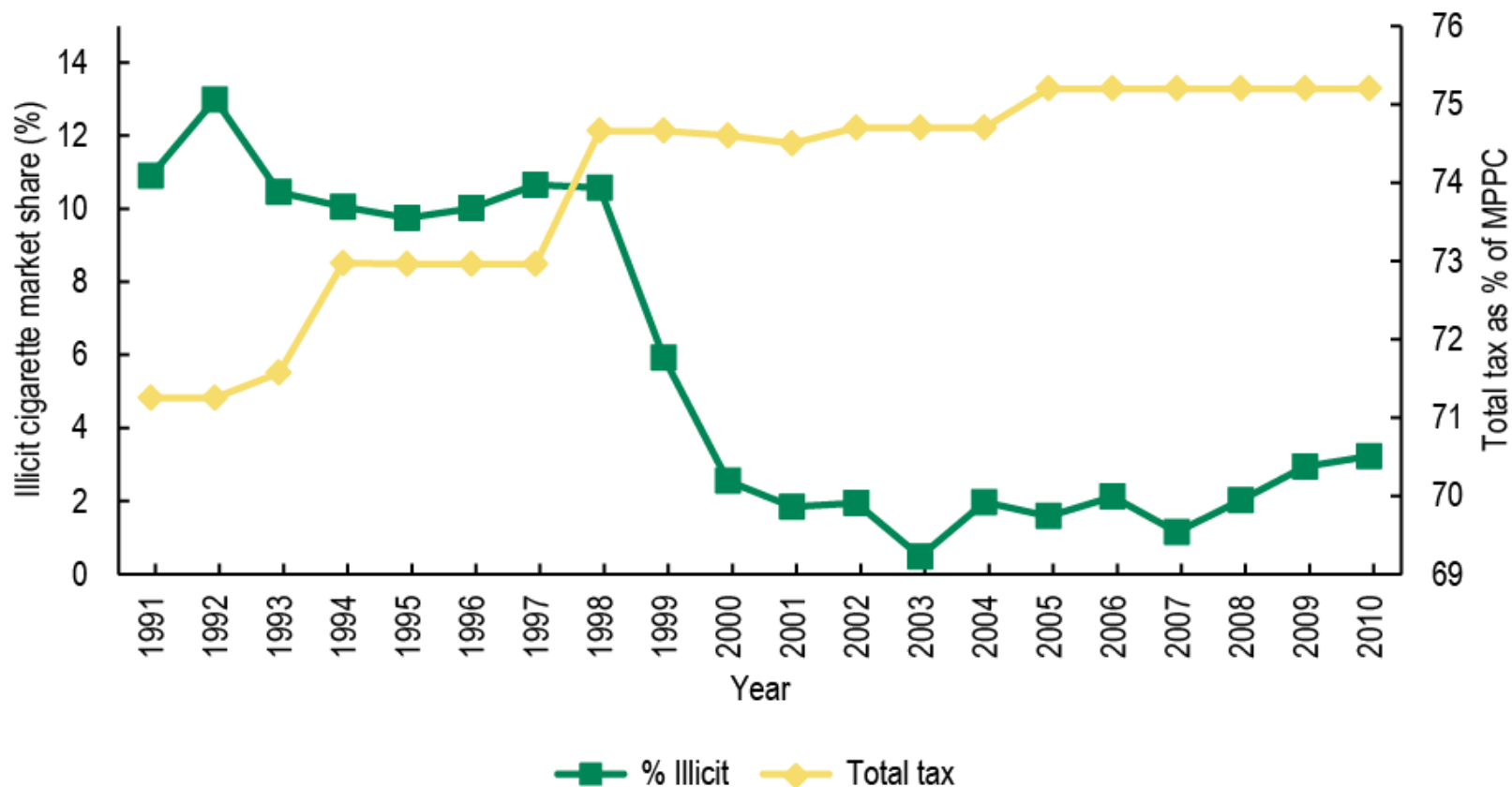
Figure 14.11. Illicit Cigarette Market Share and Percentage of Most Popular Price Category Accounted for by Taxes, Spain, 1991–2011



Note: Percentage of contraband data is not available for 2010. MPPC = most popular price category of cigarettes.

Source: ERC Group 2011

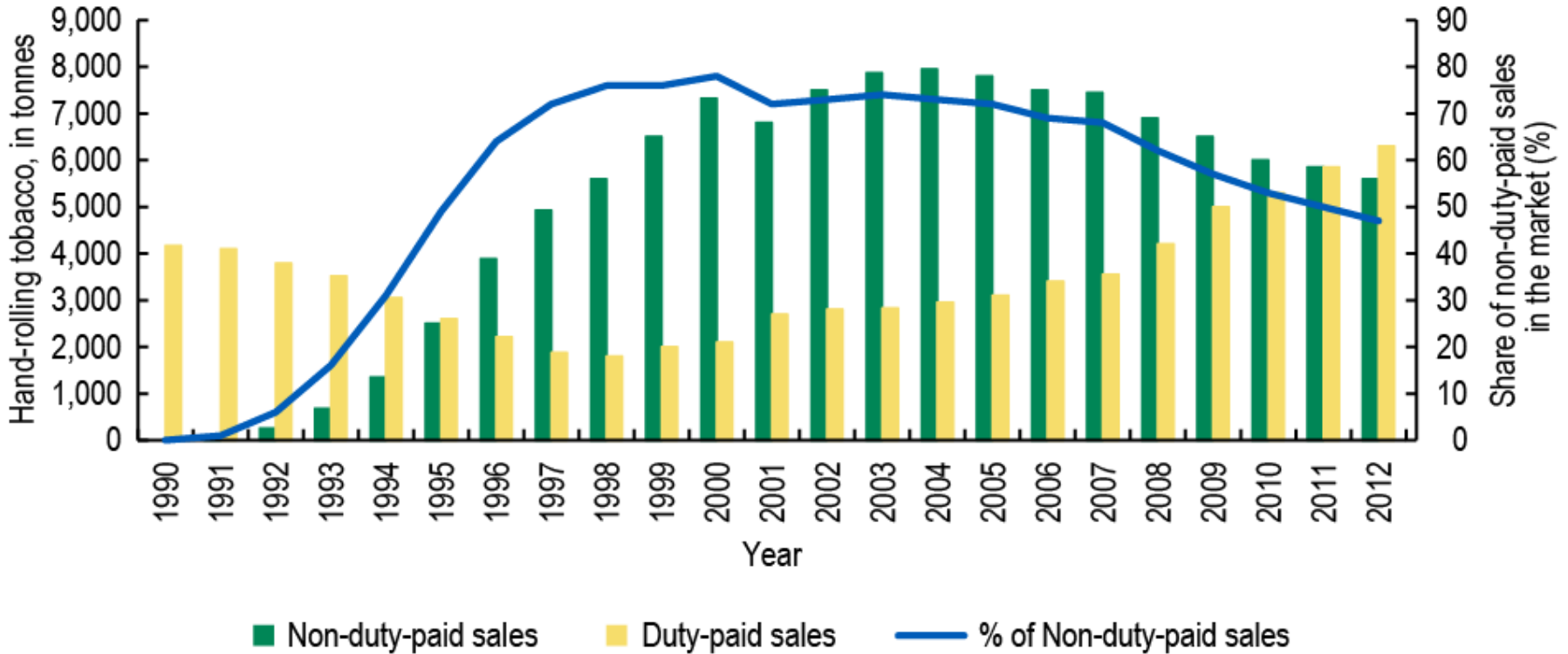
Figure 14.12. Illicit Cigarette Market Share and Percentage of Most Popular Price Category Accounted for by Taxes, Italy, 1991–2010



Note: MPPC = most popular price category of cigarettes.

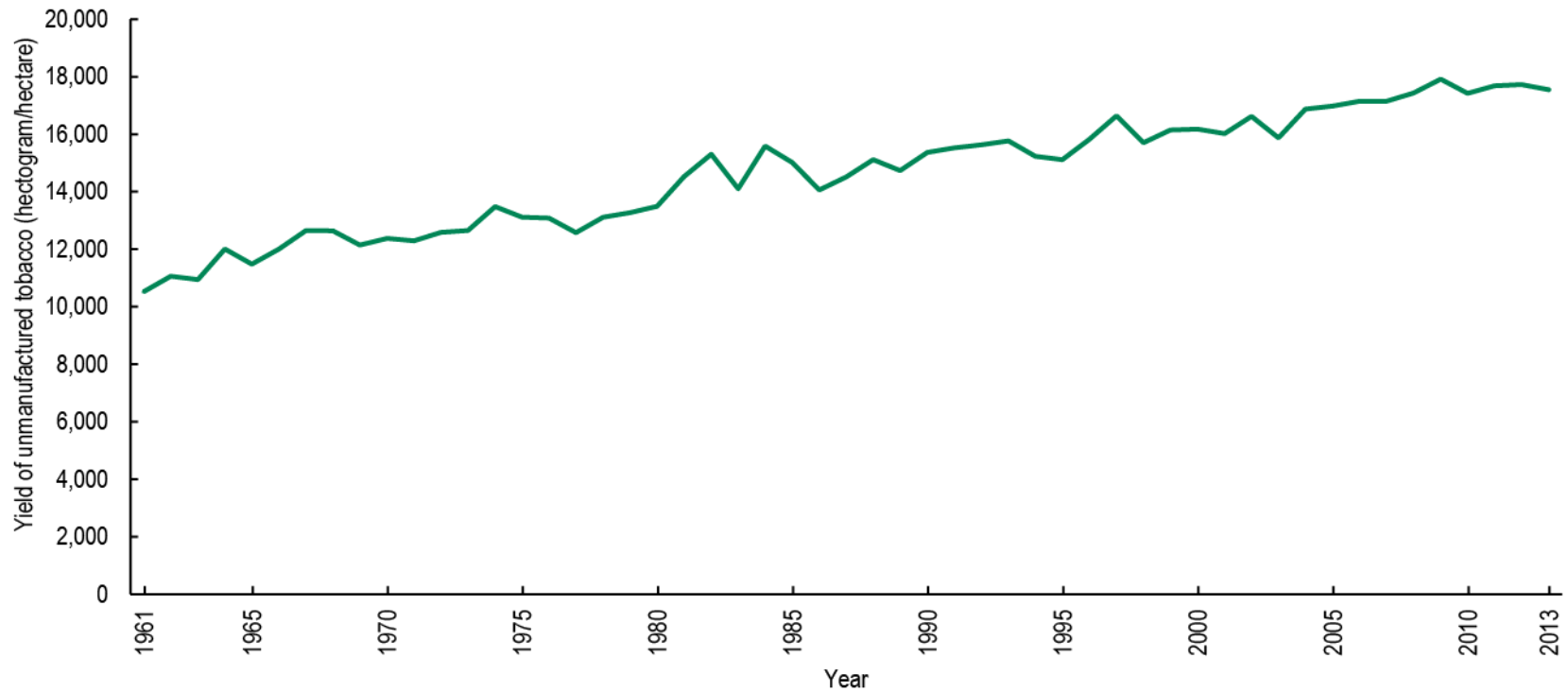
Sources: European Commission 1991–2002 and ERC Group 2011

Figure 14.13. Hand-Rolling Tobacco Market in the United Kingdom—Duty-Paid Versus Non-Duty-Paid Sales, 1990–2012



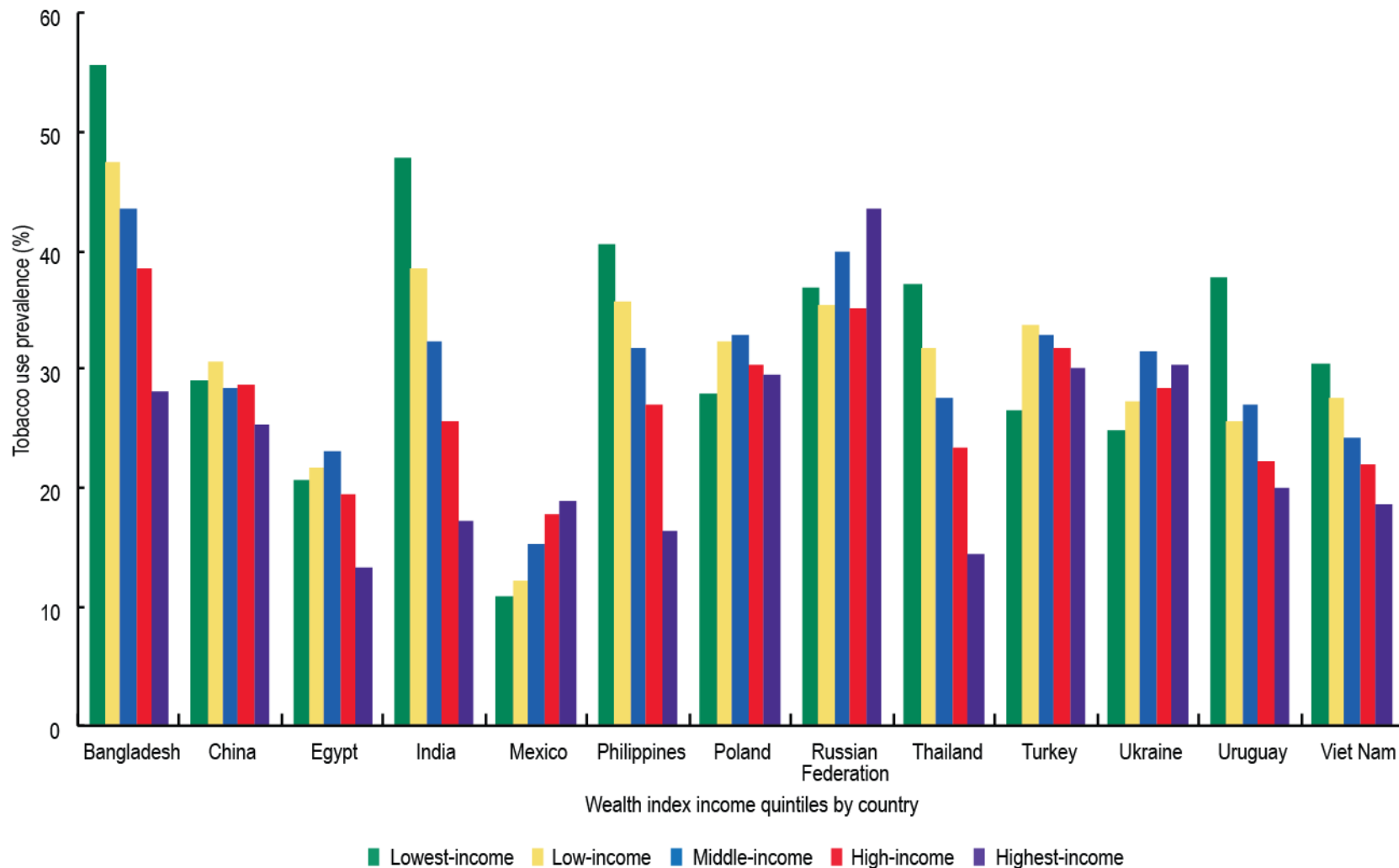
Source: Tobacco Manufacturer's Association 2014

Figure 15.1. Global Yield of Tobacco Leaf, 1961–2013



Source: FAOSTAT 1961–2013

Figure 16.1. Prevalence of Current Tobacco Use Among Adults Age 15 and Older, by Wealth Quintile, 2008–2010



Note: Data are from the Global Adult Tobacco Survey 2008–2010.

Source: Palipudi et al. 2012

Figure 16.2. The Cycle of Tobacco Use and Poverty

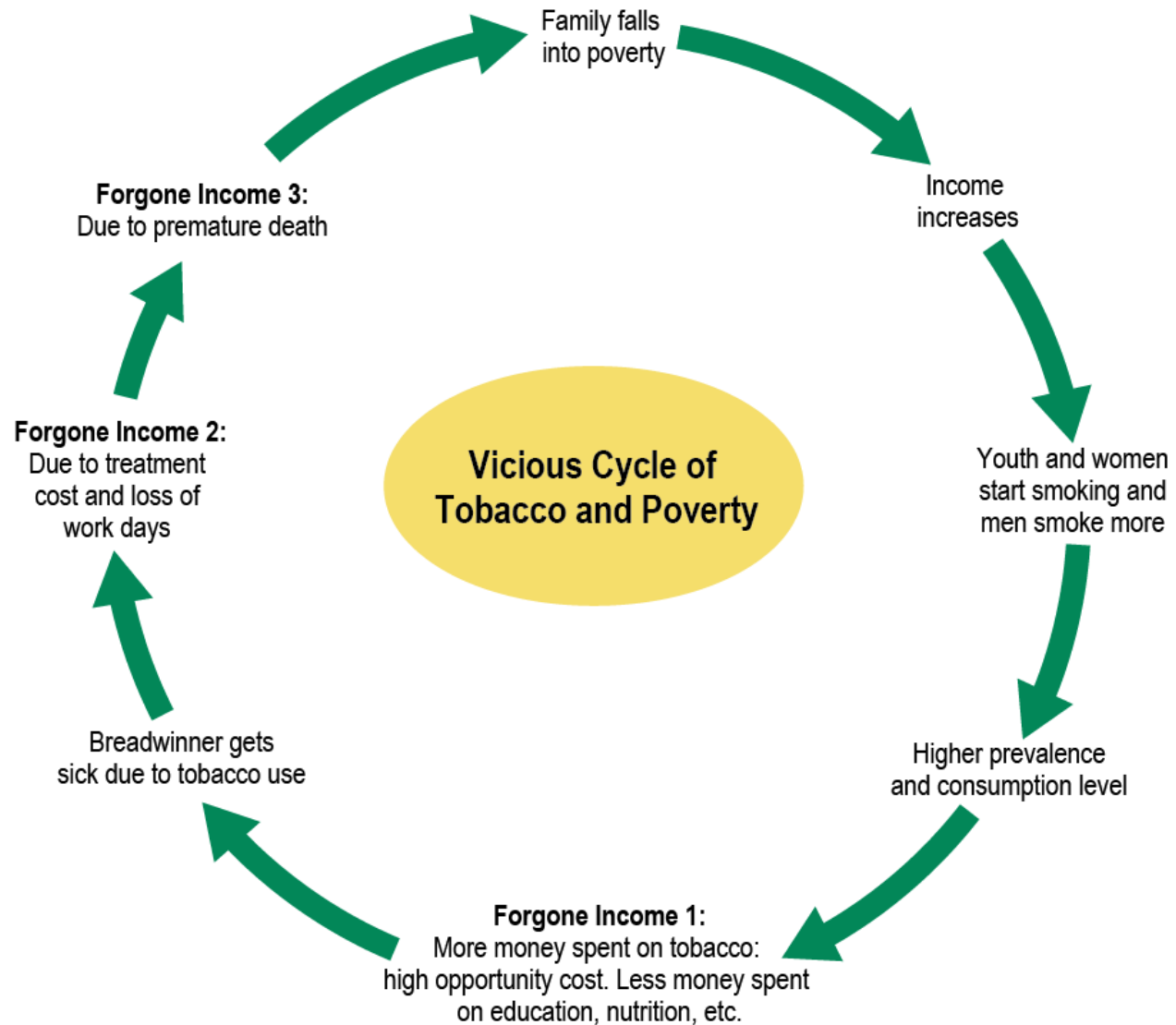
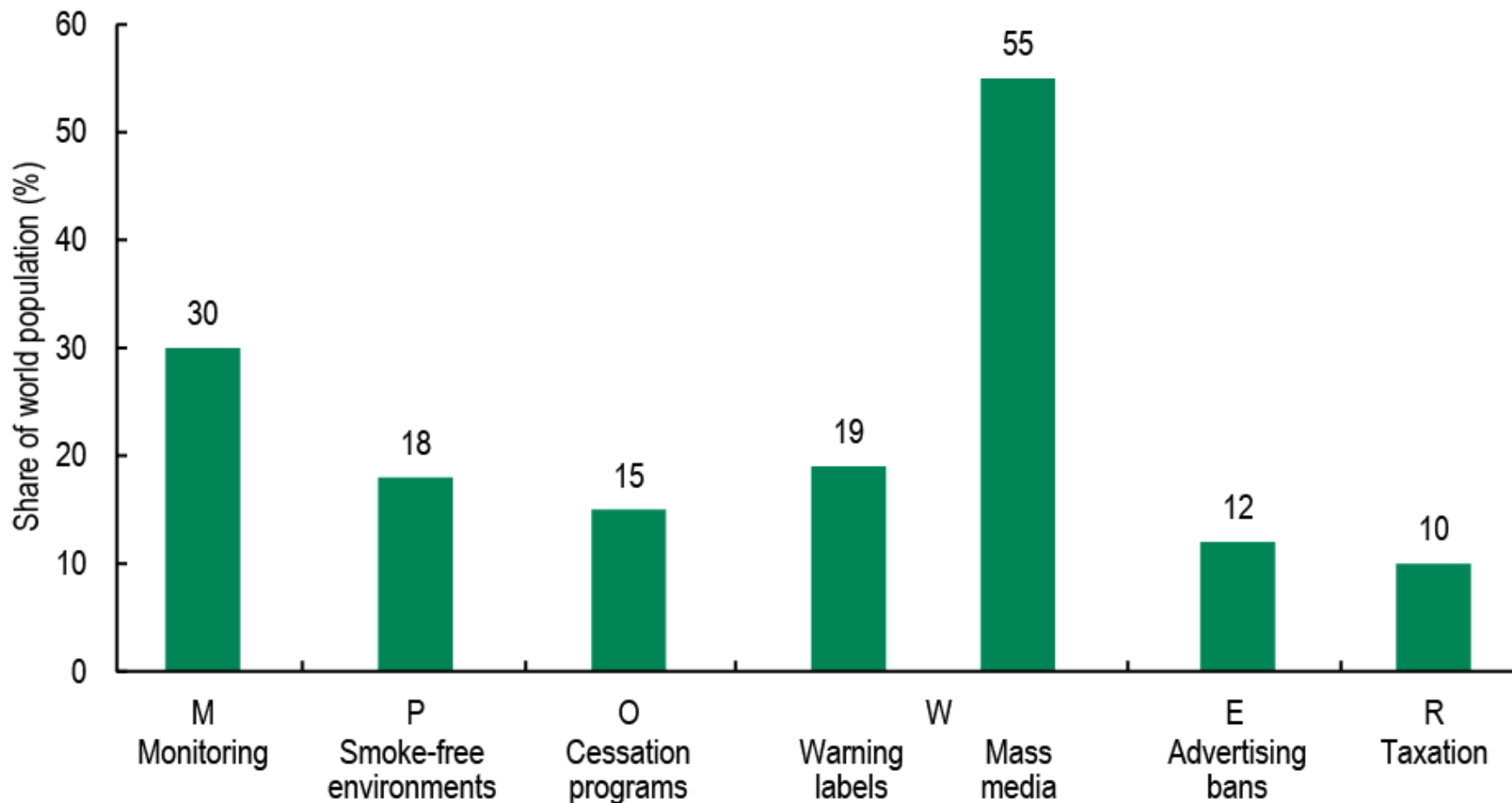


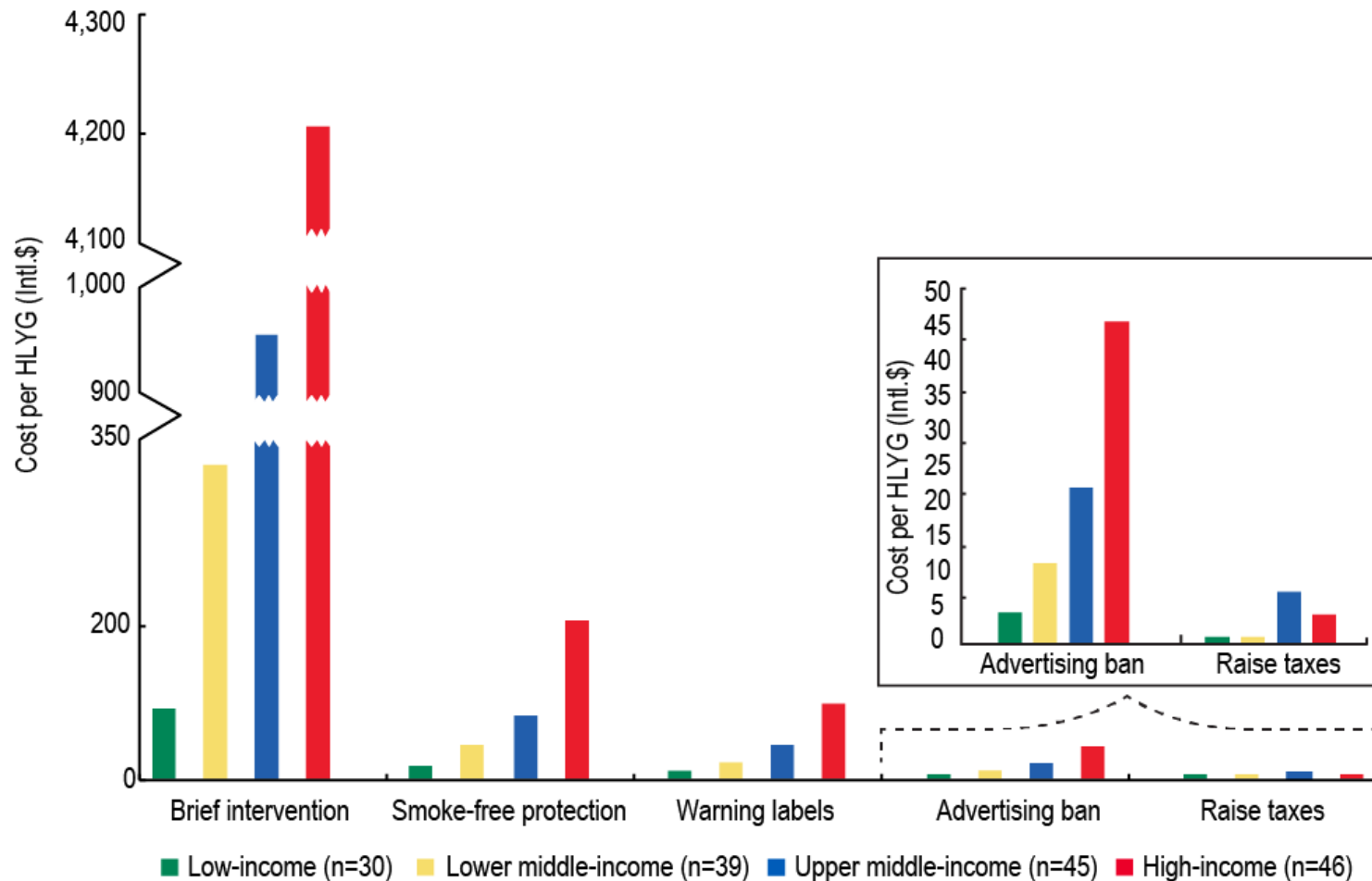
Figure 17.1. Share of the World Population Covered by Selected Tobacco Control Policies, 2014



Note: The tobacco control policies depicted here correspond to the highest level of achievement at the national level. For the definitions of these highest categories, refer to the *WHO Report on the Global Tobacco Epidemic, 2015: Raising Taxes on Tobacco*.

Source: World Health Organization 2015

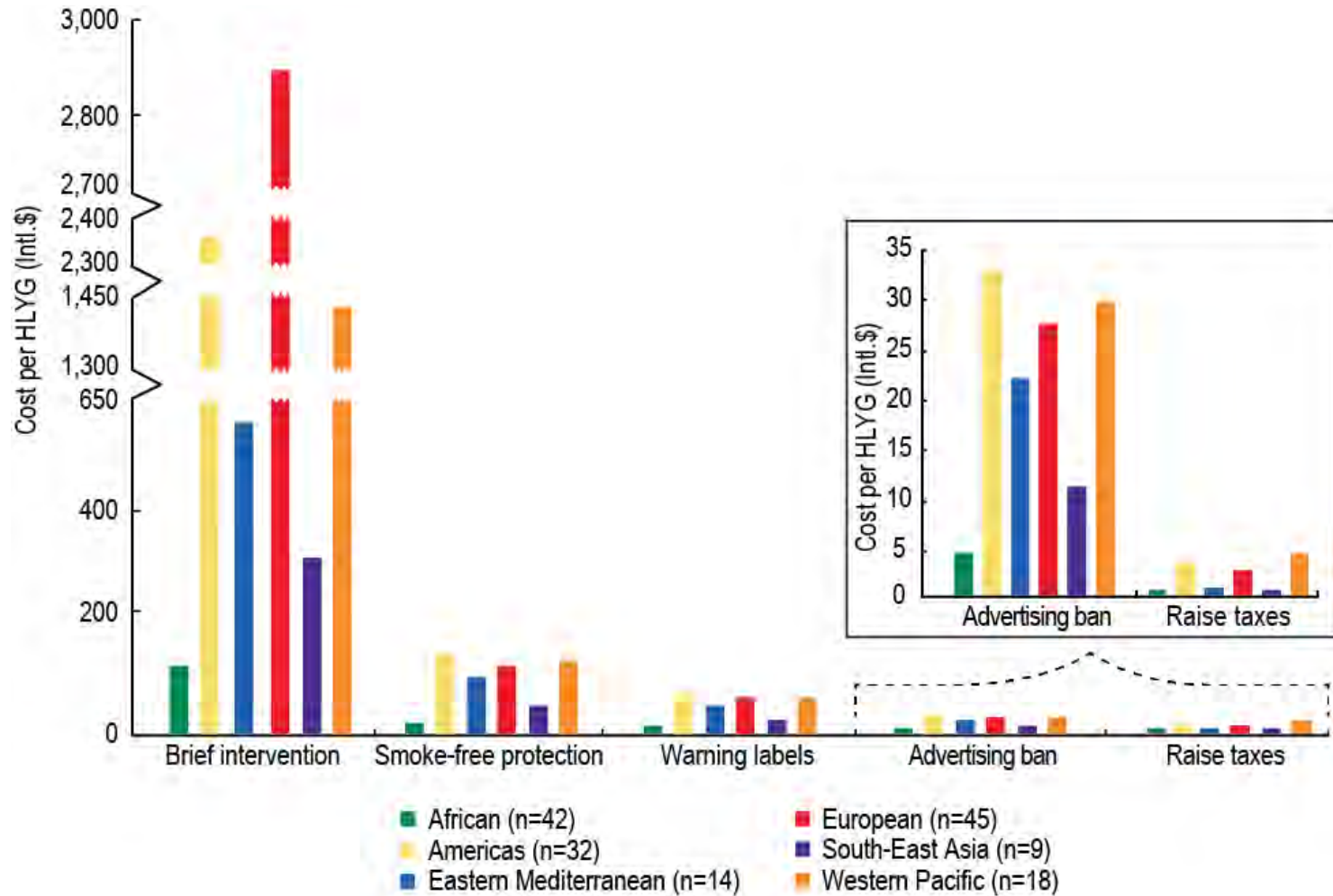
Figure 17.2. Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by Country Income Group



Notes: HLYG = healthy life-year gained. Country income group classification based on World Bank Analytical Classifications for 2014.

Source: Based on calculations from World Health Organization CHOICE model, 2016.

Figure 17.3. Tobacco Control Policies and Cost Per Healthy Life-Year Gained, by WHO Region



Note: HLYG = healthy life-year gained.

Source: Based on calculations from World Health Organization CHOICE model, 2016.



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