

# Chapter 4

## Impact of smoke-free policies on businesses, the hospitality sector, and other incidental outcomes

### Introduction

The widespread implementation of smoke-free policies in many countries has been slowed by fears that restrictions on smoking may have an adverse impact on businesses. It is clear, however, that allowing smoking in the workplace adds considerable costs for businesses. Lost productivity results from disease and premature death caused by smoking and exposure to tobacco smoke in the workplace. Establishments which allow smoking face higher health and hazard insurance premiums, and cleaning and maintenance costs. Those that restrict smoking to designated areas assume the costs of building and maintaining them.

Particularly prominent in the debate over smoke-free policies have been concerns about the economic impact on restaurants, bars, and other hospitality sector establishments. Some restaurant and bar owners, for example, express concerns that smoke-free policies will drive their smoking patrons to other venues where smoking is allowed (particularly those in nearby jurisdictions without smoke-free policies), or lead them to cut their visit short or even stay home, reducing their establishments' business. Others argue that decisions

to go smoke-free should be left to the businesses themselves and that if these policies are good for their establishment, owners will voluntarily adopt them. The tobacco industry has supported these arguments with claims that smoke-free policies result in lost revenue for restaurants, bars, and other hospitality establishments; fewer jobs in the hospitality sector; and business closings (KPMG, 1998; Deloitte & Touche LLP, 2003; U.S. Department of Health and Human Services, 2006). This strategy, of making claims about the harmful economic effects of tobacco control policies, is not unique to the industry's attack on smoke-free policies. It has also been used in opposition to other policies, including higher tobacco taxes and comprehensive bans on tobacco product advertising and promotion (Jha & Chaloupka, 1999; Chaloupka & Warner, 2000).

This chapter reviews the evidence on the costs to businesses of allowing smoking in the workplace, and of the potential costs and benefits to businesses that restrict or ban workplace smoking. The extensive and growing literature on the economic impact of smoke-free policies on the hospitality sector is reviewed

in more detail, after a discussion of the strengths and limitations of the methods used in these studies. This is followed by a brief review of the limited evidence on other incidental and/or unanticipated effects of smoke-free policies not covered in other chapters of this Handbook.

### **Potential costs and benefits to businesses of smoke-free policies**

Cigarette smoking among employees and customers imposes a variety of costs on businesses, ranging from lost productivity among employees to higher insurance, cleaning, and other costs (Hallamore, 2006; Javitz *et al.*, 2006). Businesses can incur costs, however, from policies limiting or banning smoking in the workplace. For instance, there are the costs of creating and maintaining smoking areas, potential lost productivity due to increased smoking breaks for smoking employees, and the loss of business from customers who smoke. Policy implementation and enforcement costs will be shared by businesses and governments. Nonetheless, these policies can significantly reduce the expenses

to businesses that more than offset any costs that result from their implementation. The potential costs and benefits for businesses of smoke-free policies are summarised in Table 4.1. This section briefly reviews the limited evidence on these costs and benefits; those related to gains and losses to businesses in the hospitality sector, that result from changes in patronage by smoking and nonsmoking customers, are described in more detail in the following section.

### **Costs of smoking to businesses**

A growing body of research clearly illustrates the costs to businesses that allow smoking by employees and customers. These costs include: increased absenteeism and reduced

productivity on the job, resulting from the diseases caused by smoking and exposure to tobacco smoke; time spent on smoking breaks by smoking employees; increased health and life insurance costs for employees; increased fire and hazard insurance costs; higher cleaning and maintenance costs; and the potential for significant legal costs resulting from claims filed by employees seeking compensation for damages caused by exposure to tobacco smoke in the workplace, or by customers seeking protection from tobacco smoke. The relative magnitude of costs will vary by type of businesses that have many smoking patrons (e.g. bars, restaurants), compared to those where the costs are primarily from a limited number of smoking employees (e.g. white collar offices).

While the subject of considerable discussion, limited empirical evidence exists on the magnitude of these costs to businesses, particularly those in developing countries. Briefly, existing evidence includes:

- *Lost productivity from health consequences of smoking:* In a recent study from Sweden, using nationally representative data from 1988 through 1991, the Swedish Survey of Living Conditions was linked to register-based data on the number of days missed from work due to sickness, from the National Board of Social Insurance (Lundborg, 2007). It was estimated that smokers were absent between 7.7 and 10.7 days more each year than were nonsmokers. Based on a

**Table 4.1 Potential costs and benefits to businesses of smoke-free policies**

<b>Costs</b>	<b>Benefits</b>
Lost business due to smokers visiting less frequently or cutting visits short	Increased business from nonsmokers visiting more frequently or staying longer
Costs of establishing and maintaining smoking lounges for smoking employees	Reduced cleaning and maintenance costs
Implementation and enforcement costs	Reduced fire, accident, and life insurance premiums
Lost productivity due to increased or longer smoking breaks for smoking employees	Increased productivity as smoking employees quit or cut back and require fewer smoking breaks
Costs of establishing and maintaining smoking areas for patrons	Increased productivity due to reduced absenteeism and improved health among smoking employees
	Increased productivity due to reduced absenteeism and improved health among nonsmoking employees
	Reduced health care costs from reductions in smoking among smoking employees
	Reduced health care costs from reductions in exposure to secondhand smoke among nonsmoking employees
	Avoidance of potential litigation costs from nonsmoking and smoking employees and/or customers

telephone survey of 200 randomly selected Scottish businesses with 50 or more employees, linked to evidence on the costs of smoking drawn from a review of the literature, it was estimated that absenteeism among Scottish smokers reduced productivity by £40 million, while productivity losses due to the premature death caused by smoking totaled approximately £450 million in 1997 (Parrott *et al.*, 2000). More comprehensive estimates of the lost productivity costs resulting from premature deaths caused by smoking, based on well developed methods for estimating economic expenditures, have been produced for many other developed countries, including Australia (Collins & Lapsley, 1996, 2002, 2008), Canada (Kaiserman, 1997), Ireland (Madden, 2003), the USA (Centers for Disease Control and Prevention, 2005a), and a growing number of others.

- *Lost productivity from smoking breaks:* Based on a comprehensive review of existing literature on the costs to employers resulting from smoking in the workplace, it was estimated that smoking employees take an additional four to thirty minutes in break time each day for on-the-job smoking (Javitz *et al.*, 2006). Using similar estimates, the Conference Board of Canada (Hallamore, 2006) estimated that unsanctioned smoking breaks cost Canadian employers an average of CA\$3053 per year in 2005.

- *Lost productivity from exposure to secondhand smoke:* As described in Chapter 2, there is strong evidence that exposure to secondhand tobacco smoke (SHS) causes a variety of health consequences in nonsmokers. Among nonsmoking workers, the death and disease caused by this exposure in the workplace leads to additional lost productivity and increased health care costs for businesses. To date, only one study has estimated these costs. In 2005, using the same well developed methods used to estimate the lost productivity costs resulting from premature death caused by smoking, the Society of Actuaries (Behan *et al.*, 2005) estimated that SHS exposure increased health care costs in the USA by nearly US\$5 billion, and led to an additional almost US\$5 billion in lost productivity, due to lost wages, fringe benefits, and value of services. This clearly underestimates lost productivity costs to businesses, as it does not account for the lost productivity due to work days missed from diseases caused by smoking.

- *Higher insurance premiums:* Similarly, studies have documented the higher costs of insurance coverage for smoking employees and/or workplaces that allow smoking. For example, in the USA, using data on paid health care claims for a large group indemnity plan, it was estimated that average health care insurance premiums for smoking employees were about 50% higher than those for nonsmokers (Penner &

Penner, 1990). A thorough review estimated that fire insurance costs were US\$11-21 higher per smoker in the USA (Javitz *et al.*, 2006), while fire insurance costs attributable to smoking for Scottish workplaces were estimated to be approximately £4 million annually (Parrott *et al.*, 2000). Similarly, smoking increased life insurance premiums by CA\$75 per smoking employee (Conference Board of Canada, 1997), while the cost to a business of providing US\$ 75 000 in life insurance was an approximately additional US\$90 per year for a smoking employee (Javitz *et al.*, 2006).

- *Increased cleaning and maintenance costs:* The US Environmental Protection Agency (Mudarri, 1994) estimated that the adoption of a comprehensive smoke-free policy in 1994 would have reduced building operation and maintenance costs for US businesses by US\$4.8 billion per year, based on detailed estimates of the costs of cleaning and maintaining different types of workspaces (office, assembly, and warehouse/industrial space). These figures, updated to account for inflation, estimated that in 2005 the additional smoking-related costs per 1000 square feet of workspace ranged from US\$305 for warehouse space to US\$728 for office space (Javitz *et al.*, 2006).

- *Potential litigation costs:* There are a variety of potential legal challenges businesses may face as a result of allowing smoking in the

workplace (Sweda, 2004). These range from claims for workers compensation and disability benefits, resulting from exposure to smoking in the workplace, to lawsuits from customers arguing that persons sensitive to smoke are being discriminated against by being denied the ability to enjoy a smoke-free environment. In the USA, hundreds of legal challenges document key successes in litigation brought on by those exposed to SHS. Anecdotal evidence indicates that similar legal disputes have been successful in a variety of other countries. While the award amounts in these cases vary widely, it is clear that the potential costs of unsuccessfully defending against these litigations can be significant.

In summary, cigarette smoking imposes significant costs on businesses, which can be considerably reduced if policies that restrict or ban smoking in the workplace are enacted. Some costs can be entirely avoided by complete bans on smoking in the workplace, but only somewhat reduced by more limited restrictions (i.e. the need would still exist for cleaning and maintenance due to smoking). Other costs will be reduced (e.g. lost productivity and higher insurance costs), as employee smoking declines (as discussed in Chapter 7) and nonsmoking workers' exposure to tobacco smoke in the workplace falls (as discussed in Chapter 6) in response to smoke-free policies.

### **Costs of smoke-free policies to businesses and governments**

While allowing smoking in the workplace results in potentially significant expenses to businesses, policies that limit or ban workplace smoking are not without cost. This is particularly true for policies that allow for smoking in restricted or designated areas. These costs include:

- *Costs for smoking areas:* As described in Chapter 3, smoke-free policies vary in how restrictive or permissive they are with respect to allowing for smoking areas. Some workplace policies permit the creation of designated smoking rooms for smoking employees, while others completely ban smoking in all enclosed areas, but allow smoking in non-enclosed areas; others designate smoking and nonsmoking sections for their customers. If employers opt to provide a smoking area for their employees and/or patrons, there will be expenses associated with building and maintaining these areas. Costs will vary considerably depending on the size of the area, whether or not it is enclosed, how it is ventilated, local construction costs, and other factors. The Ontario Campaign for Action on Smoking (Wong, 2002), estimates that the cost of establishing a designated smoking room for use by employees who smoke can range from about CA\$55 000 to over CA\$268 000, with monthly maintenance fees adding CA\$200-600, based on the size of the room and the number

of persons using it. The costs of establishing seven smoking rooms for employees, patients, and visitors in a new building being constructed by the Royal Victoria Hospital in Belfast, were estimated to be approximately £500 000 (McKee *et al.*, 2003). Similarly, it was reported that the cost of creating seven smoking rooms for employees and travelers in St. Louis' Lambert Airport in 1997 was US\$450 000 (Manor, 1997). In response to comprehensive smoke-free policies, some businesses have turned to building "smoking huts" or "smoking shacks" (partially enclosed shelters to accommodate their smoking employees and patrons). These can range in cost from less than US\$2000 for small, no-frills shelters, to tens of thousands of dollars for larger shelters with more amenities (Ford, 2008).

- *Implementation and enforcement costs:* In general, within a few months of implementation, compliance with smoke-free policies is high, and the policies become self-enforcing in most places that have adopted them (see Chapter 5 for a thorough discussion of support for and compliance with smoke-free policies). Nearly all of the costs of implementation and enforcement will be taken on by governments rather than by businesses. In addition to the costs associated with creating and maintaining designated smoking areas, as described above, expenses to businesses are largely limited to signage and minimal enforcement costs.

• *Lost productivity*: Some suggest that smoke-free policies will result in lost productivity, as employees who smoke will take more smoking breaks in response to the policies. Others argue that employees who smoke may be less able to concentrate and less productive if their opportunities to smoke during working hours are limited. To date, there is no good empirical evidence to support either issue. These policies could raise the costs of smoking breaks to businesses, by forcing smokers outdoors, and thus, increasing their time away from work. However, this increase in costs is likely to be offset by the reductions in time lost for smoking breaks by some smokers who quit or cut back in response to the policy (as described in Chapter 7). Similarly, reductions in productivity among smoking employees, when they are denied the opportunity to smoke while working, are liable to be offset by the productivity gains that accrue from reductions in absenteeism and premature deaths caused by smoking.

### ***Costs to governments of implementing and enforcing smoke-free policies***

The relatively quick compliance with smoke-free policies in most countries suggests that the implementation and enforcement costs to governments will likely be short-term. Little empirical evidence is available on the costs or cost-effectiveness of efforts to enforce smoke-free policies. Anecdotal evidence suggests that “reactive” enforcement efforts

(those that respond to complaints from non-smokers) are relatively less costly, while more “proactive” enforcement efforts (those involving active compliance checks) will be more expensive. Greater proactive enforcement efforts, however, seem likely to raise compliance more quickly, suggesting that they will be needed for a shorter period, making it unclear which approach is more cost-effective in the intermediate to long-term. For example, WHO recommends proactive enforcement efforts in the first weeks and months after the implementation of a smoke-free policy (WHO, 2007b).

Limited data from hospitality sector employees in Norway indicate that greater enforcement may be needed for smoke-free policies that restrict, rather than comprehensively ban, smoking given greater non-compliance with the partial policies (Hetland & Aarø, 2005).

As discussed in Chapter 5, some evidence suggests that compliance with smoke-free policies is enhanced by investments in media advocacy and public education campaigns that strengthen social norms against smoking, before and/or during the implementation of these policies (Ross, 2006; U.S. Department of Health and Human Services, 2006). This implies that more active enforcement of these policies, and/or greater investments in mass media campaigns, may be needed in some developing countries where anti-smoking norms are weaker (Ross, 2006).

### ***Summary***

Cigarette smoking in the workplace imposes a variety of costs on businesses, including the lost productivity resulting from smoking breaks, absenteeism, and premature deaths; higher health care and other insurance costs; increased maintenance and cleaning costs; and potential costs of litigation. Smoke-free policies will reduce the costs to businesses associated with workplace smoking.

To date, little solid evidence exists about the costs of smoke-free policies to businesses and/or governments. While there is much speculation about these costs, most appear minimal, short-term, and/or likely to be offset by reductions in related costs. It does appear, however, that the costs of a complete ban on smoking will be lower than the costs of policies that allow for smoking in designated areas, given the costs of maintaining these areas, the remaining exposure that results, and the greater need for enforcement of these partial restrictions. More research is needed to fully understand the costs to businesses and governments of adopting, implementing, and enforcing smoke-free policies.

### ***Impact of smoke-free policies on the hospitality sector***

The most vigorous debate over the economic impact of smoke-free policies has been with respect to the business activities of restaurants, bars, gaming establishments, and other firms in the hospitality sector. The debates center on the potential

for lost revenues resulting from smokers visiting these establishments less frequently (or forgoing visits altogether), cutting their visits shorter and spending less money than they would have if smoking were permitted, and/or taking their business to establishments in jurisdictions that do not have similar policies. Many of these arguments have been voiced by the tobacco industry or various groups supported by the industry (e.g. smokers' rights associations, local restaurant and/or bar associations) (U.S. Department of Health and Human Services, 2006).

In nearly all countries, however, the number of nonsmokers in the population exceeds the number of smokers. This raises the likelihood that any revenues lost from changes in smokers' patronage will be offset by greater revenues from nonsmokers increasing their patronage of businesses who enact smoke-free policies. As described in Chapter 3, smoke-free policies have been widely adopted in recent years, generating a series of natural experiments that allow researchers to assess the impact of smoke-free policies on business activity, attitudes towards these policies (as described in Chapter 5), on exposure to SHS (as described in Chapter 6), and on smoking behaviour (as described in Chapter 7). With respect to business activity, over 160 studies have examined these issues, applying diverse analytic methods to a variety of data from hospitality sector businesses in numerous jurisdictions, and they have been compiled (Scollo & Lal, 2008) in an update of the previous comprehensive review on the impact of smoke-free policies

in this sector (Scollo *et al.*, 2003; Scollo & Lal, 2005, 2008).

Studies of the impact of smoke-free policies on the hospitality sector vary considerably in their methodological quality, with the best of these studies sharing most or all of the following characteristics:

- Use of valid, reliable measures of business activity (e.g. official reports of sales tax or business revenues, employment, and/or the number of licensed establishments; population level, representative survey data) that can be used to detect the real impact of a change resulting from the adoption of a smoke-free policy;
- Use of data for several years covering the period before and after the implementation of a smoke-free policy, in order to separate out the impact of the policy from underlying trends in business activity, and to allow sufficient time for businesses, smokers, and nonsmokers to adapt their behaviour to the policy;
- Use of appropriate statistical methods that include controls for underlying trends in the data, and other factors that lead to fluctuations in business activity (most notably, overall economic conditions), and that apply appropriate tests for the statistical significance of the relationship between the policy and measure of business activity;

- Inclusion of data from comparable jurisdictions where no policy changes occurred that can act as controls for the jurisdiction(s) where the policy change(s) being assessed took place.

While many of the studies to date share these characteristics, others do not. The findings from studies that use less reliable data, fail to control for overall economic activity, or otherwise deviate from these guidelines, are mixed in their conclusions about the economic impact of smoke-free policies. In contrast, as described below, the findings from studies with these characteristics consistently find that smoke-free policies have no negative economic impact on restaurants, bars, and other segments of the hospitality industry, with the possible exception of gaming establishments. Indeed, many studies provide evidence of a small positive effect of smoke-free policies on business activity.

#### ***Studies based on official reports of business activity***

##### *Studies based on sales data – restaurants and bars*

A large and rapidly expanding literature uses measures of taxable sales, sales tax revenues, or other official reports of sales data, to assess the economic impact of smoke-free policies on restaurants and bars. Many of these studies include appropriate controls for underlying economic conditions and/or other jurisdictions where no policy changes occurred, and most

apply appropriate statistical methods to data for several years before and after the policy change of interest.

The first of these studies examined the impact of local smoke-free restaurant policies adopted in 15 California and Colorado communities between 1985 and 1992 (Glantz & Smith, 1994). Fifteen nearby communities without a smoke-free restaurant policy were included as controls, with selection of the control communities matched to communities where policy changes occurred based on population, urbanicity, median household income, and smoking prevalence. Using linear regression methods applied to a measure of taxable restaurant sales revenues as a share of total revenues before and after the implementation of the local policies, the authors concluded that businesses were not adversely affected in the communities that adopted and implemented policies banning smoking in restaurants.

A few years later, the 1994 analysis was extended to include three additional years of data for the 30 communities originally analysed, and to add five cities and two counties that had adopted smoke-free bar policies between 1990 and 1994, with comparable control communities/counties for all but one of these (Glantz & Smith, 1997). A few minor errors in the coding for the implementation dates of the policies included in the earlier study were corrected. Using similar outcome measures, linear and non-linear regression methods were applied to both the matched data and pooled data, confirming an earlier finding that the smoke-free restaurant policies did not adversely affect restaurants in the communities

that adopted them. Similarly it was concluded that smoke-free bar policies had no economic impact on bars.

Comparable studies, based on sales data from restaurants and/or bars, have been done for different jurisdictions in the USA. These studies reflect the diversity of the USA geographically, demographically, socioeconomically, and with respect to the strength and history of tobacco control efforts, from North Carolina counties in the heart of the US tobacco growing region (Goldstein & Sobel, 1998), to large cities or states like New York City (Hyland *et al.*, 1999) and New York State (Engelen *et al.*, 2006). Likewise, a growing number of studies have used bar and/or restaurant sales data from developed countries, including Australia (Wakefield *et al.*, 2002; Lal *et al.*, 2003, 2004), Canada (Luk *et al.*, 2006), Norway (Lund *et al.*, 2005; Lund, 2006; Lund & Lund, 2006), and New Zealand (New Zealand Ministry of Health, 2005; Thomson & Wilson, 2006; Edwards *et al.*, 2008). Nearly all of these studies reached the same general conclusion: that smoke-free policies do not adversely affect the business activity of restaurants and bars, with several providing evidence of a small positive impact of the policy on sales.

In contrast, given the slower diffusion of these policies to developing countries described in Chapter 3, almost no studies exist on the economic impact of smoke-free policies in these countries. The one exception is an analysis of the impact of the 1999 amendments to South Africa's tobacco control policies that introduced restrictions on smoking in restaurants beginning in 2001

(Blecher, 2006). Specifically, under the new policy, restaurateurs were given the option of going entirely smoke-free or creating separately ventilated smoking (in up to 25% of the restaurant) and nonsmoking sections. Using annual provincial value-added tax (VAT) revenues for restaurants from 1995 through 2003, alternative models were estimated that controlled for overall economic conditions, and, in one, the efficiency of VAT tax collection. It was concluded that "the restrictions placed on smoking in restaurants in 2001 have had at worst no significant effect on restaurant revenues, and at best a positive effect on revenues."

#### *Studies based on employment data – restaurants and bars*

Several studies use measures of employment to assess the economic impact of smoke-free policies on restaurants and bars. These measures include direct counts of employed persons, and more indirect measures, such as official reports of unemployment, insurance claims, and payroll tax collections. As with the studies that use measures of sales, the best of these studies will control for underlying economic conditions, include several years of pre- and post-policy change data, include similar control jurisdictions where no policy changes occurred, and employ appropriate statistical methods.

To date, all studies using employment-based outcomes have been conducted for jurisdictions in developed countries. Given the relatively early diffusion of smoke-free policies at the local level in the

USA, the majority of the studies have focused on this locale. Findings from studies that meet the standards described above are quite consistent with the results from studies based on measures of sales. They generally conclude that smoke-free policies have had either no significant impact or a small positive impact on employment.

For example, the impact of the comprehensive smoke-free policy implemented in April 2004 by Lexington-Fayette County Kentucky, in the middle of one of the largest tobacco growing and manufacturing states in the USA, was studied (Pyles *et al.*, 2007). It was concluded that restaurant employment rose after the policy was put in place, while bar employment was unchanged. In addition, restaurant and bar employment in neighboring counties was unaffected, a finding inconsistent with opponents' arguments that smokers would take their business to nearby jurisdictions that allowed smoking following the Lexington-Fayette County smoking ban.

Though relatively few non-US studies have looked at the impact of smoke-free policies on employment outcomes, the methodologically sound studies have come to the same basic conclusions reached by the ones from the USA. For example, analysis of Ottawa, Canada's August 2001 ban on smoking in restaurants, bars, and pubs found that employment in affected businesses rose in the period immediately following the ban, while unemployment insurance claims fell, despite an overall decline in employment (Bourns & Malcomson, 2001). Similarly, it was concluded that employment in cafes

and restaurants rose by 9%, and by 24% in drinking establishments, while employment in clubs fell by 8% following the implementation of New Zealand's comprehensive smoke-free policy in late 2004 (Thomson & Wilson, 2006).

#### *Studies based on the number of businesses – restaurants and bars*

Other studies of the economic impact of smoke-free policies have used various measures of the numbers of restaurants and bars, such as counts of businesses, business openings and closings, and the number of bankruptcies, with the findings from studies that meet the criteria described above consistent with those based on measures of sales and employment. For example, in the study of the impact of the Lexington-Fayette County Kentucky smoke-free policy, it was concluded that there was no significant impact of the policy on business openings and closings, both for those that served alcoholic beverages and for those that did not (Pyles *et al.*, 2007). Similarly, in a study of the Ottawa smoke-free policy, bankruptcy and insolvency indicators were found to be lower in the period immediately after the ban was implemented than in the two years prior to the ban (Bourns & Malcomson, 2001).

#### *Studies based on business value – restaurants and bars*

Two innovative studies looked at the impact of smoke-free policies on the value of restaurants (Alamar & Glantz, 2004) and bars (Alamar & Glantz, 2007) using a measure of

value based on the sales price of establishments that were sold during the periods examined. For the 608 restaurants sampled, 118 were in smoke-free jurisdictions, and sold between 1991 and 2002; for the 197 bars sampled, 17 were in smoke-free jurisdictions, and sold between 1993 and 2005. Controlling for underlying economic conditions (using measures of gross state product and state level unemployment rates for the state in which each establishment was located), type of establishment (e.g. fast food versus full-service restaurant), and general trends, it was concluded that the value of restaurants was 16% higher in smoke-free jurisdictions than in those that allowed smoking, while the value of bars was unaffected by policies banning smoking.

#### *Studies based on revenue data - gaming establishments*

In contrast to the relatively large literature using objective measures to assess the economic impact of smoke-free policies on restaurants and bars, there are relatively few studies that have examined the impact on gaming establishments. This is largely the result of the exclusion of these establishments from the venues covered by most smoke-free policies, as described in Chapter 3. Nevertheless, there are a few studies that have looked at the impact of smoke-free policies on various gaming activities.

The first study to examine the impact on gaming venues, investigated the effects of local smoke-free policies in Massachusetts that limited smoking in bingo halls and at gambling events sponsored by local charities (Glantz

& Wilson-Loots, 2003). It was found that increases in other gambling opportunities led to reductions in bingo and charitable gambling event profits, but that the magnitude of the drop was not related to the presence or absence of a smoke-free policy. More recently, a similar approach was used to examine the impact of Massachusetts' state-wide smoking ban implemented in mid-2004 on Keno sales. This report concluded that there was no impact of the ban on this type of gaming (Connolly *et al.*, 2005).

Two recent studies considered the effects of Delaware's comprehensive smoke-free policy that covered three horse racing tracks that allowed video lottery gambling ("racinos"). The first of these studies (Mandel *et al.*, 2005) concluded that the state smoking ban had no impact on either total revenues from the video lottery machines, or on the average revenues per machine; a subsequent re-analysis that corrected for a data entry error and for heteroskedasticity (unequal variance in the error term) in the data (Glantz & Alamar, 2005) confirmed the findings from the original analysis. In contrast, the same data was used and reached the opposite finding: that the Delaware smoking ban reduced gaming revenues by nearly 13% in the year following the implementation of the ban (Pakko, 2006). The differences in findings are accounted for by alternative approaches to modeling the seasonality in the data (Mandel *et al.* included an indicator for winter months only, while Pakko included indicators for winter, spring, and summer), and by differences in the statistical methods employed

(Mandel *et al.* used relatively simple weighted regression methods based on the number of video lottery machines, while Pakko used a more general approach to accounting for the heteroskedasticity that also corrected for the serial correlation in the data). The approach used by Pakko appears more appropriate than that used by Mandel and colleagues, and is robust to other specifications including those that replace the quarterly indicators for seasonality with monthly indicators, and that drop 1996 (the year the three racinos opened, which appears to account for the heteroskedasticity in the data).

Most recently, the effects of Victoria, Australia's policy banning smoking in most gaming venues, implemented in September 2002, was studied (Lal & Siahpush, 2008). Interrupted time series methods were applied to monthly expenditures on electronic gaming machines (EGM), from July 1998 through December 2005, for both Victoria and South Australia (their control jurisdiction). It was concluded that the Victoria policy led to "an abrupt, long-term decrease in EGM expenditures" of about 14%, comparable to the 13% decline estimated for the Delaware racinos (Pakko, 2006). The report goes on to note that the decline in EGM expenditures was much larger than observed at Victoria's casino, which was also covered by the smoking ban, but subject to a number of exemptions that allowed the proprietor to cater to high-spending patrons in private rooms. Also, employment in Victoria's gaming sector was at historically high levels three years after the ban. In addition to curbing exposure

to SHS, it was found that Victoria's smoke-free policy was effective in reducing problem gambling, and that the money gamblers did not spend gambling would likely be spent in other sectors of the economy.

Clearly, more research is needed to sort out the economic impact of smoke-free policies on gaming establishments, both on the gaming sector directly, as well as the broader economic impact. As described in Chapter 3, the spread of increasingly comprehensive smoke-free policies that ban smoking in casinos and in other gaming establishments will provide new, natural experiments allowing researchers to assess the economic impact of these policies on the gaming sector.

#### *Studies based on revenue and/or employment data – other hospitality sector establishments*

Finally, several studies have used measures of economic activity in other parts of the hospitality sector to evaluate the financial impact of smoke-free policies. These studies have generally focused on the impact of the policies on tourism, using measures of revenues generated by hotels and motels and/or employment in these establishments. The most methodologically sound of these studies share the characteristics of the best studies described above, and are consistent in their conclusions that smoke-free policies do not have an adverse economic impact on these segments of the hospitality industry.

A good example of research on the tourism sector is a study which looked at measures of hotel revenues (both

absolute revenues and revenues as a share of total retail sales revenues) and number of tourists (Glantz & Charlesworth, 1999). Data were examined before and after the adoption of comprehensive smoke-free policies in three states (California, Utah and Vermont) and six cities (Boulder, Colorado; Flagstaff and Mesa, Arizona; Los Angeles and San Francisco, California; and New York City). It was found that hotel revenues grew faster following the adoption of the smoke-free policy in four of these jurisdictions, the rate of growth was unchanged in four others, and that revenues grew more slowly (but did not fall) in the last. In these analyses, which pooled the data from the communities, no significant impact of the policy adoption on either measure of revenue was detected. Finally, in analyses that used measures of the number of international tourists visiting the three states studied, there was either no impact of the policy or the number of visitors increased following the implementation of the policy. Given these findings, the researchers concluded that “smoke-free ordinances do not appear to adversely affect, and may increase, tourist business.”

### **Studies based on survey data**

A second set of studies has relied on measures drawn from survey data to assess the economic impact of smoke-free policies on hospitality sector businesses. These studies include data from surveys of patrons or more representative, population level consumer surveys, and surveys of owners/managers of businesses affected by the smoke-free policy.

A number of patron or consumer surveys collected information on actual dining/drinking out behaviour before and after a policy change, while some pre-implementation surveys inquired about anticipated changes in behaviour in response to the policy. In some post-implementation surveys, individuals were asked about actual changes in behaviour resulting from the policy change, while others gathered information on respondent’s preferences for smoke-free dining/drinking areas, and other related attitudes and perceptions. Similarly, surveys of business owners or managers collected self-reported information on business revenues that, in general, were not validated, as well as owner/manager perceptions of the impact of the policy on their business (either anticipated or realised), in addition to their attitudes about the policies.

In addition to meeting the other criteria described above, the best of the studies based on survey data used appropriate sampling and survey methods to collect validated measures of relevant outcomes. For example, a convenience survey of bar patrons, prior to the implementation of a ban on smoking in bars, that asks about their anticipated response to the policy, is much more likely to provide biased estimates of the impact of the policy than would randomly selected consumer surveys, representative of the local population, that collect actual data on bar patronage conducted before and after the policy implementation. The vociferous debate over potentially adverse economic effects of smoke-free policies can create a “negative placebo effect” that leads some

business owners/managers to either fear that the ban will have a negative impact on their business, or to attribute any declines in business after the policy implementation to the policy change, rather than to other factors that may account for the decline (Glantz, 2007). Similarly, researchers observed that “it seems likely that owners of businesses that are faring poorly in a highly volatile market may be more likely to blame external forces (such as the adoption of a smoke-free policy) rather than their own business decisions for their problems” (Eriksen & Chaloupka, 2007).

Given the potential for biased responses, particularly in surveys of business owners or managers, it is not surprising that these studies are much more likely to conclude that the economic impact of smoke-free policies is negative. In a comprehensive review of studies published through August 2002 (Scollo *et al.*, 2003), it was noted that studies based on this type of survey data are four times more likely to conclude that these policies have a negative economic impact, than are studies based on official reports of sales, employment, and related data. Despite the potential for bias, the majority of studies based on survey data, particularly those based on patron/consumer survey data, conclude that there is either no impact or a small, positive economic impact from smoke-free policies.

Studies that employ survey data come from a wider variety of countries than the studies based on sales, employment, and other related data described above, including Australia, Canada, Hong Kong, Ireland, Italy, New Zealand, Norway, Scotland,

South Africa, Spain, the UK, and the USA. However, as seen by this list, these studies add relatively little information on the economic impact of smoke-free policies in developing countries, as few of these countries have adopted such policies. Given the potential misuse of studies based on flawed survey data, this section reviews methodologically sound studies and highlights the potential biases that result from the use of unrepresentative survey data and/or unreliable measures.

#### *Studies based on consumer/patron surveys*

Analyses of survey data from Norway, collected before and after the June 1, 2004 implementation of the country's ban on smoking in bars and restaurants, helps explain the consistent finding from studies based on sales and employment data that smoke-free policies do not have an adverse economic impact (Lund *et al.*, 2005; Lund, 2006; Lund & Lund, 2006). Annual representative surveys of Norwegian adults showed no significant changes in the frequency of pub/bar and restaurant visits following the implementation of the ban. Responses to the post-ban survey question "has the ban on smoking in hospitality venues changed your patronage habits?" illustrate the differences in the impact of the ban on patronage by smokers and nonsmokers. Nonsmokers were significantly more likely to report that the ban increased their frequency of visiting hospitality venues, with 18% of nonsmokers reporting an increase, as compared to 1% of daily smokers and 3% of non-daily smokers. In contrast,

smokers were much more likely to report a decrease in their frequency of visiting affected establishments, with 42% of daily smokers and 10% of occasional smokers reporting reduced frequency, as compared to 2% of nonsmokers. Given the much greater prevalence of nonsmokers among Norwegian adults, 12% of the overall sample reported an increase in their frequency of visiting hospitality venues, while 12% reported a decrease. The majority of the population (76%) reported no changes in their patronage in response to the smoke-free policy.

These findings are consistent with those from other studies that use population-based consumer surveys to assess the economic impact of smoke-free policies in a variety of other jurisdictions. In general, these studies find that the implementation of the policy has no significant impact on dining/drinking out practices, and that any reductions in the frequency of such practices among smokers are made up for (often more than made up for) by increases in the frequency of dining/drinking among nonsmokers.

These studies also illustrate the bias that results from convenience samples of hospitality sector customers prior to a change in policies. For example, a survey of current patrons' anticipated responses to a proposed ban on smoking in Hong Kong restaurants, bars, and cafes was administered, and concluded that the ban would reduce revenues for these businesses by more than 10% (KPMG, 2001). In general, these types of convenience surveys of current patrons do not include the nonsmokers deterred from

visiting by the smoky environment, and, as a result, do not pick up the increases in their patronage after policy implementation that offsets any anticipated reductions in patronage among existing customers. Moreover, the anticipated reduction in patronage that smokers describe may not end up happening after the implementation of a smoking ban, as opportunities for smokers to go to alternative venues are limited, resulting in few smokers actually altering their establishment patronage in response to the ban (in contrast to nonsmokers who are increasingly attracted to now smoke-free venues) (Cowling & Bond, 2005).

#### *Studies based on owner/manager surveys*

The studies most likely to conclude that smoke-free policies have a negative economic impact on the businesses targeted by the policies are those based on surveys of business owners and managers. Many of these studies are based on proprietor expectations, rather than on the actual impact on business after the smoke-free policy has been implemented. Studies based on pre-implementation surveys of business owners/managers appear most likely to be subject to the "negative placebo affect" (Glantz, 2007). In contrast, well-designed, post-implementation surveys of business owners/managers, which collected more valid measures of business activity, often concluded that their businesses were not negatively affected by the policy. The differences between the perceived and actual business impact of smoke-free policies is clearly

illustrated by analysis of the Québec policy limiting smoking in restaurants (Crémieux & Ouellette, 2001). Based on a survey of restaurateurs, that included both those in compliance and those not in compliance with the policy, the researchers concluded that “impacts on... restaurant patronage were widely anticipated but not observed.”

The most methodologically sound studies in this group are those based on representative surveys of business owners/managers conducted long enough after the implementation of the policy for its impact on their business activity to be clear. Ideally, such studies would also include similar surveys in comparable jurisdictions where no policy changes occurred, and/or other approaches to control for general trends and underlying economic conditions, in order to isolate the effects of the policy from those of other factors. Few of these studies, however, used this approach.

Analysis of the economic impact of New York City’s 1995 smoke-free policy is one of the small numbers of studies that uses a representative sample of restaurants and includes appropriate controls (Hyland & Cummings, 1999). Since this policy only applied to restaurants with more than 35 seats, and did not cover establishments that generated at least 40% of their revenues from the sale of alcoholic beverages, small restaurants and restaurants with bars were included as control groups for the larger restaurants that were affected by the policy, as all of these would have been subject to the same underlying economic conditions. The researchers found that 35% of the restaurants subject to the policy

reported a decrease in business following its implementation; however, illustrating the importance of including appropriate controls, they also found that 34% of small restaurants and 36% of restaurants with significant income from alcoholic beverage sales also reported a decline in business. Given this, they concluded that “there is no evidence to suggest that the smoke-free law has had a detrimental effect on the city’s restaurant business.”

As with the studies based on sales, employment, or related data, the only evidence from developing countries based on survey data comes from South Africa’s experiences following its 1999 Tobacco Products Control Amendment Act that limited smoking in restaurants and other public places. Between November 2004 and January 2005, a survey was conducted of 1431 restaurant owners/managers (1011 surveys were successfully completed) identified by searching online, publicly accessible databases (van Walbeek *et al.*, 2007). This survey gathered data both on the costs of complying with the policy and on restaurant revenues. Based on the retrospective reports of restaurant owners/managers, it was found that revenues in most restaurants (59%) were unchanged following the policy, while 22% of restaurants reported an increase in revenues and 19% reported a decrease. Some differences were observed across restaurants, with franchised restaurants more likely to report an increase in revenues and independent restaurants more likely to report a drop. Given this, it was concluded that there was no net negative impact of South Africa’s smoking restrictions on restaurant business.

### *Industry-sponsored studies*

The tobacco industry, and groups that support it, have been vocal opponents of smoke-free policies, arguing among other things that these policies will adversely affect the businesses covered by the policies (U.S. Department of Health and Human Services, 2006). Many of the studies researchers reviewed (Scollo & Lal, 2008) have been funded by the tobacco industry (e.g. through the Accommodation Grant Program) or by groups supported by the tobacco industry (e.g. various bar and/or restaurant associations that received funding from the industry).

In a comprehensive review of the existing literature through August 2002, an assessment was made of the association between funding source and study findings (Scollo *et al.*, 2003). It was concluded that all studies that found smoke-free policies to have a negative economic impact had been funded by the tobacco industry, an organisation that had received tobacco industry funding, or an industry ally. In addition, the vast majority (94%) of the industry-supported studies concluded that smoke-free policies had a negative economic impact.

An updated review available through January 2008, includes more recent non-industry funded studies that find that there is a negative economic impact of smoke-free policies (most notably for gaming establishments), but there continues to be a strong association between industry funding (either direct or through affiliated organisations) and the conclusion that the policies negatively affect the businesses they cover (Scollo & Lal, 2008).

### **Summary of research on the economic impact of smoke-free policies on the hospitality sector**

As of January 2008, 165 studies were identified which examined the economic impact of smoke-free policies on the hospitality sector (Scollo & Lal, 2008). Eighty-six of these studies employed official reports of sales, employment, or other related measures in their analyses, while 79 of them were based on survey data. Other characteristics of these studies including whether or not they were peer reviewed and their findings are summarised in Table 4.2.

Forty-nine of the identified studies based on official reports of business activity met the criteria described above for a methodologically sound evaluation of the economic impact of smoke-free policies; specifically, these studies used data covering a period including several years before and after policy implementation, controlled for underlying economic conditions and other relevant factors, and used appropriate statistical methods. These studies use data on an assortment of economic indicators, including: taxable sales, sales tax revenues, or other sales data; employment; the number of establishments; measures of bankruptcy; and the value of businesses. Several of the studies examine more than one outcome. Of the 49 identified studies, 47 concluded that smoke-free policies have either no economic impact or a positive economic impact on the businesses affected by them.

In addition, 37 other studies met some, but not all, of these criteria; most often they failed to control for

underlying economic conditions. These studies were more mixed in their findings, with 18 concluding that the policies had either no economic impact or a small positive effect, and 19 concluding that they had a negative impact. Given their limitations, it is not surprising that only three of these 37 studies were published in peer-reviewed outlets.

Seventy-nine of the studies used survey data to assess the economic impact of smoke-free policies, with 34 of these based on consumer/patron surveys and the remaining 45 based on owner/manager surveys. Given the limitations of these surveys described above (particularly those based on convenience samples and/or that collected information on anticipated rather than realised impact), only about one in five of these studies were published in a peer-reviewed outlet. Nearly all of the peer-reviewed studies (17 of 19) concluded that there are no negative economic effects of smoke-free policies. The majority of studies based on consumer/patron surveys that are published in other outlets also found that there is no negative economic impact of these policies. Of the studies based on survey data, those that relied on owner/manager survey data and that are not published in peer-reviewed outlets (the most methodologically flawed studies) are the only group more likely to conclude that there is a negative economic impact of smoke-free policies.

### **Other incidental effects of smoke-free policies**

In addition to their economic effects (or lack thereof), smoke-free policies

can impact a variety of other behaviours and related outcomes. Some of these are covered in other chapters, including the impact of the policies on attitudes towards tobacco and related social norms (Chapter 5), on exposure to tobacco smoke and its health consequences (Chapter 6), and on smoking behaviour (Chapter 7). This section reviews the evidence, often anecdotal, about other incidental and/or unanticipated effects of smoke-free policies. These include effects on other problem behaviours (e.g. drinking, gambling, and violence), litter, and street noise. Finally, the overall, broader economic impact of smoke-free policies and tobacco control efforts is briefly discussed. This section is not a comprehensive review of all possible incidental/unanticipated effects, but rather a short discussion of those that have received some attention and a selected review of the existing evidence on each.

### **Smoke-free policies and other problem behaviours**

#### *Drinking and its consequences*

Concerns about the potential economic impact of smoke-free policies on bars are often driven by the observation that smoking and drinking are frequently done together. Given this observation, it is plausible that by reducing smoking, smoke-free policies might also reduce drinking among smokers. Several studies by economists have explored the potential relationships between smoking and drinking by examining the impact of tax or price changes for cigarettes on drinking behaviour and/or vice-versa (Dee, 1999; Cameron &

Table 4.2 Summary of studies on the economic impact of smoke-free policies on the hospitality sector<sup>+</sup> (through 31 January 2008)

Type of data	Methodological quality*	Peer reviewed	Reported a negative impact (Number of studies)		Total	
			No	Yes		
Official reports of sales, employment or related measures (n=86)	Meet criteria for methodologically sound studies (n=49)	Yes (n=21)	20	1	49	
		No (n=28)	27	1		
	Met some of but not all criteria for methodologically sound studies (n=37)	Total for studies meeting all four criteria (n=49)	47	2	37	
		Yes (n=3)	3	0		
		No (n=34)	15	19	37	
		Total for studies meeting some of criteria (n=37)	18	19		
		<b>Subtotal</b>	<b>65</b>	<b>21</b>	<b>86</b>	
Survey data (n=79)	Patron/Consumer surveys (n=34)	Yes (n=9)	8	1	34	
		No (n=25)	19	6		
	Owner/Manager surveys(n=45)	Total Consumer	27	7	45	
		Yes (n=10)	9	1		
			No (n=35)	10	25	79
			Total Owner/Manager (n=45)	19	26	
		<b>Subtotal</b>	<b>46</b>	<b>33</b>	<b>79</b>	
		<b>Total</b>	<b>111</b>	<b>54</b>	<b>165</b>	

+ In preparation for this chapter, Scollo and Lal (2008) updated their previous, comprehensive review of the literature on the impact of smoke-free policies on the hospitality sector to include studies available through January 2008. These studies were identified by searching a number of citation indices, including Medline, the Science Citation Index, the Social Science Citation Index, Current Contents Search, PsycINFO, and Ovid HealthSTAR. The following search terms were used: "smok\* and restaurants," "bars," "hospitality," "economic," "regulation," and "law." Unpublished studies, and those not found through these searches, were identified through other approaches, such as soliciting relevant studies from the members of the International Union Against Cancer's International Tobacco Control Network (GLOBALink), and by searching hospitality industry and tobacco company websites based in major English-speaking countries. Internet searches were conducted with Google, using the search terms "smok\* bans" and "restaurants" or "bars," limited by the terms "economic impact" or "study." Finally, additional studies were identified through the monitoring of media reports and various tobacco-related publications.

For their reviews, each identified study was assessed by both Scollo and Lal and the following details were tabulated: author; year published; publisher name and type; whether or not the study was peer reviewed; and the source, if any, of funding for the study. Where the funding source was unclear, Scollo and Lal searched industry document archives to determine if funding was provided by tobacco companies, or associated organisations. In addition, the approach and findings of each study was determined, including date and location of policy implementation, nature of the policy implemented, type of outcome measure employed, analytic method used, whether or not economic conditions were controlled for, and a brief description of the key findings (including whether or not the author(s) concluded that the actual or potential economic impact of the policy at issue on the outcome(s) being analysed was negative). The detailed review is available online at: <http://www.vctc.org.au/tc-res/Hospitalitysummary.pdf>.

\*These studies used data covering a period including several years before and after policy implementation, controlled for underlying economic conditions and other relevant factors, and used appropriate statistical methods.

Williams, 2001), generally concluding that there is some complementarity between these behaviours; that is, increases in the price for one leads to reductions in the consumption of both. A few of these studies have considered similar relationships between smoking and illicit drug use, reaching similar conclusions (Chaloupka *et al.*, 1999; Cameron & Williams, 2001; Farrelly *et al.*, 2001).

Few studies, however, have considered the impact of smoke-free policies on other substance use, with those that have focused on drinking and its consequences. For example, the first six waves of the US Health and Retirement Survey, a longitudinal survey of adults aged 51 to 61 at baseline conducted from 1992 through 2002, were used to examine the impact of smoking restrictions and other factors on self-reported drinking (Picone *et al.*, 2004). It was concluded that more comprehensive restrictions on smoking (those that cover more venues, including bars) significantly reduce drinking among women, but have little impact on drinking among men.

More recently, state level data were used on beverage-specific alcohol consumption in the USA to look at the impact of state smoke-free policies on drinking (Gallet & Eastman, 2007). Relatively crude indicators of the policies were used: an indicator for any smoking ban and an indicator for a ban on smoking in restaurants and/or bars. Estimates indicated that the policies resulted in reductions in consumption of beer and spirits, but an increase in wine consumption. The researchers concluded that “the benefits from reducing tobacco consumption by enacting smoking

bans may crossover to reductions in social maladies tied to excessive drinking.”

A different conclusion was reached in the assessment of the impact of selected smoke-free policies on drinking and driving between 2000 and 2005, based on the use of US county level data on fatal motor vehicle accidents attributable to alcohol (Adams & Cotti, 2008). Jurisdictions selected for analyses are large US cities and counties and counties in states that adopted smoke-free bar policies between 2002 and 2005. The researchers found that alcohol-related traffic fatalities rose in counties covered by smoke-free bar policies, but did not change in counties without such policies, attributing this to an increase in driving by smokers who seek out bars where smoking is allowed (either in other jurisdictions not covered by a smoke-free bar policy, or those that are covered but do not comply with the policy) that more than offsets any reductions in drinking caused by the policy. This seems to be a short-term, transitional effect that will eventually disappear as these policies diffuse throughout the USA and as compliance increases.

Clearly, more research is needed to fully understand the impact of smoke-free policies on drinking, other substance use, and their related consequences.

#### *Problem gambling*

As described above, the evidence is mixed on the impact of smoke-free policies on business activity in gaming establishments. To the extent that such policies do result in a decline in gambling revenues,

this is likely to be accompanied by a reduction in problem gambling (Lal & Siahpush, 2008). Indeed, it was noted that “Gambling control advocates expected the legislation would be useful in curbing excessive gambling among EGM users in that enforcing a break in play would prompt many gamblers to reconsider their gambling,” and suggests that problem gamblers deterred by smoke-free policies may pay off existing debts, save more, spend more on housing, and increase spending in retail establishments. Given the mixed evidence, however, more research is needed to better understand the impact on problem gambling of smoke-free policies that cover gaming establishments.

#### *Domestic violence*

Reductions in drinking that might result from smoke-free policies could reduce domestic violence, given the established relationship between alcohol consumption and violence (Markowitz, 2000). For example, it was found that Irish smokers reported less drinking following the implementation of the comprehensive smoke-free policy in Ireland, than did smokers in Scotland and the rest of the United Kingdom, when comparable policies were not in effect (Hyland *et al.*, 2008b). To date, there is no substantive evidence that smoke-free policies have increased domestic violence, but some evidence suggests that they are likely to reduce such violence.

#### *Noise*

Anecdotal reports suggest that smoke-free policies, particularly

those that cover bars and clubs, increase noise outside of these establishments and result in greater complaints from neighbors. There are, however, very limited, solid data to support this. Data from repeated cross-sectional surveys of pub/bar and restaurant employees in Norway, following the implementation of the country's comprehensive smoke-free policy, indicate that almost half of bar employees and one-third of restaurant employees 'agree completely' that there is more noise outside of the premises, with about one in five bar employees and one in ten restaurant employees reporting an increase in complaints from neighbors (Lund, 2006). To the extent that there are real concerns about increased noise, adoption or enforcement of existing anti-noise policies is appropriate.

#### *Litter*

Anecdotal reports also suggest that there may be an increase in litter following the implementation of smoke-free policies, as smokers are forced outside to smoke and drop their cigarette butts on sidewalks and streets. This is supported by the findings from the Norwegian bar/restaurant employee survey described above, with the majority of employees indicating an increase in cigarette litter following the country's smoke-free policy (Lund, 2006). Some have suggested that supplying smokers with portable ashtrays would be an effective approach to reducing potential litter, while others recommend better enforcement of existing litter laws. There is no reliable evidence, however, on the extent to which litter increases following

the implementation of a smoke-free policy, or on the effectiveness of different approaches to reduce it.

#### *Summary*

Little reliable evidence exists on the impact of smoke-free policies on other problem behaviours, including other substance use and its consequences, problem gambling, domestic violence, noise, and litter. While concerns about the potential for increased problem behaviours (with the exception of gambling) have been raised, there are almost no data to support these concerns.

#### ***Smoke-free policies and the macroeconomy***

As noted above, opponents of tobacco control efforts often raise concerns about the broader, macroeconomic effects of tobacco control policies. With respect to smoke-free policies, these concerns are most relevant to the impact on tax revenues and employment. These issues are briefly discussed in this section (see Jha & Chaloupka, 1999; Prabhat & Chaloupka, 2000 for more complete discussions of these issues).

To the extent that smoke-free policies reduce cigarette smoking, as described in Chapter 7, the implementation of these policies will reduce revenues generated by cigarette excise and other taxes. However, these reductions in revenues are likely to be offset by increases in other tax revenues, as the money that smokers once spent on cigarettes is now being spent on other goods and services which are subject to VAT and other taxes.

If the loss of cigarette tax revenues is of particular concern, adoption of smoke-free policies as part of a comprehensive approach to reducing tobacco use that includes increases in cigarette and other tobacco tax revenues, is an effective means of both preserving the revenue stream generated by these taxes, for the short- to medium-term, and reducing tobacco use.

Those opposed to tobacco control policies and programmes also raise concerns about the impact of these efforts on employment, arguing that the resulting reductions in tobacco use will lead to job losses in tobacco-related farming, manufacturing, and distribution, as well as in other sectors of the economy. Again, any reductions in tobacco-related employment that result from smoke-free policies, or other tobacco control activities, will be offset by increased employment in other sectors as the money once spent on cigarettes is spent on other goods and services. This is particularly true in many developing countries where smoking is increasing, and where the short-term impact of the policies is more likely to be slowing the growth in tobacco use rather than significantly reducing it.

#### **Summary and conclusions**

Smoke-free policies impact businesses in numerous ways, from improving the health and productivity of their employees to reducing their insurance, cleaning, maintenance, and potential litigation costs. Experience to date suggests that there are minimal short-term costs to businesses of implementing

comprehensive smoke-free policies. Existing evidence from developed countries indicates that smoke-free workplace policies have a net positive effect on businesses; the same is likely to be the case in developing countries. Establishing and maintaining designated indoor or outdoor smoking areas is more costly to implement than a completely smoke-free policy. There are minimal costs to governments related to enforcement and education.

Much of the debate over the economic impact of smoke-free policies, and as a result, much of the research, has focused on the hospitality sector. Methodologically

sound research studies from developed countries consistently conclude that smoke-free policies do not have an adverse economic impact on the business activity of restaurants, bars, or establishments catering to tourists, with many studies finding a small positive effect of these policies. These studies include outcomes such as official reports of sales, employment, and the number of businesses. Very limited evidence from South Africa, an upper middle-resource country, is consistent with these findings. It is likely that the same would be true in other developing countries; nevertheless, research confirming this would be useful as

smoke-free policies are adopted in a growing number of these countries. Few studies exist on the impact of smoke-free policies on gaming establishments, and their results are mixed; more research is needed on these venues.

There is insufficient evidence about the effects of smoke-free policies on various problem behaviours, such as other substance use and its consequences, problem gambling, domestic violence, noise, and litter. No credible evidence exists to support claims that smoke-free policies will negatively affect the overall economy.

