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The impact of taxation on tobacco consumption in Mexico

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ABSTRACT

Background: The price of cigarettes to consumers in Mexico, and Latin America in general, remains low in comparison with other regions of the world. In Mexico, taxes represented 59% of the total price of cigarettes in 2006, compared to 75% or more in many high-income countries. The feasibility of raising taxes on cigarettes in Mexico—to both discourage consumption and increase revenues—is an important policy question.

Methods: Using household survey data, we undertake a pooled cross-sectional analysis of the demand for cigarettes in Mexico. We use a two-part model to estimate the price elasticity of cigarettes. This model controls for the selection effect that arises from the fact that the impact of price on the decision to smoke or not is estimated using all households in the dataset.

Results: The results indicate that price is a significant factor in household decisions concerning smoking and the number of cigarettes smoked. Holding other factors constant, our simulations show that a 10% increase in the cigarette tax in Mexico—calculated as a percentage of the price—yields a 12.4% increase in the price to the consumer, a 6.4% decrease in consumption of cigarettes and a 15.7% increase in the revenue yielded by the tax.

Conclusion: In Mexico, there are strong arguments for increasing cigarette taxes. Revenue raised could be used to further prevent tobacco consumption and to finance current funding shortages for the treatment of diseases related to smoking.

The price of cigarettes in Mexico is relatively high in comparison with other countries in Latin America.[1] A global study found that, controlling for purchasing power parity, the price of a pack of Marlboro cigarettes in 2001 was $1.74 in Mexico, $1.73 in Argentina and $1.23 in Brazil. In international terms, however, prices in Mexico remain low. The same study found that Mexico was the 25th most expensive—out of 30 countries—in terms of cigarette prices. The relative price of cigarettes is three times higher in the United Kingdom than in Mexico, and two times higher in China than in Mexico.

In 2002, 23.5% of the population aged 12–65 in Mexico smoked, with an increasing trend among young women.[2] There were an estimated 25 000 deaths caused by tobacco in 2000.[3] Recent years have seen the application of a range of policies aimed at reducing tobacco consumption—including the prohibition of television and radio advertising for cigarettes, the mandatory placing of warning labels on the back of cigarette packages, and an increase in cigarette taxes.

IThese policies have had only a limited impact. Until 1999, a differential cigarette tax—85% for filtered cigarettes and 20.9% for unfiltered—was applied on prices to retailers, equivalent to taxes of 40% and 15%, respectively, of the prices to consumers. The differential in tax rates for filtered and unfiltered cigarettes was based on a belief that taxing products consumed disproportionately by the poor—which is particularly the case for unfiltered cigarettes—would be regressive.

In 2005 the tax rate for both types of cigarettes was set at 110%, equivalent to 45.5% of the price to consumers. If the value added tax (VAT)—levied on nearly all goods and services in Mexico—is included, the tax rate for cigarettes in that year was equivalent to 59% of the price to consumers. (In Mexico, the tobacco-specific tax becomes part of the taxable base for the VAT. The tobacco-specific tax is first added to the wholesale price (charged to the vendor), and then the VAT is added to the final sale price to the public. VAT is calculated on the sum of the price out of the factory and the tobacco-specific tax.)

Despite this increase, cigarette taxes in Mexico remain low in comparison with high-income countries, where tax rates equivalent to 75% of the price to consumers are common.[4] There is solid evidence from countries at all income levels that taxation of cigarettes is highly effective in reducing consumption.[5] Moreover, there is a strong economic rationale for governments to use fiscal policy to reduce smoking, which has well documented negative effects on health status and economic productivity at both the individual and national level.[6]

In this study we examine the effect of cigarette tax and price increases on: (1) households' decisions to smoke or not smoke; (2) the number of cigarettes consumed by households that do smoke; and (3) government revenues resulting from the tax. We use these results to evaluate the impact of potential cigarette taxation policies in Mexico. The key parameter for determining the effectiveness of taxation is the elasticity of the demand for cigarettes with respect to price. Existing studies in Mexico estimating the price elasticity of demand are limited by methodological problems.[7 8] These studies do not correct for the censuring of the consumption variable resulting from combining non-smokers (with no consumption) with smokers with positive consumption ranging upwards from one cigarette. Additionally these studies do not correct for the endogeneity of the price variable when price is calculated at the household level as expenditures divided by number purchased.[9]

Table 1 Household economic status and cigarette consumption

	Household economic status*				
	First (poorest) quintile	Second quintile	Third quintile	Fourth quintile	Fifth (richest) quintile
Percentage of households that smoke	5.2%	7.7%	9.3%	9.6%	12.2%
Average packs of cigarettes consumed monthly per adult (among households that smoke only)	3.1	3.9	3.7	4.9	6.7
Percentage of household income spent on cigarettes†	4.5%	3.0%	2.5%	2.2%	1.4%

*Quintiles are defined by the distribution of households in terms of per-capita income.
†The percentage of household income is defined over a three-month period.
Source: Authors' calculations with data from the 1994-2005 ENIGH surveys.

DATA

The data source for our study is the National Household Income and Expenditure Survey (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH) for the time period 1994 to 2005.[10] The ENIGH is administered by the National Institute of Statistics and Geography and is representative at the national level, using stratified multiple stage sampling. (The datasets, manuals, questionnaires and related documentation for the 2000 to 2005 ENIGH surveys are available at http://www.inegi.gob.mx/est/default.aspx?c = 2604. For earlier years 1994, 1996 and 1998 tabulated results are available on this website; and the data are obtainable in CD format.)

The survey is cross-sectional in design and included 12 815 households in 1994, 13 096 in 1996, 10 134 in 1998, 10 108 in 2000, 17 167 in 2002, 22 595 in 2004 and 23 174 in 2005. These seven cross-sections have a total sample of 109 089 households. Household is the unit of analysis for our study. The questionnaires from the different years of the survey have only minor variation, and allow consistent comparisons across time. The data include household income and expenditures for a one-month period on a wide range of goods and services, as well as characteristics of the head of household and other members.

The ENIGH does not collect information on cigarette prices but does provide information on weekly expenditures on cigarettes and the number purchased by households. Households were defined to be smoker households if their expenditure on cigarettes was positive. We calculated the average price paid by each household by dividing total expenditure on cigarettes by the number of packs purchased. Since price may also reflect the quality of the commodity and the preferences of the consumer, it is potentially endogenous. Formal tests of endogeneity, such as the Hausman test, are of limited use in these circumstances, since there is no reliable instrumental or identifying variable available in the data. While other studies have used the tax rate for cigarettes as an instrumental variable, we were not able to do so because this tax rate is set at the federal level in Mexico, and thus there is no geographic variation in the tax rate in the household survey data.

To partially address the problem of the potential endogeneity of the price variable, we calculated average prices for groups of households sharing specific characteristics related to price, and assigned the resulting average price to all households in that group—including non-smoking households. The variables used to stratify the survey sample into these groups are area of residence (state); socioeconomic status (the quintile of total household income per person); and rural condition (differentiating households living in localities with fewer than 2500 habitants from the remainder of the population). We then calculated an average price for each of these stratified groups.[11]

Since the ENIGH includes observations from multiple levels—including individual, household, and geographic areas—we adjusted for potential clustering of the error terms resulting from the fact that each household within a given cluster is given the same value for all cluster-level independent variables. The dataset includes variables for the primary sampling unit (PSU) and the survey weight—we used these variables together with the survey commands in Stata in order to correct for potential correlation of the error term across observations within the same cluster.[12] All of our analyses use the survey weights.

The ENIGH survey procedures specify that the individual interviewed can be the head of the household, spouse or partner, or a household member at least 15 years old. The sampling design for all of the ENIGH surveys has stayed comparable over the course of the seven surveys—as have the recall periods, units of analysis, geographic coverage, and operational and training procedures.

METHODS

To estimate the price elasticity of demand for cigarettes, we use a two-part model to avoid bias arising from the censuring of the consumption variable.[13] The first part involves estimating the price elasticity of smoking participation, while the second part involves estimating the price elasticity of demand for cigarettes, conditional on the participation decision. Based on similar previous studies and the availability of information, several household characteristics were included as determinants of a household's decision to smoke. We use a probit model to estimate the probability P that a household includes a smoker:

$$P(\text{Smoke}_i) = f(\text{Price}_i, \text{Income}_i, \text{Education}_i, \text{Female}_i, \text{Age}_i, \text{Age\_sq}_i, \text{Alcohol}_i, \text{Adults}_i, \text{Adults\_sq}_i, \text{Year}_i) \quad (1)$$

with the following variable definitions:

- *Smoke* Dummy variable that takes a value of 1 if the household spent any money in cigarettes.
- *Income* Total quarterly household income per person including monetary and non-monetary income (in log constant pesos). Non-monetary income includes the consumption of goods that are self-produced, payment in kind, gifts and an estimation of the rent value of owner-occupied housing.
- *Education* Dummy variables for the educational level of the household head: no education, primary, secondary and university. No education is the omitted category in the estimations.
- *Female* Dummy variable that takes a value of 1 if the head of household is female.
- *Age* Age of the household head.
- *Age_sq* The square of the household head's age.

- *Alcohol* Dummy variable that takes a value of 1 if the household spent any money on alcoholic beverages during the week before the survey.
- *Adults* Number of adults in the household.
- *Adults_sq* Square of the number of adults in the household.
- *Year* Six dummy variables for the seven surveys used: 1994, 1996, 1998, 2000, 2002, 2004 and 2005. Each one takes a value of 1 if the household was interviewed in the corresponding year; 1994 is the omitted (reference) year in the regression equations.

The second model in the two-part procedure is the conditional demand for cigarettes for smoker households only. This consumption model, estimated using the log-log ordinary least squares method, is the following:

$$\text{Ln (Consumption}_i) = \beta_0 + \beta_1 \text{ Ln (Price}_i) + \beta_2 \text{ Ln (Income}_i) + \beta_3 \text{ Education}_i + \beta_4 \text{ Female}_i + \beta_5 \text{Age}_i + \beta_6 \text{Age\_sq}_i + \beta_7 \text{ Alcohol}_i + \mathbf{B}_8 \text{ Adults}_i + \beta_9 \text{Adults\_sq}_i + \beta_{10} \text{ Year}_i + \varepsilon_i \quad (2)$$

Consumption is calculated as the logarithm of the number of cigarette packs smoked per month by the household. The ENIGH reports the number of cigarettes consumed weekly by households in kilograms. We calculated the number of packs on the basis that 1 kg is equal to 40 packs of 20 cigarettes each. This assumption is a conservative one, based on the literature and the fact that the most commonly consumed type of cigarette in Mexico, Marlboro, comes in packs of 20 cigarettes. Other studies in Mexico have used this conversion scale.[8] In addition, it is consistent with the conversion used by the ENIGH survey—a hard pack of 20 medium size cigarettes equals 0.025 kg and 40 packs equals 1 kg.

The logarithmic transformation of the consumption variable, which by its nature is heavily right-skewed, brings this distribution closer to the normal distribution that underlies the statistical inference used to calculate confidence intervals for the coefficients in the model.

The price elasticity of participation (EP) is estimated with the following equation[14]:

$$EP = \frac{\beta_i}{\sqrt{2\pi}} \exp\left(-\frac{1}{2}(\beta'\overline{X})^2\right) \frac{1}{E(Y/X)} \quad (3)$$

Table 2 Weighted probit model for smoking participation (dependent variable 1 if smoker household, 0 otherwise)

Explanatory variables	Coefficients	T statistics
Price	−0.0019*	[1.77]
Ln (income per person)	0.1980***	[17.23]
Primary school	−0.0664**	[2.09]
Secondary school	−0.1185***	[3.38]
University	−0.2238***	[5.27]
Female	−0.1767***	[6.77]
Age	0.0123***	[3.39]
Age squared	−0.0002***	[4.19]
Alcohol	0.7482***	[25.09]
Adults age 18+ in household	0.1240***	[4.84]
Adults age 18+ squared	−0.0103***	[3.13]
Year		
1996	−0.0396	[1.22]
1998	−0.0824**	[2.49]
2000	−0.1071***	[2.70]
2002	−0.2396***	[6.60]
2004	−0.1348***	[4.19]
2005	−0.1434***	[4.62]
Constant	−3.3123***	[26.61]
Observations	109 086	

*p<0.1; **p<0.05; ***p<0.01.

where X is the vector of independent variables in equation 1 above, β is the vector of corresponding coefficients, E(Y/X) is the average value of the estimated probability P(Y = 1).

In this double-log functional form, the price elasticity of consumption is equivalent to the estimated coefficient on the price variable.[15] The overall price and income elasticities were calculated by summing together the elasticity of participation and the elasticity of consumption.[16]

One of the key underlying assumptions of the two-part model is that the error term from the probit participation equation is not correlated with the error term of the linear regression for number of cigarettes. If the error terms were correlated, the estimated price elasticity would be biased.[17] To evaluate whether this source of bias exists, we estimated a generalised tobit model, also in two parts. In the first part, equation 1 above was estimated and used to calculate the inverse Mills ratio. In the second part, the inverse Mills ratio was included in equation 2, which was estimated for smoker households only.[18]

The equation to calculate the inverse Mills ratio (MR) is the following:

$$MR = \frac{\theta(X\beta)}{\Phi(X\beta)} \quad (4)$$

where θ (.) is the standard normal density, Φ (.) is the cumulative function of the standard normal density, X is the matrix of independent variables included in model 1, β are the estimated coefficients in the first step.

RESULTS

Overall smoking rates—calculated from the ENIGH as the percentage of households that have at least one smoker—have decreased slightly over the course of the seven survey years, from 11.2% in 1994 to 7.8% in 2005 (fig 1).

Table 3 Weighted ordinary least squares model of the conditional demand for cigarettes (dependent variable log of the number of packs smoked per month)

Explanatory variables	Coefficients	T statistics
Price	−0.4538***	[9.39]
Ln (income per person)	0.2435***	[12.02]
Primary school	−0.0590	[1.22]
Secondary school	−0.0359	[0.64]
University	0.0452	[0.63]
Female	−0.0163	[0.39]
Age	0.0212***	[3.68]
Age squared	−0.0002***	[2.95]
Alcohol	0.0887**	[2.20]
Adults age 18+ in household	0.0738*	[1.76]
Adults age 18+ squared	−0.0081	[1.42]
Year		
1996	−0.0667	[1.30]
1998	0.0211	[0.40]
2000	−0.0277	[0.50]
2002	−0.0506	[0.91]
2004	−0.0949*	[1.82]
2005	−0.3621***	[7.20]
Constant	0.4400*	
Observations	9265	

*p<0.1; **p<0.05; ***p<0.01.
$R^2 = 0.1139$.

Both the percentage of households that smoke and the number smoked by smoking households increase with economic status (table 1). The percentage of household income spent on cigarettes declines, however, as households become wealthier.

When equation (1) above is estimated, the price variable has a significant impact on smoking participation (table 2). Higher prices decrease the probability of a household including a smoker. At the same time, significant and negative coefficients for the education dummy variables show that households with a household head with primary, secondary or university education have a smaller likelihood of having a smoker than households where the household head has no formal education. As the educational level of the household increases, the likelihood of smoking participation decreases sharply.

As expected, household size and age structure are also significantly correlated with smoking rates. The significant and positive coefficient for the number of adults living in the household shows that the likelihood of having a smoker in the household increases as the number of adults in the household increases. This relation is not linear, however, as shown by the negative and significant coefficient for the square of the number of adults variable. The alcohol consumption dummy variable is positive and significant, which verifies the strong correlation between cigarette and alcohol consumption noted in other studies.[19 20] Negative and significant coefficients on the survey year variables compared to the year of reference (1994) suggest that, over time, smoking rates have declined in Mexico after controlling for other observable factors.

The second part of the two-part model explores the number of cigarettes smoked by households (table 3). The magnitude of the significant coefficient on price shows that cigarette consumption is much more sensitive to changes in price than is smoking participation. The household price elasticity of demand, conditional on positive participation by at least one member, is −0.45 compared to the price elasticity of participation of just −0.06 (table 4). If cigarette prices increase by 10%, the number of cigarettes consumed decreases by 4.5%. The difference of price elasticity, calculated after including the Mills ratio, was not statistically different from the elasticity calculated before (95% CI: −0.092 to 0.091), indicating that the correlation of the error terms in the two equations is not statistically significant.

Household per-capita income has a positive, significant impact on the number of cigarettes consumed. The conditional income elasticity of demand is 0.25. Holding other factors constant, a 10% increase in household income per person increases the average number of cigarettes consumed by 2.5%. Household age structure has a similar impact on cigarette consumption as on smoking participation. Households with a greater number of adults consume more cigarettes on average, but the relation is not linear. The alcohol consumption variable is positive and significant, which verifies the correlation between the number of cigarettes and alcohol consumption.

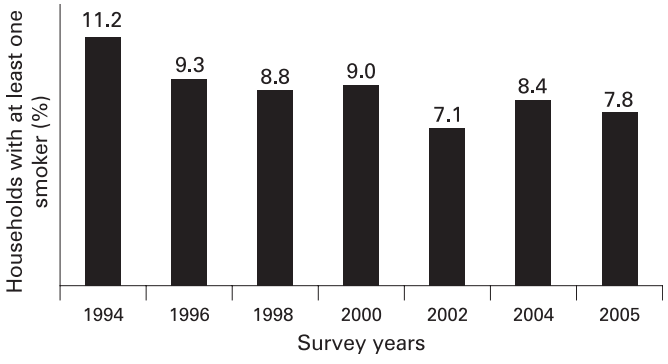

Figure 1 Household smoking prevalence in the ENIGH surveys.

Table 4 Combined price and income elasticities

	Price elasticity	Income elasticity
Elasticity of smoking participation	−0.06*	0.25***
Conditional elasticity of cigarette consumption	−0.45***	0.24***
Total elasticity	−0.52	0.49

*p<0.1; **p<0.05; ***p<0.01.

The estimated price and income elasticities are summarised in table 4. The total price elasticity, calculated by adding the elasticities from the first part of the estimation and the second part, is −0.52. This indicates that a 10% increase in the cigarette price would lead to a −5.2% decrease in average cigarette consumption. Higher prices would reduce household smoking—largely in terms of the number of cigarettes smoked.

Combining the income elasticity of smoking participation and the income elasticity of cigarette consumption, the total income elasticity calculated was 0.49 (table 4). A 10% increase in income would increase the average consumption of cigarettes by 4.9%, confirming that cigarettes are a normal good.

Simulations

The simulated impact of a cigarette tax increase in Mexico—measured in terms of taxes as a percentage of the price of cigarettes—and the resulting revenue for government is shown in table 5. We use the price elasticity of demand to model the increase in the tobacco-specific excise tax—expressed as a percentage of the final price to the consumer. For each level of tax increase expressed in this manner, ranging from 10% to 36% of the final price, we then calculate the resulting total excise tax as a percentage of the price to retailer and the consumer—as well as the excise tax and VAT as a percentage of the price to the consumer (the first three rows in table 5). The results are expressed in terms of the final price per pack, in Mexican pesos, as well as the resulting percentage change in this price. Consumption and revenue statistics are then calculated based on baseline data for the year 2006, provided by the Ministry of Finance and Public Credit.

As indicated in table 5, we estimate that a tax increase equivalent to 10% of the starting price would increase the final price to the consumer by 12.4% as the industry passes the tax on to smokers. As a result, consumption would decrease by 6.4%, and tax revenue would increase by 15.6%.

It is possible to imagine scenarios with taxes higher than those presented in table 5. If the excise tax were to be set at 75% of the price to the consumer—as is the case in several countries with strong tobacco control policies[5]—the price to the public would increase by 65.6%, consumption would be reduced by 34.1% and government tax revenue from the tax would increase by 48.4%.

DISCUSSION

Cigarette taxation is an effective tool for generating government revenue, and can also be a useful measure to improve population health. In Mexico, an increase of 10% in cigarette taxes would increase prices by 12.4%, reduce consumption by 6.4% and increase government revenue by 15.7%. These simulations

Table 5 The impact of tax increases on cigarette consumption and revenue

	2006 (base year)*	Increase in the tobacco-specific excise tax as percentage of the final price to the consumer				
		10%	12%	18%	25%	36%
Excise tax as percentage of the price to retailer	110%	136%	140%	160%	190%	248%
Excise tax as percentage of price to consumer	45.55%	50.10%	50.79%	53.52%	56.94%	61.96%
Excise tax + VAT as percentage of price to consumer	58.59%	63.14%	63.83%	66.56%	69.98%	75.00%
Price per pack†	20.00	22.46	22.89	24.76	27.58	33.12
Price change		12.30%	14.45%	23.80%	37.90%	65.60%
Consumption (millions of packs)	1811	1695	1675	1587	1454	1193
Consumption change		−6.40%	−7.51%	−12.38%	−19.71%	−34.11%
Revenue (Mexican pesos 2006)	16 499	19 073	19 473	21 030	22 834	24 482
Revenue change		15.60%	18.03%	27.46%	38.39%	48.38%

Producer profit is held constant in the simulations.
*Data on the base year (2006) are provided by the Ministry of Finance and Public Credit.
†The price per pack (in Mexican pesos) in the base year is estimated with data from the 1994–2005 ENIGH surveys, adjusted for inflation to 2006 using inflation data from the Bank of Mexico.

suggest that price increases would have a strong impact on the number of cigarettes smoked in Mexico.

Cigarette consumption is also higher in higher-income households, both in terms of participation rates and number consumed. Expenditures on cigarettes as a proportion of income are higher for lower-income households—indicating that a tax on cigarettes would be regressive. However, since poorer households are more sensitive to price increases than relatively wealthy households,[21 22] they will reduce their consumption proportionally more than wealthier households, assuaging the regressive nature of the tax. In recent years, Mexico has become a net importer of tobacco. Tobacco control policies aimed at reducing demand, such as tax increases, are unlikely to have negative economic effects since tobacco production is considerably less important to the economy, and employment, than it once was. A reduction in demand for smoking achieved through fiscal policy would create a win-win situation for the country—increasing tax revenue and reducing smoking and its negative health and economic effects.

Because the price elasticity in the participation equation—whether a household has a smoker or not—is relatively low, it would be logical to expect substitution from more expensive to less expensive brands in event of a tax increase, rather than a reduction in the smoking rate. We are not able to fully explore this substitution effect with the ENIGH data since the brand smoked is not identified. However, since Mexico has standardised tax rates for all types of cigarettes, there is some reason to believe that the price substitution effect may be modest.

There are several limitations to our analysis. One is that we are not fully able to explore the potential endogeneity of the price variable, given the homogeneity of tax rates throughout the country, and the lack of a valid instrument for this variable—as described in the Data section. The price paid for cigarettes is calculated as expenditures divided by quantity, which limits potential variability in prices paid within households. Similarly, we are not able to study brand substitution effects that may be related to price increases with the ENIGH—since the brand smoked is not identified in the data.

Given the addictive nature of cigarettes, and the oligopolistic structure of the industry in most countries, higher taxes will generally be passed on to consumers.[5] We have assumed in the simulations that producer profit remains constant in the face of tax increase—in other words that the tax is entirely passed on to consumers. However, it is possible that the cigarette industry may use a compensating pricing strategy to absorb part of the tax increase in order to maintain smoking levels.[23]

Our results differ somewhat from the findings of other studies that have used individual-level data and have found greater price elasticities for smoking participation.[18 24] The largest differences are in the price elasticity for the participation decision, where our study may be affected by the fact that household is the unit of analysis. However, other studies using household level data have found similar results. In Indonesia, the price elasticity of smoking participation has been found to be small (−0.016) and insignificant, potentially as a result of using the household as the unit of observation. Studies based on household data do not identify which members of the household are smokers or non-smokers. If there are two or more smokers in a household and one of them quits, the status of the household as a smoker household would not change.[25]

In several low-income and middle-income countries there is a documented trend of higher smoking prevalence among poorer population groups.[5 26] The fact that in Mexico the opposite pattern holds suggests that a tax increase would be more progressive than in other countries. However, the proportion of income spent on cigarettes is still higher in poorer households in Mexico.

CONCLUSION

Our study shows that price is a statistically significant factor in households' decisions to smoke or not—and also in decisions of how many cigarettes to smoke. Each 10% increase in the price of cigarettes results in a 5.2% decrease in the number of cigarettes smoked. The consumption of cigarettes is also linked to household income—an increase of 10% in income is associated with a 4.9% increase in the number of cigarettes smoked. Simulations show that—with other factors held constant—a 10% increase in the tax as a percentage of the price results in a 12.4% increase in the price to consumers, reduces consumption by 6.4% and increases the revenue from cigarette taxes by 15.7%.

Additionally, because the ENIGH is a household-level survey we can calculate elasticity for the overall household only, and not for individual household members. A possible explanation for the relatively small coefficient of the price variable in the participation equation (−0.06) is that for a household to become a non-smoking household all the members have to quit smoking. Further surveys in Mexico might want to collect and analyse individual-level data to determine the effect of taxes on the decision to smoke.

The second part of our estimation shows that price is an important determinant of the number consumed. Overall, a

What is already known on this subject

The effects of taxes on household smoking decisions and the numbers of cigarettes consumed are well documented in high-income countries, but much less so in low-income and middle-income countries. There are no studies on this topic in Mexico, and very few in Latin America in general.

What this study adds

In Mexico, price is a statistically significant factor in households' decisions to smoke or not—and also in decisions of how many cigarettes to smoke. Each 10% increase in the price of cigarettes results in a 5.2% decrease in the number of cigarettes smoked. With other factors held constant—a 10% increase in the tax as a percentage of the price would result in a 12.4% increase in the price to consumers, reduce consumption by 6.4% and increase the revenue from cigarette taxes by 15.7%. The feasibility of raising taxes on cigarettes in Mexico—to both discourage consumption and increase revenues—is an important policy question.

10% increase in price would lead to a 5.2% reduction in the number consumed. Since the elasticity is less than one, the increment of prices through the rise in the excise tax for cigarettes could increase government revenue. The additional funds collected could be used to further prevent tobacco consumption and to finance current funding shortages for the treatment of diseases related to tobacco consumption.[26] In Mexico, there are clearly strong arguments to increase cigarette taxes.

There have been relatively few studies on the impact of price and taxation on smoking in Latin America. As household survey data become increasingly available in the region, there exists both a strong need and an opportunity to use these data to inform tobacco control policies.

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