

## **APPENDIX J**

# **Literature Review on the Impact of Tobacco Price and Tax Policies on Children**

**Janet Chung-Hall  
University of Waterloo**

**November 30, 2018**

Prepared for the Bill and Melinda Gates Foundation



## **Acknowledgements**

This report was prepared for the Bill and Melinda Gates Foundation by a team of collaborators at the University of Waterloo: Dr. Janet Chung-Hall (lead author), Lorraine Craig (editing and review), and Dr. Geoffrey T. Fong (editing and review).

## Literature Review: Impact of Tobacco Price and Tax Policies on Children

### Summary

1. Increasing taxes to raise the price of tobacco products is the most effective policy to reduce tobacco consumption.
2. Higher tobacco taxes are particularly effective in reducing smoking among youth, who are typically more price-sensitive than adults.
3. Tobacco price and tax measures are likely to have a strong impact on youth in low- and middle-income countries, where cheap tobacco products are accessible in a variety of retail locations. However, few studies have evaluated the effect of real-world tobacco price increases on tobacco prevalence and consumption among youth, with virtually no studies from low- and middle-income countries.
4. There is strong evidence from high-income countries that raising the price of cigarettes will lead to significant reductions in rates of youth smoking and consumption.
5. There is inconsistent evidence on whether increased cigarette prices are effective for preventing young people from starting to smoke.
6. Some research from the United States shows that cigarette tax increases are associated with positive health outcomes in children, including reduced risk for low birthweight, and decreased rates of hospitalization for asthma and lower respiratory infections.
7. Youth in many countries around the world, especially those in low- and middle-income countries, have easy access to single cigarettes. The sale of single cigarettes makes cigarettes more affordable to youth and undermines tobacco tax policies.
8. There is evidence to suggest that bans on the sale of single cigarettes are generally poorly enforced, particularly in low- and middle-income countries. However, there is currently no research on how such bans affect smoking-related outcomes among youth.

### Background

Globally, an estimated 25 million youth currently smoke cigarettes and 13 million use smokeless tobacco products.[1] Tax increases that raise the price of tobacco products are widely recognized as the single most effective population-based strategy to reduce tobacco consumption.[2,3] Higher tobacco prices encourage current users to quit, prevent non-users from starting to smoke, and reduce the quantity of tobacco consumed among continuing users.[4]

Youth are likely to be more responsive to price and tax measures than adults because they have been smoking for a shorter period of time and thus have lower levels of addiction, they are more likely to be influenced by reduced smoking among their peers in response to higher prices, they have lower disposable income, and they are more likely to be oriented toward present than the future.[1,5–7] Studies from high-income countries (HICs) — predominantly from the US — have generally found higher overall cigarette price elasticities for youth (ranging from 0 to -1.44) than for adults (ranging from -0.3 to -0.5).[7–11] In other words, a 10% cigarette price increase would potentially decrease smoking by up to 14% for youth compared to 5% for adults, which suggests that young people are two to three times more responsive to price increases than adults on average.[2,12]

Article 6 of the WHO FCTC obligates Parties to adopt pricing and taxation measures in order to reduce tobacco consumption. Research has consistently shown that adults in LMICs are often more responsive to prices of tobacco products than those in HICs.[1] Tobacco price and tax measures are likely to have an even greater impact on youth in low- and middle-income

countries (LMICs), where many young people have access to cheap tobacco products. Studies based on Global Youth Tobacco Survey (GYTS) data have estimated that a 10% increase in cigarette prices would lead to larger reductions in smoking among youth aged 13 to 15 years in LMICs (21% to 22% decrease) than those in HICs (15% to 18% decrease).[13,14] Consistent with findings from HICs, there is evidence that young people in LMICs are more sensitive to changes in cigarette prices than adults.[15–18] Most existing studies have used simulation models to estimate the extent to which youth demand for tobacco products responds to changes in price based either on aggregate data (i.e., country or state-level data on the total amount of tobacco purchased or taxed for the entire population) or individual-level survey data; however, the bulk of the evidence comes from HICs.[1] Currently, there is very limited research on the impact of real-world tobacco price increases on tobacco prevalence and consumption among youth, with virtually no studies from LMICs. In fact, a 2018 systematic review of research on WHO ‘best buy’ interventions for non-communicable diseases conducted in low-income and lower-middle-income countries from 1990 to 2015 failed to identify any studies on the impact of tobacco taxation on youth.[19] In addition, there are few studies on the price elasticity of demand for other types of tobacco products, such as smokeless tobacco, waterpipe, and bidis, that are commonly used by youth around the world.[1,20,21]

### **Higher cigarette prices will reduce smoking rates and cigarette consumption among adolescents and young adults**

A few studies conducted in European countries [22,23] and Canada [24] have found no association between cigarette prices and smoking prevalence among adolescents (aged 13 to 19 years). However, results from a number of other countries (mostly HICs) consistently show that raising the price of cigarettes will lead to significant reductions in youth smoking and/or consumption.

- A systematic review of literature on the effects of tobacco price and tax measures on smoking behavior among six high-risk subpopulations found strong evidence that increased prices lead to decreased smoking prevalence and consumption among youth (<19 years) and young adults (aged 18 to 24 years) in HICs.[12]
- A study on the effect of tobacco control policies on adolescent smoking in Australia from 1990-2005 found that 12 month cigarette price increases were associated with reduced smoking prevalence among adolescents (aged 12 to 17 years).[25]
- A 2010 systematic review found strong evidence for an association between cigarette prices and smoking participation among young people (aged ≤ 25 years). Estimates based on longitudinal data indicated that a 10% price increase will lead to a 1.1% to 2.4% decrease in smoking participation, while estimates based on repeated cross-sectional data found that a 10% price increase will lead to a 1.3% to 7.7% decrease in smoking participation. There was also strong evidence that increased cigarette prices are associated with a decrease in the quantity of cigarettes smoked (up to a 7% decrease) by young people.[26]
- Following the implementation of several increases in the federal and provincial excise taxes for cigarettes in Canada from 1998 to 2002, there was a decline in smoking participation among young people (aged 12 to 24 years) over this time period (from 25% to 17%).[27]

- A study based on data from the US estimated that higher cigarette prices would lead to significant reductions in smoking participation and average cigarette consumption among high school students.[28]
- Analysis of data from the US and Canada estimated that increases in the price of cigarettes would reduce smoking participation among high school students (aged 13 to 16 years), with boys being more price-sensitive than girls.[29]
- A study based on GYTS data from 17 LMICs estimated that a 10% increase in the price of local brand cigarettes would reduce smoking participation among youth (aged 13 to 15 years) by 7%, and reduce the average number of cigarettes consumed by 14%.[13]
- Study based on GYTS India data estimated that higher tobacco prices would reduce smoking participation among youth (aged 13 to 15 years). Estimated price elasticities suggest that a 10% price increase would lead to a 27% reduction in youth bidi smoking, a 5.8% reduction in gutka use, and a 4.0% reduction in cigarette smoking.[30]

On the other hand, there is some evidence from HICs to suggest that tobacco price increases may have a limited impact in terms of reducing the likelihood that young people will go on to smoke as adults.

- Study from Canada estimated that a 10% increase in average cigarette prices during youth (over ages 12 to 18 years) would reduce the probability of adult smoking by just under 1%.[31]
- Longitudinal US study found no evidence that higher taxes faced by high school students when they were ~18 years old prevented them from smoking when they were ~26 years old.[32]

### **Inconsistent evidence for impact of increased cigarette prices on smoking initiation among young people**

There is some evidence that increasing the price of tobacco products can prevent or delay smoking initiation among youth from HICs and LMICs.

- Study based on GYTS data from 40 LMICs estimated that cigarette prices would have a significant impact on smoking initiation among youth (aged 13 to 15 years) — gender-combined estimates suggest that a 10% cigarette price increase would correspond to an 8.2% decrease in smoking initiation, with girls being more responsive to price increases than boys.[33]
- Longitudinal study in Canada found that decreased cigarette prices were significantly associated with higher smoking initiation among young adults (aged 20 to 24 years).[34]
- A systematic review of tobacco prevention and control policies and interventions in the US concluded that increasing excise taxes and the price of cigarettes is likely to reduce youth smoking.[5]
- Study of youth (aged 14 to 24 years) in Vietnam found that increases in average tobacco prices and in the prices of two popular brands had a significant effect on youth smoking onset. It was estimated that doubling tobacco prices at the mean age youth started smoking (17 years) delayed smoking onset by nearly 4 years.[35]

On the other hand, other studies from HICs have shown that cigarette price and tax measures have a limited (if any) impact on youth smoking initiation and experimentation.

- Systematic review identified 22 studies on the impact of price in preventing smoking initiation among youth (<19 years). Of these, seven found that increased price prevents smoking initiation, nine found no effect, and six found that price prevents smoking initiation in some cases only. Similarly, only 1 of 4 studies found that increased price prevents smoking initiation among young adults (aged 18 to 24 years).[12]
- Study in the US found no association between cigarette prices and smoking experimentation among youth (aged 10 to 22 years).[36]
- Results of another US study suggest a weak association between cigarette taxes and smoking onset among adolescents in Grades 8 to 12.[37]

### **Increasing cigarette taxes can improve children’s health outcomes**

Studies from the US suggest that the implementation of cigarette tax increases can lead to significant improvements in children’s health outcomes.

- Study conducted across 28 states and Washington, DC found that cigarette tax increases were significantly associated with improved health outcomes among the highest-risk mothers and infants. Specifically, for mothers with the least amount of education, cigarette tax increases significantly reduced their level of smoking, as well as their risk of having low birthweight, preterm, and small-for-gestational-age babies.[38]
- Study in Pennsylvania found a significant decrease in the level and trend of asthma-related hospitalizations after a state-level cigarette tax increase, with the largest decline among children aged 18 years or younger.[39]
- There was a significant association between the implementation of cigarette taxes in 12 states and reductions in asthma hospital discharges for children.[40]
- Study in Massachusetts found that cigarette taxes were effective for improving children’s health — every \$1.00 increase in state cigarette taxes was associated with a 9% reduction in hospital emergency department visits for lower respiratory infections among children (aged 0 to 17 years).[41]

### **The sale of single cigarettes weakens the potential benefits of tobacco tax policies**

The sale of single cigarettes is a public health concern, particularly for vulnerable younger populations. Single cigarettes are often cheaper than a full pack, making them more affordable to youth.[42–44] Access to single cigarettes may also encourage young people to experiment with smoking.[45] The sale and use of single cigarettes also weakens tobacco control policies that are known to be effective for youth smoking prevention. In addition to evading tobacco taxes, single cigarettes lack health warnings, can be easily accessed by minors in many countries, and are a strong cue for smoking which may then make it harder for smokers to quit.[44–46]

#### ***Single cigarettes are widely available to youth around the world***

It is very common for vendors to sell cigarettes in single sticks in many LMICs, including those countries that have implemented legislation to prohibit the sale of singles.

- Global Adult Tobacco Survey (GATS) data show that more than 25% of cigarettes are purchased as single sticks in Brazil, Mexico, Thailand, and Vietnam.[47]
- Based on the data collected from 10 jurisdictions across India, it is estimated that 59% to 87% of all cigarettes are sold as single sticks annually.[45]

- Another study from India found that 96% (46) of shops located within a 100 yard radius of schools sold single cigarettes.[43]
- A survey of 10 capital cities in Africa found that it was possible to purchase cigarettes in single sticks in all cities, including those with bans on the sale of single sticks.[48]
- Findings of ITC surveys show that many smokers in African countries purchase their cigarettes as single sticks. In 2014, 51% of smokers in Zambia stated that their last purchase of cigarettes was loose (single) cigarettes.[49] In Kenya and Mauritius, compliance with legislation that prohibits the sale of single cigarettes is low. In 2012, 83% of smokers in Kenya stated that their last purchase of cigarettes was loose (single) cigarettes.[50] In Mauritius, nearly one-third of smokers reported purchasing single cigarettes in 2011, and half of smokers reported that it is easy to buy singles.[51]
- A study from Guatemala found that despite a ban on the sale of individual cigarettes, 91% (275) of stores and street vendors sold single cigarettes.[52]

Given the widespread availability of single cigarettes in LMICs, it is not surprising that many youth in these countries regularly purchase cigarettes as single sticks. For example, GYTS data show that more than half of students (aged 13 to 15 years) in most countries in the South-East Asia region reported purchasing their cigarettes from a store/shop/vendor as individual sticks in the past 30 days: 85% in Bangladesh, 74% in Indonesia, 62% in Sri Lanka and Myanmar, 53% in Bhutan.[53]

Single cigarettes are also available in some high-income countries, where youth of low socioeconomic status (SES) are typically more likely to purchase singles than high SES youth.

- In the US, a substantial proportion of young people from socioeconomically disadvantaged minority groups report that they regularly buy single cigarettes [54,55], and there are wide variations in the violation of bans on the sale of singles across states.[56]
- A GYTS study found that a substantial proportion of adolescents in Argentina reported the purchase of single cigarettes: 61% of those aged  $\leq 13$  years, 51% aged 14 years, 34% aged 15 years, and 34% aged  $\geq 16$  years. Adolescents from low SES schools were more likely to purchase single cigarettes compared to those from high SES schools.[57]

No studies to date have evaluated the impact of bans on the sale of single cigarettes on smoking-related outcomes among youth.

## References

- 1 U.S. National Cancer Institute, World Health Organization. The economics of tobacco and tobacco control. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda; Geneva: 2016. <http://cancercontrol.cancer.gov/brp/tcrb/monographs>.
- 2 International Agency for Research on Cancer. IARC handbooks of cancer prevention, Tobacco control, Volume 14: Effectiveness of tax and price policies for tobacco control. Lyon: 2011. <http://www.iarc.fr/en/publications/pdfs-online/prev/handbook14/handbook14.pdf>
- 3 World Health Organization. WHO report on the global tobacco epidemic, 2015: raising taxes on tobacco. Geneva: 2015. [www.who.int/tobacco](http://www.who.int/tobacco)
- 4 Ross H, Chaloupka FJ. Economic policies for tobacco control in developing countries. *Salud Publica Mex* 2006;**48 Suppl 1**:S113–20.
- 5 Lantz PM, Jacobson PD, Warner KE, *et al*. Investing in youth tobacco control: a review of smoking prevention and control strategies. *Tob Control* 2000;**9**:47–63. doi:10.1136/TC.9.1.47
- 6 Grossman M, Chaloupka FJ. Cigarette taxes. The straw to break the camel's back. *Public Health Rep* 1997;**112**:290–7.
- 7 Lewit EM, Coate D, Grossman M. The effects of government regulation on teenage smoking. *J Law Econ* 1981;**24**:545–69. doi:10.1086/466999
- 8 Chaloupka FJ, Pacula RL. Sex and race differences in young people's responsiveness to price and tobacco control policies. *Tob Control* 1999;**8**:373–7. doi:10.1136/TC.8.4.373
- 9 Chaloupka FJ, Wechsler H. Price, tobacco control policies and smoking among young adults. *J Health Econ* 1997;**16**:359–73.
- 10 National Cancer Institute. The impact of cigarette excise taxes on smoking among children and adults: summary report of a National Cancer Institute expert panel. Bethesda: 1993.
- 11 Ding A. Youth are more sensitive to price changes in cigarettes than adults. *Yale J Bio Med* 2003;**76**:115-24.
- 12 Bader P, Boisclair D, Ferrence R. Effects of tobacco taxation and pricing on smoking behavior in high risk populations: a knowledge synthesis. *Int J Environ Res Public Health* 2011;**8**:4118–39. doi:10.3390/ijerph8114118
- 13 Kostova D, Ross H, Blecher E, *et al*. Is youth smoking responsive to cigarette prices? Evidence from low- and middle-income countries. *Tob Control* 2011;**20**:419–24. doi:10.1136/tc.2010.038786
- 14 Nikaj S, Chaloupka FJ. The effect of prices on cigarette use among youths in the Global Youth Tobacco Survey. *Nicotine Tob Res* 2014;**16**:S16–23. doi:10.1093/ntr/ntt019
- 15 Karki Y, Pant K, Pande B. A study on the economics of tobacco in Nepal. HNP discussion paper series. Economics of tobacco control paper No. 13. Washington: 2003. <https://openknowledge.worldbank.org/bitstream/handle/10986/13750/288870Karki1A0Study1whole.pdf?sequence=1&isAllowed=y>

- 16 Kostova D, Ross H, Blecher E, *et al.* Prices and cigarette demand: evidence from youth tobacco use in developing countries. Cambridge, MA: 2010.  
<http://www.nber.org/papers/w15781.pdf>
- 17 Ross H, Shariff S, Gilmore A. Economics of tobacco taxation in Ukraine. Paris: 2009.  
<http://www.tobaccocontrol.org.ua/uploads/resource/file/40/58ea5cc8a8947.pdf>
- 18 Kyaing N. Tobacco economics in Myanmar. HNP discussion paper. Economics of tobacco control paper No. 14. Washington: 2003.  
[http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/Kyaing-Tobacco\\_whole.pdf](http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/Kyaing-Tobacco_whole.pdf)
- 19 Allen LN, Pullar J, Wickramasinghe KK, *et al.* Evaluation of research on interventions aligned to WHO 'Best Buys' for NCDs in low-income and lower-middle-income countries: a systematic review from 1990 to 2015. *BMJ Glob Health* 2018;**3**:e000535.  
doi:10.1136/bmjgh-2017-000535
- 20 Maziak W. The global epidemic of waterpipe smoking. *Addict Behav* 2011;**36**:1–5.  
doi:10.1016/j.addbeh.2010.08.030
- 21 Sinha DN, Kumar A, Bhartiya D, *et al.* Smokeless tobacco use among adolescents in global perspective. *Nicotine Tob Res* 2017;**19**:1395–6. doi:10.1093/ntr/ntx004
- 22 Kuipers MAG, Nagelhout GE, Willemsen MC, *et al.* Widening educational inequalities in adolescent smoking following national tobacco control policies in the Netherlands in 2003: a time-series analysis. *Addiction* 2014;**109**:1750–9. doi:10.1111/add.12637
- 23 Schnohr CW, Kreiner S, Rasmussen M, *et al.* The role of national policies intended to regulate adolescent smoking in explaining the prevalence of daily smoking: a study of adolescents from 27 European countries. *Addiction* 2008;**103**:824–31.  
doi:10.1111/j.1360-0443.2008.02161.x
- 24 Manivong P, Harper S, Strumpf E. The contribution of excise cigarette taxes on the decline in youth smoking in Canada during the time of the Federal Tobacco Control Strategy (2002-2012). *Can J Public Health* 2017;**108**:e117–23.
- 25 White VM, Warne CD, Spittal MJ, *et al.* What impact have tobacco control policies, cigarette price and tobacco control programme funding had on Australian adolescents' smoking? Findings over a 15-year period. *Addiction* 2011;**106**:1493–502.  
doi:10.1111/j.1360-0443.2011.03429.x
- 26 Rice N, Godfrey C, Slack R, *et al.* A systematic review of the effects of price on the smoking behaviour of young people. York: 2010.  
[http://phrc.lshtm.ac.uk/papers/PHRC\\_A2-06\\_Final\\_Report.pdf](http://phrc.lshtm.ac.uk/papers/PHRC_A2-06_Final_Report.pdf)
- 27 Azagba S, Sharaf M. Cigarette taxes and smoking participation: evidence from recent tax increases in Canada. *Int J Environ Res Public Health* 2011;**8**:1583–600.  
doi:10.3390/ijerph8051583
- 28 Ross H, Chaloupka FJ. The effect of cigarette prices on youth smoking. *Health Econ* 2003;**12**:217–30. doi:10.1002/hec.709
- 29 Lewit EM, Hyland A, Kerrebrock N, *et al.* Price, public policy, and smoking in young people. *Tob Control* 1997;**6**:S17–24. doi:10.1136/TC.6.SUPPL\_2.S17

- 30 Joseph RA, Chaloupka FJ. The influence of prices on youth tobacco use in India. *Nicotine Tob Res* 2014;**16**:S24–9. doi:10.1093/ntr/ntt041
- 31 Auld MC, Zarrabi M. Long-term effects of tobacco prices faced by adolescents. *Forum Health Econ Policy*; **18**:1–24. doi:10.1515/fhep-2014-0005
- 32 DeCicca P, Kenkel D, Mathios A. Cigarette taxes and the transition from youth to adult smoking: smoking initiation, cessation, and participation. *J Health Econ* 2008;**27**:904–17. doi:10.1016/j.jhealeco.2008.02.008
- 33 Kostova D. A (nearly) global look at the dynamics of youth smoking initiation and cessation: the role of cigarette prices. *Appl Econ* 2013;**45**:3943–51. doi:10.1080/00036846.2012.736947
- 34 Zhang B, Cohen J, Ferrence R, *et al.* The impact of tobacco tax cuts on smoking initiation among Canadian young adults. *Am J Prev Med* 2006;**30**:474–9. doi:10.1016/j.amepre.2006.02.001
- 35 Guindon GE. The impact of tobacco prices on smoking onset in Vietnam: duration analyses of retrospective data. *Eur J Health Econ* 2014;**15**:19–39. doi:10.1007/s10198-012-0444-1
- 36 Emery S, White MM, Pierce JP. Does cigarette price influence adolescent experimentation? *J Health Econ* 2001;**20**:261–70.
- 37 DeCicca P, Kenkel D, Mathios A. Putting out the fires: will higher taxes reduce the onset of youth smoking? *J Polit Econ* 2002;**110**:144–69. doi:10.1086/324386
- 38 Hawkins SS, Baum CF, Oken E, *et al.* Associations of tobacco control policies with birth outcomes. *JAMA Pediatr* 2014;**168**:e142365. doi:10.1001/jamapediatrics.2014.2365
- 39 Ma Z, Kuller LH, Fisher MA, *et al.* Use of interrupted time-series method to evaluate the impact of cigarette excise tax increases in Pennsylvania, 2000–2009. *Prev Chronic Dis* 2013;**10**:120268. doi:10.5888/pcd10.120268
- 40 Landers G. The impact of smoke-free laws on asthma discharges: a multistate analysis. *Am J Public Health* 2014;**104**:e74–9. doi:10.2105/AJPH.2013.301697
- 41 Hawkins SS, Hristakeva S, Gottlieb M, *et al.* Reduction in emergency department visits for children’s asthma, ear infections, and respiratory infections after the introduction of state smoke-free legislation. *Prev Med* 2016;**89**:278–85. doi:10.1016/J.YPMED.2016.06.005
- 42 Landrine H, Klonoff EA, Alcaraz R. Minors’ access to single cigarettes in California. *Prev Med* 1998;**27**:503–5. doi:10.1006/pmed.1998.0326
- 43 Saenz-de-Miera B, Thrasher JF, Chaloupka FJ, *et al.* Self-reported price of cigarettes, consumption and compensatory behaviours in a cohort of Mexican smokers before and after a cigarette tax increase. *Tob Control* 2010;**19**:481–7. doi:10.1136/tc.2009.032177
- 44 Hall MG, Fleischer NL, Reynales-Shigematsu LM, *et al.* Increasing availability and consumption of single cigarettes: trends and implications for smoking cessation from the ITC Mexico Survey. *Tob Control* 2015;**24**:iii64–70. doi:10.1136/tobaccocontrol-2014-051690

- 45 Lal P, Kumar R, Ray S, *et al.* The single cigarette economy in India - a back of the envelope survey to estimate its magnitude. *Asian Pacific J Cancer Prev* 2015;**16**:5579–82.
- 46 Thrasher JF, Villalobos V, Barnoya J, *et al.* Consumption of single cigarettes and quitting behavior: a longitudinal analysis of Mexican smokers. *BMC Public Health* 2011;**11**:134. doi:10.1186/1471-2458-11-134
- 47 Kostova D, Chaloupka FJ, Yurekli A, *et al.* A cross-country study of cigarette prices and affordability: evidence from the Global Adult Tobacco Survey. *Tob Control* 2014;**23**:e3. doi:10.1136/tobaccocontrol-2011-050413
- 48 African Tobacco Control Alliance. Sale of single sticks of cigarettes in Africa. Survey report from 10 capital cities. 2018. <https://atca-africa.org/images/pdf/Atca-single-sticks/Report-Sale-of-Single-Sticks-in-Africa.pdf>
- 49 ITC Project. ITC Zambia national report. Findings from the Wave 1 and 2 Surveys (2012-2014). Waterloo: 2015. [http://www.itcproject.org/files/ITC\\_Zambia\\_Wave\\_2\\_National\\_Report-Dec7-FINAL.pdf](http://www.itcproject.org/files/ITC_Zambia_Wave_2_National_Report-Dec7-FINAL.pdf)
- 50 ITC Project. ITC Kenya national report. Findings from the Wave 1 (2012) Survey. Waterloo; Nairobi: 2015. [http://www.itcproject.org/files/ITC\\_Kenya\\_Wave\\_1\\_NR\\_Nov30-FINAL-web\[1\].pdf](http://www.itcproject.org/files/ITC_Kenya_Wave_1_NR_Nov30-FINAL-web[1].pdf)
- 51 ITC Project. ITC Mauritius national report - results of the Wave 3 Survey. Waterloo; Pamplemousses: 2012. [http://www.itcproject.org/files/ITC\\_Mauritius\\_NR\\_W3-Oct19v27-web.pdf](http://www.itcproject.org/files/ITC_Mauritius_NR_W3-Oct19v27-web.pdf)
- 52 de Ojeda A, Barnoya J, Thrasher JF. Availability and costs of single cigarettes in Guatemala. *Nicotine Tob Res* 2013;**15**:83–7. doi:10.1093/ntr/nts087
- 53 Rani M, Thamarangsi T, Agarwal N. Youth tobacco use in South-East Asia: implications for tobacco epidemic and options for its control in the region. *Indian J Public Health* 2017;**61**:12. doi:10.4103/ijph.IJPH\_241\_17
- 54 Smith KC, Stillman F, Bone L, *et al.* Buying and selling “loosies” in Baltimore: the informal exchange of cigarettes in the community context. *J Urban Health* 2007;**84**:494–507. doi:10.1007/s11524-007-9189-z
- 55 Stillman FA, Bone L, Avila-Tang E, *et al.* Barriers to smoking cessation in inner-city African American young adults. *Am J Public Health* 2007;**97**:1405–8. doi:10.2105/AJPH.2006.101659
- 56 Baker HM, Lee JGL, Ranney LM, *et al.* Single cigarette sales: state differences in FDA advertising and labeling violations, 2014, United States. *Nicotine Tob Res* 2016;**18**:221–6. doi:10.1093/ntr/ntv053
- 57 Linetzky B, Mejia R, Ferrante D, *et al.* Socioeconomic status and tobacco consumption among adolescents: a multilevel analysis of Argentina’s Global Youth Tobacco Survey. *Nicotine Tob Res* 2012;**14**:1092–9. doi:10.1093/ntr/nts004