

# Smoking in the British Commonwealth: Culture or Context?

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## *Extended abstract*

Research documents large differences in whether and how much people smoke by gender, ethnicity, and country of residence. Here, we ask whether smoking behavior is influenced by a smoker's culture independently of contextual factors such as locally determined prices or taxes. We use the historical migration from Great Britain to other Commonwealth countries (Australia, South Africa, USA) as a natural experiment. If British immigrants assimilate completely in their new environment, the responsiveness of their smoking participation to contextual factors should be the same as for the local population. Further, their smoking behavior should depend on the national context alone and it should not be predicted by smoking habits in Britain. Any contrary evidence should reflect a culture-effect.

Our study complements a growing economic literature that emphasizes the role of culture in economic and social outcomes. Because it is difficult to empirically characterize culture, economists are mostly sceptical about including it in models of behaviour (Guiso et al. 2006 review early studies). Recently, however, an 'epidemiological' approach has emerged to recognize a role for culture in the determination of living arrangements (Giuliano 2007); corruption (Fisman and Miguel 2007); use of time (Zaiceva and Zimmermann 2007); labor force participation and fertility (Fernandez and Fogli 2009); abortion (Abrevaya 2009); child survival (Bhalotra et al. 2010); preferences for redistribution (Luttmer and Singal 2010); economic development (Algan and Cahuc 2010) etc. Many of these studies test for culture-effects indirectly, by comparing how outcomes and behaviors among ethnic, racial, or religious groups respond to the same contextual factors. An increasing share of

them follow a more direct approach: they study immigrant populations and instrument immigrant culture with variables measured in the country of origin (see Fernandez 2010 for a recent review). In this paper, we do both.

In each of the host Commonwealth countries, we test for differences in the responsiveness of smoking participation to contextual factors among British immigrants and natives. We attribute any such differences to incomplete cultural assimilation. In each host country, we also relate smoking participation of British immigrants to the smoking prevalence of UK residents who belong in the same generation as the immigrants' parents. In this way, we test whether immigrants and their parents' generation in Britain smoked in similar ways at the same point in their life-cycle. All else equal, this variable should reflect both the contextual (economic and policy) conditions and the cultural beliefs about smoking that were prevalent in the UK a generation earlier. While the economic and policy conditions should not be relevant for the second-generation immigrants in the Commonwealth (since both the country and the time-period are different), the beliefs embodied in this variable could still matter if parents carried cultural beliefs with them when they emigrated from the UK and they transmitted those beliefs to their children.

This latter exercise improves on the standard 'epidemiological' empirical strategy in that it exploits information contained in changes in smoking-related attitudes across time. The bulk of the extant research tests the influence of immigrant culture on outcomes of interest using cross-sectional comparisons. In such studies, measures of culture do not vary over time. They only vary across the different countries of origin. The lack of time-variation introduces an identification problem because one cannot determine whether differences associated with 'culture' measure the effect of culture, the effect of omitted time-invariant factors that vary in the same systematic way across countries, or both. The lack of time-variation also implies the assumption that culture changes slowly in time. Such an assumption runs counter to current characterizations of culture that argue that all or most its expressions evolve in a highly dynamic way in reaction to forces associated with globalization, technical change, and general socioeconomic development (Inglehart and Welzel 2005). Therefore, cross-sectional comparisons lack both the statistical benefits that come with time-varying information, and the ability to capture the effects of temporal cultural changes.

To our knowledge, Algan and Cahuc (2010) provide the only study to date that exploits time variation. To proxy for culture, they use indicators of social attitudes of second generation Ameri-

cans, which vary over time with the year their ancestors arrived to the US. However, their data only allows them to observe two different time periods. Because our smoking data are retrospective, we observe the outcome variable (smoking participation) for every individual in each of four Commonwealth countries from the year of birth till the year of survey. Our database, therefore, comprises four country-specific panels of individuals and years. This offers the opportunity to match British immigrants in the host countries with their parent generation in the UK; to follow how smoking participation of the parent generation in the UK changes with each year of age; and, thus, to construct a proxy of inherited attitudes for British immigrants that varies by generation and year.

Our results on the role of culture in smoking decisions informs the modeling of basic economic behaviors and the formation and evaluation of public health policies related to smoking. Our results inform the modeling of economic behaviors because researchers believe that smoking proxies for or is highly related to rates of time preference and risk aversion (Fuchs 1982, Khwaja et al. 2007, Anderson and Mellor 2008 etc.). In fact, researchers often use smoking indicators as a predictors of discount rates (e.g. DellaVigna and Paserman, 2005) or as instruments to predict levels of schooling (e.g. Fersterer and Winter-Ebmer 2003; Dickson 2009) and other outcomes. Our paper provides evidence on whether observed patterns in smoking reflect culture-specific factors. While this evidence do not speak directly to whether culture shapes an individual’s rate of time preference or aversion to risk, it points to the possibility that it does, and/or that the use of smoking indicators as proxies for time preference/risk aversion need to be adjusted for the influence of cultural factors.

More prosaically, our results directly inform how one formulates and evaluates anti-smoking policies. Worldwide, governments are devoting resources and crafting policies to change individual decisions to smoke. These efforts reflect concerns about the annual (premature) deaths of more than 5 million people that are linked to tobacco consumption and projections that the number of deaths will grow in the near term. Already, governments spend a total of 965 million US dollars on anti-smoking policies per year, while annual tobacco tax revenues amount to more than 167 billion US dollars (WHO 2009). To limit smoking, the World Health Organization (WHO) actively recommends that governments further monitor behavior, establish smoke-free environments, fund and promote smoking cessation programs, issue health warnings, ban tobacco advertising, and tax the sale of tobacco. These recommendations are collected under the acronym MPOWER. WHO staff suggest that “these six policies, if implemented in each country as a comprehensive package,

would transform public health” (WHO 2008, p. 41).

By focusing on culture-specific effects we provide evidence on whether it makes sense to advocate an one-size-fits-all guideline or whether anti-smoking policies should consider and reflect culture-specific patterns. A priori they should, if only because tobacco companies seem to take culture seriously, often targeting cigarette advertising to specific ethnic groups (Landrine et al. 2005, Primack et al. 2007). Our evidence informs policy makers about the potential efficiency (in terms of effects) that is available if policies, such as taxation or anti-smoking campaigns, account for or use information about culture-specific responses in their designs.

## References

- [1] Abrevaya J, 2009. "Are There Missing Girls in the United States? Evidence from Birth Data," American Economic Journal: Applied Economics, American Economic Association, vol. 1(2), pages 1-34, April.
- [2] Algan, Y, and P. Cahuc. 2010. "Inherited Trust and Growth", American Economic Review, Forthcoming.
- [3] Anderson Lisa R. , and Jennifer M. Mellor, 2008, Predicting health behaviors with an experimental measure of risk preference, Journal of Health Economics, Volume 27, Issue 5, Pages 1260-1274.
- [4] Bhalotra S, Valente C, van Soest A. 2010. The Puzzle of Muslim Advantage in Child Survival in India. Journal of Health Economics, 29, 191-204.
- [5] DellaVigna Stefano, and M. Daniele Paserman, 2005. "Job Search and Impatience". Journal of Labor Economics, 2005, vol. 23, no. 3, 527-588.
- [6] Dickson, Matt, 2009. "The Causal Effect of Education on Wages Revisited," IZA Discussion Papers 4419, Institute for the Study of Labor (IZA).
- [7] Fernandez, Raquel, and Alessandra Fogli. 2009. "Culture: An Empirical Investigation of Beliefs, Work, and Fertility." American Economic Journal: Macroeconomics, 1(1): 146–77.
- [8] Fernandez, Raquel. 2010. "Does Culture Matter?" IZA Discussion Paper No. 5122
- [9] Fersterer Josef, and Rudolf Winter-Ebmer, 2003, "Smoking, discount rates, and returns to education", Economics of Education Review, Volume 22, Issue 6, Pages 561-566
- [10] Fisman, R, and Miguel E, 2007, "Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets", Journal of Political Economy, 2007, vol. 115, no. 6, pp. 1020-1048.

- [11] Fuchs V.R., 1982. Time preference and health: an exploratory study. In: Victor R. Fuchs, Editor, Economic aspects of health, University of Chicago Press, Chicago.
- [12] Giuliano P. 2007. Living Arrangements in Western Europe: Does Cultural Origin Matter?. Journal of the European Economic Association. 5 (5): 927-952.
- [13] Guiso L, Sapienza P, Zingales L, 2006. Does Culture Affect Economic Outcomes? The Journal of Economic Perspectives, Vol. 20, No. 2 , pp. 23-48
- [14] Inglehart, R, and Welzel, L. 2005. Modernization, Cultural Change and Democracy. New York and Cambridge: Cambridge University Press.
- [15] Khwaja Ahmed, Dan Silverman, and Frank Sloan, 2007, "Time preference, time discounting, and smoking decisions", Journal of Health Economics, Volume 26, Issue 5, Pages 927-949.
- [16] Landrine H, Klonoff EA, Fernandez S, Hickman N, Kashima K, Parekh B, Thomas K, Brouillard CR, Zolezzi M, Jensen JA, Weslowski Z, "Cigarette Advertising in Black, Latino, and White Magazines, 1998-2002: An Exploratory Investigation", Ethnicity and Disease, Vol. 15, pp. 63-67.
- [17] Luttmer, Erzo F.P. and Singhal, Monica, forthcoming, Culture, Context, and the Taste for Redistribution, American Economic Journal: Macroeconomics.
- [18] Primack BA, Bost JE, Land SR, Fine MJ, 2007, "Volume of Tobacco Advertising in African American Markets: Systematic Review and Meta-Analysis", Public Health Reports, 122, pp. 607-615.
- [19] WHO. 2008. WHO Report on the Global Tobacco Epidemic, 2008 - The MPOWER package. World Health Organization. Geneva, Switzerland.
- [20] WHO. 2009. WHO Report on the Global Tobacco Epidemic: Implementing smoke-free environments. World Health Organization. Geneva, Switzerland.
- [21] Zaiceva A, Zimmermann KF, 2007. Children, Kitchen, Church: Does Ethnicity Matter? IZA Discussion Paper No. 3070.