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Gender, education and Russia's tobacco epidemic: A life-course approach

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ABSTRACT

While a number of studies, based on cross-sectional data for Russia, have documented strong increases in female smoking during the past two decades, the analysis of longer-term trends in smoking prevalence is hampered by the lack of representative data for the Soviet era. In this paper we create life-course smoking histories based on retrospective data from the Russia Longitudinal Monitoring Survey of HSE (RLMS-HSE) and the Global Adult Tobacco Survey (GATS) which allow us to examine the dynamics of smoking patterns over the past 7 decades. We find that smoking rates differ most strongly by gender within all cohorts, but that this differential has decreased over time, driven by increases in female smoking and more recently by decreases in smoking among men. For both genders we observe that the education gradient has become steeper over time, with smoking rates having increased at a higher rate among those with the lowest educational attainment. These findings suggest that the development of smoking in Russia mirrors that described in the model of the tobacco epidemic and observed in Western high-income countries.

1. Introduction

Russia's long-term health and demographic problems have been well-documented. There are half a million premature male deaths per annum (Peto et al., 2012) and circulatory disease, the biggest cause of death, kills at about 4 times the rate that it does in the UK, for both men and women (Shkolnikov et al., 2013). While the contribution of alcohol to the excess mortality rates is well-rehearsed, tobacco consumption, which accounts for 150,000 of the excess male deaths annually, receives less attention. However, while male smoking prevalence, which stood at 61 percent in 1995, has declined recently, female smoking has increased from around 9 percent, in 1995, to around 14 percent in 2014. The role of tobacco is therefore a critical one.

In the face of Russia's catastrophic health profile and the very high levels of engagement in unhealthy behaviours, the Russian government has recently increased its efforts to address these unhealthy behaviours, starting with alcohol policy in the mid-2000s, and subsequently adopting an ambitious anti-smoking law signed by President Putin in 2013. This law ushered in a total ban on advertising, sponsorship, and promotion; a ban on smoking in public buildings, restaurants, workplaces and on public transport; a ban on the sale of tobacco in the ubiquitous Russian street-corner kiosks; and ambitious minimum price and tax increases.

While it is still too early to assess the effectiveness of this legislation, it has certainly transformed the context in which current and future cohorts of potential smokers will live and has pushed Russia dramatically along the tobacco consumption trajectory envisaged in the widely used four-stage model of the "tobacco epidemic" (Lopez et al., 1994). According to this stylised description, based on historic data for a number of developed countries, the prevalence of smoking in a population evolves in a manner similar to an epidemic, spreading from narrow population groups, in to the mainstream, before then declining. A key feature of the model is the 3–4 decade lag with which smoking-related mortality mirrors the pattern of smoking prevalence. Following the initial increase in smoking, the negative health consequences become more visible to the population, the political climate becomes more favourable for tobacco control policies and consequently prevalence rates begin to decline. The original model proposes that smoking rates among women start rising with a lag of 2–3 decades compared to men, due to the stronger prevailing

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social norms against female smoking. A recent revision however, concludes that, given the complexity of gender-based socio-cultural changes, male and female smoking are best analysed separately (Thun et al., 2012).

The public health literature has extended this model through the 'diffusion of innovations' framework. (Rogers, 2003). In this spirit, Pampel et al. (2015), find that in the initial stages of the epidemic, smoking is first adopted by individuals in higher SES groups, which are generally more receptive to innovations, and then spreads to individuals in lower SES groups, leading the smoking gradient to reverse from positive to negative. The same mechanism also posits that the "innovation" of healthy lifestyles is first adopted by individuals of higher SES, in consequence, giving rise to a steepening of the negative smoking-SES gradient.

In this paper, we examine cohort smoking patterns based on data from the Russia Longitudinal Monitoring Survey of HSE (RLMS-HSE) and the Global Adult Tobacco Survey (GATS) and interpret these within the broad descriptive context of the tobacco epidemic model. This is an important task in the Russian case for a number of reasons: (i) the high mortality rates and the associated contribution of smoking-related illness; (ii) the exceptionally high male smoking prevalence and the rising female consumption patterns; (iii) the experience of the Soviet regime and the transition to a market-oriented environment; and (iv) the more recent change in the political climate to one more willing to accommodate tobacco industry regulation.

We argue that the evolution of smoking in Russia is more similar to patterns described in the tobacco epidemic model than has previously been suggested. In doing so, we make three substantive contributions. First, we support the recent finding of Lillard and Dorofeeva (2015) arguing that the earlier literature may have over-stated the role of economic transition in promoting tobacco consumption in Russia. We provide alternative and complementary explanations for that finding. Second, we examine the development of educational gradients in smoking across successive cohorts of smokers. Third, we offer an explanation for potentially important discrepancies in the prevalence and distribution of smoking in Russia that emerge between the RLMS-HSE and the GATS data.

The remainder of the paper proceeds as follows. In Section 2 we survey the most relevant empirical evidence on the historical evolution of smoking, including through describing the data we use in this paper. In Section 3 we outline our main analytical apparatus, in the form of life-course smoking histories. Section 4 then presents and explains our results, which are discussed further in the concluding section.

2. Empirical evidence on smoking prevalence in Soviet and post-Soviet Russia

While many of the high-income countries of the US and northern European regions have routinely collected survey data on smoking prevalence and consumption intensity since the middle of the 20th century, there is a paucity of representative survey data available for low and middle-income countries, including the countries of the former Soviet Union. Since population surveys were quasi non-existent in the Soviet Union, there are very few sources of information on smoking patterns prior to 1990. In two publications that piece together disparate surveys from this period, prevalence rates range from 40 to 70 percent for men and 5 to 20 percent for women (Forey et al., 2002; Gilmore, 2005). Consistent with this, Deber (1981) reports that 9.3 per cent of women smoked in 1975 and that, according to officials at the USSR Ministry of Public Health, smoking was becoming increasingly popular with women and from an earlier age. Similarly, Cooper (1982), finds smoking among women in the younger age groups approaching the one third mark, which leads him to the conclusion that "the emerging pattern of cigarette use is remarkably similar to the experience of Western industrialised countries".

For the post-Soviet period the richest source of data derives from the RLMS-HSE, a large-scale, nationally representative series of household surveys designed to monitor the health and economic welfare of individuals and households in Russia. Each autumn, the survey collects rich information on a range of socioeconomic, demographic, health status as well as behavioural and attitudinal indicators for approximately 10,000 individuals, as well as detailed data on expenditures, income, and service utilisation at the household-level. The RLMS-HSE is designed as a repeated cross-section survey, with follow-up visits each round to a fixed national probability sample of dwelling units. Detailed information on the survey, in English, can be found at http://www.cpc.unc.edu/projects/rlms-hse. By now, there are 20 years of data available from the second, more reliable, phase of the survey, covering the period 1994–2014.

Fig. 1 below plots the prevalence of smoking by age and gender between 1994 and 2014, drawing on the representative cross-sectional samples for each year.

While for most of the past 20 years, male smoking prevalence stayed at around 60 percent, from 2007, smoking rates started to decline and had fallen to below 50 percent by 2014. The strongest decreases are observed in the two youngest age groups (15–24 and 25–34). In 1995, a staggering three quarters of men in the latter of these age groups reported to be current smokers, while by 2014, this number had fallen to 57 percent. It seems clear that the prevalence of smoking among men from the cohorts who grew up in the post-Soviet period is markedly lower and is decreasing. A study comparing two larger cross-sectional surveys from 2000 and 2010 confirms this downward trend in smoking among men (Roberts et al., 2012).

For females, the opposite holds true: until 2010, smoking rates among women increased in all but the oldest age groups. Since 2010, there has been some levelling off of these increases and indeed a slight decline for the youngest age group. So, in contrast to men, smoking appears to have increased among women who were growing up in the Perestroika and transition periods. For example, in 1994, only 6.5 percent of women aged 45–54 (i.e. those born between 1940 and 1950) reported to be current smokers, but by 2014 the share of smokers in this age group (now consisting of women born between 1960 and 1970) had risen to 16.7 percent. These data are in line with an earlier cross-sectional study drawing on 8 waves of RLMS-HSE data from 1994 to 2003 (Perlman et al., 2007).

In interpreting the survey data of the post-Soviet period, the recent epidemiological literature argues that female smoking only started increasing in the 1990s. Much of this literature links this development with the entry in to Russia of the major Transnational Tobacco Companies (TTCs), which were known to have specifically targeted women with aggressive advertising campaigns during this period (Gilmore et al., 2004; Perlman et al., 2007; Roberts et al., 2012). However, while there is substance in this interpretation, it does not do justice to the full story that the data tell, since repeated cross-sectional samples of the population can only provide limited insights into the longer-term evolution of smoking. For example, the increases in the smoking rate of women aged 25–34 between 2000 and 2001 could be due to a higher take-up among never smokers, women who had previously quit now resuming their habit, or the movement into that category of a higher incidence sub-group. That is, when looking at smoking rates by age group and year, as in Fig. 1, it is difficult to separate age, period and cohort effects. While not providing an empirical test of these three components, an important and complementary alternative is to use