

The Long Shadow of Communism:
New Cross-National Evidence for the European Health Divide

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Abstract

This research presents analyses focusing on the understanding of health disparities between groups of European countries, known as the “European health divide.” Using data from 47 European countries, spanning from 1992 to 2008, this paper investigates how gender-specific life expectancy (at birth and at age 65) and infant mortality rates differ across three groups of countries: those in Western Europe, East Central Europe, and the former Soviet Union. The analyses lead to several important conclusions. First, men and women in Eastern Europe face greater disadvantages in terms of longevity compared to their Western European counterparts. The East-West European gender gap in life expectancy has become even larger over the last two decades. Second, we find evidence suggestive of another European health divide: gender-specific life expectancy at birth in the former Soviet countries is significantly lower than that in the East Central European countries. Third, mechanisms of health inequality appear to differ considerably by gender. Socioeconomic and behavioral factors explain the differences between Eastern and Western Europe in life expectancies of women, whereas large disparities remain for men. We observe similar patterns of regional inequality in health among infants, but cross-country differences are explained by socioeconomic conditions for both male and female infants. To conclude, there remain large regionally-based health disparities across Europe. Observed health differentials reflect divergence in the historical, cultural, and socioeconomic environments between regions.

“From Stettin in the Baltic to Trieste in the Adriatic an iron curtain has descended across the continent. Behind that line lie all the capitals of the ancient states of Central and Eastern Europe...all these famous cities and the populations around them lie in what I must call the Soviet sphere.”

Winston Churchill (1989 [1946])

The sharp political antagonisms once characteristic of the relationship between Eastern and Western Europe are now history. The Berlin Wall fell in November 1989, and the Soviet Union ceased to exist in December 1991. Throughout the 1990s, countries in Eastern Europe underwent extraordinary political, economic, and social transformations, and struggled to overcome their communist past.¹ Eastern European countries have made remarkable progress, particularly in the political and economic spheres. Ten countries (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) have joined the European Union (EU), and three more (Croatia, the Former Yugoslav Republic of Macedonia, and Montenegro) are doing so. Most of these countries, too, have established new economies, with predominantly private ownership (Aslund 2002).

While efforts toward greater European political and economic integration are in progress, there remain severe social problems: as one important example, European countries are faced with substantial disparities in the health status of their populations. A large literature finds significant variations in morbidity and mortality between Eastern and Western Europe (Bobak and Marmot 1996; Marmot and Bobak 2000; Meslé, Vallin, and Andreyev 2002). People in Eastern Europe live shorter lives, experience higher rates of chronic illness, and report poorer subjective health compared to their Western European counterparts. This pattern of findings is known as the “European health divide,” or the “East-West health divide.” While many studies on this topic most often employ a dichotomous approach of “East versus West” (Bobak and Marmot 1996; Carlson 1998, 2004; Marmot and Bobak 2000), recent research reports emerging inequalities within the former communist bloc in the East (Meslé 2004; Luy et al. 2011). Countries in East Central Europe, such as the Czech Republic and Poland, have experienced substantial improvements in life expectancy since the fall of communism in 1989, while the health status of populations in the former Soviet republics largely remains poor (Meslé 2004). Given the diverging trends

in health within Eastern Europe, Luy and his colleagues (2011) argue that the health situation on the European continent can now be best understood by the “trisection” approach composed of Western Europe, East Central Europe, and the former Soviet Union.

The purpose of this research is to investigate health disparities between European countries by focusing on gender-specific life expectancy and infant mortality during the post-communist period. The present study contributes to the existing literature on the European health divide in several ways. First, we specify three groups of countries in Europe, that is, Western Europe, East Central Europe, and the former Soviet Union, with particular attention given to the differences within the former communist countries in Eastern Europe. Second, we focus on three time points in the analysis, 1992, 2000, and 2008, to reveal how the magnitude of health differentials has changed over time. Third, we examine potential mechanisms through which health disparities have been produced across three country-groups over time. Finally, we consider infant mortality in addition to life expectancy and create a comprehensive assessment of the health status of populations in Europe. This study aims to answer the following research questions: First, how do life expectancy and infant death rates differ when comparing countries in Western Europe, East Central Europe, and the former Soviet Union? Second, how have these patterns of population health changed over the past two decades? And third, what are the factors responsible for health disparities across these country groups? To answer these questions, we begin by reviewing literature on health inequalities between European countries. This is followed by a description of measures and the data analysis strategy. In the subsequent section, we test a set of hypotheses about health disparities between the three groups of European countries. We end with a discussion focusing on the implications of the findings.

Theoretical Background

The Overview of Health Inequalities in Europe

People in Europe have long been faced with large cross-national disparities in health. As epidemiologic transition theory predicts, over time, European cause-of-death patterns have shifted from infectious diseases prevalent among infants and children to degenerative diseases at older ages (Olshansky and Ault 1986; Omran 1971). This transition of mortality patterns started in Western Europe. Moreover, reductions in infant mortality, eradication of infectious diseases, and advances in the treatment of cardiovascular diseases since the 1970s, known as the “cardiovascular revolution” (Olshansky and Ault 1986), led to large gains in life expectancy in Western Europe. These favorable trends, however, were not shared by countries in Eastern Europe. Cardiovascular diseases remained a major cause of death, and life expectancy continued to stagnate or even decrease throughout the second half of the past century in this part of the globe. Consequently, there emerged significant variations in mortality between Eastern and Western Europe, the phenomenon known as the “European health divide,” or the “East-West health divide” (Bobak and Marmot 1996; Marmot and Bobak 2000; Meslé et al. 2002). Furthermore, people in Eastern Europe not only live shorter lives, but also they have higher rates of chronic illnesses (Cockerham 1997) and poor subjective health status (Carlson 1998, 2004), and suffer from higher levels of psychological distress (Bobak and Marmot 1996) than those in Western Europe. According to Meslé et al. (2002), the East-West divergence in population health became a major characteristic of European demography at the end of the last century.

One thing to note is that the demise of communism during the 1990s has had a dramatically negative impact on the health status of populations in Eastern Europe. There is indisputable evidence that political, economic, and social changes after the fall of communism have produced tremendous social costs (Round and Williams 2010). Following the collapse of the communist regimes, citizens in Eastern European countries experienced sharp increases in poverty and inequality, criminal activities, and in particular, deterioration of population health (Cornia and Panizza 1995, 2000). Life expectancy at birth sharply dropped in many countries in Eastern Europe during the first half of the 1990s. In addition, the transition process has negatively affected the sense of well-being among citizens, as in Abbott and Wallace (2007)’s qualitative study of Russia and Ukraine. In this study, the majority of respondents

experienced economic marginalization due to the mass layoffs and withheld wages, perceived daily life as a constant struggle for survival, and compared the present unfavorably with the past. To these people, the old certainties and regularities in daily life, namely guaranteed employment, free health care, and retirement pensions, were replaced by new uncertainties. Overall, these research findings indicate that the post-communist crisis affected all dimensions of people's lives and yielded negative health consequences, thereby further widening the pre-existing health gap between Eastern and Western Europe.

While there is a considerable body of evidence to suggest health inequalities across Europe, prior research on this topic tend to divide Europe into the two groups of East and West, without considering differences among the former communist countries (Bobak and Marmot 1996; Carlson 1998, 2004; Marmot and Bobak 2000). Indeed, some studies direct increasing attention to emerging disparities within the former communist bloc in the East (Luy et al. 2011; Meslé 2004; Vallin and Meslé 2004). On the one hand, in some countries, such as the Czech Republic and Poland, the post-communist downturn in longevity was minor, and was soon followed by substantial improvements primarily thanks to reductions in mortality from cardiovascular diseases and dietary improvements (Meslé 2004; Rychtarikova 2004). On the other hand, the health status of populations in the former Soviet republics has largely declined since the disintegration of the Soviet Union in 1991 (Cockerham 1997). Mortality from circulatory diseases and external deaths remained high, and all the former Soviet countries experienced wide fluctuations in life expectancy during the period after the disintegration of the Soviet Union (Brainerd and Cutler 2005). In particular, high toll of premature deaths during the transition period was concentrated in the western part of the former Soviet Union, including the Baltic states, Belarus, Russia, and Ukraine, which was, as Brainerd (2001) called it, a "mortality belt." In Russia, for instance, male life expectancy at birth dropped from 63.41 years to 57.38 years between 1991 and 1994, the largest decline in the global north outside of wartime (World Bank 2000). Taken together, these research findings underscore the importance of distinguishing countries East Central Europe from those in the former Soviet Union. As Luy and his colleagues (2011) argue, the health situation on the European continent is best characterized

by the trisectional approach: East Central Europe has started catching up with Western Europe, while the former Soviet states continued to be left behind.

Potential Mechanisms of Health Disparities in Europe

Scholarly interest in the European health divide has increased over time, and several explanations have been put forward for European health inequalities. First, differences in socioeconomic circumstances are related to the health divide. Cross-national research on disparities in health suggests that socioeconomic development, measured by GDP per capita, is an important predictor of average health status at the population level. Using data from 108 countries, Ram (2006) finds a positive relationship between GDP and life expectancy at birth, while GDP is inversely associated with infant mortality. Olsen and Dahl (2007) report that per-person GDP is predictive of better self-perceived health for men and women among 21 European countries, net of socio-demographic factors, including age, educational attainment, and employment status. Indeed, economic development levels are lower in Eastern Europe than in Western Europe: GDP per capita is much lower, and so are major industrial output levels. The collapse of the communist regimes further widened the gap in development level between Eastern and Western Europe, primarily through economic catastrophe, a financial crisis, and a steep decline in living standards across Eastern Europe during the 1990s (EBRD 2001). Adeyi and his colleagues (1997) indeed maintain that Eastern Europe would eventually close the gap with Western Europe in health through the transition to a market economy and adaptation of democratic governments. Overall, these observations point to the negative influences of post-communist economic and social crises on individuals' and population well-being in Eastern Europe.

Second, Eastern and Western European countries have different social welfare systems. Welfare states seek to reduce inequality and poverty in society. Countries with governments more committed to social welfare provide individuals with various social services, including a comprehensive health care system, pensions, and disability benefits (Navarro and Shi 2001). Consequently, people in welfare states generally exhibit better health outcomes and enjoy longer lives (Wilkinson 1992). The percentage of public expenditure spent on health care in relation to total GDP and the Gini index of income inequality

are often used as indicators to measure social welfare characteristics, and they exhibit significant associations with life expectancy as well as infant mortality (Wilkinson and Pickett 2006). Indeed, Eastern European countries not only have limited health service provisions, but also suffer from greater social inequality compared to Western European countries. Deficiencies in health care services have been pointed out as a major contributor to higher mortality rates in Eastern Europe compared to Western Europe (Nolte, McKee, and Scholz 2004). The economies of the former communist countries were largely focused on the arms race and space competitions, which resulted in the lack of financial resources necessary to create efficient health care systems (Meslé 2004). Death rates from conditions amenable to medical intervention, for instance, are much higher in countries in Eastern Europe than those in Western Europe, suggesting substantial differences in effectiveness of medical care between Eastern and Western Europe (Velkova et al. 1997). These observations indicate that differences in social welfare systems may be at least partially responsible for the European health divide.

Third, researchers often consider negative health lifestyles, more prevalent among people in Eastern Europe than in Western Europe, as a major factor responsible for their poorer health outcomes. The most commonly-cited negative health lifestyles include heavy alcohol consumption, smoking, poor diets, and lack of physical exercise; it is widely recognized that these practices deteriorate physical health status (Himes 2011). Evidence in support of widespread unhealthy lifestyles in Eastern European countries is compelling (Cockerham et al. 2002). Alcohol consumption levels are quite high. In particular, some countries, including Estonia, Moldova, and Russia, have the highest levels of spirits consumption in the world. The rate of death due to alcohol-related causes, namely heart stroke and liver cirrhosis, is much higher in Eastern Europe than in Western Europe (WHO 2011b). Smoking in Eastern European countries is also widespread, particularly among men (WHO 2008). These observations offer evidence to suggest that negative health lifestyles partly explain the health disadvantages of Eastern European countries.

Taken as a whole, socioeconomic conditions, social welfare characteristics, and health behavior differences appear to play important roles in explaining the poorer health status of people in Eastern Europe compared to those in Western Europe. Unhealthy lifestyles also exert negative influences on the

health status of the populations in Eastern Europe. Moreover, drastic political, economic, and social changes following the dismantling of the communist regimes have had adverse impacts on population health through deterioration of socioeconomic circumstances. Therefore, socioeconomic and behavioral factors may have contributed to a widening of the gap in population health between Eastern and Western Europe during the post-communist period.

Present Study and Hypotheses

The literature on the European health divide has increased over time, but several important issues remain to be addressed. First, prior research on European health inequalities often divides Europe into the two groups of East and West, without considering differences among the former communist countries. Due to limited data, some studies do not include the former Soviet states at all (e.g., Eikemo et al. 2008; Olsen and Dahl 2007), while others simply combine both East Central Europe and the former Soviet Union into a single large group called “the East” (e.g., Bobak and Marmot 1996; Carlson 1998, 2004; Marmot and Bobak 2000). However, given the emerging diversity in longevity between East Central Europe and the former Soviet Union (Luy et al. 2011), it is important to distinguish countries in East Central Europe from those in the former Soviet Union.

Second, some previous work suffers from the limitation of employing only a single cross-section of data. As a result, little is known about how patterns of European health disparities have changed over time. For example, Carlson (2004) finds significant differences in levels of self-reported health between European countries, but results are based on cross-sectional data from the 1995-1997 World Values Survey (WVS). The analysis by Eikemo et al. (2008) uses two waves of the European Social Survey (ESS), but the research period is limited to 2002 and 2004. Consequently, the study tells us little about longer-term trends in health disparities between European countries.

Third, a thorough examination of the potential mechanism of health inequalities in Europe remains to be done. Although scholars have offered some explanations for the European health divide, namely socioeconomic and behavioral factors, the focus of analyses is limited to the gap between East and West (e.g., Bobak and Marmot 1996; Marmot and Bobak 2000). As a result, it remains an open

question whether and to what extent these conditions are related to the emerging health divide within the former communist countries in Eastern Europe.

Fourth, studies of the European health divide have focused primarily on health outcomes in adulthood (e.g., Carlson 1998, 2004), while scholars have less often addressed infant health. Consequently, we lack a firm understanding of trends in infant mortality across the regions of Europe. Further, the life chances of infants are highly sensitive to broad socioeconomic conditions such as income levels, innovations in medical technology, and access to health services (Gortmaker and Wise 1997). Thus, infants provide a valuable case for the assessment of the impact of socioeconomic inequalities on health, since the survival of infants is, unlike their adult counterparts, not influenced by their own behavioral factors.

Using the best available data for the largest possible cross-country sample, the present study examines health inequalities across Europe during the post-communist period. Rather than just focus on one narrow aspect of population health, we examine both gender-specific life expectancy and infant mortality rates. Moreover, using models based on the trisectional approach, this study attempts to bring greater clarity to the issue of the divergence within the former communist countries in Eastern Europe.

Based on the theoretical issues outlined above, we hypothesize the following:

Hypothesis 1: Drawing upon prior research findings on the European health divide, we hypothesize that men and women in Western Europe enjoy longer average lives than those in Eastern Europe. Moreover, following the trisection approach presented by Luy and his colleagues (2011), we expect to observe disparities among Eastern European countries. Specifically, life expectancy in countries of the former Soviet Union is worse than that of countries in East Central Europe.

Hypothesis 2: Given the negative impacts of post-communist social change on health, we hypothesize that the gap in life expectancy between Western and Eastern Europe remains large during the initial transition period. However, in accordance with Adeyi et al. (1997)'s argument, we anticipate that health differentials become smaller in more recent years primarily due to stabilization of social conditions in Eastern European countries.

Hypothesis 3: The magnitude of variation in life expectancy between Eastern and Western Europe decreases with adjustment for health-related explanatory factors. Statistically, this implies that controlling for macroeconomic indicators, social welfare characteristics, and health behaviors should render the gap in health outcomes insignificant, or reduce it to marginal significance. In addition, we hypothesize that socioeconomic and behavioral factors may partly explain the gap between East Central Europe and the former Soviet Union.

Hypothesis 4: Consistent with life expectancy, we expect to observe differences in infant death rates across Europe. We also expect that disparities in infant mortality rates are strongly influenced by macroeconomic and health infrastructure differences between countries.

Data and Methods

Data

The main source of information for this study is the WHO Health for All Database (HFA-DB) (WHO 2011a). The HFA-DB is a collection of major health statistics, including socio-demographic information, health care utilization, and lifestyles, for the 53 WHO member states in the European region. Turkey and Israel were excluded from the current analysis due to their geographic locations. Because of the limited availability of data, Andorra, Cyprus, Monaco, and San Marino were also excluded. After these exclusions, the final sample size is 47. Also, due to data availability, the analysis of life expectancy at age 65 is limited to 46, excluding Bosnia Herzegovina. We collected information of interest for the following three time periods: 1992 (immediately after the demise of communism), 2000 (during the process of the transition), and 2008 (the post-transition period). Instead of pooling all the years, we use three sets of cross-sectional data and analyze each time point separately. This strategy allows us to not only capture the magnitude of health disparities during each stage of the transition process, but also to address changes in inequality patterns over time. Observations with missing data on the variables included in the analysis were imputed by assigning the mean of the non-missing cases.

Measures

The main dependent variable of the analysis is gender-specific life expectancy. We focus on life expectancy at two stages of life: life expectancy at birth (e_0) and at age 65 (e_{65}). Life expectancy at birth is the average length of life for infants given current age-specific death rates, and life expectancy at 65 refers to the expected duration of life at age 65 based on current age-specific mortality rates (Preston et al. 2001). Also, we use the infant mortality rate, which is the number of deaths of children less than one year of age per 1,000 live births in that year. This variable will be logged, since we found a skewed distribution of infant mortality rates in preliminary analyses (results not shown). We maintain the original metrics of other dependent variables.

While many studies on the topic of European health disparities employ a dichotomous approach of “East versus West,” we draw on Luy et al. (2001)’s approach and use three groups of countries. We created three dummy variables for: (1) Western Europe (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Malta, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom); (2) East Central Europe (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, the Former Yugoslav Republic of Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, and Slovenia); (3) and the former Soviet Union (Armenia, Azerbaijan, Belarus, Estonia, Georgia, Latvia, Lithuania, Kazakhstan, Kyrgyz, the Republic of Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan). Western Europe serves as the reference category in the regression analyses.

To examine the extent to which the existing explanations for the European health divide may account for cross-national health disparities, we include macro economic indicators, social welfare characteristics, and lifestyle variables into the analysis. First, GDP per capita provides information regarding level of economic development. Previous studies use GDP as a summary index of business, commercial, and government activities (Granados 2008), and find significant associations with life expectancy and infant death rates (Ram, 2006; Wilkinson 1992). We use purchasing power parity (PPP)-adjusted GDP per capita that allows for better international comparisons (Firebaugh 2000). We use a logarithmic transformation of the GDP data to better linearize the relationship of this variable with the

dependent variables. The GDP data are from the Penn World Table (Heston et al. 2011). Second, we include health care expenditures as the percentage of total GDP into the models as a key indicator of welfare-regime characteristics. This is often used as an indicator to measure social welfare characteristics, and exhibits significant associations with life expectancy and infant mortality (Wilkinson and Pickett 2006). Third, we focus on alcohol consumption level as a measure of unhealthy lifestyles. Given a high prevalence of hard liquor consumption in Eastern Europe, we look at the level of spirits consumed per capita. We include a dichotomous measure of heavy alcohol consumption: high spirits consumption is coded 1 if a country's level of spirits consumption exceeds the third quartile threshold of spirits consumption (75%), and 0 otherwise. In addition, due to data availability, several variables are included only for 2008. First, the Gini coefficient of income inequality (on a 0-100 scale) is included in the analysis to capture the levels of within-nation income inequality. Second, we focus on smoking as another indicator of unhealthy lifestyles prevalent in Eastern Europe. We incorporate a dichotomous measure of high smoking prevalence: a country is coded 1 if the percentage of regular daily smokers exceeds the third quartile (75%), and 0 otherwise. Finally, we incorporate a measure of obesity as percentage of obese individuals (BMI>30) in a population, where BMI is defined as the body weight (kg) divided by the square of the height (m).

Analytical Design

We use ordinary least-squares (OLS) regression to explore how the health status of populations differs when comparing Western Europe, East Central Europe, and the former Soviet Union, in terms of life expectancy at birth and at age 65 as well as infant death rates. We follow three analytical steps to determine the presence of health inequalities on the European continent. First, we compare absolute differences in terms of longevity and infant mortality across the three country groups, without any statistical controls in 1989 2000, and 2008. Second, we perform an equality test for the coefficients of East Central Europe and the former Soviet Union. In other words, we test the null hypothesis that there are no significant differences in health outcomes for these two groups ($H_0: \beta \text{ East Central Europe} = \beta \text{ the former Soviet Union}$). If we detect statistically significant differences, this suggests a diversity in

population health within the former communist bloc of the East, providing support for Luy et al. (2011)'s trisectional approach. Finally, to reveal factors related to differentials in health, we employ a progressive adjustment technique (Mirowsky 1999) in OLS regression. The first model includes only country groups (model 1), and we sequentially adjust for macroeconomic indicators (model 2), social welfare (model 3), and health behaviors (model 4). Model 5 includes all the covariates. We also specify an additional model for 2008 with the Gini coefficient, smoking and BMI variables (model 6). Here, the focus is how controlling for these factors in a progressive manner affects the baseline differences.

There are just two models in the infant mortality analyses: the baseline model that includes country groups (model 1) and a full model that adjusts for GDP per capita and health care expenditures (model 2). This strategy is based on the assumption that the survival of infant is, unlike their adult counterparts, not influenced by their own behavioral factors. In accordance with the life expectancy analyses, we first examine absolute differences in infant death rates (model 1), test whether the coefficients of East Central Europe and the former Soviet Union significantly differ, and investigate the extent to which statistical controls for socioeconomic factors explain regional variations in infant mortality. All analyses were conducted in Stata11 (StataCorp 2009).

Results

Table 1 presents the variables used in the study. The distribution of gender-specific life expectancy at birth shows that men and women in Western Europe enjoy the longest lives on average. On the other hand, people in the former Soviet countries have the lowest life expectancy. Moreover, the life expectancy of the people in the former Soviet region remained almost unchanged between 1992 and 2008, while it continued to improve in the rest of Europe. We find similar regional gradients in terms of life expectancy at 65. The infant mortality rate exhibits similar patterns: it is the highest in the former Soviet Union, and the lowest in Western Europe. Macro-level indicators are distributed in a graded fashion across the three blocs: Western Europe has the highest levels of GDP per capita and health care expenditures, followed by East Central Europe, and then the former Soviet Union. Consistent with

previous findings, spirits consumption is much higher in Eastern Europe. For the multivariate models that simultaneously control for factors related to European health inequalities, we turn to Tables 2, 3, 4, and 5.

We first focus on life expectancy at birth. Model 1, in Tables 2 and 3, presents crude differences in gender-specific life expectancy at birth across Western Europe, East Central Europe, and the former Soviet Union between 1992 and 2008. Three important patterns are evident. First, consistent with prior research findings (Bobak and Marmot 1996; Marmot and Bobak 2000), there is a divide in life expectancy between Eastern and Western Europe. Throughout the analysis, men and women in East Central Europe and the former Soviet Union consistently exhibit shorter life expectancy compared to their Western European counterparts. All the results are significant at the .001 level. Importantly, these results suggest another health divide on the European continent. Model 1 for all three time periods shows that gender-specific life expectancy at birth is consistently lower in the former Soviet states than that in East Central Europe. Results from an equality test (not shown) indicate significant differences in effect sizes on life expectancy between East Central Europe and the former Soviet Union for both men and women. Results remain significant at the .001 level throughout all three time periods. These results lend support for Hypothesis 1.

Second, we find little evidence of convergence in health inequalities between Eastern and Western Europe. Indeed, the magnitude of the East-West divide has increased over time for both men and women. Between 1992 and 2008, the disadvantage in life expectancy for East Central Europe relative to Western Europe increased by .74 years (from 5.41 to 6.15) among men (Table 2) and by .68 years (from 4.11 to 4.79) among women (Table 3). During the same period, the difference in longevity between Western European countries and the former Soviet countries increased by 3.65 years (from 9.20 to 12.85) among men and by 2.73 years (from 6.51 to 9.24) among women. These results demonstrate that the health divide between Eastern and Western Europe not only exists, but has also become larger over the past two decades. These findings run directly counter to Hypothesis 2.

Next, we examine potential mechanisms of European health inequality. Tables 2 and 3 include a series of models determining the influence of each explanatory variable on the relationship between

country groups and life expectancy. We first focus on the results for men in Table 2. What Table 2 most clearly shows is that health differentials between Eastern and Western Europe remain large and persistent among men even after controlling for all the covariates. Adding macroeconomic indicators (model 2), social welfare characteristics (model 3), and health behaviors (model 4) somewhat attenuates differences in life expectancy between Eastern and Western Europe for men, but the differences by country group remain statistically significant at the .05 level throughout the analysis. Even after controlling for all the variables in model 5, the disadvantages of Eastern Europe relative to Western Europe remain almost unchanged. The largest changes in the effect of living in East Central Europe come after adjusting for all the variables in model 5 in 2008 (40%, $(6.15-3.69)/6.15$). Further, controlling for additional variables in model 6 leads to a reduction of 36% in the coefficient for the former Soviet Union ($(12.85-8.35)/12.85$), although country differences remain statistically significant at the .001 level. Overall, with the addition of macroeconomic indicators, social welfare characteristics, and health behavior variables, differences in male life expectancy between European countries decrease; however, large disparities still remain.

Then, what about women? Do theoretically important variables have limited explanatory power in their case as well? The results show that mechanisms of health inequalities appear to differ by gender. Among women (Table 3), as early as in 2000, statistical controls for macroeconomic indicators, social welfare expenditures, and health behaviors significantly reduce the magnitude of the East-West differences in longevity (model 5). The difference between Western Europe and East Central Europe disappears in 2000, net of all controls. Further, all the initially significant associations between country groups and female life expectancy are rendered insignificant in 2008, even when comparing the former Soviet Union to Western Europe. Thus, the original gaps in female life expectancy between Eastern and Western Europe (recognized in model 1) are fully explained by differences in the socioeconomic and behavioral characteristics of these countries. These results stand in stark contrast to the analysis of male life expectancy, in which health disparities remain large even after controlling for all the health-related covariates.

The models in Tables 2 and 3 also allow us to examine factors associated with men's and women's health. Perhaps the key finding is that health determinants appear to differ by gender. In the case of women (Table 3), higher levels of GDP per capita and health care expenditures are consistently associated with longer average lives. Recall that these factors are related to male life expectancy only in 2008. Interestingly, health behavior variables have different health consequences for men and women. On the one hand, countries that exhibit high spirits consumption have worse levels of men's health, but on the other hand, high country-level spirits consumption is not related to women's health. Also, heavy smoking is associated with lower male life expectancy, but this pattern is not shared by women. The Gini coefficient for income inequality and the measure of obesity are not related to life expectancy for either gender in 2008 (model 6).

Taken as a whole, these results provide limited support for Hypothesis 3. While socioeconomic behavioral factors account for the health divide between Eastern and Western Europe in terms of female life expectancy, the gap in male life expectancy remains large and significant even after controlling for all the related variables. Further, in the female population, even the gap between East Central Europe and the former Soviet Union is fully explained by socioeconomic and behavioral factors. On the one hand, by 2008, controlling for macroeconomic indicators, social welfare characteristics, and health lifestyles eliminates differences across Western Europe, East Central Europe, and the former Soviet Union. On the other hand, among men, cross-national disparities in longevity remain large and significant throughout the analyses, suggesting that the existing explanations for European health divide have limited power in accounting for the gap in men's health.

Table 4 presents the coefficients of three country groups in models 1, 5, and 6 (only in 2008) based on life expectancy at age 65. We find large differentials between East and Western Europe. Yet, the gap between East Central Europe and the former Soviet Union did not reach statistical significance at the .05 level throughout the analysis, suggesting that the trisectional approach toward understanding health inequalities holds only for life expectancy at birth. Additionally, consistent with life expectancy at birth analysis, the mechanisms of health inequalities largely differ by gender. Socioeconomic and

behavioral factors have limited power in explaining differentials in life expectancy at age 65 among men, but not among women.

Finally, the analysis of infant mortality rates is depicted in Table 5. Three points are worth emphasizing. First, consistent with the life expectancy analyses, infant mortality is significantly higher in Eastern Europe than in Western Europe (model 1). Second, we find sizable differences in infant mortality across the former communist countries. Throughout the analysis, infant death rates are consistently higher in the former Soviet Union than in East Central Europe. Third, the full model (model 2) shows that controlling for GDP per capita and health care expenditures reduces regionally-based differences in infant mortality to insignificance as early as 2000. As expected, socioeconomic factors are strongly and inversely related to infant mortality. Taken together, there are significant differences in infant death rates between European countries. Yet, cross-national disparities are largely explained by differing socioeconomic conditions. This finding is identical for both male and female infants, as might be expected given that male and female infants are both highly dependent upon their social and economic contexts for survival. These results provide clear evidence to support Hypothesis 4.

Discussion and Conclusions

In this paper, we used cross-national data for 1992, 2000, and 2008 to analyze health differentials between men and women in three groups of European countries. Four main findings of the analysis stand out. First, we find support for the traditional East-West health divide thesis (Bobak and Marmot 1996; Marmot and Bobak 2000). Life expectancy at birth and at age 65 is considerably shorter in Eastern Europe than in Western Europe throughout the analysis. Importantly, we observe another health divide on the European continent in terms of life expectancy at birth. Gender-specific life expectancy at birth in the former Soviet countries is significantly worse than in East Central Europe, suggesting large health differentials within the former communist bloc. This is an intriguing finding, since previous studies on this topic (e.g., Bobak and Marmot 1996; Carlson 1998; Marmot and Bobak 2000) tended to focus only on the difference between Eastern and Western Europe, thereby neglecting the substantial heterogeneity

among the former communist countries. The present study affirms the importance of distinguishing countries in East Central Europe from those in the former Soviet Union.

Second, health disparities across Europe have grown over time. By examining the three time periods of 1992, 2000, and 2008, we found that the magnitude of the East-West divide has increased over the past two decades. Although some scholars predicted that the transition process away from communism would close the East-West health gap over time (e.g., Adeyi et al. 1997), the present findings show that health inequalities have indeed become larger over time.

Third, we find sizable gender differences in health patterns. On the one hand, statistical controls for macroeconomic conditions, social welfare characteristics, and health behaviors fully account for the differences between Eastern and Western Europe in terms of female life expectancy. On the other hand, disparities in male life expectancy remain wide even after controlling for all these theoretically important explanatory factors. These results indicate that mechanisms linking country-level factors to physical health outcomes differ by gender. Additionally, the determinants of physical health are different for men and women. Women consistently benefit from more favorable socioeconomic conditions, as measured by GDP per capita and health care expenditures, but these factors are related to male life expectancy only in 2008. Further, there are differences in the factors associated with men's and women's health. The present findings show that the population-level behavioral factors, namely high levels of spirits consumption and heavy smoking, are more important determinants of health status for men than for women.

Finally, we observe the East-West divide in terms of health among infants. Infant mortality is much higher in Eastern Europe than in Western Europe. We further find differentials in infant mortality within the former communist countries in Eastern Europe. Importantly, however, differentials in infant mortality are largely explained by socioeconomic conditions. Statistical controls for GDP per capita and social welfare characteristics reduce differences in infant mortality to insignificance for both sexes. Thus, factors related to population health differ not only by gender, but also by age group.

The central implication of this research is that there are substantial disparities in population health status between European countries, and in particular, when comparing the countries in East Central

Europe and the former Soviet Union. These findings offer support for the trisectional approach presented by Luy et al. (2011). Then, why is the health status of people in the former Soviet Union worse compared to those in East Central Europe? Two explanations are possible. The first set of issues concerns socioeconomic conditions. While profound crises hit all the countries in Eastern Europe during the 1990s, socioeconomic devastation was much more severe in the former Soviet countries. The liquidation of the inter-republican production chains caused a constant shortage of materials, and plagued the transition to a market economy (Aslund 2002). On the other hand, East Central European countries, located outside of the Soviet structure, swiftly overcame the initial shock of the dismantling of the old system, and followed a U-shaped pattern of growth (EBRD 1999).

The second issue has to do with differences in social environments. Following the classic work of Durkheim (1951 [1897]), researchers suggest the importance of social integration for individuals' physical and psychological well-being (House et al. 1988). At the population level, higher levels of social cohesion and social capital are found to have beneficial effects on health (Kawachi et al. 2008). In fact, the social contexts of East Central Europe and the former Soviet Union are considerably different. While the Soviet Union was established through the Russian Revolution at the beginning of the twentieth century, Soviet-type communism was exported to East Central Europe only after World War II (Ekiert 1991). Anti-Soviet culture was strong in these satellite states, and people's social networks remained active even during communist times (Ekiert and Kubik 1998, 1999). The strength of various social movements led to the "silent revolution from below" in this region during the 1980s (Szelenyi 1988). In contrast, the iron grip of the communist party remained strong in the Soviet Union, in which the gigantic party-state eliminated the opposition in society through the establishment of state institutions, such as the military and secret police (Howard 2003). Kennedy et al. (1998) provide evidence to suggest the strong impact of social characteristics on health in the former communist area, that is, a lack of social cohesion is associated with elevated mortality in contemporary Russia. In sum, differences in socioeconomic, historical, and cultural circumstances appear to be responsible for the observed "East Central versus Further East" health divide. In fact, previous research finds that the impact of inequality on adult health

status becomes most salient after a 15-year time lag (Subramanian and Kawachi 2004). Thus, the current divergence in population health between East Central Europe and the former Soviet Union may reflect long-lasting consequences of the communist past.

Another provocative finding of this research is the substantial divergence in health patterns by gender. A consideration of roles assigned to men and women in communist society sheds some light on the potential mechanisms of gender differences in health status. Communist party ideology encouraged women's participation in the labor force, and gender inequality in the labor market was consequently smaller in Eastern Europe than in capitalist societies (Trappe and Rosenfeld 1998). However, occupational segregation remained high. Men were primarily directed toward industrial occupations with higher prestige, while women's jobs were limited to the service sector, the so-called "non-productive branches" from the communist-party perspective (van der Lippe and Fodor 1998: 136). In fact, women's lower labor market positions relative to men offered protection against the shocks of the post-communist crises. Since men were disproportionately employed in the heavy industrial sector, and these industries quickly diminished in size after the disintegration of the old systems, men experienced a substantial loss in real wages as well as rising unemployment (Brainerd 2001). On the other hand, the service sector, in which women were overrepresented, continued to expand as a result of the reconstruction of the economy. Consequently, women maintained their employment patterns even after the collapse of the old systems (van der Lippe and Fodor 1998). Furthermore, women had more effective coping resources than men. Women continued to play meaningful roles in the family and their responsibilities in households provided effective coping strategies against frustration and dissatisfaction in life (Watson 1995). Thus, women maintained the same occupational as well as family roles even during the social transformation process. On the other hand, men had fewer economic and social alternatives, since their roles were largely limited to the public sphere. In fact, the high toll of premature mortality in this region was concentrated among men with limited resources: blue-collar workers (Carlson and Hoffmann 2011), the unmarried (Watson 1995), and the less educated (Shkolnikov et al. 2006). These observations indicate that men in Eastern Europe were more heavily exposed to the adverse influences of the post-communist crises, had less

effective coping mechanisms, and consequently, exhibited more severe health problems compared to women. In sum, the divergent social experiences of men and women during and after the communist period may be responsible for gender differences in physical health outcomes. This argument is further supported by findings from the infant mortality analyses, in which gender does not matter in the understanding of health disparities among infants.

The study findings should be interpreted in light of its limitations. This research focused on the aggregate level, using countries as the unit of analysis. Future work would benefit from multilevel models that permit a simultaneous analysis of the effects of aggregate and individual-level factors on individual-level outcomes. In addition, the present study divides the former communist countries into two groups: East Central Europe and the former Soviet Union. Yet, these countries have distinct historical, social, and cultural backgrounds. For instance, even within the former Soviet Union, people in Central Asia have lifestyle practices different from other parts of the Soviet Union, namely less vodka consumption and less smoking (Cockerham et al. 2004). Further research is needed to account for unique differences across the former communist countries.

Despite these limitations, the present study contributes to the body of work focusing on health inequalities between European countries. Using cross-national data from 47 countries between 1992 and 2008, we find considerable and growing differences in gender-specific life expectancy at different ages and infant mortality rates across Western Europe, East Central Europe, and the former Soviet Union. Research on European integration investigates the issue of inequality but the focus is often limited to inequality in wage and income levels. This research sheds new evidence on inequality in Europe, more specifically on differentials in the health status of populations. Findings suggest that the observed health divides reflect the long-lasting impacts of the historical, cultural, and socioeconomic environments of European countries, and that social, economic, and behavioral factors help us understand the processes through which health inequalities are produced and change over time.

Note

1. In this study, “East Central Europe” refers to Albania, Bulgaria, Croatia, the Czech Republic, Hungary, the Former Yugoslav Republic of Macedonia, Poland, Romania, Slovakia, and Slovenia); and “the former Soviet Union” includes Armenia, Azerbaijan, Belarus, Estonia, Georgia, Latvia, Lithuania, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. By “Eastern Europe” we mean all these countries.

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Table 1: Descriptive Statistics of the Main Variables by European Country Groups, 1992-2008

	1992		
	Western Europe (n=19)	East Central Europe (n=13)	Former Soviet Union (n=15)
Life expectancy at birth (e_0)			
Male	73.62 (1.35)	68.21 (1.74)	64.42 (1.57)
Female	79.93 (1.27)	75.83 (1.66)	73.42 (1.88)
Life expectancy at 65 (e_{65}) ¹			
Male	15.03 (.87)	13.18 (.90)	12.89 (.94)
Female	18.81 (1.05)	16.45 (1.35)	16.17 (.80)
Infant mortality ²			
Male	7.85 (1.77)	18.03 (8.45)	27.59 (12.24)
Female	6.04 (1.23)	14.49 (7.51)	21.30 (9.68)
GDP per capita ³	25.77 (7.48)	7.47 (3.59)	4.45 (2.82)
Health care expenditure ⁴	8.01 (1.29)	6.75 (2.00)	5.67 (1.40)
High spirits consumption ⁵	01'0	6 (46.15)	5 (33.33)
	2000		
Life expectancy at birth (e_0)			
Male	75.62 (1.16)	70.05 (1.65)	64.82 (3.64)
Female	81.34 (1.12)	76.79 (1.63)	73.44 (2.99)
Life expectancy at 65 (e_{65})			
Male	16.10 (.80)	13.29 (.83)	12.61 (1.19)
Female	19.75 (.96)	16.51 (1.18)	15.76 (1.23)
Infant mortality			
Male	5.16 (.96)	11.40 (4.40)	19.22 (10.65)
Female	79.93 (1.27)	75.83 (1.66)	73.42 (1.88)
Life expectancy at birth			
GDP per capita	31.97 (9.55)	9.59 (4.84)	4.68 (3.13)
Health care expenditure	8.27 (1.35)	7.17 (1.42)	5.54 (.97)
High spirits consumption	0.00 (0.00)	6 (46.15)	7 (46.67)
	2008		
Life expectancy at birth (e_0)			
Male	78.04 (1.08)	71.89 (1.75)	65.19 (2.76)
Female	83.07 (.95)	78.28 (2.29)	73.83 (3.58)
Life expectancy at 65 (e_{65})			
Male	17.66 (.82)	14.45 (.88)	12.84 (.98)
Female	20.94 (.95)	17.84 (1.41)	16.41 (1.50)
Infant mortality			
Male	4.22 (1.74)	9.63 (5.36)	18.77 (14.06)
Female	3.33 (1.08)	7.72 (4.76)	14.85 (11.39)
GDP per capita	37.77 (14.47)	13.90 (7.03)	8.76 (5.66)
Health care expenditure	9.40 (1.15)	7.67 (1.50)	5.77 (2.16)
High spirits consumption	0 (0.00)	5 (38.46)	7 (46.67)
Gini coefficient ⁶	29.52 (3.90)	30.02 (4.36)	34.89 (4.72)
High smoking prevalence ⁷	2 (10.53)	6 (46.15)	1 (6.67)
Obesity ⁸			
Male	21.06 (3.17)	23.69 (3.49)	16.24 (4.43)
Female	18.76 (4.09)	22.08 (2.71)	23.71 (5.94)

Note: Columns contain means for continuous variables (standard errors in parentheses). Data on life expectancy at birth, infant mortality, health care expenditure, and spirits consumption are from the World Health Organization (WHO) European Health for All Database (HFAD) (WHO, 2010). Information on

GDP per capita is from the Penn World Table 7.0 (2011). Data on the Gini coefficient come from the CIS World Factbook (2011). Information on obesity is taken from the World Health Statistics (WHO 2011b).

1: n is 46 (excluding Bosnia Herzegovina)

2: Infant deaths per 1,000 live births

3: GDP per capita in PPP/1,000

4: Total health care expenditures as the percentage of GDP

5: Spirits consumed in pure alcohol exceeds the third quartile (75%)

6: The Gini coefficient is on a 0-100 scale. Higher values correspond to greater inequality.

7: The percentage of regular daily smokers in the population aged 15 and over exceeds the third quartile (75%).

8: The percentage of adults aged 20 and over who are obese (BMI>30).

Table 2: Male Life Expectancy at Birth, Regressed on European Country Groups, Macroeconomic Indicators, Social Welfare, and Health Behaviors, 1992-2008

	1992					
	Model 1	Model 2	Model 3	Model 4	Model 5	
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	
East Central Europe	-5.41***	-6.51***	-5.26***	-4.65***	-5.56***	
Former Soviet Union	-9.20***	-10.52***	-8.81***	-8.65***	-9.29***	
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		-.73			-.69	
<i>Social welfare:</i>						
Health care expenditure (%)			.14		.24	
<i>Health behaviors:</i>						
High spirits consumption				-1.64**	-1.34**	
Constant	73.62***	75.899***	72.50***	73.62***	73.88***	
Adjusted R-squared	.87	.88	.86	.89	.89	
	2000					
	Model 1	Model 2	Model 3	Model 4	Model 5	
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	
East Central Europe	-5.57***	-6.17***	-4.61***	-4.62***	-3.71**	
Former Soviet Union	-10.79***	-11.73***	-9.07***	-9.84***	-8.11***	
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		-.47			.03	
<i>Social welfare:</i>						
Health care expenditure (%)			.63**		.71**	
<i>Health behaviors:</i>						
High spirits consumption				-2.06**	-1.53**	
Constant	75.62***	77.24***	70.39***	75.62***	69.69***	
Adjusted R-squared	.79	.83	.81	.81	.86	
	2008					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	ref
East Central Europe	-6.15***	-5.47***	-5.49***	-5.79***	-3.69**	-3.82**
Former Soviet Union	-12.85***	-10.77***	-11.34***	-12.41***	-8.82***	-8.35***
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		.90*			1.00*	.64
<i>Social welfare:</i>						
Health care expenditure (%)			.39*		.44**	.45**
Gini coefficient			-		-	.02
<i>Health behaviors:</i>						
High spirits consumption				-.95*	-1.63**	-1.48**
High smoking prevalence				-	-	-1.25*
Obesity prevalence (%)				-	-	.05
Constant	78.04***	74.82***	74.42***	78.04***	70.28***	69.81***
Adjusted R-squared	.89	.90	.89	.89	.91	.90

*** p<.001; ** p<.05; * p<.10 (n=47)

Table 3: Female Life Expectancy at Birth, Regressed on European Country Groups, Macroeconomic Indicators, Social Welfare, and Health Behaviors, 1992-2008

	1992					
	Model 1	Model 2	Model 3	Model 4	Model 5	
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	
East Central Europe	-4.11***	-3.09***	-3.18***	-4.11***	-2.55**	
Former Soviet Union	-6.51***	-5.06***	-4.99***	-6.51***	-3.41***	
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		.75*			1.09**	
<i>Social welfare:</i>						
Health care expenditure (%)			.55***		.42**	
<i>Health behaviors:</i>						
High spirits consumption				.03	-.04	
Constant	79.93***	77.51***	75.51***	79.93***	73.06***	
Adjusted R-squared	.76	.77	.81	.75	.80	
	2000					
	Model 1	Model 2	Model 3	Model 4	Model 5	
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	
East Central Europe	-4.56***	-2.94**	-3.43***	-4.89***	-1.69	
Former Soviet Union	-7.90***	-5.22***	-6.03***	-8.23***	-3.26*	
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		1.26***			1.28**	
<i>Social welfare:</i>						
Health care expenditure (%)			.68**		.65**	
<i>Health behaviors:</i>						
High spirits consumption				.72	-.29	
Constant	81.34***	77.02***	76.69***	81.34***	71.54***	
Adjusted R-squared	.74	.76	.78	.74	.79	
	2008					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	ref
East Central Europe	-4.79***	-2.12**	-3.83***	-5.41***	-.47	-.43
Former Soviet Union	-9.24***	-5.08***	-6.99***	-9.99***	-1.91	-1.96
<i>Macroeconomic indicators:</i>						
GDP per capita (ln)		2.50***			2.97***	2.79***
<i>Social welfare:</i>						
Health care expenditure (%)			.56**		.65***	.66***
Gini coefficient			-		-	.03
<i>Health behaviors:</i>						
High spirits consumption				-.02	-.06	-.02
High smoking prevalence				-	-	-1.20
Obesity prevalence (%)				-	-	.06
Constant	83.07***	74.11***	77.84***	83.07***	66.32***	65.05***
Adjusted R-squared	.73	.81	.75	.74	.86	.86

*** p<.001; ** p<.05; * p<.10 (n=47)

Table 4: Gender-Specific Life Expectancy at Age 65, Regressed on European Country Groups, Macroeconomic Indicators, Social Welfare, and Health Behaviors, 1992-2008

	1992		2000		2008		
	Model 1	Model 5	Model 1	Model 5	Model 1	Model 5	Model 6
(1) Male							
Western Europe	ref	ref	ref	ref	ref	ref	ref
East Central Europe	-.185***	-2.41***	-2.81***	-2.13**	-3.21***	-2.22**	-2.12**
Former Soviet Union	-2.14***	-3.13***	-3.49***	-2.40**	-4.82***	-3.35**	-3.39**
(2) Female							
Western Europe	ref	ref	ref	ref	ref	ref	ref
East Central Europe	-2.36***	-2.18**	-3.24***	-1.27*	-3.10***	-.95	-.73
Former Soviet Union	-2.64***	-2.39**	-3.98***	-.96	-4.53***	-.97	-1.02

*** p<.001; ** p<.05; * p<.10 (n=46)

Table 5: Infant Deaths per 1,000 Live Births (ln), Regressed on European Country Groups, Macroeconomic Indicators, and Social Welfare, Stratified by Gender, 1992-2008

	1992		2000		2008	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
(1) Male						
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	ref
East Central Europe	.77***	.24*	.74***	.01	.73***	-.31
Former Soviet Union	1.20***	.38**	1.22***	.01	1.31***	-.43
<i>Macroeconomic indicator:</i>						
GDP per capita (ln)		-2.92***		-.54***		-.78***
<i>Social welfare:</i>						
Health care expenditure (%)		-.10***		-.03		-.12***
Constant	2.04***	3.82***	1.62***	3.72***	1.38***	5.32***
Adjusted R-squared	.69	.84	.49	.87	.49	.78
	1992		2000		2008	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
(2) Female						
<i>Country-groups:</i>						
Western Europe	ref	ref	ref	ref	ref	ref
East Central Europe	.79***	.25*	.78***	.03	.71***	-.34
Former Soviet Union	1.19***	.38**	1.29***	.02	1.29***	.04
<i>Macroeconomic indicator:</i>						
GDP per capita (ln)		-.31***		-.50***		-.80***
<i>Social welfare:</i>						
Health care expenditure (%)		-.10**		-.09**		-.12**
Constant	1.78***	3.58***	1.36***	3.81***	1.53***	5.12***
Adjusted R-squared	.68	.82	.64	.80	.47	.78

p<.001; ** p<.05; * p<.10 (n=47)