THE MEDIATING ROLE OF RIGHTS AND FREEDOMS ON WEALTH AND POPULATION HEALTH

by

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Abstract

Do nations with greater rights and freedoms enjoy better health? This study examined the combined influences of national levels of wealth, and rights and freedoms on population level health. The World Health Organization Framework of Social Determinants of Health—that encapsulates the social inequality and rights and freedoms arguments—was applied to a large cross-national sample of 120 nations. Using pathway analyses, four final models explored the direct and mediated relations of rights and freedoms on wealth and population health. Health indicators included life expectancy, infant mortality, and risk of non-communicable disease. Indicators for health behaviors included suicide rates, alcohol, and tobacco-cigarette use. Results support the rights and freedoms gradient of health, suggesting that rights and freedoms may play an important role in the determination of health.

Keywords: rights, freedoms, wealth, health, health behaviors, gradient of health.

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The Mediating Role of Rights and Freedoms on Wealth and Population Health

For decades, researchers have investigated the underlying factors that lead to favorable health outcomes across societies (e.g., Feinstein, 1993; Uchino, 2006; Uchino, Cacioppo, Kiecol-Glaser, 1996), a task complicated by the social, political, and economic diversity present in the international community. Much of disease and cause for health inequities—that is, the unfair and avoidable differences in health found within and between all countries around the world—arise from the conditions that people are exposed to, including where they are born, grow, live, work, and the circumstances in which they age (World Health Organization; WHO, 2011). These conditions are referred to as the social determinants of health (SDH), encompassing a multitude of social, economic, political, cultural, and environmental determinants—such as level of education, income, quality of early childhood experiences, and physical environment (Maggi, Irwin, Siddiqi, & Hertzman, 2010; Public Health Agency of Canada; PHAC, 2008; Raphael, 2006).

Although many attribute their health to personal choices, there are also broader influences at play (Canadian Institute for Health Information; CIHI, 2015; Leichter, 2003). These influences (e.g., economic policies, social norms, social policies, and political systems), which affect lifelong development and individual health outcomes are shaped by distributions of money, power, and resources at local, national, and global levels (WHO, 2016). Some of these factors/forces are more important than others (WHO, 2011). Specifically, structural determinants—such as the distribution of income, political, and governance structures (that reinforce rather than reduce inequalities in economic power)—are considered especially important mechanisms (WHO, 2011). Furthermore, within countries, there is dramatic health differences linked to distinct degrees of social disadvantage. Structural determinants produce stratification, affecting the social positions (e.g., social class) of individuals and are responsible

for many of the inequities in health (WHO, 2011). Together, structural determinants and conditions of daily life constitute the social determinants of health and much of the health inequities between and within countries.

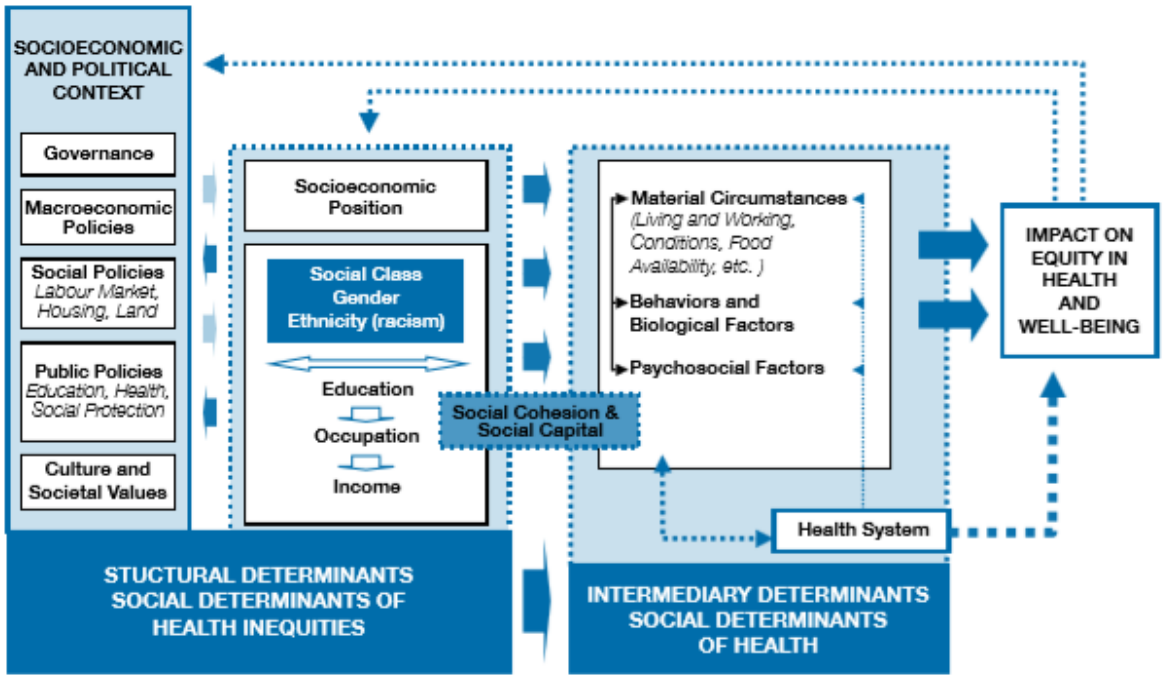
In 2005, the Commission on Social Determinants of Health (CSDH) was established by WHO, to address the array of factors leading to health inequities. As stated by Marmot: *"The core of the Commission's work is the belief that a society that has organized its social conditions so that its population has better health, is a better society"* (WHO Commission on Social Determinants of Health Report; CSDH, 2008, p.5). Specifically, the Commission set forth to better understand where health differences among social groups originated and to help explain the social gradient in health—i.e., the specific social pattern running from the top to bottom of a country's health spectrum (CSDH, 2008). As part of this action, the CSDH published the framework of social determinants of health in 2008 (Figure 1)—a conceptual framework that comprises of an extensive and very comprehensive integration of all the knowledge on social determinants of health, including evidence, theories, and approaches. Although various frameworks in the literature exist (—for review see Canadian Council of Social Determinants of Health, 2015), the WHO framework is particularly relevant for informing and guiding this thesis on the premise of its important conceptualization of socioeconomic and political factors (i.e., governance, macroeconomic policies, social policies, public policies, and culture and societal values) as structural determinants of health.

A large body of evidence supports the social gradient in health as a pattern that emerges repeatedly across nearly all nations and in many contexts (Deaton, 2002; Kosteniuk & Dickinson, 2003; Marmot, 2003; Marmot et al., 1991; Wilkinson & Picket, 2009). As such, researchers have long accepted it as an important tenet in the field of social determinants and

health.

A key feature of the WHO framework of social determinants of health is to help explain the social gradient in health (SGH), understand the underlying reasons for its pattern, and examine the inequalities and broad range of health outcomes it yields (e.g., Wilkinson & Marmot, 2003; WHO, Commission on SDH Report, 2008).

Figure 1: World Health Organization framework of social determinants of health, as originally published by the WHO on page 6 of A Conceptual Framework for Action on the Social Determinants of Health (WHO, 2010).



Given that there are many approaches to explain the social gradient in health phenomenon, it is prudent to provide a brief overview of some of these, observed broadly at the individual and population levels. At the individual level or in the context of national trends, the social gradient refers to a person's position (e.g., social class) in a socioeconomic hierarchy within a country. Individual level inequalities are often broadly classified into three social classes: upper class, middle class, and lower class (WHO, 2016). Each class has varied access to resources, which defines their place in a socially stratified system. For example, individuals in a lower social class are at greater risk for poor health because they have access to fewer resources (including income). This suggests that the lower an individual's socioeconomic position is within their country, the poorer their health outcome (Matthews & Gallo, 2011).

In a study of British civil servants (a society that is highly stratified), researchers claimed to uncover a social gradient in mortality running from the bottom to top of society even among people who were not poor (Marmot, Shipley, & Rose, 1984). This was also true for an American panel study of income dynamics that classified people according to household income and demonstrated a continuous gradient in mortality (McDonough et al. 1997- as cited in Wilkinson & Marmot, 2003). In other words, mortality rates of people in the middle-income range were intermediate between those at the bottom and those at the top. The pattern found in these studies led researchers to suggest that although the gradient principle applies to all income levels in general, the poorest people are at greatest risk of ill health and have the highest mortality rates as compared to those individuals who have more income (Dasgupta & Weale, 1992).

Much of the debate around the social gradient is about how it determines health outcomes and is one of the dominant features of the health situation within industrialized countries (Wilkinson, 2000). Further to this notion is Wilkinson's general susceptibility theory (Wilkinson,

1992; 1999), which proposes that individual health differences (e.g., indicative of mortality rate) are best explained by social position. Evidence from Wilkinson's individual level studies (1992; 1999) showed that people in lower socio-economic groups suffered the worst health because of their lower social position in society. More specifically, Wilkinson's study revealed that mortality rates were closely related to the distribution of income within a country, rather than the absolute value of income. This perspective implies that lower socioeconomic groups, or people and groups with access to fewer resources (e.g., the way in which wealth is distributed within a country) are more likely to have poorer health, suggesting that income distribution, synonymous with social class, is a strong predictor of health.

Along the same lines, other approaches address the psychosocial pathways between social status and health status to explain how different social factors in life can be cumulative (Cole & Wiernasz, 1999). For example, social causation theory (Boback, Pikhart, Hertzman, Rose, & Marmot, 1998; Kaplan, 1996) identifies a person's social position, such as marital status, as a determinant of mental health. It argues that the status of marriage is linked to increases in social support and economic resources, which in turn can improve an individual's psychological wellbeing. This perspective implies that as compared to other social positions, marriage, a socially advantageous position in certain societies, can be beneficial for health that is in terms of promoting better psychological health.

Moving beyond the individual level to consider approaches at the population level of the social gradient of health, however, is where the focus of this thesis lies. When the WHO Commission set forth to better understand where health differences existed, there was also a call to identify pathways leading to differences in population health between countries (WHO, SDH Report, 2008). In the context of international trends, the social gradient in health refers to a

country's status as compared to other nations (i.e., population level or between country). Generally, studies have shown that wealthier countries also tend to be healthier, as compared to poor countries (e.g., Dasgupta & Weale, 1992).

In the evolution of population level perspectives on the social gradient, Lalonde's Report (1974) played a significant role early on in first raising awareness for occurrence of health inequality. Specifically, the report identified new elements of health determinants beyond health care services, including the macro-structures of social and physical environment and the micro factors such as lifestyle and human biology, and suggested that major improvements in health would result primarily from improvements and increased knowledge in these areas. Although widely criticized (for review, see Hancock, 1986), the report is still highly regarded for contributing to the transformation in thinking about health in the past few decades. Since its publication, other explanations on the determinants of population health have been introduced.

MacIntyre (1997) focuses on cultural differences to try to understand how health inequalities arise. This approach emphasizes that behaviors (such as daily tobacco-cigarette use) can be considered a health risk and unacceptable in some cultures, but beneficial and acceptable in others. For example, in terms of smoking, the notion of smoking tobacco may be more acceptable in some cultures than in others. As such, this theory uncovers unique cultural differences between societies as the premise for health disparity observed between countries.

Two population level approaches to the social gradient in health stand out in the current social determinants literature, one focused on social inequality and the other on rights and liberties. The social inequality argument maintains that the wealthiest nations do not necessarily have the best health, but rather that nations with the most egalitarian, or equal distribution of wealth have the best outcomes in health (Marmot, 2002; Wilkinson & Picket, 2009). As such,

this argument draws attention to the steepness of the gradient line—that is, the greater the inequality, the steeper the social gradient (Marmot, 2002; Wilkinson & Picket, 2009). The rights and liberties argument on the other hand, proposes that political rights and civil liberties are responsible for improvements in life expectancy and child survival.

Bezo, Maggi, and Roberts (2012) applied the WHO conceptual framework of the social determinants of health to logically integrate and investigate these two approaches to international data pertaining to 34 countries. Purposely, the authors posited that the social inequality argument and the rights and liberties argument—along with a third social capital argument that is not expanded in this thesis—could be integrated into a complementary model explaining the determining forces behind the social gradient in health. It should be noted that these approaches are not explicitly embedded in the graphic representation of the WHO framework. Rather, the authors conceptually positioned the social inequality and rights and liberties approaches within the socioeconomic and political structural determinants, and placed the civil society and social capital argument between the structural and intermediary determinants (Bezo et al., 2012).

Conceptually, the study by Bezo et al., (2012) was guided by the notion that improvements in wealth distribution lead to gains in civil society and social capital, which in turn improve health outcomes of individuals and whole countries. The authors hypothesized that consistent with the WHO framework, wealth and reductions in social inequality would promote good governance (i.e., rights and liberties), which in turn would be associated with better health outcomes (Bezo et al., 2012). In other words, in addition to influencing health outcomes directly, it was expected that improvements in wealth distribution (income distribution/equality) would

lead to gains in rights and freedoms, which in turn would improve health outcomes of individuals and health outcomes of entire countries.

For the study, Bezo et al., (2012) obtained data pertaining to 34 European, North and South American, and South Caucasus countries from international online databases and publications of the Freedom House, International Labor Organizations, Transparency International, United Nations, World Bank, WHO, and World Values Survey. From these databases, the authors gathered indicators to examine the combined influences of national levels of socioeconomic status (i.e., Gross domestic product (GDP) per capita and GINI Index—i.e., a measure of income inequality and income distribution among a nation's residents; World Bank, 2016), social capital (i.e., trust in institutions), and rights and freedoms (i.e., perceived corruption, political rights, and civil liberties) on indicators of physical and mental health outcomes pertaining to children (i.e., infant mortality rates) and youth and adults (i.e., prevalence of HIV, suicide rates, alcohol consumption, daily tobacco-cigarette use, and life expectancy). Path analysis was conducted using the latent variable partial least squares approach (Lohmöller, 1984) to develop path models for mental health and physical health.

The research findings from Bezo et al.'s study (2012) yielded results that are contributory to the current body of evidence on: (i) the effects of socioeconomic status (SES) associated with health; (ii) the effects of rights and freedoms associated with health; and (iii) a mediating effect of rights and freedoms on health outcomes.

SES and Health

Literature on the associations between social factors and health is bountiful, particularly as related to SES and health (e.g., Dalstra et al., 2005; Huisman et al., 2005; Mackenbach et al., 1997; Marmot, Rose, Shipley, & Hamilton, 1978; Marmot, Bosma, Hemingway, Brunner, &

Stansfeld, 1997; Minkler, Fuller-Thomson, & Guralnik, 2006; Wilkinson & Picket, 2009). As one of the most robust findings in the social sciences, it is not surprising to find strong evidence for the effects of SES on individual quality of life and society health as a whole.

A host of studies associating lower SES with a variety of negative health outcomes for the individual is present in the literature, such as the likelihood of being sedentary (Newacheck et al., 2003), and higher body mass index for adolescents (Chen and Paterson, 2006)—possibly because of a lack of neighborhood resources (i.e., playgrounds and accessible healthy food options). Lower levels of SES were associated with higher rates of cardiovascular disease for adults (Colhoun, Hemingway, & Poulter, 1998; Kaplan and Keil, 1993; Steptoe & Marmot, 2004), and higher incidence of Alzheimer's disease later in life (Fratiglioni & Rocca, 2001; Fratiglioni, Winblad, & von Strauss, 2007; Karp et al., 2004;). Moreover, a large body of literature has shown that people of higher SES tend to live longer, enjoy better health, and suffer less from disability whereas those of lower SES are more like to die younger and suffer a greater burden of disease and disability (Dalstra et al., 2005; Huisman et al., 2005; Mackenbach et al., 1997; Marmot, et al., 1978; Marmot, et al., 1997; Minkler et al., 2006).

Increasing evidence supports lower levels of SES and negative mental health outcomes as well. For example, studies have shown low SES is linked to higher rates of episodic heavy drinking (Oesterle, Hill, Hawkins, Guo, Catalano, & Abbott, 2004), increased levels of emotional problems (e.g., anxiety; Gallo & Matthews, 2003), behavioral difficulties such as attention-deficit/ hyperactivity disorder (ADHD) and conduct disorders (e.g., Weissman et al.,

1984; Goodman, 1999; Spencer, Biederman, Wilens, & Faraone, 2002), and increased levels of aggression (Chen and Paterson, 2006).

Research examining lower SES and family wellbeing (i.e., family stability, parenting practices) has also been insightful for better understanding the developmental outcomes of children (Trickett, Aber, Carlson, & Cicchetti, 1991). Moreover, the highest rates of child abuse and neglect are exhibited among low-income families (Ondersma, 2002), and increased rates of violence and increased risk of victimization are exhibited among racial and ethnic minorities who are also of lower socioeconomic status (Pearlman, Zierler, Gjelsvik, & Verhoek-Oftedahl, 2004). Along similar lines, children from less advantaged homes and families often begin kindergarten with significantly less linguistic knowledge (Purcell-Gates, McIntyre, & Freppon, 1995), score at least 10 percent lower than the national average on national achievement scores in mathematics and reading in the United States (Hochschild, 2003), further widening the learning gap between them and their wealthier peers. All of these studies, including others (e.g., Barker, 1997; Jefferis, Power, & Hertzman, 2002), indicate the importance of early childhood for later outcomes in a wide variety of areas.

Noteworthy limitations exist for the relations between SES and health, particularly two limitations of theoretical interest: The relations between SES and health have a bidirectional association, and there may be broader mechanisms, such as mediation, at play. Furthermore, a spurious relation may be present; that is, SES could either precede or follow health behaviors. For example, daily tobacco-cigarette and alcohol use—poor health behaviors that involve expenditure of money—could potentially worsen SES by creating dependency on a substance that costs money that could be used elsewhere (Cutler & Lleras-Muney, 2010). Second, because the underlying relations between SES and health persists through changes—such as cause of

death—no single mechanism can account for the observed relations (Lutfey & Freese, 2005). These limitations highlight the need to consider a broader range of mechanisms that could be at play, including a potential mediator between SES and health.

It is also clear that when considering the relations of SES and health, the presence of wealth alone cannot entirely explain differences in outcomes of health at either the individual or population level. Furthermore, past research has shown that increasing only SES (in terms of GDP per capita) does not lead to better health outcomes (Altman and Castiflioni, 2009). Rather, that the fair and equal distribution of resources, (i.e., wealth and income inequality) might be a better indicator for health outcomes. This notion agrees with the hypotheses presented by Bezo et al., (2012), suggesting that gains in wealth and reductions in social inequality, would in turn be associated with better health outcomes. According to WHO (2016), poorer health outcomes that are associated with unfair distribution of social determinants in health, are due to the inequalities found in many countries. Historically, world economies have developed unevenly based on wealth. For example, one geographical region may be poorer (e.g., less developed country) when compared to another region (e.g., more developed country). The unevenness that exists between the wealthier regions and the poorer regions is synonymous with economic inequality—referring to the unequal distribution of income or wealth at the global level (e.g., Pampel & Denney, 2010). Pampel and Denney (2010) suggest that the distribution of individual or household accumulation of wealth provides more information about variation in well-being than income alone. In other words, health is associated with the unfair or unequal access to resources at the individual-level and the social inequalities found between different levels of social class.

In a more recent study on income distribution and mortality, Marmot (2012) first compared whether income distribution affected health between countries (i.e., population level) and then

examined the same relations within countries (i.e., individual level). Marmot's (2012) results revealed a strong link between income distribution and mortality rates. His results suggested that it was more than increases in income or SES alone that accounted for health outcomes within and between countries—results that support the social inequality view. Furthermore, these results are consistent with those reported by Bezo and colleagues (2012) who found that increases in national SES—wealth and equitable distribution of wealth as joint predictors—are associated with better health outcomes at the national level.

Democracy and Health

Democracy is generally touted as having many benefits for a country. It serves to protect citizen's civil liberties and freedoms, generate the economic security, motivate citizens to work, save, invest, and periodically evicting politicians who hurt their country (Freedom House, 2015; Sirowy & Inkeles, 1990). According to WHO (2016), a nation's political structure, social policies, and political systems can virtually affect every aspect of its society. Stated in another way, acknowledges that a combination of *poor social policies and programs, unfair economic arrangements and bad politics* are responsible for producing and reinforcing the health inequalities (WHO, Closing the Gap Report, 2008, p. 1). Although health itself may not be the main aim when new policy is implemented, most aspects of the government and economy—including finance, education, housing, employment, and transport—have the potential to affect health and health equity nevertheless (WHO, 2008)

Consistent with decades of cross-national research proposing that political rights and civil liberties are responsible for improvements in health outcomes (e.g., Altman & Castigilioni, 2009; Dasgupta, 1990; Frey and Al-Roumi, 1999), Bezo et al., (2012) also maintains that good

governance are responsible for improvements in health, specifically in life expectancy and child survival (i.e., infant mortality).

Democracy's role in preventing famines and poverty is historically well documented in the literature (e.g., Sen, 1982). Furthermore, researchers such as Dasgupta (1990) have argued that when individuals have more rights and freedoms, they also perform better in terms of overall health. Still, there is a lack of empirical evidence on the extent to which freedom—as permitted by a country's political regime—is related to a nation's health.

A few studies have tried to determine whether governments affect health directly. One study has shown that when civil liberties increase, the suicide rates increase (Jungeilges & Kirchgässner, 2002). The findings in Jungeilges and Kirchgässner's cross-section study (2002) revealed a strong association between civil liberties and suicide rates, consistent with the findings of Bezo and colleagues (2012).

Other studies examining democracy and health (e.g., Kelleher et al., 2002; Navarro et al., 2003) have shown similar findings; that is, a strong positive association between democratic rights and better mental health outcomes. For example, Kelleher et al.'s study (2002) investigating the effect of Labour and Conservation governments (political systems) on suicide rates and Navarro and colleagues' 2003 study examining the effect of welfare state policies on health benefits in people from a sample of nations belonging to the Organization for Economic Cooperation and Development (OECD) both have shown there to be a strong association between increases in democratic rights and better health outcomes.

The literature also yields research suggesting that democratic rights and freedoms matter when it comes to individual happiness and wellbeing—particularly in explaining between country differences (e.g., Frey & Stutzer, 2002a, b; Veenhoven, 2000). Quality of life in nations

(i.e., denoting how well, long and happy citizens live) have been measured and characterized by societal qualities of economic affluence, freedom, and justice (Inglehart & Klingemann, 2000). Moreover, in these studies, country characteristics such as GDP per capita, life expectancy, and indications of good governance (e.g., rights and liberties) explained life satisfaction variations between countries to a large extent—both on the aggregate level (i.e., measured by means of distinguishing country characteristics) and on the individual level (i.e., measured by means of people's perceptions). Reports of well-being were considerably lower in the post-communist countries.

In a study approaching health as an outgrowth of economic development, Wickrama & Mulford, (1996) reported that social wellbeing is determined by the level of a country's economic development. These researchers reported that income inequality decreases and social well-being improves with the economic development of a country. This notion is consistent with most of the research where income distribution is considered as a proxy for social wellbeing in a country (Wickrama & Mulford, 1996). Overall is it not surprising that democratic countries—characterized as being more accountable to citizens, more socially active, more pursuant of policies autonomous from class and capital—tend to be wealthier than non-democratic countries. Freedom House Report (Freedom House; FH, 2015) annually contends that democratic governments tend to be high-income countries whereas dictatorships and countries that lack civil liberties and political rights tend to be low-income countries.

One investigation (Böhnke, 2008) examined whether the political culture and economic circumstances of European countries—specifically, indicators related to the economic situation of the country (i.e., GDP per capita), politics (i.e., political rights, civil liberties, and corruption), and health (i.e., life expectancy, infant mortality rate)—are associated with people's life

satisfaction outcomes. Böhnke's findings suggested that in countries where government credibility is strong, free elections, freedom of association, and widespread participation opportunities are guaranteed, citizens seem to be more satisfied with their life, whereas less so in countries where people do not trust their political institutions (Böhnke, 2008).

Although there is no agreement in the literature on how to define corruption, it is generally defined as the abuse of public office for private benefit and gain (Akcay, 2006; Rose-Ackerman, 1997). Corrupt activity includes bribery, theft, and other misappropriation of public resources (e.g., Bardhan, 1997). Some argue the efficiency reducing approach—an approach which postulates that corruption has beneficial effects (i.e., increases efficiency in an economy; Huntington, 1968)—whereas others like Tanzi & Davoodi (1997) hold the opposing position which states that corruption hinders economic growth (GDP per capita), distorts the allocation of resources, and has a damaging impact on efficiency.

The ability of democracies to gain trust and limit corruption is central to the rights and liberties argument (Drury, Krieckhaus, & Lusztig, 2006). Bezo and colleagues (2012) suggest freedom of corruption—directly connected to transparency of government as a component good governance—is also responsible for improvements in population health (e.g., infant mortality).

Consistent with Bezo et al., (2012), several studies provide evidence to suggest ways that corruption adversely affects human health. For example, a study by Rose-Ackerman (1997) has shown that corruption tends to distort the allocation of economic benefits leading to less equitable income distribution and thereby affecting health. Similarly, Gupta, Davoodi, and Alonso-Term (1998) suggested that corruption increases income inequality thereby affecting health. Then, in a later study by some of the same researchers (Gupta, Davoodi, & Tiongson, 2000) corruption was shown to affect the cost and quality of health care services, which in turn

had a detrimental effect on health outcomes (i.e., low birth rate and infant mortality). Moreover, corruption was also with a reduction in rates of life expectancy, also, an important indicator of national health (Kaufmann, Kraay, & Zoido-Lobatón, 1999).

Rights and Freedoms Gradient of Health

Bezo and colleague's research findings (2012) were not only similar to previous literature on the effects of SES (e.g., Wilkinson and Picket, 2009) and the effects of democratic rights and freedoms (e.g., Altman & Castiglioni, 2009; Dasgupta, 1990) associated with better health outcomes, they also contributed something novel to the body of evidence on rights and freedoms. Specifically, their findings revealed that the effects of SES on physical health and mental health (two separate pathways for SES) were fully mediated by democratic rights and freedoms. Stated another way, the results suggested that rights and freedoms demonstrated a prominent role in the determination of health outcomes, accounting for the association between SES and health. Whereas results revealed that rights and freedoms completely mediated the effects of social capital in the physical health model but only partially mediated the effects of social capital in mental health model (two separate pathways for social capital). In other words, rights and freedoms accounted for the association between social capital and physical health but only part of the association between social capital and mental health—suggesting that physical and mental health outcomes have different origins for social capital. To acknowledge the novel and important role of rights and freedoms in determining health outcomes, the authors referred to their models as the rights and freedoms gradient of health, with rights and freedoms denoting three indicators, specifically political rights, civil liberties, and freedom of corruption. Following Bollen (1986), political rights help people to participate freely in the political process, allowing citizens to decide what laws and policies should exist, in particular around the electoral process;

such as the right to vote and compete for public office. Conversely, civil liberties include freedom of the press, expression, association, speech, religion, and media that are protected by the rule of law. These liberties protect individuals' expression of opinions without fear of state reprisal (Dasgupta, 1990). According to Gearty (2003) a population with civil liberties possesses freedoms pertaining to individual expression which in turn can allow for greater capacity to influence decisions of the elite.

As noted earlier, the study by Bezo et al., (2012) is conceptually based on the WHO framework, which summarizes the social inequality and rights and liberties arguments. In short, WHO conceptual framework encapsulates the view that rights and freedoms are associated with increased wealth and social equality, in turn promoting better health. Evidence presented by Bezo et al., (2012) on the mediating role of rights and freedoms in the determination of health serve to strengthen these approaches. Importantly, the results of Bezo et al.'s study (2012) underscores the notion that democratic rights and freedom's mediating role may have important implications for population health.

In light of the novel observations made by Bezo and colleagues (2012), the likelihood of its being the first study to simultaneously examine the effects of SES, social capital, rights and freedoms on health outcomes using pathway models, and the important implications for rights and freedoms as reflected in the population indicators for physical (e.g., child survival) and mental health (e.g., suicide), it is surprising that more attention has not been given to conduct further examination on the rights and freedoms gradient of health.

To date, much of the literature available on freedoms appears to target general freedoms, economic and political freedoms, or freedoms related to press or expression—civil liberties (World Index Moral Freedoms, 2015). However, moral freedoms—that is, freedoms that

specifically tackle ethical issues and debates of recent times e.g., abortion—are a specific area that deserve a closer examination. According to the WIFM (2015), if freedom is described as absence of coercion, then, moral freedom may equally be defined as absence of moral coercion. For example, "How free from state-imposed moral constraints are human beings depending on their countries of residence?"

Countries that exhibit strong social engineering (i.e., strong efforts to influence attitudes, social behaviors on a large scale, whether by governments, media, or private groups), countries where a particular religion dominates the state (e.g., Christian, Muslim), or countries where there is higher levels of state moral interference, are all at risk for having their moral freedoms dramatically distorted (WIFM, 2015). As such, it is important to understand governmental/state impacts on moral decisions and freedoms within a country.

The Present Study

The purpose of this study was to extend current knowledge on the mediating role of rights and freedoms in the determination of health outcomes at the population level, by conducting a follow-up study to that conducted by Bezo, Maggi, and Roberts (2012).

Theoretical Objectives

From a theoretical perspective, this thesis seeks to better understand the role of political forces to influence population level health outcomes, and specifically contributing to the existing literature by:

(i) closely examining the relations among income inequality, rights and freedoms, and various health outcomes;

(ii) increasing conceptual depth and understanding of key theoretical debates on social inequality and rights and freedoms, as integrated in the WHO framework of social determinants

of health; and

(iii) investigating the effects of freedoms related to morality, ethical issues, and debates of recent times.

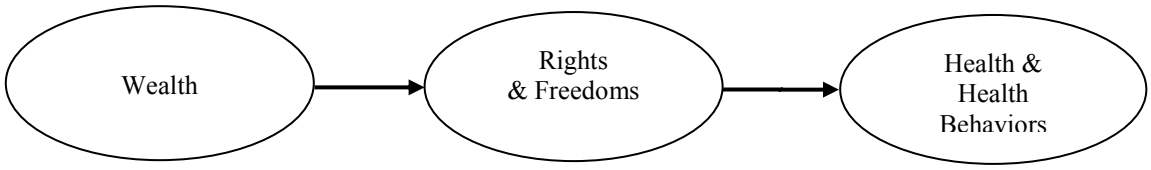
To this end, a theory driven model of primary interest was tested, as first proposed by Bezo and colleagues in their 2012 study and expanded on. Overall, the contribution of this thesis is to better understand the role of political forces, in the form of rights and freedoms, to influence national population level health outcomes.

Hypothesis

The hypothesized model, as shown in Figure 2, explored the mediating role of rights and freedoms on wealth and components of population health and health behaviors. I hypothesized that the relation between wealth and health and health behaviors, would be completely mediated by rights and freedoms, as found by Bezo et al. (2012).

It should be noted that three constructs were renamed in the present study. The construct health was referred to as physical health in Bezo et al.'s study (2012). Moreover, health behaviors were referred to as mental health in Bezo et al.'s study (2012). Because alcohol consumption and daily tobacco-cigarette use are considered behaviors that influence health, it was changed to health behaviors. Furthermore, instead of referring to SES (terminology used in Bezo et al., 20120), the present study refers to the factor made up of GDP and GINI as wealth, to better reflect the nature of the construct.

Figure 2: Hypothesized model of the fully mediated role of wealth, indicators of rights and freedoms, and indicators of health and health behaviors



Methodological Objectives

In addition, it will be necessary to extend Bezo et al.'s 2012 study in several methodological ways:

(i) to include more recent data, spanning 2010 to 2014, from international online databases and publications of the Foundation for the Advancement of Liberty (FAL), Freedom House (FH), Transparency International, United Nations (UN), World Bank, and World Health Organization (WHO);

(ii) to increase the sample size to new regions, including 120 African, Asian, Australia/Oceanic, European, North American, and South American nations;

(iii) to add indicators pertaining to five categories of moral freedoms, specifically: religious freedom, bioethical freedom, drugs freedom, sexuality freedom, and family and gender freedom; and,

(iv) to add an indicator of health that pertains to the risk of premature death from target non-communicable disease (NCDs), to extend the evaluate on national levels of health outcomes.

Method

Data Source

This thesis utilized data from international online databases and publications of the Foundation for the Advancement of Liberty, Freedom House, Transparency International, United Nations (UN), World Bank, and World Health Organization (WHO). As data were publicly available, ethical approval from Carleton University Research Ethic's Board (CUREB) was unnecessary.

Sample

The sample consists of one hundred and twenty nations, (N = 120), from six continents: Africa, Asia, Australia/Oceania, Europe, North America, and South America. This sample of nations will be selected based on a convenient sample, to include (in alphabetical order):

Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Belarus, Belgium, Bolivia, Bosnia and Herzovina, Botswana, Brazil, Bulgaria, Cambodia, Cameroon, Canada, Central African Republic, Chile, China, Columbia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt Arab Republic, El Salvador, Estonia, Ethiopia, Finland, France, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Ivory Coast, Jamaica, Japan, Kazakhstan, Kenya, Kyrgyzstan, Latvia, Liberia, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Nepal, Netherlands, Nicaragua, Nigeria, Norway, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Rwanda, Senegal,

Serbia, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syria Arab Republic, Tajikistan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Kingdom, United States of America, Uruguay, Uzbekistan, Venezuela, Viet Nam, and Yemen.

Subsample 1: Daily tobacco-cigarette

The first subsample is comprised of ninety-three African, Asian, Australia/Oceanic, European, North and South American nations, (N = 93), where data for daily tobacco-cigarette smoking prevalence are available, to include (alphabetically): Albania, Algeria, Argentina, Armenia, Australia, Austria, Bangladesh, Belarus, Belgium, Bosnia and Herzovina, Botswana, Brazil, Bulgaria, Cambodia, Cameroon, Canada, Chile, China, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Finland, France, Gambia, Georgia, Germany, Greece, Guatemala, Guinea, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Israel, Kazakhstan, Kenya, Kyrgyzstan, Latvia, Liberia, Lithuania, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mexico, Moldova, Mongolia, Morocco, Mozambique, Nepal, Netherlands, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Poland, Romania, Rwanda, Senegal, Serbia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Syria, Tajikistan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, United States of America, Uzbekistan, Venezuela, Viet Nam, and Yemen.

Subsample 2: HIV (%) prevalence

A second subsample will consist of seventy-eight African, Asian, Australia/Oceanic, European, North and South American nations, (N = 78), where data on HIV prevalence are

available, to include (alphabetically): Algeria, Angola, Argentina, Armenia, Australia, Azerbaijan, Bangladesh, Belarus, Bolivia, Botswana, Brazil, Cambodia, Cameroon, Central African Republic, Chile, Columbia, Costa Rica, Djibouti, Dominican Republic, Ecuador, Egypt Arab Republic, El Salvador, Gambia, Georgia, Ghana, Greece, Guatemala, Guinea, Guyana, Haiti, Honduras, Indonesia, Iran, Italy, Ivory Coast, Jamaica, Kazakhstan, Kenya, Kyrgyzstan, Latvia, Liberia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Nepal, Nicaragua, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, South Africa, Spain, Sri Lanka, Sudan, Suriname, Tajikistan, Thailand, Trinidad and Tobago, Tunisia, Uganda, Ukraine, Uruguay, Uzbekistan, Venezuela, Viet Nam, and Yemen.

Research Design

This study is a quantitative design, consisting of secondary data collected from international online databases and publications, to assess the relations among wealth, rights and freedoms, and health outcomes at the national level. A complete list of sources used for each of the measures of interest respectively are presented in the Appendices.

Wealth

To evaluate national levels of wealth, measures for gross domestic product (GDP) per capita (USD) and income inequality were used. Data were obtained from international online databases of the World Bank.

Gross domestic product (GDP) per capita (USD) Data for GDP per capita (USD), from 2013 to 2015, were obtained from World Development Indicators (WDI)—the World Bank's collection of development indicators compiled from officially-recognized international sources on the most current and accurate global development data available (World Bank, 2016; Appendix A).

GDP per capita (USD) is defined as the output of goods and services by national economy. It is calculated as the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products, without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

GDP per capita (USD) is considered an established aggregated economic indicator of national wealth and therefore suitable for this study. It is compiled from officially recognized international sources, including World Bank national accounts data files and the Organization for Economic Co-operation and Development (OECD) national accounts data files. More details on the sources used to the construct WBI's GDP per capita (USD) are presented in Appendix A.

GINI Index. The GINI index was used to measure national level income inequality ranging from 2010 to 2015. Data for the GINI index were obtained from the Bank's WDI (World Bank, 2015; Appendix B) and only data for the single, most recent year of any given nation were used.

Specifically, the GINI Index (also called the GINI coefficient) is a measure of the income distribution of the population. It measures the deviation of the distribution of income among individuals or households within an economy or country (the population) from a perfectly equal distribution. In other words, it measures the extent to which income is distributed in an uneven

manner among a population. The GINI index is on a scale from 0-100, whereby a value of zero represents perfect (absolute) income equality, whereas a value of 100 implies perfect (absolute) inequality (World Bank, 2016).

This index is constructed from more than 2 million randomly sampled household surveys comprising of questions about individual and household sources of income (i.e., income data) and what income is spent on (i.e., consumption data), conducted in 138 developing countries. World Bank aggregates the income data and consumption data collected from surveys, across the population in each country, to calculate the extent to which the income distribution of a population (i.e., among individuals or households within an economy) deviates from an equal distribution. More details on the sources and methodology for WDI's GINI Index are summarized in Appendix B.

Rights and Freedoms

Measures of perceived corruption, political rights, civil liberties, and moral freedoms were used to evaluate rights and freedoms in the sample of nations. Data were obtained from international online databases and publications of Transparency International, Freedom House, and Foundation for the Advancement of Liberty (FAL; 2016), respectively.

Corruption Perceptions Index. Data for national levels of perceived corruption were obtained from the Corruption Perceptions Index (CPI; Transparency International, 2015; Appendix C) The CPI is a ranking of countries according to the extent to which corruption is believed to exist. Specifically, the index ranks almost 200 countries based on business and country experts' perceptions of transparency, accountability, and corruption in the public sector (Transparency International Report, 2015). Developed countries typically rank higher than developing nations due to stronger regulations.

The CPI is produced by Transparency International and is constructed using aggregated data from 12 different institutional sources. Each of the 12 institutional sources are comprised of different questions and rated separately. For example, Bertelsmann Foundation Transformation Index 2016 is based on 52 questions with scores assigned on a scale of 1-10, whereby 10 is the lowest level of corruption and 1 is the highest level of corruption. Specifically, an example of one of the items asked are "To what extent does the government successfully contain corruption?" followed by a ten-point subjective rating scale (1 = "The government fails to contain corruption, and there are no integrity mechanisms in place", to 10 = "The government is successful in containing corruption, and all integrity mechanisms are in place and effective"). A more detailed list of institutional sources and respective sample questions used to construct the CPI are summarized in Appendix C.

CPI then transforms, standardizes, and aggregates the institutional source scores to produce a final score that ranges on a scale from 0-100, whereby zero (0) denotes high levels of perceived corruption and 100 indicates lowest levels of perceived corruption. However, for sake of interpretation of this data, I will reverse this scale to produce a final score for each country, ranging on a scale of 0-100, whereby 100 denotes highly corrupt and zero (0) denotes least corrupt.

Political rights and civil liberties. Indicators of democracy from the year 2015 were obtained from Freedom House based on their political rights (PL) and civil liberties (CL) indices which evaluate the state of freedom in 195 countries and 15 territories during calendar year 2015 (Freedom House, 2015; Appendix D). Freedom House's Freedom in the World Survey measures freedom by taking into consideration political rights and civil liberties.

Political rights help people to participate freely in the political process. These rights

include the right to vote, compete for public office, and to elect representatives who have a decisive vote on public policies. Specifically, the political rights index is grouped into three subcategories and asks questions to assess: (i) electoral process (e.g., "Is the head of government or other chief national authority elected through free and fair elections?"); (ii) political pluralism and participation (e.g., "Do cultural, ethnic, religious, or other minority groups have full political rights and electoral opportunities?"); and (iii) functioning of government (e.g., "Do the freely elected head of government and national legislative representatives determine the policies of the government?").

Civil liberties include the freedom of press freedom of association, freedom of religion and freedom of speech. As such, civil liberties are grouped into four subcategories to assess: (i) freedom of expression and belief (e.g., "Are there free and independent media and other forms of cultural expression?"); (ii) associational and organizational rights (e.g., Is there freedom of assembly, demonstration, and open public discussion?"); (iii) rule of law (e.g., "Is there an independent judiciary?"); (iv) personal autonomy and individual rights (e.g., Are bribes or other inducements needed to obtain the necessary documents to travel, change one's place of residence or employment, enter institutions of higher education, or advance in school?").

In terms of scoring, the freedom index (both political rights and civil liberties indices) are numerically rated on a 1-7 scale, whereby 1 = *greatest degree of freedom*, to 7 = *smallest degree of freedom* (Freedom House, 2016). A complete list of sources and questions that Freedom House used to construct these indices, as well as details pertaining to the methodology (i.e., scores and ratings for PR and CL indices) are summarized in Appendix D.

World Index of Moral Freedom. Indicators pertaining to five categories of moral freedoms were obtained for the year 2015, from the World Index of Moral Freedom (WIMF,

2016; Appendix E). The WIMF is an international index aimed at responding to the simple question: "How free from state-imposed moral constraints are human beings depending on their countries of residence?" First published in April 2016, by the Foundation for the Advancement of Liberty (FAL) based in Madrid Spain, author of the WIFM constructed an index to determine "the degree of individual freedom to take decisions pertaining to some of the great moral debates of our time" (FAL, 2016).

This index ranks one hundred and sixty countries on indicators pertaining to five categories of moral freedoms, with each indicator worth 20% of the final score: (i) religious freedom; (ii) bioethical freedom; (iii) drugs freedom; (iv) sexuality freedom; and (v) family and gender freedom (FAL, 2016).

(i) Religious Freedom. The first WIMF category is based on religious indicators to assess how free the nation is from any religion and how free individuals are to practice any religion or none. In addition, it assesses the amount of religious influence on the state (i.e., formal institutional status and governmental practice), moral censorship of online content, constitutional and legal provisions for religious freedoms and religion-related Human Rights (e.g., incarceration of prisoners of conscience). Specifically, questions such as: "How free is the practice of any religion or none?" and "How religious-controlled is the state?" followed by a 0 to 100 point scale, with 100 denoting highest religious freedom, and 0, lowest.

(ii) Bioethical Freedom. This category is based an assessment of freedom for bioethical indicators, related to matters such as the legal status of abortion, euthanasia, and bioethics practice (e.g., general biogenetic policy, rules on stem cell research, restrictions on cloning, and constraints on surrogacy—the practice of hiring a woman to bear the child of a sterile or LGBT couple, with or without an economic compensation). Responses to "How free is individual

decision making on legal status of abortion?" (or other matters posing bioethical questions) are rated on a 0 to 100 point scale, with 100 denoting highest bioethical freedom, and 0, lowest.

(iii) Drugs Freedom. This category is based on various indicators related to drug freedoms to assess the nation's general policy on hard drugs, including how free is the production, trade, and consumption of substances deemed harmful (e.g., cannabis) as well as how strictly drugs laws are enforced. Questions such as "How free is the production of harmful substances deemed harmful?", followed by a 0 to 100 point scale, with 100 denoting highest drugs freedom, and 0, lowest.

(iv) Sexuality Freedom. This category is based on the reach and amount of government interference and censorship on legal status and free consumption of pornographic content, legal status of prostitution, and the nation's legal age of sexual consent. Specific questions such as "How free is pornography among consenting adults?" followed by a 0 to 100 point scale, with 100 denoting highest sexuality freedom, and 0, lowest.

(v) Family and Gender Freedom. The family and gender category considers indicators at the national-level that pertain to matters such as women's freedom of movement (compared to that of the general population), the legal status of cohabitation of unmarried couples, same sex marriage, and the situation of transgender individuals in each country. Specifically, a question such as "How free are unmarried couples living together?" followed by a 0 to 100 point scale, with 100 denoting highest family and gender freedom, and 0, lowest.

To summarize, each of the five moral freedom categories are made up of several indicators with the weight of their inferred relevance towards an overall category score. Each category within the index is presented in a 0 to 100 point scale (0 = lowest moral freedom) to (100 = highest moral freedom). To provide more detail as to how the authors constructed the WIFM, a

sample list of questions pertaining to each of the five indicators, together with a complete list of sources used are presented in Appendix E.

Population Health

Measures of life expectancy, infant mortality rates, HIV prevalence, probability of death by target non-communicable disease (NCDs), suicide, daily tobacco-cigarette use, and alcohol consumption were used to evaluate national levels of health. Data were obtained from international online databases and publications of the United Nations, World Bank, and World Health Organization.

Life Expectancy. Data for national-level life expectancy at birth for both sexes, expressed in years and collected for the combined years of 2010-2015 were obtained from the World Population Prospects data base of the United Nations (World Population Prospects; UN, 2015). This indicator reflects the overall mortality level of a population, and is calculated as the "average number of years of life expected by a hypothetical cohort of individuals who would be subject during all their lives to the mortality rates of a given period" (UN, 2015).

The UN's World Population Prospects uses several data sources to derive their estimates for life expectancy. Primary sources are vital registration systems and direct or indirect estimates based on country sample surveys (e.g., The Demographic and Health Survey; National Health Survey), census reports and other statistical publications from national statistical offices. Many African nations utilize maternity histories. Moreover, information on the demographic impact of AIDS/HIV in African countries is important when factoring mortality estimates (i.e., AIDS Indicator Survey). More information for these source details is available at: https://esa.un.org/unpd/wpp/Download/Standard/Mortality/

Infant Mortality. A measure of infant mortality rates, per 1,000 live births in a given year,

collected for the year 2015, were obtained from the World Bank's WDI online database. This indicator assesses the number of infants dying, prior to reaching one year of age, per 1000 live births in a given year (World Bank, 2015).

Mortality indicators—particularly infant mortality rates—are an important indicator for the health status in a country. In fact, mortality rates are one of the most frequently used indicators to identify vulnerable populations and compare socioeconomic development across countries. Because infant mortality estimates tend to vary by source and method for a given time (year) and place (country or region), a statistical method using all available information to reconcile differences and to obtain a best estimate trend line (i.e., fitting country-specific local regression model of mortality rates against their reference dates) is used.

Reported annually, the primary sources for the World Bank WDI's infant mortality rates are vital registration systems and direct or indirect estimates based on sample surveys or censuses, obtained by the UN Interagency Group for Child Mortality Estimation (UNIGME), which comprises the UN Children's Emergency Fund (UNICEF), the WHO, the UN Population Division, the World Bank, several universities, and research institutes. More information on the institutional source details can be found at: http://childmortality.org/

HIV (%) Prevalence. A measure of the number of adults aged 15 and older, both genders living with human immunodeficiency virus infection (HIV) as of 2014, (i.e., HIV prevalence (%) were obtained from the UN's Report on Global AIDS Epidemics (UNAIDS, 2014). Human immunodeficiency virus infection (HIV) and acquired immune deficiency syndrome (AIDS) is a spectrum of conditions caused by HIV (WHO, 2016). The UNAIDS produces annual country-specific modeled estimates of HIV prevalence (%) among adults (aged 15+), for both genders, using the best available epidemiological and programmatic data.

As data for HIV prevalence (%) were unavailable among adults for the full sample of all countries, a subsample consisting of seventy-eight African, Asian, Australia/Oceanic, European, North and South American nations, (N = 78), were obtained. (Details and statistical considerations pertaining to missing data for this first subsample are described in the procedures and preliminary analysis below).

UNAIDS uses Spectrum modeling estimates, with lower and upper bounds, to describe HIV prevalence trends. The epidemiological data used for these modeling estimates were obtained from antenatal clinic surveillance (i.e., surveillance among pregnant women) and from nationally representative population-based surveys. In addition, vital registration—such HIV case and AIDS-related mortality reporting systems and methods—are also used to directly inform trends and levels in national HIV prevalence. For more information on the data source details and methods for deriving UNAIDS estimates for HIV prevalence, go to: http://www.unaids.org/en/dataanalysis/datatools/spectrumepp

Probability (%) of Death from Target Non-Communicable Disease. A measure of national-level risk of premature death from target NCDs for both genders, collected for the year 2012, was obtained from the Global Health Observatory (GHO) Data Repository; WHO, 2012). Specifically, this indicator assesses the probability (%) of adults dying between exact ages 30 and 70 from a target NCD. NCDs are a medical condition or disease that is non-infectious and non-transmissible among adults. Here, NCD refers specifically a non-communicable disease that includes any of cardiovascular disease, cancer, diabetes, or chronic respiratory disease WHO (2015).

This indicator was constructed using primary data sources obtained by the GHO Data Repository, including civil registrations (e.g., documentation with complete coverage and

medical certification of cause of death), household surveys, and sample or sentinel registration systems.

From these sources, probability (%) of death from target NCDs was calculated using: (i) cause-specific mortality rates/distributions; and (ii) standard life table methods (WHO, 2015). Cause-of-death distributions are estimated from death registration data, population-based epidemiological data, disease registers, and notifications systems for cause-specific death. Life tables specifying all-cause mortality rates by age and sex for WHO members are developed from available death registration data, sample registration systems (e.g., India), and data on child and adult mortality from censuses and surveys (WHO, 2015). For more information on the sources and methodology used, see:
http://apps.who.int/gho/indicatorregistry/App_Main/view_indicator.aspx?iid=3354

Suicide rates (per 100,000). Rates for suicide mortality, per 100,000 population, from 2012, were obtained from the WHO's GHO Data Repository (WHO, 2012). Suicide mortality rate is defined as the number of suicide deaths in a year, divided by the population, and multiplied by 100,000.

According to WHO (2016), measuring how many people die each year and why they die is one of the most important means—along with how diseases and injuries affect people—for assessing the effectiveness of a country's health system. Specifically, cause-of-death statistics help health authorities determine their focus for public health actions. As such, suicide mortality rates are deemed an important measure of the mental health status of a country.

The GHO Data Repository's primary data sources on deaths by suicide, age, and sex are collected using national civil registrations (e.g., documentation with complete coverage and medical certification of cause of death), household surveys, population census, sample or

sentinel registration systems, special studies, and surveillance systems. More details on data sources used to construct the mental health indicator of suicide mortality rate are found at: http://apps.who.int/gho/data/node.imr.MH_12?lang=en

Daily Tobacco-Cigarette Smoking. Data for the percentage of national wide engagement in daily tobacco-cigarette smoking for adults, both genders, were obtained from appendix 11.1 of the WHO's Report on the Global Tobacco Epidemic (WHO, 2015). Daily tobacco smoking refers to smoking any form of tobacco, including cigarettes, cigars, pipes, hookah, shisha, and water pipe (excluding smokeless tobacco) every day, at the time of the survey. Data for daily tobacco-smoking among adults were available for seventy nations ($N = 70$). Daily cigarette-smoking is defined as smoking any form of cigarette, including manufactured and roll-your-own, every day, at the time of the survey. Data for daily cigarette-smoking among adults were available for fifty-four nations ($N = 54$).

Daily tobacco-cigarette smoking data, for any given nation were obtained for the single most recent available year, between 1999-2014. Of this data, only 81% is from the years 2010-2014, while earlier data (prior to 2010 which still represents the newest available data) will be obtained for several countries (alphabetically): Albania, (2008-2009)a; last study from 2000), Cyprus (2008), Dominican Republic (2007), Eritrea (2004), Ghana (2008), Guatemala (2003), Guinea (2005), Israel (2009), Jamaica (2007-2008), Macedonia (1999), Madagascar (2008-2009), Sri Lanka (2006), Tunisia (2005-2006), and Uzbekistan (2006). Also, although data obtained for daily tobacco and daily cigarette smoking rates does not represent children and youth, it should be noted that there are three nations that report for ages 10 and up; five nations for ages 12 and up; and one nation for age 14 and up.

National and Health Surveys by sample countries are the primary sources for obtaining data on daily tobacco-cigarette smoking. Some examples of these are: Global Adult Tobacco Survey (Argentina), National Drug Strategy Household Survey (Australia), Health Interview Survey (Belgium), Canada Tobacco Use Monitoring Survey (CTUMS), European Health Interview Survey (Cyprus), National Institute of Statistics (Italy), and Addiction Monitoring Survey (Switzerland) to name a few. A complete list of these survey sources can be found in the WHO's Report on the global tobacco epidemic (2015) at: http://www.who.int/tobacco/global_report/2015/appendix_xi/en/

Alcohol Consumption. Data for total litres of pure alcohol consumption per capita, among adults, ages 15 and older for both genders were retrieved from the GHO Data (WHO, 2016), for the period 2008-2010. These data indicate the total alcohol per capita consumed in litres of pure alcohol for both sexes of adults (ages 15+) in a country in a calendar year.

Data sources used by GHO for the data on alcohol consumption are Global Information System on Alcohol and Health (GISAH), published surveys—including the 2012 Global Survey on Alcohol and Health, and systematic literature searches. More details on methodology and information used in constructing indicators related to alcohol consumption are summarized in WHO's Global status report on alcohol and health (2014) found at: http://www.who.int/substance_abuse/publications/global_alcohol_report/en/

Procedures

Andersen, Prause, & Silver (2011) point out that when gathering a large scale of data, one should consider established research strategies and previously conducted studies to guide methodology. Accordingly, my research strategy will follow Andersen and colleagues' guide to conducting secondary research in four steps: (i) identifying secondary data that is appropriate for

research needs; (ii) creating a personalized dataset; (iii) data cleaning; and (iv) statistical considerations.

Step One: Identifying Secondary Data

My research strategy began by gathering background information on the theoretical aspects pertaining to wealth, rights, freedoms, and health outcomes at the national-level. Because one aim of this research was to conduct a replication study of the models proposed by Bezo et al., (2012), I drew on the same international online databases and publications, but gathered more recent data from 2010-2015. Similarly, I replicated the study using the same indicators and measures. For example, GDP per capita and GINI Index were used as an indicator of national wealth. Locating sources was a multi-step process and required several weeks to source.

More details about the secondary data used in this study, such as information on data sampling, methodology, sample survey questions, or database location for many of the indicators, are summarized in the Appendices (—see Appendix A through E). Although efforts have been made to use secondary datasets that have readily available information on their web sites (e.g., codebooks for interpreting variable definitions and coding and survey questions), it was necessary to contact organizations where information on secondary datasets was lacking.

Except for two variables: life expectancy at birth and infant mortality, I considered my desired target population to be adults, ages 15 and up, when selecting secondary data. An effort to obtain data from databases, sampled in a systematic manner from the desired target population, was made to strengthen the external validity (Andersen, et al., 2011). Limitations of the secondary sources and databases that I thought might affect the validity and reliability of my research findings were documented.

Step Two: Dataset

To keep track of the extensive amount of information needed when utilizing secondary data, I created an electronic file system using NVivo 11.0 software for Windows. Information was organized into sections, specifically: a) secondary data and data repository contact information; b) documentation (i.e., codebooks, user guides, articles of interest published by others who used the data; c) communications and notes from meetings, personal notes, articles, and literature searches regarding the research questions; d) the secondary data sets; and e) a log of the number and type of analyses conducted, as well as summaries of statistical analyses including sub-sample definitions or new sample conceptualizations, across time.

To begin, I extracted a wide range of variables and key indicators thought to be useful, to get both a sense of the breadth of data availability in my area of interest, and to allow for unique comparisons and cross-analysis. However, many indicators, such as social and mental health indicators for young children are beyond the scope of this thesis and were put aside.

Data were first saved in a Microsoft Office Excel 97-2003 Worksheet and then exported to Statistical Package for the Social Sciences (SPSS). At this stage, volunteers were recruited to examine the data independently, carefully ensuring that variables were labeled correctly, missing value codes were properly defined, and sample size was correct. Consistent with Freedland & Carney (1992), every effort for data management and accountability were made to avoid unintentional data falsification and to ensure true replication of the work.

Step Three: Data Cleaning

Once secondary data from international online databases and publication sources were collected, data cleaning and systematic coding (e.g., creating needed variables) were required. As such, data were systematically coded: (i) reverse coding of variables; and (ii) transforming data.

Reverse Coding

The CPI aggregates the institutional source scores to produce a final level of corruption score that ranges on a scale from 0-100, whereby zero (0) denotes highly corrupt (i.e., not very clean) and 100 indicates lowest levels of corruption (i.e., very clean). However, for sake of interpretation of this data, this scale was reversed to produce a final score for each country, ranging on a scale of 0-100, whereby 100 denotes highly corrupt and 0 denotes least corrupt.

Similarly, reverse coding was also conducted for the political rights and civil liberties indices whereby the scores on a scale from 1-7 (1 = highest, 7 = lowest) were reversed to produce a final score of 7 denoting greatest freedom and 1 denoting least freedoms for each country.

Transforming Data

According to guidelines by Osborne (2010) for data cleaning, transforming data in some cases was deemed appropriate. For example, many of the data points in the HIV prevalence data indicated a value of < 0.1. For this analysis, a point-estimate of 0.05 was arbitrarily substituted for the approximate value of < 0.1 given in my secondary data sources. This seemed like a reasonable estimate since I was lacking more precise information, and 0.05 is halfway between values 0 and 0.1. As such, unknown values < 0.1, might be expected to center on it.

Step Four: Statistical Considerations

Next, statistical considerations pertaining to (i) the decision to use parametric over non-parametric analyses; and (ii) treating missing data values—an unavoidable concern for secondary datasets—were considered.

Parametric Analyses

Although Bezo and colleagues (2012) used parametric analyses in their study, there was

some debate around the decision to perform non-parametric path analysis due to the presence of ordinal data present in the dataset (e.g., perceived corruption). However, non-parametric analyses are typically preferable if databases where categories are fewer than ten, but this is not the case here. After running preliminary analyses (discussed in detail in the next section) that showed relatively normal distributions and kurtosis values of less than one, the decision to perform parametric analysis was deemed justified. Moreover, because scales have many intervals on them—e.g., bioethical freedom is rated on a 0 to 100 point scale with 100 denoting highest bioethical freedom, to 0, lowest—parametric analysis is therefore more appropriate.

Missing Data Values

Missing data is an unavoidable concern for secondary datasets (Osborne, 2014). Among the various options for handling missing data, trimming (i.e., removing subjects with missing data) is common. However, this procedure is not appropriate when there are a lot of missing values—typically more than 5%—as it greatly reduces the sample size (McKnight, McKnight, & Figueredo, 2007). As it is appropriate to maintain a certain sample size, trimming with a larger number of missing values from this data set might create some bias or an unrepresentative sample, therefore multiple imputations is an appropriate strategy. The process of imputation uses information from data that are available, to create data points for data that are not available (runs simulations on the missing data relative to the data that are available), to estimate/replace the missing values (Osborne, 2014). According to the literature, imputation is a well-accepted technique (McKnight, McKnight et al., 2007; Schafer, 1999) giving reasonable assurance that the values that are replaced through the imputation process are appropriate and match the other data that are not replaced. In the missing data literature, Osborne (2014), along with other authors (e.g., McKnight et al., 2007; Schafer, 1999) suggests that if data are missing completely at

random (MCAR), together with strong correlations involving comparisons of measures, it is reasonable to use multiple imputation procedure.

On the other hand, if data are not missing at random, then one must accept the reality of missing data (as there is no way to estimate what you don't have) or go with a conventional approach such as trimming observations with missing values on any one of the variables being used in the analysis. However, again, this latter strategy can greatly reduce sample size and lead to both inefficient use of the data and reduced statistical power (Osborne, 2014).

Preliminary Analyses

Preliminary analyses were conducted to include the following: (i) Correlations to determine the treatment of missing cases for daily tobacco smoking use; (ii) Correlations to determine the treatment of missing data for HIV prevalence; and (iii) Frequency tables, histograms, and scatter plots to check for normal distribution, kurtosis, and outliers, respectively.

Missing Cases for Daily Tobacco

Obtained from WHO's Report on the Global Tobacco Epidemic (2015), the available cases for daily tobacco smoking prevalence were seventy African, Asian, Australia/Oceanic, European, North and South American nations, ($N = 68$). To deal with the large number of missing values for daily tobacco use (missing values for 52 cases), I considered comparing a conceptually equivalent measure (i.e., daily tobacco and daily cigarette use)—to determine whether I could use imputation procedures and estimate daily tobacco use, from national data available for daily cigarette smoking prevalence (i.e., available data for fifty-six cases, $N = 56$).

To justify this decision, some preliminary analyses were conducted. Table 1 presents the results of the first set of analyses among daily tobacco use, daily cigarette use, for males and females respectively.

Correlations across Gender

First, males and females were analyzed separately using Pearson *r* correlation coefficients for complete cases. For daily tobacco use, $r(66) = .024$ for males and females, whereas for daily cigarette use, $r(40) = .258$ for males and females. With $N = 68$, the relation between genders is relatively low. Correlations across gender are somewhat low. Given these low correlations across gender, using total values, which more clearly reflect male use, may be misleading.

Table 1:

Correlations (Pearson's r) among Daily Tobacco Use, Daily Cigarette Use, for Males and Females Respectively

Measure	1	2	3	4
Daily Tobacco use Male	1.00			
Daily Tobacco use Female	**.024**	1.00		
Daily Cigarette use Male	**.953****	.111	1.00	
Daily Cigarette use Female	.084	**.984****	**.258**	1.00

Note. N = 68. *. p < 0.05; **. p < .01.

Correlations within Gender

Despite low correlations across gender, correlations within gender are strong. Daily tobacco and daily cigarette use reveal correlations of $r(29) = .953$ for males and $r(28) = .984$ for females respectively. Given these results, it seems reasonable to estimate daily tobacco use from daily cigarette use. For males, this would give 21 addition cases, for a total of 89 cases (i.e., 68 +

21 = 89). For females, there are 15 additional cases for a total of 83 cases (i.e., 68 + 15 = 83).

To be sure, estimates in the reverse direction are also possible—that is, estimating data for daily cigarette use based on daily tobacco use. However, this would mean estimating 37 cases for males and 38 for females only.

Correlations with other variables

Dichotomous variables (e.g., 0 = *no data*, 1 = *data*) were created for daily tobacco use to determine whether missingness was related, or not related, to the other variables of interest. Analyses results presented in Table 2, reveal a greater likeliness for daily tobacco values to be missing in countries with greater income inequality, $r(118) = -.232$, lower life expectancy, $r(118) = .272$, and greater infant mortality, $r(118) = -.299$. As such, these relatively strong relations strengthen the argument for estimating missing tobacco data, as it indicates that the observed values constitute a slightly biased sample.

Although there are substantial amounts of missing data to estimate for daily tobacco use, the decision for imputation seems reasonable and warranted because of the strong relations and more importantly, because the data appears to be missing at random. That is, there does not seem to be any reason why the nations missing tobacco data are different from the countries that have tobacco data.

After imputation, there are 27 countries, or 22.5% of the full sample of countries still with missing data for daily tobacco-cigarette smoking prevalence. As such, I treated the daily tobacco-cigarette smoking data as its own subsample—Subsample 2— comprised of data values for both daily tobacco smoking ($n = 68$), and daily cigarette smoking ($n = 25$) totaling to ninety-three African, Asian, Australia/Oceanic, European, North and South American nations, ($N = 93$),

Table 2:

Correlations (Pearson's r) among Dichotomous HIV and Daily Tobacco Use Variables, Wealth, Rights, Freedoms, and Health

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. HIV	1.00												
2. Tobacco	-.101	1.00											
3. GDP	**-.549****	.177	1.00										
4. GINI	**.427****	**-.232****	-.334**	1.00									
5. Corruption	**-.585****	.213*	.833**	-.323**	1.00								
6. Political rights	**.399****	-.071	-.561**	.129	-.728**	1.00							
7. Civil liberties	**.439****	-.103	-.624**	.183*	-.796**	.951**	1.00						
8. Bioethical	**-.475****	.306**	.419**	.419**	.452**	-.308**	-.351**	1.00					
9. Gender/Fam	**-.461****	.162	.708**	-.188*	.726**	-.635**	-.693**	.507**	1.00				
10. Life expect	**-.440****	**.272****	.625**	-.386**	.674**	-.591**	-.661**	.448**	.646**	1.00			
11. Infant mort	**.427****	**-.299****	-.509**	.343**	-.591**	.545**	.609**	-.483**	-.602**	-.915**	1.00		
12. Suicide	**-.320****	.143	.197*	-.270**	.265**	-.290**	-.298**	.334**	.233*	.222*	-.318**	1.00	
13. Alcohol	**-.467****	.184*	.425**	-.232*	.496**	-.445**	-.517**	.499**	.610**	.402**	-.511**	.516**	1.00

Note. N = 120. *. $p < 0.05$; **. $p < .01$.

Missing Cases for Prevalence (%) of HIV:

Obtained from UNAIDS (2014), data cases for HIV prevalence were available for only seventy-eight African, Asian, Australia/Oceanic, European, North, and South American nations, (N = 78). In contrast to missing values for tobacco data, however, the missing cases for HIV prevalence data do not appear to be missing at random (MCAR).

Analyses using dichotomous variables for HIV (e.g., 0 = no HIV data, and 1 = HIV data) correlated with other variables were conducted to determine whether the missingness of data (i.e., refers to missing variable values) werer related or not related to other variables.

Table 2 also includes these analyses, revealing that HIV values were missing in countries that are wealthier; GDP, $r(118) = -.549$, have greater income equality, GINI, $r(118) = .427$, greater life expectancy, $r(118) = -.440$, lower infant mortality, $r(118) = .427$, greater alcohol use, $r(118) = -.467$, and more suicides, $r(118) = -.320$. Moreover, missingness for HIV prevalence appears to be related to many of the rights and freedoms variables. Five of 8 indicators (63%) for rights and freedoms show correlations of absolute values between .40 and .58. Specifically, these are corruption, $r(118) = -.585$, political rights, $r(118) = .399$, civil liberties, $r(118) = .439$, bioethical freedoms, $r(118) = -.475$, gender and family freedom, $r(118) = -.461$. Correlations suggest that the sample of observed HIV prevalence values (countries with data) are a strongly biased subsample. However, even if suitable predictors were present, HIV values are not MCAR. As such, it is not possible to impute missing values for HIV prevalence.

Normal Distribution, Kurtosis, and Outliers

Once data were screened for accuracy of data entry and cases with missing values were treated, I visually inspected frequency tables and scatterplots to assess normality of data, screen for outliers, and to examine linearity of the relations among variables. Frequency distributions

were examined to determine that data are within possible range of values, and that outliers did not distort the data.

Skewedness and kurtosis values were examined and deemed acceptable if values were less than one (e.g., <1). Indeed, most values for skewedness and kurtosis are ≤ 1, or just above 1, thus further confirming decision to run parametric path analysis methodology.

Data Analyses

Using SPSS, descriptive analyses of the sample countries in terms of domains and variables of interest were conducted for wealth, rights and freedoms, and health indicators. Next, the relations within and between variables were examined by computing Pearson *r* correlation coefficients between each of the variables of interest. All tests were two tailed, with alpha = 0.05. Finally, parametric path analyses were conducted using the latent variable partial least squares (LVPLS) approach; developed by Lohmöller (1984). Measures were aggregated on latent variables and separate path models were developed and considered. Mediated and direct relations between variables were examined and guided by the theoretical expectations of the thesis.

Given the conditions found in my research thesis, the LVPLS approach is particularly appropriate for several reasons. Firstly, LVPLS is appropriate when the empirical measures have some degree of unreliability. Specifically, the nature of conducting secondary research is that, although data sources are deemed reputable, I am cautious about the validity of the data (i.e., a country can be summarized by a single score). Moreover, the LVPLS approach is advantageous when there are many variables (Falk & Miller, 1992; Wold, 1985). LVPLS can be a powerful method of analysis because of the minimal demands on measurement scales, sample size and residual distributions (Chin 1998; Wold, 1985). Lastly, the LVPLS approach is frequently used

for theory confirmation, but it can also be used to suggest where relations might or might not exist and to suggest propositions for testing later (Chin, 1998; Fornell & Bookstein, 1982).

Results

A summary of descriptive analyses of the sample countries in terms of variables of interest—wealth, rights, freedoms, and health variables—are presented in Table 3. Means, standard deviations (*SD*), and minimum and maximum ranges were calculated for the sample of nations, $N = 120$ (without Daily Tobacco-Cigarette data), and $N = 93$ (with Daily Tobacco-Cigarette data), respectively. An examination of the descriptive statistics revealed no values outside of their expected ranges and were thus deemed acceptable and comparable in both samples.

GDP values for the obtained sample ($N = 120$) and seventy-five missing countries were also compared. Results of the two sample groups were similar, suggesting that the study's 120 nations (61.2 percent) of the world's total 196 countries (excluding Taiwan) is representative of the world countries. It also allows for discussion about the results as a real global phenomenon, allowing me to generalize findings with caution.

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Table 3:

Descriptive Statistics for Ns = 120, 93. Means, Standard Deviation (SD), and Minimum and Maximum Range Values for all Variables

Variable	Mean	SD	Minimum	Maximum
N = 120				
Wealth				
GDP per capita USD	13435.98	18703.52	307.0	101450.0
GINI	38.43	8.85	16.0	63.0
Rights and freedoms				
Perceived corruption	56.10	20.10	9.0	88.0
Political rights	4.8	2.1	1	7
Civil liberties	4.8	1.8	1	7
Religious freedom	74.01	23.85	<.01	100.0
Bioethical freedom	44.01	23.36	<.01	92.5
Drugs freedom	26.62	19.32	1.5	98.5
Sexuality freedom	61.30	26.50	<.01	100.0
Gender and Family freedom	47.21	24.34	<.01	90.0
Health				
Life expectancy (years)	71.68	8.18	49.5	83.3
Infant mortality (per 1,000)	21.23	20.83	1.5	96.0
NCD (% probability death)	18.67	5.81	9.1	33.9
Suicide (per 100,000)	10.19	7.11	.4	34.8
Alcohol consumption	7.10	4.26	.1	17.5
N = 93				
Wealth				
GDP per capita USD	13034.84	17782.20	381.0	80215.0
GINI	37.82	8.58	25.0	63.0
Rights and freedoms				
Perceived corruption	55.87	20.35	17.0	91.0
Political rights	4.8	2.4	1	7
Civil liberties	4.8	1.8	1	7
Religious freedom	71.99	23.97	<.01	100.
Bioethical freedom	45.86	23.85	<.01	92.5
Drugs freedom	25.65	18.74	1.50	98.5
Sexuality freedom	60.23	27.63	<.01	100.0
Gender and Family freedom	46.83	24.97	<.01	90.0
Health				
Life expectancy (years)	72.06	7.48	52.3	82.7
Infant mortality (per 1,000)	19.86	18.31	1.6	74.5
NCD (% probability death)	18.92	5.76	9.1	33.9
Suicide (per 100,000)	10.38	7.24	.4	34.8
Alcohol consumption	7.12	4.41	.1	17.5
Daily tobacco-cigarette use	16.68	8.57	.1	36.3

Relations between Wealth, Rights, Freedoms, and Health: Correlations

To examine the relations between variables for national level wealth, rights, freedoms and population health, Pearson *r* correlation coefficients were computed for both samples, *Ns* 93 and 120 (Table 4). For the most part, correlations among these measures were consistent with expectations. As anticipated, greater GDP was significantly and moderately correlated to lower levels of income inequality (GINI). With the exception of bioethical freedoms, measures of rights and freedoms were significantly correlated with one another and with GDP, *rs* ≥ .20, whereas correlations with income inequality (GINI) were less consistent and sometimes failed to reach statistical significance. Specifically, only four of the eight correlations with income inequality were significant, *rs* ≥ .18, and all were less than .50.

The measures of health pertaining to death—life expectancy, infant mortality, and probability of death by NCDs—were strongly and significantly correlated with one another in both samples. In addition, life expectancy and infant mortality were strongly correlated with suicide, but the correlation between suicide and NCDs was weak.

Similarly, alcohol consumption and daily tobacco-cigarette use showed a strong, significant correlation with one another. There was a positive correlation between tobacco-cigarette and alcohol and life expectancy. Further-more, correlations between all health and GDP and GINI variables were strongly and significantly correlated—except for daily tobacco cigarette use with GDP, and probability (%) of death by NCDs with income inequality which failed to reach statistical significance. Most of the health variables were also significantly and consistently correlated to measures of rights and freedoms, in particular—all but 8 of the 48 comparisons were significant and most showed moderate to strong with *rs* ≥ .30.

Table 4: Correlations Between All Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
WEALTH																
GDP	1															
GINI	-.33**	1														
RIGHTS & FREEDOMS																
Corruption	-.83**	.32**	1													
Political rights	.56**	-.14	-.73**	1												
Civil liberties	.62**	-.18*	-.80**	.94**	1											
Religious	.26**	.18*	-.33**	.45**	.53**	1										
Bioethical	.42**	-.50**	-.45**	.29**	.35**	.14	1									
Drugs	.20*	-.08	-.28**	.30**	.30**	.22*	.29**	1								
Sexuality	.27**	.03	-.32**	.44**	.48**	.51**	.22*	.27**	1							
Gender & family	.71**	-.19*	-.73**	.61**	.69**	.39**	.51**	.44**	.47*	1						
HEALTH																
Suicide	.20*	-.27**	-.27**	.29**	.30**	.18*	.33**	.08	.09	.23	1					
Alcohol	.43**	-.23*	-.50**	.45**	.52**	.40**	.50**	.24**	.35**	.61**	.52**	1				
Tobacco-cigarette	.12	-.37**	-.25*	.32**	.34**	-.11	.43*	.14	.20	.27*	.25**	.39**	1			
Life expectancy	.63**	-.39**	-.67**	.59**	.66**	.06	.49**	.28**	.29**	.65**	.22*	.41**	. 45**	1		
Infant mortality	-.51**	.34**	.59**	-.55**	-.61**	-.08	-.48**	-.23*	-.24**	-.60**	-.32**	-.51**	-.55**	-.92**	1	
% NCDs	-.60**	-.03	.58**	-.45**	-.48**	-.19*	-.01	-.30**	-.32**	-.52**	.06	-.12	.03	-.54**	.35**	1

Note. $N = 93$ for correlations with Tobacco-Cigarette; $N = 120$ for all other variables. *. $p < 0.05$; **. $p < .01$. All tests are two tailed. GDP = Gross domestic product, USD per capita. GINI = income inequality. Corruption, Political Rights, and Civil Liberties are reverse-scored so that high scores = high levels for each measure. Religious = religious freedoms. Bioethical = bioethical freedoms. Drugs = drugs freedoms. Sexuality = sexuality freedoms. Gender & Family = gender and family freedoms. Suicide = suicide mortality rate, per 100,000 population. Alcohol = alcohol consumption (litres) per capita, among adults (ages 15 and up), both genders in the population. Life Expectancy = life expectancy in years. Infant Mortality = infant mortality per 1,000 live births. % NCDs = % prevalence probability of death by non-communicable disease. Tobacco-Cigarette = % prevalence of daily tobacco use with imputed values where possible.

Path Models

Lohmöller's LVPLS approach (1984) was used to examine the hypothesized relations in the theoretical model (as presented earlier in Figure 2). Consistent with theoretical expectations and guided by research objectives—namely, replication and extension of Bezo et al.'s (2012) research findings—several path models were considered.

Overall, three models were tested in the subsample of 93 nations for which daily tobacco-cigarette use data was available and one model was tested for the sample of 120 nations for which there was no daily tobacco-cigarette data available. Of these, Models I and II—as presented in Figure 3 and Figure 4 respectively—were replicated physical and mental health path models as first proposed by Bezo et al. (2012).

Next, a third model extending to include a latent variable freedom, comprised of five categories of moral freedoms—religious, bioethical, drugs, sexuality, and gender/family freedom—was tested on health behavior outcomes for the subsample of 93 nations (Model III, Figure 5). Lastly, a fourth model that extended to encompass a larger sample of 120 nations was tested on health outcomes (Model IV, Figure 6).

Replication: Mediated and Direct Relations between Wealth, Rights, and Population Health

To start, two models replicating the path models for physical and mental health presented by Bezo et al.'s study (2012) were tested in the sample of 93 nations, presented in Figure 3 and Figure 4, respectively. Each of these two replicate models was tested in the sample of 93 nations for which daily tobacco-cigarette use data was available. The question posed to both models was whether rights was a direct predictor of population health and whether there was evidence for the mediating effect of rights and freedoms on wealth and population health.

Model I (*N*=93)

Model I showed adequate fit. Mean communality is .71, indicating that on average latent components are well specified by their manifest variables. As shown in Figure 3, all three measures of rights have strong loadings on their latent variable. Similarly, three measures of health behaviors indicate strong loadings on their latent variable, with values .76, .89 and .65, respectively. Loadings on wealth measured by GDP and GINI were also consistent with previous research on the factor structure for this construct. According to evaluation standards for model fit recommended by Falk and Miller (1992), the overall fit is adequate and within acceptable range for this model. The residual mean square (RMS) COV (E,U), is .093 representing a substantial improvement (cutting the error variance over half, as compared to the corresponding null model which had an RMS COV (E,U) value of .182, and the full model which had an RMS COV (E,U) of .093.

Review of the standardized parameter estimates of the model (see Figure 3) shows a strong indirect relation between wealth and health behaviors. Wealth was predictive of rights, ($\beta = .73$) which in turn, was predictive of health behaviors, ($\beta = .53$).

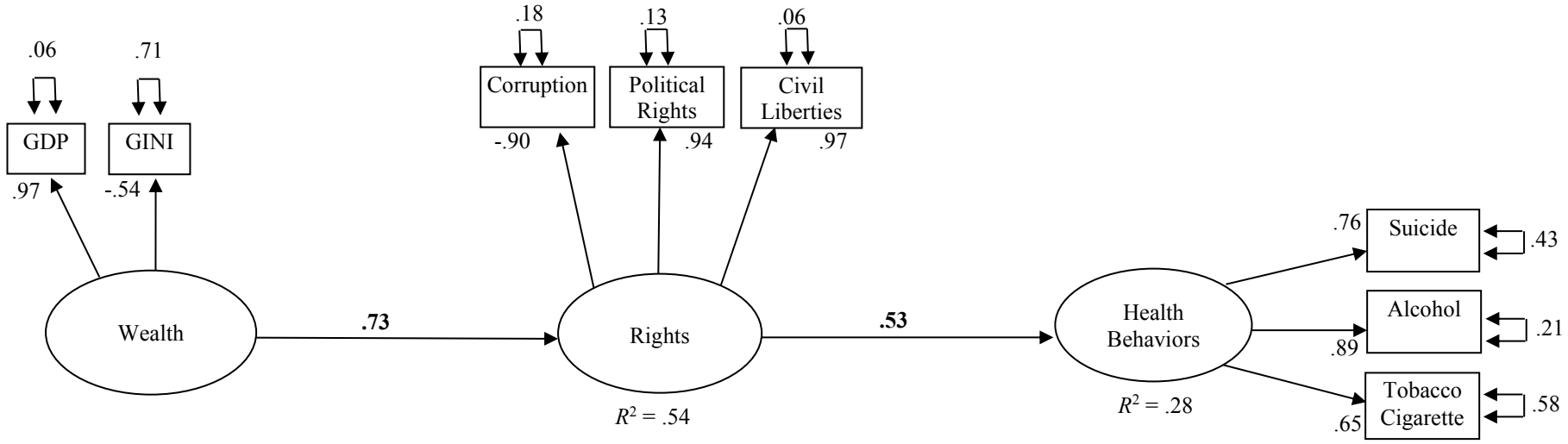
Following Falk and Miller (1992), path coefficients less than .20 were eliminated as conceptually unimportant. As such, the path from wealth to health behaviors was eliminated for this reason, $\beta = .01$. The mean R^2 for the two endogenous variables is .41. R^2s are statistically significant, $p < .001$. Wealth predicted 54% of the variance, $R^2 = .54$, 95 % CI [.39, .66] in rights (a latent variable aggregating perceived corruption, political rights, and civil liberties), and together—the predictors of wealth and rights accounted for 28 percent of the variance in health behaviors, $R^2 = .28$, 95 % CI [.12, .43].

As shown in Figure 3, Model I replicated in a larger sample the pattern reported by Bezo et

al. (2012), where the moderate relations between wealth and health behaviors (Table 4) were fully mediated by rights. In other words, a country's wealth can influence health behaviors—but, it does so through the influence, or mediated role, of democratic rights in the sample of 93 nations. As such, Model I findings suggest that rights are an important mediator of the relation between the wealth and health behaviors of a country.

Figure 3:

Model I: Wealth, rights, and health behaviors (N = 93)



Model II (*N*=93)

Model II also showed adequate fit. Mean communality is .76, indicating that on average latent components were well specified by their manifest variables. Specifically, all three measures of rights have strong loadings on their latent variable, >.90. Similarly, all three measures of health have strong loadings on their latent variable, with values above .70. Overall fit is adequate for this model. The RMS COV (E,U), is .076, representing an improvement over the corresponding null model which had an RMS COV (E,U), value of .211. The full model had an RMS COV (E,U) of .076.

A review of standardized parameter estimates for the second model shows a significant indirect relation between wealth and health (Table 4). Wealth was predictive of rights, (β = .73), which in turn was predictive of health, (β = -.39). In addition to the indirect relation, Model II showed a direct path between wealth and health, (β = -.40) after controlling for the influence of the mediator— rights. The mean R^2 for the two endogenous variables is .55. R^2s are statistically significant, $p < .001$. National wealth predicted around half of the variance of democratic rights—a latent variable aggregating perceived corruption, political rights, and civil liberties. Specifically, wealth predicted 55% of the variance in rights, R^2 = .54, 95 % CI [.39, .66]. Together, the predictors of wealth and rights accounted for 55 percent of the variance in health at the population level, R^2 = .55, 95 % CI [.39, .67].

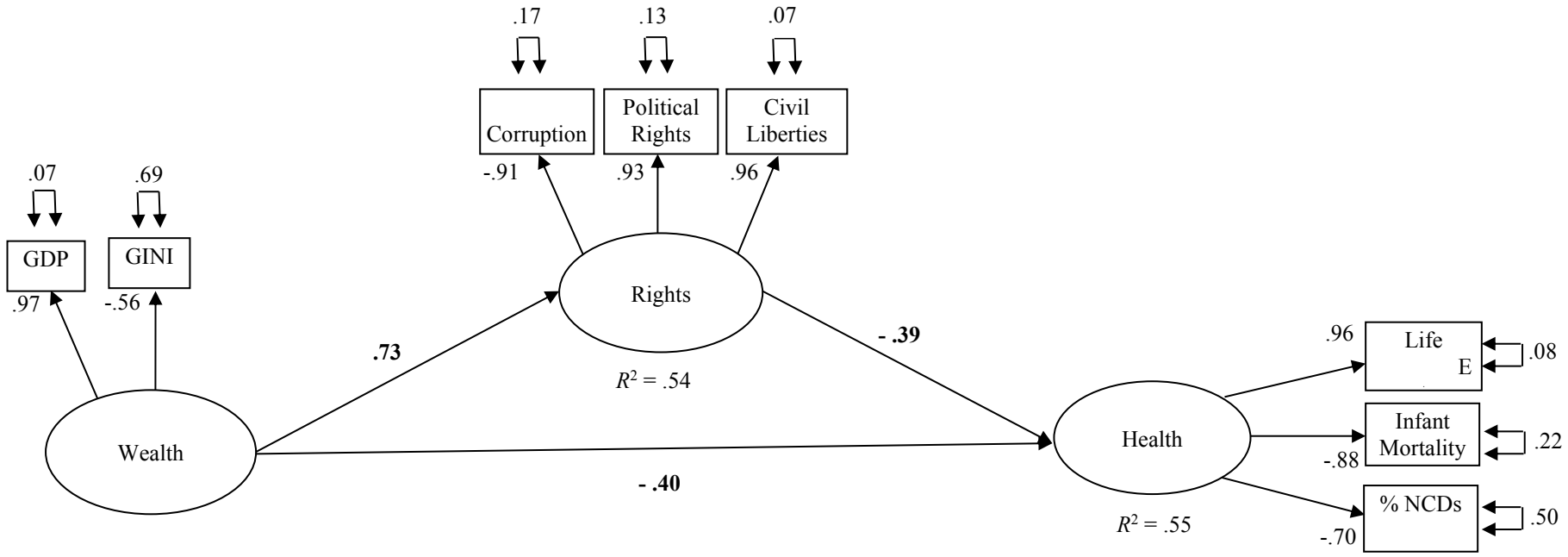
Results for Model II (Figure 4) indicated a mediated relation between wealth and health—comprised of three indicator variables, life expectancy, infant mortality, and probability of death by NCDs—as predicted and consistent with Bezo et al. (2012) in the subsample of 93 nations. Specifically, the overall fit statistics for Model II indicate that the path between wealth and health is partially—not fully—mediated by rights. That is, the association between wealth and

health behavior is partially mediated by rights in the sample of 93 nations.

It should be noted that although Bezo et al., (2012) used HIV prevalence as a physical health indicator in their path model, it was not included because data obtained for HIV prevalence in the present study was not MCAR. For statistical purposes, probability of death by NCDs was used in its stead. Acknowledging that this model is not 100% replica but as statistically close as possible to Bezo et al. (2012) model—NCDs, along with life expectancy and infant mortality were aggregated to construct the latent variable called health, as seen in Model II (Figure 4).

Figure 4:

Model II: Wealth, rights, and health (N = 93)



Extension: Mediated and direct relations between wealth, rights and freedoms, and population health

Given that one of my research objectives of the present study was to extend findings by Bezo et al. (2012), a third model including a latent variable freedom—aggregating five categories of moral freedoms: religious, bioethical, drugs, sexuality, and gender/family freedoms—was tested on the subsample of 93 nations (Model III, Figure 5). The question posed in this model was whether freedoms and rights were direct predictors of population health and whether there was evidence for the mediating effect of freedoms and rights on wealth and health behaviors in the sample of 93 nations.

Although rights and freedoms were related with each other (Table 4), preliminary analyses indicated that they were related in different ways to population health outcomes, as will be seen below. It was therefore decided to analyze them separately. Because it is unclear whether rights should predict freedoms in the model, or freedoms, rights, both approaches were explored. Both approaches predicted health outcomes equally well—indeed, these portions of the models were identical. I present the model in which freedoms predict rights, because this "bottom up" approach (freedoms reflect individual-level variables whereas rights represent more collective indicators) seemed sensible, and more clearly illustrated the relations of wealth with both rights and freedoms.

Model III (*N* = 93)

Model III showed adequate fit. Mean communality is .62, indicating that on average, latent components were well specified by their manifest variables and suggesting components are well defined and stable. Specifically, five measures of freedoms, three measures of rights, and three measures of health behaviors showed strong loadings on their latent variables, respectively. All

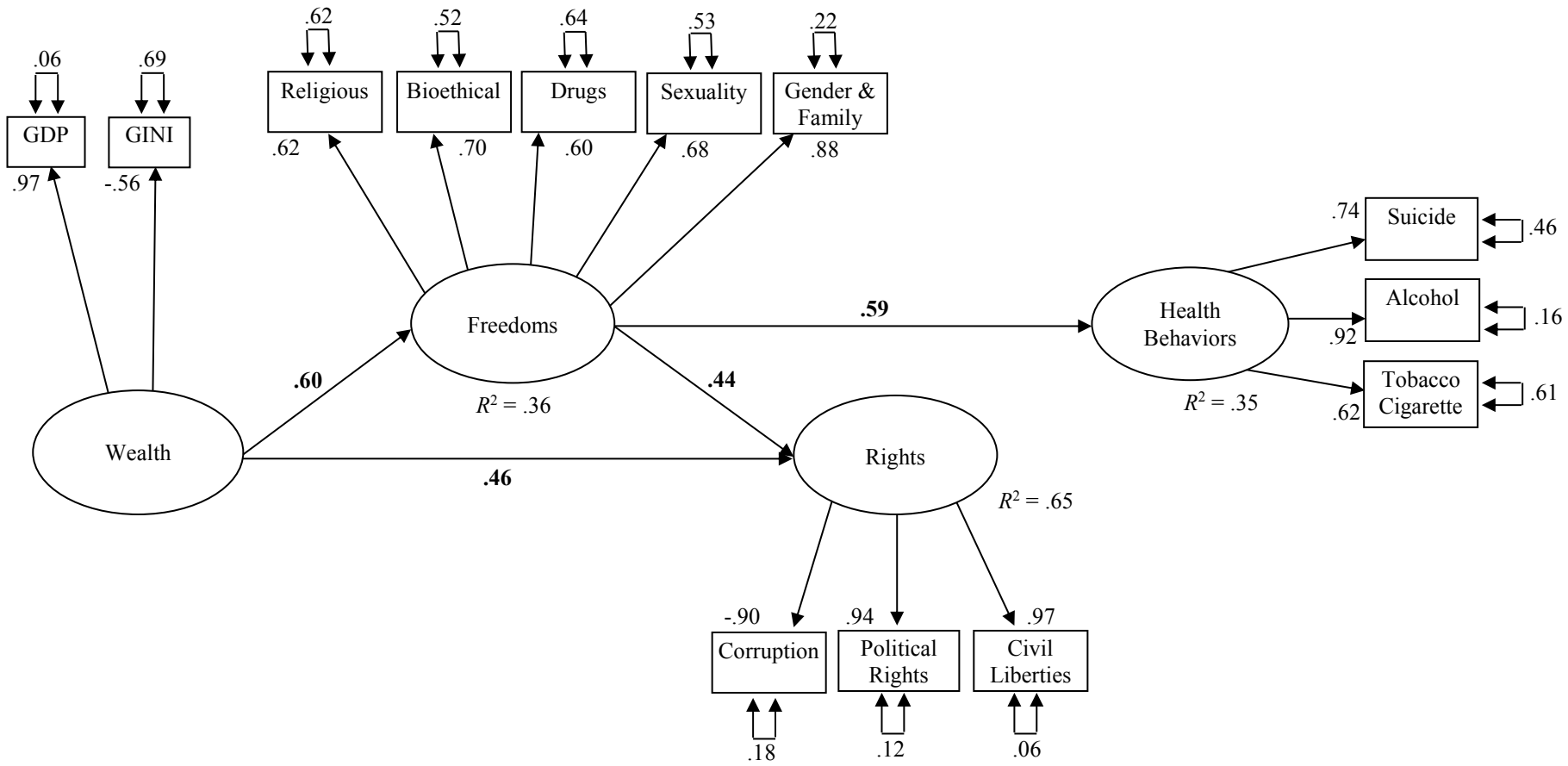
the recommended fit indices were within acceptable range. The RMS COV (E, U), was .088, representing an improvement over the corresponding null model which had an RMS COV (E,U) value of .162. The full model had an RMS COV (E,U) of .089.

Review of the standardized parameter estimates of the model (see Figure 5) shows an indirect relation between wealth and health behaviors. The average R^2 value for the three endogenous variables is .45. R^2s are statistically significant, $p < .001$. Wealth was predictive of freedoms, $\beta = .60$, and accounted for 36 percent, $R^2 = .36$, 95 % CI [.20, .51] of the variance in the five moral freedoms scores. Moreover, in turn, freedoms were predictive of health behaviors, ($\beta = .59$). As shown in Figure 5, predictors of wealth and freedoms jointly accounted for 35 percent of the variance in health behaviors, $R^2 = .35$, 95 % CI [.18, .49]. The direct path between wealth and health behaviors was eliminated as conceptually unimportant, after controlling for the influence of freedoms. Surprisingly, rights appeared to be an outcome in itself, having no links to health behaviors in this model. Rather, moral freedoms alone accounted for over a third of the variance of health behaviors.

Results for Model III (Figure 5) indicate a mediated relation between wealth and health behaviors in the sample of 93 nations. Freedoms completely mediated the relation between wealth and health behaviors in the sample of 93 nations.

Figure 5:

Model III: Wealth, freedoms, rights, and health behaviors (N = 93)



Model IV (*N* = 120)

Results of a fourth model are presented in Figure 6. As noted earlier, the work by Bezo et al. (2012) was extended by increasing the sample size from 34 to 120 nations and including freedoms as well as rights, substituting NCDs for Bezo's HIV data (given that HIV data was not MCAR). Like Model III, Model IV posed the question on whether freedoms and rights were direct predictors of population health and whether there was evidence for the mediating effect of freedoms and rights on wealth and health.

As expected, Model IV showed adequate fit. Mean communality is .62, indicating that on average, latent components are well defined and stable. Loadings for rights were strong, and all three measures of health showed strong loadings on their latent variables—particularly for life expectancy and infant mortality with loading values of - .96, and .90 respectively. Moreover, the recommended fit indices are within acceptable range. RMS COV (E, U), is .085, representing an improvement over the contrasting null model which had an RMS COV (E,U), value of .175., and compared to the full model, RMS COV (E, U), is .084.

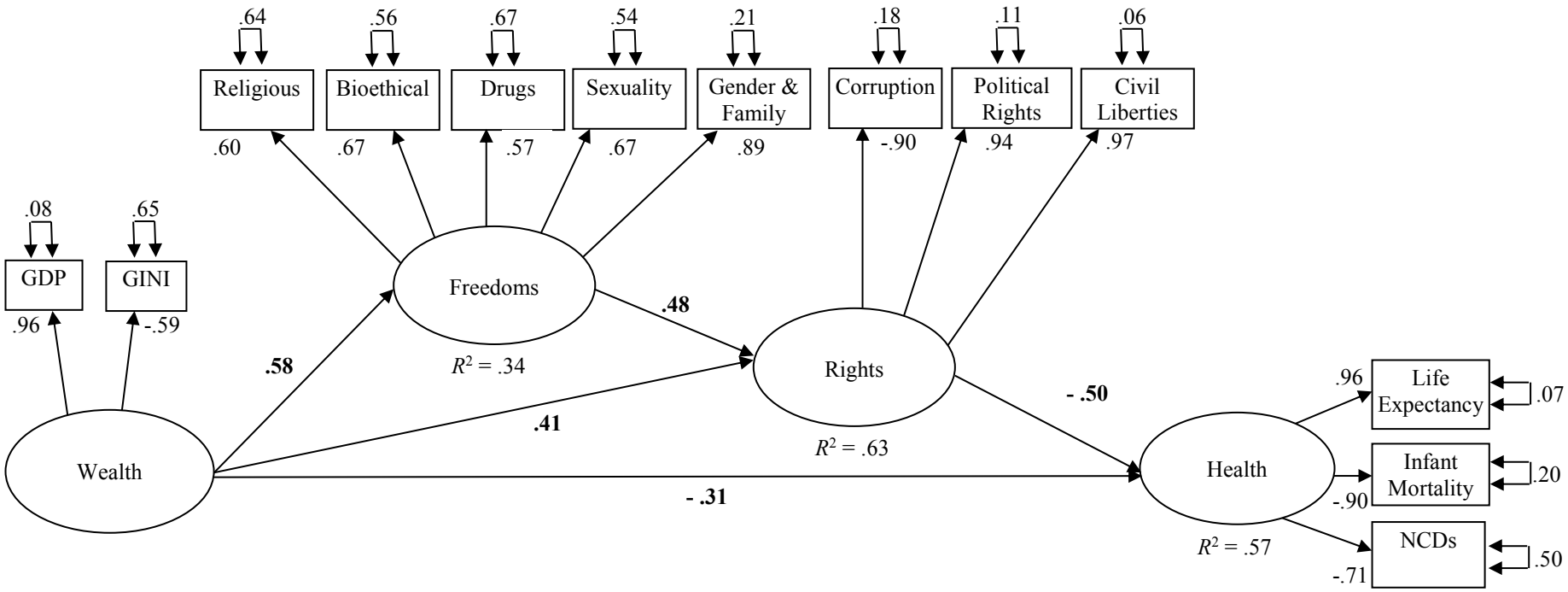
A review of the standardized parameter estimates of the model shows two indirect pathways for wealth—one predicted rights to health and the second predicted freedoms to rights to health. Of importance, health was predicted by two comparable variables jointly—that is, wealth and rights were each relatively equal and important predictors of health. Specifically, wealth was predictive of rights, (β = .41) which in turn was predictive of health (β = -.50). A direct path between wealth and health was also significant, (β = -.31), after controlling for the influence of the mediator—rights. The average R^2 value for the three endogenous variables is .51. R^2s are statistically significant, $p < .001$. As shown in Figure 6, this model accounts for 57% of health, R^2 = .57, 95 % CI [.43, .67]. Wealth predicted 34 percent of the variance in freedoms

(R^2 = .34, 95 % CI [.20, .47] and the predictors of wealth and freedoms accounted for 63 percent of the variance in rights, (R^2 = .63, 95 % CI [.51, .72]. Results of the total effect, reported as total path coefficient from wealth to health, is .66. This indicates that the effect between wealth and health—was partially mediated by rights, and to a lesser extent, through freedoms in the sample of 120 nations.

In summary, the model findings indicate that wealth was not only directly linked with physical health, but with both freedoms and rights as well, suggesting that wealth plays a complex role in determining population health. It is therefore important to consider freedoms when considering relations between rights and health outcomes.

Figure 6: *rights*

Model IV: Wealth, freedoms, , and health (N = 120)



Discussion

The purpose of this study was to examine the combined influences of national levels of wealth, rights, and freedoms on health at the population level. In conducting this research, I set out to replicate and extend the findings of Bezo, Maggi, and Roberts (2012) on the rights and freedoms gradient in health. The hypothesized model (Figure 2) explored the mediating role of rights and freedoms on wealth and components of population health and health behaviors. To this end, the WHO framework of social determinants of health (Figure 1) was applied to a large cross-national sample representative of the countries of the world.

Overall, the results of the present study were congruent with the WHO framework of social determinants, which associates rights and freedoms with wealth and social equality, and in turn promotes better health. In addition, results of this study align with the social inequality argument—the notion that wealthy nations and nations with the most egalitarian distribution of wealth have the best health outcomes (Marmot, 2002; Wilkinson & Picket, 2009). While previous research emphasizes wealth and equitable distribution of wealth in determination of population health (e.g., Wilkinson & Picket, 2009); the findings of this present study provide evidence for doing so through the influence of democratic rights and freedoms. The current findings also align with the rights and liberties argument, (e.g., Altman & Castigilioni, 2009; Dasgupta, 1990; Franco et al., 2004; Frey & AL-Roumi, 1999)—which holds that democratic rights are responsible for improvement in population health, in particular, life expectancy and child survival. Most importantly however, the present research provides further support for the rights and freedoms gradient in health—a model first proposed by Bezo et al., (2012)—acknowledging the crucial role of rights and freedoms in determining health outcomes. This notion implies that (for the most part), individuals exhibit better health in countries where more

rights and freedoms exist.

Guided by the theoretical underpinnings and research findings proposed by Bezo, Maggi, and Roberts (2012), I hypothesized that the relation between wealth and health/ health behaviors would be completely mediated by rights and freedoms. As expected, the effects of wealth on health behaviors were fully mediated by democratic rights (Figure 3). In order for a full mediation to occur, the relationship between wealth and health behaviors must decrease substantially (near zero) upon adding rights as a predictor of health behaviors (for a review, see MacKinnon et al., 2002).[1] Specifically, full mediation suggests that democratic rights play a crucial role in a nation's health behaviors. These findings are consistent with Bezo et al., (2012), which also showed a full mediation of rights on SES and mental health, suggesting that wealthier countries tend to enjoy more rights, and increased rights are associated with better population health.

Contradictory to expectations however, results for health outcomes in the current study showed that the effects of wealth on health were partially (not fully mediated) through democratic rights (Figure 4). A partial mediation is indicated if the direct effect of rights (the mediator) accounts for a substantial amount of the variance in health, but the relation between wealth and health still remains (although, often reduced). In this example, rights could be thought of as the carrier or transporter of information along the path from wealth and health. This indirect relation occurs because the direct relation between wealth and health is reduced when rights and freedoms are included. These findings were inconsistent with Bezo et al. (2012) which reported that rights completely mediated the relation between SES and physical health. Despite this difference, the present study is similar to Bezo et al., (2012) in its implied message—that democratic rights is still generally playing a role (whether partially or fully) in the relation

[1] The term mediation is used throughout the current study when referenceing an indirect path, although path analysis is not true mediation (Falk & Miller, 1992).

between wealth and population health.

Partial mediation of rights in the relation between wealth and health in this study could likely suggest that rights are one of several potential mediators that might mediate the link between wealth and health. For example, if wealth's influence on health is a pre-requisite for rights, it could be one of many underlying mechanisms that are influencing it.

The current study also extended Bezo et al. (2012) to include five categories of moral freedoms (Figure 5), and a larger sample of nations (Figure 6). Surprising results emerged from these models—the most unexpected of these being that when freedoms were combined with rights in the model, rights no longer predicted health behaviors (Figure 5). Rather, rights appeared as an outcome in itself with freedoms as the stronger predictor of health behaviors, completely mediating the effects of wealth on health behaviors. In other words, a country's wealth influences health behaviors, but does so through the mediated role of freedoms.

Furthermore, this study extended Bezo et al. (2012) to include a larger sample (Figure 6), which yielded two indirect pathways for health. These findings suggest that the relation between wealth and health are partially mediated by rights, and to a lesser extent, through freedoms (Figure 6). That is, a country's wealth is associated to health, through the influence of rights, and less so, through the influence of freedoms. Of importance, wealth and rights are each relatively equal predictors of health. A direct link between wealth and freedoms is present, suggesting that freedoms are still an important consideration when thinking about the pathway to health. As such, wealth may be playing a more complex role than previously thought, to influence democracy and health.

Critics may well question why health behaviors are not predicting health outcomes in these path models. Moreover, because strong correlations exist between the various indicators for

health behaviors and health outcomes, it seems plausible to present these constructs together. Yet, when observed together in a separate examination of wealth, health behaviors, and health outcomes (controlling for rights and freedoms), results revealed there to be no relations between these measures. This suggests that, contrary to expectations, health behaviors and health outcomes are independent constructs of each other. It seemed appropriate to present the path models separately, based on this logic.

Aside from Bezo et al., (2012), this study appears to be one of the first of its kind to simultaneously examine the effects of wealth, rights and freedoms, and health outcomes using pathways models. Overall, the findings suggest that a nation's wealth—in addition to democratic rights and freedoms—is linked to important outcomes for health at the population level. In demonstrating such associations, the present findings extend prior research in several important ways.

First, previous literature has shown a strong association between wealth and health (e.g., Dalstra et al., 2005; Huisman et al., 2005; Mackenbach et al., 1997; Marmot, Bosma, Hemingway, Brunner, & Stansfeld, 1997; Marmot, Rose, Shipley, & Hamilton, 1978; Minkler, Fuller-Thomson, & Guralnik, 2006; Newacheck, et al., 2003; Wilkinson & Picket, 2009). For example, increasing a nation’s overall wealth is associated with better health outcomes. However, while much of this research emphasizes wealth in determination of population health, the findings of the present study provide evidence for doing so through the influence of democratic rights and freedoms. This ties the social inequality approach (Wickrama & Mulford, 1996; Wilkinson & Picket, 2009) and the rights and liberties approaches together (e.g., Altman & Castigilioni, 2009; Dasgupta, 1990; Franco et al., 2004; Frey & AL-Roumi, 1999).

The current study builds on previous findings by not only demonstrating that wealth has

implications for democratic rights and freedoms but that wealth—together with political rights—are responsible for improvements in overall health (e.g., life expectancy and child survival). That being said, the extent to which national wealth is related to health is connected to how democratic a nation is likely to be. In other words, countries that are wealthier tend to be healthier—but are also more likely to demonstrate more democratic rights and freedoms. In the literature, some countries maintain that individual rights and liberties afforded by democracy are expensive (Baradat, 2012). That is, society must be wealthy enough to allow its citizens to do almost whatever they like, even if what they do is not very economically productive. In contrast, poor countries often demand a degree of organization and control if everyone is to be fed and healthy, that can stifle democracy. Poorer countries are more likely to demonstrate less democratic rights and freedoms. Many African countries are a good case in point, where leaders of fledgling democracies resort to authoritarian measures to retain power (Baradat, 2012).

Secondly, prior studies have shown evidence for an association between democratic rights and health: that is, prior studies support the positive effect of democratic rights on physical health (e.g., Altman & Castigilioni, 2009; Dasgupta, 1990; Franco et al., 2004; Frey & AL-Roumi, 1999). However, as stated before, only a few studies have examined the effects of rights and freedoms on mental health (e.g., Bezo et al., 2012; Jungeilges & Kirchgässner, 2002). Building on these previous studies, my research demonstrates that democracy—in particular collective rights and personal freedoms—have important implications for health behaviors. Specifically, the extent to which a country practices democracy is related to behaviors that influence health in the population (i.e., alcohol consumption).

Moreover, previous research has also examined the relation between wealth and democratic rights (e.g., Altman & Castigilioni, 2009; Dasgupta, 1990; Frey and Al-Roumi, 1999;

Gupta, Davoodi, &Alonso-Term, 1998). However, alongside democratic rights (i.e., perceived corruption, political rights, and civil liberties essentially representing "collective rights"), the current study builds on previous research by including freedoms that are specific to the individual. Specifically, this study is novel for its inclusion of religious, bioethical, drugs, sexuality, and gender/family freedoms—five factors that essentially represent "personal freedoms"—in its approach.

Adding freedoms in the study yielded some interesting results. To start, the link between wealth and health behaviors for rights dropped. In fact, rights appeared to be an outcome in itself. Conceptually, this may suggest that what Bezo et al (2012) thought was initially attributed to rights (prior to measuring for freedoms), may actually be attributed to freedoms when it comes to the path for health behaviors. Indeed, the findings of the present study suggest that freedoms do matter: are related to, and important for, health behaviors—as indexed by suicide, alcohol and tobacco consumption.

Results also indicated that rights and freedoms were related in different ways to population health. Said another way, while freedoms were important for health behaviors, rights were important for health outcomes. Health behaviors are behaviors (often poor health habits) that individuals make decisions about to some extent (Taylor & Sirois, 2014). In this study, the health behaviors examined (e.g., alcohol consumption, daily tobacco-cigarette use) are generally choices made by individuals that influence poor health in the population. Similarly, freedoms associate more strongly to the individual level—in terms of attitudes, beliefs, opinions, and choices (FAL, 2016). Conversely, rights are more likely to be associated with a completely different set of mechanisms, such as quality of health systems (e.g., Klomp, & De Haan, 2009), and access to health services (e.g., Ensor & Cooper, 2004). Rights, in addition to freedoms,

influence the path to health outcomes in the present study relatively equally. A likely explanation for this is that rights and freedoms are closely related to each other, statistically speaking (-see Table 4 which shows moderate to high correlations) and therefore are interchangeable with each other. As such, one could argue for rights to precede freedoms. Depending on differing contexts and theory, there might be several alternative explanations to help make sense of this. For example, a historical perspective could argue that when considering how nations develop, political systems and democratic rights usually precede personal freedoms (Diamond, 1999). In other words, individual liberties are secured only once constitutional government and a rule of law has been established over time. However, in the present study, because data points are not longitudinal, it seemed reasonable to utilize a "bottom up" approach whereby freedoms preceded rights.

Although this research is cross sectional in nature and does not imply causation, the findings have important research implications. From a methodological viewpoint, an examination of more recent international data generated results in this study that provide a more recent snapshot of the influence of political systems on health outcomes worldwide. Moreover, a larger sample size of one-hundred and twenty countries allowed for a more complete representation of the political diversity present in societies globally. Most of the previous studies investigating the effects of rights and freedoms have smaller sample sizes (e.g., 34 countries studied in Bezo et al., 2012).

The addition of NCDs as a health indicator also contributes to the literature on the relation between rights and freedoms on health population. In terms of the health behavior outcomes, this study has important implications to inform researchers on current mental health trends. For example, these results add to the existing literature to support the notion that the origins of health

behaviors (e.g., suicide, alcohol consumption and daily tobacco-cigarette dependency) may be more than biological and have strong social determinants. This supports Thachuk's (2011) article criticizing mental illness as being exclusively biological in origin.

Of great consequence, the results of this study have worldwide implications for the way in which countries might improve their population health. Specifically, they highlight the need for governments to increase efforts in addressing rights and freedoms as a crucial factor for improvements in health to occur. Previously mentioned as one of the most robust associations in the social sciences, there has been a lot of emphasis in the literature on wealth as a determinant of health (e.g., Dalstra et al., 2005; Huisman et al., 2005; Mackenbach et al., 1997; Marmot, Rose, Shipley, & Hamilton, 1978; Marmot, Bosma, Hemingway, Brunner, & Stansfeld, 1997; Minkler, Fuller-Thomson, & Guralnik, 2006; Wilkinson & Picket, 2009). As a result, many policies focus on addressing issues that relate to poverty and national wealth for improving overall health. Whilst they should continue to do so—as wealth clearly matters when it comes to health–the findings of this study bring to light the notion that rights and freedoms count as well. Stated differently, when considering wealth and health, the present study implies that wealth may not entirely explain health differences in a country. Instead, the present findings propose that an integration or combination of factors pertaining to wealth, rights, and freedoms are necessary for there to be improvements in health at the population level.

Two key implications pertaining to these findings are worthy of further discussion. First and foremost, the present study offers support for the notion that rights and freedoms are key when it comes to better health. As such, it is imperative that researchers, governments, organizations, and nations become more aware and attentive to this important finding as a crucial first step in improving overall health. Specifically, awarding more attention to rights and

freedoms (or at least as much attention as wealth) when it comes to examining social determinants of population health.

Furthermore, greater attention for developing actions and interventions, beyond wealth and distribution of wealth in countries, that might lead to increases in democratic rights and freedoms worldwide should be encouraged. To date, active integration of these concepts in programs and policy—for the most part—are still relatively non-existent. Only a few international organizations have acknowledged the importance of addressing rights and freedoms as crucial for population health (e.g., United Nations Development Program; UNDP).

More generally, the current research is also relevant in the realms of behavioral and social science—in particular, pertaining to education and advocacy. Further research is needed to determine the underlying reasons for socioeconomic inequities and help reduce deep gaps and disparities of wealth at both individual and societal levels, which will only serve to benefit society as a whole. Since the results of this study highlight the importance of rights and freedom's role on reducing poor health, a practical implications is to inform and challenge scholars, educators, health professionals, advocates, and policy makers to consider democratic rights and freedoms in a new light.

Secondly, while the present findings clearly suggest that rights and freedoms are important for wealth and health, it is not clear why this is or how these constructs of interest are interrelated. In fact, there is little evidence describing the mechanisms connecting wealth to rights and health. Certainly, future research might include exploring reasons why rights and freedoms are so important in the determination of health. For example, necessary next steps could be to understand the mechanisms underpinning these interconnecting constructs at play. A better understanding would in turn, have important consequences to inform policy development

and make policy recommendations. For example, it may well shed light on ways to address these interrelated constructs simultaneously; such as creating policies that improve national wealth while at the same time promoting democratic rights and freedoms.

Given the implications of rights and freedoms for overall health, one important aspect concerns the mechanisms for political decision-making: about how democracy evolves, policies are created, and political systems develop. According to Baradat (2012), one criticism of democracy is that it is slow and inefficient. As such, governments are unable to make the speedy decisions necessary in a digitally driven society. Ironically, technology has evolved much faster than society has been able to adjust and one of the casualties of this development is democracy itself (Baradat, 2012).

Limitations and Future Directions

Along with the above strengths, the study has several limitations. Key to the process of conducting secondary analysis is the ability to evaluate the quality of data and information sources. For the present study, the data were closely examined. For example, online databases and publications are mostly government publications (i.e., United Nations) or reputable research institutions (e.g., Transparency International). This increases the quality of data and reduces the potential level of bias as compared to data collected for corporate or marketing purposes (Novak, 1996).

A summary of limitations for each of the secondary sources used in this research thesis are presented in Table 5. For example, International Transparency's corruption perception index (CPI) is measured with a different methodology from year to year, making yearly comparisons difficult. As a result, CPI cannot be used as a tool for measuring the implications of new policies, and this subjectivity has led to a lot of controversy in terms of the rankings produced (TI, 2015).

Table 5:

Limitations for Secondary Sources Used

Measure	*Secondary Data*	*Limitation*
GDP per capita (USD)	World Bank Indicators online	Different countries use different definitions, methods, and reporting standards. Significant discrepancies remain between international standards and actual practice—e.g., many statistical offices (especially those in developing countries), face severe limitations in resources, time, training, and budgets required to produce reliable and comprehensive series of national accounts statistics.
GINI Income inequality	World Bank's World Development Indicators (WDI) publication	Discrepancy between the national accounts and household surveys (problems with comparability over time and across countries) makes poverty estimates more difficult. For example, not all the household surveys are comparable in design and sampling methods and these questionnaires can differ widely in terms of differences in quality—thus, achieving strict comparability is impossible. Under-reporting of income and selective compliances are other sources of measurement errors, —these problems are unlikely to be distribution neutral.
Corruption Perceptions Index (CPI)	Transparency International	This index is measured with a different methodology year to year, making yearly comparisons difficult. Because of this, it cannot be used as a tool for measuring the implications of new policies. Measurement subjectivity has led to a lot of controversy over the rankings produced.
Political Rights and Civil Liberties Index	Freedom House	Although the final scores represent the consensus of the analysts, advisers, and Freedom House staff (and are intended to be comparable from year to year and across countries and regions), there is an element of unavoidable subjectivity—with possible biased judgments.

World Index of Moral Freedoms (WIFM)	The Foundation for Advancement of Liberty	This is the first publication produced for the WIFM index. It is built on rather diverse issues that target moral freedoms—a new aspect of freedom beyond general rights and liberties, economic, and press freedoms. As such, limitations on sources used for this mix of moral debates are yet to be fully known.
Suicide, Alcohol, Tobacco-cigarette use, and Non-communicable disease (NCDs)	World Health Organization (WHO) Global Health Observatory (GHO) data repository	Uncertainty of WHO's country-level estimates related to guidance to users on the data sources and methods used for each country. Adoption of WHO health estimates is affected by a number of factors, including a country consultation process for country-level, existing multi-agency, expert group collaborative mechanisms, compliance with minimum standards around data transparency, data and methods sharing . Noteworthy, even when reliability and within population validity have reached acceptable levels, the meaning that different populations attach to the health labels used for each of the response categories (e.g., mild, moderate or severe) in self-reported questions can vary greatly.
Life expectancy	United Nations	Health estimates are limited by subjectivity across time and countries Differences in survey instruments (design and methods) Cultural differences (e.g., expectations and norms) in national reporting of health.
Infant mortality rates	World Bank World Development Indicators (WDI)	Most data comes from the statistical systems of member countries—so quality of global data is limited or depends on how well these national systems perform. Developing countries face a number of problems in providing statistics that are reliable, relevant, and that meet World Bank standard practice, and methodology. Poorer countries face under-investment in national statistical systems and as a result, produce poor quality data that policymakers are unwilling to rely on. In turn, the lack of demand for the data leads to fewer resources being made available for production and quality control

HIV prevalence (%)	UN's Report on Global AIDS Epidemics (UNAIDS)	Poor and developing countries face a number of problems in providing statistics epidemiological data that is reliable, relevant, and comparable. Limitations for health estimates include differences in surveillance methodology and standard practices between nations that produce population-based surveys.

Not surprisingly, many of the sources reported problems pertaining to the comparability of surveys and questionnaires, both over time and across countries. For example, although final scores reported by Freedom House on political rights represent a consensus of expert analysts and advisors, intended to be comparable from year to year across countries and regions, there is still an element of unavoidable subjectivity with biased judgments (FH, 2016).

Moreover, secondary data for this research were comprised of aggregated data by country. This simply means that the data obtained describes the entire population observations for each country. Critics argue that it is simply not possible to capture the diversity within a country with one score. Because one score summarizes all people and their experiences within a country, it raises concerns about whether such data will accurately reflect the variety that one would encounter within a country itself. Therefore, the nature of aggregated data itself could pose as a limitation to the study. Future research might look at disaggregation of data by gender, for example, which would help gain a more comprehensive understanding of how rights affect health differently for males versus females within a country.

I also looked at how ecological fallacy—a logical fallacy inherent in making causal inference from group data to individual behaviors (Schwartz, 1994)—might play into the findings of this study. According to this concept, using aggregate level data to draw conclusions

or infer individual-level relations can result in mistaken assumptions. In the current study, inferences about the relation between wealth and health could be misleading by means of correlations between these constructs. For instance, in accordance with prior literature (e.g., Wilkinson, 1992; 1999), poor people might be more likely to die prematurely than wealthy individuals. Evidence from Wilkinson's individual level studies (1992; 1999) showed that people in lower socio-economic groups suffered the worst health because of their lower social position in society. More specifically, Wilkinson's study revealed that mortality rates were closely related to wealth and the distribution of income.

However, poorer nations may not always necessarily have reduced life expectancy rates. At a country level, the association observed at an individual level between low GDP or low GINI and reduced life expectancy may appear to reverse—with more affluent countries having lower rates of life expectancy or vice versa. This concept led me to identify the relatively poor country of Kyrgyzstan (with a low GDP) as having an overall higher life expectancy rate than would have been expected. It is important therefore, to caution against drawing conclusions about all individuals in wealthier nations as having better health. In fact, there may be a few nations with poorer health scores even if the majority of the wealthy nations have better health outcomes. In spite of this, using aggregate data in the present study still allows me to capture the effects of the wealth between countries that individual based studies might be unable to capture.

In addition, the secondary data sources used in the present study represent a restricted age group; primarily targeting an adult population (age 15+). Therefore, it is unlikely that findings hold or generalize to a younger population beyond this sample. It would be interesting to extend the present investigations specifically to the rights of the child. Given that poverty and children's rights (United Nations Convention on the Rights of the Child; UNCRC; United Nations, 1989)

have important implications for early child development, future work is needed in younger populations to improve overall understanding about the role that child rights and freedoms could play in health behaviors.

Despite these limitations and challenges, secondary data research can provide a unique methodological resource in which to examine psychological issues (Andersen, Prause, & Silver, 2011). Applying datasets obtained directly from the public domain also reduce the amount of time and resources required to interview thousands of participants to retrieve similar—if not the same data—already compiled. Secondary analysis has the potential scope and breadth to identify and establish patterns beyond many primary studies (Brooks-Gunn, Phelps, & Elder, 1991), as seen in Bezo et al. (2012) and the present study.

There are also limitations pertaining to mediation models that imply causality. For example, reverse causal effects can occur that are different from those implied by the model. A nation's frequent use of democratic rights and freedoms, (and the experience of their benefits) for instance, may lead a nation towards wealth (and distribution of wealth), rather than wealth predicting rights and freedoms. Likewise, the relations between freedoms and health could be bidirectional. Future research, as recommended by Falk and Miller (1992), should test these alternative pathways to deal with biases and to tease out these bidirectional relationships.

Finally, it is also important to acknowledge the study's limited scope in the assessment of rights and freedoms—constructs that are complex, multi-faceted, and dynamic. Ultimately, the decision made by a nation to implement rights and freedoms—or whether they even make such attempts at all—may be linked to particular cultural or religious beliefs and perceptions that are held about rights and freedoms. For instance, religion plays a major role in the politics of the world (Baradat, 2012). Often, countries torn by civil strife, political chaos, and war are those

caught in the crossfire between society members that wish to prevent change and democracy based on religious tradition, while others insist on modernization (Baradat, 2012). An important question for future work concerns the need to examine other variables such as beliefs about democratic rights and freedoms that could influence democracy and in turn affect health and health behavior outcomes. Also, because rights and freedoms are clearly difficult constructs to measure, better measures in this area will require further refinement and validation.

The current study examined the combined influences of national levels of wealth, rights, and freedoms on population level health. Although it is important to draw cautious conclusions, it is worth noting that the results in present study help explain the role of rights and freedoms on health outcomes in the global context, thereby contributing to the literature in an important way. Moreover, with the addition of freedoms and health indicators in this investigation, this study expands the scope and breadth of understanding on why there might be health differences across nations. Results support the rights and freedoms gradient of health, in recognition of the crucial role of rights and freedoms in the determination of health. However, important implications concerning the approaches for action and interventions that influence democratic rights to improve health deserve further attention.

My findings imply that an integration of factors pertaining to wealth, rights, and freedoms are necessary for there to be improvements in health at the population level. A key message of this study is that more attention needs to be paid to democratic rights and freedoms as playing a crucial role in the determination of health. Furthermore, while the findings of this study suggest that rights and freedoms are important, it does not tell us why they are important. As such, we need to start paying more attention to these constructs as playing a crucial role in the determination of health.

Whether targeting freedoms one by one or approaching them comprehensively, my research emphasizes the need to consider rights and freedoms when developing policy pertaining to health. To date, many of the policies developed put emphasis on, or address, wealth and wealth distribution of a nation. However, this study challenges the notion that national wealth alone leads to improvements in health. Rather, wealth—in addition to equitable rights, freedoms, and better governance of countries—are fundamental for improvements in global health to occur.

APPENDICES

APPENDIX A

Gross domestic product (GDP) per capita (USD)

(World Bank, 2016)

The indicator GDP per capita (USD) was obtained from World Bank Indicators (WDI)—the World Bank 's (2016) database of development indicators (Figure A1).

Source information for World Development Indicators, Available at: http://data.worldbank.org/data-catalog/world-development-indicator

Specifically, GDP per capita (USD) is compiled from officially recognized international sources:

Source 1: World Bank national accounts data files. The national accounts data files and information in the World Development Indicators database are derived from the World Bank's officially published data and the World Bank country economist. The World Bank national accounts data files provide data and analysis of key economic and social indicators (i.e., GDP

current USD, Poverty, and Population) which are reported quarterly for nations, aggregated by either region or income level, in the following eleven groups:

1. World (WLD): This is a globally aggregated group, comprising all countries in the world.

2. East Asia and Pacific (EAP): This is a region-based aggregated group comprised of 37 nations in the East Asia and Pacific region. http://www.worldbank.org/en/region/eap

3. Europe and Central Asia (ECA): This is a region-based aggregated group comprised of nations in the Europe and Central Asia region. http://www.worldbank.org/en/region/eca

4. Latin America and the Caribbean (LAC): This is a region-based aggregated group comprised of 42 nations in Latin America and Caribbean region. http://www.worldbank.org/en/region/lac

5. Middle East and North Africa (MNA): This is a region-based aggregated group comprised of 20 nations in the Middle East and North Africa region. http://www.worldbank.org/en/region/mena

6. South-Asia (SAS): This is a region-based aggregated group comprised of 8 nations in South Asia region. http://data.worldbank.org/region/south-asia

7. Sub-Saharan Africa (SSA): This is a region-based aggregated group comprised of 48 nations in the Sub-Saharan Africa region. http://www.worldbank.org/en/region/afr

8. High Income Countries (HIC): This aggregated group is comprised of 78 high income-level nations. http://data.worldbank.org/income-level/high-income

9. Low and Middle Income (LMY): This aggregated group is comprised of 52 lower middle-income level nations. http://data.worldbank.org/income-level/lower-middle-income

10. International Bank for Reconstruction and Development (IBRD): The IBRD is one of World Bank's international financial institutions that provide loans for developing countries. This aggregated group is comprised of 189 members of upper to middle income-level countries. http://www.worldbank.org/en/about/what-we-do/brief/ibrd

11. International Development Association (IDA): The IDA is one of World Bank's international financial institutions, providing help to the poorest nations. This aggregated group is comprised of 173 lower middle-income level countries. http://ida.worldbank.org/about/what-ida

Source 2: The Organization for Economic Co-operation and Development (OECD) National Accounts data files. The main source for OECD member countries is OECD Statistics, which includes data prepared from statistics reported to the OECD by thirty-five member countries in their answers to annual national accounts questionnaire. http://stats.oecd.org/

The thirty-five countries included in the OECD aggregate are (alphabetically): Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland Ireland, Israel, Italy, Japan, South Korea, Latvia, Luxembourg, Mexico, Netherland, New Zealand, Norway, Poland, Portugal, Slovak, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States of America.

APPENDIX B

GINI Index Sources and Methodology

(World Developing Indicators World Bank, 2016)

The World Bank-based GINI Index data set covers the period of 1979-2015. This Index is produced by World Development Indicators (WDI) and data availability is accomplished through PovcalNet, http://iresearch.worldbank.org/PovcalNet, an online analysis tool for global poverty monitoring.

Sources: The GINI Index (Gini Coefficient)—a measure of the income distribution of the population—is constructed using survey data from more than 2 million randomly sampled households in 138 developing countries, on detailed questions about individual and household sources of income (income data), what income is spent on (consumption data), as well as other household characteristics such as the number of people sharing that income.

The surveys are conducted by national statistics office or by private agencies (i.e., mostly by staff of the governmental statistics offices of the countries they live in), under the supervision of government or international agencies and obtained from government statistical agencies and World Bank country departments in each country.

Methodology: World Bank aggregates the income data and consumption data collected from surveys, across the population in each country, to calculate the extent to which the income distribution of a population (i.e., among individuals or households within an economy) deviates from an equal distribution. It calculates the extent to which income is distributed in an uneven

manner among a population/ or the proportion of people who do not reach any given poverty line (i.e., using $2 a day poverty line).

National/international poverty lines are converted into common/local currency units, with Purchasing Power Parity (PPP) exchange rates that reflect consumption (i.e., the differences in the prices of goods and services across countries).

Note: exchange rates are used for consumption constructed by the World Bank's Development Data Group from the price surveys done by the International Comparison Program for about 100 developing countries. Also, since the surveys do not all line up conveniently in time, interpolating method is used with other information (i.e., national accounts data and census based estimates of the population of each country at each date) in non-survey years.

APPENDIX C

Corruption Perceptions Index (CPI)

(Transparency International, 2015)

The following 12 data sources and respective sample questions were used to construct CPI.

Source 1: African Development Bank Governance Ratings (AFDB) 2014 is a regional multilateral development bank that uses the Country Policy and Institutional Assessment (CPIA) to assess the performance of countries' policy and institutional frameworks in terms of their capacity to ensure the efficient utilization of scarce resources for achieving sustainable and inclusive growth. It is based on the scoring of 18 criteria covering different aspects of development as follows:

Structure of CPIA Questionnaire:

A. Macroeconomic Policies	B. Structural Policies and Regulation	C. Social Context and Human Development
1. Fiscal Policy 2. Quality of Budgetary and Financial Management 3. Efficiency of Revenue Mobilization 4. Monetary Policy 5. Trade Policy 6. Regional Integration 7. Debt Policy	8. Business Regulatory Environment 9. Infrastructure Development 10. Property Rights and Rule Based Governance 11. Quality of Public Administration 12. Transparency, Accountability, and Corruption in the Public Sector 13. Financial Sector Development 14. Environmental Policies and Regulations	15. Building Human Resources 16. Social Protection and Labour 17. Equity of Public Resource Use 18. Gender Equality

An example of one of the items, Fiscal Policy in the CPIA criterion, covers the extent to which (a) the primary balance is managed to ensure sustainability of the public finances; (b)

public expenditure/revenue can be adjusted to absorb shocks if necessary; and (c) the provision of public goods, including infrastructure, is consistent with medium-term growth. Sustainability also refers to off-budget government spending and contingent liabilities. Scores range between 1 = *very weak*, to 6 = *very strong*. The CPIA assessment can be found at https://cpia.afdb.org/documents/public/cpia2014-questionnaire-en.pdf

Source 2: Bertelsmann Foundation Sustainable Governance Indicators (SGI) 2015 examine governance and policymaking in order to evaluate each country's need for, and ability to carry out, reform. An example of one of the items of the SGI assessment is: "To what extent are public officeholders prevented from abusing their position for private interests?" followed by a 10 point scale, whereby 1 = *Public officeholders can exploit their offices for private gain as they see fit without fear of legal consequences or adverse publicity*, to 10 = *Legal, political and public integrity mechanisms effectively prevent public officeholders from abusing their positions.* The SGI assessment can be accessed here: http://www.sgi-network.org/docs/2015/basics/SGI2015_Codebook.pdf

Source 3: Bertelsmann Foundation Transformation Index (TI) 2016 assesses i) the written assessment of the state of transformation and management performance in a country; and ii) the numerical assessment of the state of transformation and management performance. An example of one of the items is "To what extent are public officeholders who abuse their positions prosecuted or penalized?" Assessments range from a low level of corruption of 1 = *Officeholders who break the law and engage in corruption can do so without fear of legal consequences or adverse publicity*, to a high of 10 = *Officeholders who break the law and engage in corruption are prosecuted rigorously under established laws and always attract adverse publicity*. The BTI

is accessible here:

http://www.btiproject.org/uploads/tx_itao_download/BTI2014_Codebook_01.pdf

Source 4: Economist Intelligence Unit Country Risk Ratings (EIU) 2015 are designed to provide in-depth and timely analysis of the risks of financial exposure in more than 140 countries.

The EIU relies on teams of experts based primarily in London (but also in New York, Hong Kong, Beijing and Shanghai) who are supported by a global network of in-country specialists. Each country analyst covers a maximum of two or three countries/territories. The economic and political reports produced by EIU analysts are subjected to a rigorous review process before publication.

Specific guiding questions include: "Are there clear procedures and accountability governing the allocation and use of public funds?", "Are public funds misappropriated by ministers/public officials for private or party political purposes?", " Are there special funds for which there is no accountability?", "Are there general abuses of public resources?", "Is there a professional civil service or are large numbers of officials directly appointed by the government?" , "Is there an independent body auditing the management of public finances?", "Is there an independent judiciary with the power to try ministers/public officials for abuses?" and "Is there a tradition of a payment of bribes to secure contracts and gain favors?" Scores are given as integers on a scale from 0 (= very low incidence of corruption), to 4 (= very high incidence of corruption). The CPI draws on risk rating data available as of August 2015 from http://www.eiu.com

Source 5: Freedom House Nations in Transit (NIT) 2015 reports measure democratization in 29 nations and administrative areas throughout Central Europe and the Newly

Independent States (NIS). The reports focus on democratic progress and setbacks. Each report focuses on the following thematic areas: national democratic governance; electoral process; civil society; independent media; local democratic governance; judicial framework and independence; and corruption. A range of indicative questions include: "Has the government implemented effective anti-corruption initiatives?", "Is the government free from excessive bureaucratic regulations, registration requirements, and other controls that increase opportunities for corruption?" , "Are there adequate laws requiring financial disclosure and disallowing conflict of interest?", "Does the government advertise jobs and contracts?" . "Does the state enforce an effective legislative or administrative process—particularly one that is free of prejudice against one's political opponents—to prevent, investigate, and prosecute the corruption of government officials and civil servants?", and "Do whistleblowers, anti-corruption activists, investigators, and journalists enjoy legal protections that make them feel secure about reporting cases of bribery and corruption?" Scores are rated from 1 (= lowest level of corruption), to 7 (= highest level of corruption). The data is publicly available online here: https://freedomhouse.org/report/nations-transit/nations-transit-2015

Source 6: Global Insight Country Risk Ratings (IHS) 2014 is a system that provides a six-factor analysis of the risk environment in 203 countries/territories: political, economic, legal, tax, operational, and security risk. The corruption risk score used in the CPI is drawn largely from the evaluation of operational risk, but also builds on the insight of the country experts in analyzing the other areas of risk. The ratings assess the broad range of corruption, from petty bribe-paying to higher-level political corruption and the scores assigned to each country are

based on a qualitative assessment of corruption in each country/territory, particularly as it affects operational activities for businesses.

For example, corruption is a particular concern in relation to obtaining business permits and favorable policy and planning decisions. Analysts will closely assess businesses' experience of these processes and rate them from a minimum of 1.0 (= minimum corruption), to 5.0 (= maximum corruption) and allow for half-point intermediate scores (e.g. 3.5). Data is available at http://www.ihs.com/products/global-insight/country-analysis/

Source 7: IMD World Competitiveness Yearbook 2015 uses 333 criteria in order to obtain a multifaceted image of the competitiveness of nations, defined as following: "Competitiveness of nations is a field of economic knowledge, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people." Survey respondents were asked questions such as: "Bribing and corruption: Exist or do not exist?" and rated on a 1-6 scale, then converted to a 0 - 10 scale, whereby 0 (= the highest level of perceived corruption), and 10 (= the lowest). Link: http://www.imd.org/wcc

Source 8: Political and Economic Risk Consultancy (PERC) Asian Intelligence 2015. PERC produces a range of risk reports on Asian countries, paying special attention to critical socio-political variables like corruption, intellectual property rights and risks, labour quality, and other systemic strengths and weakness of individual Asian countries/territories. Data for CPI were gathered from the corruption newsletter, which gathers and interprets data from an executive opinion survey of local and expatriate businesspeople collected in face-to-face interviews, or e-mails. For the CPI, only one item was used: "How do you grade the problem of

corruption in the country in which you are working?", followed by a 11 point scale from 0 (= not a problem), to 10 (= a serious problem).

PERC data is available to subscribers here: http://www.asiarisk.com/

Source 9: Political Risk Services (PRS) International Country Risk Guide 2015 is based on political risk assessments and other political information and is used as an assessment of corruption within the political system. The measure is most concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, exchange of favors, secret party funding, and suspiciously close ties between politics and business. Corruption scores are given on a scale of 0 (= highest potential risk), to 6 (= lowest potential risk). Data is available to customers of the PRS International Country Risk Guide at www.prsgroup.com

Source 10: World Bank - Country Policy and Institutional Assessment (CPIA) 2014 rates countries against a set of 16 criteria grouped in four clusters: (a) economic management; (b) structural policies; (c) policies for social inclusion and equity; and (d) public sector management and institutions. Example questions include: "The extent to which the executive can be held accountable for its use of funds and the results of its actions by the electorate and by the legislature and judiciary", and "The extent to which public employees within the executive are required to account for the use of resources, administrative decisions, and results obtained". Three dimensions: (a) accountability of the executive to oversight institutions and of public employees for their performance; (b) access of civil society to information on public affairs; and (c) state capture by narrow vested interests are scored separately on a rating scale ranging from 1 (= low levels of transparency), to 6 (= high levels of transparency) and allows for half-point intermediate scores (eg. 3.5). The final score is an aggregate of the three dimensions of corruption across national and sub-national government institutions in the country/territory. Data

for CPIA can be obtained from

http://pubdocs.worldbank.org/pubdocs/publicdoc/2015/6/559351435159340828/cpia14-webFAQ14.pdf

Source 11: World Economic Forum Executive Opinion Survey (EOS) 2015 is an annual survey of business executives to assess corruption. On a scale of 1 - 7 where 1 = *very common*, to 7 = *never ,* survey respondents were asked questions such as: "In your country, how common is it for firms to make undocumented extra payments or bribes connected with the following": a) Imports and exports; b) Public Utilities; c) Annual Tax Payments; d) Awarding of public contracts and licenses; e) Obtaining favorable judicial decisions; or "In your country, how common is diversion of public funds to companies, individuals or groups due to corruption?", and "In your country, how do you rate the corporate ethics of companies (i.e., ethical behaviour in interactions with public officials, politicians and other firms)?" Results of parts a) to e) of the first question are aggregated into a single score. The results of the three questions were then averaged across all respondents to give a score per country/territory. EOS information can be found here: http://www.weforum.org/

Source 12: World Justice Project (WJP) Rule of Law Index 2015 is an assessment tool to offer a detailed and comprehensive picture of the extent to which countries/territories adhere to the rule of law in practice. The Index provides detailed information and original data regarding a variety of dimensions of the rule of law—the product of a rigorous data collection and aggregation process. Data comes from a global poll of the general public and detailed

questionnaires administered to local experts, comprised of 68 questions on the extent to which government officials use public office for private gain.

Individual items aggregated into four sub-indices, and scored on a continuous scale between a low of 0 to a high of 1, include: "Government officials in the executive branch do not use public office for private gain", "Government officials in the judicial branch do not use public office for private gain", "Government officials in the police and the military do not use public office for private gain", and "Government officials in the legislature do not use public office for private gain". Only the scores provided by the experts were considered for the CPI calculations. Data is publicly available online here: http://worldjusticeproject.org/rule-of-law-index/

APPENDIX D

Political Rights (PR) and Civil Liberties (CL) Indices

(Freedom House, 2011).

Freedom House's Fr*eedom in the World Survey* (www.freedomhouse.org) is an annual global report on political rights and civil liberties, composed of numerical ratings and descriptive texts for each country and a select group of related and disputed territories. The 2016 edition covers developments, in terms of the state of freedom, in 195 countries and 15 territories during calendar year 2015, from January 1, 2015, through December 31, 2015.

The PR and CL Indices are produced each year, by a consensus of the following sources: (i) external analysts; (ii) a panel of expert advisors and a team of Freedom House staff. The 2016 edition involves more than 100 analysts and nearly 30 advisers.

External analysts: External analysts assess the state of freedom for the countries and territories. Draft reports and scores are prepared, using a combination of the following broad range of sources: On-the-ground research, consultations with individual local, professional contacts, news articles, academic analysis, reports from non-governmental organizations, governments, and a variety of the following alternative sources: Population Reference Bureau, World Gazetteer, The CIA World Factbook, BBC Country Profiles, and the Unrepresented Nations and Peoples Organization (UNPO). The analysts score countries based on the conditions and events within their borders during the coverage period for 2016.

Expert advisers, regional specialists, and Freedom House staff: The external analysts' proposed scores and conclusions are discussed and defended at annual review meetings, organized by region and attended by a panel of expert advisors and specialists and Freedom House staff. The final score represents the consensus of the analysts, advisers, and Freedom House staff.

Political Rights (0-40 Points)

Freedom in the World Survey uses (i) scores and (ii) ratings to determine a numerical rating for political rights.

(i) Scores for Political Rights: The complete list of checklist questions, bulleted sub-questions (intended to provide guidance to the analysts regarding what issues are meant to be considered in scoring each checklist question), and scoring are as follows. Countries and territories are awarded 0 to 4 points for each of 10 political rights indicators, which take the form of the following questions. A score of 0 represents the smallest degree of freedom and 4 the greatest degree of freedom. The political rights questions are grouped into three subcategories: Electoral Process (3 items), Political Pluralism and Participation (4 items), and Functioning of Government (3 items). The highest score that can be awarded to the political rights checklist is 40; or a total score of 4 for each of the 10 items.

A. Electoral Process (0-12 points)

1. Is the head of government or other chief national authority elected through free and fair elections?

Did established and reputable national and/or international election monitoring organizations judge the most recent elections for head of government to be free and fair?

Have there been undue, politically motivated delays in holding the most recent election for head of government?

Is the registration of voters and candidates conducted in an accurate, timely, transparent, and non-discriminatory manner?

Can candidates make speeches, hold public meetings, and enjoy media access throughout the campaign free of intimidation?

Does voting take place by secret ballot or by equivalent free voting procedure?

Are voters able to vote for the candidate or party of their choice without undue pressure or intimidation?

Is the vote count transparent, and is it reported honestly with the official results made public?

Can election monitors from independent groups and representing parties/candidates watch the counting of votes to ensure their honesty?

Is each person's vote given equivalent weight to those of other voters in order to ensure equal representation?

Has a democratically elected head of government who was chosen in the most recent election subsequently been overthrown in a violent coup?

In cases where elections for regional, provincial, or state governors and/or other subnational officials differ significantly in conduct from national elections, does the conduct of the subnational elections reflect an opening toward improved political rights in the country, or, alternatively, a worsening of political rights?

2. Are the national legislative representatives elected through free and fair elections?

Did established and reputable domestic and/or international election monitoring organizations judge the most recent national legislative elections to be free and fair?

Have there been undue, politically motivated delays in holding the most recent national legislative election?

Is the registration of voters and candidates conducted in an accurate, timely, transparent, and nondiscriminatory manner?

Can candidates make speeches, hold public meetings, and enjoy media access throughout the campaign free of intimidation?

Does voting take place by secret ballot or by equivalent free voting procedure?

Are voters able to vote for the candidate or party of their choice without undue pressure or intimidation?

Is the vote count transparent, and is it reported honestly with the official results made public?

Can election monitors from independent groups and representing parties/candidates watch the counting of votes to ensure their honesty?

Is each person's vote given equivalent weight to those of other voters in order to ensure equal representation?

Have the representatives of a democratically elected national legislature who were chosen in the most recent election subsequently been overthrown in a violent coup?

In cases where elections for sub-national councils/parliaments differ significantly in conduct from national elections, does the conduct of the sub-national elections reflect an opening toward improved political rights in the country, or, alternatively, a worsening of political rights?

3. Are the electoral laws and framework fair?

Is there a clear, detailed, and fair legislative framework for conducting elections?

Are election commissions or other election authorities independent and free from government or other pressure and interference?

Is the composition of election commissions fair and balanced?

Do election commissions or other election authorities conduct their work in an effective and competent manner?

Do adult citizens enjoy universal and equal suffrage?

Is the drawing of election districts conducted in a fair and nonpartisan manner, as opposed to gerrymandering for personal or partisan advantage?

Has the selection of a system for choosing legislative representatives (such as proportional versus majoritarian) been manipulated to advance certain political interests or to influence the electoral results?

B. Political Pluralism and Participation (0-16 points)

4. Do the people have the right to organize in different political parties or other competitive political groupings of their choice, and is the system open to the rise and fall of these competing parties or groupings?

Do political parties encounter undue legal or practical obstacles in their efforts to be formed and to operate, including onerous registration requirements, excessively large membership requirements, etc.?

Do parties face discriminatory or onerous restrictions in holding meetings, rallies, or other peaceful activities?

Are party members or leaders intimidated, harassed, arrested, imprisoned, or subjected to violent attacks as a result of their peaceful political activities?

5. Is there a significant opposition vote and a realistic opportunity for the opposition to increase its support or gain power through elections?

Are various legal/administrative restrictions selectively applied to opposition parties to prevent them from increasing their support base or successfully competing in elections?

Are there legitimate opposition forces in positions of authority, such as in the national legislature or in sub national governments?

Are opposition party members or leaders intimidated, harassed, arrested, imprisoned, or subjected to violent attacks as a result of their peaceful political activities?

6. Are the people's political choices free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies, or any other powerful group?

Do such groups offer bribes to voters and/or political figures in order to influence their political choices?

Do such groups intimidate, harass, or attack voters and/or political figures in order to influence their political choices?

Does the military control or enjoy a preponderant influence over government policy and activities, including in countries that nominally are under civilian control?

Do foreign governments control or enjoy a preponderant influence over government policy and activities by means including the presence of foreign military troops, the use of significant economic threats or sanctions, etc.?

7. Do cultural, ethnic, religious, or other minority groups have full political rights and electoral opportunities?

Do political parties of various ideological persuasions address issues of specific concern to minority groups?

Does the government inhibit the participation of minority groups in national or subnational political life through laws and/or practical obstacles?

Are political parties based on ethnicity, culture, or religion that espouse peaceful, democratic values legally permitted and de facto allowed to operate?

C. Functioning of Government (0-12 points)

8. Do the freely elected head of government and national legislative representatives determine the policies of the government?

Are the candidates who were elected freely and fairly duly installed in office?

Do other appointed or non–freely elected state actors interfere with or prevent freely elected representatives from adopting and implementing legislation and making meaningful policy decisions?

Do non-state actors, including criminal gangs, the military, and foreign governments, interfere with or prevent elected representatives from adopting and implementing legislation and making meaningful policy decisions?

9. Is the government free from pervasive corruption?

Has the government implemented effective anticorruption laws or programs to prevent, detect, and punish corruption among public officials, including conflict of interest?

Is the government free from excessive bureaucratic regulations, registration requirements, or other controls that increase opportunities for corruption?

Are there independent and effective auditing and investigative bodies that function without impediment or political pressure or influence?

Are allegations of corruption by government officials thoroughly investigated and prosecuted without prejudice, particularly against political opponents?

Are allegations of corruption given wide and extensive airing in the media?

Do whistleblowers, anticorruption activists, investigators, and journalists enjoy legal protections that make them feel secure about reporting cases of bribery and corruption?

What was the latest Transparency International Corruption Perceptions Index score for this country?

10. Is the government accountable to the electorate between elections, and does it operate with openness and transparency?

Are civil society groups, interest groups, journalists, and other citizens able to comment on and influence pending policies or legislation?

Do citizens have the legal right and practical ability to obtain information about government operations and the means to petition government agencies for it?

Is the budget-making process subject to meaningful legislative review and public scrutiny?

Does the government publish detailed accounting expenditures in a timely fashion?

Does the state ensure transparency and effective competition in the awarding of government contracts?

Are the asset declarations of government officials open to public and media scrutiny and verification?

ii) Ratings for Political Rights: Each country or territory is assigned a rating for political rights (7 to 1)—based on its total scores for the political rights questions. Each rating of 1 through 7, with 1 representing the greatest degree of freedom and 7 the smallest degree of freedom, corresponds to a specific range of total scores (e.g., 1 = 78-100).

Rating	Status Characteristics
1	Countries and territories with a rating of 1 enjoy a wide range of political rights, including free and fair elections. Candidates who are elected actually rule, political parties are competitive, the opposition plays an important role and enjoys real power, and the interests of minority groups are well represented in politics and government.
2	Countries and territories with a rating of 2 have slightly weaker political rights than those with a rating of 1 because of such factors as political corruption, limits on the functioning of political parties and opposition groups, and foreign or military influence on politics.
3,4,5	Countries and territories with a rating of 3, 4, or 5 either moderately protect almost all political rights or strongly protect some political rights while neglecting others. The same factors that undermine freedom in countries with a rating of 2 may also weaken political rights in those with a rating of 3, 4, or 5, but to a greater extent at each successive rating.
6	Countries and territories with a rating of 6 have very restricted political rights. They are ruled by one-party or military dictatorships, religious hierarchies, or autocrats. They may allow a few political rights, such as some representation or autonomy for minority groups, and a few are traditional monarchies that tolerate political discussion and accept public petitions.
7	Countries and territories with a rating of 7 have few or no political rights because of severe government oppression, sometimes in combination with civil war. They may also lack an authoritative and functioning central government and suffer from extreme violence or rule by regional warlords.

Civil Liberties (0-60 Points)

Freedom in the World Survey uses (i) scores and (ii) ratings to determine a numerical rating for **Civil Liberties.** (i) Scores for Civil Liberties: The complete list of checklist questions, bulleted sub-questions (intended to provide guidance to the analysts regarding what issues are meant to be considered in scoring each checklist question), and scoring are as follows. Each country or territory is awarded 0-4 points for each of the 15 civil liberties indicators, which take the form of questions. A score of 0 represents the smallest degree of freedom and 4 the greatest degree of freedom. The civil liberties questions are grouped into four subcategories: Freedom of Expression and Belief (4 items), Associational and Organizational Rights (3 items), Rule of Law (4 items), and Personal Autonomy and Individual Rights (4 items). The highest score that can be awarded to the civil liberties checklist is 60; or a total score of 4 for each of the 15 questions.

D. Freedom of Expression and Belief (0-16 points)

1. Are there free and independent media and other forms of cultural expression?

Are print, broadcast, and/or internet-based media directly or indirectly censored?

Is self-censorship among journalists common, especially when reporting on politically sensitive issues, including corruption or the activities of senior officials?

Are libel, blasphemy, or security laws used to punish journalists who scrutinize government officials and policies or other powerful entities through either onerous fines or imprisonment?

Is it a crime to insult the honor and dignity of the president and/or other government officials? How broad is the range of such prohibitions, and how vigorously are they enforced?

If media outlets are dependent on the government for their financial survival, does the government withhold funding in order to propagandize, primarily provide official points of view, and/or limit access by opposition parties and civic critics? Do powerful private actors engage in similar practices?

Does the government attempt to influence media content and access through means including politically motivated awarding of broadcast frequencies and newspaper registrations, unfair control and influence over printing facilities and distribution networks, selective distribution of advertising, onerous registration requirements, prohibitive tariffs, and bribery?

Are journalists threatened, arrested, imprisoned, beaten, or killed by government or nongovernmental actors for their legitimate journalistic activities, and if such cases occur, are they investigated and prosecuted fairly and expeditiously?

Are works of literature, art, music, or other forms of cultural expression censored or banned for political purposes?

2. Are religious institutions and communities free to practice their faith and express themselves in public and private?

Are registration requirements employed to impede the free functioning of religious institutions?

Are members of religious groups, including minority faiths and movements, harassed, fined, arrested, or beaten by the authorities for engaging in their religious practices?

Are religious practice and expression impeded by violence or harassment from nonstate actors?

Does the government appoint or otherwise influence the appointment of religious leaders?

Does the government control the production and distribution of religious books and other materials and the content of sermons?

Is the construction of religious buildings banned or restricted?

Does the government place undue restrictions on religious education? Does the government require religious education?

Are individuals free to eschew religious beliefs and practices in general?

3. Is there academic freedom, and is the educational system free of extensive political indoctrination?

Are teachers and professors free to pursue academic activities of a political and quasi-political nature without fear of physical violence or intimidation by state or nonstate actors?

Does the government pressure, strongly influence, or control the content of school curriculums for political purposes?

Are student associations that address issues of a political nature allowed to function freely?

Does the government, including through school administration or other officials, pressure students and/or teachers to support certain political figures or agendas, including pressuring them to attend political rallies or vote for certain candidates? Conversely, does the government, including through school administration or other officials, discourage or forbid students and/or teachers from supporting certain candidates and parties?

4. Is there open and free private discussion?

Are people able to engage in private discussions, particularly of a political nature (in places including restaurants, public transportation, and their homes) without fear of harassment or detention by the authorities or powerful nonstate actors?

Do users of personal online communications—including private e-mail, text messages, or personal blogs/social-media platform with a limited following—face legal penalties, harassment, or violence from the government or powerful nonstate actors in retaliation for critical remarks?

Does the government employ people or groups to engage in public surveillance and to report alleged antigovernment conversations to the authorities?

E. Associational and Organizational Rights (0-12 points)

5. Is there freedom of assembly, demonstration, and open public discussion?

Are peaceful protests, particularly those of a political nature, banned or severely restricted?

Are the legal requirements to obtain permission to hold peaceful demonstrations particularly cumbersome and time consuming?

Are participants of peaceful demonstrations intimidated, arrested, or assaulted?

Are peaceful protestors detained by police in order to prevent them from engaging in such actions?

6. Is there freedom for nongovernmental organizations?

Are registration and other legal requirements for nongovernmental organizations particularly onerous and intended to prevent them from functioning freely?

Are laws related to the financing of nongovernmental organizations unduly complicated and cumbersome?

Are donors and funders of nongovernmental organizations free of government pressure?

Are members of nongovernmental organizations intimidated, arrested, imprisoned, or assaulted because of their work?

7. Are there free trade unions and peasant organizations or equivalents, and is there effective collective bargaining? Are there free professional and other private organizations?

Are trade unions allowed to be established and to operate free from government interference?

Are workers pressured by the government or employers to join or not to join certain trade unions, and do they face harassment, violence, or dismissal from their jobs if they do?

Are workers permitted to engage in strikes, and do members of unions face reprisals for engaging in peaceful strikes?

Are unions able to bargain collectively with employers and able to negotiate collective bargaining agreements that are honored in practice?

For states with very small populations or primarily agriculturally-based economies that do not necessarily support the formation of trade unions, does the government allow for the establishment of peasant organizations or their equivalents? Is there legislation expressively forbidding the formation of trade unions?

Are professional organizations, including business associations, allowed to operate freely and without government interference?

F. Rule of Law (0-16 points)

8. Is there an independent judiciary?

Is the judiciary subject to interference from the executive branch of government or from other political, economic, or religious influences?

Are judges appointed and dismissed in a fair and unbiased manner?

Do judges rule fairly and impartially, or do they commonly render verdicts that favor the government or particular interests, whether in return for bribes or other reasons?

Do executive, legislative, and other governmental authorities comply with judicial decisions, and are these decisions effectively enforced?

Do powerful private concerns comply with judicial decisions, and are decisions that run counter to the interests of powerful actors effectively enforced?

9. Does the rule of law prevail in civil and criminal matters? Are police under direct civilian control?

Are defendants' rights, including the presumption of innocence until proven guilty, protected?

Are detainees provided access to independent, competent legal counsel?

Are defendants given a fair, public, and timely hearing by a competent, independent, and impartial tribunal?

Are prosecutors independent of political control and influence?

Are prosecutors independent of powerful private interests, whether legal or illegal?

Is there effective and democratic civilian state control of law enforcement officials through the judicial, legislative, and executive branches?

Are law enforcement officials free from the influence of nonstate actors, including organized crime, powerful commercial interests, or other groups?

10. Is there protection from political terror, unjustified imprisonment, exile, or torture, whether by groups that support or oppose the system? Is there freedom from war and insurgencies?

Do law enforcement officials make arbitrary arrests and detentions without warrants or fabricate or plant evidence on suspects?

Do law enforcement officials beat detainees during arrest and interrogation or use excessive force or torture to extract confessions?

Are conditions in pretrial facilities and prisons humane and respectful of the human dignity of inmates?

Do citizens have the means of effective petition and redress when their rights are violated by state authorities?
Is violent crime either against specific groups or within the general population widespread?

Is the population subjected to physical harm, forced removal, or other acts of violence or terror due to civil conflict or war?

11. Do laws, policies, and practices guarantee equal treatment of various segments of the population?

Are members of various distinct groups—including ethnic and religious minorities, LGBT and intersex people, and the disabled—able to exercise effectively their human rights with full equality before the law?

Is violence against such groups widespread, and if so, are perpetrators brought to justice?

Do members of such groups face legal and/or de facto discrimination in areas including employment, education, and housing because of their identification with a particular group?

Do women enjoy full equality in law and in practice as compared to men?

Do noncitizens—including migrant workers and noncitizen immigrants—enjoy basic internationally recognized human rights, including the right not to be subjected to torture or other forms of ill-treatment, the right to due process of law, and the rights of freedom of association, expression, and religion?

Do the country's laws provide for the granting of asylum or refugee status in accordance with the 1951 UN Convention Relating to the Status of Refugees, its 1967 Protocol, and other regional treaties regarding refugees? Has the government established a system for providing protection to refugees, including against refoulement (the return of persons to a country where there is reason to believe they fear persecution)?

G. Personal Autonomy and Individual Rights (0-16 points)

12. Do individuals enjoy freedom of travel or choice of residence, employment, or institution of higher education?

Are there restrictions on foreign travel, including the use of an exit visa system, which may be issued selectively?

Is permission required from the authorities or non-state actors to move within the country?

Do state or nonstate actors determine or otherwise influence a person's type and place of employment?

Are bribes or other inducements needed to obtain the necessary documents to travel, change one's place of residence or employment, enter institutions of higher education, or advance in school?

13. Do individuals have the right to own property and establish private businesses?

Is private business activity unduly influenced by government officials, the security forces, political parties/organizations, or organized crime?

Are people legally allowed to purchase and sell land and other property, and can they do so in practice without undue interference from the government or nonstate actors?

Does the government provide adequate and timely compensation to people whose property is expropriated under eminent domain laws?

Are people legally allowed to establish and operate private businesses with a reasonable minimum of registration, licensing, and other requirements?

Are bribes or other inducements needed to obtain the necessary legal documents to operate private businesses?

Do private/non-state actors, including criminal groups, seriously impede private business activities through such measures as extortion?

14. Are there personal social freedoms, including gender equality, choice of marriage partners, and size of family?

Is violence against women—including domestic violence, female genital mutilation, and rape—widespread, and are perpetrators brought to justice?

Is the trafficking of women and/or children abroad for prostitution widespread, and is the government taking adequate efforts to address the problem?

Do women face de jure and de facto discrimination in economic and social matters, including property and inheritance rights, divorce proceedings, and child custody matters?

Does the government directly or indirectly control choice of marriage partners and other personal relationships through means such as requiring large payments to marry certain individuals (e.g., foreign citizens), not enforcing laws against child marriage or dowry payments, restricting same-sex relationships, or criminalizing extramarital sex?

Does the government determine the number of children that a couple may have?

Does the government engage in state-sponsored religious/cultural/ethnic indoctrination and related restrictions on personal freedoms?

Do private institutions, including religious groups, unduly infringe on the rights of individuals, including choice of marriage partner, dress, gender expression, etc.?

15. Is there equality of opportunity and the absence of economic exploitation?

Does the government exert tight control over the economy, including through state ownership and the setting of prices and production quotas?

Do the economic benefits from large state industries, including the energy sector, benefit the general population or only a privileged few?

Do private interests exert undue influence on the economy through monopolistic practices, cartels, or illegal blacklists, boycotts, or discrimination?

Is entrance to institutions of higher education or the ability to obtain employment limited by widespread nepotism and the payment of bribes?

Are certain groups, including ethnic or religious minorities, less able to enjoy certain economic benefits than others? For example, are certain groups restricted from holding particular jobs, whether in the public or the private sector, because of de jure or de facto discrimination?

Do state or private employers exploit their workers through activities including unfairly withholding wages and permitting or forcing employees to work under unacceptably dangerous conditions, as well as through adult slave labor and child labor?

(ii) Ratings for Civil Liberties: A country or territory is assigned a rating for civil liberties (7 to 1)—based on its total scores for the civil liberties questions. Each rating of 1 through 7, with 1 representing the greatest degree of freedom and 7 the smallest degree of freedom, corresponds to a specific range of total scores (e.g., 1 = 78-100).

Rating	Status Characteristics
1	Countries and territories with a rating of 1 enjoy a wide range of civil liberties, including freedoms of expression, assembly, association, education, and religion. They have an established and generally fair legal system that ensures the rule of law (including an independent judiciary), allow free economic activity, and tend to strive for equality of opportunity for everyone, including women and minority groups.
2	Countries and territories with a rating of 2 have slightly weaker civil liberties than those with a rating of 1 because of such factors as limits on media independence, restrictions on trade union activities, and discrimination against minority groups and women.
3,4,5	Countries and territories with a rating of 3, 4, or 5 either moderately protect almost all civil liberties or strongly protect some civil liberties while neglecting others. The same factors that undermine freedom in countries with a rating of 2 may also weaken civil liberties in those with a rating of 3, 4, or 5, but to a greater extent at each successive rating.
6	Countries and territories with a rating of 6 have very restricted civil liberties. They strongly limit the rights of expression and association and frequently hold political prisoners. They may allow a few civil liberties, such as some religious and social freedoms, some highly restricted private business activity, and some open and free private discussion.
7	Countries and territories with a rating of 7 have few or no civil liberties. They allow virtually no freedom of expression or association, do not protect the rights of detainees and prisoners, and often control or dominate most economic activity.

The gap between a country's or territory's political rights and civil liberties ratings is rarely more than two points. Politically oppressive states typically do not allow a well-developed civil society, for example, and it is difficult, if not impossible, to maintain political freedoms in the absence of civil liberties like press freedom and the rule of law.

APPENDIX E

World Index of Moral Freedom (WIMF)

(Foundation for the Advancement of Liberty, FAL: 2016).

The World Index of Moral Freedoms (WIMF) draws on the following five categories (indicators) and sample questions to respond to the central question: How free from state-imposed moral constraints are human beings depending on their countries of residence?

Each of the five following categories of indicators (A to E) is worth twenty points (20% of the total score of 100). Each category is made up of various indicators (normally one or two leading indicators adjusted by one or two lesser weighted ones), the weight of which is set in view of their inferred relevance towards the category's overall score.

Category	Indicator name	Indicator defined and weighted.	Sample questions
A	Religious freedoms	This category measures how free the state is with matters concerning religion, broken down as follows: 37.5%—amount of religious influence on the state, including its formal institutional status and governmental practice 10%— moral censorship of online content. 37.5% —constitutional and legal provisions and adjusted to reflect breaches 15% —religion-related Human Rights, particularly taking into account the incarceration of prisoners of conscience in each country	How free is the state from any religion? How religious-controlled is the state? How free is the individual to practice any religion or none of them?
B	Bioethical freedoms	This category measures how free is the state with matters that pertain to individual decision making on matters posing bio-ethical questions, such as the rights to life and health. 62.5%—pro-life and pro-choice and the legal status of abortion 12.5%—laws pertaining to euthanasia 25%—all other main bioethical freedom indicators including general biogenetic policy, rules on stem cell research, restrictions on therapeutical cloning, and constraints on surrogacy (the practice of hiring a woman to bear the child of a sterile or LGBT couple, with or without an economic compensation)	What is the legal status of abortion? What is the legal status of euthanasia?
C	Drugs freedoms	This category measures various indicators related to drug freedoms. 70%—policy on the social tolerance and legal acknowledgment of Cannabis 15%—General policy on drugs 15%—Amount of drug related inmates in the country's prisons(which provides information about strictly drugs laws are enforced)	• *What is the state's policy on Cannabis?* • *What is the state's general policy on drugs?* • *How free is the trade substances deemed harmful?*

D	Sexuality freedoms	This category is based on the reach and amount of government interference and censorship on legal status of sexuality freedoms. 40%—free consumption of pornographic content, as censorship still plays a significant role in many countries. 35%—legal status of prostitution 25% to the legal age of sexual consent	• *How free are sex services in the country?* • *What is the legal age of sexual consent?*
E	Gender & family indicators.	This category is based on the governments legal status of gender and family indicators. 25%—freedom of movement for women, compared to that of the general population. 25%—cohabitation of unmarried couples 40% —legal status of same sex marriage 10%—status of transgender individuals in each country	• *How free are women?* • *How free are LGBT individuals?* • *What is the legal status of unmarried couples living together?*

All category results and the general index itself are presented in a 0-100 point scale. Countries are classified according to the following intervals:

- 90-100 points – *Highest moral freedom*
- 80-90 points – *Very high moral freedom*
- 60-80 points – *High moral freedom*
- 50-60 points – *Acceptable moral freedom*
- 40-50 points – *Insufficient moral freedom*
- 20-40 points – *Low moral freedom*
- 10-20 points – *Very low moral freedom*
- 0-10 points – *Lowest moral freedom*

Sources: Countries are classified towards each category described, according to the information available in the sources reviewe. To inform and construct the WIMF, authors have drawn on the following 33 data sources, (alphabetically):

1. Age of Consent (2016): This is a legal resource where information about the Age of Consent across the United States and around the world is available. Age of consent is defined as the minimum wage at which a person is considered to be legally able to give consent to engage in sexual activities. https://www.ageofconsent.net/

2. Amnesty International Report (2015-2016): Amnesty International is a global movement of more than 7 million people who take injustice personally. Through detailed research and determined campaigning, Amnesty International helps to fight abuses of human rights worldwide.

https://www.amnesty.org/en/latest/research/2016/02/annual-report-201516/

3. Center for Genetics and Society: BioPolicyWiki (2016): http://www.biopolicywiki.org/index.php?title=Main_Page

4. Centre of Reproductive Rights (CRR) The World's Abortion Laws, (2015): The Center of Reproductive Rights is a legal innovator seeking to fundamentally transform the landscape of reproductive health and rights worldwide, through influencing law in the courtroom, reporting on rights and engaging policy makers to promote progressive ideas and defeat proposals that are discriminatory, punitive, or dangerous to women's health. https://www.reproductiverights.org/document/annual-report-2015

5. Central Intelligence Agency (CIA), The World Factbook, (2015): The CIA World Factbook provides information on the history, people, government, economy, geography, communications, transportation, military, and transnational issues for 267 world entities. https://www.cia.gov/library/publications/the-world-factbook/

6. Dignity South Africa, Assisted Suicide Laws around the World, (2016): http://www.dignitysa.org/blog/assisted-suicide-laws-around-the-world/

7. Europa, (2016): This site is a resource for information on the European Union, highlighting many of the unique economic and political unions between 28 European countries that together cover much of the continent of Europe. https://europa.eu/european-union/index_en

8. Euthanasia Research and Guidance Organization, World Laws on Assisted Suicide, (2010): http://finalexit.org/assisted_suicide_world_laws.html

9. Euthanasia.com, (2016): Resource information and research on Euthanasia, Physician-assisted suicide, living wills, and mercy killing. http://euthanasia.com/

10. Freedom House: Freedom in the World (2015): https://freedomhouse.org/

11. Freedom House: Freedom on the Net (2015): Freedom on the Net 2015 reports internet freedoms around the world; specifically pertaining to government censored information of public interest, surveillance laws, limiting privacy tools, content removal, arrests and intimidation for people sharing information concerning politics, religion or society through digital networks. https://freedomhouse.org/report/freedom-net/freedom-net-2015.

12. Heritage Foundation, Index of Economic Freedom, (2016): This index includes updated economic freedom scores and macroeconomic data for 186 economies, cross-country comparisons that highlight why economic freedom matters, as well as information and resources that explore topics of particular relevance to today's policy debates, such as harm of anti-competitive regulatory policies and protectionism. http://www.heritage.org/index/about

13. Human Rights Watch: World Report (2015): Human Rights Watch site reports and reviews human rights practices around the globe. The Report spotlights abuses and focuses on bringing perpetrators to justice, as well as summarizing key human rights issues in more than 90 countries and territories worldwide. https://www.hrw.org/world-report/2015

14. International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA, 2016): ILGA is a worldwide federation of 1,200 member organizations from 125 countries campaigning for lesbian, gay, bisexual, trans and intersex rights, since 1978. This Worldwide report publication contains the core information in relation to legislation affecting people on the basis of their sexual orientation, additional information and articles providing the necessary context to understand the impact of said legislation on the lives of people, and ways to initiate or follow up the process leading to change where needed. http://ilga.org/

15. Legislation. Internet Censorship World Map (2014).

16. OECD Social Institutions & Gender Index (2014): This resource provides a cross-country measure for discrimination against women in social institutions (formal and informal laws, social norms, and practices) across 160 nations. http://www.genderindex.org/

17. OECD Social Policy Division, Partnership and prevalence of cohabitation, (2013): Resource providing information on the indicators on partnership status; that refers to the proportion of adults 20 years of age and older who live as a single adult or in a one couple household, being either married or cohabiting. www.oecd.org/social/family/database

18. OpenNet Initiative (ONI), Global Internet Filtering and Country Profiles, (2016): ONI identifies and documents Internet filtering, censorship, and surveillance, as a growing global phenomena, to promote and inform wider public dialogues about such practices. https://opennet.net/

19. Pew Research Center, Pew Forum on Religion and Public Life, (2016): Pew Research Center is a nonpartisan fact tank that informs the public about the issues, attitudes and trends shaping America and the world. They conduct public opinion polling, demographic research, content analysis and other data-driven social science research. PRC aims to generate a foundation of facts that enriches the public dialogue and supports sound decision-making. PRC is non-profit, nonpartisan and non-advocacy. http://www.pewforum.org/

20. Procon, The Leading Source for Pros and Cons of Controversial Issues, World chart of prostitution legal status, (2015): This site is an educational resource providing nonpartisan public information, civic education, pros, cons, and related information on more than 50 controversial issues from gun control and death penalty to illegal immigration and alternative energy—with the aim to get people thinking critically about both sides of important issues, and strengthen their minds and opinions. http://www.procon.org/

21. The Guardian, Woman's Rights Country by Country, (2014): An interactive map of data, showing woman's rights, such as legislation for violence, harassment, abortion, property and employment rights, discrimination, and equality, by region or country across the globe. https://www.theguardian.com/global-development/ng-interactive/2014/feb/04/womens-rights-country-by-country-interactive

22. Transgender Europe (TGEU), Trans Rights Europe Index, (2014): This trans specific map and index reflects the legal situation in areas of equality and non- discrimination on the grounds of gender identity and gender expression in Europe, and highlights the legal provisions in gender identity recognition. The Trans Rights Europe Map & Index provide an overall reflection of the legal situation in all European countries in a simple format. They do not attempt to reflect the complex social situations trans people might face. http://tgeu.org/Trans_Rights_Europe_Map/

23. United Kingdom Government Publications, Drugs International Comparators, (2014): Report on the 2013 to 2014 international comparators study of approaches to drug-related issues by the UK and other countries. This is a supporting document to the 2010 drug strategy. https://www.gov.uk/government/publications/drugs-international-comparators

24. United Nations Organization, Human Development Report, (2015): The Human Development Report 2016 looks into questions about substantial barriers to development and recognizes that in every society certain groups are far more likely to suffer disadvantages than others. The report also looks to what societies should do to advance human development for everyone, setting forward policy recommendations at the national level and ways that the global development landscape—particularly multilateral organizations—could be made more effective in the fight to leave no one behind and achieve the 2030 Agenda and the Sustainable Development Goals (SDGs). http://hdr.undp.org/en

25. United Nations Office on Drugs and Crime (UNODC), World Drug Report, (2015): The World Drug Report presents a comprehensive annual overview of the latest developments in the world's illicit drug markets by focusing on the production, trafficking and consumption of the main types of illicit drugs, along with the related health consequences of those drugs. http://www.unodc.org/wdr2015/

26. United Nations Organization Office of the High Commissioner for Human Rights, Human Rights by Country, (2016): http://www.ohchr.org/EN/Countries/Pages/HumanRightsintheWorld.aspx

27. United States Department of State, International Narcotics Control Strategy Report; (INCSR; 2015): The INCSR is the United States Government's country-by-country two volume report that describes the efforts to attack all aspects of the international drug trade, chemical control, money laundering and financial crimes. https://www.state.gov/j/inl/rls/nrcrpt/index.htm

28. United States Department of State, International Religious Freedom Report, (2015): International Religious Freedom Report (IRF) describes the status of religious freedom in every country. The report covers government policies violating religious belief and practices of groups, religious denominations and individuals, and U.S. policies to promote religious freedom around the world. The U.S. Department of State submits the reports in accordance with the International Religious Freedom Act of 1998. https://www.state.gov/j/drl/rls/irf/

29. United States Commission on International Religious Freedom, Annual Reports (2015 & 2014): USCIRF is an independent, bipartisan U.S. federal government commission created by the 1998 International Religious Freedom Act (IRFA) that monitors the universal right to freedom of religion or belief abroad. USCIRF uses international standards to monitor religious freedom violations globally, and makes policy recommendations to the President, the Secretary of State, and Congress. http://www.uscirf.gov/reports-briefs/annual-report/2015-annual-report

30. Vasquez and Porcnik, (2015), The Human Freedom Index (2015): The Human Freedom Index presents the state of human freedom in the world based on a broad measure that encompasses personal, civil, and economic freedom. Human freedom is a social concept that recognizes the dignity of individuals and is defined here as negative liberty or the absence of coercive constraint. Because freedom is inherently valuable and plays a role in human progress, it is worth measuring carefully. The Human Freedom Index is a resource that can help to more objectively observe relationss between freedom and other social and economic phenomena, as well as the ways in which the various dimensions of freedom interact with one another. https://www.cato.org/human-freedom-index

31. Wikipedia, the free encyclopedia (2016): https://www.wikipedia.org/

32. World Bank Group, Women, Business and the Law, Getting to Equal, (2016): This resource shines a light on how women's incentives or capacity to work is affected by the legal environment and provides a basis for improving regulation. There is an examination of laws and regulations affecting women's prospects as entrepreneurs and employees in 173 economies, across seven areas: accessing institutions, using property, getting a job, providing incentives to work, building credit, going to court, and protecting women from violence. The report's quantitative indicators are intended to inform research and policy discussions on how to improve women's economic opportunities and outcomes.
https://openknowledge.worldbank.org/handle/10986/22546

33. World Justice Project (WJP), Rule of Law Index (2015): This comprehensive index is a leading source for original data on the rule of law. It's coverage expands to 102 countries and jurisdictions, relying on more than 100,000 household and expert surveys to measure how the rule of law is experienced in practical, everyday situations by the general public worldwide. Performance is measured using 44 indicators across eight primary rule of law factors, each of which is scored and ranked globally and against regional and income peers: Constraints on Government Powers, Absence of Corruption, Open Government, Fundamental Rights, Order and Security, Regulatory Enforcement, Civil Justice, and Criminal Justice.

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