## Short Report

# The effect of women in government on population health: An ecological analysis among Canadian provinces, 1976-2009 

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#### Abstract

Previous research finds connections between women in government, promotion of women's issues, and government spending. However, the connection between female politicians and population health warrants more significant attention. This study takes advantage of differences among Canadian provinces to evaluate the effect of women in government on age-standardized all-cause mortality rates, to assess the potential mediating role of government spending, and to determine the role played by political partisanship. Time-series cross-sectional data are retrieved from the Canadian Socio-Economic Information Management System II Tables for 1976-2009 (10 provinces and 34 years $=340$ cases). Cumulative women in government is measured as the cumulative seats held by female politicians as a percentage of provincial seats since 1960. Political partisanship is measured as the cumulative seats held by female politicians in left-wing, centre, and right-wing parties as a percentage of provincial seats since 1960. Government spending is measured as the average of standard scores of four provincial expenditures: medical care, preventive care, other social services, and post-secondary education. Health is measured as total, male and female age-standardized mortality rates per 1000 population (all causes of death). Estimation techniques include the Prais-Winsten regressions with panel-corrected SEs, a first-order autocorrelation correction model, and fixed-unit effects, adjusted for alternative factors. We find that as the cumulative average percentage of women in government has historically risen, total, male, and female mortality rates tend to be lower, net of alternative explanations. Government spending partially mediates the effect of women in government on mortality rates. Moreover, increases in female politicians from left-wing, centre, and right-wing parties are all significantly associated with decreases in mortality rates. Women in government can bring about desirable changes in population health. Our work encourages more debate and research about quotas and other measures designed to level the political playing field for women.


## 1. Introduction

Over the last two decades, the percentage of women elected to national government among OECD countries increased by more than twothirds (67.2\%). Whereas in 1997, only $16.9 \%$ of all national parliamentarians were women, this number rose to $28.2 \%$ in 2016 (InterParliamentary Union, 2016). Over the same period, the number of countries achieving the critical mass of 30 percent women in government climbed from five to fourteen (Inter-Parliamentary Union, 2016). These upward trends have generated scholarly interest about whether women in government have a systematic and predictable influence on population health. In this study, we contribute to this growing body of work by testing the relationship between women in government, government spending, political partisanship, and age-standardized mortality rates using time-series cross-sectional data among Canadian provinces from 1976 to 2009. Our paper is organized in the following manner. The next three sub-sections summarizes our theoretical location, reviews the extant literature, and states our research questions. Section 2 details our Methods, including our design, data sources and variables, and data analysis. We then present our descriptive, bivariate,
and multivariate results in Section 3. In Section 4, we discuss our results and offer a concluding remark.

### 1.1. Theoretical location

### 1.1.1. Why should women in government matter to population health?

To understand how women in government might influence population health, we seek theoretical guidance from political sociology. Our theoretical location conceptualizes women in government as collective political actors, who are more committed to advancing women's interests, to achieving a more equal distribution of societal resources, and to triggering government spending in health-promoting ways.

First, women in government can be viewed as collective political actors with some measure of power and authority in formal politics. As such, they engage in various activities and actions that can have a significant influence on decisions, policies, and outcomes associated with a given conflict. According to the politics of presence theory, there is a causal link between the number of women elected (i.e., descriptive representation) and the advancement of women's interests (i.e., substantive representation) (Phillips, 1995). If elected, women are more

[^0]likely to speak, advocate, symbolize, and act on behalf of women and children compared to their male counterparts. It follows that female politicians are better equipped to represent the interests of female voters because they, at least to some extent, share the same experiences. In addition to advancing women's interests, Brady (2009) argues that women in government are committed to a more equal distribution of valuable societal resources (e.g., income, education, and wealth). Compared to their male counterparts, female politicians are more likely to hold leftist attitudes (e.g., civil rights, social equality, and egalitarianism) and substantively advance women's issues (e.g., pay equity, violence against women, health care, family policy, and divisions in paid and unpaid work) (Dodson, 1991; Wängnerud, 2009).

The political sociology literature also offers a potential mechanism through which women in government might influence population health: government spending. Existing studies find connections between female politicians and spending preferences tied to health-promoting issues such as healthcare, family benefits, social services, and education (Bratton \& Ray, 2002). Using cross-sectional time-series data among twelve OECD countries, Bolzendahl and Brooks (2007) find that a single standard unit change in the level of women's political representation results in approximately a $1 \%$ increase in welfare state spending. Recent epidemiological research confirms the importance of government spending to population health (Beckfield \& Bambra, 2016; Ng \& Muntaner, 2015). When countries devote a more significant share of their economies to social welfare expenditures, population health and health inequalities tend to improve and narrow, respectively (Beckfield \& Bambra, 2016; Dahl \& van der Wel, 2013; Ng \& Muntaner, 2015). Government spending shapes and influences population health through various public policies and programs that meet basic needs, manage common risks, and redistribute health-promoting resources. The theoretical and empirical connections between women in government, promotion of women's interests, and government spending have been established. The connection between women in government and population health remains in its infancy. Lastly, if women in government matters population health, the political sociology literature suggests that the partisan makeup of elected female representatives might matter as well. Partisan political theory contends that a primary determinant of variation in policy choices and policy outputs in constitutional democracies is the party ideology of government (Alesina, 1995; Castles, 1982; Garrett, 1998; Garrett \& Lange, 1989; Hibbs, 1992; Huber \& Stephens, 2001). The ideological stance of political parties ranges more or less along a left-right ideological scale (Castles \& Mair, 1984; Cross, 2011). The political ideology of left-wing political parties is often associated with being social democratic, egalitarian, collectivist, and interventionist. Left-wing political parties tend to support a broad safety net of social welfare programs, including universal child care, education, and Medicare (Castles \& Mair, 1984; Cross, 2011). In contrast, right-wing parties tend to favour private enterprise, big business, and free markets as well as competitiveness, restructuring, deficit reduction, and privatization. Right-wing parties are commonly associated with fiscal conservatism, which includes the explicit goal of reducing government spending. As for centre political parties, their ideological preferences reflect a moderate or centrist position that falls between the left and right of the political spectrum (Blais, 2005). Given these ideological differences, it remains unknown whether female politicians from left-wing, centre, and right-wing parties exert differential effects on population health.

### 1.2. Previous research

A small but growing body of research finds connections between women in government and population health. This work has taken place within three relevant contexts. First, among OECD countries, two critical studies were conducted by Lynch et al. (2001) and Muntaner et al. (2002). The former used the 1990-91 wave of the World Values Survey to investigate cross-sectional associations between the
proportion of women elected to national government and life expectancy, mortality rates, and low birth weight among 16 wealthy countries. Correlation results indicate that having more females in government is associated with lower rates of female ( $r=-0.63$ ) and male infant mortality ( $r=-0.73$ ) (Lynch et al., 2001). Using the same data and methods, Muntaner et al. (2002) measured women in government, as the percentage of elected seats in national governments occupied by women, and find that rates of low birth weight and infant deaths from all causes were significantly lower in countries with more women in government. The second context of research has been conducted among low- and middle-income countries. Swiss, Fallon, and Burgos (2012) used pooled time-series analyses to examine the whether increases in women legislators are predictive of improvements in child health among 102 developing countries from 1980 to 2005. Compared to countries with no women in government, countries meeting a 20 percent threshold of women in government had higher rates of measles immunizations (10 percentage points), DPT immunizations (12 percentage points), infant survival ( 0.7 percentage points) and child survival (1 percentage point). More recently, Quamruzzaman and Lange (2016) conducted a multilevel analysis of the impact of female political representation in national parliaments on child health. Using crosssectional data for 51 low- and middle-income countries and longitudinal data for 20 countries, they find that female representation is negatively related to infant mortality and positively related to measles vaccination status. Moreover, Quamruzzaman and Lange (2016) finds that state spending accounts for some of the mediation effects between female representation and child health.

Third, existing studies also have tested the effects of women in government within the U.S. Kawachi, Kennedy, Gupta, and ProthrowStith (1999) used a cross-sectional ecological design to investigate the effect of women's representation in elected office, measured at the state-level as representatives, senators, and governors, on female and male mortality rates and mean days of activity limitations reported by women during the previous month. Correlation results indicate that higher political participation by women is associated with lower female mortality rates ( $r=-0.51$ ), as well as lower activity limitations ( $r=$ - 0.47). More recently, Homan (2017) used administrative data with fixed-effects and random-effects models to investigate the relationship between political gender inequality in state legislatures and state infant mortality rates in the United States from 1990 to 2012. Homan (2017) finds that higher percentages of women in state legislatures are associated with reduced infant mortality rates, both between states and within states over time. On one hand, these studies draw much needed attention to the beneficial effects of women's political representation on population health. On the other, this body of research is limited in several ways. First, existing studies suffer from the small "N-problem," which arises when the number of macro-level units of analysis is inherently limited (Lynch et al., 2001; Muntaner et al., 2002). Second, half of the reviewed studies above do not control for unobserved heterogeneity (i.e., omitted variable bias) due to their reliance on correlational methods (Lynch et al., 2001; Muntaner et al., 2002). Third, only one study to date has considered the potential mediating role of government spending (Quamruzzaman \& Lange, 2016). It remains unknown whether government spending either accounts for all or some of the health effects of women in government on population health. Fourth, previous studies have not assessed the influence of partisan effects, or whether women in government from different political parties are predictive of varying levels of population health. Given that leftwing, centre, and right-wing political parties have divergent policy preferences (Schmidt, 1996, 2002), the effect of partisan politics and women in government warrants greater attention. Lastly, the links between women in government and population health have not been tested in Canada. Canada and its provinces offer a promising context to advance the women in government-population health hypothesis. Canadian provinces are sub-national jurisdictions with sufficient political autonomy to generate different social, economic, and health outcomes.

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