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Gender, family status and physician labour supply

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ABSTRACT

With the increasing participation of women in the physician workforce, it is important to understand the sources of differences between male and female physicians' market labour supply for developing effective human resource policies in the health care sector. Gendered associations between family status and physician labour supply are explored in the Canadian labour market, where physicians are paid according to a common fee schedule and have substantial discretion in setting their hours of work. Canadian 1991, 1996, 2001 and 2006 twenty percent census files with 22,407 physician observations are used for the analysis. Although both male and female physicians have statistically indistinguishable hours of market work when never married and without children, married male physicians have higher market hours, and their hours are unchanged or increased with parenthood. In contrast, female physicians have lower market hours when married, and much lower hours when a parent. Little change over time in these patterns is observed for males, but for females two offsetting trends are observed: the magnitude of the marriage-hours effect declined, whereas that for motherhood increased. Preferences and/or social norms induce substantially different labour market outcomes. In terms of work at home, the presence of children is associated with higher hours for male physicians, but for females the hours increase is at least twice as large. A male physician's spouse is much less likely to be employed, and if employed, has lower market hours in the presence of children. In contrast, a female physician's spouse is more likely to be employed if there are three or more children. Both male and female physicians have lower hours of work when married to another physician. Overall, there is no gender difference in physician market labour supply after controlling for family status and demographics.

Introduction

Over the last several decades one dramatic change across OECD countries in the structure of the physician workforce is the increasing participation of women. In the United States, the proportion of female physicians increased from 20% to 30% between 1990 and 2007 (NCHS, 2009). In Canada the share increased from 12% in 1980 to 36% in 2010 (CIHI, 2011). Implications of this trend are noteworthy for health human resource planners and researchers. A key issue is that, on average, female physicians practise fewer hours than their male counterparts. Understanding the sources of differences between male and female physicians' work hours is essential for developing effective human resource policies.

Most economic studies of labour market differences between female and male physicians have focused on understanding gaps in earnings and/or wages. Contributions include Ohsfeldt and Culler (1986), Rizzo and Zeckhauser (2007), and Theurl and Winner (2011). Across developed countries a common finding is that females have lower annual earnings, although there is more debate – see, for example, Baker (1996), and Bashaw and Heywood (2001) – about gaps in hourly wages. Gaps in earnings stem from differences in work hours and/or hourly wages; therefore work hours are central to understanding the mechanics of this issue.

Physician labour supply is, additionally, an important question independent of earnings since physician time is key to service provision. Research looking at trends in hours of work includes Crossley, Hurley, and Jeon (2009) and Sarma, Thind, and Chu (2011), with the latter noting that the presence of children influences female physicians' hours; service provision is explored, for example,

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by Constant and Léger (2008). These studies observe females providing fewer hours or services per year. Similarly, Watson, Slade, Buske, and Tepper (2006) find that in 2001 average female general practitioners in Canada had paid workloads equivalent to 68% of their male counterparts. Understanding physician labour supply and gender issues is useful for human resource planning purposes in the health care sector given that medical fields are highly regulated and entry is limited. Although not an issue restricted to physicians, the public return also increases with greater physician work time (within safe limits) since training is taxpayer subsidized.

Canada's institutional context is particularly amenable to this study and permits a contribution to the large research literatures regarding gendered labour market differentials surveyed by Bertrand (2011), and the economics of the family discussed by Browning et al. (2014). It has a publicly financed single-payer system (there is virtually no private sector for medically necessary physician services) where physicians have flexibility in choosing their hours of work. Most physicians are not employees but self-employed professionals. Some physicians, such as surgeons, may have aspects of their practice restricted because of limited access to facilities such as operating theatres, but there are not normally limitations on office services. A small number of physicians have salaried positions, but even here those wishing to work extra clinic or office hours may normally do so. Furthermore, for most of our data period there was a perceived physician shortage (Postl, 2006). Thus physicians not only have enormous flexibility in setting their hours, but there has been social and government pressure to increase them and offer after-hour services.

Beyond flexible hours, gender gaps in market wages have been proposed as one reason that females allocate less time to the labour market. Pre-labour market gender discrimination may exist regarding the allocation of, and/or self-selection into, medical specialties (Gjerberg, 2002), but in Canada, conditional on specialty, the fixed and universal fee schedule for all medically necessary services that is negotiated between each provincial government and its medical association largely eliminates fees as a source of gender discrimination given the single-payer system. Whenever they deliver a service in either the outpatient or inpatient sector, physicians are reimbursed by the government based on the fee schedule. These common fees imply equal gross payments per service regardless of gender – i.e., equal earnings potential. Net payments may, however, vary if physicians have different overhead costs. In particular, physicians who mostly work in hospitals or certain clinics have lower overhead costs, but the fee schedule reflects this to some extent. Payment per hour may also vary with treatment style and/or productivity. Importantly, these production side decisions are endogenous and potential income – payment per service – is gender blind. Beyond medically necessary services, physicians may also receive payments for publically uninsured services such as completing insurance application forms or cosmetic procedures. On average, this source of income is modest and provincial medical associations commonly provide guidance (including a recommended fee schedule) regarding billing for uninsured services. Overall, while pre-labour market gender based barriers may exist in some contexts (e.g., Nomura & Gohchi, 2012), for practicing physicians the Canadian labour market serves as a laboratory allowing us to study how, given current social norms and individual preferences, highly educated females and males respond when equal gross pay per service (reflecting potential earnings) has been realized and workers have substantial discretion in choosing their market hours.

In this paper, we use Canadian census masterfiles to characterize gender differences in the relationship between family structure and labour supply broadly defined; we focus on weekly hours of market work, although we also examine other elements of labour supply including weeks of paid work per year, part-time employment, and hours of non-market work. Family responsibilities, especially child care, have been cited as reasons for female physicians' lower hours of paid work. Few studies have, however, formally examined the relationship between family structure and physician labour supply from a household perspective. Furthermore, there is little evidence on how spousal characteristics are related to it. Jacobson, Nguyen, and Kimball (2004) show that female physicians who are parents have significantly reduced hours of market work. Gjerberg (2003), using Norwegian data, looks at how family obligations are combined with market work finding that specialty choice and the probability of working part-time are affected by the presence of children, and that having a spouse who is a physician improves career outcomes. Although her focus is on earnings, of particularly relevance is Sasser (2005) who examines how much of the gender gap in annual earnings among physicians is due to women's greater family responsibilities using panel data for young US physicians. Comparing before and after status changes, she finds that female physicians earn 11 percent less once married, plus an additional 14 percent less after having one child or 22 percent less after having had two or more children.

The remainder of the paper is organized as follows. Section two presents a short review of the family status-labour supply research literature outside of health economics. The data and econometric methods used are briefly described in the third section; Section four reports descriptive statistics; and regression based empirical results are presented in Section five. The last section discusses the findings and concludes.

Family status and labour supply patterns

Research on the economics of the family regards specialization in production and economies of scale as principal sources of economic gains to co-habitation. Traditionally, if women have a comparative advantage in home production, while men have a comparative advantage in the labour market, then wives specialize more in home production, while husbands concentrate on the labour market (e.g., Becker, 1991; Lundberg & Rose, 2000, 2002). Empirical work in developed countries observes that married men work longer hours of paid employment and have higher wages than unmarried men, with the reverse for women (e.g., Antonovics & Town, 2004).

After the birth of a child the value of home production increases, as do household costs; however, unlike costs which, according to the life-cycle hypothesis, may be smoothed across time by forward-looking agents via saving and borrowing in financial markets, the time-intensive demands of children cannot be shifted intertemporally (although some services may be purchased in the market and the associated costs smoothed). This inability to intertemporally substitute parenting time/effort has implications for the distribution of labour supply across home and market production. Total family home and market hours, the sum of hours of work at home and in the labour market by both partners, will vary in the presence of children to compensate for the demands of child rearing whose costs cannot be smoothed. Additionally, the value of specialization in the household, the difference across partners in each of home and market hours of work, may increase depending upon the child-rearing technology employed (Lundberg & Rose, 2000, 2002). Beyond pure economic rationales deriving from market factors, the degree of specialization between home and market labour supply may vary systematically across the sexes as a direct effect of underlying preferences and social norms. Of course, tastes also generate family matches, and assortative mating may play a role in household labour supply. In a broader theoretical framework, household labour supply and consumption decisions