Research Statement

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I am an applied microeconomist, and my primary field is health economics. My current research interests involve the effects of prenatal and perinatal infant health on human capital formation throughout life. In general, my desire to be an academic and do research is driven by a curiosity in real world problems. As a result, most of my research tends to have strong policy implications. Furthermore, this approach keeps me from being bound to a narrow sub-field or particular methodological approach. This tends to make my research very multidisciplinary, barrowing ideas and methods from fields and disciplines.

Methodologically, the majority of my research involves applied microeconometrics. My dissertation utilizes a broad spectrum of techniques from basic OLS to semi-parametric regression. I also have research projects in which I employ panel-data, including dynamic panel data. My research in empirical health economics is summarized in Section 1.

In addition to my empirical health research, I also have a number of side projects in the area of applied microeconomic theory. This work is summarized in Section 2.

1 Health Economics

1.1 Health and human capital

My primary research area, and the focus of my dissertation, is in the area of health and human capital development. This line of research attempts to use insights from the relatively young field of health economics to answer a very old question in labor economics: why do some individuals invest in and achieve a high degree of human capital while others do not? My work in this area more specifically asks how does health before birth affect the formation of human capital? Thus far, there is strong evidence in the literature that birth weight affects human capital formation, but little is known about the mechanism by which this occurs.

In the first chapter of my dissertation, entitled **"The Effects of Asymmetric and Symmetric Fetal Growth Restriction on Human Capital Development"** (Robinson, 2011a), I examine the causal pathway by which poor infant health translates into reduced human capital in later life. To understand the "black box" mechanism that has eluded the literature to date, I utilized information from the medical literature to decompose low birth weight infants into two distinct subtypes: a symmetric type, which is characterized by cognitive deficits, and an asymmetric type,

which exhibits little to no cognitive problems. Using data from a longitudinal survey of newborns, I establish three results: First, there is empirical evidence of brain sparing in the asymmetric subtype, but not in the symmetric subtype. Second, despite differences in cognitive impairment, both subtypes exhibit similar impairment to physical health. And finally, there is evidence that the causes and timing of onset during pregnancy are different for asymmetric and symmetric growth restriction. The results indicate that differentiating between these subtypes may offer new opportunities to identify the underlying casual relationships between health and human capital development, as well as uncovering the "black box" mechanism behind the fetal origins hypothesis. These results also have broad implications for the timing of policy interventions aimed at pregnant women. Specifically my results my indicate that interventions in early pregnancy have the greatest chance of improving human capital formation in later life as well as improving physical health, while interventions in late pregnancy are likely to only improve physical well-being and not cognition or human capital development.

The second chapter of my dissertation, **"The Spanish influenza Epidemic, Fetal Growth Restriction, and Human Capital Development: New Insight"** (Robinson, 2011b), I test the implications of the first chapter. To do this I reexamine the effects of the Spanish flu pandemic on human capital development, a question first made famous by Almond (2006). I split the cohort that experience the 1918 influenza pandemic in utero into two subtypes: an asymmetric type for which physical health is impaired but brain growth and cognitive function is spared, and a symmetric type for which both physical health and cognitive function is compromised. I find that for the symmetric type, which experienced the pandemic in early gestation, human capital measures are more significantly compromised than the previous literature suggests. For the asymmetric subtype, which experiences the pandemic late in gestation, I find evidence of higher educational attainment and earning than the surrounding cohorts. These results provide evidence that the mechanism behind the effects of health at birth on human capital formation is one of decreased cognitive ability and not one of physical health. This is a question that the literature has not been able to answer to date.

This line of research has several potential extensions. One of my ultimate goals is to use this analysis to assess the benefits of the WIC program. One implication of the above results is that programs that tend to improve health in early pregnancy may do more to improve human capital development in adulthood. I plan to test this hypothesis by examining the rollout of the WIC program and comparing education and wage rates of those individuals unaffected by the WIC program in utero to those that were. If WIC improves health in early pregnancy significantly and reduces the incidence of symmetric growth restriction, then one expects to see an improvement in human capital measures for those affected by the program.

Another planned extension is to further investigate the relationship between certain anthropometric measurements at birth and physical and cognitive health. The results of the first chapter of my dissertation indicate that head circumference is a better indicator of cognitive health than birth weight. These relationships need to be examined more closely to inform future research and data collection. To this end, I plan to use non-parametric and semi-parametric techniques to estimate both the marginal effects of these measures across the entire distribution of the variable and the joint marginal effects. The results should inform the methodology of future research on effects infant health on later life outcomes.

1.2 Other Health Projects

In addition to my research in health and human capital development, I have worked on several other projects in the area of health economics, and I plan on writing extensions to some of these projects in the future.

In the paper, **"Are Pink Slips Better than Flu Shots? The Effect of Employment on Influenza Rates"** (Markowitz, Nesson, and Robinson, 2011), which recently received a revise and resubmit from the Journal of Labor Research, my co-authors Sara Markowitz, Erik Nesson and I examine to what extent regional employment rates exacerbate flu spread. Research shows the school environment is very conducive to the spread of communicable diseases in children, and we reasoned that the work environment is an analogous situation for adults. To examine this question, we combine data on flu-related doctor visits from the CDC with regional employment data (as well as a number of control variables). Using the Arellano-Bond estimator for dynamic panel data, we find that a one percentage point increase in employment lends to a 21 percent increase in flu-related doctor visits. These results have implications for sick-day policies of firms as well as identifying another variable of interest for the CDC and other public health organizations for predicting the severity of the flu season.

The above paper could be considered an extension of the literature on the effects of macroeconomic conditions on health, which started with Ruhm (2000), to communicable diseases. It is my interest in this literature that originally got me involved in the influenza paper. For a graduate course in health economics, I reexamined the idea that recessions can improve aggregate health outcomes. I currently have plans to retool part of this project into a working paper. I have preliminary results that show significant non-linearity in these estimates, and I believe further exploration of this idea could be a valuable addition to the literature.

In another planned project, fellow grad student Erik Nesson and I plan to extend a term paper project on international comparisons of health and health care. We utilize data from the World Health Organization and welfare analysis techniques pioneered by Maasoumi (1986) and cluster analysis to create a more statistically sound ranking of health an health care by country. Key features of this methodology is avoidance of double counting that is inherent in methodologies that rely on averaging scores from different categories of data and the allowance of substitutability or complementarity between within-country attributes of the health care system. We plan on extending this analysis to include income measures to examine to what extend complementarity and substitutability between income and health influence observed differences across industrialized nations. Another issue we plan to address is the comparison of the US, a large heterogeneous population, to small homogeneous populations like Sweden. A much more natural comparison would be to compare the US to the entire EU or to compare US states to individual EU countries.

2 Applied Microeconomic Theory

Although my primary research focus is empirical health economics, I have also extensively studied industrial organization and applied theoretical microeconomics during my graduate career. As a

result, I have several hobby projects in these areas.

Perhaps most related to my core research area is my work on health insurance markets. The role market structure plays in health care cost inflation is a question that has fascinated me since my undergraduate days. In an attempt answers these questions, I have recently begun working on a project with Sue Mialon using a two-sided market framework to model the health insurance industry. We hope to be able to answer questions like what happens to premiums when insurance platform competition increases? Is this outcome different under mandatory insurance, like that proposed in the Affordable Care Act recently passed by congress? Also, what happens to the number of uninsured individuals when competition increases under both regimes?

I am also currently working on finishing a project in international trade with Kaz Miagawa. Our project asks the question, if world governments begin to adopt cap and trade policies with regard to pollution control, then is it wise to allow companies to trade these permits internationally? Our model provides evidence that free-international trade of pollution permits may decrease total welfare and increase pollution levels. We also find that these problems may also be exacerbated by large trade costs.

References

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