

Research Statement

Isabel Ferraz Musse

My research focuses on population health in developing and developed countries. Specifically, my work addresses core issues of access to information and the use of technology as determinants of health in vulnerable populations. I use large and high-frequency datasets to construct innovative measures of health outcomes, applying quasi-experimental methodologies to answer policy-relevant questions.

In my job market paper, *“Employment Shocks and Demand for Pain Medication,”* I explore the use of the technology of pain medication to infer about underlying physical pain and substance abuse in the population. I introduce a novel approach to separate the ambiguous effect employment can have on opioid use—due to increased physical pain from working and decreased substance abuse from better mental health. I combine the universe of transactions of opioid pills in the United States with more than a billion weekly retail sales of an imperfect substitute to treat physical pain—over-the-counter (OTC) painkillers.

To isolate the effect of labor demand shocks on demand for pain medication, I build a shift-share instrument of labor demand. I show that demand for opioids is countercyclical, while demand for OTC painkillers is procyclical. To understand the mechanisms, I allow the instrument to vary by industry’s injury-incidence rates and workers’ compensation claims rates. The countercyclical effect on opioids is driven by low-injury industries, while the procyclical effect on OTC painkillers is driven by high-injury industries. To decompose the effect on opioid use in the channels of physical pain and substance abuse, I introduce a second identification strategy, exploring the introduction of a policy that increased requirements to prescribe opioids. In a difference-in-difference design, I estimate the impact of the policy on demand for opioids and OTC painkillers and calculate the substitution rate between the two medications. This decomposition exercise suggests that the effect of a 1 percent increase in the employment-to-population ratio decreases the demand for opioids for substance abuse by 0.27 percent, while it increases the demand for opioids for physical pain by 0.08 percent.

I explore the effect of access to medical technology and information in a clinical setting on pregnancy uncertainty in the paper *“When do women learn they are pregnant? The introduction of clinics and pregnancy uncertainty in Nepal”*, co-authored with Rebecca Thornton and Dirgha Ghimire. We build an original measure of pregnancy uncertainty based on discrepancies between the date of birth of a child and the month the mother reports knowing of her pregnancy. We use ten years of monthly individual panel data to measure the effect of distance to clinics offering pregnancy tests in Nepal on pregnancy uncertainty. Controlling for distance to clinics offering prenatal care to separate the effect of access to information

from access to the technology of pregnancy-testing, we show that women living farther from clinics are more uncertain and that the distance is more binding for women with previous pregnancies. We interpret this finding as the need of recognizing pregnancy symptoms before acting upon the beliefs and going to a clinic.

I contrast the role of information about an epidemic with its prevalence in my paper "*The Mechanisms Underlying the Decline in Fertility during the Zika Epidemic in Brazil.*" I use internet searches and the days the epidemic was in the headline of the main printed newspapers in Brazil to identify the event of dissemination of information about the epidemic. I use a fixed-effect strategy at the municipality level to compare the effect on fertility of the local prevalence of Zika and of babies born with microcephaly (a consequence of being infected during gestation). I contrast the effects of disease prevalence at the local level with the dissemination of information about the epidemic at the national level. Brazil, despite being a large country, has a centralized media network; thus, I explore how national news about the outbreak affected fertility in a regression-discontinuity-in-time. I show that the national news event, and not the disease prevalence, drives the decline in fertility and that the effect is stronger in municipalities with a higher media penetration.

My near-term research agenda will continue to focus on topics in health. Building on the findings of my job market paper, the next step involves analyzing survey data with measures of physical pain at the county level to show more evidence of the mechanisms of physical pain and substance abuse. For my paper on the decline in fertility due to the Zika epidemic, I want to quantify the impact on labor market outcomes for women who delayed childbearing. I am applying for access to public administrative data of formal workers in Brazil to measure if women affected by the news about the epidemic are more likely to have a job, work more hours, or have a higher salary.

I am also working on two co-authored projects. The first is a concept note discussing pregnancy uncertainty in African countries and the expected benefit of extending access to the technology of pregnancy tests. The second is a project on the effect of presidential election outcomes on alcohol drinking in the United States. We use a county's share of votes for the loser party as the intensity of treatment and observe purchases of alcohol before and after the result of the elections. We find an increase in drinking in counties with a larger share of votes for the party that lost the election. We are expanding the analysis to fatal car accidents, where preliminary results point in the direction of an increase in accidents. This project combines my interest in access to information—the results of the election—with technology—considering alcohol a type of self-medication—with my colleague's interest in political economy. It also shows my interest in collaborating with other researchers in projects, which I am excited to keep doing in my future position.