Essays on Health, Labor Market Behavior, and Economic Incentives.

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To my family
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Abstract

Paper [1] analyzes how labor force participation changes in response to major health shocks, such as new cancer diagnoses, heart attacks, and strokes, in middle-aged to elderly Mexican couples, and how the spouses interact in their responses to these shocks. The data originates from the Mexican Health and Aging Study and provides information on how couples coordinate their labor market activities in response to major health shocks. The results show that women’s labor force participation is negatively affected by a major health shock to their husbands. In contrast, men’s labor force participation does not change significantly in response to a major health shock to their wives.

Paper [2] focuses on the correlation between negative health shocks and the households’ share of wealth held in risky assets. By using U.S. data from the Health and Retirement Study, we try to establish a link between negative health shocks and financial outcomes such as the household’s probability of owning risky assets and the share of risky assets held. We define a recent negative health shock to include cancer or malignant tumor diagnoses, stroke or transient ischemic attack, heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems. We find that both the probability of owning risky assets, and the share of risky assets, are significantly lower among households where the women has experienced a negative health shock. In contrast, neither the probability of owning risky assets nor the share of risky assets held by the household are significantly associated with a negative health shock to the man.

Paper [3] investigates whether job loss can cause symptoms of depression in later life. We focus on couples aged 50 or older. We use data from the Health and Retirement Study, which provides longitudinal information about changes in labor market status and mental health outcomes among respondents and their spouses in the United States. To deal with potential reverse causality problems, we utilize data on job loss resulting from business closures. We find that job loss can lead to depressive symptoms for the affected individual’s partner. The effects are gendered, as women are negatively affected by job losses experienced by their husbands, but we do not observe such harmful effects among men whose wives lose their jobs. We also show how the effects of job loss vary across couples with differing levels of economic resources and health care needs, as well as differential access to health care.

Paper [4] estimates the labor supply response to an increase in the marginal wage rate among middle-aged to elderly Mexican women. Using data from the National Survey of Occupation and Employment, I find that an increase in the marginal wage rate is associated with an increase in worked hours. The results suggest that the marginal wage rate elasticities are larger for older women than for their younger counterparts.

Keywords

Labor force participation, labor supply, health status, financial risk-taking, gender differences, job loss.
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Alejandro
This thesis contains a summary and four self-contained papers.

**Paper [1]**


**Paper [2]**


**Paper [3]**


1 Introduction and Background

In an era of demographic shifts and evolving economic landscapes, the interplay between health outcomes, labor supply, and financial risk-taking has become an increasingly important research area. Aging populations, changing family dynamics, and economic challenges have underscored the need to understand how individuals and households respond to critical life events. Among these, health shocks and their implications for labor market behavior and financial behavior have gained prominence. The decisions individuals make regarding their labor force participation and financial behavior are not isolated events but are intertwined with their health status and the well-being of their families.

This collection of research papers explores the multifaceted relationships between health, labor market choices and outcomes, and financial behavior. It offers insights into how households allocate resources when facing health shocks, how job loss affects the mental well-being of the affected individual’s spouse/partner, and how elderly women’s labor supply reacts to economic incentives. The insights, which will be described in more detail below, are crucial as they can be used to tailor public policies aimed at enhancing the well-being of individuals and society.

Paper [1] contributes to this understanding by examining how major health shocks, such as new cancer diagnoses, heart attacks, or strokes, impact the labor force participation decisions of middle-aged to elderly Mexican couples. Building upon and extending earlier studies (Berger, 1983; McClellan, 1998; Charles, 1999; Coile, 2004; Van Houtven & Coe, 2010), this research not only measures the extent to which health shocks affect labor force participation, but also presents a theoretical model for understanding how unexpected health events may impact the underlying time-allocation choices in the household. Earlier studies have yielded varying results. Charles (1999) finds that the likelihood of labor force participation among men decreases slightly when their spouse experiences a negative health shock, whereas Coile (2004) observes a substantial increase in the likelihood of labor force participation among men in similar situations. It is worth noting that these studies are based on U.S. and European populations and that none of them place their results in a theoretical context. In contrast, I present a theoretical model that explains possible mechanisms behind the results, and, to my knowledge, this is the first paper that focuses on middle-aged to elderly Mexican couples. Understanding how couples adapt to health shocks is of paramount importance for policymakers striving to enhance labor force participation among elderly women and improve access to formal caregiving, particularly in the context of Mexico’s changing family structures and demographic transitions.

Paper [2] analyzes the relationship between negative health shocks and the ownership and allocation of risky financial assets in households where both spouses are 65 years or older. Utilizing data from the Health and Retirement Study (HRS), this study explores how health shocks affect households’ financial choices. By introducing a theoretical framework, it also contributes to our understanding of the incentives driving these decisions. This research is particularly pertinent given the substantial share of wealth held by aging couples and the
elevated likelihood of experiencing health shocks in later life. Earlier studies (Wu, 2003; Rosen and Wu, 2004; and Berkowitz & Qiu, 2006) focus their work only on empirical modelling and estimation and do not examine the households’ choice of consumption and investment in risky assets. We go further and present a theoretical model, which serves as a background to the empirical analysis. Furthermore, our study employs an objective measure of health, in contrast to previous literature that is mostly based on self-rated health measures. By using conditions diagnosed by a medical doctor, we are able to sidestep the subjectivity that is inevitable in any type of self-rated variable. Moreover, compared with Wu (2003), who examined the same measure of negative health shock as we do, we use more waves of the HRS, i.e., from 1994 to 2014. We also focus on an older age group since people aged 65 and above hold a substantial share of the net wealth in the U.S.

Paper [3] shifts the focus to the impact of involuntary job losses on depressive symptoms among couples aged 50 or older. Leveraging longitudinal data from the Health and Retirement Study (HRS), this paper investigates the ripple effects of job losses on mental health outcomes, emphasizing the interconnectedness of family members’ well-being in the face of economic adversity. By scrutinizing the role of economic resources, health, and access to insurance, this research extends our understanding of how job losses reverberate through households, particularly impacting the well-being of the affected individual’s spouse. The paper adds to the literature by bringing together insights from different disciplines to explain the mechanisms of the impact of job loss on the mental health of couples, as well as by discussing potential buffering mechanisms. A substantial body of research—including studies by Bubonya et al. (2017), Marcus (2013), Mendolia (2014), and Jolly (2022) focusing on the prime-age population—has shown that men’s job losses have negative effects on their wives’ mental health, while job loss among women has no significant effect on the mental health of their husbands. However, more knowledge is needed about the consequences of job losses on the mental health among older couples. The only study that addresses this topic specifically was carried out by Siegel et al. (2003) and found no evidence of spillover effects, possibly due to a small sample size. In the context of population aging, it is clearly important to understand the interrelatedness of the working lives and health outcomes of people approaching retirement. Older workers with fewer assets can be viewed as particularly vulnerable because job losses may have more significant financial consequences later in life (Couch et al., 2009). Moreover, re-employment becomes less likely for older workers (Chan & Huff Stevens, 2001), meaning that employability, which moderates the negative consequences of missed earnings in the working-age population (Green, 2011; Silla et al., 2009), is less protective.

Paper [4] directs attention to the labor supply decisions of elderly Mexican women and their responsiveness to changes in the marginal wage rate. As Mexico grapples with demographic shifts and fiscal challenges related to an aging population, understanding the labor market behavior of elderly women is critical for assessing the potential impact on tax revenues and social security. Drawing upon data from the Encuesta Nacional de Ocupación y Empleo (ENOE), this study employs robust methodologies to estimate the elasticity of labor supply with respect to the marginal wage rate, providing insights into the labor market behavior of older women. While many studies have examined the labor supply behavior of men (Pencavel, 2002; Devereux, 2004) and women (Eissa & Hoynes, 2004; Bargain, 2005; Blau & Kahn, 2007),
these studies mostly focus on the prime-aged to pre-retirement age population in the U.S. and Europe. There are only a small number of studies addressing the labor supply behavior of women in Mexico. Gómez and Campos-Vázquez (2010) investigate the labor supply elasticity of married women who are between 25 and 55 years old. To my knowledge, there are only two earlier studies focusing on the labor supply of the Mexican elderly, although without reporting on or addressing the relationship between labor supply and wages. Juárez (2010) estimates the effect of a so-called nutrition transfer for individuals aged 70 or older and finds that the transfer reduces the labor force participation of single men aged 70 and older by 46 percent. For women, the point estimate is negative, but not significantly different from zero. Avila-Parra and Escamilla-Guerrero (2017) find that expanding the pension program did not reduce the labor force participation of Mexican adults between 66 and 69 years of age.

The summary of the papers in the following section sheds light on their individual contributions, while the main results and insights are summarized and discussed in a concluding section.

2. Summary of the Papers

Paper [1]: Major health shocks and decisions about labour force participation amongst Mexican couples

This study employs data from the Mexican Health and Aging Study (MHAS) to investigate how middle-aged to elderly Mexican couples respond to major health shocks, including new cancer diagnoses, heart attacks, or strokes. According to MHAS, approximately 2.9% of Mexicans aged 50 to 75, who are married or in partnerships, experience major health shocks. These events impact not only the directly affected individuals but also their spouses. The spouses of the affected individuals may respond by altering their labor force participation in primarily two ways. Firstly, if the affected individual withdraws from the labor force, the household faces reduced income. To offset this loss, the healthy spouse might enter the labor force if previously inactive or increase their work efforts if already participating. Secondly, health shocks can redefine the value of non-working time, prompting the healthy spouse to exit the labor force, or to decrease the number of hours they work, in order to care for their sick partner or to take over household responsibilities previously managed by the partner.

The paper introduces a theoretical model that provides a framework for interpreting the relationships between health shocks and household labor supply behavior. The model’s comparative statics show that the healthy spouse’s labor supply may either increase or decrease following a negative health shock to their partner. The theoretical model also serves as a starting point for the empirical analysis, which is based on four waves of the MHAS data to estimate the probability that the non-affected spouse participates in the labor force. The findings indicate a reduction in the probability of labor force participation among women when their husband faces a major health shock. In contrast, there is no significant relationship between men’s labor force participation and negative health shocks to their wives. The analysis is also extended to examine the effects of health shocks on part-time and full-time labor force participation probabilities separately. The results highlight a decrease in the probability of full-time participation among women when their husbands experience a major
health shock, while the effect on part-time participation remains statistically insignificant. In line with the results described above, a major health shock to the wife affects neither full-time participation nor part-time participation among men.

Further investigation includes an examination of additional health issues such as diabetes, hypertension, and arthritis. Interestingly, these health problems do not significantly affect the labor force participation of the non-affected partner. One possible explanation is that these conditions may not substantially hinder work when adequately treated. The study’s main results suggest that Mexican women take their husband’s health shocks into account in their labor force participation decisions, while the labor force participation among men largely remains unaffected by similar health shocks to their wives. Thus, women may prioritize caregiving and time spent with their ill spouse over work, highlighting their potential role as caregivers during such circumstances. These findings hold practical implications for policymakers aiming to formulate strategies to enhance the labor supply among elderly women, possibly by facilitating better access to formal caregiving within Mexican households.

**Paper [2]: Health and the share of wealth held in risky assets**

This study examines the relationships between negative health shocks and the households’ ownership of risky financial assets alongside their allocation of these assets within their portfolios. To comprehensively explore this connection, the analysis uses a sample of couples aged 65 or above in the U.S., extracted from 11 waves (1994–2014) of the Health and Retirement Study (HRS). This dataset encompasses crucial information such as recent negative health shocks diagnosed by medical professionals, households’ financial wealth, and a range of demographic and economic variables.

The paper’s focus on the financial choices of couples aged 65 years and older is particularly pertinent due to their substantial share of the total U.S. household net worth. This demographic group holds a significant portion of the nation’s wealth, as evidenced by median net worth figures from 2004, where households represented by individuals aged 65 and older exhibited a median net worth of $190,100, markedly surpassing the median net worth of $93,100 for all U.S. households. Furthermore, as the propensity for aging couples to face negative health shocks is elevated, an examination of whether these shocks influence their financial decisions is warranted. This becomes particularly interesting in the context of an aging population, where a growing number of older individuals will hold substantial wealth in the future.

The analysis aligns with previous research by Rosen and Wu (2004) and Edwards (2008), which anticipates a diminished allocation of wealth to risky financial assets among households experiencing negative health shocks. This phenomenon could be attributed to the sale of risky assets to cover medical expenses. Distinguishing itself from prior studies, the current paper employs an objective health measure—conditions diagnosed by a medical practitioner—thus sidestepping the subjectivity inherent in self-rated variables.

The research also differs from earlier work that predominantly focused on empirical modelling and estimation by introducing a theoretical framework to examine households’ investments in risky assets, and how these investments are affected by a health shock to one of the
household members. The model shows that such responses can go in either direction, suggesting that further examination requires empirical analysis. Through meticulous numerical analysis, considering the model’s comparative statics, it is discerned that the change in risky asset allocation hinges on the functional form of households’ utility functions, and risk aversion does not inherently lead to reduced investment in risky assets.

The study establishes that households in which the woman experienced a negative health shock subsequently have a lower probability of owning risky assets and a lower share of wealth allocated to such assets. Conversely, no statistically significant correlation is detected between negative health shocks to men and the observed outcomes.

**Paper [3]: The effects of involuntary job losses on depressive symptoms among couples**

This study investigates whether job loss may lead to depressive symptoms experienced by the affected individual’s spouse/partner. While numerous studies have shed light on the repercussions of unemployment on mental health, often focusing on individuals directly affected by job loss, this study seeks to illuminate the broader ripple effects on family members, particularly spouses, who share an emotional bond and are intertwined economically.

Employing longitudinal data sourced from the Health and Retirement Study (HRS), the paper estimates the influence of job losses on mental health outcomes in households where both spouses are 50 to 65 years old. It assesses these effects across various dimensions, including age, employment status, and wealth, all while scrutinizing the potential mitigating role played by economic resources. Moreover, the analysis extends its scope to evaluate whether these effects diverge among couples characterized by varying levels of health needs and access to health insurance. To avoid the potential problem of reverse causality, the study relies on data regarding job loss due to business closures, thereby sidestepping potential biases.

The outcomes of the investigation reinforce earlier findings regarding the gendered patterns of the spillover effects of job losses, while extending these insights to the context of older couples. The findings underscore a conspicuous rise in depressive symptoms among female spouses of respondents who have undergone job losses, in alignment with the tenets of the family stress literature. Furthermore, among women, the study identifies that the detrimental impacts on mental health due to a partner’s job loss are particularly pronounced in cases where the woman is unemployed, coupled with lower accumulated wealth and a lack of access to health insurance—highlighting the protective potential of economic resources. The research also reveals that women’s job losses do not manifest in a corresponding negative impact on the mental well-being of their male spouses, irrespective of these men’s participation in paid work, socioeconomic circumstances, or access to health insurance.

Overall, the study advances our understanding of the interplay between job loss, spousal dynamics, and mental health outcomes. It unravels a nuanced portrait in which gendered and economic considerations intertwine to shape the repercussions of job losses, fostering a deeper understanding of the complex web of implications arising from significant life-course events within families.
Paper [4]: The labor supply of elderly Mexican women

This study examines how middle-aged to elderly women change their labor supply in response to an increase in the marginal (net-of-tax) wage rate. The investigation stems from the crucial need to understand how women’s engagement in the labor market shifts as they become older, in response to economic incentives that could potentially foster increased the labor force participation of women in post-retirement age, especially given that women participate in the labor force to a much lesser extent than men as they get older. If economic stimuli incentivize women to join or persist in the labor force, and if those already employed augment their work hours later in life, tax revenue will increase, thereby potentially easing the constraints on social security.

The relevance of this inquiry stems from the backdrop of an aging population, declining fertility rates, and an extended life expectancy. In Mexico, the proportion of women aged 50 to 70 witnessed an ascent from 13 percent of all women in 2010 to approximately 17 percent in 2018. This upward trajectory is projected to persist, with the share of women in this age bracket projected to approach 24 percent by 2050. Concurrently, the population of both men and women aged 65 and above constituted 7.2% of the total population in 2018, with estimates predicting a surge to 10.3% by 2030 and a remarkable 16.8% by 2050. These demographics are likely to exert pressures on social security expenditures, as an increased number of elderly individuals may necessitate augmented pension benefits or government transfers.

Using data from the Encuesta Nacional de Ocupación y Empleo (ENOE) surveys spanning 2005 to 2017, this study adheres to the methodological framework outlined by Blundell and Macurdy (1999) to counteract selection biases. Beginning with the estimation of the participation equation and computation of the inverse Mills ratio, the study then utilizes this ratio in the log-wage estimation to control for selection among labor force participants. This culminates in the derivation of imputed wages for non-participants. Subsequently, employing an instrumental variable tobit model, the study links these imputed wages to the labor supply equation, thereby estimating the labor supply of both participants and non-participants. The findings unveil marginal wage rate elasticities for participating women ranging from 0.02 to 0.10, and from 0.29 to 0.66 within a pooled sample of all women.

Delving deeper, the study develops a second model tailored to participants, introducing controls for random effects. Although this adjustment does not alter the qualitative findings, it does lead to lower elasticities when compared to the pooled model. Ultimately, the results lend support to the premise that older cohorts of women exhibit more pronounced responses to shifts in the marginal wage rate compared to their younger counterparts, with the decision to participate in the labor force proving more sensitive to economic incentives than the intensive margin of labor supply.

3. Conclusions

In this collection of research papers, I have investigated various facets of the relationships between health shocks, labor supply behavior, and financial behavior among aging populations. I have also examined how job loss influences the mental well-being of the affected individual’s spouse/partner, and how changes in the marginal wage affect the labor
supply of elderly women. Across the first three papers, a pattern of gender differences in response to various life events emerges, highlighting the influence of gender roles on individual choices in response to health shocks and job losses.

Both Paper [1] and Paper [2] find gender difference in the responses to health shocks. Women—but not men—respond to health shocks to their spouse/partner by reducing their labor supply, and the household’s share of risky assets is reduced when the woman—but not when the man—faces a negative health shock. These findings align with earlier studies conducted in different contexts. Notably, Coile (2004) found that females in the U.S. decreased their labor force participation when their spouse faced major health shocks accompanied by a substantial decrease in functioning. Similarly, Siegel (2006), using U.S. data, found that wives of men with heart problems reduced their labor force participation. Rosen and Wu (2004) and Berkowitz and Qiu (2006) found that a negative health shock affecting the female partner is associated with a lower likelihood of owning risky assets.

The findings of Paper [1] suggest that women act as caregivers for their spouses, which, in turn, affects household labor income. The loss in labor income, along with potential medical expenses, contribute to reduce the household’s well-being. Policymakers could, therefore, develop strategies to make formal caregiving more accessible to Mexican households to maintain women’s labor supply and counteract the negative effects on households’ well-being. In the context of Paper [1], future research may address the access to medical attention and formal caregiving, examine the potential role of household characteristics, and extend the theoretical framework to include medical expenses. Regarding Paper [2], an interesting topic for future research would be to consider the households’ intertemporal decisions regarding consumption and investment in risky assets. Another would be to extend the household model to take into account and examine potential differences in preferences between spouses. Finally, it is also important to allow for a broader set of determinants of investments in risky assets, such as variation in life expectancy and bequest motives, in the theoretical and empirical analyses.

Expanding on the theme of gender differences, Paper [3] shifts the focus to the impact of job losses, where gender differences are found in how depressive symptoms manifest. Consistent with the family stress literature (Lavee, 2013), the study reveals an increased level of depressive symptoms in female spouses of respondents who lost their jobs. Furthermore, the negative effects of job loss on mental health are stronger among women who are not employed themselves and among couples with less accumulated wealth and no access to health insurance. The results highlight the buffering role of economic resources (Kalleberg et al., 2000). In contrast, male spouses of respondents who experienced job losses exhibit a decrease in depressive symptoms, aligning with predictions from the economic health capital model of Bolin et al. (2001). More specifically, when women lose their jobs, this may trigger a reallocation of resources within the household towards improving male spouses’ well-being. Thus, the woman uses the time gained, after ceasing paid work, to care for her spouse, and the beneficial effects of this reallocation of resources may offset the negative effects of job loss. While the theoretical models presented in Bolin et al. (2001) include the possibility of divorce, our current analyses are limited to the impact of job losses on spousal health within couples that remain together. We do not track couples after divorce. Therefore, an interesting topic for future research would be to analyze partnership dynamics in response to job loss.
Collectively, these three papers find gender differences in economic behavior and health outcomes when analyzing household responses to health shocks and job losses, respectively. This emphasizes the influence of traditional gender roles, which shape not only behavior but also the allocation of resources within households during challenging life events. These findings contribute to the discussion in the literature about the impact of gender on decision-making and well-being in various contexts.

Finally, Paper [4] focuses on the labor supply behavior of elderly women in Mexico. The findings align with research in developed countries, such as Mroz (1987) and French (2005), which suggests that older individuals tend to have larger wage elasticities of labor supply than their younger counterparts. It is worth noting that the participation decision appears to be more responsive to economic incentives than the intensive margin of labor supply among this group of older women. These results emphasize the significance of considering economic incentives, particularly changes in the marginal wage rate, when assessing the labor supply decisions of older women. The latter is interesting in the sense that policymakers could tailor policies to increase the marginal wage rate of older women to incentivize non-participants to join the labor market. Eventually, this may lead to increased tax revenue, which would relieve the increasing pressure on the Mexican social welfare system. Future research should preferably use richer data. The data used in Paper [4] does not report non-labor income, and the severity of this omitted variable problem is difficult to assess. Moreover, the data lacks information on work experience, which is a potentially important determinant of wages.
References


