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"Mommy, Are You Going To Work Today? A Quantitative, Qualitative, Multidisciplinary Analysis Of Peruvian Mothers' Employment Decisions" [1]

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INTRODUCTION

The rapid increase in female, and particularly maternal, labor force participation has transformed Peruvian individuals, families, as well as communities' behaviors and perceptions. World Bank statistics show that female employment increased in Peru from 24 percent in 1980 to 31 percent in 2000.[2] This important rise motivated investigators to expand the maternal labor force participation literature. Researchers from various disciplines began to analyze both the causes and consequences of mothers' employment decisions. Overall, the female labor force participation literature largely benefits from economists, sociologists and developmental psychologists' research improvements.

Traditionally, studies on Peruvian female labor force have relied on economic models. Despite their substantial explanatory value, parsimony, and functionality, economic models fail to fully capture maternal employment processes. Frequently, unexplained or unobserved factors affecting mothers' work decisions, commonly captured by the estimated error term, are overlooked in economic studies. Indeed, researchers and policy makers have failed to recognize the critical role of the unobserved characteristics behind the error term. Sociological (*e.g.* social capital and ideological changes) and developmental psychological (*e.g.* mental health) theories identify and describe some of these unobserved error term components.

Recent investigations, primary US-based, show that psychological and sociological factor have significant effects on maternal employment, particularly affecting more vulnerable low-income mothers (Danziger, Kalil, & Anderson, 2000; Jayakody, Danziger, & Pollack, 2000). Among the Peruvian population, evidence shows

2 Source The World Bank Gender Statistics
http://devdata.worldbank.org/genderstats/genderRpt.asp?rpt=profile&cty=PER,Peru&hm=home.

that 30 percent of poor Peruvian mothers experience depression/anxiety symptoms (Escobal et al., 2003). Also, poor access to social capital largely affects these mothers. Issues associated with migrant conditions, high crime rates, illegal businesses, and high incidence of sexual violence prevent mothers from establishing strong social capital connections, even with their co-resident relatives.

Unfortunately, rather than combining their knowledge, economists, sociologists and developmental psychologists have mainly been working in isolation from each other. In addition, their dissimilar focuses, populations of interest, and even their study designs and estimation procedures have lead to seemingly inconsistent results across these disciplines. For example, even though economic, sociological, and developmental psychological studies analyze effects of non-parental child care arrangements on maternal employment, their results lead somehow to different conclusions. Economists state that greater child care supply reduces mothers' work entrance costs, and hence increases their labor participation. On the contrary, sociologists and developmental psychologists argue for more inconsistent and negative effects. Sociologists find that non-parental child care has different effects depending on the type of arrangement as well as parents' social and cultural preferences. Developmental psychologists, more concerned about quality, observe that non high-quality child care settings not only negatively affected mothers' work and emotional stability, but also the formation of mother-infant attachment bonds.

These findings suggest large differences between economists, sociologists, and developmental psychologists' focuses on particular processes, explanatory variables, and various methodological approaches such as quantitative and qualitative data collection techniques. Indeed, quantitative and qualitative data provide distinct information. For

example, quantitative surveys are likely to gather general data regarding various topics (*e.g.* demographic, infrastructure, income, asset characteristics). Qualitative interviews, on the contrary, normally collect more in-depth information concerning fewer topics (*e.g.* preferences and coping strategies regarding work and family conflicts). Unfortunately, rather than combining these information sources, quantitative and qualitative studies have purposely moved away from one another.

It is clear that developing a more integrated model of Peruvian mothers' labor force participation is critical for this field's advancement. This study presents a comprehensive investigation of maternal employment decisions that combines sociological and developmental psychological perspectives with the traditional economic model. This integration incorporates not only theoretical but also methodological advances from each of these disciplines. For this purpose, a quantitative/qualitative mixed method technique is used to analyze causal relationships and to explore factors and processes previously understudied. The quantitative component compares different causal models using three dependent variables, (i) a dichotomous work-no work, (ii) a categorical no work, unpaid family, self-employed, and wage work, and (iii) a continuous number of months worked during the past 12 months.

The main reasons for comparing these three models are both theoretical and empirical. Previous maternal work participation economic models have mainly focused on the dichotomous dependent variable. Sociological and psychological studies indicate that different implications are determined using alternative dependent variables. In addition, evidence indicates that female employment, and particularly among poor mothers, is highly unstable and restricted to certain economic activities (Chacaltana,

2001; Jurado Najera, 2001; Smith & Stelcner, 1990). Indeed, previous studies show that 67 percent of women are engaged in informal self-employed occupations, clearly dominating this highly unstable sector (ILO, 2001).[3] Additional investigations confirm this, finding that even though both urban men and women experience high work instability moving from being employed to unemployed, women (21 percent) are more likely to be unemployed than men (17 percent) (Chacaltana, 2001).

This investigation uses two unique information sources, the first wave of the 2002 Young Lives Project - Peru (YLP-P) and focus groups conducted in Lima to a sub-sample of the YLP-P participants. The 2002 YLP survey, known in Peru as Niños del Milenio (Children of the Millennium) is a multinational comparative study aimed at understanding causes and consequences of child poverty. These two data sources are combined in order to analyze Peruvian poor mothers' behaviors and preferences. This study's development is therefore critical for improving the maternal labor force participation literature. In addition, this investigation's findings provide excellent information for enhancing the design and evaluation of more effective Peruvian policies.

BACKGROUND

Despite their common topic of study, economic, sociological, and developmental psychological maternal employment investigations frequently present seemingly inconsistent conclusions. Overall, all disciplines agree that mothers' work improves their families' financial situation, however they clearly disagree on mediating and moderating factors and processes explaining maternal employment. Their dissimilar interests and

3 This is, compared to 59 percent of men engaged in informal activities.

focuses regarding individuals' processes, populations, and even methodologies, partially explain these apparently contradictory outcomes. This lack of consensus largely affects not only the overall maternal labor force participation literature, but also the design and implementation of effective work enhancing policies. Undoubtedly, the maternal work literature and policy designs would largely benefit from integrating economic, sociological, and developmental psychological theoretical and methodological advances. This section presents a general review of economic, sociological, and developmental psychological main focuses of investigations and methodologies. In addition, it discusses similarities and inconsistent relationships and perspectives between these disciplines.

Economic studies mainly emphasize the development and quantification of cost-benefit analyses of maternal employment. Incorporating labor market characteristics (Solow, 1956; Swan, 1956), human capital (Becker, 1993; Mincer, 1962; Schultz, 1995),[4] and work entrance costs (Becker, 1965, 1993; Blau & Mocan, 2002; Mincer, 1962; Schultz, 1995),[5] economists present simple, functional, and parsimonious models. These maternal labor force participation models generally estimate changes in mothers' economic returns (*i.e.* earnings) due to, for example, an expanding service sector, increases in education, or child care costs' reductions. These models are indeed, highly functional for evaluating and quantifying the effects of policies aimed at enhancing maternal work or reducing poverty levels. Peruvian policy designs and evaluations largely use economic models for those purposes (Ayala, 2003; Cortez, 2000; Garavito, 2001; Graham, 1991, 1994; Stifel & Alderman, 2003; Vasquez & Riesco, 2000).

4 An individual's human capital is a function of education, health, culture, social norms and values, and work specialization skills investments.

5 Work entrance costs such as transportation, child care, and housework time's opportunity costs.

Nevertheless, despite these economic models' usefulness and mathematical elegance, they fail to capture several important processes. As a consequence, economists have developed more sophisticated estimation techniques to control for potential biases and error terms (Amemiya & MaCurdy, 1986; Heckman, 1993). Particularly concerned about sample selection biases, these new and advanced models control for potential unobserved characteristics affecting mothers' work (or no work) decisions. Not controlling for these unobserved differences certainly affects economic returns estimations, very likely endangering policy evaluations and implications. This technological innovation represented an important advancement not only at the methodological, but also at the theoretical level. Economic models increased their awareness regarding work decision differences by gender (Mincer, 1962; Schultz, 1995), marital status (Mincer, 1962), fertility levels (Becker, 1965, 1991; Blau & Mocan, 2002), and even government program participations (Blank, 1997).

Unfortunately, even though the existence of sample selection issues was openly stated and partially controlled, the unobserved factors and processes behind this selection bias remain understudied. Economists generally attribute these unobserved differences to sociological (*e.g.* culture and ideologies) and psychological (*e.g.* personality and preferences) factors, however few studies have actually included psychological and sociological perspectives into the economic model.[6] Ironically, sociological and developmental psychological maternal labor force participation literatures were simultaneously growing isolated from each other.

6 Particularly, US-based studies have included factors such as mental health, substance abuse, domestic violence, social capital, racial-ethnic characteristics, and preferences (Blau & Mocan, 2002; Danziger et al., 2000; Danziger & Seefeldt, 2002; Dunifon, Kalil, & Danziger, 2002; Jayakody et al., 2000; Kalil, Dunifon, & Danziger, 2001; Kalil, Schweingruber, & Seefeldt, 2001; Lawrence, Chau, & Lennon, 2004; Lennon, Blome, & English, 2001; Parcel & Menaghan, 1994).

Originally, sociological models assumed that women did not have a particular or significant socioeconomic role within the family. Nevertheless, the large and rapid female labor force participation growth proved that this assumption was weak. As a consequence, sociologists have increasingly developed female and particularly maternal employment studies and theories (Oppenheimer, 1982).

Sociologists are particularly interested in understanding individuals' work conditions, such as non-standard work schedules (Presser, 2003), waged vs. self-employed occupations (Cavalcanti, 2002; Donahoe, 1999), and paid vs. unpaid jobs (Donahoe, 1999; Nelson, 1999). In addition, sociological maternal employment studies investigate people's behaviors and perceptions regarding maternal work participation, and their relationships with socio-cultural changes. Particularly, maternal employment has been related to ideological changes such as gender equality, family formation, dissolution and cohabitation promptness, and perceptions regarding maternal economic self-reliance needs and social capital formation[7] (Amato & Booth, 1997; Bianchi & Robinson, 1997; Brewster & Padavic, 2002; Cherlin, 1992; Fishman, 2004; Perry-Jenkins, Repetti, & Crouter, 2000; Tienda & Glass, 1985; Yoon & Waite, 1994).

Particularly interesting for the Peruvian population is the social capital availability issue. Mainly among poor Peruvian mothers, access to social capital is fundamental for general poverty alleviation support (Graham, 1994; Schady, 2000; Smith & Stelcner, 1990; Vasquez & Riesco, 2000). Traditionally, Peruvian mothers' main sources of social capital were community-based food transfer programs (*vaso de leche* and *comedores*

7 Although there is no consensus regarding the social capital definition, three main elements can be identified. First, it is a type of productive capital that facilitates the accomplishment of particular goals. Second, social capital is embedded in a social structure, existing as a result of interactions with other individuals within a social group. Third, the social capital ownership entails certain level of reciprocity (i.e. providing and receiving benefits) with other members of the social network (Bourdieu, 1985; Coleman, 1988).

populares). However, recent studies argue that potential changes in people's perceptions about the role of food transfer support programs affected their social capital role. Maternal participation in these programs changed from active[8] to more passive,[9] possibly affecting their credibility and original social capital benefits (Graham, 1994, 1998; Stifel & Alderman, 2003). Also, evidence shows that Peruvian women are more likely to engage in self-employed informal occupations,[10] where access to contacts and connections is fundamental.

In addition, this evidence also suggests the importance of differentiating between work conditions and economic sectors. Sociological investigations clearly illustrate distinctions between several maternal work conditions and occupation decisions, moving beyond the dichotomous work-no work dependent variable. Decisions regarding engaging in jobs with non-standard hours, unpaid family vs. paid occupations, and even between self-employed and waged activities are analyzed both as causes and responses to individuals' perceptions and behaviors. Typically, these investigations utilize qualitative and particularly ethnographic methods, critical tools for developing exploratory and descriptive analyses (Ambert, Adler, Adler, & Detzner, 1995; Bryman, 1984; Maxwell, 1996; Morgan, 1988, 1996; Punch, 1998; Stewart & Shamdasani, 1990; Tashakkori & Teddlie, 1998).

Unfortunately, despite their remarkable explanatory and exploratory power, qualitative studies have traditionally seen as lower-quality research (Ambert et al., 1995; Bryman, 1984). Consequently, economists are reluctant to utilize them as important

8 I.e. self-sufficient, self-sustainable, organized under community oriented traditions

9 I.e. individual oriented, highly dependent on external funding

10 An International Labor Organization report indicates that in 2000, 67 percent of employed women worked in the informal sector, mostly self-employed (ILO, 2001).

information sources, undermining their actual value. Similar issues are observed concerning developmental psychological investigations. Generally, psychological studies use smaller and less diverse samples. They also utilize interviews and observational qualitative data collection and analysis. Economists criticize developmental psychological investigations arguing lack of generalizability, methodological rigorousness, and aggregated macro implications.

Nevertheless, economics models also fail to recognize and to utilize several important findings from developmental psychological investigations (Foster, 2002). Particularly, developmental psychologists largely investigate maternal work and emotional stability (Belsky, 1990; Clark, Hyde, Essex, & Klein, 1997; Even & MacPherson, 2001; Mason & Duberstein, 1992; Olson & Banyard, 1993; Wille, 1992; Yoshikawa et al., 2003), as well as work preferences over time (Boushey, 2003; Clark et al., 1997; Fuller, Kagan, Caspary, & Gauthier, 2001; Henly, 2000). These studies identify maternal employment relationships with mother-infant attachment bond formation, maternal and children's mental health problems, timing of mother's work re-entrance and their children's life span developmental stages, and children's general developmental outcomes.

Additionally, these investigations emphasize the mother-child interaction quality and its effect on maternal anxiety, depression, and general well-being, and hence on mothers' labor market performance and attachment (Clark et al., 1997; Olson & Banyard, 1993). Indeed, recent studies have found that mental health, substance abuse, and domestic violence problems have significant effects on maternal work stability and advancement (Buvinic, Valenzuela, Molina, & Gonzales, 1992; Danziger et al., 2000;

Donahoe, 1999; Jayakody et al., 2000; Kalil, Schweingruber et al., 2001; Lawrence, 2002; Lawrence et al., 2004; Lennon et al., 2001). These issues are particularly important give the greater prevalence among poor women (Escobal et al., 2003; WHO, 2001). Certainly, evidence shows that 30 percent of Peruvian poor mothers experience depression/anxiety symptoms (Escobal et al., 2003). In addition, qualitative investigations show that domestic violence and substance abuse are two main concerns among poor Peruvian mothers residing in Lima (Flora Tristán, 2005).

Moreover, developmental psychological investigations illustrate the active role that children's characteristics and behaviors have on maternal employment decisions, contradicting the economic household model assumptions. Issues such as the child's age (Averett, Gennetian, & Peters, 2000; Belsky & Rovine, 1988), temperament (Kalil, Dunifon et al., 2001; Olson & Banyard, 1993), physical and mental health (Brandon & Hogan, 2004; Corman, Reichman, & Noonan, 2004), and sex (Aritomi, 2003) are found to affect mothers' work participation and stability. It is clear that understanding these relationships is critical, given their potential to create harmful vicious cycles. For instance, mothers with high depression are more likely to experience unstable and low-skilled work participation, which might lead to higher depression and poorer developmental outcomes for their children, and thus, greater work instability.

Economists are evidently mistaken undermining and overlooking psychological and sociological advances. However, sociologists and developmental psychologists, similarly criticize many economic hypotheses and implications. Assumptions such as

exogenous preferences,[11] the existence of a common family utility function,[12] and the oversimplification of individuals' behaviors and decisions are seen with large reservation. Nevertheless, they also neglect several factors that would have been useful and important to consider when developing their investigations (Foster, 2002). Particularly, factors such as co-occurring macro economic events, the functionality and predictability of the household production and time allocation models, and their generalizability power have been regrettably disregarded.

It is clear that economic, developmental psychological, and sociological investigations could benefit from integrations and mutual collaborations. Disappointingly, very few investigators, and mostly US-based, have attempted to integrate or even to raise awareness regarding the benefits of connecting these different perspectives (Foster, 2002). Similarly, efforts attempting to combine and to compare quantitative and qualitative analyses are least (Ambert et al., 1995; Bryman, 1984; Tashakkori & Teddlie, 1998). These disciplines' different theoretical assumptions, populations and levels of study, and even data collection methods, make comparisons and research collaborations more complicated and extremely challenging. Paradoxically, these differences rather than limiting their integration should be the main motivation for multidisciplinary collaborations.

11 Economists typically assume that all individuals determine their preferences and behaviors based on rational expectations (Lucas, 1986).

12 The utility function is an abstract mathematical representation of consumer preferences, denoting the family's well-being associated with the amount of goods consumed. It is assumed that the utility function is determined by a benevolent dictator, but indirectly includes all members' preferences and it is maximized subject to full income constraints. More recently, alternative household behavior models based on Nash-bargaining game theory arise (McElroy, 1990). These models assume that household decisions are the result of household members' negotiations and depend on each individual's bargaining power

RESEARCH DESIGN

This investigation's main goal is to introduce a more integrated analysis of maternal labor force participation. The study uses quantitative and qualitative data, combining economic, sociological, and developmental psychological perspectives. The quantitative causal analysis compares three different models, (i) a probit model, using a dichotomous work-no work dependent variable, (ii) a multinomial logit model, estimating a categorical no-work, unpaid family, self-employment, and waged labor dependent variable, and (iii) a tobit model, utilizing a truncated but continuous number of months worked over the past 12 months variable. The quantitative component uses data from the 2002 Young Lives Project – Peru (YLP-P) survey, and the qualitative section uses a sub-sample of these participant mothers. Particularly, this study tests the following hypotheses:

i) Psychological and sociological variables affect maternal employment decisions. Maternal depression/anxiety, domestic violence, as well as community interaction and social/financial support significantly influence mothers' work decisions and behaviors.

ii) Economic, sociological, and developmental psychological variables affect overall maternal employment decisions, labor market sector options, and work dynamics differently. Diverse implications are likely to arise from different models utilizing dichotomous, categorical, or continuous dependent variables.

This study presents several innovations and improvements compared to previous investigations. The inclusion of psychological and sociological variables into the economic model represents a significant advance compared to previous studies. Also,

combining quantitative and qualitative data, this investigation not only develops more comprehensive Peruvian poor mothers' labor force participation causal models, but also explains and detects previously unobserved moderating and mediating factors shaping Peruvian poor mothers' employment decisions. Additionally, qualitative data identify mothers' revealed preferences as well as community/household characteristics and previously unexplored processes behind maternal work choices and options.

Quantitative Component

The quantitative information comes from the first wave of the 2002 Young Lives Project - Peru (YLP-P) survey.[13] The YLP involves a main cohort of poor children aged 6 to 17.9 months (labeled "one-year olds") from four participant countries, Ethiopia, India, Peru, and Vietnam. The YLP is a 15 years longitudinal study with data collections occurring every three years, aimed at understanding causes and consequences of child poverty. The Peruvian first round was collected between August and November of 2002. The total YLP-P sample includes 2,052 one-year old children randomly selected to produce a national sample of children living in poor Peruvian areas.

The 1996 Fondo Nacional de Compensación y Desarrollo Social (National Fund for Compensation and Social Development – FONCODES) poverty map was used for the sampling process.[14] The sampling procedure selected 1,818 districts, based on their population size and poverty condition, all below the poverty line. Among these districts,

13 This project is know in Peru as Niños del Milenio (Children of the Millennium).

14 FONCODES uses a district-based poverty index that considers several social and unsatisfied basic needs conditions. These include: illiteracy rate, percentage of households with children not attending school, percentage of inadequate residences, percentage of overcrowded houses, percentages of houses without public utilities (i.e. running water, drain systems, and electric power), chronic malnutrition rates, and percentage of houses with high economic dependence.

the top five percent with higher overall income was excluded from the sample. The final sample selection utilized a district level general multi-stage sampling technique. The first stage randomly chose twenty districts, and then one community sector per district was selected using census information. Randomly selected blocks were picked from each community sector from which randomly selected households were chosen. Interviews were conducted face to face at the index child's house.

In addition to collecting typical demographic, health status, socioeconomic, income and employment, and infrastructure variables, the YLP-P survey gathers psychological and sociological information. Indeed, this is the first study to gather detailed and comprehensive Peruvian data at the national level regarding psychological (*e.g.* depression and anxiety symptoms, child's temperament, domestic violence), and sociological (*e.g.* social capital) characteristics. Additionally, although this feature does not directly affect this particular study, it is worth noting that the YLP-P project is the first attempt to collect longitudinal data for a nationally representative Peruvian sample. The YLP-P survey's unique feature provides the necessary information for estimating comprehensive labor force participation models using a multidisciplinary approach.[15]

Quantitative analyses rely on two-stage estimation models. The first stage estimates and predicts a maternal depression/anxiety instrumental variable. Potential endogeneity problems (*i.e.* it can be both a cause and a consequence of maternal employment decisions) make the use of a predicted maternal depression/anxiety variable

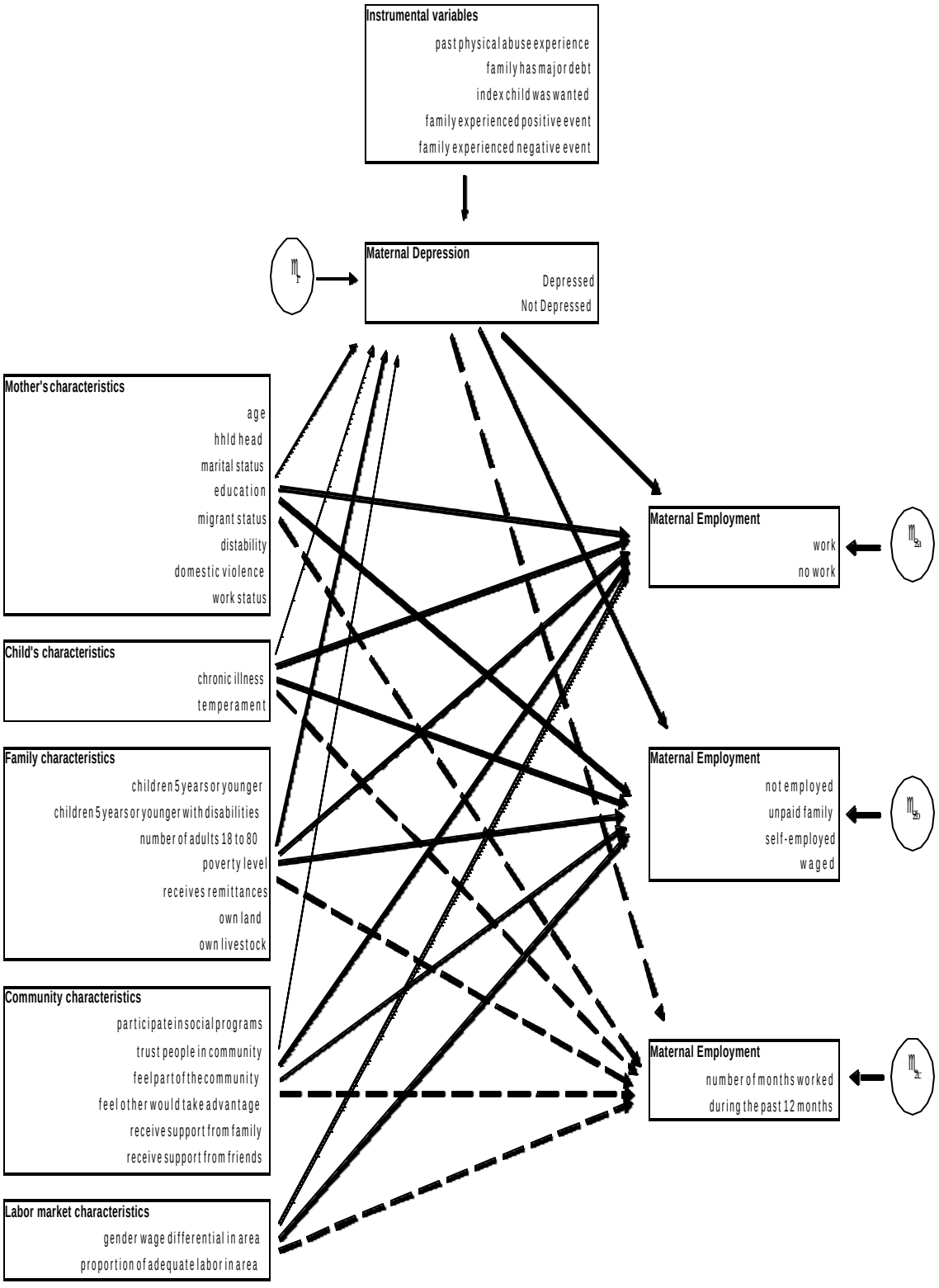
15 Potentially, lack of psychological and sociological data, as well as the disproportionate emphasis given to economic factors when estimating Peruvian mothers' employment limited earlier developments of this comprehensive model.

an appropriate alternative.[16] Using the observed depression/anxiety variable could bias the maternal work estimation. The second component of the two stage model (*i.e.* maternal employment regressions) incorporates the predicted depression/anxiety variable. Three different dependent variables are used for estimating the second stage regressions, a dichotomous, a categorical, and a truncated continuous employment variable.

Regarding the first stage dependent variable, the maternal depression/anxiety index is constructed using a 20 item depression and anxiety symptom self-reported questionnaire, experienced over the past 30 days. The instrument is based on the World Health Organization (WHO) recommended 'Self-reported questionnaire –20 items' (SRQ20) (Harpham et al., 2003). Although this instrument has been used before in Peru, it has not been validated for the Peruvian population. It has been validated, however, in other countries of the region using more detailed psychiatric interviews (Escobal et al., 2003). Mothers who have 8 or more positive symptoms are classified as depressed/anxious.

16 The endogeneity problem occurs when the classic theory assumption of correlation equal zero between the independent variables and the error term, does not hold. The instrumental variable is highly correlated with the problematic observed variable (i.e. the variable that has correlation different from zero with the error term), but has correlation equal zero with the error term (Amemiya & MaCurdy, 1986; Heckman, 1993).

Figure 1
Path Models



Maternal employment estimations use three different dependent variables. The first is a dichotomous variable defined as 1 if the mother reported having worked (in paid and unpaid activities) during the past 12 months prior the interview and 0 otherwise. The second variable, a categorical labor market sector variable, is defined as 0 not working, 1 unpaid family worker, 2 self-employed, and 3 waged workers. The third dependent variable is a continuous but truncated variable reporting the number of months the mother worked during the past 12 months.

All employment information is reported for the three main economic activities the individual had during the past 12 months prior the interview.[17] All dependent variables use information from these three sources, starting with the most important occupation. If no information was available for the first occupation, information from the second and later third occupation was imputed. Not working mothers are those who did not report any economic activity over the past 12 months.

Figure 1 shows the path model used for all causal analyses. The first stage estimates the maternal depression/anxiety probit model. The regression controls for maternal labor force participation testing the proposition that employed mothers are more likely to experience depression and anxiety symptoms. Past physical abuse experience and having an unwanted child are used as identifying variables. The second component uses a probit model for the dichotomous variable, a multinomial logit technique for the categorical variable, and a tobit estimation for the truncated continuous employment variable. All regressions include the predicted value of the anxiety/depression index

17 Main economic activities defined as those that gave the person the greatest income during the past 12 months.

estimated in stage one, in addition to demographic, family, index child, community, and labor market characteristics.

Qualitative Component

The qualitative information comes from focus groups conducted in Lima. Focus group participants were randomly selected from the YLP-P sample population residing in Lima at round 1. Specifically, three districts of Lima are used: Ate, Villa María del Triunfo, and San Juan de Lurigancho. Lima, the capital of Peru, is, as it is the majority of the Peruvian population (72 percent by 2002), primary urban (INEI, 2004). However, interestingly, most urban inhabitants are first or second generation rural migrants. These selected Lima districts contain high proportions of migrants experiencing high poverty levels. As a consequence, their migrant and lower socioeconomic conditions force them to develop strategies for coping with economic problems, their reduced social networks, and significant cultural changes. These factors directly affect individuals' financial and non-financial well-being and hence, increase mothers' employment barriers, potentially limiting their possibilities of participating or later staying in the labor market.

Table 1
Focus Group Sample: Mothers Currently Living in Lima (By District)

	San Juan de Lurigancho	Villa María del Triunfo	Ate	Total
YLP-P sample size	100	100	100	300
Potential participants selected	32	32	32	96
Number of sessions	2	2	2	6
Final sample size	15	16	16	47
Session 1	6*	7	8	21
Session 2	9	9	8	26

* No audio record available.

Focus groups were completed between July and August 2004. The sampling process first selected thirty two potential participant mothers, randomly chosen from a total sample of 100 mothers per district (see Table 1). The sample selection considered mothers who were working and those who were not working at round 1. Potential participants were contacted at their homes in person and were asked to participate in these sessions.[18] All participants signed informed consent forms (see Appendix A) at the time they were contacted. Three field workers with previous experience working for the YLP-P project were hired to contact and to recruit participants.

San Juan de Lurigancho and Ate's focus group sessions were held at the Institute for Nutritional Research's health centers. Villa María del Triunfo's focus group meetings were conducted in two of the YLP-P participant mothers' houses, one who participated in the focus groups and one who did not participate. Two focus group sessions were held per district with six to nine mothers per session (see Table 1). All focus group meetings were audio-taped and later transcribed, lasting between one and a half to two hours.[19] Participant mothers did not receive monetary compensation for their participation, however they received a small gift worth 8 soles (about 2.50 dollars) and transportation costs were covered.

The principal investigator (PI) guided all focus group sessions using a focus group interview guide (FGIG) (see Appendix B). This FGIG covered barriers affecting maternal labor force participation stability at different levels: individual, family, community/social and labor market. In addition, the FGIG included components on

18 The proportion of potential participants who did not accept to participate was low. The main reason for not participating was not being at home at the time of the recruitment. Potential participants were contacted by field workers at different times during the day.
19 Technical problems during the first focus group session prevented the recording of this meeting. However, notes taken during the session provide a good summary of issues discussed during that focus group session.

mothers' employment preferences, as well as problems and coping strategies related to dealing with both work and family responsibilities.

Previously unexplored information on mothers' perceptions regarding factors affecting their work decisions and possibilities is also captured. In addition, focus group sessions gathered information about self-esteem and self-confidence issues, family and social support, and community characteristics. Detailed information about mothers' perceptions concerning these variables' beneficial or harmful effects on their employment opportunities and preferences were collected as well. Also, data regarding work and family responsibility conflicts and potential solutions to mothers' employment problems were also reported.

Manual coding and a computer workbench program for qualitative analysis (ATLAS.ti) were used to code all transcribed interviews.[20] The initial coding structure followed the FGIG's individual, family, community/social and labor market level organization. Although their emphasis varied by district, similar issues affecting mothers' employment emerged across all focus group sessions. These broad categories were re-organized and sub-coded following the three different perspectives. The sub-divided structure included economic (*i.e.* labor market occupation preferences, child care availability, credit access, and inadequate employment), psychological (*i.e.* anxiety/depression, mother-child interaction, self-esteem, motivation, and domestic violence), and sociological (*i.e.* community-support social capital, financial-based social capital) code families. Unexpected topics were later added to the coding scheme (*i.e.* community crime, workplace and family sexual abuse).

20 Computer-assisted approaches to content analysis facilitate and reduce costs of the analysis (Punch, 1998; Stewart & Shamdasani, 1990).

In addition, information obtained from field workers was used for comparative and complementary purposes. These field workers previously participated in the first YLP-P data collection and first follow up before the second data collection.[21] They provided detailed information about focus group participant mothers' household and community characteristics, as well as comparisons between these mothers and other YLP-P participants. Combining these two information sources improved the validity of the information collected from focus group sessions.

Focus groups are a powerful exploratory and informative, as well as inexpensive and flexible information source (Ambert, Adler, Adler, & Detzner, 1995; Punch, 1998; Stewart & Shamdasani, 1990). Despite their understandable disadvantages compared to other qualitative techniques (*e.g.* smaller sample size, biases due to socially desirable answers, and over-participation of few people), focus group sessions provide important information about contextual and cultural characteristics, as well as test instruments and hypotheses to be later used (Ambert et al., 1995; LaRossa & Wolf, 1985). Early engagement with these populations improves the understanding of their unique culture and provides greater ability for recognizing particular characteristics of these groups.

RESULTS

Peru is considered a medium-income country, with apparently low unemployment levels (5 percent by 2000), even across both male and female populations (MINTRA, 2004). Despite these incredibly small numbers, poverty levels remain seriously high, and still growing from 42 to 48 percent between 1998 and 2000 (INEI, 2004). Large levels of

21 All YLP-P participant mothers and children were contacted one year after the first large data collection. This follow up was aimed at locating participants who migrated during this period. A picture and a diploma were given to all participant mothers.

inadequate employment,[22] particularly among women (60 percent), explain these findings (MINTRA, 2004). In addition to greater disadvantages finding adequate jobs, Peruvian women are also more likely to experience greater instability. Mostly self-employed, 67 percent of the Peruvian employed female population worked during 2000 in risky and unstable informal economic activities (ILO, 2001). These findings clearly indicate the greater variance behind women's labor force participation, not only regarding engagement in particular employment sectors, but also attachment patterns.

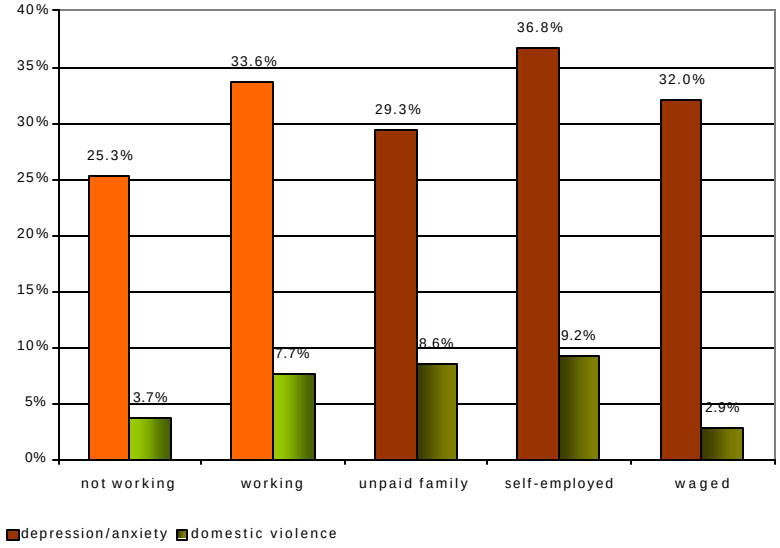
This section presents evidence analyzing this statement. In addition, descriptive statistics, causal models, complemented with qualitative results are used to illustrate and to test effects of psychological and sociological variables on Peruvian poor mothers' work decisions. In addition to psychological and sociological variables, causal models include mothers' demographic characteristics, family structure, poverty, and asset level characteristics, children's health and temperament variables, and labor market conditions. Additionally, these analyses illustrate how results from alternative dependent variables used in various models lead to different but complementary implications.

Descriptive results from the YLP-P survey data show differences not only between mothers working and those not working, but also between mothers working in particular labor market sectors (*i.e.* unpaid family, self-employed, and waged). Figures 2 to Figure 5 illustrate mothers, children, household, and community characteristics by mothers' work condition and employment sector (see Appendix ## for a complete list of characteristics).

22 Inadequate employed percentages include individuals who are underemployed (i.e. people who want to work more hours or want jobs with higher wages), overemployed (i.e. those who want to work fewer hours), and unemployed.

Figure 2 illustrates how the aggregate work-no work category, overlooks unpaid family, self-employed, and waged differences regarding depression/anxiety and domestic violence experiences. Numbers show that self-employed mothers are more likely to experience both depression/anxiety symptoms and domestic violence. Domestic violence experiences among waged working mothers and depression/anxiety among the unpaid family are the lowest. Clearly, self-employed mothers seem more disadvantaged, regarding psychological problems.

Figure 2
Mothers' Psychological Problems

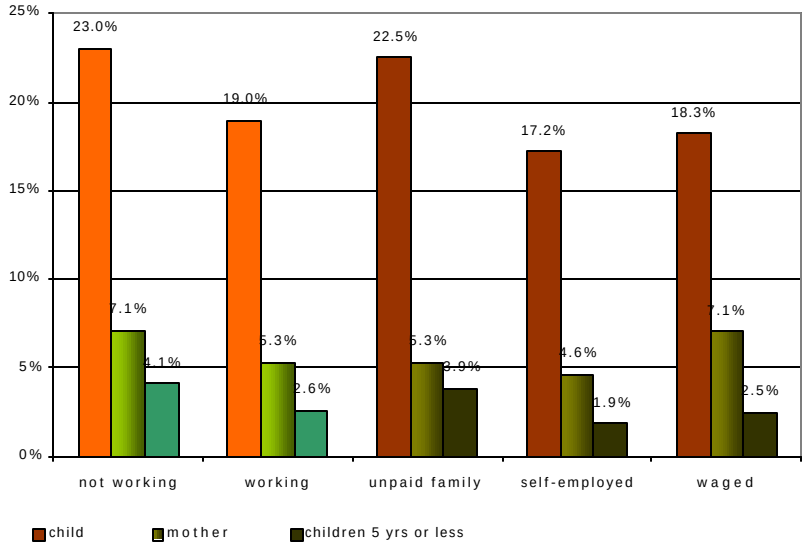


Source: YLP-P 2002: One year old sample

Figure 3 presents children and maternal physical health. Both mothers and children are less likely to have disabilities among self-employed mothers. Those working in waged occupations and unpaid family activities are more likely to face a disability themselves and to have their children disabled, respectively. These results suggest that mothers working in waged activities seem to have more stable jobs, and hence to remain

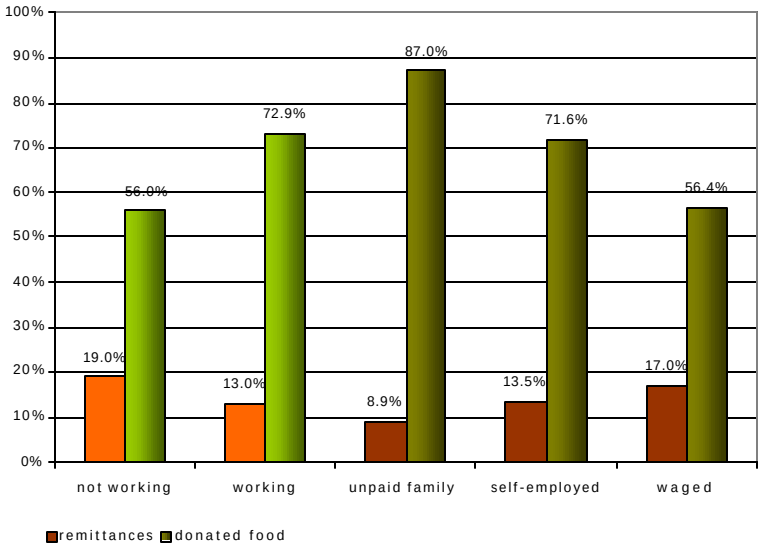
employed despite their disabilities. Nevertheless, given the higher risk and instability of self-employed occupations, only mothers with no disabilities and those with healthy children are likely to stay employed.

Figure 3
Physical Disability Problems



Source: YLP-P 2002: One year old sample

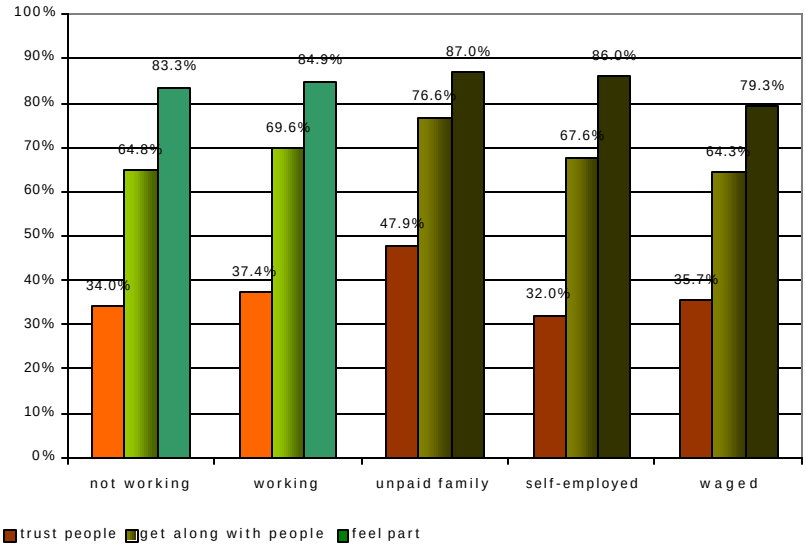
Figure 4
Household Transfers



Source: YLP-P 2002: One year old sample

Figure 4 illustrates households' transfer patterns. Results indicate that waged working mothers are the most likely to receive remittances but also the least likely to receive donated food among those working. On the contrary, unpaid family mothers are the most likely to receive donated food and the least likely to receive remittances. These results support prior studies finding that mothers whose families have fewer economic resources (*i.e.* unpaid family workers) are more likely to receive financial support (Jayakody, 1998). Indeed, mothers in unpaid family labor activities have lowest household income levels and they are more likely to be extreme poor (see Attachment ##).

Figure 5
Community Interaction



Source: YLP-P 2002: One year old sample

Additionally, Figure 5 presents community involvement characteristics. Numbers indicate that unpaid family mothers are the most likely to get along with people, and waged workers, the least likely to feel part of their communities. Self-employed mothers

are the least likely to trust people and unpaid family the most likely. These findings illustrate social capital availability differences across mothers engaged in different employment sectors.

Table 4
Probit model: Maternal Depression
Dependent Variable: 1 Depressed, 0 Not Depressed

	Marginal Effects	Std. Error
Mother's characteristics		
Disabled	**0.215**	**(0.051)**
Experienced past physical abuse	**0.092**	**(0.024)**
Current domestic violence	**0.184**	**(0.050)**
Looking for job	**0.117**	**(0.028)**
Months worked in past 12 months	-0.012	(0.007)
Unpaid family worker	0.064	(0.047)
Self-employed worker	**0.147**	**(0.047)**
Wage worker	**0.130**	**(0.056)**
Index child's characteristics		
Child was wanted	**-0.062**	**(0.022)**
Long term illness	**0.055**	**(0.028)**
Family structure and characteristics		
Family has significant debt	**0.072**	**(0.023)**
Community and family social capital characteristics		
Trust people in your community	0.024	(0.023)
Feel part of the community	**-0.070**	**(0.032)**
People take advantage of you	**0.080**	**(0.023)**
Family experienced positive event	-0.021	(0.024)
Family experienced negative event	-0.010	(0.029)
Number of observations	1969	
Log Likelihood	-1071.4	

Source: YLP-P 2002, one year old sample.
Notes: Bold numbers are 5% statistically significant.

Overall, these findings indicate the importance of moving beyond the dichotomous work-no work model. Causal models are presented comparing not only results from the dichotomous work-no work model with the more extensive categorical no work, unpaid family, self-employed, and waged work. In addition, these models are contrasted with the more dynamic continuous model and qualitative information. These

information sources are combined introducing more detailed and comprehensive analyses.

The first component of the two stage models, the maternal depression/anxiety probit, was initially estimated. Table 4 presents an abridged version of the probit model (see Appendix ## for the completed model). Results support the proposed statement arguing different effects of unpaid family, self-employed, and waged labor on maternal depression/anxiety. Outcomes indicate that mothers currently working on paid occupations (*i.e.* self-employed and waged) experience greater depression and anxiety, compared to not-employed mothers.

Also, mothers looking for jobs are significantly more likely to experience depression/anxiety symptoms. Both, the number of months worked over the past 12 months and being an unpaid family worker, do not affect maternal depression/anxiety problems. These results support the predictable causal relationship of maternal employment conditions on depression/anxiety prevalence.

Regarding other health and psychological problems, physical problems as well as current and past physical abuse experiences significantly increase maternal depression/anxiety. In addition, if the index child has physical health problems or if he/she was not a wanted birth, mothers' psychological problems are greater. This supports psychological theories and studies arguing that children are actually active agents influencing their environments. Additionally, financial and social capital factors affect maternal depression/anxiety. Having a significant debt and feeling that community people could take advantage of you increase this psychological problem, but feeling part of the community reduces it.

These findings clearly illustrate the significant effects of not only financial and work conditions, but also past psychological conditions and childbearing preferences on Peruvian poor mothers' mental health. Typically, economic models associate depression and anxiety problems with not being employed or looking for jobs, and hence with experiencing financial stress. These outcomes demonstrate that even those working, particularly those in paid jobs are more likely to experience more psychological problems. Qualitative results further explain this outcome. Findings indicate that working mothers experience large levels of anxiety and depression associated with leaving their children under non-parental care. A participant mother presents her negative psychological experiences when having to work, despite her recognition of the economic benefits:

> "(…) but the disadvantage is that when I leave, I am not going to be relaxed because I know he [her child] will be vulnerable to anything, I don't know, vulnerable to any person, danger, or maybe his food and so many things that one can imagine."

This anxiety largely affects not only their emotional stability, but also their productivity in the labor market and hence, their work stability in the long term. Unfortunately, they are aware that their deprived economic situations force them to enter the labor market. One of the participant mothers clearly stated:

> "(…) [when you work outside the house] you are stressed, you know, there is no serenity. (…) [but you have to work] Because at work they are going to pay you for what you do but at home nobody pays you."

Despite several employment related problems, mothers accept maternal work as positively affecting their families' well-being. Particularly, these mothers clearly state their preferences for self-employed occupations. Consequently, evidence suggests

differences not only regarding access, but also greater preferences for more flexible economic activities such as self-employed jobs.

Table 6
Probit Model
Dependent Variable: Work status: 0 not working 1 working

	Marginal Effect	Std Error
Mother's characteristics		
Migrant	**-0.157**	**(0.032)**
Disabled	**-0.437**	**(0.046)**
Depressed	**1.606**	**(0.135)**
Experience domestic violence	**-0.153**	**(0.066)**
Family structure and characteristics		
Children 5 yrs or less	**0.040**	**(0.018)**
Children 5 yrs or less with disability	**-0.146**	**(0.068)**
Number of adults 18 to 80	**-0.021**	**(0.009)**
Receive income from remittances	**-0.077**	**(0.035)**
Index child's characteristics		
Chronic illness	**-0.142**	**(0.033)**
Community level social capital characteristics		
Participate in food transfer program	**0.090**	**(0.029)**
Trust people in your community	-0.029	(0.027)
Part of your community	**0.093**	**(0.037)**
Others take advantage of you	**-0.101**	**(0.028)**
Labor market characteristics (Cluster level)		
Wage gender gap[1]	**-0.209**	**(0.040)**
Adequate employment[2,3]	0.002	(0.003)
Number of observations	1969	
Log Likelihood	-1057.7	

Source: YLP-P 2002: One year old sample
[1] 2000 Peruvian Living Standard Measurement Survey
[2] Peruvian Department of Labor (Programa de Estadísticas y Estudios Laborales-PEEL)
Notes: Reported values are marginal effects and standard errors (in parentheses).
Bold numbers are 5% statistically significant.
[3] Individuals who are neither unemployed nor underemployed.

Table 7
Multinomial Logit Model
Dependent Variable: 0 Not Working 1 Unpaid Family 2 Self-Employed 3 Waged

	Not working	Unpaid family	Self-Employed	Waged
Mother's characteristics				
Migrant	**0.108**	0.023	**-0.171**	0.040
	(0.045)	(0.038)	**(0.042)**	(0.042)
Disabled	**0.536**	0.020	**-0.364**	**-0.192**
	(0.114)	(0.081)	**(0.033)**	**(0.045)**
Depressed	**-0.946**	**-0.909**	**1.371**	**0.484**
	(0.221)	**(0.169)**	**(0.182)**	**(0.174)**
Experience domestic violence	0.069	**0.350**	**-0.220**	**-0.200**
	(0.103)	**(0.101)**	**(0.049)**	**(0.045)**
Family structure and characteristics				
Children 5 yrs or less	-0.010	0.022	-0.028	0.015
	(0.021)	(0.016)	(0.025)	(0.025)
Children 5 yrs or less with disability	**0.245**	-0.012	**-0.234**	0.002
	(0.102)	(0.073)	**(0.111)**	(0.109)
Number of adults 18 to 80	0.015	**-0.031**	-0.001	0.017
	(0.011)	**(0.011)**	(0.014)	(0.012)
Receive income from remittances	**0.133**	**-0.101**	-0.059	0.027
	(0.060)	**(0.029)**	(0.051)	(0.046)
Index child's characteristics				
Chronic illness	0.074	**0.123**	**-0.128**	-0.069
	(0.046)	**(0.044)**	**(0.041)**	(0.039)
Community level social capital characteristics				
Participate in food transfer program	-0.067	-0.009	0.042	0.034
	(0.037)	(0.035)	(0.041)	(0.036)
Trust people in your community	0.006	**0.070**	**-0.125**	0.048
	(0.031)	**(0.027)**	**(0.035)**	(0.036)
Part of your community	0.011	**-0.156**	**0.128**	0.017
	(0.037)	**(0.052)**	**(0.043)**	(0.045)
Others take advantage of you	**0.100**	0.049	**-0.126**	-0.024
	(0.039)	(0.029)	**(0.037)**	(0.036)
Labor market characteristics (Cluster level)				
Wage gender gap[1]	**0.167**	**-0.170**	-0.062	0.065
	(0.052)	**(0.054)**	(0.066)	(0.058)
Adequate employment[2,3]	-0.003	**-0.014**	**0.009**	**0.008**
	(0.004)	**(0.003)**	**(0.004)**	**(0.004)**
Number of observations	1969			
Log Likelihood	-1210.5			

Source: YLP-P 2002: One year old sample
[1] 2000 Peruvian Living Standard Measurement Survey
[2] Peruvian Department of Labor (Programa de Estadísticas y Estudios Laborales-PEEL)
Notes: Reported values are marginal effects and standard errors (in parentheses).
Bold numbers are 5% statistically significant.
[3] Individuals who are neither unemployed nor underemployed.

Table 8
Tobit Model
Dependent Variable: Number of months work during past 12 months

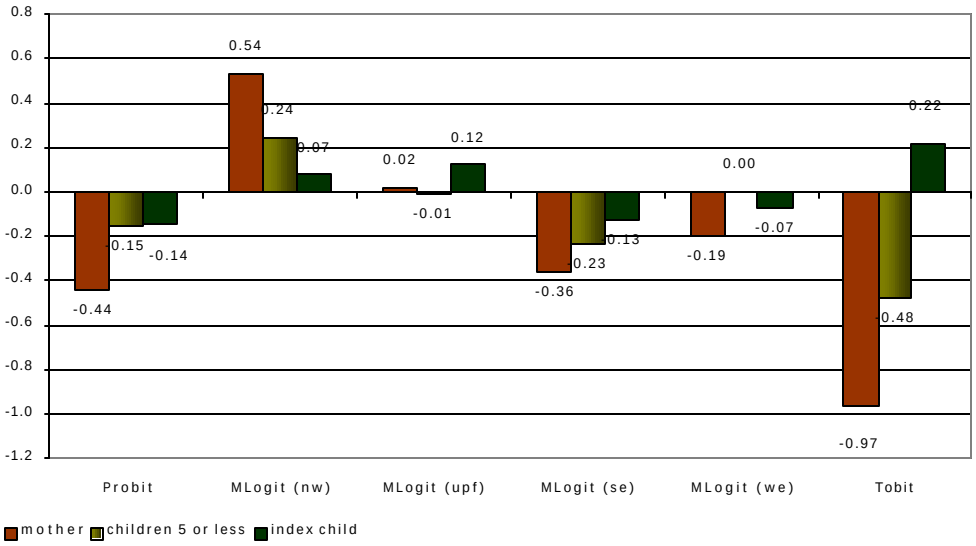
	Coefficient	Std Error
Mother's characteristics		
Migrant	**-3.549**	**(1.06)**
Disabled	-2.926	(1.93)
Depressed	7.862	(5.37)
Experience domestic violence	**4.259**	**(1.90)**
Self-employed	**(28.91)**	**(2.27)**
Self-employed*Depressed	**-13.483**	**(5.56)**
Waged labor	**25.017**	**(2.68)**
Waged labor*Depressed	**-20.473**	**(6.66)**
Family structure and characteristics		
Children 5 yrs or less	**1.803**	**(0.59)**
Children 5 yrs or less with disability	-1.420	(2.27)
Number of adults 18 to 80	**-0.938**	**(0.32)**
Receive income from remittances	**-2.812**	**(1.16)**
Index child's characteristics		
Chronic illness	0.649	(1.07)
Community level social capital characteristics		
Participate in food transfer program	**2.455**	**(0.95)**
Trust people in your community	1.491	(0.87)
Part of your community	-0.256	(1.17)
Others take advantage of you	0.589	(0.91)
Labor market characteristics (Cluster level)		
Wage gender gap[1]	**-8.012**	**(1.42)**
Adequate employment[2,3]	**-0.231**	**(0.10)**
Number of observations	1969	
Log Likelihood	-2536.4	

Source: YLP-P 2002: One year old sample
[1] 2000 Peruvian Living Standard Measurement Survey
[2] Peruvian Department of Labor (Programa de Estadísticas y Estudios Laborales-PEEL)
Notes: Reported values are coefficients and standard errors (in parentheses).
Bold numbers are 5% statistically significant.
[3] Individuals who are neither unemployed nor underemployed.

Table 6, Table 7, and Table 8 present results from the probit, multinomial logit and tobit regressions from the second component of the two-stage model, using alternative dependent maternal employment variables. For simplicity, these tables do not include all explanatory variables (see Appendix ## for complete tables). All regressions

include the maternal depression/anxiety predicted variable from the first stage regression. In addition, mothers and children variables, family structure and financial characteristics, as well as community and labor market factors are also included in all models.

Figure 6
Marginal Effects: Physical Health

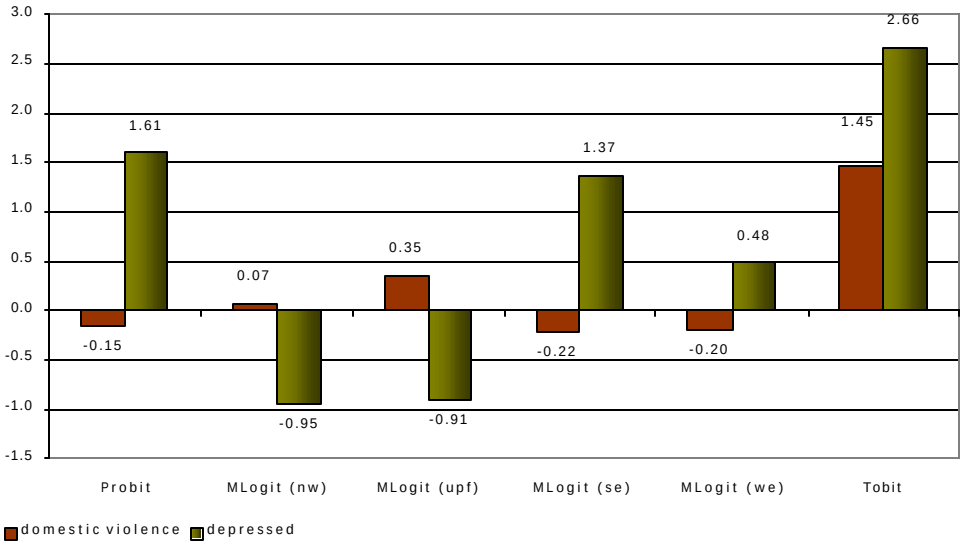


Source: Table 6 (Probit: work-no work), Table 7 (MLogit: no work, unpaid family, self-employed, waged), Table 8 (Tobit: number of months worked over the past 12 months)
Note: Multinomial logit categories nw: not working , upf: unpaid family, se: self-employed, and we: waged employed.

Results clearly indicate that mothers, children 5 years or younger in the house, and the index child's poor physical health reduce overall maternal work participation and self-employed occupations in particular (see Figure 6). Nevertheless, no significant effects are observed on mothers' work attachment. Potentially, over time, mothers either are able to successfully cope with these health problems or give up working, reducing the short-term effect of this problem on mothers' employment patterns.

These results support and complement psychological and economic studies. Human capital economic modes assume that individuals experiencing chronic health problems, experience lower human capital levels, and hence, reduce their possibilities of participating and staying in the labor market. In addition, having children with persistent health problems affect mothers' time allocation and stress level.

Figure 7
Marginal Effects: Mental Health



Source: Table 6 (Probit: work-no work), Table 7 (MLogit: no work, unpaid family, self-employed, waged), Table 8 (Tobit: number of months worked over the past 12 months)
Note: Multinomial logit categories nw: not working , upf: unpaid family, se: self-employed, and we: waged employed.

Figure 7 shows that domestic violence experiences reduce mothers' participation in the labor market, particularly in self-employed and waged occupations. Qualitative findings support these outcomes. Participant mothers expressed that physical abuse experiences were common, and particularly among poor migrant women. Unfortunately, these problems are frequently correlated with partners' domination and low self-esteem

issues. One mother shared her experience regarding her husband's opposition affecting her attachment to the labor market, despite her potential easier access to jobs:

> "(…) my friend called me (…) so I cleaned and she paid me, I used to tell her wait for him [the husband] to leave (...) I waited (…) and then I would go and leave them [her daughters] with my mother (…) and I knew more or less I estimated the time he will be back and I went back home (…) then I had my money to spend, you know, (…) but then to work in some other place no, (…) my neighbor (…) told me if you want I find you a job but first you have to talk to your husband, I don't want to get you a good job and then you will make me look bad (…) I know that if I want to find a job, I can find it, but it is just that I do not have the support of my husband (…) in my opinion I think he is selfish as I told you he wants me to depend only on him and also he is jealous (…)"

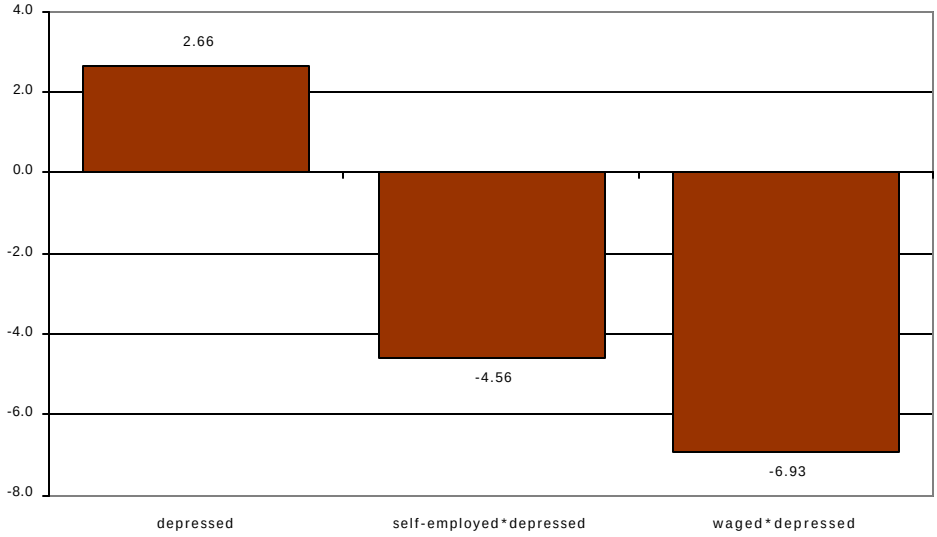
This evidence shows that barriers associated with domestic violence and partners' domination affect not only maternal work entrance, but also long term stability and attachment in the labor market. The dynamic causal model supports this finding and presents more interesting and surprising results regarding mothers' psychological issues. Contrary to the more static models, Figure 7 shows that domestic violence experiences increase mothers' attachment in the labor market.

This finding suggests that, despite their expected partners' domination and larger difficulty entering the labor market, mothers who manage to enter the work force potentially make greater efforts to stay in the labor market. This result supports sociological studies stating that women facing greater divorce or separation risks are more likely to engage in economic activities (Amato & Booth, 1997; Cherlin, 1992). These outcomes evidence that limiting maternal employment analyses to more static models lead to limited conclusions.

Similar conclusions are obtained when considering maternal depression/anxiety effects. Surprisingly, maternal depression/anxiety has positive effects on overall

employment and paid occupations (self-employed and waged) in particular (see Figure 7). These results clearly contradict initial expectations and economic assumptions regarding the relationship between this psychological problem and mothers' work participation. They, however, unmistakably illustrate the need for further investigation, preferably incorporating more dynamic aspects of maternal employment decisions and patterns.

Figure 8
Marginal Effects: Maternal Depression and Interactions



Source: Table 8 (Tobit: number of months worked over the past 12 months)
Note: Multinomial logit categories nw: not working , upf: unpaid family, se: self-employed, and we: waged employed.

Indeed, findings from the tobit regression support this assertion and partially explain this unexpected outcome. Figure 8 shows that depressed/anxious mothers working in paid occupations are significantly more likely to work fewer months.[23] All these outcomes lead to the conclusion that despite Peruvian poor mothers large efforts for engaging in paid occupations, they are likely to experience great instability in the labor

23 See interaction effects between self-employed and depression/anxiety variables as well as waged and depression/anxiety variables.

market. Unfortunately, it is this poor attachment in the labor market that negatively affects mothers' poverty alleviations efforts and their general well-being. Indeed, this outcome partially explains the ineffectiveness of Peruvian employment enhancing and antipoverty policy implementations and clearly demonstrates the need for further investigation.

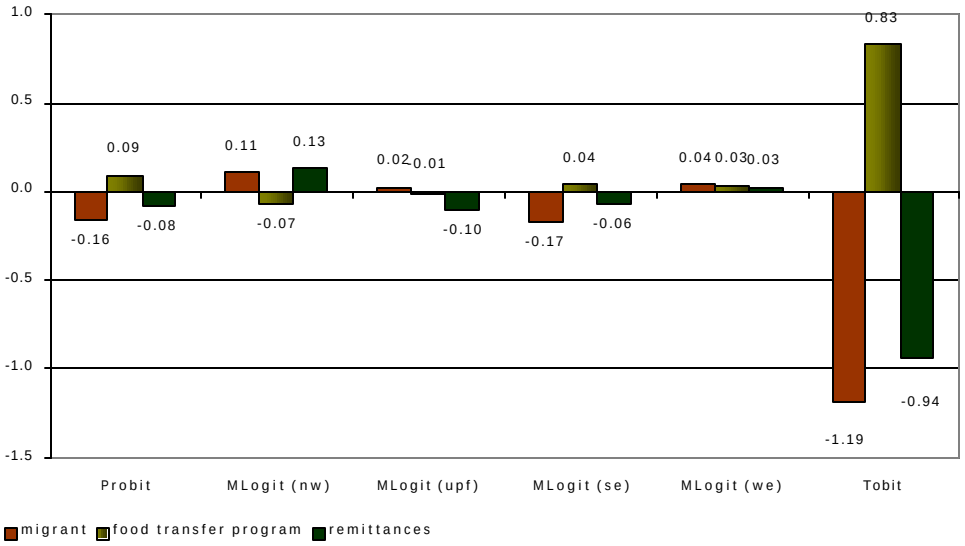
Qualitative results complement and further explain these findings. As stated before, participant mothers expressed that greater anxiety associated with using non-parental child care arrangements reduced their productivity and work participation. Also, mothers revealed additional factors, not considered in the quantitative sample, related to high crime and sexual violence issues. Consequently, even after controlling for paid employment, associated with financial stress, mothers working as self-employed and waged workers face greater challenges associated with being robed and experiencing sexual abuse. Mothers disclosed experiencing these problems not only at their work places and on the streets, but also inside their own houses. A mother shared her experience and views particularly regarding sexual violence problems among non-parental caregivers:

> "Sometimes blood calls blood you know, and sometimes during a moment [of weakness], what can you do? nothing you can do then, and so present charges against your own cousin, your family, […] you have to see, desperate, we live in a desperate situation."

Evidently, these experiences also affect mothers' possibilities and willingness to establish greater social connections and hence to increase their social capital availability. Causal models support these findings and argue for social capital's positive effects on maternal employment. Results indicate that migrant mothers, whose social capital is

lower because of geographic distances from other relatives, are less likely both to stay and to participate in the labor market, particularly in self-employed occupations (see Figure 9). Nevertheless, active participation in food-transfer social programs significantly increases both entrance and stability in the labor force, but has no significant effect on any particular work sector (see Figure 9).

Figure 9
Marginal Effects: Social Capital

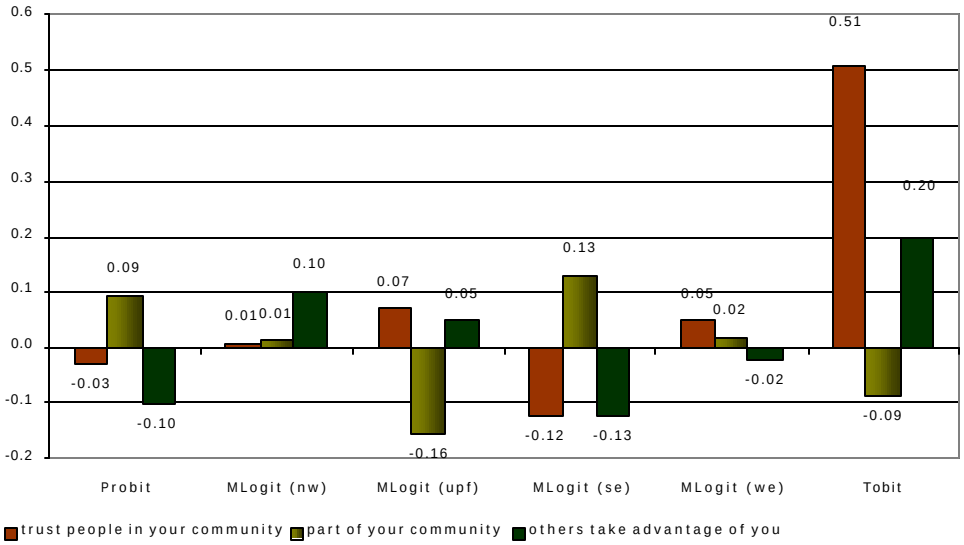


Source: Table 6 (Probit: work-no work), Table 7 (MLogit: no work, unpaid family, self-employed, waged), Table 8 (Tobit: number of months worked over the past 12 months)
Note: Multinomial logit categories nw: not working, upf: unpaid family, se: self-employed, and we: waged employed.

In addition, Figure 9 presents marginal effects of remittances on maternal employment decisions. Findings show that mothers receiving remittances are less likely to participate and to stay in the labor force. This result supports economic theories arguing that non-labor income typically reduces labor force participation. Unfortunately, remittances are an important source of income for the Peruvian household, and despite their potential use in credit markets as collaterals, they have not been recognized as a

valuable resource. Indeed, results show that remittances have a non-significant effect on maternal self-employment (see Table 9), despite mothers' evident problems accessing credits. Indeed, participant mothers reported having significant problems getting credits because of their lack of collaterals.

Figure 10
Marginal Effects: Community Interaction



Source: Table 6 (Probit: work-no work), Table 7 (MLogit: no work, unpaid family, self-employed, waged), Table 8 (Tobit: number of months worked over the past 12 months)
Note: Multinomial logit categories nw: not working , upf: unpaid family, se: self-employed, and we: waged employed.

Regarding mothers' interactions in their communities, findings show that active interaction with community people is important for labor market entrance (particularly self-employed activities), but non significant for maternal work attachment. This is, feeling part of the community increases mothers' overall employment and self-employment in particular, but it is not significant on number of months worked (see Figure 10). More passive connections with the community (*i.e.* trusting people and

thinking people could take advantage) present non-significant or negative effects on employment decisions.

Overall, these results illustrate the significant effects that psychological and sociological variables have on maternal employment decisions. Additionally, they evidence the different effects that these variables have on maternal labor force participation general decisions, employment sector options, and dynamic processes. Clearly, restricting maternal work analyses to traditional economic models or dichotomous work-no work choices biases conclusions and implications regarding Peruvian poor mothers' labor force participation decisions, patterns, and explanatory factors. In addition, by combining qualitative with quantitative data, this study was able to describe with greater precision and to discover additional processes behind causal relationships and mothers' behaviors and preferences.

DISCUSSION

This study aims at integrating sociological and developmental psychological perspectives into the traditional economic model, presenting a comprehensive analysis of maternal labor force participation decisions. This investigation tests two main hypotheses, complementing quantitative with qualitative analyses. One, overlooked psychological and sociological factors affect maternal employment. Two, these explanatory factors impact differently not only overall maternal employment decisions, but also labor market sector selection, and work dynamics. Results support these initial hypotheses and present additional evidence regarding unexpected factors affecting maternal employment.

First, outcomes show that psychological variables such as maternal depression/anxiety and domestic violence as well as sociological social capital variables such as social and financial support and community interactions, significantly affect maternal employment. Unfortunately, previous studies did not consider these factors in Peruvian mothers' labor force participation models and policy designs, typically developed based on economic perspectives. Ironically, economic models recognize the effects of psychological and sociological variables on maternal employment decisions, however, their significance is undervalued and treated only as unobserved error terms.

Second, findings indicate that explanatory variables' effects are different when analyzing alternative dependent variables such as overall maternal work participation, employment by labor market sector, and dynamic labor force attachment. Evidently, restricting analyses to a dichotomous work-no work maternal employment dependent variable model, limits the scope of maternal labor force participation investigations. Additionally, complementing this analysis with qualitative information not only deepens these causal relationships' interpretations, but also introduces additional mediating and moderating previously unexplored factors.

Regarding psychological factors, results show that domestic violence experiences negatively affect mothers' overall work participation, and particularly paid work. They also show, however, that this experience increases maternal employment attachment over time. These findings suggest that mothers facing violent partners, but have been able to enter the labor market, are more likely to stay in the labor market. It is reasonable to argue that mothers who are able to enter the labor market, despite their domestic violence experiences, are potentially more likely to recognize their risks of divorce or separation,

and hence to be forced to be financially self-reliant. Consequently, these mothers will make greater efforts to remain employed in order to achieve this economic self-sufficiency.

Depression/anxiety problems have also different and seemingly inconsistent relationships with maternal work, depending on the particular dependent variable used. These seemingly unexpected results were explained however, after considering all three complementary causal models with the qualitative information. Additionally, utilizing theoretical ideas from sociological and developmental psychological perspectives, in addition to economic theories, contributed to further explaining these outcomes.

Indeed, developmental psychological theories partially explain these predicted dynamic effects stating that psychological factors are highly unstable and have different impacts on particular individuals at different stages of their developmental processes. Consequently, it is reasonable to expect different results when analyzing static or dynamic processes. Recognizing this issue is critical when analyzing mothers' employment decisions, given that psychological characteristics clearly increase maternal decision and behavior processes' overall instability.

Similarly, sociological theories partly explain effects of social and financial support as well as community interaction variables on maternal employment. Results support sociological studies illustrating that greater social capital availability, through interaction with community people and program participation, increases Peruvian poor mothers' work chances. Nevertheless, findings also show that community level social capital has no significant influence on maternal employment attachment over time. Sociological theories explain this result arguing that as Peruvian poor mothers advance in

the labor market they gain additional sources of social capital (*e.g.* work related social capital). Consequently, mothers' community-base social capital becomes less essential for maternal employment dynamics.

Concerning financial aid (*i.e.* remittances), results support economic models stating that non-labor income reduces labor force participation. Unfortunately, these findings also confirm that individuals working on self-employed occupations are not using remittances as collaterals in credit markets. Evidence shows that these non-labor income transfers are significant among Peruvian households. However, although these transfers are the only regular income source for several households, they tend to be small. Potentially, this issue limits mothers' possibilities of accessing formal credits. Ironically, government programs have started using remittances as collaterals although primary focusing on real state credits. Similar programs targeting small businesses or other productive activities are likely to largely benefit poor Peruvian mothers, particularly those self-employed.

Interestingly, most economic factors (*e.g.* age, education, marital status, cluster level unemployment rates and adequate employment) present similar effects on all alternative maternal work dependent variables. This result partially explains economists' smaller interest regarding the use of alternative maternal employment variables. As a consequence, most economic models reduce their analyses to dichotomous dependent variables, potentially giving greater value to functionality and parsimony aspects of these models.

Clearly, these results illustrate that Peruvian poor mothers face even greater problems for participating in the labor market than those typically analyzed (*e.g.*

education, low wages, and high unemployment levels). This study advances previous studies not only stressing and identifying the significant effects of particular sociological and psychological factors, but also demonstrating the need for integrating various methodological and theoretical perspectives with more detailed qualitative information. Limiting maternal work participation studies to isolated economic, sociological, or developmental psychological perspectives, or to particular models and data collection techniques, constrains not only theoretical and methodological advances, but also leads to ineffective policy designs and applications.

CONCLUSIONS AND POLICY IMPLICATIONS

Peruvian anti-poverty policies consider maternal labor force participation a highly important mechanism for poverty alleviation, particularly among the most vulnerable populations, women and children. Nevertheless, despite some improvements on women's unemployment levels, Peruvian poverty levels remain significantly high. This study presents several results of previously unexplored factor affecting maternal employment, explaining this seemingly inconsistent evidence:

- Domestic violence experiences significantly affect Peruvian poor mothers' employment participation and attachment, particularly on paid occupations. These events, highly correlated with partners' domination issues, largely affect maternal self-esteem and self-motivation problems.
- Maternal and children's chronic health problems significantly affect maternal employment participation, particularly in paid economic activities. Physical health, however, does not have a significant effect on maternal work attachment.

- Depression/anxiety problems prevent mothers' work attachment over time, jeopardizing their poverty exit success. Depression and anxiety problems are correlated with leaving children with non-parental caregivers, as well as community and family crime rates and sexual violence issues.
- Non-labor income transfers have opposite effects on maternal employment decisions, however they do not have significant impacts on any particular paid employment sector. Food program participation increases both maternal participation and attachment in the labor market, and on the contrary, remittances reduce overall work entrance and stability.
- Community based social capital availability has significant effects on maternal employment participation, particularly on self-employed activities. No significant effects are observed on labor force attachment patterns among poor Peruvian mothers.

Analyses show that these results are robust to different model variations. This study uses econometric techniques to correct for potential endogeneity problems, additional qualitative information to present more in depth analyses, and benefits from the integration of different disciplines. Nevertheless, it is important to notice that even though these features are included, several consideration should be taken when interpreting these findings and considering policy implications.

First, given the cross sectional nature of this study, all causal relationships that involve contemporary information could be questioned. Potentially, future studies using the longitudinal component of the YLP-P project are likely to present more conclusive results regarding causal relationships. Second, the qualitative component's sample used

is smaller and constrained to Lima residents. Although these data provide more detailed and unexplored information, it is possible that qualitative information from other urban and rural regions would be different.

Nevertheless, despite these issues it is clear that these results call for policy reevaluations. Indeed several policy measures need to be re-considered regarding psychological and social capital problems, largely risking Peruvian poor mothers' employment opportunities. Additionally, granted that not only work participation, but mainly labor force attachment lead to poverty alleviation achievements, the following proposed actions should be considered:

- Unify efforts aimed at improving maternal work participation and overall well-being, connecting existing programs from the Ministry of Women and Social Development, Ministry of Internal Affairs, and Ministry of Labor.
- Improve Ministry of Women's programs targeting maternal depression/anxiety and domestic violence problems. Emphasize self-esteem and self-confidence issues through national campaigns and existing health centers.
- Re-organize and develop additional community-based programs aimed at improving mothers' active program participation
- Re-organize Ministry of Internal Affairs' police force programs aimed at fighting the currently unmanageable problem of high crime rates and illegal activities.

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