Persistence of the added worker effect:

Evidence using panel data from Indonesia

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Abstract

This paper examines the persistence of the added worker effect (AWE): the labor supply response of wives to their husbands' job losses, or earnings losses. Unlike previous work, we focus on the persistence of this effect once the shock to husbands' earnings is over. Using the Indonesian Family Life Survey, we test whether women leave employment for nonemployment once husbands' income has recovered from the shock. If the shock was transitory, we would observe all women leaving the labor force once it is over. However, we find that only between 6 and 13 percent of women leave employment at the time the shock is over. This relatively low percentage of AWE women who return to nonemployment once the shock has passed suggests the persistence of AWE. The paper discusses possible reasons for this persistence by using matching techniques to compare employment duration of AWE women with women who entered the labor force but not in response to a shock to husband's employment (non-AWE). At least in terms of employment duration, AWE women are similar to non-AWE women, in this sample from Indonesia.

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1. Introduction

One of the strategies to cope with shocks to husbands' earnings is the added worker effect (AWE): women enter the labor force when their husbands become unemployed. In this paper we explore the persistence of this effect. While a number of studies have examined the existence of an added worker effect in lower income countries, very few papers have analyzed what happens to these women once the shock has passed. This is a serious limitation in the literature, particularly given the fact that a husband's job loss can affect the household for many years even after the husband becomes re-employed (Stevens Jr., 1998). Going beyond women's decision to become AWE and looking at longer run behavior is therefore important.

The central question we examine in this paper is whether AWE women leave employment once the shock to their husband's wage is over. If becoming an added worker is just a coping strategy to a transitory shock, then we would observe that all of them leave the labor force once the shock has passed. However, there are other reasons to suspect this might not happen. First, in a family life cycle model, the fact that the household was affected by a shock can be an indicator of a change in the husbands' permanent income, which will cause wives to review labor force participation decisions, and more women might choose to work. Second, the wife's employment spell during the shock affects her stream of future earnings, as she accumulates experience, affecting thus her future labor force participation decisions. These two explanations are not mutually exclusive. Although we do not attempt to identify which one of the two sources for persistence of AWE is at play in our sample from Indonesia, we use matching techniques to compare AWE women with women who entered the labor force but not as a

response to a shock to husbands' earnings (non-AWE); this matching exercise tells us if AWE women differ from non-AWE women in their labor market behavior.

Indonesia is a good case of study for our analysis for several reasons. First, we take advantage of the Indonesian Family Life Survey (IFLS) panel data which allows us to construct individual work histories from 1988 to 2007. Second, in the period covered by the data, there were important shocks to the economy that affected household income; evidence shows that the labor market adjusted through compositional changes and wage adjustments. For example, as Smith et al (2002) discuss, the 1998 crisis pulled a significant number of women into the labor force while men's workforce participation rates declined. This is vital for our study, since it allows us to follow AWE women over time.

Following previous work (Cunningham, 2001) we adopt a broad definition of AWE: a woman is considered to be AWE if she enters the labor force when her husband loses his job or if he suffers a real wage loss of at least 10 percent within one year. We examine whether the transition from employment to nonemployment of the household head or the recovery of the real value of wage affect the participation decision of added worker wives. Our results indicate that only between 6 and 13 percent of women move back to nonemployment once the shock has passed. Moreover, the longer the span of recovery from shock (i.e., since the wife entered the labor force), the lower the probability these wives leave employment: each additional year in the labor market reduces the probability of leaving by 1.5 percentage points. We do not find any effect on the intensive margin though.

The next step is to match AWE women to a control group formed by women who had similar movements from nonemployment to employment, but not in response to a shock to husband's earnings (non-AWE women). We compare the duration of employment spells of

control and treatment groups and we do not find any difference among them, except at three and four years in the labor market. This result suggests that other mechanisms could be at play: the shock is affecting the husbands' permanent income and/or the employment is changing the utility of employment of women. This aspect will be further explored in future versions of this paper.

The rest of the paper is organized as follows. In Section 2, we briefly review the literature on added worker effect, family life-cycle models, and female dynamic labor supply. We also briefly describe the Indonesian context. In Section 3, we describe the Indonesian Family Life Survey (IFLS), the construction of the sample, and the key variables. In Section 4, we present the empirical strategy and the results to the central question of the paper. In Section 5, we carry on further checks about the selection of the sample and show matching results. Finally, in Section 6 we conclude and show the lines for future versions of this work.

2. Related literature on female labor supply and added worker effect

In the absence of formal insurance mechanisms to protect from negative income shocks, households adopt different ex ante and ex post arrangements. For example, households might decide to sell assets, decrease their investments in human capital of children (because they cannot provide proper nutrition, health care, or schooling), or they can reallocate time of family members, either of children or wives, toward income generating activities. These ex post strategies have consequences in the long run. Much research has been conducted to examine the possible impact of these strategies on the transmission of poverty across generations. In particular much attention has been devoted to the long term impact of child labor or school drop outs. However, little attention has been paid to the possible long term impacts of wives' time reallocation.

In the static model of family labor supply, a transitory shock to household income is sufficient to increase the likelihood of other household members, wives and/or children, to participate in the labor market. The substitution effects depend on the opportunity cost of each household member, which have been studied in previous research (see Jacoby and Skoufias, 1997; Skoufias and Parker, 2006). Under this framework, after the transitory shock is over, the labor supply of the additional household members would return to the original (optimal) level.

In the dynamic model of family labor supply with perfect credit markets, a transitory shock to household income should not result in any reallocation of time for other household members (Heckman and MaCurdy, 1980). However, when there are failures in credit markets and families cannot borrow against their future income, it is possible to observe such reallocations; in particular an added worker effect.

In this same framework a negative shock in the current period to husband's wage can be informative of future earnings of the husband, either because the persistence of the shock affects husband's permanent income or because they have to adjust the expectations about future income. In any case, the change in the permanent income can affect wife's current and future labor force participation (MaCurdy, 1985). For example, Stevens Jr. (2002) presents evidence in support of added worker effect before and after the occurrence of the job displacements in the U.S.. Depending on the type of job displacement, wives increase their labor force participation and the hours of work even four periods before the job displacement. The reallocation of leisure time among household members persists over time, and let women to cover on average 25% of the husbands' lost income.

In the dynamic (female) labor supply model, periods of nonemployment, such as those due to a pregnancy, have an effect on the future stream of wages of women (Blundell and

MaCurdy, 1999; Blundell and Meghir, 1993). For example, Francesconi (2002) estimates that a woman who interrupts full-time work for 5 years for child rearing, suffers a utility loss of about 1.5 percent per year over a 20-year period. By the same token, we can think that women who enter the labor market in response to a shock are enriching their labor market skills, such as experience, and thus implicitly influencing their future wages. Also, the opportunity cost of employment can change due to simply overcoming the fixed costs of substituting home produced goods or the job search.

Finally, note that these two alternative theories, the dynamic family labor supply and the dynamic female labor supply, are not mutually exclusive. In this paper we examine work spells of women of who enter the labor market as added workers; and at this stage we do not attempt to distinguish between the drivers of women's long run labor supply response.

2.1. The Indonesian context

Before turning to the analysis, we briefly review economic changes occurring in Indonesia during the period under study, and in particular we examine the impact of the 1997/98 financial crisis in Indonesia, drawing on Frankenberg et al. (1999) and Smith et al. (2002).

Although Indonesia has experienced a surge in urbanization in the last three decades, it still remains an economy dominated by agriculture. In 1997, only a third of the population was urban. During the eighties and nineties, Indonesia experienced a period of continuous growth, which was interrupted by the crisis of 1997/1998. As can be seen in Figure A.1 of the Appendix, Indonesia moved from a growth rate of 6 percent in 1996 to a decline of 15 percent between 1997 and 1998. Growth resumed only in 2001.

During the crisis, the exchange rate devalued by more than 50 percent, and prices of commodities soared quickly, with an annual inflation in 1998 of about 80 percent. As documented by Smith et al. (2002), the crisis severely affected the Indonesian labor market. Although the crisis generated unemployment, most of the adjustment of the labor market occurred through real wages, in particular in the private sector. The adjustment of nominal prices was quickly lost due to the high inflation rate. Moreover, there were important changes in the composition of the labor force. As it can be seen from the transition matrices presented by Smith et al., many workers moved across different types of sectors: from the formal wage market to self-employment or to family business, and vice versa.

In sum, the events during the 1997/98 crisis and in the years that followed, together with movements of workers across sectors and adjustments in real wages, make Indonesia a good case of study for our analysis.

3. Data

The Indonesian Family Life Survey (IFLS) has collected representative data on 13 provinces (representative at the province level) and has collected household information in 4 years: 1993, 1997, 2000 and 2007; and for a subsample in 1998 right after the crisis, which is not publicly available. One of the main advantages of this survey is that it includes retrospective questions on employment that let us construct individual working histories while linking them to household changes.

The IFLS is a panel survey, interviewing 7,224 households in 1993, following them over time, and enlarging the sample to include new households formed from divided households. We follow previous work on AWE (Skoufias and Parker 2006) and limit the sample to households

that have an adult male head with a female spouse, both below 65 years of age. In addition, we also constrain the sample to households that have not split between 1997 and 2007 rounds, i.e., households where the male head and the female spouse have remained the same and where the female spouse has not become household head. This gives us a sample of 4,831 households on which we base our analysis.

We consider an individual to be employed if he/she reports that she worked in a certain year. The response to this question does not indicate whether the individual was unemployed or out of the labor force in that year. We cannot distinguish between unemployment and out of the labor force since we do not have information on how much time nonworking individuals were allocating to job search. We supplement the information from the employment question with women's hours worked, weeks worked and wages. Specifically, a woman is defined to transit from nonemployment to employment when she switches from answering that she has not work to having worked in the following year. A woman moves from employment to nonemployment when the opposite happens. We acknowledge that this limitation in the definition of labor transitions can affect our estimations. For example, on the one hand, we might be overestimating female labor force participation since we do not required women to have worked the whole year. On the other hand, female labor force participation is underestimated since unemployed women are considered to be out of the labor force.

Given the fact that crises in many countries, including Indonesia, tend to adjust the labor market through a reduction in real wages, we define a woman as added worker if she moves from nonemployment to employment when their husbands: (i) moved from employment to nonemployment, (ii) had been nonemployed for 2 months or more, (iii) moved from formal work to unpaid family work, or (iv) suffered a shock to real wages. This definition of AWE is broader

than the standard definition in which the only shock considered is the movement to unemployment of the husband. However, previous literature as Cunningham (2001) has shown that husband's wage losses pull women into the labor force.

In Table 1, we show the percentage of households who experienced each type of shock.[2] As it has been widely discussed, the economic crisis of December of 1997 impacted employment and wages (see for example Frankenberg et al., 1999). In 1997, 5 percent of household heads were nonemployed for the whole year, and 17 percent for part of it. The crisis also affected wages; in 1998, two thirds of households reported a decline between 25 and 50 percent in real wages of the household head, and for almost 20 percent of households this drop was between 10 and 25 percent. The recovery from the crisis took time. In the 2000 round we find that almost 20 percent of household heads become nonemployed, and half of them suffered another real wage decrease between 10 and 25 percent. In summary, during the period of analysis many households were affected by a negative income shock in the form of either a wage drop or simply loosing the income source of the head.[3]

In response to the husband's income shock, many wives entered the labor market, i.e., moved from being nonemployed to being employed. Table 2 shows the percentage of women who entered the labor market, by type of shock affecting husband's earning. The percentage of women joining the labor force varies with the type of shock and the business cycle. In years with higher unemployment, as 1997 and 2000, we observed a higher percentage of women entering the labor force, between 6 and 10 percent. Similar magnitudes are observed for households with a decrease in husband's real wage.

[2] All the summary statistics presented in Tables 1 to 4 are weighted using household longitudinal weights. Therefore, the statistics should be interpreted as being representative of households in the 13 provinces surveyed in 1993.

[3] The real wage variable is constructed using the National CPI from the WDI. In a future version, we will use a regional CPI, to account for difference in prices across the 13 Indonesian provinces.

Our sample, thus, is generated with all the women that enter the labor force in response to a shock to husband's earnings. Table A.1 of the Appendix shows the number of observations generated from each shock, and that constitute our sample. If we use the broader definition of AWE, as Cunningham (2001), which includes a decrease of the husband real wage of at least 10 percent, we obtain a sample of 233 women.[4] Since this sample size could be considered small, we also enlarged the definition to include all households where the husband suffered decrease of the real wage. Under this enlarged definition, we obtain a sample size of 444 women.[5] We will refer in the following sections of the paper to these two samples as the *small* and *large* sample, respectively.

In Table 3 we present the number of women leaving employment and going back to nonemployment in each year, for each of the samples defined above. On average, between 16 and 18 percent of AWE women left employment between 1990 and 2007. One reason for observing few women leaving employment can be that the husband has not recovered from the shock. However, it can also be that even after the husband recovers the pre-shock value of his earnings, women stay in the labor market. This is the central question of the paper and we test it using regression analysis.

4. Empirical strategy and estimates

Given the preceding findings, the key question is whether AWE women continue working when the husband recovers from the shock. We are also interested in controlling for observed individual and household heterogeneity. To address this question, we estimate a Probit regression

[4] The summation of columns (1) to (3) and (5) to (8) adds 239 women. However, there are 6 households which we recorded more than one shock happened, and as a result we have a sample of 233 households.
[5] As in the previous footnote, there are 12 households for which more than one shock happened, explaining the difference between the total sum in Table A.1 and the final sample size of 444 households.

of the determinants of the probability of leaving employment for AWE women. Given the yearly nature of our data, we abstract from the exact timing of the responses by simply examining whether women respond to the recovery of head's earnings within a year.

The Probit equation to be estimated using the sample of all women working who entered the labor force in response to a shock, i.e., AWE women, is

$$\left(E \to NE\right)_i = \alpha + \beta RS_i + \gamma T_i + \delta X_i + \varepsilon_i \qquad (1)$$

where $E \to NE$ is a binary variable indicating whether the working woman leaves the employment during a calendar year period; RS_i is another binary variable that takes a value of one if the shock has passed, i.e., either the husband has found a job, or the value of the real wage has recovered during the same calendar year; T_i is the time that has passed since the wife has entered the labor force (or equivalently, given our sample definition, since the shock has occurred); X_i is the a vector of individual and household characteristics; ε_i is a random error; and $(\alpha,\beta,\gamma,\delta)$ is the vector of parameters to be estimated.

As we just mentioned, we want to see the response to recovering from the shock. This variable takes a value of one when we observe the exact opposite effect to the shock that affected the husband's earnings in the past. For example, for a household where the head (i.e., the husband) moved from employment to nonemployment, it will take a value of one when the husband moves back from nonemployment to employment. In a similar way, if the head experienced a wage cut of 50 percent, the shock is considered to be over when the real value of wage has reached the pre-shock level. As it can be seen in Table 4, very few households in the sample have recovered from the shock by the time the last round of information has been collected in 2007 or the last year we observe the household. Only 9 percent of the households in the small sample, and 13 percent of the households in the large sample have come back to the

situation before the shock. This percentage is surprisingly low and demands further attention in the literature. As it was mentioned above, and can be inferred from Table 3, very few women leave the labor market. Only 11 and 10 percent of women in the small and large sample, respectively, move from employment to nonemployment.

Before turning to the description of the Probit estimates, we proceed to describe the characteristics of the sample. In Table 4 we present the summary statistics for the variables that describe the household composition, the head of the household, and the wife, for all households with AWE women, while they are working and until they return to nonemployment or the husband recovers from the shock. These summary statistics are presented for the two samples defined above. In most of the cases there are not significant differences between the two samples. These households have an average of 4 members, two adults and two children. It is more likely that the children are between 13 and 18 years of age, than between 0 and 6; at the same time, it is slightly more likely that they are boys rather than girls.

Regarding the individual characteristics of women and men in the household, we observe that wives are on average 42 years old and on average 6 years younger than their husbands. Women in the large sample tend to be younger than women in the small sample (so are their husbands) indicating that households with younger heads were less likely to suffer a severe real wage cut. Almost 60 percent of women have finished primary school, 15 percent junior high, almost 10 percent high school, and only 2 percent have graduated from college.[6] Their husbands are slightly more educated, suggesting there is assortive matching in terms of education. For education variables, there is not a significant difference between the small sample and the large

[6] The missing category is primary incomplete.

sample, except for the average percentage of high school, which is higher for both men and women of the large sample. This can be an indication of a cohort effect.

Regarding the characteristics of the job, or the last job held for nonemployed men, we observe that most women are concentrated in the retail sector (almost 60 percent) and the rest is evenly distributed among agriculture, manufactures, and public services. For their husbands, the distribution of activities among economic sectors is completely different: men work in retail (24%) but also in transport (26%), agriculture (24%), and construction (21%). The economic sector distribution also varies when we extend the sample size to include those households with a real wage cut of less than 10 percent. Among these AWE women, we observe a higher proportion working in manufactures, and a higher proportion of husbands working in public services.

Additionally, regarding the type of job carried on by these AWE women and their husbands, we find significant differences in their distribution. Women tend to be self employed (41%), although there is also a significant proportion in the private sector (23%) and as unpaid family work (22%). For their husbands, the distribution is different: more men work in government (14%) and a higher proportion work in the private sector (almost 40%). The last two variables show the intensity of work. On average, women work almost 40 hours per week and around 45 weeks per year, while men work between 3 and 4 hours more per week than women, and almost the same number of weeks per year than their wives.

4.1. Results from Probit estimation

In Table 5 and Table 6, we present the Probit estimates of equation (1), i.e., the estimates of the effect of having the head of household recovering from the shock on the employment status of

their wives, who have been working in the previous year, for the small and the large sample of AWE women defined above. Table 5 shows the estimates for the small sample, that is including AWE women as defined by Cunningham (2001). The first column of Table 5 shows the estimated marginal effect of recovering from the shock, without including any characteristic of the household, the woman, her husband, or her job. We observed that an average of 25 percent women leave employment once the husband recovers from the shock. In the remaining columns, we include more variables to the vector of controls, *X*. Although, in our empirical strategy we have assumed that the error term ε_i is exogenous and uncorrelated to our main variable of interest, RS_i, this is not necessarily the case. Other unobserved factors affecting the probability of recovering from a shock, RS_i, can also affect the probability of women leave employment, in particular given the assortive matching implied by the education variables, as observed in the summary statistics. An equivalent point has also been made in the literature of AWE (see for example Skoufias and Parker, 2006). Given that we do not have appropriate instruments for the variable RS_i, we can only examine the sensitivity of its coefficient to the inclusion of additional RHS variables.

Once we control for the time spent in the labor force, the percentage of women leaving employment once the husband has recovered from the shock, decreases to 13 percent (and this coefficient is significantly different from the 25 percent estimated in column (1)). Moreover, each additional year of employment reduces the probability of moving to nonemployment in 3 percentage points. Controlling for female individual characteristics, column (3) of Table 5, does not change the effect of RS_i or the effect of each additional year of employment, on the probability of women moving to nonemployment. Although none of the wife individual characteristics are significant when included alone, some of them are when included with

additional controls. Age becomes significant and with a negative sign. The education dummies show that more education is not significantly different than having primary incomplete. Although the primary dummy is significant in columns (4) and (5), it loses its power once we control for the job characteristics, suggesting that it was probably capturing these effects.

Additionally, we control for head's individual characteristics, see column (4) of Table 5. The older the husband is, the higher the probability of women leaving the labor force; however, husband's education does not have any effect on such probability. We should be careful in interpreting the education variables. This does not imply that female's own education or her husband education does not have any effect on the labor force participation decision. In any case, it suggest that for the sample of households that were affected with a shock and that coped with that shock by bringing the wife to work, which is obviously not a random sample of the population, education does not have a differential effect on the decision of staying employed once the shock has passed. Regarding household composition, the only variable that turns out to be significant is the number of male children of 6 years of age or younger: having another child increases the probability of leaving the labor force in only 7 percentage points.

The type of job also matters. Women working on unpaid family jobs are 3 percentage points more likely to continue working than self employed women. This finding can be an indicator of the importance of flexible work arrangements. At the same time, the type of job her husband does also affects the probability of moving from employment to nonemployment. Having a husband in the private sector (or whose last job was in the private sector) reduces the probability of this transition in 7 percentage points relative to having a self employed husband. If the husband works for the government also reduces the probability of leaving the labor force is also reduced in 3 percentage points relative to having a self employed husband.

Since one of the concerns of this analysis is the size of the sample, we repeat the analysis for a larger sample, which includes women who entered the labor force as a result of their husbands only losing less than 10 percent of the real value of his wage. We understand that the motives behind the behavior of these women can be different from those discussed above. These women can be entering the labor market not only because the household income decreased but also because of uncertainties about future household income. Having in mind the differences between these two samples, it is of interest to see how the probability of leaving the employment when the shock to head's earnings is over, RS_i. It is interesting to see that for this sample, the magnitude of the coefficient of interest is half as big as those presented in Table 5. We obtain that 12 percent of women leave employment when we do not control for any covariate, while only 6 percent of women leave employment, when including controls. The difference in magnitude between coefficients from Table 5 and 6 is significant. The other noteworthy change occurs for the estimate of the coefficient of time in the labor force, which also is half of what we observed for the small sample. Each additional year in the labor market reduces the probability of leaving employment in about 15 percentage points. Most of the other results remain unchanged.

Finally, we check the effect recovering from the shock has on the intensive margin, in other words on the number of weeks worked during the year and the number of hours per week worked. The results are presented in Table 7 and indicate that none of these two variables are affected. However, we remain skeptical about this finding given the significant reduction in the number of observations.

5. Further checks

The results presented in the previous section suggest that only between 6 and 13 percent of women who start work as a coping strategy to deal with a shock, move to nonemployment once the shock has passed. Thus, this is evidence that there might other more permanent effects affecting female labor force participation. Before turning into this point, we first proceed to check the validity of the selected sample.

A point of concern relates to the significance of the AWE, which defines our sample. Given that the evidence of AWE is mixed for developing countries, we begin by checking its significance not only for the case of Indonesia, but more importantly for our data. To do this, we just simply use the same empirical strategy presented by Skoufias and Parker (2006).[7] We estimate a Probit model to explain the probability of moving from nonemployment to employment for women who were nonemployed and belong to a household that satisfy our sample definition presented in Section 3.[8] The variable of interest now becomes whether the head of the household experiences a shock as it was defined above. For consistency purposes, we maintain the two definitions of shock to husband's earnings, used to construct the small and large samples in previous sections.

In Table 8 we present the estimates. We observe that the AWE is significant for the more constrained definition of a shock, i.e., excluding real wage cuts of less than 10 percent, and is not significant for the broader definition.[9] The magnitude of the effect is smaller than what has been found by Skoufias and Parker for Mexico (16%) or by McKenzie (2004) for Argentina (11%).

[7] For more details see equation (1) in Skoufias and Parker (2006), and the discussion that follows about the validity of this empirical strategy.

[8] That is households with an adult male head with a female spouse, each less than 65 years of age, that have not split between 1997 and 2007 interviews, i.e., the male head and the female spouse have remained the same, and for which the females has not turned the head of the household. Given that we could not construct the employment histories for all these households, we end up with a sample of only 2100 observations.

[9] Other specifications were tested which included further control variables, and giving similar results, in sign and magnitude, for the key variable.

However, this is not surprising, given that in Indonesia, the economic crises adjust in the labor market through changes in composition and real wages, as it is explained by Frankenberg et al. (1999). The important conclusion from this exercise is that our sample definition is appropriate for the problem under study.

The rest of the discussion relates to the effect of this shock within family life-cycle and dynamic labor supply theories. What we want to know thus, how different these women and their work spells are, from non-AWE women, i.e., women who enter the labor market in response to intertemporal labor supply substitutions (dynamic labor supply model) or changes in household permanent income (family life-cycle model).

To test this point we apply the methods from the literature of program evaluation to our problem and we match the AWE women with a control group formed with women who enter the labor market after at least one year of nonemployment and who belong to households that were not affected by any of the shocks described in previous sections. We could identify a control group of 1781 women for the restricted shock definition and a control group of 1570 women for the broader definition. In the following analysis we work with the small sample given that this one has passed the previous check.

To match AWE women with non-AWE women, we used the nearest neighbor matching technique and select one match for each AWE women.[10] We match women based on their age, education and household composition. Although it can be desirable to add more variables to obtain better matches, this also has the disadvantage of reducing the common support and thus the sample size, which is already small. Thus, we decide to use this small but relevant group of variables for which we also feel confident that they are exogenous to the probability that the

[10] We are currently investigating the effects of using other matching techniques and developing the appropriate standard errors for these methods.

husband's earnings is affected by a shock. Adding variables related to the individual characteristics of the husband or his job will be correlated with the probability of having a shock and thus with belonging to the treatment or control group. When estimating the *p-score* for the probability of being in the treatment group, based on the above mentioned individual characteristics of women, we found that the sample could be reduced to two blocks, and that the propensity score is not different for the treated and control group in each block. The nearest neighbor technique let us matched 211 of the 233 observations, this is 90 percent of the treatment group.

To compare the treatment and control group, we carry on two types of analysis. First, we simply compare the mean duration of work spells for each group. This result is presented in Table 9 and shows that work spells for AWE women (treatment) are on average 4 months longer than for non-AWE women (control). However, this difference in the duration is not statistically significant. One of the concerns with this procedure is that many of the spells are censored, a typical problem of any duration analysis. Thus, the second analysis consists in comparing the survival function for each group. In Table 10 we present survival function for the treatment and control group estimated from life tables, and in Figure 1 we present the Kaplan-Meier estimated survival function. In both cases we observe the same result. We cannot reject the null hypothesis that the two estimated survival functions are equal, except at 3 and 4 years in the labor market. Having survived 3 and 4 years in the labor market, AWE women are more likely to leave the labor force than non-AWE women.

In sum, results so far provide evidence that few women, between 6 and 13 percent, who enter the labor force in response to a shock on husband's earnings, leave employment for nonemployment once the shock has passed. This percentage is very small and suggests that the

shock has more persistent effects than what static models and complete market models would predict. The sample used for this analysis seems appropriately defined since these women were proved to be AWE women. Finally, the duration of employment spells of these women does not seem significantly different from the duration of employment spells of those women who enter the market without having suffered a shock to household income. Given that this affirmation does not hold at 3 and 4 years in the labor market, further research should be carried on to confirm it. In any case, this result is interesting by itself and suggests that other factors might at play, which we plan to investigate in future versions of this paper.

6. Conclusions and future research

In this paper we examine the persistence of the AWE using the IFLS survey. Although this question is of extreme importance given that it takes household many years to recover from shocks, to our knowledge, there are only a few studies that analyze it, and none of them have examined it for developing countries.

The main question we test in this study is whether women leave employment and go back to household work once the shock to husband's earnings is over. To do so, we construct a sample of AWE women and we estimate a Probit equation for the probability of moving from employment to nonemployment. The variable of interest is an indicator that takes a value of one if the household head has recovered from the shock. We found that only between 6 and 13 percent of women leave employment once the shock is over. This finding suggests that the shock has more permanently effects. If shocks such as unemployment or wage losses were transitory and women entered the market just to cope with them, we would observe all AWE

women leaving the labor force once the shock has passed. Since we observe the opposite, we argue that other things might be at play.

First, the shock can be an indicator of a change in household permanent income, and thus altering permanently the participation decision of women. Second, the market skills that women gain while employed may affect the opportunity cost of working, and change their participation decision, in the same way we observe in the dynamic labor supply theory. Finally, it can be due to intertemporal substitution, as any other women entering the labor market. Although we cannot identify any of these channels, we begin by investigating the differences in labor market spells of AWE and non-AWE women. The preliminary evidence obtained by comparing survival functions of treatment and control groups shows that there is little difference in the employment spells of these women. However, this preliminary conclusion should be subject to further scrutiny. Additional descriptive statistics of employment and additional matching techniques should be employed to test the robustness of results. We plan to have two alternative control groups, created according to husband's wage decile. We expect the impact of a shock to permanent income to be smaller than for husbands in the top of the wage distribution than in the bottom of it.

Moreover, in future versions, further sensitivity analysis will be done regarding the definition of shock, and the exact time of its occurrence and its recovery.

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Table 1
Percentage of Households who suffered Shocks

Year	Type of shock								
	Husband Become Non-employed	Husband did not work for at least 5 weeks in previous year	Husband moved from Labor Force to Unpaid Family Work	No Real wage drop	Real wage drop of less than 10%	Real wage drop of 10-25%	Real wage drop of 25-50%	Real wage drop of 50-75%	Real wage drop of more than 75%
1988	0.0	.	0.0	.	.	.	.	.	.
1989	0.2	.	0.1	28.4	68.9	1.2	1.3	0.1	0.0
1990	0.4	.	0.1	35.2	62.5	0.9	1.4	0.1	0.0
1991	0.2	.	0.0	29.6	65.6	1.1	2.1	1.1	0.6
1992	0.7	.	0.1	38.0	57.1	2.3	1.4	1.1	0.2
1993	0.5	1.0	0.1	31.7	63.8	1.8	1.4	0.4	0.9
1994	0.6	0.8	0.0	34.5	58.8	2.6	3.0	0.9	0.2
1995	1.1	0.5	0.2	34.8	59.1	2.3	2.6	1.0	0.3
1996	0.7	1.4	0.0	33.7	59.9	1.7	2.7	1.9	0.1
1997	4.8	16.2	1.5	56.7	23.2	5.3	6.4	4.2	4.1
1998	1.2	1.7	0.2	6.5	4.4	18.8	66.7	2.6	1.0
1999	1.1	2.1	0.2	22.7	17.4	52.5	5.7	1.2	0.5
2000	19.3	4.3	1.7	41.6	42.7	3.0	3.3	3.1	6.3
2001	0.8	.	0.1	34.4	44.3	9.0	8.8	1.8	1.7
2002	0.6	.	0.0	.	.	.	.	.	.
2003	1.0	.	0.1	.	.	.	.	.	.
2004	0.8	.	0.1	.	.	.	.	.	.
2005	1.0	.	0.3	.	.	.	.	.	.
2006	1.0	.	0.2	.	.	.	.	.	.
2007	1.2	.	0.3	.	.	.	.	.	.

Table 2
Percentage of wives who enter the labor force in response to a HH shock

Year	Type of shock							
	Become Non-employed	Husband did not work for at least 5 weeks in previous year	Husband moved from Labor Force to Unpaid Family Work	Real wage drop of less than 10%	Real wage drop of 10-25%	Real wage drop of 25-50%	Real wage drop of 50-75%	Real wage drop of more than 75%
1989	0.0	.	0.0	2.3	0.0	0.0	0.0	.
1990	0.0	.	0.0	2.5	0.0	7.3	0.0	.
1991	9.5	.	0.0	3.1	0.0	0.0	0.0	.
1992	15.0	.	0.0	5.5	12.2	6.3	16.4	.
1993	1.6	2.9	0.0	4.5	0.0	0.0	6.2	.
1994	0.0	3.5	.	4.7	3.3	9.1	15.7	.
1995	5.5	4.7	0.0	7.2	0.0	14.3	0.0	.
1996	1.6	4.2	.	2.1	6.0	3.5	2.8	.
1997	10.2	5.2	2.8	6.3	9.2	11.4	11.2	95.8
1998	1.7	4.6	31.4	3.0	8.6	6.6	4.8	.
1999	6.4	6.0	0.0	5.0	4.4	6.1	19.1	.
2000	0.0	5.1	6.4	4.8	2.9	1.0	3.4	.
2001	0.0	.	0.0	4.2	5.4	6.7	7.7	.
2002	0.0	.	0.0	.	.	.	.	.
2003	0.0	.	0.0	.	.	.	.	.
2004	0.0	.	0.0	.	.	.	.	.
2005	4.7	.	17.0	.	.	.	.	.
2006	1.1	.	27.2	.	.	.	.	.
2007	14.6	.	3.0	.	.	.	.	.

Table 3
Sample size and number of women leaving the labor force, by year

Year	Small Sample		Large Sample	
	Number of AWE women	Number of AWE women leaving the labor force	Number of AWE women	Number of AWE women leaving the labor force
1989	0	.	14	.
1990	1	0	12	2
1991	1	0	17	0
1992	5	0	24	1
1993	3	0	28	1
1994	5	0	32	1
1995	5	0	45	0
1996	6	2	27	5
1997	61	5	72	15
1998	69	4	71	6
1999	42	3	52	3
2000	27	25	42	33
2001	0	3	0	4
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	2	0	2	0
2006	3	0	3	0
2007	3	0	3	0
Total	233	42	444	71

Table 4
Summary Statistics

Variable	Small Sample	Large Sample
	Household	
1 if recover from shock	0.09	0.13
	(0.28)	(0.33)
Number of HH members	4.18	4.14
	(1.61)	(1.58)
Number boys 0-6 yrs old	0.12	0.13
	(0.34)	(0.36)
Number boys 7-12 yrs old	0.32	0.32
	(0.54)	(0.56)
Number boys 13-18 yrs old	0.36	0.33
	(0.61)	(0.59)
Number girls 0-6 yrs old	0.17	0.18
	(0.39)	(0.41)
Number girls 7-12 yrs old	0.28	0.32
	(0.51)	(0.54)
Number girls 13-18 yrs old	0.29	0.30
	(0.55)	(0.55)
Observations	1159	2717

Note: Standard Deviations in parenthesis. Sample 1 includes all HH where the husband became unemployed, moved to unpaid family work, or had a decrease of at least 10%. The Large Sample includes all HH as in the SamII Sample but also those where the husband had a wage cut, even less than 10%.

Table 4 (continues)
Summary Statistics

	Wife		Husband	
	Small Sample	Large Sample	Small Sample	Large Sample
Move from Labor force to NE	0.11	0.10		
	(0.31)	(0.29)		
Age	42.10	39.33	48.14	44.91
	(11.07)	(10.29)	(12.66)	(11.74)
Primary	0.59	0.57	0.54	0.54
	(0.49)	(0.49)	(0.49)	(0.49)
Junior High	0.15	0.15	0.16	0.14
	(0.35)	(0.35)	(0.36)	(0.34)
High School	0.09	0.13	0.14	0.20
	(0.28)	(0.33)	(0.35)	(0.39)
College	0.02	0.02	0.08	0.07
	(0.12)	(0.15)	(0.26)	(0.25)
Agriculture	0.13	0.17	0.24	0.14
	(0.34)	(0.37)	(0.43)	(0.34)
Manufacturing	0.13	0.24	0.05	0.22
	(0.34)	(0.42)	(0.22)	(0.41)
Construction	0.00	0.01	0.21	0.15
	(0.00)	(0.11)	(0.41)	(0.35)
Retail	0.59	0.43	0.24	0.15
	(0.49)	(0.49)	(0.43)	(0.35)
Transport, Communications	0.00	0.00	0.26	0.08
	(0.00)	(0.00)	(0.44)	(0.27)
Finance	0.00	0.00	0.00	0.01
	(0.00)	(0.00)	(0.00)	(0.09)
Community and public service	0.13	0.13	0.00	0.23
	(0.34)	(0.33)	(0.00)	(0.41)
Self employed	0.41	0.46	0.22	0.23
	(0.49)	(0.50)	(0.41)	(0.42)
Government worker	0.01	0.02	0.12	0.16
	(0.09)	(0.13)	(0.32)	(0.36)
Private worker	0.23	0.23	0.36	0.43
	(0.42)	(0.42)	(0.48)	(0.49)
Unpaid family worker	0.22	0.18	0.04	0.02
	(0.41)	(0.38)	(0.19)	(0.15)
Casual worker in agriculture	0.03	0.04	0.07	0.04
	(0.17)	(0.18)	(0.25)	(0.20)
Casual worker not in agriculture	0.04	0.02	0.11	0.07
	(0.20)	(0.14)	(0.31)	(0.26)
Hours per week	39.64	44.48	44.55	42.78
	(21.97)	(24.40)	(19.57)	(17.76)
Weeks per year	44.87	45.77	42.21	45.80
	(11.98)	(10.95)	(12.73)	(10.15)
Observations	1159	2717	1159	2717

Note: Standard Deviations in parenthesis. The Small Sample includes all HH where the husband became unemployed, moved to unpaid family work, or had a decrease of at least 10%. The Large Sample includes all HH as in the Small Sample but also those where the husband had a wage cut, even less than 10%.

Table 5
Probit Estimates for the probability of moving from employment to nonemployment – Small sample

Dependent Variable:E → NE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Recover from shock	0.248***	0.129***	0.129***	0.131***	0.203***	0.125***	0.108***	0
	(0.047)	(0.039)	(0.040)	(0.040)	(0.053)	(0.039)	(0.039)	(
Time in the LF		-0.027***	-0.026***	-0.023***	-0.027***	-0.022***	-0.025***	-0
		(0.003)	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(
Age			-0.003	-0.018**	-0.027**	-0.019**	-0.010	
			(0.004)	(0.008)	(0.013)	(0.007)	(0.007)	(
Age squared			0.000	0.000**	0.000**	0.000***	0.000	
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(
Primary			-0.022	-0.052*	-0.077*	-0.042	-0.035	
			(0.025)	(0.030)	(0.045)	(0.029)	(0.029)	(
Jr.High			0.002	-0.015	-0.019	-0.008	-0.015	
			(0.030)	(0.028)	(0.045)	(0.029)	(0.025)	(
High School			0.003	0.036	0.063	0.049	0.090	
			(0.031)	(0.051)	(0.084)	(0.057)	(0.079)	(
College			0.060	0.287	0.267	0.383*	0.385	
			(0.083)	(0.188)	(0.235)	(0.220)	(0.363)	(
Husband age				0.020**	0.033***	0.020***	0.017**	0
				(0.008)	(0.013)	(0.008)	(0.008)	(
Husband age squared				-0.000***	-0.000***	-0.000***	-0.000**	-0
				(0.000)	(0.000)	(0.000)	(0.000)	(
Husband Primary				0.045	0.057	0.036	0.060*	
				(0.032)	(0.053)	(0.033)	(0.034)	(
Husband Jr.High				0.065	0.100	0.052	0.153	
				(0.056)	(0.085)	(0.054)	(0.093)	(
Husband High School				-0.001	-0.010	-0.013	0.004	
				(0.041)	(0.066)	(0.039)	(0.046)	(
Husband College				-0.063***	-0.110***	-0.065***	-0.035	
				(0.020)	(0.028)	(0.018)	(0.026)	(
Number of HH members					-0.010			
					(0.014)			
Number boys 0-6 yrs old					0.068**			
					(0.033)			
Number boys 7-12 yrs old					0.001			
					(0.025)			
Number boys 13-18 yrs old					-0.003			
					(0.027)			
Number girls 0-6 yrs old					-0.003			
					(0.032)			
Number girls 7-12 yrs old					0.008			
					(0.025)			

Number girls 13-18 yrs old					0.033			
					(0.027)			
Private worker[(a)]						0.017		
						(0.019)		
Unpaid family worker[(a)]						-0.029*		
						(0.017)		
Casual worker in agriculture[(a)]						0.012		
						(0.060)		
Casual worker not in agriculture[(a)]						-0.042		
						(0.032)		
Husband Government worker							-0.027	
							(0.017)	
Husband Private worker							-0.066***	-0
							(0.015)	
Husband Unpaid family worker							-0.032*	
							(0.019)	
HusbandCasual worker in agriculture							0.011	
							(0.031)	
Husband Casual worker not in agriculture							0.022	
							(0.029)	
Observations	1159	1159	1159	1159	718	1148	847	

Note: Marginal effects reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (a) Lagged one year. Sample 1 includes all HH where the husband bec unemployed, moved to unpaid family work, or had a decrease of at least 10%.

Table 6

Probit Estimates for the probability of moving from employment to nonemployment – Large sample

Dependent Variable: E → NE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Recover from shock	0.116***	0.062***	0.063***	0.063***	0.095***	0.056***	0.070***	0.0
	(0.022)	(0.019)	(0.019)	(0.019)	(0.027)	(0.018)	(0.020)	(0.
Time in the LF		-0.015***	-0.015***	-0.014***	-0.021***	-0.014***	-0.014***	-0.0
		(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.
Age			-0.002	-0.007	-0.005	-0.007	-0.008	-0
			(0.003)	(0.006)	(0.010)	(0.005)	(0.006)	(0.
Age squared			0.000	0.000	0.000	0.000	0.000	0
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.
Primary			-0.008	-0.014	-0.020	-0.011	-0.001	0
			(0.017)	(0.018)	(0.028)	(0.018)	(0.020)	(0.
Jr.High			0.005	-0.007	-0.006	-0.003	-0.018	-0
			(0.021)	(0.021)	(0.033)	(0.021)	(0.022)	(0.
High School			0.019	0.011	0.016	0.008	0.040	0
			(0.023)	(0.027)	(0.042)	(0.026)	(0.037)	(0.
College			0.023	0.032	0.092	0.035	0.003	-0
			(0.042)	(0.052)	(0.101)	(0.062)	(0.049)	(0.
Husband age				0.006	0.006	0.007	0.008	0.

	(0.006)	(0.009)	(0.006)	(0.006)	(0.
Husband age squared	-0.000	-0.000	-0.000	-0.000	-0
	(0.000)	(0.000)	(0.000)	(0.000)	(0.
Husband Primary	-0.007	0.007	-0.010	-0.004	-0
	(0.024)	(0.038)	(0.024)	(0.029)	(0.
Husband Jr.High	0.026	0.062	0.021	0.040	0.
	(0.032)	(0.053)	(0.031)	(0.040)	(0.
Husband High School	0.002	0.040	0.001	-0.005	-0
	(0.029)	(0.052)	(0.029)	(0.033)	(0.
Husband College	-0.015	-0.035	-0.011	0.008	0.
	(0.029)	(0.043)	(0.030)	(0.041)	(0.
Number of HH members		-0.001			
		(0.010)			
Number boys 0-6 yrs old		0.019			
		(0.023)			
Number boys 7-12 yrs old		-0.006			
		(0.017)			
Number boys 13-18 yrs old		-0.015			
		(0.018)			
Number girls 0-6 yrs old		-0.020			
		(0.023)			
Number girls 7-12 yrs old		0.003			
		(0.018)			
Number girls 13-18 yrs old		0.019			
		(0.017)			
Government worker[(a)]				-0.025	-0.
				(0.016)	(0.
Private worker[(a)]				-0.040***	-0.0
				(0.014)	(0.
Unpaid family worker[(a)]				-0.038	-0
				(0.025)	(0.
Casual worker in agriculture[(a)]				0.014	0.
				(0.031)	(0.
Casual worker not in agriculture[(a)]				0.036	0.
				(0.028)	(0.
Husband Government worker			-0.013		0.
			(0.041)		(0.
Husband Private worker			0.034**		0.0
			(0.014)		(0.
Husband Unpaid family worker			-0.023*		-0.
			(0.013)		(0.
HusbandCasual worker in agriculture			-0.021		-0
			(0.029)		(0.
Husband Casual worker not in agriculture			-0.058***		-0.0

						(0.021)		(0
Observations	2717	2717	2717	2717	1586	2713	2234	2

Note: Marginal effects reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (a) Lagged one year. Sample 2 includes all HH as in Sample 1 but also where the husband had a wage cut, even less than 10%.

Table 7
Linear Regression model

Dependent Variable:	Hours per week	Weeks per year
	(1)	(2)
Recover from shock	-1.016	0.308
	(1.795)	(0.823)
Time in the LF	1.609***	0.025
	(0.390)	(0.168)
Age	1.114*	0.437
	(0.590)	(0.280)
Age squared	-0.014*	-0.006
	(0.008)	(0.004)
Primary	0.788	1.625
	(2.587)	(1.305)
Jr.High	-2.221	1.710
	(2.979)	(1.479)
High School	1.160	2.960*
	(3.529)	(1.556)
College	-18.832***	2.858*
	(3.703)	(1.689)
Constant	17.250*	36.441***
	(10.061)	(5.084)
Observations	971	983
R-squared	0.039	0.012

Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Sample 2.

Table 8
Probit Estimates for the probability of moving from nonemployment to employment

Dependent Variable: Moved from LF to NE	(1)	(2)
Shock - Small sample definition	0.051*	
	(0.028)	
Shock - Large sample definition		0.021
		(0.025)
Age	0.020***	0.020***
	(0.005)	(0.005)
Age squared	-0.000***	-0.000***
	(0.000)	(0.000)
Primary	0.007	0.006
	(0.032)	(0.033)
Jr.High	-0.032	-0.033
	(0.040)	(0.040)
High School	-0.062	-0.063
	(0.041)	(0.041)
College	-0.048	-0.047
	(0.076)	(0.076)
Number boys 0-6 yrs old	-0.048*	-0.048*
	(0.026)	(0.026)
Number boys 7-12 yrs old	0.019	0.020
	(0.019)	(0.019)
Number boys 13-18 yrs old	0.018	0.018
	(0.020)	(0.020)
Number girls 0-6 yrs old	0.004	0.005
	(0.027)	(0.027)
Number girls 7-12 yrs old	-0.018	-0.018
	(0.020)	(0.020)
Number girls 13-18 yrs old	0.033	0.034
	(0.021)	(0.021)
Constant	-0.050	-0.040
	(0.111)	(0.112)
Observations	2100	2100
R-squared	0.023	0.022

Note: Marginal effects reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. (a) Lagged one year. Shocks for the small sample defintition include all HH where the husband became unemployed, moved to unpaid family work, or had a decrease of at least 10%. Shocks for the Large Sample definition include all shocks of the small sample definition but also those where the husband had a wage cut, even less than 10%.

Table 9
Mathing AWE using the nearest neighbor technique

Variable: Duration of work spell

Group	N	Mean	S.D.	t
AWE	211	5.60	3.39	
Control	220	5.27	3.70	
ATT		0.33	0.38	0.88

Table 10
Estimated Survival function of work spells for treatment and control groups

Beginning of each time interval	End	Control			Treatment		
		Survival	Confidence Interval at 95%		Survival	Confidence Interval at 95%	
1	2	0.990	0.984	0.994	1	.	.
2	3	0.898	0.882	0.912	0.878	0.827	0.915
3	4	0.821	0.801	0.840	0.737	0.671	0.791
4	5	0.758	0.735	0.779	0.656	0.585	0.718
5	6	0.715	0.691	0.738	0.632	0.559	0.696
6	7	0.685	0.660	0.709	0.613	0.540	0.678
7	8	0.648	0.621	0.673	0.588	0.514	0.655
8	9	0.616	0.588	0.642	0.582	0.507	0.649
9	10	0.596	0.568	0.623	0.548	0.470	0.619
10	11	0.575	0.546	0.603	0.501	0.417	0.578
11	12	0.550	0.519	0.580	0.501	0.417	0.578
12	13	0.532	0.500	0.562			
13	14	0.509	0.476	0.541	0.445	0.318	0.565
14	15	0.485	0.450	0.519	0.381	0.228	0.534
15	16	0.456	0.419	0.492	0.381	0.228	0.534
16	17	0.433	0.393	0.471	0.381	0.228	0.534
17	18	0.404	0.361	0.448			
18	19	0.341	0.285	0.398	0.381	0.228	0.534
19	20	0.341	0.285	0.398			

Figure 1

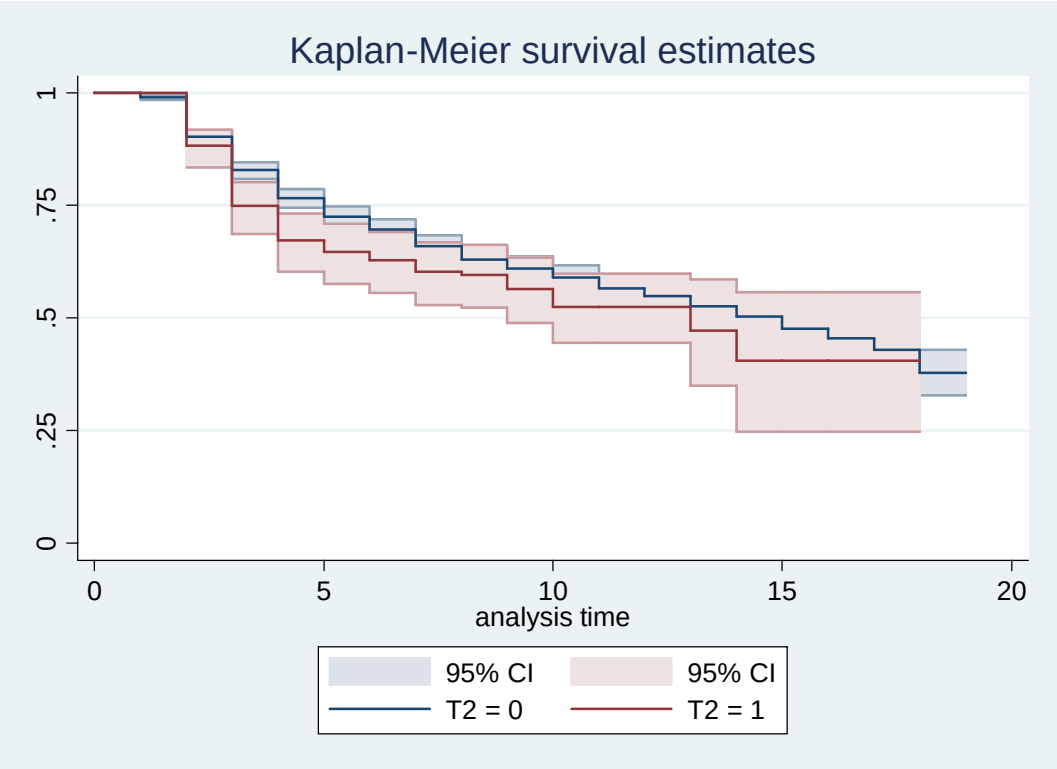
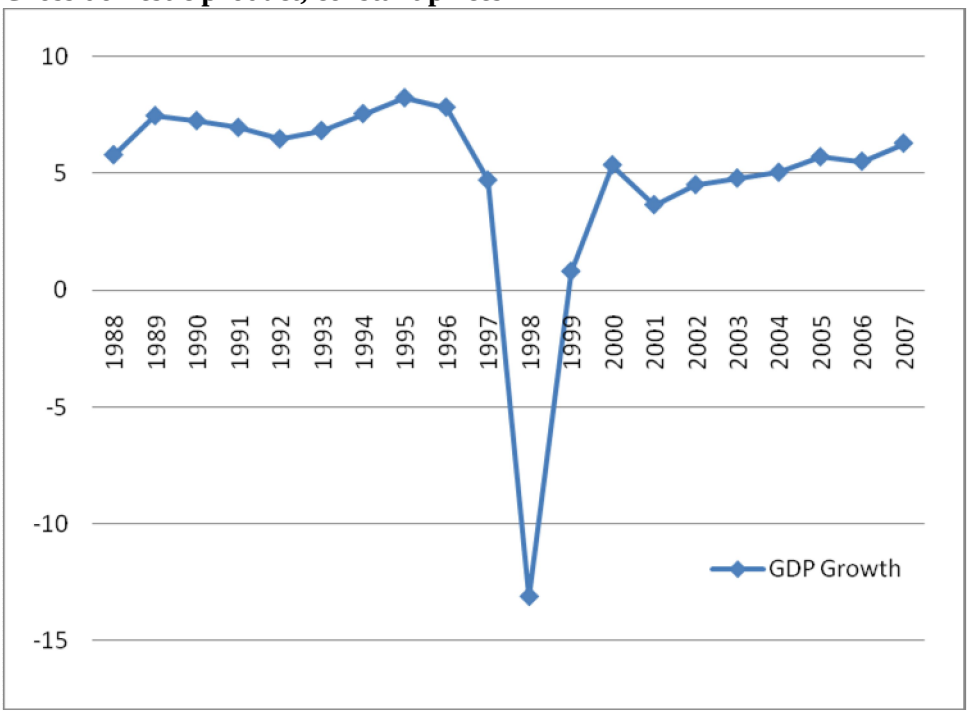

Kaplan-Meier survival estimates
1
.75
.5
.25
0
0
5
10
15
20
analysis time
95% CI
95% CI
T2 = 0
T2 = 1

Table A.1
Number of observations

Year	Type of shock								
	Become Non-employed	Husband did not work for at least 5 weeks in previous year	Husband moved from Labor Force to Unpaid Family Work	Real wage drop of less than 10%	Real wage drop of 10-25%	Real wage drop of 25-50%	Real wage drop of 50-75%	Real wage drop of more than 75%	Total
1989	0	.	0	14	0	0	0	.	14
1990	0	.	0	11	0	1	0	.	12
1991	1	.	0	16	0	0	0	0	17
1992	2	.	0	19	1	1	1	0	24
1993	1	1	0	26	0	0	1	0	29
1994	0	1	.	27	1	2	1	0	32
1995	2	1	0	40	0	2	0	0	45
1996	1	2	.	21	1	1	1	0	27
1997	12	29	2	14	7	8	4	2	78
1998	2	3	2	2	16	44	3	0	72
1999	2	4	0	11	30	5	3	0	55
2000	18	.	4	16	1	1	2	1	43
2001	0	.	0	.	.	.	.	.	0
2002	0	.	0	.	.	.	.	.	0
2003	0	.	0	.	.	.	.	.	0
2004	0	.	0	.	.	.	.	.	0
2005	1	.	1	.	.	.	.	.	2
2006	1	.	2	.	.	.	.	.	3
2007	2	.	1	.	.	.	.	.	3

Figure A.1
Gross domestic product, constant prices



Source: IMF WEO