View Point

Background risk of food insecurity and insurance behaviour: Evidence from the West Bank

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ABSTRACT

This paper explores behavioural changes resulting from the presence of a uninsurable background risk. Due to markets incompleteness, not all risks are insurable. We empirically test the theory (and the intuition) suggesting that people bearing an uninsurable background risk are less willing to bear other insurable risks and therefore increase their demand for insurance against insurable risks. We present a case study on the Palestinian Territories. We consider the implications of a background risk of food insecurity, a major formally uninsurable risk, using nationally representative household data. Using a bivariate probit model, we find that exposure to severe food insecurity risk increases the propensity to insure against health risks, and this propensity is increasing in background risk intensity. Our findings point to possible incentive changes towards the desirability of insurance that have implications for policy design.

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Introduction

Facing risks is a fact of life. They are central to many domains of individual capabilities and wellbeing: income, health, education, personal security and political freedom (Sen, 1985; Nussbaum and Sen, 1993; Becker et al., 2005). Each of these spheres of life is subject to idiosyncratic risks such as illness, unemployment, drought, floods, earthquakes and conflict. These risks can severely impair individual capabilities and well-being.

In real life, individuals face multiple risks from living in particular locations. Some of these risks can be avoided or reduced by formal market insurance. But, due to markets incompleteness, other risks for which insurance markets and alternative systems of risk protection are missing, cannot be avoided. The term "background risk" originates from the interpretation that these unavoidable risks stay in the background. Little is known about people's reactions when facing both types of risks. Does the uncertainty originating from one unavoidable risk alter the risk-taking behaviour against other avoidable or insurable risks? The intuition suggests that risk-averse agents would behave in a more risk-averse manner in this situation. What is of concern is the overall exposure to risk.[1]

Despite this behaviour seeming common sense, the literature lacks empirical evidence from developing countries.

This paper focuses on the behavioural changes resulting from the presence of a uninsurable background risk. We argue that the presence of a background risk influences the attitude toward other competing risks and the desirability of insurance against those insurable. Our findings suggest that individuals who are subject to higher background risk are more sensitive to the probabilities of avoidable risks. In other words, uninsurable background risks alter individuals attitude towards other, insurable, risks and affect positively the propensity to insure against them.

Despite the importance of such behavioural effects for policy, few studies have analysed empirically the effect of uninsurable risks on insurance decision against other risks. Understanding how the attractiveness of insurance may change due to a background risk is critical to policy designing insurance schemes and alternative risk protection programmes. Empirically, if background risk is an important determinant of individual behaviour toward insurable risks, neglecting it leads to incorrect inference when estimating a demand for insurance. The few studies looking at this issue focus on developed countries but, despite the relevance of the question in developing countries where missing markets are common, to our knowledge, none has investigated it yet.

In the Italian context, Guiso and Jappelli (1998) show that the demand for casualty insurance is positively affected by background risk, proxied by a subjective measure of earning uncertainty. In another study, Guiso et al. (1996) find that Italian households facing higher income risk hold fewer risky securities, concluding that higher income uncertainty reduces the demand for risky assets.

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[1] Whether the aversion to risk in different contexts of life is stable is a debated question. The traditional view in economics assumes constant risk preferences across domains. This assumption is controversially debated in psychology (Slovic, 1972; Loewenstein et al., 2001; Weber et al., 2002). In economics, a recent study by Barseghyan et al. (2011) reject the hypothesis of risk aversion being context-invariant using US insurance data.

This evidence supports the proposition that background risk should cause people to increase their demand for insurance against other risks where insurance is available or reduce their exposure to avoidable risks.

On the theoretical side, Pratt and Zeckhauser (1987) and Kimball (1993) formalise the notion that bearing one risk should make an agent less willing to bear another risk. This behaviour depends on the structure of preferences: Eeckhoudt and Kimball (1992) and Kimball (1993) show that decreasing absolute risk aversion and prudence are sufficient conditions for this behaviour. Gollier and Pratt (1996) establish that the same behaviour arises if temperance exceeds prudence.[2]

This paper contributes to this literature by exploring the effect of an uninsurable background risk on the decision to insure against health risks in a developing country where the health insurance market exists but it has not universal public coverage. We also consider how the propensity to insure changes as the intensity of the background risk varies. To do so, we use an original household dataset – the 2009 and 2010 *Socio-Economic and Food Security Surveys* – conducted in the West Bank region of the Palestinian Territories.

The Palestinian Territories are an example of a risky environment. Palestinians have lived in a state of severe insecurities and war-like conditions since 1948. Years of political stalemate have led Palestinians to face serious conditions of economic insecurity, only partially mitigated by a heavy dependence on foreign resources and international aid. Malnutrition and food insecurity are among the most pronounced outcomes of such economic insecurity.[3] We use a subjective measure of food insecurity risk as a proxy for background uninsurable risk. Perception of food insecurity risk is a direct reflection of uncertainty in initial endowment which is not formally insurable.[4] Other forms of self-protection, such as informal insurance networks, can be alternative responses to uninsurable background risk. Their importance relative to the demand for insurance against insurable risks is a topic left for further research.

To estimate the effect of a background risk on the decision to insure, our main empirical strategy uses a bivariate probit model. This choice takes into account that food insecurity risk and the decision to insure against health risks may depend on similar factors, such as individual resources, gender, work environment and geographical location. This induces a correlation between the background risk of food insecurity and health insurance coverage through the observable variables.

The change in the desirability of insurance due to the background risk remains unobserved to the econometrician. This cross-risk effect results in the unobserved determinants being correlated. Our empirical approach allows the residuals to be correlated and interprets this correlation.

This paper contributes to the understanding of household behaviour in presence of uninsurable background risks. It draws from the theoretical literature on attitudes toward risk in presence of uninsurable risks Pratt and Zeckhauser (1987), Eeckhoudt and Kimball (1992), and Eeckhoudt et al. (1996) and it contributes to the limited number of empirical studies on this topic (Guiso and Paiella, 2008). The paper develops work on background risk and demand for insurance by Guiso and Jappelli (1998) bringing empirical evidence from a developing country.

The paper relates to various strands in the literature: first, the paper relates to the literature in development and agricultural economics that studies risk and insurance take-up in developing countries (see Dercon (2004) and references therein) and the introduction of contingency markets on agricultural decision-making, as in Myers (1988), Innes and Rausser (1989), and Holloway and Zwart (1993). This literature generally focuses on one risk and the demand for insurance against that specific risk. In contrast, our aim is different because we focus specifically on the spillover effect across risks in different domains of life. The paper also relates to the literature on complementarities between multiple risks to life, as in Dow et al. (1999), and to the literature on the value of life, such as in Viscusi and Evans (1990) and Evans and Viscusi (1993). However, the focus of this paper differs from those seminal papers as we differentiate between an insurable and an uninsurable risk to life.

The paper is organised as follows. Health insurance and food insecurity in the West Bank presents a brief overview of the Palestinian health-care system and it explains the state and the causes of food insecurity in the Palestinian Territories. The model develops the model used to examine how the propensity to have a health insurance changes in presence of a background risk. Data and descriptive statistics discusses the data used and their sources. Empirical results presents the empirical results: it first presents the results from a baseline model, then an extension and finally some caveats. Conclusions concludes and discusses the policy implications of our findings.

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[2] This property of preference is called "proper risk-aversion" by Pratt and Zeckhauser (1987) and "standard risk aversion" by Kimball (1993). Let $u(w)$ be a standard utility function of wealth, w: decreasing absolute risk aversion – $-u''(w)/u'(w)$ – says that an individual sensitivity to risks decreases with wealth. Decreasing absolute prudence – $-u'''(w)/u''(w)$ – says that the precautionary saving motive decreases in intensity with wealth. Temperance is defined as a preference for disaggregation of risks and requires $u''''(w) \leqslant 0$. Further extensions on preferences properties required for background risk to induce more risk-averse behaviour involving stochastic dominance properties are presented in Eeckhoudt et al. (1996). Eeckhoudt and Kimball (1992) show that an agent's willingness to bear other risks in presence of a background risk decreases whether or not the two risks are correlated or independent.

[3] Banerjee and Duflo (2007) argue that there is a certain amount of choice among the poor regarding food consumption: spending the available budget on other commodities other than food may be a deliberate choice. However, it is unlikely that this phenomenon occurs widely among Palestinians in the West Bank, where people in the lowest quartile of total expenditure spend approximately 65% of their budget on food (the Socio-Economic and Food Security Survey, 2010).

[4] Limits of (formal) insurability against food insecurity risk (similarly to resource endowment uncertainty) are related to asymmetric information problems, such as moral hazard and adverse selection; the imprecision of risk assessment and the size of the loss and the possible existence of correlated risks. Moral hazard problem relates to the fact that incentives to prevent the occurrence of the risk would reduce, should a type of "food insecurity insurance" exist. Also, since losses from food insecurity may be difficult to verify and quantify, claims might be overstated, creating an ex-post moral hazard. A potential insurer would need to estimate the chances of the risk occurring to set some form of premium. Doing so it is extremely difficult, especially in a context such as the Palestinian Territories, where conflict related events and externally enforced restrictions may changes the risk landscape radically. Also, the risk of food insecurity partly depends on atmospheric conditions: despite forms of weather insurance exist in other developing countries, no scheme of weather insurance is available in the Palestinian Territories. Finally, food insecurity and health risk may be correlated in the long run. We do not claim that food insecurity is an independent background risk. However, it is plausible that this dependence is weak in the short-run. Indeed, the data do not show evidence of any association of this form.

Health insurance and food insecurity in the West Bank

The health insurance market in the Palestinian Territories (West Bank and Gaza Strip) includes three main providers: the Palestinian Authority through the Palestinian Ministry of Health (MoH), the United Nations Relief and Works Agency (UNRWA) and a number of private insurance companies.[5] Despite national health programmes over the years have aimed to promote enrollment into the government scheme, health insurance coverage is still far short than universal. In 2010, yet 28.8% of households in the West Bank

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[5] In remote rural areas, non-governmental organisations may deliver forms of primary health-care as part of their programmes, without formal health insurance schemes.