

Social Insurance Optimality in Developed and Developing Countries

A S M Shakil Haider

Taufiq Hasan Quadria

Abstract

Developed economies, having a much larger social safety nets than the developing ones, provide their people with much less costly opportunities to smooth consumption in periods of income shocks as compared to their developing counterparts. Even though they may not have much effect on consumption volatility, social insurance programs could yield substantial welfare gains by reducing the needs for the costly behaviors of the households in developing economies than those in developed ones, and when private sectors provide partial insurance, welfare gains can be significantly magnified by government interventions.

Keywords: *social safety nets, income shocks, consumption volatility, social insurance, government intervention*

JEL Classification: *H40, H51, H55*

1.0 Introduction

Social insurance is a system of insurance in which benefits are defined by status, revenue generation is primarily income based and participation is mandatory (Ellis, 2014). Social insurance encompasses programs primarily designed to insure against health risks, such as health insurance, sick leave insurance, accident insurance, long-term care insurance and disability insurance as well as other programs, such as unemployment insurance, pension insurance and country-specific social insurance programs (Ziebarth, 2017). These types of social insurance programs are available almost in all the developed countries and growing rapidly. On the other hand, the social safety nets in developing economies are still far smaller (Chetty, 2006; Chetty and Looney, 2007). There were different theoretical and empirical approaches had been conducted to find out optimal level of social insurance, its effect on the insurance holder along with the economic welfare, how much vulnerable or beneficial the

social insurance can be when there are private insurances available etc. for both developed and developing economies.

2.0 Social Insurance in developed countries

There are enormous articles evaluating the social insurance programs in the developed world based on theoretical models along with the empirical evidences. If we consider unemployment insurance as a proxy of social insurance, a very influential theoretical paper by Baily (1978) using a stylized static model explained that, unemployment insurance is heavily dependent on risk aversion, consumption smoothing benefits of unemployment insurance and the elasticity of unemployment durations with respect to the benefit rate. Following the pathway of Baily (1978) model, other researchers found unemployment insurance benefits on durations (Moffitt, 1985; Meyer, 1990). Some of the researchers also found effects of unemployment insurance on consumption along with the durations of unemployment insurance (Gruber, 1997; Browning and Crossley, 2001). However, different theoretical analysis found that, whenever we consider social insurance (based on its defining characteristics) along with borrowing constraints, human capital effects, more general search technologies, the model defined by Baily (1978) becomes restrictive and the optimality of social insurance varies (Flemming, 1978; Brown and Kaufold, 1988; Lentz, 2004; Crossley and Low, 2005). In another research by Feldstein (2005) showed theoretically that, due to not incorporating savings response adequately, Baily (1978) model provides misleading results for social insurance. Moreover, availability of private insurance can reduce the welfare gain of government intervention via social insurance (Golosov and Tsyvinski, 2005). On the other hand, introducing leisure benefits as another variable in Baily's model also theoretically changes the results. For all these problems with the Baily's model, Chetty (2006) used a dynamic model which gives the agents to choose consumption, unemployment duration, human capital decision, spousal labor supply etc. Furthermore, Chetty's model incorporates borrowing or hour constraints along with the budget constraint. There is an arbitrary stochastic process in the model which checks the employment status of the agents each time. Hence, assuming government's optimization well behaved, the optimal benefit rate of social insurance is determined in Chetty's model which are dependent on coefficient of relative prudence along with the three variables of Baily's model. Chetty's model prediction suggested a very minimal error of 2-4%. Therefore, Chetty (2006) model in calculating optimal benefits from social insurance (based on reduced form empirical estimates) is also valid in broader environment (i.e. with borrowing constraint, spousal labor supply, leisure benefits, portfolio choice, human capital decisions, durable goods). These variations

don't make any problem as the primary variables (i.e. risk aversion, consumption smoothing benefits of unemployment insurance, the elasticity of unemployment durations with respect to the benefit rate and coefficient of relative prudence) are the sufficient statistics of optimal benefit calculation considering social insurance in developed countries theoretically. However, the problematic part of this potential model of Chetty (2006) is that, the optimal benefit doesn't depend on other variables like leisure benefits of unemployment or improving job matches by subsidizing search (whereas it was found that unemployment insurance helps to improve job matches by Acemoglu and Shimer, 1999). Furthermore, income and substitution effect magnitudes have no certain impact on insurance and the duration of remaining unemployed.

Regarding the social insurance effectiveness, it had been found from empirical evidences that in developed countries like USA, households typically accomplish consumption smoothing by much less costly methods: depleting buffer stocks, borrowing, and using social insurance benefits (Dynarski and Gruber, 1997). One of the interesting results from Chetty and Looney (2007) from a panel study of income dynamics on USA and Indonesia found that, social insurance is more effective in developed economies like USA as the households devotes nearly 20% of its budget on food. However, in different experimental studies for the health insurances (as a part of social insurance) of developed countries, the statistical tests could not reject the null hypothesis that there are no differences in health measures between the groups that were assigned to different health plans and consumed different amounts of health care (Manning et al. 1987). Contrary to this result, another experimental study on health insurance by Keeler and Rolph (1988) suggested that, 20% with the highest blood pressure who were assigned to the free care plan without any cost-sharing experienced a significant reduction in their blood pressure. However, these experiments were criticized on methodological grounds due to lower refusal and attrition rates in the most comprehensive health plan (Aaron-Dine et al. 2013).

3.0 Social Insurance in developing countries

Social safety nets, including those formal government-provided ones, are substantially smaller in developing countries than in developed countries. According to statistics collected by the International Labour Organization (2000) for 91 countries in 1996, the average GDP share of social insurance, defined as total expenditures on social security, disability insurance, unemployment insurance, insurance against work-related injuries, and government provided health insurance was 12.5 percent, with a range spanning 0.7 percent to 34.7 percent. The share

of social insurance in government expenditure is also significantly higher in richer countries. Wealthier countries not only have higher government expenditure but also devote a larger fraction of that expenditure to social insurance. Notably, the rapidly growing East Asian economies devote about 10 percentage points less of GDP to social insurance than other countries of similar income. East Asian economies devote on average 4.9 percent of their GDP to social insurance, compared with 16.5 percent in the U.S. and 22 percent in Europe. The positive relationship between GDP per capita and social safety nets is evident even among the small subsample of East Asian economies, with Indonesia having the lowest income and expenditure on social insurance and Japan having the highest of both. These statistics understate the size of the social safety net in developing countries because they ignore other forms of in-kind and charity assistance, such as minimum food grants and NGO aid. However, these types of programs are generally quite limited in size (Gough et. al. 2004) and have two features that considerably limit their scope relative to western social safety nets. First, they are often means-tested and so may not provide consumption smoothing benefits to a majority of the population. Second, aid tends to flow toward large- scale catastrophes (such as the recent tsunami), with significantly fewer funds available for the smaller but more numerous idiosyncratic shocks like unemployment or disability. There are many reasons that developing countries might choose not to implement such social safety nets. The most plausible reason is that financing such systems is infeasible given limitations on the government's ability to raise revenue (Gordon and Li 2005). While it is important to understand the political economy of social insurance in developing countries, the purpose of this study is to assess the normative value of such a program if it could be implemented. Chetty (2006) focused on Indonesia as the developing economy because it has high-quality panel data with a design very similar to the PSID. Indonesia also has minimal social insurance, making it an ideal laboratory in which to investigate the response of families to idiosyncratic shocks in a low-income economy without any social safety net.

The evidence Chetty (2006) found suggests that idiosyncratic unemployment shocks lead to temporary consumption fluctuations of similar magnitude in the U.S. and Indonesia. This similarity is surprising given that the U.S. has a large UI system that replaces approximately 50 percent of pre-unemployment wages for most individuals, whereas Indonesia has very little formal social insurance. These results may appear to suggest that families in Indonesia (and perhaps other developing economies) have adequate insurance because they are able to maintain a reasonably smooth consumption path when faced with shocks, as originally suggested by Townsend's (1994) classic study of Indian farmers. In this case, social insurance

would offer relatively modest welfare gains in these economies. However, the smoothness of household consumption may belie significant costs of income risk if households resort to costly smoothing methods. Intuitively, social insurance may provide welfare gains if it crowds out the use of costlier smoothing techniques, such as reducing spending on education to mitigate the income loss during an unemployment shock, or augmenting labor supply by other members of the household.

To understand this better, Chetty's (2006) example of two economies, where agents face income shocks, can be considered. In the first case, agents have access to credit markets and networks that allow them to smooth consumption easily when hit by a shock. In the second economy, private market insurance is very limited. However, households are close to a subsistence level of consumption and are very reluctant to cut consumption further when their income falls for fear of starvation. These risk-averse households therefore use whatever methods they can to avoid a substantial consumption drop (such as taking children out of school). In both of these cases, an econometrician would observe a smooth consumption path in the data. However, in the latter case—where the smoothness of consumption is the result of high risk aversion and not efficient private insurance markets—social insurance could yield large welfare gains. Intuitively, these welfare gains arise from reduced reliance on costly consumption-smoothing mechanisms, leading to improvements such as greater education for children.

4.0 Social Insurance and Taxation

There are at least five reasons that government intervention could improve upon private insurance markets. First, private markets can only insure against shocks that occur after agents purchase private insurance. Only the government can provide redistribution across types revealed before private insurance contracts are signed. Second, informational asymmetries can lead to market unravelling through adverse selection (Akerlof 1970). Third, even when private markets function perfectly, individuals may suffer from behavioral biases such as myopia or overconfidence that lead them to underinsure relative to the optimum (Kaplow 1991, DellaVigna 2009, Spinnewijn 2008). Fourth, private firms generally cannot sign exclusive contracts, leading to inefficient outcomes because of multiple dealing (Pauly 1974). Finally, some studies have argued that the administrative and marketing costs of private insurance exceed those of public insurance (Woolhandler, Campbell, and Himmelstein 2003; Reinhardt, Hussey, and Anderson 2004) because of increasing returns and zero-sum strategic competition.

Chetty (2009) derived formulas for the welfare gain from increasing the government tax rate (or social insurance benefit) that depends on five parameters: (1) the variation in consumption across states and risk types, (2) the curvature of the utility function, (3) the elasticity of effort with respect to the tax or benefit rate, (4) the size of the private insurance market, and (5) the crowd-out of private insurance by public insurance.

The first three parameters are standard elements of sufficient statistic formulas for optimal taxation and social insurance without private insurance; the last two are the new elements. In addition to offering a method of making quantitative predictions about welfare gains, our analysis yields two general qualitative lessons. First, standard optimal tax and social insurance formulas overstate the optimal degree of redistribution in the presence of private insurance that generates moral hazard. Second, it is critical to distinguish private insurance mechanisms that generate moral hazard from those that do not. When private insurance does not generate moral hazard, reaching the first-best of full insurance would be feasible in principle, eliminating the role for government intervention. In practice, there are costs of informal insurance such as limits to liquidity, costs of borrowing from relatives, or relying on spousal labor supply that prevent full insurance. On the other hand, when private insurance generates moral hazard, the changes in effort induced by government intervention have a first-order externality on the private insurer's budget. If government and private insurers optimize along the lines described by Chetty's (2009) analysis, private insurance should be more prevalent in economies with low job mobility (such as Japan), where firms have the ability to insure shocks through a compressed wage structure without facing as much adverse selection. Moreover, government insurance should be more prevalent for shocks that occur prior to the point at which insurance contracts can be purchased, such as disability at birth, or for shocks where optimization of insurance purchases is unlikely.

5.0 Conclusion and Recommendations

Chetty (2006) has shown that a simple, empirically implementable formula can be used to compute the welfare gains and optimal level of social insurance in a wide class of stochastic dynamic models. Although the analysis focused on unemployment, this formula can also be applied to analyze other policies (such as disability insurance or welfare programs) if one restricts attention to the optimal policy in a two-state model with constant benefits in one state and a constant tax in the other. Hence, reduced-form empirical estimates of behavioral responses can be used to obtain robust estimates of the optimal size of many large government

expenditure programs. According to Chetty (2009), the empirical evidence on the response of household consumption to income shocks must be interpreted cautiously when drawing policy inferences. Small consumption fluctuations need not imply that existing insurance is “adequate” in developing economies. In fact, the converse may be true: consumption may be smooth precisely because the welfare costs of consumption fluctuations are very high. To evaluate the welfare consequences of insurance policies, one must determine why and how households smooth consumption—because of high risk aversion or through good insurance arrangements? This question is of practical relevance because many households in low-income countries could have high risk aversion due to subsistence constraints. Furthermore, there is significant prospect for welfare gains from government intervention when the private sector provides partial insurance. Adverse selection, pre-existing information, or imperfect optimization in private insurance markets create a role for government intervention, while private insurance generates moral hazard. Further research is required to determine whether the constraints imposed by the political economy of developing countries would permit welfare-enhancing social insurance programs. This research agenda is especially relevant for South and East Asian economies as they reach a phase of development where implementation of a formal social safety net is feasible.

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