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The link between life insurance activities and economic growth: Some new evidence

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This paper applies the panel seemingly unrelated regressions augmented Dickey-Fuller (SURADF) test to re-investigate the stationarity properties of real life insurance premiums per capita and real gross domestic product (GDP) per capita for 41 countries within three levels of income covering 1979–2007. Our empirical results first reveal that the variables in these countries are a mixture of I(0) and I(1) processes, and that the traditional panel unit-root tests could lead to misleading inferences. Second, for the estimated half-lives, the degrees of mean reversion are greater in high-income countries. Third, there is concrete evidence favoring the hypothesis of a long-run equilibrium relationship between real GDP and real life insurance premiums after allowing for the heterogeneous country effect. The long-run estimated panel parameter results indicate that a 1% increase in the real life premium raises real GDP by 0.06%. Finally, we determine that the development of life insurance markets and economic growth exhibit long-run and short-run bidirectional causalities. These findings offer several useful insights for policy-makers and researchers.

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1. Introduction

The importance of the insurance-growth relationship has risen over the past few decades due to the bigger makeup of insurance within the financial sector. The global insurance industry has seen an annual growth rate of over 10% since 1950, far exceeding that of global economic development (Dowling, 1982; Swiss Reinsurance Company, 1990; UNCTAD, 1972, 1991). This greater significance is also reflected in the business volume of life insurers.[1] The rapid growth of life insurance premiums not only increases insurers' role as providers of risk transfer, but also raises their importance as institutional investors. In addition, a number of international life insurance firms, such as American International Group (AIG) and International Netherlands Group (ING), have experimented with various industrial and banking linkages (Wilkins, 2009). Such developments have a profound influence in that, while they may promote economic activities, they give rise to risk in financial markets at the same time. These ideas prompted the initial motivation for this study, where we investigate the link between life insurance activities and economic growth.

It is essential to consider the relationship between life insurance and economic growth from both theoretical and empirical aspects. From a theoretical point of view, the relationship between life insurance and economic growth may run in either or both directions. The '*supply-leading*' and '*demand-following*' views as presented by Patrick (1966) postulate that economic growth (real income) can be enhanced either through growth in financial systems, or alternatively through growth in the economy, which brings about the development of financial activities. Based on the 'supply-leading' view, financial development enhances economic growth by transferring resources from traditional sectors to modern sectors and by promoting an entrepreneurial response in these modern sectors. In contrast, the 'demand-following' view indicates that a lack of financial development or institutions is due to a lack of demand for financial services. Thus, as the growth rate of real income rises, investors' and savers' demands for various new financial services materialize, hence leading to the creation of modern financial institutions, the supply of their financial assets and liabilities, and related financial services.

For the empirical aspect, previous studies mainly utilize time-series or cross-sectional datasets to investigate the relevant issues of life insurance premiums and macroeconomics, e.g., Ward and Zurbruegg (2000) and Kugler and Ofoghi (2005), to mention a few. These empirical works concentrate on a small group of countries over fairly short or distant time spans and conceivably suffer from the "small sample" problem.[2] However, researchers have recently been implementing panel data to analyze related issues (Beck and Webb, 2003; Arena, 2008; Haiss and Sümegi, 2008; Han et al., 2010; Lee, 2011, forthcoming; Chen et al., forthcoming).[3] Therefore, this study employs panel unit root, panel cointegration, and panel causality tests to explore the relationship between per capita real gross domestic product (hereafter RPGDP) and per capita real life insurance premiums (hereafter RPLIP; insurance density). Previous studies lack a diagnostic analysis of the order of integration for variables entering a long-run relationship between one another, which could lead to spurious regression bias. The presence of a unit root in real income and life insurance premiums has crucial implications for modeling the insurance-growth nexus.

Existing panel studies on insurance premiums do warn about the adverse effects of imposing homogeneity across countries and have employed a panel unit-root test combined with a panel

[1] For the period 1997–2007, the world's total written real insurance premiums increased approximately 5.5 times from US$0.63 trillion to US$4.13 trillion, while life insurance premiums rose approximately 7.5 times. In 2009, insurance companies worldwide wrote US$4.07 trillion in direct premiums, indicating the equivalent of about 7.0% of global GDP was used to purchase insurance products. In the same year, insurance companies in developing countries generated premiums worth US$0.53 trillion (13.1% of global insurance premiums), with the share of emerging and developing economies continuing to increase (9.3% of total business in 2000 and 12.0% in 2008). Such data from *Simga* (Swiss Reinsurance Company, 1980–2010) suggest that the development of the insurance market plays an increasingly substantial role within the financial sector.

[2] Odedokun (1996) found that panel data estimation yields more robust effects of financial development on economic growth than time-series estimation by individual countries.

[3] They used the GMM dynamic panel estimator, but did not consider the integration and cointegration properties of the data. Thus, it is not clear whether they represent a structural long-run equilibrium relationship or a spurious one (Christopoulos and Tsionas, 2004; Lee, 2011, forthcoming).