

# DEVELOPING INSURANCE MARKETS



**DOES FRAGMENTATION AND A RELIANCE  
ON COMPULSION HINDER INNOVATION,  
GROWTH AND DEVELOPMENT?**

Disaster Risk Financing  
& Insurance Program



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# DOES FRAGMENTATION AND A RELIANCE ON COMPULSION HINDER INNOVATION, GROWTH AND DEVELOPMENT?

— Craig Thorburn<sup>1</sup> —

## Summary

Does the structure of the insurance market have an impact on market development? Is market development, or lack of it, a consequence of market dynamics? Too much competition, too many players in the market, or a perceived adverse impact from new entrants might be cited as a concern. Policymakers are urged to intervene.

No matter how you describe them, highly competitive markets or fragmented insurance markets, are usually characterized by some irrational competition. In less developed non-life insurance markets, this competition may be most visible in loss making compulsory motor insurance. Usually it is a large proportion of the business mix. Irrational price wars erode profits. A strict or penal treatment of claimants erodes trust. The societal and policy objectives of the compulsory lines of business are undermined and even can be forgotten altogether.

This note examines the contention that the combination of markets that are “too competitive” and have an overreliance on compulsion also lack capacity to innovate. By “innovation” we mean “do things differently”; something that is necessary to reach new customers or introduce new products and services. An absence of innovation is seen as an impediment to growth and development. The analysis uses a data set covering most jurisdictions and finds that correlations or lack thereof suggest:

- Faster growth and development in the insurance sector is significantly and positively correlated with less fragmentation;
- There is no apparent statistically significant correlation between faster or slower development or growth in the sector and a reliance on compulsion;
- Faster or slower development also seems independent of market size. In fact, market size is, of itself, largely independent of other variables;
- More developed markets are generally more fragmented, less dominated by motor classes, and have higher claims and combined ratios; and

<sup>1</sup> The author is a Lead Financial Sector Specialist with the World Bank focusing on insurance markets, their regulation, supervision and development. For further questions contact [cthorburn@worldbank.org](mailto:cthorburn@worldbank.org). This note from helpful comments from Mia Thom at Cenfri in particular. This version of the paper uses data sourced to July 2019 and is finalized as at that date.

- There is some evidence that fragmentation leads to price competition that may squeeze margins and constrain investment in innovation especially when considering the correlation between combined ratios and the Herfindahl Index. The data is less persuasive about the impact of an overreliance on compulsory classes.

As a result, there is a case for the contention that development and innovation will be advanced if fragmented markets see some consolidation. Policymakers may consider whether this should be allowed to occur somewhat naturally or whether some active measures should be taken on developmental grounds. Clearly, policymakers interested in insurance market development should consider competition in a nuanced manner. This data and conclusions can contribute to considered policy responses.

This is one of a series of notes on market structure and development, largely from the same data set but separated for ease of access to readers with a particular interest in one or other situation.<sup>2</sup>

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<sup>2</sup> Subsequent notes are planned updating the data set results regarding natural competition levels and interpretation of competition metrics, on liberalization of monopoly markets, composites and the development of life and non-life businesses, and the impact of major failure events on market structure initially and over time. Further work regarding this note is also suggested in the concluding section.

## Introduction

The structure of the insurance market would seem to be a relevant condition for insurance market growth and development. The existence of state-owned insurers, monopoly lines of business, composite or separated life and non-life insurers, and the levels of competition and concentration are each the subject of analysis.

As part of a larger project investigating the causes and effects of development in the insurance sector, this note summarizes a data-based analysis investigating competitive settings and compulsion in the non-life sector and the relationship to growth and development. It is part of an initiative to examine broad cross-country data looking to validate propositions (or invalidate, question, or “fact check” them).

Regarding competitive settings, the question had its genesis in some selected country work that identified the issue of a potential negative impact of the observed high levels of competition in some countries. Observers and industry stakeholders have argued that growth often requires new approaches and innovations. However, a constraint to innovation is cited in the challenge of undue competition that erodes profitability and absorbs management time and effort, therefore removing the capacity to invest in technology and technical knowledge needed to identify and implement the innovations that are needed. Some observers note that this is particularly true in the context of compulsory products. This dynamic can set up a negative cycle.

Policymakers are urged by commentators to intervene in a range of ways; introducing a moratorium on new licenses, increasing absolute minimum capital levels to force mergers, or even exiting weaker insurers. Some stakeholders call for the introduction (or reintroduction) of mandated minimum tariffs particularly in compulsory classes. When seeking to expand the market, policymakers may be encouraged by a sector with limited capacity to sell products voluntarily, to make more products compulsory.

But what if the relationship between competition levels and development is more a reflection of stakeholder discomfort with competition than a factual link with development objectives? Policy interventions could be counterproductive to development instead of conducive to it. Responses that facilitate the persistence of “too many” players in the market by making their life easier may not be optimal for development when an element of “right-sizing” is needed.



## Questions

This note summarizes the results of analysis of a data set sourced from a proprietary provider, supplemented by our own analysis.<sup>3</sup> It has been examined to look at questions like:

- Are fragmented markets typically underdeveloped?
- Do fragmented markets also have coincident preponderance of compulsory insurances?
- Do unduly concentrated markets have their own problems in development?
- Are some unduly concentrated markets also constituted by a preponderance of compulsory products?
- Are fragmented markets typically constrained in terms of resources for innovation?
- Do more neutrally competitive markets show better development trajectories?

Whether a market might be defined as fragmented draws on earlier work summarized in the annex.<sup>4</sup>

## Indicators

This analysis considers data that covers around 180 countries including different data points as is available and consolidated. It concentrates on non-life insurance sector indicators to focus on the most common compulsory product, Motor Third Party Liability insurance. The data set provides information for up to 30 years of history for each jurisdiction. For this analysis, however, the most recent readings for each indicator are used. Table 1 describes each indicator.

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<sup>3</sup> The data was taken from AXCO using the latest available data points as at the time of writing (updated as at July 22, 2019)

<sup>4</sup> See annex and separate papers on the rationale for using the Herfindahl Index.

**Table 1: Indicators of various elements that have been investigated**

Concentration & fragmentation	To measure the level of concentration or fragmentation the Herfindahl Index value is particularly useful. The index value can also be compared to a defined neutral level that would represent a “normal” level for the market. <sup>5</sup> There are 164 markets in the data set with non-life insurance Herfindahl index values.
Compulsion	The usual variable, and one with data most readily available in the data set, is compulsory motor third party insurances (MTPL). The indicator used is the proportion of MTPL premium to total non-life insurance premium. <sup>6</sup> The proportion of all motor insurance premium is also included. The two indicators are correlated as would be expected. There are 168 jurisdictions that have total motor insurance values and 104 jurisdictions with data for MTPL premiums.
Capacity for Innovation	Although there may be many constraints to innovation, one of the challenges arising from fragmentation may be limited profitability with consequent constraints on funds available for learning and investment in innovative technologies. This is measured in the data set through the overall combined ratio for non-life insurance. In addition, the claims ratio is examined as there are more data points. There are 80 jurisdictions with combined ratio data and 168 with claims ratios. The claims ratio and the combined ratio for MTPL can also be included for examination and is proposed as part of the next steps in this work.
Growth	Rate of change in written premium is used as a growth indicator. There are 176 jurisdictions where this rate is calculated based on the five years of experience.
Development	Insurance Penetration, being premium to GDP, is the most commonly used measure of insurance development. It is recognized that this is often used but should not be treated as the only measure as it focusses on size and does not include many developmental outcomes; “bigger is not always better”. Although it is a broad measure and could benefit from additional metrics, it is used as a first measure for analysis. Both the level (extent of development) and change (rate of progress in developing) are considered. It includes 176 jurisdictions.

## What do the resulting correlations between indicators suggest?

Looking at cross country correlations provides some clues to relationships. The results are shown in Table 2 (see page 8). There are some statistically significant correlation pairs that are not newsworthy but are reported for completeness.<sup>7</sup> Let us consider the development perspective first.

<sup>5</sup> A separate note as part of next steps is proposed to examine jurisdictions separately between those that are on one or other side of the neutral level.

<sup>6</sup> Note that reported MTPL premiums are not necessarily consistently treated across markets. The data does not identify whether or not, for example, MTPL can be purchased within a comprehensive policy or separately in some jurisdictions and so is part of a different category. Consequently, it is treated as an indicator but not a definitive one in this analysis.

<sup>7</sup> It is not surprising that statistically significant correlations exist between (1) Premium and Insurance Penetration; (2) The percentages of non-life insurance that are motor insurance and MTPL; (3) Growth rates in premium and in insurance penetration; and (4) claims and combined ratios.

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Faster growth and development in the insurance sector is significantly and positively correlated with less fragmentation.

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**Most significantly, less fragmented markets are associated with stronger rates of growth and development.** The level of market competition is the most important of the indicators to market growth and development trajectories in the correlation table. Both results are significantly positively correlated with the Herfindahl index.

This result suggests that **policymakers interested in development should consider competition in nuanced manner** beyond the usual near-term economic efficiency, consumer protection and fair treatment perspectives.

**There is no conclusive evidence in the current sample that compulsion or motor insurance more generally has an impact on rates of growth and development.** Both measures—rates of change in premium and insurance penetration—are not significantly correlated with any other measures in the sample.

**There is also no evidence in this sample that rapid growth or development in the insurance sector is more likely when “coming off a small base”.** The rate of growth in market size or insurance penetration is not correlated significantly to the level of development. Whilst this might be a concern for those seeking to develop smaller markets, it is also a positive encouragement that both large and small markets can achieve better growth and development. In fact, there is no relationship where market size in terms of premium has any correlation of sufficient significance in this sample.

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More developed markets are generally more fragmented, less dominated by motor classes, and have higher claims ratios.

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**More developed markets tend to be less concentrated.** The relationship between the level of market development and the Herfindahl index value is negatively correlated and is statistically significant.

**The proportion of non-life sector premium represented by the motor lines of business is correlated with the level of development even though it is not well correlated with rates of change.** As an indicator of level of development, in support of the insurance penetration measure, markets with a greater proportion of motor business, whether measured through MTPL or total motor premium, tend to have lower levels of insurance penetration. This is consistent with the observation that markets tend to start with compulsory motor insurance as a matter of fact and develop additional product lines over time.

**More developed markets tend to have higher overall claims ratios but those with high dependence on MTPL do offer lower value overall.** There is a weaker correlation between development and claims ratios, but still significant at the 5% level and a significant relationship between combined ratios and competitive settings. Although the interpretation is open to alternative views, more developed markets are generally larger so would be sustainable on lower expense ratios, leaving more space to sustain higher claims ratios and still be profitable. Larger markets may also benefit from a more diversified risk pool and better information on those risks allowing better predictability and more efficient use of capital and reinsurance. More developed markets may also



have greater price transparency, and customers with greater insurance literacy, suggesting greater value for money or a greater propensity to claim could be possible. Equally, they are more likely to have consumer protection and redress mechanisms against denied claims. Additionally, this result regarding claims ratios is despite the fact that motor insurance usually has a higher claims ratio or is even unprofitable and less developed markets have a higher exposure to motor business. The relationship between MTPL and development suggests that compulsion should be considered cautiously when the objective is largely to encourage market size and economies.

**Higher combined ratios and claims ratios are correlated with more fragmentation suggesting that fragmentation coincides with price competition and margin erosion reducing capacity for innovation has significant support.** A reduction in capacity is a concern especially when it coincides with a need for innovation, creating a negative spiral. More significantly, higher percentages of motor insurance and MTPL are inversely correlated with claims ratios for non-life insurance in total.

**These results provide support for the view that fragmentation constrains development. They are less conclusive that compulsion plays a positive or negative role** in the pace of development although it is a reasonable indicator for the level of development, with less developed markets being more reliant on motor insurance portfolios.

## Next steps

This paper looked at correlations between variables. Next, we will take a multiple regression approach. The analysis will also be deepened adding additional variables including those noted in the discussion. It is also proposed to update the herfindahl index analysis and consider correlations for jurisdictions separately between those that are above or below the natural competition levels to explore whether there is any evidence that an absence of competition also fails to incentivize growth and development.

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There is evidence that fragmentation leads to price competition that may squeeze margins and constrain investment in innovation. The data is inconsistent about the impact of an overreliance on compulsory classes.

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**Table 2: Correlations between variables using latest available data point for each jurisdiction**

Correlations	Herfindahl Index	Premium	Premium to GDP	Motor Percent	Compulsory MTPL Percent	Last 5 years growth in GWP	Last 5 years growth in penetration	Claims ratio	Combined ratio
Herfindahl Index		(0.129)	(0.261) **	(0.094)	0.132	0.285 **	0.483 **	(0.130)	(0.298) **
Premium			0.237 **	(0.083)	(0.121)	(0.083)	0.018	0.093	0.009
Premium to GDP				(0.358) **	(0.283) **	(0.136)	(0.017)	0.220 **	0.153
Motor Percent					0.734 **	0.059	(0.162) *	(0.171) *	0.047
Compulsory MTPL percent						(0.154) *	(0.123)	(0.200) **	0.107
Last 5 years growth in GWP							0.477 **	0.005	(0.089)
Last 5 years penetration growth								0.110	(0.091)
Claims ratio									0.840 **
Combined ratio									

Source: AXCO data, Staff Analysis. Figures with one \*\*\* or two \*\*\*\* are significant at the 5% and 1% level respectively. Those in red are of greater interest to the discussion.

## Annex: The Herfindahl Index in Insurance Markets (summarized)

**For over 10 years, the author has been investigating measures of market competition and concentration** used in the insurance sector and validating the results through field interviews with market participants. This annex provides a summary of this work and updates the non-life insurance data.

**The first paper prepared in 2008 was motivated by a question from a policymaker** in a market that was about to liberalize a state-owned monopoly marketplace: “how many insurers do you think we will end up with?”. It was based on 364 life insurance sector and 376 non-life insurance sector observations covering 113 jurisdictions.

**Examining the data suggested that looking for a “right number of insurers” was not practical.** There is considerable variation in the nature of smaller

insurers across jurisdictions for cultural and historic reasons so figures are not very comparable. In some jurisdictions, smaller insurers are similar to larger insurers whereas, in others, they are more akin to family brokerage firms that happen to retain a small amount of insurance risk.

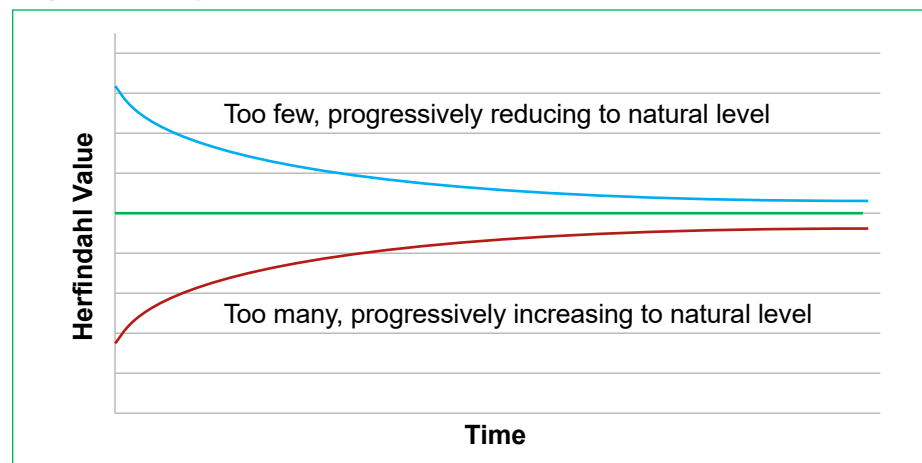
**The oft-cited measure in industry material, the market share of the top 5 (or 10) participants, also proved less optimal.** This measure is also not as conducive to analysis as the Herfindahl index as it ignores the structure of the rest of the sector beyond that figure. It is also not particularly sensitive to change, varying over time only slightly even when the Herfindahl Index might move a great deal more.

**The Herfindahl Index proved the most useful for benchmarking, cross country analysis and comparison.** Other measures produced consistent but less sensitive and less consistent indications of conditions.

**There is support for the hypothesis that there is a natural level of competition** which is neither “too much” / “too many” or “too little” / “too few”. This concept is illustrated in Figure 1.

**Where the measure is too low, reflecting a very high level of competition, there is a trend of a rise in the Herfindahl index toward more sustainable levels.** The sector is usually characterized by efforts to build market share through aggressive pricing, periods of irrational price wars, aggressively poaching distribution, and low profitability. Stealing business from competitors is the main focus of company strategies targeting a bigger slice of the market rather than in efforts to grow the market to underserved and unserved clients. Efforts are rarely successful and, ultimately, mergers and acquisition activity is the only way to grow in search of real economies of scale and some players seek to exit rather than continue to sustain ever increasing losses in the price wars. That is, unless price cutting leads to forced exits due to insolvency. On this basis

**Figure 1: Expected Trends in Herfindahl over time**



alone, new entrants tend to acquire existing insurers as part of the process that also facilitates exit of some shareholders.

**Where the measure is too high, reflecting a low level of competition, or even oligopolistic structures, there is a trend of a fall in the Herfindahl index toward more sustainable levels.** The sector is usually characterized by healthy profits but an absence of innovation. Insurers make little effort to grow the market through innovation, comfortable in their current operational approaches. New entrants can be expected to be greenfield and bring innovative products, service, operational or delivery approaches. Over time, the new entrants gain more traction and the index falls.

**This interpretation of the index value relative to the natural position has been validated with market participants** continuously over the period since 2008. Only two exceptions were noted, both where the market aggregate represented the sum of two quite different “sub-markets” one of which was very competitive and the other not at all competitive. However, two out of over 100 validations has provided great confidence in this approach as providing an valid initial representation to present for local discourse in jurisdictions.

**The neutral level appears to be different for life and non-life insurance, being higher for life insurance.** This would be consistent with the nature of business transactions. For example, economies of scale through merger of life insurance businesses is available especially once contracts are migrated onto a single administrative system. For non-life insurance, this is not so straightforward for many reasons. As just one example, a new portfolio has to be re-underwritten on renewal to ensure it is consistent with the organisation’s risk acceptance and underwriting guidelines as well as any special pricing conditions for unusual elements of the particular risk. The acquired portfolio may also give rise to risk aggregations that did not raise concerns on the smaller separate portfolios that require revisions and additional bespoke reinsurance considerations.

**If the “pie is larger, there can be more slices”. Larger markets tend to have lower Herfindahl figures** (more insurers). As would be expected, the larger the market the easier it is to seek and find some economies of scale. Also, there is more room for some specialist insurers in particular lines or market segments, allowing for some expense efficiency through not being “all things to all people”. The regression analysis to define the “natural level” was also standardized for market size using the natural log of the premium expressed in US dollars. Conversion to US dollars does mean that there is a potential for an exchange rate effect across time.

**Less developed markets do tend to have lower Herfindahl index values on average.** The neutral level for the Herfindahl index, in general, falls when standardized for levels of development measured by insurance penetration .

## References:

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