

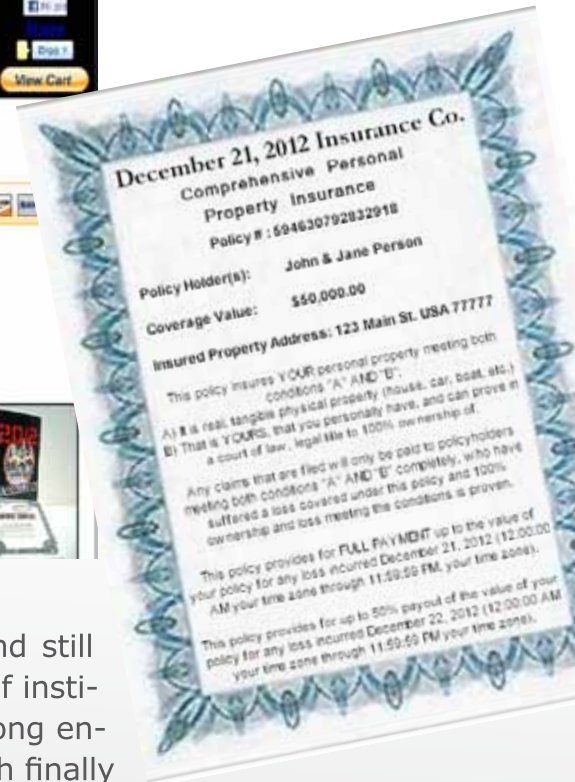
December 21, 2012: superstition and insurance

If you're reading this, it probably means that the Mayans were wrong. Yet, as at the time of writing this is still an open question, let's carefully avoid touching the subject of "that prophecy" in this article, just in case. This looks like being superstitious, though!

Red horns and taxi drivers

Superstitious people believe they can **influence the future** by performing, or not performing, certain actions apparently unrelated to the outcomes they desire to achieve or hope to avoid. In fact, if one wishes to arrive home safe, then he is likely to do so by driving conservatively. This isn't superstition; rather it is a heuristic combination of logic and lessons from past experience. Other people, nevertheless, believe that their journey will be safer by hanging a red plastic horn, much in the form of a pepperoni, on their rear view mirror: and here is where one of the mysteries of human nature starts. According to logical reasoning, in fact, having a bright red widget hang just over the corner of your eye can, if anything, be distracting to a driver, and hence increase the probability of having a road accident.

Superstition is sometimes felt as sharing a common, albeit blurred, border with religious beliefs, and associated to some of its earthly expressions, especially as regards some of the most colourful manifestations of popular devotion. In "Reflections on a marine Venus", Lawrence Durrell recounts a funny incident



happened to him in post-war Rhodes, when the island still was under British administration and the functioning of institutions and facilities was slowly being restored after long enduring the privations and devastations of war. Although finally provided with cabs, local taxi drivers refused to work because of a penury of the holy images they used to hang on their radiators to protect their otherwise reckless driving. The reaction of the British commanding general to this unexpected but forbidding accident, later solved through an emergency provision of holy images, provides a very good example of the cultural clash between Western rationality and Mediterranean devotion and one of the funniest moments of the book. Nevertheless, although a matter of faith, the way a saint can protect one's journey is straightforward and credible, provided one believes in saints. But how about believing in a red plastic horn, or in the inherent power of some numbers?

Cigarettes, black cats and playing cards



Superstitions can derive from perfectly **rational habits**, act as a useful mnemonic, and persist as a behaviour long after the original reasons have been lost. The belief that lighting cigarettes to three people in a row will cause the death



of the third smoker can in all likelihood be traced back to the First World War, when lighting a match at night would provide an easy target to enemy snipers: the first cigarette enabling them to locate, the second to take aim and the third one to kill.

Other times the roots of superstitious behaviour are too old to be traced back, and too widespread to apply to some particular category. Black cats have been regarded as ill-omened creatures since the most ancient times of civilization, a tradition which has adapted through the middle ages to associate them with witchery. The elusive, mysterious nature of cats, their independence and recklessness which often make them strangers to their very owners has in all likelihood been the original inspiration of fear and discomfort in humans, especially if a cat is black and everything one can see in the night is the unearthly glow in its eyes. Black cats are nevertheless believed to bring good luck in Japan and some other countries.

Cards, or combinations thereof, can be deemed (un)lucky for historical, or mythical, reasons. The best known example is the "Dead man's hand", an all-black combination of two aces and two eights reported to be Wild Bill Hickok's last draw as he was shot in the back of the head by Jack McCall on August 2, 1876, in Nuttal & Mann's Saloon at Deadwood, Dakota Territory. The fifth card in the Hand is unknown. It is mostly represented as covered, Wild Bill never having had the time to turn it; some accounts identify it with an evocative Queen of Hearts, echoes of this resounding in the closing reprise of The Eagles' "Desperado" album ("The queen of hearts you say you never met"). A different, widespread opinion identifies it with another fatal card: the Nine of Diamonds, nicknamed "the Curse of Scotland" since Prince William, Duke of Cumberland (ever since, for the Scots, "Butcher" Cumberland) allegedly scribbled the "no quarter" order on its back after the Battle of Culloden Moor, thereby ordering the slaughter of all wounded clansmen remaining on the field. Others more prosaically trace the legend back to misspelling, the Scottish "Cross" of St. Andrew, which the nine of diamonds visually resembles, becoming the "Curse". The highest card in the Dead man's hand, the Ace of



Spades, is also the highest card in the pack and the most elaborate, traditionally bearing the manufacturer’s mark: black and modelled after a weapon, no wonder if it holds a reputation of its own as “Death’s card” in popular culture, making it an icon of war and rebellion (and, as hard rock fans know, the inspiration for a classic song: Ace of Spades by Motörhead).

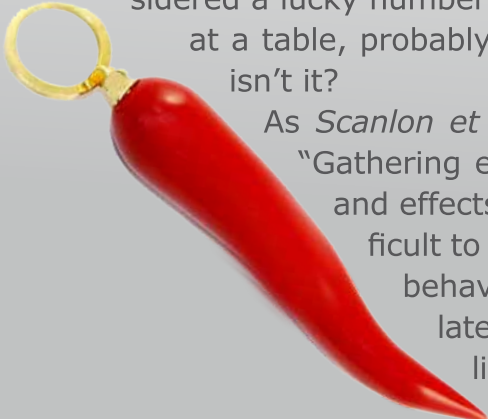
Measuring superstition

Superstition can come in many ways, by definition inconsistent. There are statisticians believing in logic and science (some even sharing home with black cats named Lucky) who nevertheless speak of certain subjects only when necessary, make scaramantic gestures “when needed” and would never enter a competition without performing the appropriate rituals. Superstition is rooted where you would least expect it, and characterizing anybody as “superstitious” tout court is probably meaningless.



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Moreover, “irrational” rituals and beliefs tend to vary considerably across **cultures**. One famous example is the reputation of bad luck associated with the number 13, and the consequent fear of it (or *triskaidekaphobia*), leading airlines throughout the world to flying planes where the 12th row of seats is followed by the 14th, and building engineers to omitting the thirteenth floor on some tall buildings. This tradition finds a notable exception in Italy, where 17 is unlucky while 13 becomes lucky. As an exception to the exception, although 13 is considered a lucky number for “general purpose”, it is unlucky to have dinner in 13 at a table, probably as a reminder of Our Lord’s Last Supper. Complicated, isn’t it?



As *Scanlon et al.* put it in a *very special* academic paper (see box), “Gathering examples of superstition is relatively easy, but the level and effects of such superstitions on behaviour are rather more difficult to quantify.” Hence the difficulty of measuring superstitious behaviour, with its many, country-specific and often uncorrelated facets. Among them, in order to measure “irrational beliefs” as opposed to scientific attitude, the Eurobarometer



“Just kidding”

Is there any statistical proof that Friday the 13th — or even just the number 13 itself — is unlucky?

“No data exists, and will never exist, to confirm that the number 13 is an unlucky number,” said Igor Radun of the Human Factors and Safety Behaviour Group at the University of Helsinki’s Institute of Behavioural Sciences in Finland. “There is no reason to believe that any number would be lucky or unlucky.” Or is there?

In a 1993 paper in the *British Medical Journal* (Scanlon, Luben, Scanlon and Singleton, “*Is Friday the 13th bad for your health?*”) researchers analyzed the traffic flow and number of injuries from car accidents on the southern section of London’s M25 motorway during the five months that the 13th fell on a Friday between 1990 and 1992, comparing the accident rate with that of the preceding Friday 6ths.

They found that although there are consistently fewer vehicles on the road during the 13th — possibly as a result of *triskaidekaphobia* — “*the risk of hospital admission as a result of a transport accident may be increased by as much as 52 percent*” on the 13th, and concluded with a recommendation “to stay home” on such days.

Yet although drawing on real data, the authors didn’t mean to be taken seriously. As one of them, Robert Luben, put it: “*It’s [a] quite amusing [paper] and written with tongue firmly in cheek. It was written for the Christmas edition of the British Medical Journal, which usually carries fun or spoof articles.*” Nevertheless, many people took the study at face value, and it continues to be cited as valid evidence regarding the misfortune of both the number 13 and Friday the 13th. A quick search on Google Scholar reveals 32 citations in academic papers, many of them (though not all) looking perfectly serious at a first glance.

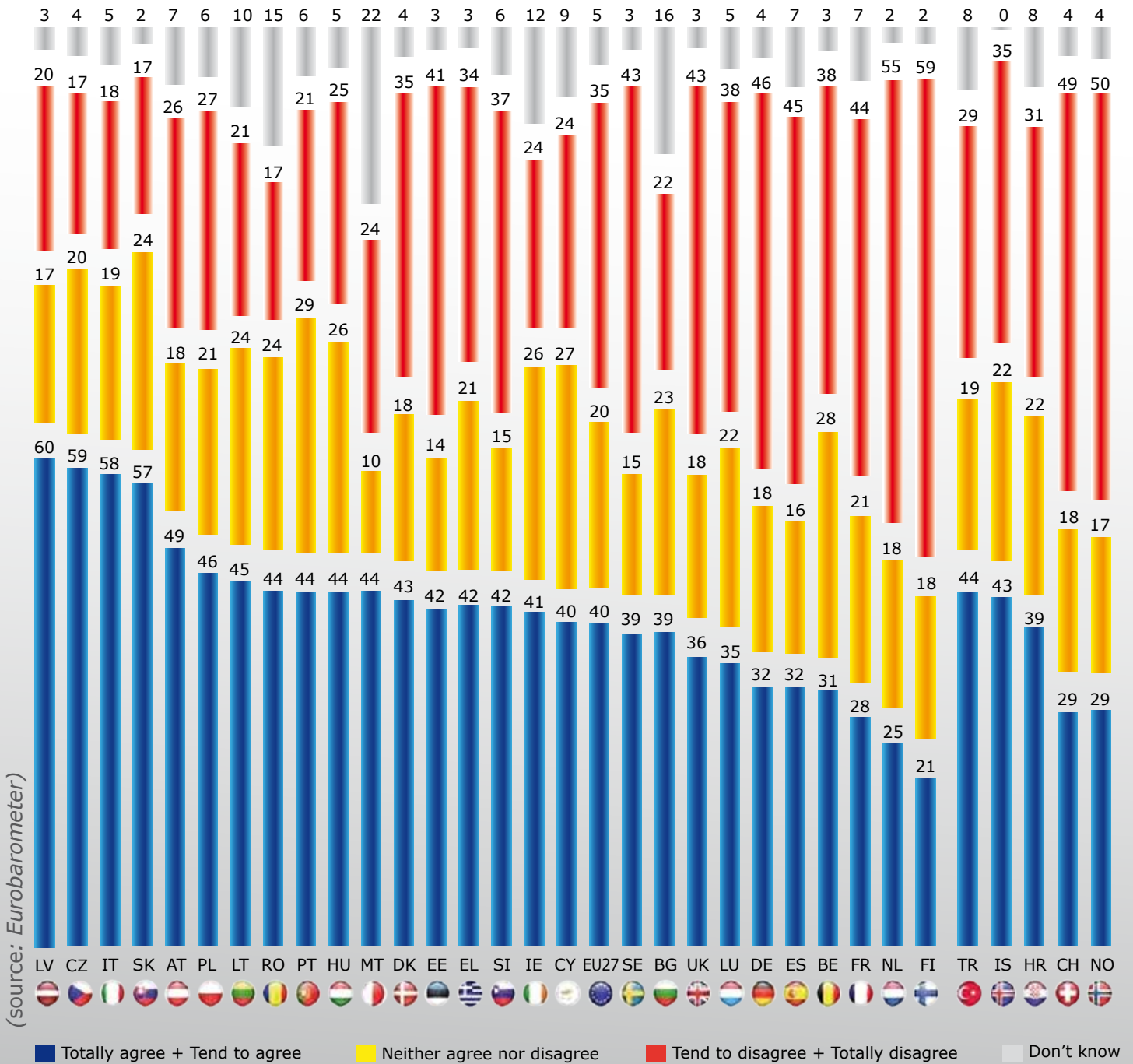
Hence, lest we be taken as literally as Scanlon et al., we must confess: the significance of our superstition measure is an artefact of model specification. More precisely, it comes from what econometricians call **omitted variable bias**: leaving something important out biases the results, often lending false significance to otherwise irrelevant factors. Specifically, adding GDP per capita to our regressions destroys the previous result, revealing a relationship between superstition and insurance whose estimate is still negative, but not statistically different from zero, while that with GDP is deemed positive. Why on earth GDP per capita should be higher in less superstitious countries becomes now the real question...

[Interviews with Robert Luben and Igor Radun are quoted from Life’s Little Mysteries (www.lifslittlemysteries.com)]

survey by the European Commission (Special Eurobarometer 340/2010 “Science and Technology”) chose to observe a very general feature: the share of believers and disbelievers in “lucky numbers”, whichever they be. This attempt to attach a “superstition level” to each country must be seen as it is, an imperfect measure which can nevertheless give a gross hint at one aspect of national character. A look at the survey outcome will give us many confirmations and some surprise.



“Please tell how much you agree or disagree: *Some numbers are especially lucky for some people*”



Buying insurance while touching wood

Insurance has a lot to do with **accidents** and **death**. Sure enough, it helps you out with the former and can help your relatives out of difficult times in the latter



case. Yet for how well it protects you and your beloved ones from the monetary consequences of the perils of life, still in many cases (term life, dread disease) the decisional process leading to the purchase of insurance necessarily involves unpleasant thoughts. Is this enough to deter people from buying useful or even necessary coverage? One may think so, if term life holdings - the sums insured - prove so grossly inadequate as in some survey-based studies. Term life, which pays in case of death of the insured, is probably the policy associated with the least pleasant outcome to think of. In fact, as documented on a sample of mature American couples (Auerbach and Kotlikoff 1989, "How rational is the purchase of life insurance?" NBER Working Paper 3063; Bernheim, Forni, Gokhale and Kotlikoff 2003, "The mismatch between life insurance holdings and financial vulnerabilities: evidence from the Health and Retirement Study", American Economic Review 93(1)) life insurance holdings are often far away from the "right" amount, the one a rational individual would choose: that is, the one which equates the welfare of the surviving spouse in the case of husband's death to that she enjoys as he lives. The difference between life insurance in force and this ideal amount, a measure of financial vulnerability, is called "protection gap".

In the past, the very acceptance of **life insurance** was hampered by the belief that "financially evaluating a man's life" be contrary to the sacredness of life itself, thereby meeting an opposition similar to that non-takaful financial products endure today in the Islamic cultures. According to historian Viviana A. Zelizer,



"[t]he economic definition of the value of death" did not become acceptable in the US until the late Nineteenth Century, when "life insurance emerged as a new form of ritual with which to face death". Legitimate to religion, life insurance then found an obstacle in "magic beliefs" (superstition, for us) as "few people make plans for their own death" such as pre-





arranging one’s own funeral, just as most wills are drafted short before death. Although most of these objections have since been overcome recognizing the **economic value of human life** (a concept on which any kind of monetary compensation to survivors is based), the subject still meets the resistance of our minds, a resistance which is likely to be, at least partly, a product of **national values**; just as Geert Hofstede (*“Insurance as a product of national values”*, Geneva Papers 1995) characterized national cultural traits as being more or less averse to uncertainty and affected by a greater or lesser deal of anxiety.

Individuals may be biased towards negating the possibility of bad occurrences, or simply towards removing unpleasant thoughts and postponing decisions. Funny insurance advertisements with people tossing corpses in the air and chanting “for he’s a jolly-good fellow” - because the guy ostensibly stipulated a life policy before passing away - are broadcast in certain countries, not others. Typically, they are in Anglo-Saxon countries, where black humour is widespread; they are not, to our knowledge, in Mediterranean ones, where according to common wisdom people are less inclined to joke about death. But is there a **geographical regularity** in this? In other words: does “national character” have to do with the **attitude towards risk**, as revealed through insurance purchases? The protection gap seems a promising measure. Unfortunately, standardized estimates do exist only for a few countries; according to calculations by Swiss Re’s Sigma (4/2004) regarding some major countries, despite term life being a compulsory purchase for many people (notably for mortgage holders) Italy had insurance in force covering for just one seventh of aggregate needs, against one fourth for Germany and one half for the US (although the protection gaps were comparable because of Italy’s lower average income).

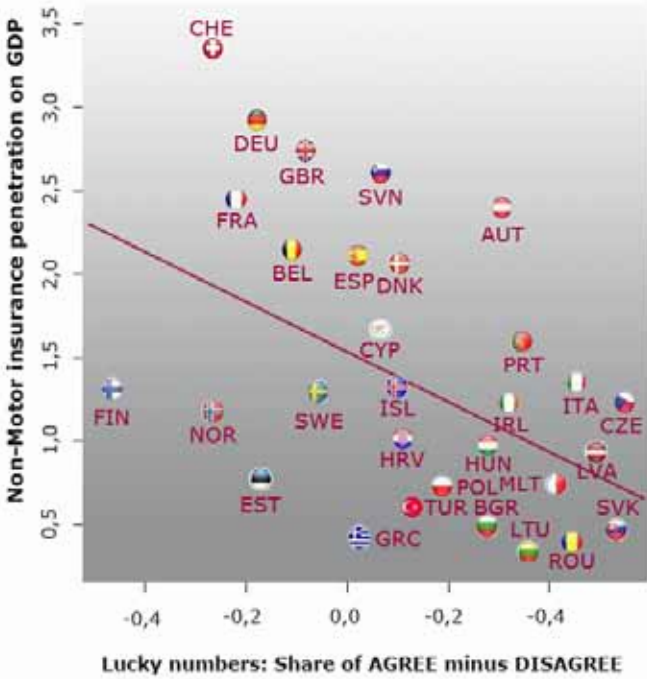


We are hence left with market **premiums**, a less useful measure because it does not cater for risk. As a statistical exercise we computed life insurance penetration over GDP, a normalized measure of the importance of the insurance sector, for a number of insurance lines and went looking for a relationship with Eurobarometer's measure of superstition. We consider Life insurance (annuities and term life together) on one side, Non-life insurance excluding Motor (large part of which is mandatory) on the other. Although the inability to tell term life from annuities seriously affects our measure, the results are surprising: As is apparent from the graph, there is a

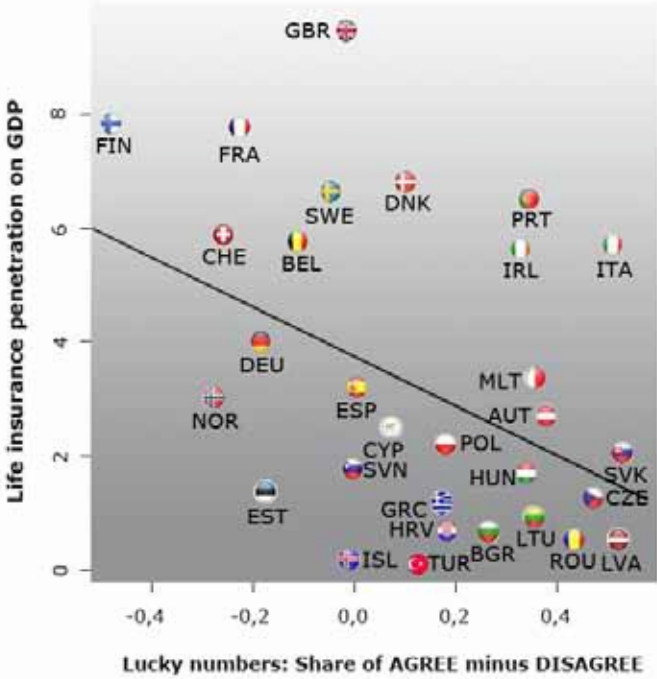


Source: Insurance Europe, European Insurance in Figures

Superstition and Non Motor insurance



Superstition and Life Insurance





negative statistical association between both Life and Non-motor insurance penetration over gross domestic product on one side, and our measure of superstitious

beliefs on the other: in other words, more superstition goes together with less insurance. Univariate regression analysis confirms the significance of this result and provides quantification: our estimate of -4.4 means that for every percentage point gained by the share of believers against disbelievers, the Life insurance market loses over four basis points of GDP (which may not seem much but amounts, in the case of Italy, to about 700 million euro). The effect on the Non-motor market is smaller but still sizeable, at one and a half basis point (translating into 240 million euro).

Can we really, scientifically prove it? No, we can't. While the influence of cultural values on insurance purchases is a promising field of research which we actively pursue, as will be witnessed by some forthcoming issues in this series of articles about insurance, this time we just followed a consolidated tradition in the literature: to provoke thought by means of entertainment, leaving a truly scientific analysis for future work.

Surely, though, we can safely say that the propensity to insure is based on a number of variables, among which some have an objective foundation (jobs allowing monetary backing, age, family responsibilities...) while others are purely dependent upon a mix of psychological, environmental and cultural aspects embedded in the individuals making the final choice.

As for now, let us close by quoting the British Medical Journal, issue cited: "[w]hile we await the answers to these difficult questions we may just have to accept that Friday the 13th is indeed unlucky for some and it might be safer to stay at home." After all, according to comedian Eduardo de Filippo, "Superstition is for the ignorant, but not being superstitious brings bad luck".

Giovanni Millo
R&D Department