Intercultural research and motor insurance premium rates: prejudices, multi-dimensional criteria and global trends

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Abstract

This paper presents fundamental findings from the field of empirical intercultural research. These findings are of interest to the insurance industry in their own right. They become even more interesting, however, when viewed through the eyes of an actuary who applies advanced statistics to big data sets and, in doing so, has to tackle challenges similar to those faced by cross-cultural researchers: complex data, many random effects and the desire to interpret statistics intuitively, yet still remain as objective as possible. If one views the results of intercultural research with the same pragmatism as one would the premium rating outputs of e.g. GLMs – i.e. being neither overly sceptical about the models nor trusting them blindly – one realises they can serve as a helpful source of inspiration for the day-to-day work.

1 Introduction

1.1 Motivation

Research into cultural differences is an interesting area for actuaries for a variety of reasons and has already found its way into actuarial journals. [Ingram et al., 2012] and [Tsanakas et al., 2016], for example, have analysed how different types of risk perception influence risk management and how uncertainty is dealt with in insurance. [Park and Lemaire, 2012] use multivariate regression to show that cultural differences between countries shape demand for insurance cover in the non-life insurance lines.

Cultural differences also affect the day-to-day work of the insurance industry, which is increasingly subject to foreign influence. Even for companies that operate in only one country, the cross-border alignment of the industry is becoming ever more obvious through developments such as Solvency II and international accounting standards. Quite different styles are perceptible, for instance, in the way global agreements are negotiated, formulated, concluded, interpreted, implemented and obeyed. Actuaries can experience something similar when they do volunteer work on committees – with a view to harmonising or recognising different countries' actuarial exams or standards, for example. In all these situations it is helpful to have some understanding of cultural differences. Knowledge of this kind also gives us a feel for the wide variety of challenges ongoing globalisation could give rise to.

However, actuaries should not only note the findings of cultural researchers, but also pay close attention to their methods. They will discover that, despite many differences, empirical social research and the modelling of complex insurance premium rates share similar difficulties, and that both require the same patient and careful approach. If one understands this, one not only gains huge respect for quantitative cultural research, but also develops a healthy scepticism towards its findings. This is because, as an actuary, one is aware that quite a few statistical findings (still) rest on thin ice and will possibly have to be revised (after the analysis of further data).

1.2 Objectivity through statistics?

It is easy to identify cultural differences between people living in different regions, but much harder to describe those differences objectively. People have been attempting to do so for a long time now. Ancient historians, who left to posterity the results of their field studies, were later joined by researchers across different areas of specialisation. The spectrum (see the variety of sources in our list of references) runs from anthropologists and psychologists to business management experts, the latter doing justice to the growing importance of this subject for an ever more closely knit global economy.

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It is hard not to be subjective when describing cultural differences. Even the term "culture" is difficult to define. There are (far) more than 150 definitions of the concept ([Thomas et al., 2010]), such as: *a social group's values, beliefs and customs.* What is more, observations of human behaviour are often based on individual experiences. While episodes and anecdotes *may* be characteristic of a culture, they aren't necessarily so. There is a danger that atypical situations or persons may be used to draw conclusions about the overall behaviour of an entire group. And then there's the problem that observers see things through their own cultural lens – which includes their own mother tongue ([Boroditsky, 2009]).

In order to achieve the highest possible level of objectivity, the intercultural research of recent decades has been increasingly based on comprehensive statistical analyses. This has resulted in many new findings. But, as we shall see, these quantitative approaches are not without their pitfalls – in the same way that the constant refinement of actuarial methods not only solves problems, but sometimes creates new ones.

1.3 Outline

The second and third sections of this paper describe both traditional cultural research and the more modern, statistics-based variety. Section 4 shows that empirical cultural research has to contend with problems that are quite similar to those faced by multivariate premium calculation methods, e.g. for motor insurance. This means that the same challenge is faced in both areas: namely, finding the right mix of scepticism and trust regarding the methods used. Section 5 applies the findings described or derived in this paper to diverse subjects of interest not only to the insurance industry, but also to other areas. The final section deals with trends in, and the importance of cultural characteristics for, globalisation.

2 Traditional cultural knowledge

Much (actual and putative) knowledge about other cultures is acquired and distributed today as it has always been: via anecdotes, clichés and myths. Some convey unjustified prejudices or outdated social realities, but many have a core of truth. Despite all their inadequacies, "findings" of this type formulated today should be generally more reliable than those articulated centuries ago, given that the information sources are incomparably better. For one thing, we now have access to television and other mass media: though they undoubtedly disseminate clichés now and again, they also provide plenty of background information that would hardly have been accessible in an earlier age. Electronic means of communication are another information source. What is more, knowledge of foreign languages and opportunities to use those languages have increased significantly – learning a language always provides insights into another culture. Finally, because travel is much more convenient and cheaper today than it formerly was, many people are regularly in foreign climes and able to make their own observations.

In antiquity, travel to foreign lands was not a common pastime. Nevertheless, numerous scholarly reports on foreign countries survive from this time, many of which are based on personal experiences (see in the following [Ostler, 2005], [Paton et al., 2012]). The ancient Greeks had a particular interest in this, as they wanted to find out why the Romans, whom they deemed culturally quite inferior, were so politically successful. Here are a few excerpts from Polybius's *The Histories* (2nd century BCE), Book 6, Chapter 56:

> At Rome, nothing is considered more disgraceful than to accept bribes and seek gain from improper channels.
>
> Among the Romans their magistrates handle large sums of money and scrupulously perform their duty just because they have given their word on oath.
>
> At Carthage candidates for office practise open bribery, whereas at Rome death is the penalty for it.

Compare how Polybius describes his own society:

> Among the Greeks ... men who hold public office cannot be trusted with the safekeeping of so much as a single talent, even if they have ten accountants and as many seals and twice as many witnesses.

Even though propaganda and moral instruction were secondary functions of history-writing in antiquity, the wealth of detail and sobriety of Polybius's account, and his explicit mention of the demands of "pragmatic" historiography, suggest that his descriptions are only slightly distorted and he is indeed

striving for objectivity ([Pelham, 1911]). In any case, Polybius's unsparing self-criticism is remarkable. Notice that he sees Roman religion as the root of their high ethical standards.

Here is a relatively neutral report by Posidonius from the 1st century BCE ([Edelstein et al., 1972]):

> The Germans ... eat meat roasted in joints for luncheon and drink milk.

We can almost sense his surprise at these strange habits. It may be a coincidence, but perhaps the cliché prevails to this day: disconcerted Italians still ask Germans whether it's really true they drink milk with their main meal. (One could answer the question with another cliché: No, not in Germany, but people in the Netherlands do ...)

Incomprehension can easily lead to mistrust and disparagement ([Thomas et al., 2010]). This, too, is no modern phenomenon, as can be discerned from the disapproving tone of Diodorus Siculus in the 1st century BCE ([Oldfather, 1939]):

> The Gauls ... converse with few words and in riddles, hinting darkly at things for the most part and using one word when they mean another.

The Romans, especially Caesar and Tacitus, had a generally good opinion of the Germanic tribes: they considered them to be decent, faithful and thoroughly honest; even their leaders were modest. There is possibly a propagandistic element to this praise: the tough military resistance of the Germanic tribes had to be explained somehow and the brave Teutons were also supposed to serve as a role model for the Romans' own soldiers. Still, the picture was not without blemishes: the Teutons loved drinking, but were unsociable, the individual groups preferring to keep their distance from one another.

It is important not to draw hasty conclusions from the opinions of ancient observers as regards present-day culture in the same regions. Any similarities could be the result of unjustified simplifications or may simply be coincidences. But it is interesting to see how hard it was considered even then to get to grips with foreign languages and customs. What is more, Polybius's observations about the kind of behaviour of civil servants that would make for a successful polity, and the kind that wouldn't, are potentially highly relevant today – not just for nations, but for large organisations as well. More on this topic later.

3 Modern cultural science

The factor that has decisively changed the social sciences in recent decades – just as it has actuarial science – is that state-of-the-art IT has made it possible to collect huge amounts of empirical data and analyse that data using complex statistical methods. This also applies to research into cultural differences, where Dutch researcher Geert Hofstede set a milestone with his *cultural dimensions theory* ([Hofstede et al., 2010], [Hofstede, 2011], for a brief overview see [Park and Lemaire, 2012]). His data comprised comprehensive surveys of over 100,000 IBM employees carried out across more than 50 countries worldwide in 1970. The surveys focused on how people felt and responded in a variety of situations (on the basis of information they provided themselves).

The data was evaluated using *factor analysis*, the fundamental idea for which will be explained in the next section. The study resulted in what Hofstede called four *cultural dimensions* – i.e. basic attitudes that differ between social groups. Each of these dimensions (which are sometimes referred to as "factors") display degrees of difference – so a dimension is not just categorised as being "high" or "low", but also as "medium-to-high" or "exactly in the middle". And, as the name of the model implies, the manifestations of the individual dimensions are considered independent, as in a coordinate system. That means, for example, that a culture can have a very high score in one dimension, but a low one in the next and a more middling one in a third. Hofstede's classical model identified four factors:

Masculinity/femininity

This dimension describes the manifestation and acceptance of different roles for men and women, with males typically being viewed as dominant and competitive, and females as cooperative and relationship-focused. In *masculine* societies, different gender roles are taken for granted and accentuated; the male role is viewed as being the dominant one. In *feminine* societies, men too tend to display "feminine" characteristics; gender roles overlap.

Collectivism/individualism

This factor describes the degree to which people in a society are integrated into groups. In *collectivistic* societies, the group (extended family, clan, company, working group, project team) offers care and protection and, in turn, demands solidarity from all group members. High performers are not as visible, instead tending to keep their heads down and help other group members along. *Individualistic* cultures, by contrast, emphasise the right of individuals to pursue their own paths in accordance with their skills and opportunities; they are allowed to set themselves off from the group. Strong solidarity is expected only towards one's next-of-kin.

Power distance high/low

This factor describes the manifestation and acceptance of hierarchies. In cultures with *high* power distance, the distribution of power in families, companies, institutions, etc. is very unequal. Those at the top are granted – and even expected to have – privileges and status symbols: powerful people would risk losing their authority if they displayed modesty. Communication is mainly top down, and opposition to those of higher rank is taboo. The opposite is *egalitarian* societies. Superiors and other authorities also exist in these, of course, but they would be frowned upon if they demonstrated their power through corresponding behaviour or other symbols. In egalitarian societies, hierarchies are justified solely for practical reasons; people are seen to be fundamentally equal and communicate with each other on an equal footing regardless of their social status.

Uncertainty avoidance/tolerance

This is about the way in which people cope with and address uncertain (unclear, unstable, contradictory) situations. People in societies with a low tolerance for uncertainty experience anxiety and stress; they consequently tend to *uncertainty avoidance* by stressing conformity and compliance with formal rules, and by clinging to established "truths" and authorities. By contrast, *risk-seeking* cultures consider unclear situations to be a challenge; people are open to change and don't want any more rules than are indispensable. They exhibit a trend towards experiments and risky behaviour: "Let's take the risk."

Other researchers have developed alternative systems of cultural dimensions, for a brief overview see e.g. [Smith et al., 1996], [Thomas et al., 2010]. While quite a few of their factors are very similar to Hofstede's, they focus on other aspects – such as the following two proposed by [Parsons and Shils, 1951] and taken up by [Trompenaars and Hampden-Turner, 2011]:

Particularism/universalism

This dimension relates to ethics, i.e. what people consider to be good and bad behaviour. *Particularistic* cultures are geared primarily to personal relationships (group ethics). People have strong obligations towards their own relatives and members of their group, and it goes without saying that such persons must be treated very differently – namely preferentially – from persons outside the group. In cases of conflict, loyalty towards relatives has precedence over other agreements and customs. By comparison, *universalistic* societies obey abstract rules that are considered to be universally true and valid for all people. Strangers and acquaintances are treated in the same way in accordance with these principles. Exceptions are unwelcome; contracts must be adhered to.

Some authors use particularistic and *corrupt* as synonyms, which is certainly an oversimplification, but the two features are closely related, see e.g. [Mungiu-Pippidi, 2015].

Status through ascription/achievement

This concerns how people gain authority. In *ascriptive* cultures, status is conferred on the basis of ancestry, age, etc. or by being called upon to take up a position. There is no further need to justify your status: you are respected simply on the basis of your title. In *performance-oriented* societies, people have to work their way up and prove their capabilities by earning qualifications and delivering results. Even once you have earned a high position, you constantly have to underscore it with good performance; otherwise you will quickly forfeit your authority.

In order to rule out misunderstandings, let us emphasise that, for three of the above dimensions – namely the second, fifth and sixth – we have reversed the order of the contrasting elements compared with what is customary in the literature (where the reference is usually to "individualism/collectivism", for example). The order we have chosen here is a more practical one for the observations that follow.

Other factors used by cultural researchers, e.g. [Hall and Hall, 1989], describe the significance of *space* (bodily contact, etc. versus distance), *time* (do things simultaneously/consecutively), *context* (indirect/direct communication), *emotions* (show openly versus hide), etc. Some of these dimensions were determined using methods similar to Hofstede's, while others stem from different types of analyses, e.g. based on open interviews. Some are considerably older and in some cases served as orientation for Hofstede; later, he himself added two further dimensions to his original four-dimensional model.

If we take all available dimensions together, they can certainly no longer be deemed independent of each other. It's a trade-off between a simple description of as many aspects as possible and a concise, unambiguous descriptive model. In this paper, we will concentrate on the six factors we have described in detail and set aside the question of whether, and to what extent, they overlap.

What cultures are to be found where within the outlined dimensional system? A very simplistic answer is:

- *On the right:* Protestant north-western Europe, including countries like the United States and Australia, which were settled predominantly by the former
- *On the left:* the rest of the world

When we examine things in detail, however, we can discern enormous variations within the "rest of the world" group and huge deviations in all directions within the individual dimensions. Nor is the north-western Europe group by any means homogeneous. There are even substantial differences between what we might regard as similar neighbours (and sometimes also between different studies). Again in quite simplistic terms, the German- and English-speaking countries are not quite so far to the right in the power distance dimension as are the Nordic countries and the Netherlands, which are located at the very end. In terms of collectivism/individualism, the English-speaking countries are positioned at the extreme end. When it comes to masculinity/femininity and uncertainty tolerance, the German-speaking countries tend towards the middle of the range. That all people are subject to the same rules (universalism) and that everyone has to earn their status in life (status through performance) may not apply exclusively to Protestantism (and thus the whole of north-western Europe), but they are very typical characteristics of it.

We should view these results, quite impartially, as the product of empirical analysis, i.e. as snapshots from research. But that is not so easy to do. With comparisons of this kind, there are always subliminal questions that every person asks from their own individual perspective:

- Which cultures are successful?
- Which cultures do we like?
- Who ticks like we do?

Although foreign customs are sometimes seen as interesting, they are often perceived as illogical and thus unsettling, i.e. as *abnormal*. This is an ethnocentric response: making one's own thoughts and feelings the benchmark against which others are measured. It's but a short step to the seductive illusion that your own culture is superior to (or at least more likeable than) others ([Thomas et al., 2010]). Just how quickly such illusions can be shattered is shown by a publication ([Adalsteinsson and Gudlaugsson, 2007]) with the title:

> Can a specific Icelandic organizational culture explain the success of Icelandic businesses in foreign expansion?

One year after this publication appeared, along with the global financial crisis, the Icelandic banking system collapsed, essentially because of excessive expansion into international financial markets ([Hreinsson et al., 2010]).

The fact that modern cultural research originated in the USA and the Netherlands clearly influenced its focus – despite all attempts at scientific neutrality. It consequently comes as no surprise that the results are finely nuanced between different European cultures. Indeed, across all the customary dimensions, almost always some countries of north-western Europe are to be found at the very end of the scale (in

the constellation chosen here: always on the very right). While this may possibly fail to do justice to the diversity of the rest of the world, it doesn't mean that the models couldn't be adapted and expanded to this purpose. What is more, the view that Western Europe is an unusual part of the world with respect to many psychological dimensions, is supported and explained by very recent and prominent research ([Schulz et al., 2019]), relating this peculiarity to the influence of the (then Roman Catholic) church during the middle ages, in particular to its ban on cousin marriage.

It is not our task to evaluate the manifestations of the cultural dimensions. But a comment on universalism does appear to be appropriate. Just about everyone who is accustomed to the reliably functioning *rule of law* would consider it self-evident that this system is "better" than what is disparagingly referred to as *tribal ethics*. But the latter culture can be quite pleasant – provided you belong to the in-group. Basically, it gives you the same feeling of security that you experience in your family and with close friends, namely being accepted regardless of how you perform and despite the mistakes you make. This type of "nest warmth" is something even those living in incorruptible constitutional states would rather not go without – even though it is, in essence, a cultural element of group ethics. By the same token, universalistic systems can be very relentless when they, for example, work through rules coldly and mechanically (which was certainly no rarity in the criminal justice system in earlier times) or when they impose their system on others (as was the case in the colonial era).

Even if one succeeds in taking an absolutely neutral approach to the topic of different cultures, controversies can still arise. In the following, we want to underscore that it is almost impossible to render the results of such complex research unassailable, even given the utmost scientific diligence.

4 A peek behind the scenes of statistics

If you make *ad hoc* empirical observations, it is possible you will be proceeding from a preconceived notion (a cliché) – and you will tend to confirm that preconceived notion through selective perception. This pervasive phenomenon is called *confirmation bias*, see [Nickerson, 1998] for an extensive overview.

Statisticians try to overcome this by collecting a large amount of data in accordance with a uniform procedure and then evaluating that data, where possible, without prescribing a particular structure: "Let the data speak." Ideally, appropriate statistical procedures will, of their own accord, reveal patterns (dependencies, etc.) in the data without the need for any (potentially manipulative) interventions.

In reality, however, you often end up with somewhat diffuse results – rather than clear, unambiguous ones – and these are difficult to interpret. To arrive at anything meaningful, then, it is often necessary to manually group the data in some way – and that means making certain specifications that might potentially be somewhat subjective ...

A big challenge is the heterogeneity of the collective analysed and the diversity of the criteria according to which that collective is to be differentiated. In this context, one also speaks of *multidimensional criteria*. Here's an example that actuaries should be familiar with and that is much easier to interpret than the cultural researchers' questionnaires. It concerns the frequency of car accidents. It's a fictitious example, but one inspired by certain experiences in the motor liability insurance line.

Observation: Red cars are involved in more accidents than others.

Objection: That is no longer the case if you control for Ferraris.

Explanation: Ferrari drivers cause an above-average number of accidents, regardless of what colour their cars are. As most Ferraris are red, their main negative impact is on the group of red cars.

Action: Premium surcharge for Ferraris, not for red cars.

You notice the salient pattern in this constellation only when you look at the colour and vehicle make *together*, i.e. you have to evaluate all combinations of colours and makes separately. That's possible in principle. But the groups created are potentially so small that random effects could blur their structure – the more so because in practice, as we know, we have many more criteria (age, profession, place of residence, annual mileage, etc.) that are also supposed to be evaluated at the same time. Although highly effective methods have been (and are being) developed for the simultaneous analysis of multiple criteria, e.g. GLMs, the available data volume puts a limit on complexity in this area, too, often forcing us to simplify our model (in a manner that is potentially manipulative).

Some effects are easy to observe, but difficult to interpret:

Observation: People who own a garage cause fewer accidents than others.

Objection: What does this have to do with the garage?

Explanation: Nothing directly. But, on average, garage owners may be supposed to lead more conservative and respectable lives.

Action: Premium discount for garage owners.

The garage criterion is *objective* and *effective*; as such it can be used even though it isn't intuitive. The intuitive interpretation (lifestyle) is plausible, but does not follow from the data; at best, we can deduce it from other findings – a process that is potentially somewhat speculative. That isn't such a big problem when it comes to motor insurance, where we are primarily concerned with effective modelling; why exactly garage owners cause fewer accidents is of secondary importance. Naturally, it's good to have a convincing narrative for your rating structure. But unlike in the sciences, it's not (yet?) the case that insurers are required to publicly justify their rating structures in detail. In technical terms, the garage is what is known as a *proxy criterion*. It is not the reason for a person's driving style, but it obviously correlates quite strongly with the putative cause – that person's lifestyle – and has the advantage of being objective. In order to properly determine a person's lifestyle, you would have to interview them. In that case, it's conceivable that almost all car owners (in expectation of a lower premium) would describe themselves as conservative and respectable, thus rendering this criterion worthless for the purposes of classification. But garage ownership can be verified – at least in principle. We shouldn't ignore the fact that, in practice, proper verification is so time-consuming that, even with this ostensibly objective criterion, insurers presume a high number of undiscovered false statements. In Germany, as is well known in the industry, the garage criterion has lost much of its meaningfulness for rating over the years. As practitioners put it: if all the garages and carports that insureds give in their applications really existed, there would be no open spaces left in Germany. Insurers sometimes have a hard time approximating the ideal of objectivity.

Another, often underestimated, problem is that, when complex systems analyse complex data, errors that nearly always occur in large volumes of data can have a strong impact on the results. Distortions of this kind are sometimes hard to detect.

The four rating problems described in the motor insurance example above are essentially the same as those encountered in the fields of empirical social research and psychology. There are indeed four:

1. too many criteria for segmenting heterogeneous collectives
   (you want to differentiate countries by culture, but of course simultaneously have to pay attention to the age, gender, social status, etc. of the respondents);

2. need for interpretation;

3. hidden data errors; and

4. positively skewed information.

And there are yet more difficulties. You don't just want to measure something tangible like accident frequency: you are looking simultaneously at quite a lot of aspects, some of which aren't even specified from the outset: the result is an overly complex picture. The goal of *factor analysis* (see e.g. [Basilevsky, 2009]) is to explain this diversity with a small number of base factors (dimensions). You can imagine it as a process of first finding the strongest pattern, then the second-strongest and so on until you have to stop because further parameters would hardly be able to explain the residual variability of the data set. You then have to interpret the individual factors intuitively – because initially they have only an abstract structure, such as: "People who answered 'yes' to question 3 without reservations generally did the same with questions 12, 27 and 103, while their response to questions 53 and 70 was a resolute 'no'." You then have to work out the underlying basic attitude by determining how these questions relate to each other in terms of their content. Although this is all done using scientific methodology, there is still a risk of having to make stipulations that could leave you open to criticism. Sometimes you can regroup the factors you originally found (in technical terms this is a geometrical transformation called *rotation*), so that the resulting dimensions are easier to grasp intuitively. But, even then, you still have to interpret the data, for a three-dimensional example see [Smith et al., 1996].

The modelling of cultural dimensions is already commonplace. Hofstede's model, in particular, is exceedingly popular in the business world, while scientists are much more critical of the method (see in the following [Behrens, 2007], [Søndergaard, 1994], [Michailova and Hutchings, 2006]). Their criticisms reflect the dilemma faced by research of this kind: too few factors; too many factors (some dependence

between power distance and collectivism/individualism); atypical samples (IBM employees); some of the conclusions drawn are open to attack in statistical terms or other ways; no impartial interpretation of the dimensions.

Further, the suspicion has been voiced that Hofstede subconsciously assumed the superiority of north-western European culture, especially the Dutch-Scandinavian variant thereof. Above all else, he has been accused of rigidly clinging to his original model and to the coordinates calculated for the countries surveyed, whereas such complex material would normally demand continuous discussion – and a gradual evolution – of the results found. Indeed, more recent studies have calculated quite different values for some of the countries, though these were apparently not based on such an abundance of data as Hofstede had at his disposal.

But let us turn away from the scientific discussion now. Our approach will follow the pragmatic motto of George Box ([Box and Draper, 1987]), an American statistics professor, that actuaries know all too well:

> Essentially, all models are wrong, but some are useful.

In any case, the cultural dimensions found thus far are a useful starting point to understand the world better and to prepare oneself mentally for cultural differences. That is true regardless of whether individual ones might overlap or may be later discarded because a better explanation is found, or whether the position of some countries within the cultural dimensions changes due to new findings: when you know how broad the range of behaviours is (or could be), then you aren't so easily unnerved or provoked by the "abnormal" reactions of the foreigners you encounter ([Thomas et al., 2010]). What is more, many subjects then appear in a completely different light, as the following examples show.

5 A few questions

5.1 Is Western imperialism over?

Even though there are hardly any colonies anymore or conquests underway, the conceptual underpinnings of international rules, contracts and institutions (e.g. human rights, the International Criminal Court, international umbrella organisations of all kinds, the European Currency Union, trade rules, solvency rules for insurers, etc.) stem from a *universalistic* world view and from how societies that adhere to that view conclude and obey contracts. So you could maintain that they represent an attempt to enforce a north-western European standard worldwide.

In some places, this could possibly be viewed as imperialism. (In all fairness, however, we shouldn't neglect to mention that many people in quite diverse countries – especially those places where dissatisfaction with the political situation is rife – welcome *this* type of imperialism in the same way they welcome Coca Cola and Google.)

5.2 Where does the Roman Empire live on culturally?

It lives on in many different ways ([Richard, 2010]) – or has been reborn.

- Latin lives on in the Romance languages, for instance. (See [Ostler, 2005] for an interesting discussion of why the language has persisted in only part of the old Roman Empire.)
- Roman law has left its mark on many legal systems, not just those of the Romance countries, to some extent even in the Anglo-American common law. Even more important than any specific content is perhaps its fundamental principle of the rule of law, e.g. that you can be judged and sentenced only within the framework of existing, published legislation. This principle remains a role model to this day, even though it is uncertain – and the subject of much debate (see e.g. [Girardet and Nortmann, 2005]) – how resolutely it was in fact applied back in the days of Ancient Rome.
- The republic as a form of government has spread across the world; and many of its key elements have even found their way into today's monarchies. Although much has changed over the last two thousand years, many principles of the Roman Republic still strike us as incredibly modern, e.g. that people had to re-apply to occupy certain offices and that these were largely awarded on the basis of performance (despite certain advantages for the upper-class establishment).

- The culture of speech-making and debating, which was an integral part of political discourse in Ancient Greece and Rome, is most pronounced today in Anglo-American culture, where it has even spawned sporting competitions: competitive debating. An interesting question is whether it migrated from Rome to this cultural sphere or was re-invented there.

- The proper fulfilment of obligations is a similar case in point. Interestingly, this idea is most pronounced today in a part of Europe where the Roman Empire's impact was only weak or non-existent: in the universalistic, Protestant north-west.

5.3 Can tribal cultures operate nuclear power plants?

Without doubt, complex technical systems call for quality control based on *fixed* rules. That sounds like universalism, but discipline on its own is not enough – everything hinges on the quality of the rules applied. Here are two drastic examples, see [CSB, 2010], [IAEA, 2015] for (many) details (there are numerous similar but less spectacular cases, as reinsurers know all too well):

- The *Fukushima Daiichi* nuclear power plant damaged by the earthquake and tsunami that struck Japan on 11 March 2011 complied with the national safety regulations regarding protection against tsunamis.

- After the disaster with the offshore drilling rig *Deepwater Horizon* in the Gulf of Mexico on 20 April 2010, it was revealed that US oil industry regulators had relaxed their rules, allowing the owners of this and other oil rigs in the region not to submit a detailed emergency plan.

The fact that neither industry began talking about more stringent safety measures until after the catastrophe had occurred – even though the potential danger was known well beforehand – shows the difficulties even modern, dynamic societies have in adapting their rules to reflect new findings and trends ([Fackler, 2016]). So, even in countries you feel should be culturally well equipped to cope with the demands of the technological age, you should not allow yourself to be lulled into a false sense of security.

5.4 Is there a "best" education system, and does the PISA test tell us anything about what it is?

The answer to both questions is probably "no".

- First of all, the societies on our planet are so different from one another that the optimum education system in each case is highly likely to depend on the culture in question. The different countries may, for example, have a multipartite or comprehensive school system, and the teaching methods could be quite diverse too.

- Second, the PISA test is an exceptionally complex set of statistics, with even more pitfalls than the cultural research described earlier (see in the following [Wuttke, 2007]). What is more, the test was carried out in each country in a manner closely in tune with the prevailing culture: in some countries, a good result was seen as enhancing prestige, which meant that certain schools (such as special-needs schools) were excluded from the testing – just to be on the safe side. In Germany, the test organisers adhered more strictly to the rules, but another cultural element had a big impact too: there are reports that, in a number of German schools, the students had no interest in the tests and put down their pens *en masse* after only a few minutes, yet their test results were included in the final score. In some countries, even European ones, such a refusal to participate would not be countenanced – because it would be viewed as unsporting or unpatriotic, or because the students would fear sanctions, or for whatever reason.

One parallel between the PISA test and Hofstede is the response to criticism of the method. Those running PISA brusquely refused to enter into any discussions with the critics, merely stating that *leading* scientists had designed the study and it had been conducted with *tried-and-tested* software. They simply cited the experts and declined to address adequately the content of the criticism (in line with the cultural dimension "status through prestige" perhaps?). There is a suspicion that those responsible also had trouble interpreting some study results – and that they wanted to communicate clear, unambiguous findings.

5.5 How should multinational companies and international bodies deal with cultural differences?

There's certainly no easy solution to this problem (see in the following [Thomas et al., 2010]); it will always be difficult, especially when conflicts arise between locations in different countries. A major step forward is to *acknowledge* this difficulty, in both senses of the word:

- You are not helping yourself if you simply pretend to have the problem under control. "Everyone speaks English" is a convenient illusion of this kind. Even many Western Europeans, for whom English is an accustomed foreign language and one with close links to their own mother tongues, have difficulty expressing complex ideas in the language. And when the goal is to create an atmosphere of cooperation, linguistic and cultural barriers are twin obstacles. Even well-meaning professionals find it hard to achieve close international collaboration, and it would be better to recognise this as being completely normal. Difficult tasks like this demand modesty and patience.

- It is also important to clearly acknowledge the achievement of those workers who keep international collaboration functioning. It is often a small number of – often multilingual – bridge-builders who, in the course of many business trips and longer stays abroad, establish the interaction between different locations and explain to their colleagues the sometimes inexplicable reactions of the others. The knowledge and effort that go into this kind of "translation work" should be explicitly rewarded, which includes allowing adequate preparation beforehand and career planning for the period after an international assignment.

What is more, cooperation requires personal relationships between those working remotely with each other – and these cannot develop if too much money is saved on flights and assignments. International working groups and bodies will also have to pay for frequent travel in the interests of an atmosphere of mutual trust.

6 The outlook: globalisation

Although exchange and trade flourished between very remote regions in earlier ages too, today's globalisation trend presents a new cultural challenge. Whereas the majority of people were once involved in agriculture and thus for the most part tied to a particular location, interaction between people across long distances has now become a mass phenomenon. What is more, in today's knowledge society, people do more than just exchange agricultural goods and mineral resources: they constantly have to reach an understanding on highly complex matters. This type of collaboration places much greater demands on people than was the case in earlier times and, even with higher levels of education, is not something that can be achieved without effort ([Thomas et al., 2010]).

And there are further difficulties on the horizon. The Earth's resources are finite, as we are beginning to discover with some metals, for example; and fresh water and arable land are already scarce in some places, not to mention the problem of global warming. Feeding a future global population of 10 billion people that have ever greater demands should drive humanity to cooperate efficiently across the globe – if we don't want to risk a wholesale collapse, we must realise at some time that we can no longer afford destructive battles for resources.

What cultural characteristics are likely favourable to an economy and society that span the globe and are highly efficient?

- A high degree of *femininity* undoubtedly lends weight to women in the workforce and could enhance cooperativeness at many levels.

- *Low power distance* is advantageous for the work hierarchies of the knowledge society, which are diffuse and mutate from project to project.

- If status is gained primarily through *performance*, that encourages innovation and commitment.

It remains to be seen what the ideal measure of *individualism* and *tolerance for uncertain situations* is. But it's easy to imagine that highly egotistical and/or high-risk behaviour will not be seen as ideal in tomorrow's world of limited resources – even though these qualities were undeniably the driving force behind many discoveries and reforms in previous ages.

Universalism remains a controversial subject: even if you consider it necessary to have a set of rules that is binding for all members (whether states, institutions, companies or individuals) in large, complex

societies – and especially for the ever more closely connected international community – we are still a long way from agreeing on what those rules should be. However, despite all that divides our world, and despite diverse trends toward authoritarianism, people in many places are less willing to accept corruption, nepotism, despotism on the part of state (and other) institutions or the suppression of free speech and freedom of information. The *rule of law* perhaps represents the best hope of a universalistic minimum consensus worldwide, and could in turn ease the way for cooperation on economic issues. Today, there are many examples of states that are ostensibly democracies, but where arbitrariness and coercion of all kinds are rife under the surface because a rule-of-law culture has failed to gain a foothold there ([Mungiu-Pippidi, 2015]). That is why implementing rule-of-law principles in countries that are governed and/or administered badly is a more pressing task than establishing democracy (a form of government that may not be desired in equal measure everywhere) – it is perhaps also easier to achieve.

A final glance back in history provides us with hope. It should be a source of optimism for us that people of quite diverse religions and mentalities have sought to establish rule-of-law systems with reliable protagonists who obey clear and transparent rules: it was the Ancient Romans with their – what we today regard as – rather strange panoply of gods and goddesses who laid the foundations for that.

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