

Religion, Intellectual Property, and Innovation

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Abstract

This chapter discusses the consequences of informal intellectual property (IP) protection through religious rules on innovation. As religiosity is not necessarily accompanied by high levels of morality, the lack of formal IP institutions can be detrimental for technological progress. This fallacy is best visible in the case of Islam, which incorporates the protection of IP in its doctrine. Islamic societies are characterized by weak IP protection regimes, high rates of piracy, and low levels of innovation. The legal enforcement of IP rights is hence beneficial in the absence of trust in the society and cannot be substituted by religious beliefs.

Keywords: Intellectual property, Religion, Legal institutions, Licensing, Technological investment, Islamic Law, Property rights protection, Expropriation, Morality

JEL Classification: O34, Z12, K42

1. Introduction

Religion is often viewed as a cultural trait, and can influence innovation in various ways. The interrelation between religion and innovation is not straightforward. Different religions may for instance have alternative perspectives towards different professions, where some promote and others impede innovation. Religion could create incentives by supporting the self-sacrifice required in the effort to provide a public good through innovation. It has also been used historically as a tool to block technological progress that could undermine the sovereignty of the religious elite. In addition, innovation could itself be considered both a service to the society and a mechanism related to material concerns and wealth accommodation.

One of many ways in which religion can affect innovation in a heterogeneous manner is the extent to which it respects and recognizes the value of **intellectual property** (IP). Several of the great religious traditions have long histories of thought about property rights and obligations that may be applied fruitfully to IP regarding ownership, creativity, justice, and fairness (Berg, 2013). Yet, the relationship between religion and IP is rarely observed or discussed in today's society as IP rights are considered a legal matter and dealt with through an independent formal enforcement mechanism. In fact, globalization and the worldwide harmonization of IP culture have contributed to the increasing debates about the crucial role of IP protection for efficient business development and technological progress. Increased worldwide competition has raised the stakes in disputes over IP, leading to evaluating the benefits and potential costs of strict regulation through the lenses of microeconomic theory. Over the last two decades, many countries have formally complied with the international standards set in the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.

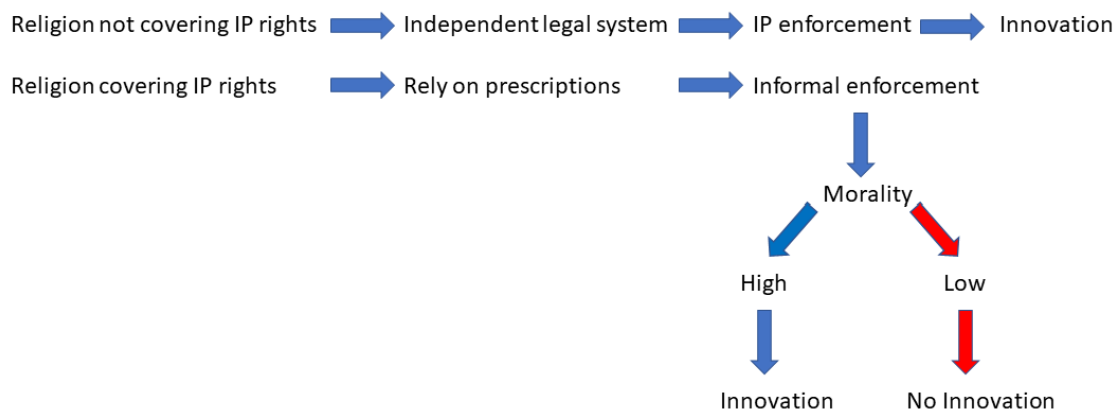
Given a relatively unified worldwide understanding and enforcement mechanism of IP rights, how does it mediate the impact of religion on innovation? A key aspect through which IP rights are successfully protected is the separation of the enforcement system from the religious doctrines. A pronounced exception is **Islam**. While Islam is a bundle of religious, political, and economic rules regulating most aspects of life (Greif, 2006), other monotheistic religions such as Christianity draw boundaries because they flourished in states where laws and social codes were already in force (Greif, 2001; Platteau, 2008). This coincides with the stylized fact provided later in the chapter that Muslim countries observe high piracy rates, and suffer from negligible innovation rates.

In this chapter, we aim to highlight the idea that when a religion encompasses all aspects of social behavior, it reduces incentives to introduce an official legal system to monitor issues

such as the protection of IP. This could however have an adverse effect in terms of innovation if an explicit enforcement mechanism is not outlined in the religious dogma. The analysis is motivated by the existence of the *Sharia* containing rules that draw connections between IP and Islamic law, though lacking an enforcement mechanism. This seemingly overlapping jurisdiction, or the lack thereof, creates ambiguity in the source of IP protection. Islamic countries may not see the necessity for an external state source of IP protection, relying on the laws prescribed in Sharia as sufficient, and viewing legal institutions as redundant means of enforcement.

The message being conveyed is that the lack of formal enforcement brought about by the inclusion of IP rights in religious law leaves its protection to social behavior and is driven by moral values. Trust, or in general morality, can in this case be a critical driver of IP production and is of particular relevance in a world where enforcement takes an informal form without endorsing a punishment device (Guiso et al., 2008). Morality induces innovation by reducing innovators' concern about not reaping the benefits of their investment. In the absence of trust, religion can therefore have detrimental effects on innovation.

Figure 1: Conceptual Framework



In short, the aim of the chapter is to provide an overview to explain the fallacy of the existence of IP protection in religious law, leaving enforcement to informal means. Islam is an appropriate example as encourages IP protection, but does not punish its expropriation. Muslim societies must hence rely on morality and loyalty to religious rules as opposed to legal institutions to enforce IP rights. The conceptual framework is depicted in Figure 1, and sheds light on the relationship between religion and innovation by studying the implications of reliance on religious institutions as means of IP enforcement to induce innovation. It shows that the heterogeneity of agents in terms of religious or moral values can be one

channel among several explanations that show how religion and culture interact with economic, legal, and political institutions to create a basis for technological progress (see also [Chapter: Religion and Institutions](#)).

The next three sections delve into the link between the nodes of interest in the conceptual framework that determine the outcome in terms of innovation, namely IP rights and innovation, religion and IP rights, and finally religion and moral values. This is followed by the core discussion on the fallacy of IP protection in religious law and the role of trust in the effect of religion on innovation.

2. Intellectual Property Rights and Innovation

The fact the IP rights protection is a fundamental prerequisite to [innovation](#) has a long history in economic literature starting from seminal study of [Helpman \(1993\)](#). These works provide the baseline theory in an international context on how the recognition of IP rights creates the necessary incentives to innovation. Granting temporary market power to innovators allows them to earn monopoly profits to recoup their [research and development](#) investment. Firms therefore take into account the strength of the IP rights regime in countries with which they engage in trade and [foreign direct investment](#) (FDI). While the literature initially assumed that only firms from technologically advanced countries (North) can innovate, later works such as [Grossman and Lai \(2004\)](#) extended these models to look at situations where also the emerging or the developing world (South) can undertake innovation activities.

While the literature generally finds that stricter enforcement of IP rights encourages greater innovation at the global level, it may decrease welfare in the South. In fact, it may suggest the level of IP protection tends to increase monotonically with the level of economic development as more innovation potential increases the demand for protection. This monotonicity has however been challenged by [Diwan and Rodrik \(1991\)](#). In a context where only Northern firms innovate, they show that when the market size of the South is small, the country is better off protecting IP in order to give incentives to the Northern firms to produce innovations best suited to their needs. As a result, while rich countries enforce IP rights to protect their innovations, poor or small countries do so in order to stimulate innovation in rich countries and trade to gain access to superior technologies. [Chen and Puttitanun \(2005\)](#) empirically confirm this non-linearity (U-shape) between IP rights enforcement and a country's wealth as measured by GDP per capita.

In support of the strong link between IP rights and trade, the empirical works initi-

ated by Maskus and Penubarti (1995) establish that weak enforcement of IP rights creates barriers to North-South trade. Also Smith (1999) reinforced the mechanism of this regularity by showing that stronger IP rights have a market expansion effect for US firms particularly in countries with a strong capacity for imitation. This has led to the inclusion of IP protection in the TRIPS agreement of the World Trade Organization and the global harmonization of standards, in exchange for legitimate technology transfer to the South. IP protection can be beneficial to less developed countries as a tool to attract trade and FDI and trigger technology transfer (Markusen, 2001). Javorcik (2004), for example, shows how FDI can cause technology spillovers from multinational to local firms in the South. One can conclude that the link between IP protection and innovation is not confined to advance economies, but is global in nature.

3. Religion and Intellectual Property Rights

Creations of the mind have always been valued highly throughout history. Poets, for example, were deeply respected during the medieval era and enjoyed an enhanced social standing whereas some lesser poets who resorted to free-riding and stealing of original ideas were generally cast from cultural society (Malkawi, 2013). Cultures and attitudes towards the protection of IP, however, differ across religions. Confucius ethics perceive IP as a communal good and copying as a legitimate means of learning and sharing (Yang and Sonmez, 2007). Creations belong to the public, motivation for creativity is the esteem that results from the creator (fame) rather than materialistic rewards. Christian work ethic principles emphasize individual achievement and legality, and together with Judaism express ambivalence about human ownership of information or ideas. The Catholic intellectual tradition has been ambivalent about individual property ownership in general, seeing it not as an ultimate ideal but as a necessary response to “a fallen world in which acquisitive humans compete for resources and take from each other” (Griffith, 2013). They recognize the role of IP laws in support of intellectual and artistic work in a “degraded world in which [it is] . . . otherwise likely to get short shrift” (Griffith, 2009). On Judaism, Stern (2013) examine why Jewish law has never clearly approved IP rights: “most rabbis today hold that Jewish law proper does not forbid using a pirated copy of Windows or downloading music through Torrent.” The reason why Jewish law never accepted IP rights as such is primarily attributed to the fact that it treats thought and intellect as spiritual, even divine, features. Jewish law prohibits charging fees for spiritual teaching, and if all wisdom is “divine” wisdom, then the development of IP rights,

which “allow for thoughts to be owned, traded, and restricted” becomes “inconceivable.”

The perspective proposed in Islamic law towards this right is in notable contrast to that under Judaism. Early Muslim-Arab society is known to have broadened the practices of the pre-Islamic period with regard to works of the mind. Sharia law includes several considerations whose effects are similar to those of modern IP laws. For example, the Caliphs – religious and political leaders who are successors of the Prophet Muhammad – would buy books they considered important and make copies of them after paying an adequate compensation to the author (Malkawi, 2013). Although Islamic law does not explicitly regulate IP rights *per se* by having detailed and precise rules, such as in the case of spiritual duties or inheritance, the different sources of law in Sharia contain many rules and examples that help in drawing connections between IP and Islamic law.

Islam is a centralized religion of laws in every dimension and addresses matters ranging from the timing of daily prayers to marriage, inheritance, and commerce. Legal principles regarding **property rights** in Islamic law fall under three categories: (1) The recognition of the concept of private property, (2) the creation of title by creative endeavor (ownership through the appropriation of unused property), and (3) the divisibility and separability of various property rights. Under Sharia, ownership of real property is possible through contractual agreements or by **appropriation**. Under the appropriation right, one may receive title to vacant real property by developing it and making it productive. Ownership is rewarded to an individual who exerts efforts in developing materials, entitling him to the fruits of his labor.

There are no provisions in the introductory texts of Sharia that limit ownership to tangible objects. It therefore associates IP protection with incentives and rewards for labor, in line with offering an economic incentive to IP owners by entitling them exclusive right to enjoy the benefits of their creativity. Nevertheless, one may ask whether an author or inventor can recover more than the initial investment on his work under Sharia. An author or inventor should recoup the initial investment to create the work, but could also accumulate wealth excessively. Under Sharia, gaining profits without exerting efforts over extended periods is considered *riba* (usury, in the sense of acquiring an unlawful, excessive profit) and is prohibited (see also **Chapter: Islamic Finance**). What is unacceptable is therefore not an increase in assets *per se*, but obtaining it without exerting effort or being exposed to business risk. Clearly, IP holders invest time and money and are thus entitled to reap a financial return.

Regarding the divisibility and separability of property rights, Sharia allows a titleholder to divide **ownership** and use by granting a third party the right to use the property without

transferring ownership. Ownership and use of a property is conceptually divided in the same manner the physicality of an object is from its intellectual value. This bears strongly on IP rights in situations where the owner of a good that embodies knowledge wants to retain ownership rights but allow a third party to exploit it economically (Beltrametti, 2009). The concept parallels the current practice of licensing IP rights. The central idea of licensing patented matter is that the patent holder retains the patent and licenses the use of the property, the knowledge, to another. The concern arises because both parties must know the value of the IP and the requirements must be spelled out, i.e. full information about the technology. This creates uncertainty as a party to the contract may not wish to disclose information before the contract is signed because once the information is revealed the incentives to sign the contract are nullified. For example, once the licensee gets a functioning copy of a program before transaction is set then it may choose to copy the program and forgo the deal. Formal enforcement of IP rights through functioning legal institutions avoids this problem (Jamar, 1992).

Muslim judges use *Qiyas* in dealing with IP rights piracy and many fatwas tackle IP rights piracy, implying that piracy is prohibited by Islam (*haram*), though without a clear punishment such as that for material theft. The distinction of physical property from ideas in Islam is noted in the Hedaya, mentioning that one does not amputate the hand of a thief for stealing a book because a thief does not intend to rub the physical material of the book (paper), but the ideas embodied in the book, which is not tangible property (Al-Marghinani, 1791). This creates a gray area when enforcement is left in the hands of religiosity, and has economic consequences for business relationships and investment incentives that are key for development in the society. The outcome would in this case depend on the characteristics of the society, which is decided by the degree of religious adherence and abidance by laws in terms of morality.

4. Religion and Moral Values

In a general context, the argument on the role of morality in the society relate to the results obtained in Cervellati and Vanin (2013), who study the interaction between external sanctions and moral self-punishment. They similarly argue that many religions attach moral sanctions to prohibited and formally illegal actions. Interestingly, their findings suggest that prohibitions regulated by morality involve a lower exposure to temptation than those enforced through external punishments. Guilt triggered by moral values can bring higher individual utility for agents with self-control problems (in this case motivated by economic

incentives) when exposed to external punishments. However, that the advantages of a system based on moral sanctions is not sustainable if a majority share of the population do not adhere by the laws informally prescribed in the religious commandments.

Levy and Razin (2014) suggest how preferences and institutions can be provided by religion, making it possible to make analogies between this chapter and recent works on morality, temptation, and institutions. For example, Greif and Tabellini (2017) show how cities rely on institution due to looser morality, whereas clans who possess stronger moral values **self-commit** to the enforcement of the clan's principles. Interestingly, Carvalho (2013) further shows that compulsory religious laws such as veiling in Islam could lead to a decline in religiosity. IP rights are strongly encouraged in the Sharia, but are not compulsory, i.e. no punishment is imposed upon **deviation**. Could this in itself follow the conception in Carvalho (2013) and lead to the postulation that including formal IP enforcement in religious texts or imposing it by religious states could reduce the self-will to renounce expropriation in the absence of legal enforcement?

From a broader perspective, the connection between religion and innovation with IP protection as the mediating channel falls within the literature on the impact of culture, and in particular religion, on economic outcomes, with particular interest being the connection between religious traditions and the **rule of law** (Kuran and Rubin, 2018). Market relations often take place in environments afflicted with asymmetric information and limited contractual enforcement. Given their own religious beliefs, agents experience intrinsic motivations in actions with different ethical implications (see also **Chapter: Religion and Economic Preferences**), once again highlighting the role of moral values on the outcome.

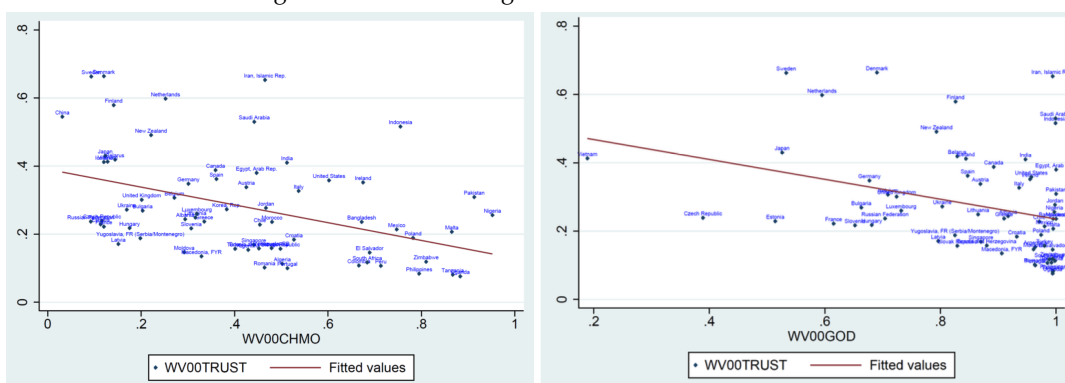
5. Trust and the Fallacy of Intellectual Property Right Protection in Religious Law

The essential role of IP protection for innovation and the fact that it is encrypted in or at least dealt with in different religious doctrines raises a fundamental question: can we rely on religious beliefs in a society regarding IP rights and the incentives to innovate? This would, in principle, be the case if religion nurtures trust among individuals in a society as it should mitigate *immoral* infringement or **piracy** activities. Trust is in turn known to create social interaction and economic exchange in a society (Guiso et al., 2008, 2009), and can promote cooperation and boost economic development (Putnam, 1993).

Religion includes a set of **moral principles**, rules of conduct, or ethic values when an individual must make a decision that relates to moral principles. Scholars like Schlessinger

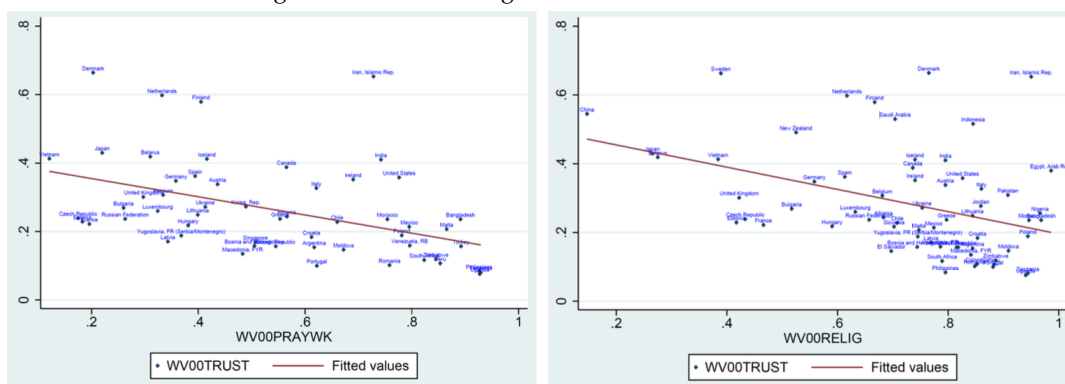
(2007) view attitudes towards **trust** to be intrinsically linked to religion in a way that moral behaviors stem from some form of religious attitude or belief in God. This would suggest a positive correlation between the degree of religiosity and trust in the society. If so, religion can promote moral values that would discourage the violation of IP rights and thereby stimulate innovation. However, this remains an issue that elicits different perspectives among scholars and people of diverse orientations. For example, the *Westminster Dictionary of Christian Ethics* states that religiosity can be harmful, neutral, or complementary to morality depending on the conflicting interpretations of the ethical principles found in religious dogmas.

Figure 2: Trust and Religious Attitudes across societies



Correlation between *trust* variation and the attendance of *Places of Worship* across religions (left panel) and the *Beliefs in God* (right panel). Source: World Value Survey 2000.

Figure 3: Trust and Religious Attitudes across societies



Correlation between *trust* variation and the frequency of *Praying weekly* (left panel) and the self-evaluation of *Religious Person* (right panel). Source: World Value Survey 2000.

The World Value Survey can be used to provide some suggestive evidence on the relationship between trust and religion. In particular, the standard question on trust, namely *would you say that most people can be trusted or that you need to be very careful in dealing with people?*, and the four religion variables of attendance of *worship places*, *beliefs in god*, frequency

of *praying weekly* and self-evaluation of a *religious person* can be adopted to identify trust and account for several indicators of religiosity. A significant negative correlation between trust and religiosity across countries emerges in Figure 2 when looking at *worship places* (left panel) or *beliefs in god* (right panel). The result are also valid when looking at the other proxies of *praying weekly* or the self-consideration of a *religious person* as proposed in Figure 3. Therefore the notion of **religiosity** cannot necessarily be extended to mutual trust (see also **Chapter: Religion and Trust**).

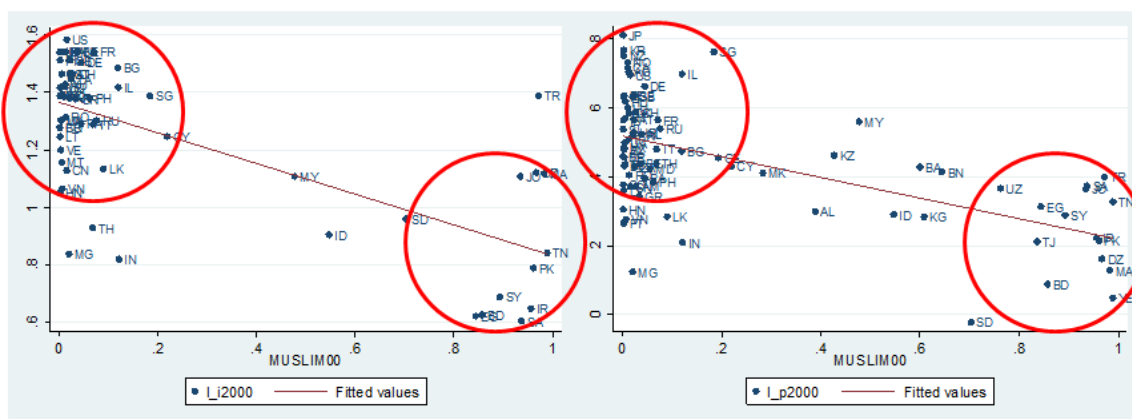
Do these stylized facts suggest that by not providing a sound trustful IP environment religiosity can have an adverse effect on innovation? This line of reasoning is compatible with Bénabou et al. (2021), who document a negative relationship between religiosity and innovation, where the latter is measured by the (log) **patents** per capita. The authors further provide a theory to show how states, particularly theocratic ones can block discoveries and innovation due to the fear that the latter may erode religious beliefs. A more concrete confirmation of the existence of a negative impact of reliance on religion on economic outcome, however, requires further investigation to single out situations where rules are embedded in a religion and property protection is left to self-enforcement through religious **beliefs**.

Among religions discussed in section 3, Islam is a unique case that allows us to confirm this hypothesis because it is the only religion that contains codes in its institutional complex that explicitly spell out property rights regulations. With protection embedded in the doctrine, it is the most likely case where religion can play the role of legal institutions as a form of **informal** enforcement through religious beliefs. This would especially be the case if the aforementioned Muslim states are not complemented by a form of formal legal IP rights enforcement mechanism. A point-wise observation of Figures 2 and 3 reveals many Muslim-majority countries to be located in the bottom-right area, implying a high degree of religiosity accompanied by low levels of trust.

Recall that Islamic law is derived from religious norms based on the *Quran* and the *Hadith* and is believed to be God's law and a main ingredient of the belief system. Nonetheless, very high rates of piracy are observed in Islamic countries, see El-Bialy and Gouda (2011). On the contrary, countries with high **individualism** or large populations with Christian faith tend to have lower piracy rates (Yang and Sonmez, 2007). Islamic countries lack formal institutions to protect IP rights and instead rely on religion and morality. Sharia generally considers IP rights violations unethical and forbidden. The feeling of guilt and the fear of **shame** in the society would determine people's actions based on their level of adherence (see also

Chapter: Economics of Sin Tax). Wagner and Sanders (2001) for example show how religion and ethical decision-making tend to be related when someone considers buying pirated software. Hence, a religion that views IP rights piracy as a malevolent act can only replicate the formal enforcement process of IP rights laws in the presence of high adherence by the majority of the society. Otherwise, a divergence of formal and informal institutions due to the lack of the former and reliance on religious loyalty may result in the failure of IP rights enforcement. This gives morality a crucial role if religion is the only basis of IP laws, as in the absence of formal protection, effectiveness of enforcement depends on whether it is approved in the eyes of the society. As explained by El-Bialy and Gouda (2011), the law is said to be implemented efficiently in case pirates conform to it, otherwise benefits of piracy are greater than costs that include feelings of guilt and the probability of getting caught.

Figure 4: IP protection and Innovation in Muslim Societies



Variation of log of IP enforcement index in 2000 (L_i2000) and log of patent applications per capita per million persons in 2000 (L_p2000) on Muslim adherence % in 2000 (MUSLIM00). Source: Authors' own calculations based on Park (2008) and Barro (2003), and WIPO IP Statistics Data Center (<https://www3.wipo.int/ipstats/index.htm>)

Figure 4 illustrates IP rights enforcement (left panel) and innovation potential in terms of patent applications per capita (right panel) in Muslim countries (bottom right circles) with respect to non-Muslim countries (top left circles). It is immediately evident from the figure that Muslim majority countries mainly from the Middle East and North Africa (e.g. Iran, Saudi Arabia, Syria, Tunisia, Egypt, Yemen, Algeria, Jordan, Pakistan, Morocco, and Bangladesh) indeed suffer from a poor IP rights environment. Note that Turkey is the only country that belonged to this group in 1995, but substantially improved its IP rights regime in 2000, the effect of which clearly does not immediately translate into more innovation activities, as observable in the figure. It is important to mention that the figures do not intend to display a causal impact of trust on innovation and religion. The investigation is instead meant to emphasize the

necessity of trust when a formal mechanism does not characterize a society at a conceptual level. The example of the Islamic countries serves as a relevant case as it combines the lack of enforcement with religious prescriptions.

If **morality** was a reliable alternative to formal IP protection, the aforementioned countries would not exhibit a lack of incentives to engage in innovation projects and backward technological progress. However, the same group of countries have the least number of patent applications per capita compared to the rest of the world with other major religious denominations. Interestingly, countries with an intermediate proportion of Muslim population such as Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Indonesia, Malaysia, Brunei, Bosnia, and Albania also have an intermediate level of patent applications per capita. Muslim majority countries suffer from high piracy rates and little innovation. Lack of perfect morality and the presence of asymmetric information in the society can therefore make reliance on religious rather than legal protection of IP detrimental to a sound business environment. It is therefore worthwhile studying how and under which circumstances the elimination of the **fallacy** by means of introducing formal IP enforcement could improve the profitability of investing in innovation and encourage **business startups** in these countries.

A generic setting of imperfect information can help better understand the link between religion and the protection of IP without an enforcement mechanism. An example of such system could be a business interaction that involves the licensing of technology to agents with different moral backgrounds and the related elaboration of intellectual research by the IP owner. Islamic societies motivate the recognition of IP rights by leaning on religious fundamentals. The greater moral sense regarding property rights in Islamic countries should in principle guarantee the prevention of IP **infringement** that would occur in its absence. However, religion in this case may overshadow legal institutions and the formal enforcement of IP rights. There is the presumption that individuals who share the same religious beliefs feel protected by the state and engage in business practices that respect IP rights. This would increase effort in the society and thereby incentives to innovate (see also **Chapter: Trust in Institutions**). However, adverse effects may follow as amoral agents try to exploit the informal nature of IP protection embedded in religious faith, resorting to the expropriation of IP.

6. Summary

In most backgrounds, emerging ideas are often qualified as IP and moral rights are granted to their **inventors**. Muslim scholars in particular do not observe IP law as an inde-

pendent discipline since no distinction between “legal” and “religious” existed in early Islam. Informal support for the protection of intangible assets could however create a gray area that at times discourages research investment and technological progress. Ambiguity arises in the interpretation of religious laws and their enforcement. Unjust enrichment and illegal appropriations are to be held in trust for the legitimate owner and **damages** caused by infringement should be. The fact that Sharia sees property as sacred should compel governments to provide for remedies for the theft or infringement in connection with people’s private property rights. Nevertheless, in the case of intangible assets enforcement is left to the morality of the society and their religious beliefs, i.e. trust in the society.

The chapter has shown the economic value of legal institutions in such societies for the purpose of protecting IP rights and successfully advancing with innovative projects. The message is that that formal enforcement of IP rights is beneficial in the absence of morality and trust in the society and cannot be substituted by religious beliefs. Under such circumstances, it could be a source of gains for the IP owner by avoiding expropriation by amoral agents when imitation is substantial threat for **business relationships** in the industry. Leaving IP protection to self-enforcement through religious outlines such as the Sharia would therefore lead to inefficiency or the breakdown of technology-related partnerships. This leaves room and hopefully stimulates further studies on the missing links between religion, morality, legal enforcement, and innovation. One avenue of research would be to study the factors that contribute to the endogenous formation of morality in the context of IP protection and innovation with or without legal institutions.

7. Acknowledgement

Responsible Section Editor: Dr. Olga POPOVA. The article has benefited from valuable comments of the editors and anonymous referees. Financial support by PRIN2017 - PI Naghavi is gratefully noted. The authors declare that there is no conflict of interest.

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