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On the Influence of World Religions on International Trade

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As the world economy is integrating, trade between countries is growing rapidly. The exchange of goods not only has an economic, but also a cultural dimension. This paper investigates the possible ways that religion influences international trade patterns. It studies the view of the five world religions, namely Hinduism, Judaism, Buddhism, Christianity, and Islam, on economic activity, and trade in particular. Analyzing empirically trade flows between 151 countries, the paper finds an impact of religion on trade. Furthermore, the results indicate that religious openness boosts trade performance of countries. Given these results, the paper derives several policy recommendations.[1]

INTRODUCTION

The individual person is at the origin of all economic activity. The individual's personal and cultural traits decide how and with whom he or she interacts economically. Whereas personal characteristics may be assumed to be purely random, cultural traits are not; the latter may have an important impact on economic behavior. The economic behavior we are focusing on in this paper concerns international trade. With an annual growth rate of around 6 percent, world trade is one of the major engines of globalization. Even though the number of trading relationships seems to remain stable (Helpman et al. 2005), more and more goods are being exchanged.

The exchange of goods does not stand by itself and always takes place in a cultural context. Therefore, the more goods are exchanged between

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countries the more inter-cultural interaction between trading partners is necessary. Some authors argue that globalization brings down cultural differences (Barber 1995). However, over the recent years we have witnessed a surge in conflicts that have been fought over cultural rather than political-ideological issues (Huntington 1996). Furthermore, a globalizing world does not only create opportunities, but also fears. One of the strongest fears concerns the preservation of cultural identity, which is considered as a valuable asset, but menaced by globalization. But what are the determinants of culture? Why is culture such a sensitive issue?

Culture can be defined as: "Behaviour peculiar to Homo sapiens, together with material objects used as an integral part of this behaviour. Thus, culture includes language, ideas, beliefs, customs, codes, institutions, tools, techniques, works of art, rituals, and ceremonies, among other elements (Britannica 2005)."

Beside individual differences between people, culture is the main driving force that separates humans into groups. Out of the many elements that define culture only two are readily observable: language and religion. Language is not only a means of communication; it also carries ideas, customs, and values. Religion may even be more influential for the human behavior. Many religious beliefs encompass rules for every aspect of daily life. For example, one finds rules on nutrition in nearly all world religions. Religious beliefs have also been highly influential in institution building. It is therefore only logical to conjecture that religious beliefs also impact economic exchange within and between religions. The questions that come to mind in this context are: Which religion is especially trade-promoting? Are there product groups for which religion has a more important role to play than for other product groups? Is there an influence when analyzing economic development?

Whereas many studies have been undertaken to show the impact of language on trade (Melitz 2004), relatively few studies exist that analyze religion as a determinant of trade. In numerous empirical studies, which use a gravity model approach, religion is included only as a control variable. These studies come to the conclusion that sharing a common belief has a small or no effect on trade.

These results are, however, in many cases, misleading for various reasons. First, the control variable religion typically takes the value 1 if the population of the two trading countries share the same belief. As a consequence, the effect of religious minorities on trade is overlooked. Second, in general, no distinction is made between the potentially different impacts of certain religious beliefs on trade. However, not all religions share a common view on trade.

There exist few empirical studies that take a careful look at the relation between religion and trade. The empirical investigation of Mehanna (2004) finds for a sample of thirty-three countries that Muslim majority countries trade less than their Christian, Buddhist or other counterparts when controlling for oil-exporting status and regional trade arrangements. Guo (2004) constructs an index of cultural similarity between the United States, China and their trading partners. Using a gravity model, the results indicate that religious similarity fosters trade, but only between developing countries.

As far as I know no study exists that compares the different impacts of religious beliefs on trade. The purpose of this paper is to study the different impacts of five world religions on trade. In order to have a clearer picture of how religion influences trade, I distinguish between differentiated and homogenous goods.

The paper is constructed as follows: section 2 elaborates the different positions of the five religions towards economic behavior, and if existent, towards trade. In section 3 I explain the data sources and methodology chosen. Section 4 presents the results before concluding.

THE INFLUENCE OF RELIGIONS ON TRADE

At the beginning, it might be helpful to clarify terms. Britannica (2005) offers the following definition of religion: "Human beings' relation to that which they regard as holy, sacred, spiritual, or divine. Religion is commonly regarded as consisting of a person's relation to God or to gods or spirits. Worship is probably the most basic element of religion, but moral conduct, right belief, and participation in religious institutions are generally also constituent elements of the religious life as practiced by believers and worshipers and as commanded by religious sages and scriptures (Britannica 2005)."

This definition reveals an interesting feature of religion. The believer has a personal relation to God or Gods, but at the same time he or she is not religious on his or her own, but in interaction with other adherents (Hutter 2005). Both relations may have a considerable impact on the social and economic behavior of an individual. Over the last thirty years a large number of economists have studied the determinants of religious beliefs and behavior.[2] Most of the work in this field focuses on Judeo-Christian beliefs, mainly because for these beliefs data are more readily available.

Religious beliefs can influence trading behavior in mainly two ways. First, sharing the same religious belief often implies sharing similar values. A common religion may therefore enhance trust between trading partners

and reduce transaction costs. As a consequence, the trade volume between traders of the same religion should be higher than trade between different religions. Second, each religion has its own ethical standpoint towards the activity of trading. As we will see in the next section in greater detail, some religions perceive trade as a necessity, others as a value creating activity.

We consider it therefore as crucial to understand the view of each religion on trade. Since we would like to examine the influence of religions on international trade, we consider only religions that are practiced in several countries. We limit our study to the following five religions: Hinduism, Judaism, Buddhism, Christianity, and Islam. All five of them are also referred to as world religions either because of their geographical dispersion or the number of adherents (Hutter 2005). This section introduces the five religions according to their date of origin. We thereby focus on the question of what each religion posits concerning economic behavior in general and trade in specific.

Hinduism

Hinduism is a religion that is based in India where it developed in the 1st millennium BC. Hinduism is a polytheistic religion that was highly influential in the development of Indian culture. Hinduism is based on sacred scriptures called Veddas which were written by several authors, the Rishis. In the Veddas are found important concepts of economics such as production, exchange, wages, interest, rent, profit, and the market.

Hinduism proclaims four legitimate aims of life: dharma, artha, kama, and moksha. These translate roughly into righteousness, economic well-being, pleasure, and salvation. Every Hindu is free to pursue these aims as long as he or she also fulfills his or her dharma. The dharma is comparable to the Ten Commandments and offers guidance for the religious as well as social life. It is important to notice that the dharma changes from caste to caste and also during an individual's life. The dharma gives everyone the right to pursue economic gains and therefore every individual is also capable of achieving economic well-being.

This market-oriented view of Hinduism finds its limits when it comes to the caste system. Depending on the counting measure one can count up to several thousand castes. Each caste preserves its identity by following a strict and complex set of rules. A Hindu is born into a certain caste and changing caste is nearly impossible. Castes are often defined by the profession of their members. Accordingly, there are one or several castes (in the case of India mainly the castes of Agrawal and Aroras) responsible for goods' trade. Giving the exclusive right to trade to one group of people

within a country may negatively impact the trading performance of the country as a whole, especially if the group is small. All goods' exchange within the country as well as with outsiders has to go through these especially designated traders.

We conclude that Hinduism takes a rather ambiguous stance towards international trade. Whereas economic exchange is welcome, trading is traditionally reserved to a specific caste. This system implies high transaction costs that could nevertheless be offset by the high level of trust between the trading caste. For religions other than Hinduism, it might be difficult to find the appropriate Hindu trading partner.

Judaism

Judaism is one of the oldest world religions and has its origin in the Middle East. Experts estimate that the earliest date from which Judaism was developed as a religion was 538 BC upon the return of Israelites from exile in Babylon (Hutter 2005). At the core of Judaism is the Torah, which sets out Jewish law and consists of five books.

In Jewish life conducting business and trade has always played a very prominent role. One reason might be that the Jewish community, since its beginnings, was surrounded by neighbors with different beliefs. The Torah therefore provides guidance on how to conduct business with non-Jews. Even though the Jews considered themselves as the chosen people, it did not impede normal commercial relations with people of other beliefs. It is reported that Jewish tribes of ancient Israel had intensive trade relations with their neighbors (Wilson 1997).

The Ten Commandments constitute the most important guidance to practical life. Three of them concern economic matters: the commandments not to work on Sabbath, not to steal, and not to covet a neighbor's possession. The rule of not laboring the seventh day might be understood as not working excessively at the expense of spiritual obligations (Wilson 1997). The prohibitions on theft and covetousness have more important economic implications since they help to conduct business in an orderly manner. Traditionally, the fair exchange of goods is considered a valuable concept. It is recognized that the market facilitates transactions and that money is an appropriate medium of exchange. Further, human beings are regarded as basically selfish and their economic actions as motivated by self-interest (Wilson 1997).

In summary, Judaism can be seen as a religion that not only provides an appropriate framework for economic exchange, but also the incentive to build up trade relations, without discriminating necessarily between

Jews and non-Jews.

Buddhism

Buddhism is a religion founded in India around 525 BC by Siddhartha Gautama, called the Buddha. It spread from India along the commercial roads, most importantly the Silk Road, to China, Mongolia, Korea and Japan. Today, Buddhism counts over 400 million adherents worldwide and is divided into two main schools: the Theravada in Sri Lanka and South East Asia, and the Mahayana in China, Mongolia, Korea, and Japan.

Buddhism is a flexible system of belief. It can easily be adapted to country-specific customs and therefore today we find many different types of Buddhism. Buddhism is also a tolerant belief concerning other religions. It agrees with the moral teachings of other religions and calls for inter-religious collaboration to alleviate the suffering of humans (Brodbeck 2002).

Buddhism does not include explicit guidelines for economic behavior. However, the social ethic of Buddha touches several times on economic issues. For example, Buddha did not allow the monks and nuns to take money as donation. All donations have to be given in kind and the donors receive religious instruction in exchange. In his context, he also calls for direct economic relations between men, without the intermediation of money. The total number of economic relations should also be limited. Only if men are able to keep track of their economic relations is the stability of the whole system guaranteed (Brodbeck 2002).

An important principle of Buddhism is the principle of interdependence. Life should be perceived as an inextricable web in which nothing can claim separate or static existence. Humans form an integral part of this system, but are not supposed to dominate nature (unlike the claims of Christianity). The resources should therefore be used according to the principles of sustainability and provision of all species.

Differences in ability and wealth are respected as long as the interests of all participants are maintained. Buddha asks, however, to restrict the acquisition of wealth to the necessary, otherwise the attainment of enlightenment risks preclusion.

All in all, Buddhism is a highly flexible and diversified belief. The considerable differences between country-specific versions of Buddhism may limit the trust-enhancing effect of sharing Buddhism as a common religion between trading partners. We therefore conjecture that the trust effect for trade between Buddhist countries is small. Furthermore, since the activity of trading is not perceived positively, Buddhist countries may have a general disincentive to trade.

Christianity

During its 2000 year old history Christianity has become the religion with the most numerous adherents worldwide. Christian beliefs are all based on the Bible containing the Old and New Testament. Even though some Christian beliefs put emphasis on the Old Testament, the New Testament is the primary source determining Christian thinking.

Concerning economic issues, the New Testament differs substantially from the Old Testament. One of the authors of the New Testament underscores the obligation of the rich toward the poor. The New Testament stresses several times the material necessity of life, but also encourages the wise use of resources. God is seen not only as the creator of the spiritual, but also the material, world. God has given people control over resources and people are obliged to use them to the best of their abilities. The material means need to be produced, protected, and sustained (Wilson 1997). Accumulating material wealth is not condemned by the New Testament, as long as men are not distracted from worshipping God or try to replace God through security in material goods.

Concerning trade there is relatively little written in the Old Testament and even less in the New Testament (Wilson 1997). The values of trust and honesty which are important prerequisites for trade are compatible with Christian morality. It has to be specified that the early Christian fathers were reluctant with regards to trade since it was seen as a source of fraud and greed. However, trade was not condemned as such, but rather considered as part of the natural order. Some authors (i.e., Viner 1978) even find a supportive position towards trade by early Christian fathers.

St. Thomas Aquinas (1225-1274) was one of the most influential Christian scholars. His extensive work touched upon questions of economic thinking and his position on this topic was widely adopted by the Catholic Church. Aquinas recognized the role of markets and considered money as a legitimate means of exchange. However, according to Aquinas it is crucial that the exchange is voluntary and at a just price. The just price results from subjective human estimation and may involve a greater gain to the buyer or seller. However, the price should not only reflect the value of the good, but it should also take into account the situation of both parties. As a result, a transaction between Christians should involve market forces as well as considerations of equity.

A reformist movement that began in the 15th century led to the rise of a new Christian church, called Protestantism. The reforms put forward by the reformists not only concerned theological issues, but also impacted political and economic life. The most prominent reformist leader Martin Luther (1483-1546) argued that one can witness his faith not merely

through prayer, but also through work. He encouraged Christians to be critical and to assess the secular law against the biblical teaching.

In summary, the Christian economic thinking recognizes the market system, but places some constraints on it which are defined by Christian ethical standards. Trade is not treated explicitly and probably seen more as a necessity than a contribution to the economic well-being.

Islam

Islam is the youngest of the five world religions considered in this paper. At the core of Islam is Prophet Mohammed (570-632) who is at the origin of the Koran, the main text of the Islamic religion. Prophet Mohammed grew up in a family of traders. Still young, he also became an important trader with considerable economic and political power. After his rise to power, he turned toward religious issues and his thinking was later written down in the Koran.

His previous experience in trading and in the mechanisms of economic transactions are reflected in the Koran, which gives very explicit guidelines for economic behavior. With over 1400 of 6226 verses referring to economic issues, the Koran is much more concerned about economic life than the Bible (Wilson 1997). For many aspects of daily life the Koran provides very specific and practical guidance. Enacted in the Shariah, the Islamic religious law, these rules are applied in all countries where the Shariah law is the ultimate legal authority. In Muslim countries that have adopted secular laws many believers still adhere to the Shariah.

Concerning trade, the Islamic view differs substantially from the Christian one. Whereas for Christians trade is a necessity that does not add value to the commodity traded, in Islam trading is considered as important as producing. It is argued that without the exchange of goods, production would be worth much less. This trade favoring position is pronounced explicitly in several passages of the Koran. Sura 4:29 warns to keep exclusive control over personal property and postulates "let there be amongst you traffic and trade by mutual goodwill."

However, trade is not seen as beneficial per se. It has to obey rules, most importantly honesty. The Koran condemns any attempt to deceive or to cheat in economic transactions. Furthermore, Muslims should only get involved into trading when they are able to take responsibility for the quality of the traded good.

Finally, the possible gains from trade should not result in materialism. As in the Bible, materialism is considered as diverting the attention from more important spiritual concerns. The Koran also condemns coveting

of a neighbor's good. However, it does not denounce the accumulation of wealth. Wealth is seen as a mean of serving God and not an end in itself. Wealth also comes with responsibilities, most prominently with the responsibility to give. And since believers are promised much more in the afterlife, material wealth in this world is seen as secondary.

Two other particularities might have an impact on the trading behavior of Muslim people. First, in the Islamic world, traders are highly respected as knowledgeable individuals since they contributed historically to the dissemination of knowledge. Second, traditional Islamic teaching and writing put much more emphasis on qualitative rather than on quantitative aspects. Disposing of a considerable variety of goods is more praised than accumulating huge quantities of few goods.

In summary, Islam is a very trade friendly belief. Trading is explicitly recognized as welfare enhancing for both parties. In contrast to the Christian belief, concerns of equity in trade relations are not addressed.

DATA AND METHODOLOGY

Data

First of all, it has to be noted that the reliability and availability of religious data is limited. Governments collect few religious statistics and religious organizations often intentionally overestimate the number of adherents. For the study I collected data on the number of affiliates of the five world religions in each country of our sample. The word "affiliation" means that there is some sort of formal connection between the individual and the religion. However, the affiliation does not say anything about the nature of the individual's religious practice. In many countries, affiliates of minority religions practice their faith much more actively than the majority religion.

Further particularities of religious data need to be mentioned. Until 1989 communist countries had made substantial efforts to suppress or ignore religious practice. These efforts still impact religious data of these countries; a considerable percentage is counted as atheist or nonreligious. In countries with a majority of traditional, often animist beliefs, little or no distinction is made between the various religious practices (Britannica 2005). Finally, in several countries small minority religions are only recorded as "others" without reporting the exact affiliation.

In order to get the most detailed data, I consulted several religious data sources. The primary sources are the CIA World Factbook as well as the Britannica Book of the Year 2004. I compared the data with data reported by religious organizations. In cases where both primary sources

reported little detailed data on minority religions, I used the latter sources to complement our data set. In total I count 18 countries with Hindu communities, 51 with Buddhist communities, 40 with Jewish, 137 with Christian communities, and 87 with Muslim communities. The world-wide number of adherents of the five religions are 850 million Hindus, 14 million Jews, 400 million Buddhists, 2 billion Christians, and 1.2 billion Muslims (Hutter 2005).

For the other ingredients of the gravity equation I consulted the World-bank Statistical Database, the CEPII website, as well as the CIA World Factbook (see Data Appendix). The data on political freedom comes from the Freedom House (see Data Appendix). The trade data was downloaded from the COMTRADE Database of the United Nations via the World Bank's World Integrated Trade Solution.

Methodology

In its simplest form the gravity equation states that the volume of trade, T, between country i and j is positively related to the economic size of both countries i and j and negatively to the distance separating them, $dist_{ij}$:

$$T_{ij} = \frac{Y_i Y_j}{dist_{ij}} \tag{1}$$

Taking the logarithm and transforming it into an estimation equation we obtain:

$$t_{ij} = \alpha + \beta_1 y_i + \beta_2 y_j - \beta_3 dist_{ij} + \mu_{ij} \tag{2}$$

In this equation t_{ij} denotes the logarithm of exports from country i to country j; y_i and y_j stand for the logarithm of gross domestic production in unit i and j; $dist_{ij}$ measures the logarithm of distance between unit i and unit j. Finally, μ_{ij} denotes a Gaussian white noise error term.

This simple form of the gravity equation predicts up to two-thirds of international trade. Evidently, many possible influences on bilateral trade are not captured by the model. In order to know which other factors influence trade costs, but are not related to distance, one can augment the simple gravity equation with additional variables as long as they are consistent with the assumptions of the model.

In our case, we want to analyze the influence of religion on trade and therefore add different variables concerning religion. In order to best iso-late the impact of religion on trade, we add several control variables. The augmented gravity equation has the following form:

$$t_{ij} = \alpha + \beta_1 y_i + \beta_2 y_j - \beta_3 dist_{ij} + \gamma_{1...n_1} r_{1...n_1} + \delta_{1...n_2} s_{1...n_2} + \theta_{1...n_3} b_{1...n_3} + \mu_{ij} \qquad (3)$$

As before, i and j denote the trading partners and t_{ij} is the log value of bilateral trade between the trading partners (in current U.S. Dollars), $y_{i,j}$ the log of GDP (in current U.S. Dollars), and $dist_{ij}$ measures the log of the great circle distance between the capital of country i and j. $r_{1...n1}$ stand for the different bilateral religious variables that are used. $s_{1...n2}$ and $b_{1...n3}$ denote the two groups of control variables. The first group contains country-specific control variables, e.g., area, landlocked, and island. The second group captures all bilateral variables, namely adjacency, common language, colonial links, common ex-colonizer, and free trade arrangement.

Anderson and van Wincoop (2003) point out that the classical specification of the gravity equation (equation 2 and 3) neglect the different price indices between countries. The authors show that since the difference in price indices can be related to trade barriers, the estimation results are biased in equilibrium. In order to incorporate their critique, I follow their suggestion and estimate the gravity equation using fixed effects for each exporting and importing country. This specification controls for all country-specific differences. In order to avoid multicolliniarity problems, the GDP of both trading partners $y_{i,j}$ as well as all additional country-specific differences, denoted $s_{1...n2}$ in equation 3, are left out. However, all bilateral variables, $r_{1...n1}$ and $b_{1...n3}$, are preserved. The gravity equation used in this paper has the following form:

$$t_{ij} = \alpha + \beta_1 y_i + \beta_2 y_j - \beta_3 dist_{ij} + \gamma_{1...n_1} r_{1...n_1} + \theta_{1...n_3} b_{1...n_3} + \rho_i ex_i + \varsigma_j im_j + \mu_{ij} \qquad (4)$$

The fixed effects for exporting and importing countries are denoted ex_i and im_j, respectively.

In order to disentangle the effect of religions on trade, we control for five bilateral variables, b_1, b_2, ..., b_5, namely

- Common border: The dummy variable "Adjacency" becomes unity if i and j share a land border.

- Common language: The binary variable "Lang" is unity if i and j have a common language.

- Colonial links: The dummy variable "Col" is unity if i ever colonized j or vice versa.

- Common ex-colonizer: The variable "ComCol" becomes zero if i and j were colonized by the same colonizer.

- Membership in regional trade agreements: The dummy variable "RTA" is unity if i and j belong to the same regional trade agreement. For our sample, only the economically most important agreements were considered (See also Data Appendix).

Since oil is a special commodity and predominately traded by Muslim countries, I used a dummy variable for the exports of the nine OPEC countries, namely Algeria, Indonesia, Iran, Kuwait, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

I also include a variable that allows us to measure the influence of religious openness on trade. The goal is to test whether the presence of different religions within a country could be trade promoting. In order to gauge the degree of religious variety, the following variable is constructed:

$$V_{ij} = \sum_{I=1}^{n} d_{mi} \sum_{j=1}^{n} d_{mj} \qquad \text{where} \quad i \neq j \qquad (5)$$

d_{mi} is a dummy variable that is unity if the religion m is present in country i. The maximum number of world religions that one country can host is five in our model. We multiply this number by the corresponding number of the trading partner j. The higher the variable V_{ij} becomes, the more religions are present in both countries. Finally, it has to be noted that this variable enters equation 4 in logarithmic form.

Since religious openness might be correlated with political freedom, I test the robustness of the result by adding a variable that measures the degree of political freedom in the country pair. The organization Freedom House conducts regular surveys on political rights and civil liberties in many countries. The countries are rated with 1 when people fully enjoy political rights. The lowest rating is 7 and is given to countries where the political rights are highly restricted.

In order to know whether countries that grant more political rights also trade more with each other, the following variable P is constructed.

$$P_{ij} = f_i f_j \qquad \text{where} \quad i \neq j \qquad (6)$$

$f_{i,j}$ denotes the rating of political freedom in the country pair. The higher the value of P, the lower is the political freedom in the country pair. A negative coefficient would indicate that political freedom has a positive impact on trade performance. This completes the description of

the variables estimated in our gravity model.

Trade flows between countries are only recorded if some measurable trade takes place. However, as Helpman et al. (2005) show, a considerable number of countries do not maintain any trade relations. The choice with whom to trade or not might also be influenced by religion. Applying an OLS estimation to this censored data would yield biased and inconsistent results. I therefore also include in the sample all zero trade flows between countries and use the TOBIT estimation technique.

In order to test the stability of the results I undertake several robustness tests. I estimate the gravity equation using different specifications for the religious variables. In another test only differentiated goods are considered.

In the next section, equation 4 is estimated for aggregate trade flows between the 151 countries listed in the Data Appendix for the year 2000.

ESTIMATION RESULTS

Effects of Religion on Trade

Religious belief may influence trade in two ways. First, a shared religious belief may enhance trust and therefore reduce transaction costs between trading partners. This effect should be particularly important for goods that are sensitive to trust. Second, as we have seen above, the world religions accord different importance to the activity of trade. In Islam, for example, traders enjoy a very positive reputation, whereas in Christianity trade is seen more as a necessity.

We first test the hypothesis whether a common religious belief promotes trade. Table 1 reports the results for four different specifications. We first estimate indicators of religious similarity by taking for each religion the product of the fraction of individuals in country i and j that share the same religion. This gives the probability that two randomly selected individuals of two countries share the same religion. This measurement is widely used in literature, see Rauch (2001). To give a numerical example, if country A has 40 percent Christians and country B 20 percent, one obtains 0.08. Finally, I take the logarithm of this number. The estimation results, reported in column (1), yield interesting insights.

For Hindus, doing business with Hindus from another country does not seem to have an influence on trade since the coefficient is not statistically significant. Hindus apparently trust each other as much or as little as they trust on average adherents of other religious beliefs. The negative sign of the coefficient even indicates that Hindu might prefer other religions as trading partners.

In contrast to Hindu, Jews clearly prefer other Jews as trading partners. The coefficient is extremely high in magnitude implying that the higher the probability that Jewish trading partners meet literally explodes trade. The coefficient becomes smaller when the trading pair U.S.-Israel is omitted, namely 125.022. However, the result that Judaism is a trade promoting religion remains valid.

To my surprise, the sign of the coefficient measuring the probability that Buddhists from different countries meet and trade is negative. In other words, Buddhists apparently avoid other Buddhists as trading partners and seem to prefer other religions as trading partners. Since members of the same religion should trust each other more than members of other religions, it is hard to find at first sight a reasonable explanation for this trading behavior.

Christians, as Hindus, show no clear preference toward other Christians as trading partners. The coefficient is not statistically significant. This might reflect the reluctance toward trade in general by Christians. More in line with our expectations are the results for Muslims. The coefficient is highly statistically significant and positive. Muslims seem to prefer strictly to trade with their coreligionists.

A further interesting insight is revealed by the coefficient of religious variety, which is also highly statistically significant. The coefficient of 3.282 suggests that religious openness fosters trade substantially.

The results in column (1) show that the probability of meeting a trading partner with the same religious belief influences trading behavior. Another way to measure the impact of religion on trade is to test whether religious networks have a role to play. We therefore re-estimate the gravity equation using a dummy variable when the same religion is present in both countries and has at least a percentage share of 0.05 in both countries. For example, if there exists a Hindu community in the exporter and importer country, and it is equal or bigger than 5 percent in both countries, the variable becomes unity.

Running the regression yields further evidence for the results found in (1). The signs of all religious variables in column (2) are identical to the ones of column (1). The influence of Hinduism and Christianity is again insignificant. The presence of Jewish as well as Muslim communities seems to increase trade considerably. The variety variable is again highly significant, underlining the importance of religious openness for trade in the presence of networks.

In column (3) I re-estimate the gravity equation, but this time I analyze the question whether countries in which one religion has a majority, trade

more with countries in which the same religion constitutes the majority. For this purpose we define a majority religion as the one that is followed by the absolute majority percentage of the population. If both countries share the same majority religion the dummy variable is unity, if not zero.

Since Judaism is a majority religion in only one country and Hinduism in only three, different coefficients can be estimated for these two variables. However, it is possible to construct a similar variable for both religions. This dummy variable becomes unity if trade takes place between the 'center' and 'periphery' of the religion. In the case of Judaism, we try to find out whether the trade volume is significantly higher between countries hosting a Jewish community and Israel. In the case of Hinduism, the dummy is unity for trade between Hindu communities and India or Nepal. Column (3) presents the results for this estimation.

The results corroborate most of the findings of the previous specifications. Hindu communities around the world are apparently not especially inclined to trade with India or Nepal. The trade flows of countries with Jewish communities, however, seem to be biased towards Israel. The coefficient for Buddhists majority countries remains negative. Countries with a Christian majority are likely to trade more with each other. Finally, countries with a majority of Muslims apparently have a strong preference for trade with their coreligionists.

The coefficient for religious variety is again highly statistically significant. This result reaffirms the observation that the presence of other religious beliefs beyond the dominant belief has a trade enhancing effect.

In column (4) we rerun the regression of column (1), but now include the variable that measures the degree of political rights in the trade pair. The coefficient of this variable is highly statistically significant indicating that political openness also fosters trade. All religious variables remain almost exactly identical.

Overall, the results confirm several of our predictions about religion and trade in section 2. Sharing Hinduism as a religion does not seem to enhance trade. The trust enhancing effect of a common religion may be outweighed by higher transaction costs. In contrast, Judaism is indeed a highly trade friendly religion. The negative sign for trade between Buddhists is difficult to explain. One possible reason could be that Buddhism is considered to be the most diversified religion of all five world religions. This heterogeneity lowers possible trust effects and might help to explain the negative sign. For Christian trading partners, the shared religion is not necessarily trade promoting. For Muslims, the results correspond fully to our expectations. Muslims have a very positive attitude towards trade regardless of the kind of trade link.

We have explained above that the effects of religion on trade have main two sources. First, a common religion helps to build trustworthy relations between trading partners. Second, each religion evaluates the trading activity differently. The different evaluations might result in religion specific trade patterns. Which of the two transmission channels is the predominant one?

In order to find an answer to this question, the trade flows are separated into two groups, differentiated and homogenous goods. For this purpose we follow the classification of Rauch (1999) and put products that are reference priced or traded at an organized exchange into one group and all differentiated goods into the second group (see Data Appendix). We then take the sample of differentiated goods and run again the four regressions with the same specifications as in columns (1) to (4) of Table 1.

If trust is indeed an important element for trade between religions, then it should be especially important for trade in differentiated goods and we would expect that all coefficients increase in magnitude. If, however, the posture of each religion towards trade in general dominates the trade effect, then the coefficients will remain stable. The estimation results for differentiated goods are presented in Table 2.

Comparing the coefficients of column (1) in Table 2 with those in column (1) in Table 1 we obtain an interesting picture. The coefficient for Hinduism remains statistically insignificant. The coefficient for Judaism decreases in magnitude. The coefficients for Buddhism become even more negative corroborating the result from above that Buddhists avoid other Buddhists as trading partners. The coefficient for Christianity has the identical sign, but now becomes statistically significant. The coefficient for Islam gains in strength which implies that when it comes to differentiated goods Muslims rely more on their religious fellows.

When we only focus on networks a similar picture emerges. Whereas the coefficients for Hinduism are still not statistically significant, the coefficients for Judaism, Buddhism, and Christianity all decrease in magnitude. For Muslims, the result seems to indicate that Muslim networks are particularly important for trade in differentiated goods.

Finally, I analyze the influence of majority religions on trade (column 3). The coefficient for Hinduism now becomes statistically insignificant whereas the coefficient for Judaism remains nearly identical. Countries with a Buddhist majority seem to trade particularly little with other Buddhist majority countries when it comes to differentiated goods. In contrast, Christian and Muslim majority countries apparently do not exchange more differentiated goods with their coreligionists than all goods taken together (Table 1).

Most interestingly, the coefficient measuring religious variety is again highly statistically significant and higher in magnitude for all specifications. Thinking about differentiated goods offers a reasonable explanation for why religious openness might be important for trading. The different religious groups may tend to trade specific differentiated goods. If one belief is missing, less goods, which are specific to this belief, are traded. Another explanation might be that in countries with panoply of religions the demand for variety is stronger than in countries with few religions.

I conclude that when considering differentiated goods one obtains several new insights. Trust towards fellows of the same religion seems to be an important element for the trading in Islam. Jews, Buddhists, and Christians seem to care less about trust sensitive trade. Even though a further interpretation is difficult, it should be noted that the estimation results for differentiated goods strongly confirm the results found in the case of aggregate trade.

CONCLUDING REMARKS AND POLICY RECOMMENDATIONS

This paper constitutes a first attempt to disentangle the different effects of religions on trade. The results indicate that sharing a common religion is not necessarily trade promoting. Identifying the reasons behind the different effects of a common religion on trade is difficult. Sharing a religion certainly should increase trust; however, for goods that were particularly sensitive to trust I have obtained a mixed picture.

One of the most remarkable results of this study is that religious openness has a strong positive effect on trade. This effect is even more pronounced for differentiated goods. Countries that host panoply of religions seem to be the best traders. Being a good trader also implies stronger economic growth. Several economic studies indicate that trade openness boosts economic growth, e.g., Frankel and Romer (1999).

Our results allow us to stipulate several policy recommendations. First, on the national level governments should show themselves eager to host a great variety of religions. In many countries, religious minorities still face discrimination from society, including from government representatives. In other countries, the propagation of other beliefs is even suppressed by governments. Our results advocate that religiously open societies better integrate into the world economy. Therefore, governments should tolerate or, even better, foster religious variety within the country.

Second, international agencies should to a greater extent include cultural aspects in their development approach. Economic development should be

viewed holistically where culture has an important role to play. From our results we can derive the policy prescription that religious openness should be included in the development goals of international institutions.

Third, when it comes to international cooperation between countries, cultural aspects are often neglected. One reason might be that they are considered as highly sensitive. However, an inter-cultural dialogue would improve the mutual understanding and increase tolerance and openness. Governments together with religious leaders should therefore try to initiate or reinforce this dialogue.

In a globalizing world, cultural differences become more apparent than ever. Prominent scholars see the lines of conflict along cultural rather than political borders (Huntington 1996). This paper offers a strong argument why this development would lead to a dead end. Only where cultures interact will there be a prosperous world.

This evidence, however, is not new. Even in ancient times, cultures that were highly cosmopolitan flourished the most. The Ptolemaic culture may serve as an example. In the peak of its success, the Ptolemaic dynasty maintained trade relations in the entire Mediterranean basin and also in the Orient as far as India. Alexandria, the capital, became one of the main cultural and economic centers in antiquity. This paper provides empirical evidence that what was true in ancient times is still true today. A common religion may favor trade, but the presence of many religions should be clearly preferred.

Table 1: Religion and Trade

Regression #	1	2	3	4
Depend. Var.	LISTED			
Hinduism				
Probability	-1.394 (1.295)			-1.394 (1.295)
Network		-0.075 (0.231)		
Majority			**-0.334 (0.181)	
Judaism				
Probability	***137.01 (41.582)			***136.990 (41.582)
Network		*0.829 (0.518)		
Majority			*0.270 (0.168)	

Buddhism				
Probability	***-5.568 (0.769)			***-5.568 (0.769)
Network		***-1.436 (0.183)		
Majority			***-1.475 (0.286)	
Christianity				
Probability	-0.175 (0.159)			-0.175 (0.159)
Network		-0.094 (0.093)		
Majority			***0.117 (0.053)	
Islam				
Probability	***1.866 (0.159)			***1.866 (0.158)
Network		***0.318 (0.051)		
Majority			***0.837 (0.078)	
Variety	***3.282 (0.135)	***2.267 (0.139)	***3.120 (0.129)	***5.046 (0.106)
Political Rights				***-0.908 (0.092)
Distance	***-1.874 (0.022)	***-1.899 (0.022)	***-1.879 (0.021)	***-1.875 (0.022)
Adjacency	***0.330 (0.096)	***0.340 (0.096)	***0.316 (0.096)	***0.331 (0.096)
Language	***0.785 (0.060)	***0.925 (0.059)	***0.795 (0.060)	***0.785 (0.060)
Colonial Link	***1.539 (0.153)	***1.427 (0.153)	***1.547 (0.153)	***1.539 (0.153)
Common Colon.	***0.834 (0.059)	***0.736 (0.059)	***0.835 (0.059)	***0.834 (0.059)
RTA	***0.231 (0.052)	***0.246 (0.052)	***0.233 (0.052)	***0.231 (0.052)
Oil	***1.841 (0.197)	**0.810 (0.217)	***2.078 (0.192)	***4.365 (0.213)
N	44700	45300	45300	44700
Pseudo R^2	0.273	0.273	0.273	0.273

***, **,* denote significance at the 5, 10, 15 percent level, respectively.
Standard errors in parentheses.
N denotes the number of observations.

Table 2: Religion and Trade, Differentiated Goods

Regression #	1	2	3	4
Depend. Var.	LISTED			
Hinduism				
Probability	-0.498			-0.498
	(1.210)			(1.210)
Network		-0.119		
		(0.217)		
Majority			-0.243	
			(0.169)	
Judaism				
Probability	***123.859			***123.859
	(38.469)			(38.469)
Network		0.678		
		(0.482)		
Majority			**0.270	
			(0.158)	
Buddhism				
Probability	***-7.119			***-7.119
	(0.713)			(0.713)
Network		***-1.817		
		(0.170)		
Majority			***-1.844	
			(0.265)	
Christianity				
Probability	***-0.338			***-0.338
	(0.151)			(0.151)
Network		***-0.233		
		(0.089)		
Majority			***0.142	
			(0.050)	
Islam				
Probability	***2.016			***2.016
	(0.151)			(0.151)
Network		***0.388		
		(0.048)		
Majority			***0.849	
			(0.074)	
Variety	***3.690	***2.267	***3.120	***5.403
	(0.126)	(0.131)	(0.121)	(0.102)
Political Rights				***-1.026
				(0.088)
Distance	***-1.964	***-1.988	***-1.964	***-1.964
	(0.021)	(0.022)	(0.021)	(0.021)
Adjacency	***0.163	***0.189	***0.159	***0.163
	(0.090)	(0.089)	(0.090)	(0.090)
Language	***1.060	***1.192	***1.057	***1.060
	(0.057)	(0.056)	(0.052)	(0.057)
Colonial Link	***1.591	***1.465	***1.591	***1.591
	(0.143)	(0.143)	(0.143)	(0.143)
Common Colon.	***0.970	***0.857	***0.967	***0.970
	(0.057)	(0.056)	(0.057)	(0.057)
RTA	***0.277	***0.292	***0.272	***0.277
	(0.050)	(0.050)	(0.050)	(0.050)
Oil	***2.144	**0.949	***2.448	***4.758
	(0.182)	(0.202)	(0.178)	(0.201)
N	44700	45300	45300	44700

| Pseudo R^2 | 0.273 | 0.273 | 0.273 | 0.273 |

***, **, * denote significance at the 5, 10, 15 percent level, respectively.
Standard errors in parentheses.
N denotes the number of observations.

NOTES

1. The work on this paper was supported by the German Academic Exchange Program (DAAD). I wish to thank Richard Baldwin, Nathalie Benoit, Nana Bourtchouladze, Fatima Chaudri, Dominic Eggel, Alexander Raubold, Jessica Stühler, and Eva-Maria Zeis for their helpful comments. I owe special thanks to Jose Anson for his encouragement and highly valuable remarks. I benefited from conference presentations at the 7th European Trade Study Group, University College Dublin, and the 6th Doctoral Meetings in International Economics, CEPII, University of Geneva.

2. Iannaccone (1998) provides a valuable literature review.

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APPENDIX

Data Appendix

Country-Specific Information: Centre d'etudes prospectives et d'informations internationales. http://www.cepii.fr/anglaisgraph/bdd/distances.html (accessed June 20, 2005).

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Table 1A: Countries included in the sample

Albania	Germany	Paraguay
Algeria	Ghana	Peru
Antigua and Barbuda	Greece	Philippines
Argentina	Grenada	Poland
Armenia	Guatemala	Portugal
Aruba	Guinea	Qatar
Australia	Guyana	Rep. of Korea

Austria	Honduras	Romania
Azerbaijan	Hungary	Russian Federation
Bahrain	Iceland	Saint Kitts and Nevis
Barbados	India	Saint Lucia
Belarus	Indonesia	Saint Vincent and Grenadines
Belgium	Iran	Sao Tome and Principe
Belize	Ireland	Saudi Arabia
Benin	Israel	Senegal
Bolivia	Italy	Serbia and Montenegro
Botswana	Jamaica	Singapore
Brazil	Japan	Slovakia
Bulgaria	Jordan	Slovenia
Burkina Faso	Kazakhstan	South Africa
Burundi	Kenya	Spain
Cameroon	Kuwait	Sudan
Canada	Latvia	Suriname
Cape Verde	Lebanon	Swaziland
Central African Republic	Lesotho	Sweden
Chile	Lithuania	Switzerland
China	Luxembourg	Syrian Arab Republic
China-Hong Kong	Madagascar	Tajikistan
China-Macau	Malawi	Tanzania, United Rep. of
Colombia	Malaysia	TFYR Macedonia
Comoros	Maldives	Thailand
Costa Rica	Mali	Togo
Côte d'Ivoire	Malta	Tonga
Croatia	Mauritius	Trinidad and Tobago
Cyprus	Mexico	Tunisia
Czech Republic	Moldova, Rep. of	Turkey
Denmark	Mongolia	Turkmenistan
Dominica	Morocco	Uganda
Dominican Republic	Mozambique	Ukraine
Ecuador	Namibia	United Arab Emirates
Egypt	Nepal	United Kingdom
El Salvador	Netherlands	United States of America
Eritrea	New Zealand	Uruguay
Estonia	Nicaragua	Vanuatu
Ethiopia	Niger	Venezuela

Fiji	Nigeria	Viet Nam
Finland	Norway	Yemen
France	Oman	Zambia
Gabon	Pakistan	Zimbabwe
Gambia	Panama	
Georgia	Papua New Guinea	

Table 2b: Major Regional Trade Agreements

Acronym	Name
AC	Andean Community
AMU	Arab Maghreb Union
ASEAN	Association of South East Asian Nations
CACAM	Central American Common Market
CARICOM	Caribbean Community and Common Market
CEFTA	Central European Free Trade Agreement
CEMAC	Economic and Monetary Community of Central Africa
CIS	Commonwealth of Independent States
COMESA	Common Market for Eastern and Southern Africa
ECO	Economic Cooperation Organization
ECOWAS	Economic Community of West African States
EFTA	European Free Trade Association
EC	European Communities
GCC	Gulf Cooperation
MERCOSUR	Southern Common Market
NAFTA	North American Free Trade Agreement
SADC	Southern African Development Community
SAPTA	South Asian Preferential Trade Arrangement
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement