

Does religion affect economic development? Pope John Paul II and international trade*

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Abstract

Between 1979 and 2005, Pope John Paul II made 104 foreign trips and visited 129 countries, more than all Popes before him combined. We show that a visit by the Pope to a country is followed by a significant increase in exports from that country to trading partners with a high share of Catholics in the population. The biggest beneficiaries in terms of increased trade are visited countries at lower stages of economic development, as well as those with relatively few Catholics. Our results suggest that religious leaders can support economic development when their actions encourage international cooperation.

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1 Introduction

Organized religion is one of the oldest human institutions. Not surprisingly, social scientists have long taken a keen interest in how religion shapes economic development. Various studies have provided evidence that religious beliefs and practices may be a fundamental determinant of economic growth (Acemoglu et al. 2001, 2005; Barro and McCleary 2003, 2005; Guiso et al., 2006), although the question of the strength and direction of this effect is far from settled. The main empirical difficulty in this line of research is the slow-moving nature of religion. Religious doctrine—i.e., the set of principles that guide the faithful in their day-to-day activities—is fairly constant over time. For example, during the two millennia of its existence, Christianity has experienced only two major shocks: the Great Schism in 1054, whereby the Eastern Orthodox church split from the Roman Catholic church, and the Reformation in 16th-century Europe which gave birth to Protestantism. The spread of one or another religious denomination in different countries is also a gradual process that takes decades, if not centuries. For these reasons, researchers have typically resorted to studying the long-term impact of religion on slow-moving fundamentals, such as social norms and literacy.¹ At the same time, it would be equally interesting and important to document if and how religion induces variation in short-term economic activity.

In this paper, we propose a novel empirical design for studying the contemporaneous impact of religion on economic development. Our test has two conceptual building blocks. First, the Catholic dogma of Papal supremacy posits that "[...]the Pope enjoys, by divine institution, supreme, full, immediate, and universal power in the care of souls."² Among else, this implies that his words and actions are a message to all Catholics around the world to follow a certain pattern of behavior. Second, between 1979 and 2004, Pope John Paul II made 104 foreign trips, more than the 263 Popes before him combined, and in the process visited a total of 129 countries, many of them more than once.³ We hypothesize that a Pastoral visit by the Pope to a foreign country can be understood by Catholics around the world as an invitation by the head of the church to engage more forcefully with this country, including in economic terms.

Promoting economic cooperation is clearly not the primary reason why the Pope visits a foreign country. Pope John Paul II's visits primarily reflected the spirit of the Second Vatican Council whereby the Catholic

¹For example, Protestantism appears to be superior to Catholicism in supporting long-run economic growth, either because it encourages a more robust work ethic (Weber, 1905) or because it favors universal schooling (Becker and Woessmann, 2009).

²See Paragraph 937 of the Catechism of the Catholic Church.

³See Appendix Table 1 for a list of the Pope's visits.

Church transitioned from religious worship proper to the Church of Rome to a liturgy open to the world. In the process, local languages and cultures entered the celebration of the Mass, while maintaining the same structure for the whole Catholic Church. Therefore, the Mass was at the heart of every trip by the Pope, encapsulating his belief that the religious service builds the community. Importantly, the Pope's actions demonstrated that he understood "community" as the global Christian family, not only the members of the Catholic church. For example, while visiting Bulgaria—an Eastern Orthodox country where Catholics comprise less than 1% of the population—the Pope gave a speech, saying: "I wish to honour here those courageous witnesses of faith, members of the various Christian denominations. May their sacrifice not be in vain, and may it serve as an example and make fruitful your ecumenical commitment with a view to the full unity of Christians."⁴ Importantly, Pope John Paul II also recognized globalization as the defining economic trend of his time, arguing that it "[...] brings some positive consequences, such as efficiency and increased production which, with the development of economic links between the different countries, can help to bring greater unity among peoples and make possible a better service to the human family."⁵ We hypothesize that this spirit of local inclusion and global community building has positive side effects beyond religious revival, manifested among others in increased international cooperation and economic interactions.

Our evidence suggests that in the years following a visit to a foreign country by the Pope, exports by that country increased in a meaningful and significant way, more so to trading partners with a relatively large Catholic share of the population. Numerically, exports to a trading partner with 41% (75th percentile), relative to a trading partner with 1% (25th percentile) Catholics in the population were higher by between 4.3% and 7.1% in years 2, 3, 4, and 5 after a visit by the Pope. This result is attained in specifications saturated with interactions of visited country, trading partner country, and year fixed effects, which allows us to hold constant country trends, as well as unobservable background forces that are constant at the country-pair level. We show that the result we document is not a continuation of a pre-visit trend. Furthermore, the effect disappears when we examine similar events that put a country in the news, such as a visit by the US President, a visit by Queen Elisabeth II, and the hosting of Summer Olympics or a Football World Cup.

The effect of Pope John Paul II's visits on international trade is much stronger in the first decade of his Papacy. This fact can be due to a number of reasons, such as that the novelty of the Pope's travels wore

⁴See http://w2.vatican.va/content/john-paul-ii/en/speeches/2002/may/documents/hf_jp-ii_sp20020523_arrival-bulgaria.html

⁵See https://www.vatican.va/content/john-paul-ii/en/apost_exhortations/documents/hf_jp-ii_exh2011999_ecclesia-in-america.html

off over time, or that he traveled first to countries that stood to benefit the most. Among the countries that the Pope visited, the ones whose trade integration with the rest of the world increased the most were those at lower stages of economic development, as well as those with relatively few Catholics. For affected countries, we also observe an increase in aggregate exports in years 2 and 3 after the Pope’s visit. In all, our results suggest that actions by religious leaders can support economic development as long as they explicitly encourage international cooperation.

Our paper contributes to the literature on the impact of religion on economic development and growth. Researchers have found that religion can have an effect on the provision of public goods (Benjamin et al., 2016; Cantoni et al., 2018), state legitimacy (Chaney, 2013; Rubin, 2017; Auriol and Platteau, 2017), institutions (Greif, 1994; Kuran, 2011; Pascali, 2016; Belloc et al., 2016; Platteau, 2017; Bisin et al., 2019), intolerance (Becker and Pascali, 2019), generalized trust (Putnam, 1993; Inglehart, 1999; La Porta et al., 1997), human capital and income (Valencia Caicedo, 2019; Botticini and Eckstein, 2005; Waldinger, 2017; Becker and Woessmann, 2009), and economic growth (Barro and McCleary, 2003; Campante and Yanagizawa-Drott, 2015). We contribute to this literature in three distinct ways. First, we look at international trade, a factor overlooked in this line of research. Second, while the literature has focused on long-term trends, we look at the short-term implications of the Pope’s foreign travels. Third, this literature either looks at associations between religious intensity and another variable, or argues for causation by placing cause and effect far apart in time (e.g., intensity of the Reformation in the 16th century and growth and literacy in 19th-century Prussia). In contrast, we are able to look at the contemporaneous effect of a religious act.

Our paper also relates to the recent literature on the cultural and institutional determinants of bilateral trade. For example, Anderson and Marcouiller (2002), Berkowitz et al. (2006), Nunn (2007), Guiso et al. (2009), and Elfenbein et al. (2022) have documented a significant effect of country- and state-level factors, as well as of pair-specific institutional factors that are slow moving over time—such as trust, religious affiliation, or political behavior—on long-term bilateral trade. We extend this literature by looking at the short-run fluctuations in bilateral trade induced by the Pope’s travels. Finally, our work is reminiscent of the analysis in Fuchs and Klann (2013) who find that countries officially receiving the Dalai Lama at the highest political level are punished through a reduction of their exports to China.

2 Pope John Paul II: The Pilgrim Pope

During his reign from 1978 to 2005, Pope John Paul II made 104 foreign trips, more than all previous Popes combined. In total he logged more than 1,167,000 kilometers (725,000 miles). He consistently attracted large crowds during his travels, which were often among the largest ever assembled. While some of his trips (such as to the United States and Israel) were to places that were previously visited by Paul VI (the first Pope to travel internationally), the vast majority were to countries that no Pope had previously visited. His extensive travel itinerary and persistence in bringing his message to all corners of the globe earned him the moniker "The Pilgrim Pope".

John Paul II often visited countries with large Catholic populations, which he intended to uplift spiritually. This was especially visible during his visits to predominantly Catholic countries that were living under authoritarian or totalitarian regimes. For example, in 1979 he visited his native Poland, which was ruled by a Communist dictatorship; in 1982 he visited Argentina, which was run by a military junta; and in 1987, he visited Chile, which was run by the dictator Augusto Pinochet. Each time, he attracted large crowds, but also the hostility of the local government.

Even more noteworthy is the fact that during his travels, the Pope cultivated friendly relations with members of religious denominations other than the Catholic church. For example, during his visit to the United Kingdom in 1982 (the first ever by a reigning Pope), as a gesture of friendship between the Roman Catholic Church and the Anglican Churches, he knelt down along with the Archbishop of Canterbury.⁶ During his visit to Greece in 2001 (first by a Pope in 1291 years), he met Archbishop Christodoulos, the head of the Church of Greece. During their public appearance after their private meeting, Christodoulos read a list of "13 offences" of the Roman Catholic Church against the Eastern Orthodox Church since the Great Schism of 1054, including the pillaging of Constantinople by crusaders in 1204, and bemoaned the lack of any apology from the Roman Catholic Church, saying "Until now, there has not been heard a single request for pardon" for the "maniacal crusaders of the 13th century." Pope John Paul II responded by saying "For the occasions past and present, when sons and daughters of the Catholic Church have sinned by action or omission against their Orthodox brothers and sisters, may the Lord grant us forgiveness," to which Christodoulos immediately applauded.⁷

⁶See <https://pope-john-paulii.com/pope-john-paul-ii-his-pastoral-trips/>

⁷See <http://www.hri.org/news/greek/mpa/2001/01-05-041.mpa.html>

We therefore consider it reasonable to hypothesize that a visit by the Pope serves multiple purposes. These include providing spiritual guidance to the local Catholic population and lending his support to local democratic processes, but also "putting a country on the map" for the world's Catholic family. To the extent that this is the case, the effect will likely be stronger if the visited country is a poorer one. Likewise, to the extent that predominantly Catholic countries are already familiar with each other, we expect the potential positive effect of a Pastoral visit to be stronger if the visited country has a relatively smaller Catholic population. Finally, we expect that countries where the share of Catholics in the population is relatively larger will be more likely to engage with a country visited by the Pope.

3 Empirical model and data

Our goal is to study the evolution of international trade in the immediate aftermath of a Pastoral visit. To analyze this effect, we specify the following linear probability model:

$$\text{LogExports}_{i,j,t} = \sum_{n=1}^5 \beta_n \text{ShareCatholics}_{j,t} \times \text{Year}_n + \Psi_{i,j} + \Phi_{i,t} + \Theta_{j,t} + \varepsilon_{i,j,t} \quad (1)$$

The dependent variable, $\text{LogExports}_{i,j,t}$, denotes the natural logarithm of total exports by country i to country j in year t . $\text{ShareCatholics}_{j,t}$ denotes the share of Catholics in country j at the time of the Papal visit. Year_n is a dummy variable equal to 1 in year n after Pope John Paul II visited country i (where n equals 1, 2, 3, 4, and 5), and to zero otherwise.

We saturate the model with interactions of country i , country j , and year t fixed effects. For a start, $\Psi_{i,j}$ is a matrix of country i and country j dummy interactions that capture the impact on bilateral trade of factors describing the relationship between country i and country j that are fixed over time. These include some of the standard components of gravity: physical distance, common border, common language, transportation costs, fraction of years at war, religious similarity, and somatic and genetic distance, among others. This is important as any such variation at the country-pair level can explain differences in bilateral trade without any panel variation existing. $\Phi_{i,t}$ is a matrix of country i and year t dummies which control for time-varying factors at the level of country i that affect all of country i 's trading partners equally at the same point in time. Similarly, $\Theta_{j,t}$ is a matrix of country j and year t dummies which control for time-varying factors at the level of country j that affect all of country j 's trading partners equally at the same point in

time. These control for significant time-varying determinants of bilateral trade, such as GDP growth and population growth in countries i and j .

The coefficients β_1 , β_2 , β_3 , β_4 , and β_5 measure the change in bilateral trade in years 1, 2, 3, 4, and 5 after the year of the Papal visit, respectively, relative to the pre-visit period and to the years 5+ after the visit. The interactive nature of the main variables of interest allows us to test the hypothesis that the Pope's visit to a country is primarily a signal for predominantly Catholic countries, which may thus be prompted to increase their trade interaction with the visited country.⁸

The sample period is 1970–2010, accounting for the fact Pope John Paul II's first visit to a foreign country was in 1979 (Dominican Republic), and his last was in 2004 (France). We run specification where we look both at all his visits (a total of 207 country visits), and at his first visit to a country (a total of 129). We also account for visits that were merely a stopover, for visits that took place too soon after a previous one, as well as for visits by Paul VI, the first Pope to travel widely abroad.

We employ data on bilateral trade between the 129 countries visited by Pope John Paul II at least once between 1979 and 2004, and all trading partners. The data come from the IMF's Direction of Trade Statistics (DOTS) dataset, which is based on data from the World Trade Organization (WTO). The dataset contains underlying data on exports and imports, as well as on total trade. We use all 212 importers and exporters in the DOTS. The dataset thus contains 193 countries that are currently recognized by the United Nations, 5 countries that no longer exist (Czechoslovakia, the German Democratic Republic, the German Federal Republic, USSR, and Yugoslavia), and 14 territories.

We retrieve information on the year of each of Pope John Paul II's Pastoral visit from the official website of the Vatican.⁹ Figure 1 summarizes the Pope's travels graphically, by decade, grouped according to the first time he visited a country. During the 1970s, the Pope visited 7 countries, all of them in 1979: Dominican Republic, Mexico, the Bahamas, Poland, Ireland, the USA, and Turkey. The 1980s was his busiest period, with 104 visited countries (of which 79 were first visits), mostly in Western Europe, Africa, Latin America, South Asia, and Australia and Oceania. During the 1990s, Pope John Paul II visited a further 73 countries (of which 32 were first visits), mostly in Africa and the post-Soviet Bloc. Finally, between 2000 and 2004, he visited another 23 countries, of which 11 were first visits.

⁸Because the dependent variable is in logs and the main explanatory variable is a dummy variable, the interpretation of, e.g., β_1 is that one year after a visit by the Pope, exports were higher by $e^{\beta_1}-1$ percent.

⁹See Appendix Table 2 for all data sources.

4 Pastoral visits and international trade: Empirical evidence

4.1 Main result

Table 1 reports empirical estimates testing whether Pastoral visits by the Pope had an impact on the economic relations between the visited country and the rest of the world, via the channel of international trade. We run Equation (1) on three separate samples. The main specification is a test based on all 207 country visits by the Pope (column (1)). We then run tests based on the 129 occasions whereby he visited a foreign country for the first time (column (2)), and on all foreign visits by a Pope after 1960, including those by Pope Paul VI between 1964 and 1970 (column (3)).

Column (1) reports that in the first five years after a Pastoral visit, exports from the visited country to the rest of the world increased, more so for trading partners with a larger Catholic share of the population. This effect is statistically significant in years 2, 3, 4, and 5 after the visit in question. The point estimates of 0.1304, 0.1210, 0.1634, and 0.1015 imply that exports were higher by 5.6%, 5.2%, 7.1%, and 4.3% in year 2, 3, 4, and 5 after the visit, for trade between the visited country and a trading partner at the 75th percentile (0.41), relative to a trading partner at the 25th percentile (0.01), of the distribution of Catholic population shares.¹⁰

Recall that Equation (1) is estimated using combinations of visited country, trading partner country, and year dummy interactions. This means that the reported effects are net of factors which are fixed at the country-pair level (e.g., common language or common border), as well as net of various country trends, such as GDP growth and exchange rate differentials between the visited country and the trading partner.

The effect is no longer observed in year 2 once we focus on those episodes when the Pope visited a foreign country for the first time (column (2)). At the same time, the effect is numerically larger in years 3 and 4 after the visit. This suggests that the positive effect of the Pope's visit on international trade may be strongest the first time he visited a country.

In column (3) we account for the fact that Pope Paul VI was the first Pope to travel regularly, visiting a total of 20 countries between 1964 and 1970.¹¹ The coefficients become somewhat lower, and the statistical significance of the effect declines in the case of years 2 and 3 after the visit. This suggests that visits by

¹⁰Charts 1 and 2 in the Appendix confirm that the effect is indeed driven by a relatively larger increase in exports to high-Catholic trading partners, rather than by a relatively larger decline in exports to low-Catholic ones.

¹¹See Appendix Table 3 for a list of Pope Paul VI's visits.

Pope Jean Paul II may have had a considerably stronger effect on international trade.¹²

4.2 Distinguishing by period, state of development, and religious affiliation

In Table 2, we test for whether the effect we estimate in Table 1 is stronger during a particular period, or for a particular group of countries. First, as mentioned already, travelling so widely around the world was a marked departure by John Paul II from the practice of previous Popes. At the same time, it is possible that this break with tradition was more potent in building economic ties when it happened initially, and the power of the Papal visit gradually declined over time.

To test this hypothesis, we split our sample period in two sub-periods, before and including 1990 (column (1)), and after 1990 (column (2)). Given that Pope John Paul II's first foreign journey was in 1979, and his last journey in 2004, the two periods are of roughly equal length. The evidence reveals a curious pattern. During the first part of his Papacy, the Pope's visits were followed by a significant increase in exports from the visited country to its relatively more Catholic trading partners, in each of the five years after his visit. This increase is of order of magnitude of between 6.1% one year after and 9.3% five years after, for trade between the visited country and a trading partner at the 75th percentile, relative to a trading partner at the 25th percentile, of the distribution of the share of Catholics in the population. During the second half of his Papacy, his visits were followed by a significant increase in trade only in years 2 and 3. The coefficients are significant at the 5-percent and 1-percent statistical level, respectively. The evidence thus suggests that the effect of Pope John Paul II's visits to a country may have declined over time.

Our second conjecture is that the impact of a Pastoral visit on international trade will be stronger for countries at earlier stages of development. Large open developed economies that account for a substantial share of world trade, such as the United States or Germany, are less likely to get a boost from a visit by the Pope, because they are already operating close to or at their trade frontier. In contrast, smaller less developed countries may benefit substantially if a visit by the Pope "puts them on the map", especially for predominantly Catholic trading partners around the world.

We test this hypothesis by splitting the sample into countries that were members of the OECD when the

¹²In Appendix Table 4, we report estimates from further robustness tests. The main result still obtains when we exclude visits that took place less than four years after a previous visit, when we exclude countries which the Pope visited four times or more, and when we exclude stopover visits.

Pope visited them, and countries that were not. The OECD is an organization of industrialized economies, and its members are typically economically developed countries which we suspect will likely benefit less from a visit by the Pope than non-OECD countries. The evidence presented in columns (3) and (4) largely confirms our conjecture. We find that in the case of OECD countries, with the exception of year 5, there is no statistical difference in trade between the visited country and predominantly Catholic trading partners in the years after the visit. In the case of non-OECD countries, there is a significant increase in trade in years 2, 3, 4, and 5 after the Pope's visit (column (4)). On average, relative to the pre-visit period, trade increases by much as 12.6% in year 4, for a trading partner at the 75th percentile of the distribution of Catholic population shares, relative to a trading partner at the 25th percentile.

Our third conjecture is that a country will benefit more from a Pastoral visit if it is not predominantly Catholic. This notion goes back to our discussion of the religious dogma which postulates that Catholics around the world are part of one global family. Therefore, predominantly Catholic countries are likely already maintaining vibrant economic ties with other Catholic countries, which includes international trade. In contrast, countries that are not part of the global Catholic family—because they have a very low share of Catholics in the population—may benefit more from a visit by the Pope. This may be because by visiting a non-Catholic country, the Pope bestows upon it a reputational stamp, providing Catholic trading partners around the world with an impetus to increase their economic interaction with these countries.

The evidence presented in the last two columns of Table 2 confirms our conjecture. We split the countries that the Pope visited into those that are above-median and those that are below-median, in terms of the distribution of the share of Catholics in the population. In the case of visited countries with a relatively large share of Catholics (column (5)), trade increases in years 1, 3, and 4 after the Pope paid them a visit. On average, relative to the pre-visit period, trade increases by around 4% between after the visit, for a trading partner at the 75th percentile of the distribution of Catholic population share, relative to a trading partner at the 25th percentile. However, in all cases the effect is only weakly significant at the 10% statistical level. In contrast, exports from countries with a relatively low Catholic population (column (6)) increase in years 3, 4, and 5 after the Papal visit, and this effect is significant at least at the 5% statistical level. It is also considerably larger in economic terms than in column (5)). For example, relative to the rest of the time, exports are higher by 10.4% in year 4 after the visit, for a trading partner at the 75th percentile of the distribution of Catholic population share, relative to a trading partner at the 25th percentile.

The evidence presented in Table 2 thus suggests that the impact on international trade of a visit by the Pope is not uniform over time and across geography. Countries are more likely to increase their exports to predominantly Catholic trading partners in the wake of a Papal visit if they are less developed and have a relatively small population of Catholics, as well as during the first half of John Paul II's Papacy.

4.3 Falsification

4.3.1 Pre-trends

We now address two significant concerns with our identification strategy. The first one is that we may simply be capturing a long-term trend which is in place independent of the Pope's itinerary. For example, the Pope may only be visiting countries that are on an economic upswing, meaning that international trade is increasing because of good macro and trade policies even before the Pope arrives. If so, our evidence on the economic impact of a Pastoral visit by the Pope will be compromised, and we can no longer claim a causal effect going from the Pope's visit to a more significant acceptance of the visited country by the international Catholic community.

To tackle this criticism, we specify the following model:

$$\text{LogExports}_{i,j,t} = \sum_{n=-4}^0 \beta_n \text{ShareCatholics}_{j,t} \times \text{Year}_n + \Psi_{i,j} + \Phi_{i,t} + \Theta_{j,t} + \varepsilon_{i,j,t} \quad (2)$$

As before, the dependent variable, $\text{LogTrade}_{i,j,t}$, denotes the natural logarithm of total trade between country i and country j in year t , and $\text{ShareCatholics}_{j,t}$ denotes the share of Catholics in country j at the time of the Papal visit. This time, Year_n is a dummy variable equal to 1 in year n before Pope John Paul II visited country i , where n equals 0, 1, 2, 3, and 4, and to zero otherwise. We include the same fixed effects as in Equation (1). We estimate Equation (2) on a symmetric 10-year window around each Papal visit, for the visited countries. The five years after the visit are defined as the post-visit period. If the Pope's visit coincides with a trend whereby a country is already increasing its trade with the rest of the world, and especially with Catholic countries, we should be able to see this trend in the data.

The estimates from this test are reported in column (1) of Table 3. The data squarely reject the notion that trade between a country which the Pope visited and predominantly Catholic trading partners was

increasing already before the visit. We conclude that the evidence presented in this paper is consistent with a positive causal effect of a Pastoral visit on international trade.

4.3.2 Other global events

The second concern about our identification strategy is that countries with a large Catholic population are more sensitive than others to events that put another country in the news. Certain events may be raising the country's profile, or may be perceived as having the potential to increase the country's GDP growth, and Catholics may be more likely to respond to such shocks. If so, then visits by the Pope may not be unique. They might be one possible event that increases a country's popularity, but there could be a number of other similar events that are unrelated to the Catholic faith. If they, too, make it more likely that exports to predominantly Catholic countries increase, then our estimation strategy would be compromised.

To address this concern, we re-estimate Equation (1) on a number of other events that have a similar publicity effect to a visit by the Pope. We collect three such sets of events. The first is international visits by the US President between 1979 and 2004. US Presidents are widely traveled: there were a total of 96 visits by five US Presidents (Jimmy Carter, Ronald Reagan, George H. W. Bush, Bill Clinton, and George W. Bush) during this period. The second is visits by Queen Elisabeth II, who has also made many foreign visits during her reign (41 during the period in question). Finally, we look at the major global sports events: Summer Olympic Games and Football World Cups. 14 such events were organized during the period in question (7 Summer Olympics and 7 Football World Cups). All of these are events that are widely covered by global news networks, generating large global viewership. If the Pope's visits are not unique in any way, we should observe a similar pattern around these alternative sets of events.

The remaining three columns of Table 3 suggest that this is not the case. Exports are not more likely to increase to countries with a larger share of Catholics after a visit by the US President (column (2)). We do find that in the first year after Queen Elisabeth II visits a country, exports from the visited country to countries with a large Catholic population increase relatively more, but no such effect is observed in the subsequent years. Finally, countries that organize a Summer Olympiad or a Football World Cup export relatively more to predominantly Catholic countries in the fifth year after the sports event. However, no such systematic pattern exists over the full post-event period. We conclude that by and large, the pattern we observe is specific to a visit by the head of the Catholic Church.

4.4 Aggregate effect

The evidence so far is consistent with the idea that Catholics around the world take their cue from the Pope not only in matters of the dogma, but in economic matters, too. But how important is this effect in the aggregate? There are around 1.2 billion Catholics in the world today, which is around 15% of the world’s population, and more than 40% of them live in Latin America. The median country in our dataset has 10% Catholics. Even assuming they speak as one on matters of economics and politics, this is a respectable, but not a decisive consumer or voting bloc. The possibility thus exists that our results are driven by a few trading partners with a large Catholic population, but the aggregate effect is negligible.

We now take this hypothesis to the data. We first estimate the following model:

$$\text{LogTotalExports}_{i,t} = \sum_{n=1}^5 \beta_n \times \text{Year}_n + \gamma X_{i,t} + \Psi_i + \Theta_t + \varepsilon_{i,t} \quad (3)$$

Hereby we no longer distinguish trading partners based on the share of Catholics in their population. Instead, Equation (3) estimates the effect of a Pastoral visit on a visited country’s total exports to the rest of the world. We also estimate Equation (3) on the subsets of countries that benefit the most, according to the evidence in Table 2: non-OECD countries and countries with a low share of Catholics. The model includes country fixed effects Ψ_i and year fixed effects Θ_t . The former allows us to hold constant background forces that are fixed at the country level over time, such as land area, distance to main trading partners, and access to sea. The latter allows us to net out the confounding effect of trends which are common to all countries at a point in time, such as the global business cycle or global risk aversion.

Because we can no longer include interactions of visited country and time fixed effects, we include on the right-hand side the vector $X_{i,t}$, whereby we control for the independent effect on trade of a number of time-varying factors at the level of the visited country. It includes GDP growth, population growth, the real exchange rate, the year-on-year change in the Consumer Price Index, and a dummy equal to one if the country is trade-liberalized.¹³

The point estimate from the various versions of Equation (3) are reported in Table 4. Column (1) suggests that total exports from a country visited by the Pope to the rest of the world are significantly higher during years 2 and 3 after the visit, by 10.2% and 9.3% respectively. While the coefficients on the other year

¹³See Appendix Table 5 for summary statistics.

dummies are also positive, they are not significant at conventional levels. Nevertheless, the data reject the hypothesis that the relative effects we documented in Table 1 are washed out in the aggregate (for example, because exports to countries with larger Protestant or Muslim populations decline).

In the case of countries visited by the Pope that were not members of the OECD, exports are again significantly higher in years 2 and 3 after the visit, by 14.4% and 12%, respectively, as well as in year 1, by 8.1%. Total exports also also higher in years 2 and 3, by 9.5% and 13.8% respectively, for countries with below median shares of Catholics in the population. Our evidence thus suggests that on aggregate, there is an uptick in short-term trade integration between countries visited by the Pope and the rest of the world, especially if such countries were poorer and had a relatively smaller Catholic population. This evidence is however merely suggestive, because the structure of the test does not allow us to control for unobservable country-specific trends. Therefore, the model is not as tightly identified as Equation (1), and the results need to be taken with caution.¹⁴

5 Conclusion

Because of the slowly moving nature of organized religion, it has proved challenging in practice to detect a causal relationship between religion and short-term economic development. We propose a novel empirical test whereby we study the contemporaneous effect of the Pope's foreign visits on international trade. Our test is based on two building blocks. First, the Catholic dogma of Papal supremacy posits that the Pope is the unchallenged sovereign of the Catholic church. Therefore, his words and actions carry significant weight with, and send unequivocal signals to, all Catholics around the world. Second, between 1979 and 2004, Pope John Paul II made 104 foreign trips and visited 129 countries, more than all Popes before him combined. We hypothesize that a visit to a foreign country by the Pope can be understood by Catholics around the world as an encouragement to engage more forcefully with this country, including in economic terms.

Our evidence suggests that in the years following a visit to a foreign country by the Pope, trade between that country and its trade partners with a large Catholic share of the population increased in a meaningful and significant way. This effect is much stronger in the first decade of John Paul II's Papacy, as well as for visited countries that are at lower stages of economic development and have relatively few Catholics.

¹⁴Charts 3, 4, and 5 in the Appendix plot point estimates and confidence intervals based on a version of Equation (3) which also includes five pre-visit year dummies.

Moreover, there is suggestive evidence that this effect is not washed out in the aggregate. In all, our results provide tentative support for the notion that certain actions by religious leaders can have an immediate effect on international economic relations.

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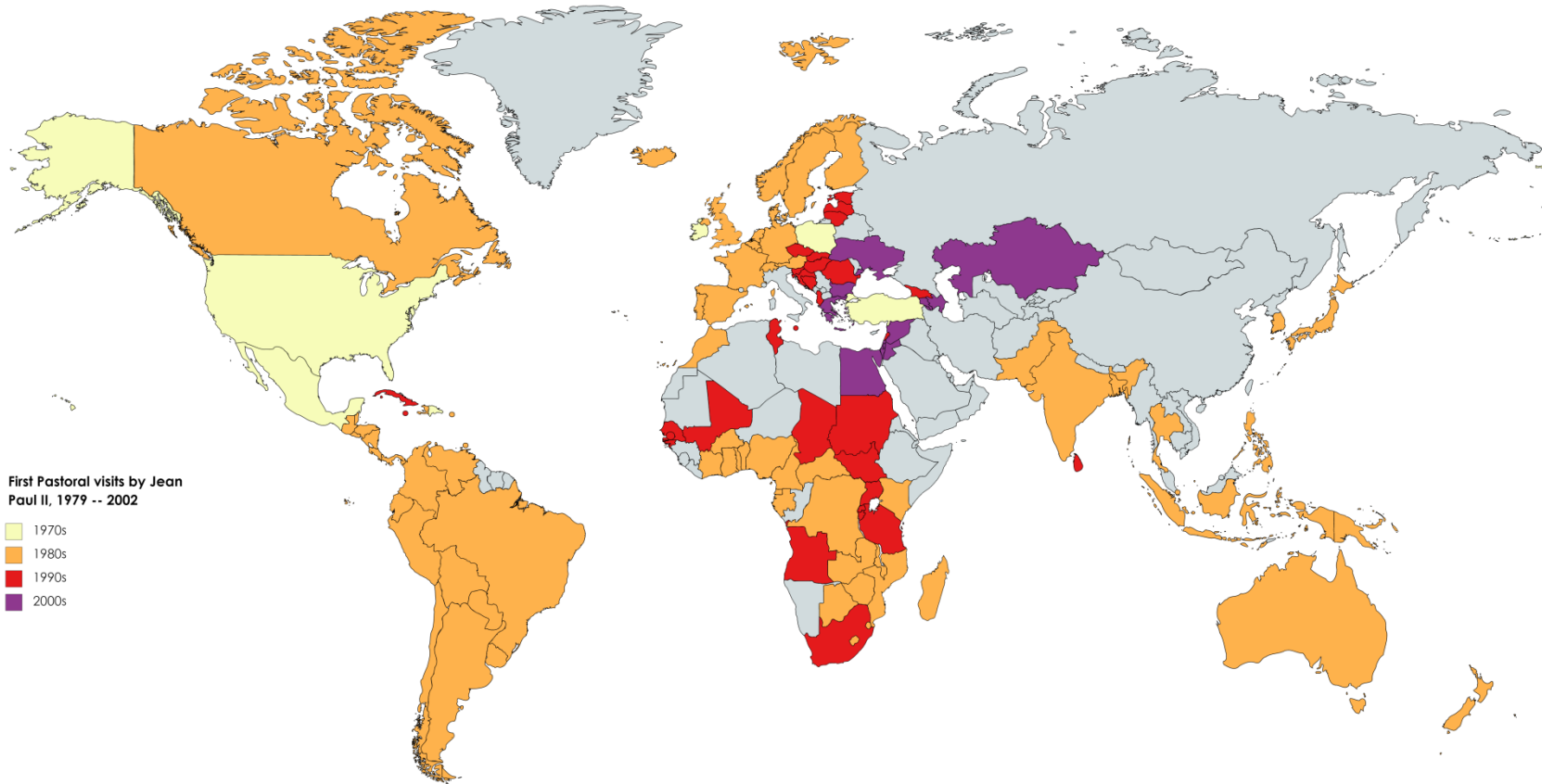
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Figure 1. First Pastoral visits by John Paul II, by decade



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Table 1. Pastoral visits by John Paul II and bilateral trade

	Log (Exports)		
	All visits	First visits	All visits, including Paul VI
	(1)	(2)	(3)
Share Catholics × Year 1	0.0634 (0.0467)	-0.0067 (0.0667)	0.0397 (0.0491)
Share Catholics × Year 2	0.1304*** (0.0479)	0.0816 (0.0711)	0.1118** (0.0498)
Share Catholics × Year 3	0.1210*** (0.0426)	0.1428** (0.0627)	0.1007** (0.0440)
Share Catholics × Year 4	0.1634*** (0.0457)	0.1879*** (0.0591)	0.1432*** (0.0479)
Share Catholics × Year 5	0.1015** (0.0405)	0.0947* (0.0545)	0.0969** (0.0405)
Visited country × Partner country FE	Yes	Yes	Yes
Visited country × Year FE	Yes	Yes	Yes
Partner country × Year FE	Yes	Yes	Yes
Observations	476,884	476,884	519,541
R-squared	0.86	0.86	0.86

Notes: The dependent variable is the natural logarithm of total exports from a country visited by John Paul II to a trading partner country. See Appendix Table 2 for variable definitions and sources. The sample period is 1970–2010 (columns (1)–(2)), and 1960–2010 (column (3)). Standard errors clustered at the visited country level, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 2. Pastoral visits by John Paul II and bilateral trade: Distinguishing by period, state of development, and Catholic share

	Log (Exports)					
	Before 1990	After 1990	OECD countries	Non-OECD countries	Top 50% Catholic countries	Bottom 50% Catholic countries
	(3)	(4)	(5)	(6)	(7)	(8)
Share Catholics × Year 1	0.1406** (0.0636)	0.0312 (0.0621)	0.0460 (0.0421)	0.0909 (0.0703)	0.0971* (0.0498)	-0.0448 (0.1073)
Share Catholics × Year 2	0.1818*** (0.0682)	0.0867 (0.0587)	0.0771 (0.0483)	0.1825*** (0.0683)	0.0925* (0.0477)	0.1794 (0.1190)
Share Catholics × Year 3	0.1642** (0.0705)	0.1195** (0.0519)	0.0391 (0.0376)	0.1874*** (0.0594)	0.0702 (0.0473)	0.2025** (0.0981)
Share Catholics × Year 4	0.2011*** (0.0759)	0.1499*** (0.0520)	0.0142 (0.0454)	0.2734*** (0.0594)	0.0993* (0.0506)	0.2307*** (0.0888)
Share Catholics × Year 5	0.2087*** (0.0785)	0.0683 (0.0485)	0.0822** (0.0408)	0.1381** (0.0583)	0.0320 (0.0484)	0.1657** (0.0789)
Visited country × Partner country FE	Yes	Yes	Yes	Yes	Yes	Yes
Visited country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Partner country × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	174,817	300,170	122,771	354,088	246,365	230,491
R-squared	0.89	0.89	0.94	0.83	0.87	0.86

Notes: The dependent variable is the natural logarithm of total exports from a country visited by John Paul II to a trading partner country. See Appendix Table 2 for variable definitions and sources. The sample includes all visits between 1979 and 2004. The sample period is 1970–2010. Standard errors clustered at the visited country level, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 3. Pastoral visits by John Paul II and bilateral trade: Falsification

	Log (Exports)			
	Pre-trend	Visit by the US President	Visit by HM Elisabeth II	Summer Olympics or football World Cups
	(1)	(2)	(3)	(4)
Share Catholics × Year -5	0.0239 (0.0547)			
Share Catholics × Year -4	0.0410 (0.0474)			
Share Catholics × Year -3	0.0215 (0.0510)			
Share Catholics × Year -2	-0.0274 (0.0426)			
Share Catholics × Year -1	-0.0226 (0.0339)			
Share Catholics × Year 1		-0.0942 (0.0669)	0.1850** (0.0871)	-0.0003 (0.0936)
Share Catholics × Year 2		-0.0563 (0.0662)	0.0764 (0.0733)	0.0292 (0.1026)
Share Catholics × Year 3		-0.0093 (0.0635)	0.0838 (0.0543)	0.1227 (0.0802)
Share Catholics × Year 4		0.0071 (0.0589)	0.0066 (0.0619)	0.1393 (0.1158)
Share Catholics × Year 5		0.0065 (0.0614)	0.0497 (0.0748)	0.2590*** (0.0753)
Visited country × Partner country FE	Yes	Yes	Yes	Yes
Visited country × Year FE	Yes	Yes	Yes	Yes
Partner country × Year FE	Yes	Yes	Yes	Yes
Observations	141,010	476,884	476,884	476,884
R-squared	0.91	0.86	0.86	0.86

Notes: The dependent variable is the natural logarithm of total exports from a country visited by John Paul II to a trading partner country. See Appendix Table 2 for variable definitions and sources. The sample period is 1970–2010. Standard errors clustered at the visited country level, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 4. Pastoral visits by John Paul II and bilateral trade: Aggregate effect

	Log (Exports)		
	All countries	Non-OECD countries	Bottom 50% Catholic countries
	(1)	(2)	(3)
Year 1	0.0458 (0.0364)	0.0778* (0.0463)	0.0366 (0.0572)
Year 2	0.0969** (0.0386)	0.1348*** (0.0485)	0.0914* (0.0586)
Year 3	0.0864** (0.0412)	0.1120** (0.0526)	0.1254** (0.0560)
Year 4	0.0266 (0.0392)	0.0304 (0.0504)	0.0454 (0.0688)
Year 5	0.0540 (0.0393)	0.0553 (0.0503)	0.0837 (0.0594)
GDP growth	-2.2446*** (0.5277)	-2.3843*** (0.5527)	-1.9493*** (0.6837)
Population growth	1.7250 (1.8181)	1.6127 (1.8738)	2.6705 (2.6157)
FX rate	0.0024 (0.0065)	0.0034 (0.0062)	0.0054 (0.0070)
Trade liberalized	-0.0982 (0.0924)	-0.0271 (0.1068)	-0.0417 (0.1399)
Inflation	-0.0055** (0.0026)	-0.0052** (0.0025)	-0.0054 (0.0051)
Visited country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	4,369	3,600	2,035
R-squared	0.96	0.94	0.95

Notes: The dependent variable is the natural logarithm of total exports from a country visited by John Paul II to the rest of the world. See Appendix Table 2 for variable definitions and sources. The sample period is 1970–2010. Standard errors clustered at the visited country level, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table 1. Pastoral visits by John Paul II, by country and year

Visited country	Year of visit	First visit	Stopover
Dominican Republic	1979	Yes	
Mexico	1979	Yes	
Bahamas	1979	Yes	Yes
Poland	1979	Yes	
Ireland	1979	Yes	
United States of America	1979	Yes	
Turkey	1979	Yes	
Congo	1980	Yes	
Kenya	1980	Yes	
Ghana	1980	Yes	
Burkina Faso	1980	Yes	
Ivory Coast	1980	Yes	
France	1980	Yes	
Brazil	1980	Yes	
German Federal Republic	1980	Yes	
Democratic Republic of the Congo	1980	Yes	
Pakistan	1981	Yes	Yes
Philippines	1981	Yes	
Guam	1981	Yes	Yes
Japan	1981	Yes	
United States of America	1981		Yes
Nigeria	1982	Yes	
Benin	1982	Yes	
Equatorial Guinea	1982	Yes	
Gabon	1982	Yes	
Portugal	1982	Yes	
United Kingdom	1982	Yes	
Brazil	1982		
Argentina	1982	Yes	
Switzerland	1982	Yes	
San Marino	1982	Yes	
Spain	1982	Yes	
Portugal	1983		Yes
Costa Rica	1983 (twice)	Yes	
Nicaragua	1983	Yes	
Panama	1983	Yes	
El Salvador	1983	Yes	
Guatemala	1983 (twice)	Yes	

Honduras	1983	Yes	
Belize	1983	Yes	
Haiti	1983	Yes	
Poland	1983		
France	1983		
Austria	1983	Yes	
United States of America	1984		Yes
South Korea	1984	Yes	
Papua New Guinea	1984 (twice)	Yes	
Solomon Islands	1984	Yes	
Thailand	1984	Yes	
Switzerland	1984		
Canada	1984	Yes	
Spain	1984		
Dominican Republic	1984		
Puerto Rico	1984	Yes	
Venezuela	1985	Yes	
Ecuador	1985	Yes	
Peru	1985	Yes	
Trinidad and Tobago	1985	Yes	
Netherlands	1985	Yes	
Luxembourg	1985	Yes	
Belgium	1985	Yes	
Togo	1985	Yes	
Ivory Coast	1985		
Cameroon	1985	Yes	
Central African Republic	1985	Yes	
Democratic Republic of the Congo	1985		
Kenya	1985		
Morocco	1985	Yes	
Switzerland	1985		
Liechtenstein	1985	Yes	
India	1986	Yes	
Colombia	1986	Yes	
St. Lucia	1986	Yes	
France	1986		
Bangladesh	1986	Yes	
Singapore	1986	Yes	
Fiji	1986	Yes	
New Zealand	1986	Yes	
Australia	1986	Yes	

Seychelles	1986	Yes
Uruguay	1987	Yes
Chile	1987	Yes
Argentina	1987	
German Federal Republic	1987	
Poland	1987	
United States of America	1987	
Canada	1987	
Uruguay	1988	
Bolivia	1988	Yes
Peru	1988	
Paraguay	1988	Yes
Austria	1988	
Zimbabwe	1988	Yes
Botswana	1988	Yes
Lesotho	1988	Yes
Swaziland	1988	Yes
Mozambique	1988	Yes
France	1988	
Madagascar	1989	Yes
Reunion	1989	Yes
Zambia	1989	Yes
Malawi	1989	Yes
Norway	1989	Yes
Iceland	1989	Yes
Finland	1989	Yes
Denmark	1989	Yes
Sweden	1989	Yes
Spain	1989	
South Korea	1989	
Indonesia	1989	Yes
Mauritius	1989	Yes
Cape Verde	1990	Yes
Guinea-Bissau	1990	Yes
Mali	1990	Yes
Burkina Faso	1990	
Chad	1990	Yes
Czechoslovakia	1990	Yes
Mexico	1990	
Curacao	1990	Yes
Malta	1990	Yes

Tanzania	1990	Yes
Burundi	1990	Yes
Rwanda	1990	Yes
Ivory Coast	1990	
Portugal	1991	
Poland	1991 (twice)	
Hungary	1991	Yes
Brazil	1991	
Senegal	1992	Yes
Gambia	1992	Yes
Guinea-Bissau	1992	
Angola	1992	Yes
Sao Tome and Principe	1992	Yes
Dominican Republic	1992	
Benin	1993	
Uganda	1993	Yes
Sudan	1993	Yes
Albania	1993	Yes
Spain	1993	
Jamaica	1993	Yes
Mexico	1993	
United States of America	1993	
Lithuania	1993	Yes
Latvia	1993	Yes
Estonia	1993	Yes
Croatia	1994	Yes
Philippines	1995	
Papua New Guinea	1995	
Australia	1995	
Sri Lanka	1995	Yes
Czech Republic	1995	
Poland	1995	
Belgium	1995	
Slovakia	1995	
Cameroon	1995	
South Africa	1995	Yes
Kenya	1995	
United States of America	1995	
Guatemala	1996 (twice)	
El Salvador	1996	
Nicaragua	1996	

Venezuela	1996	
Tunisia	1996	Yes
Germany	1996	
Slovenia	1996	Yes
Hungary	1996	
France	1996	
Bosnia and Herzegovina	1997	Yes
Czech Republic	1997	
Lebanon	1997	Yes
Poland	1997	
France	1997	
Brazil	1997	
Cuba	1998	Yes
Nigeria	1998	
Austria	1998	
Croatia	1998	
Mexico	1999	
United States of America	1999	
Romania	1999	Yes
Poland	1999	
Slovenia	1999	
India	1999	
Georgia	1999	Yes
Egypt	2000	Yes
Jordan	2000	Yes
Israel	2000	Yes
Palestine	2000	Yes
Portugal	2000	
Greece	2001	Yes
Syria	2001	Yes
Malta	2001	
Ukraine	2001	Yes
Kazakhstan	2001	Yes
Armenia	2001	Yes
Azerbaijan	2002	Yes
Bulgaria	2002	Yes
Canada	2002	
Guatemala	2002	
Mexico	2002	
Poland	2002	
Spain	2003	

Croatia	2003
Bosnia and Herzegovina	2003
Slovakia	2003
Switzerland	2004
France	2004

Notes. All visits, first visits, and stopover visits by Pope John Paul II. Source: Vatican.

Appendix Table 2. Data sources

Variable	Source
Exports	IMF DOTS
Year of Pastoral visit	Vatican
Year of visit by US President	Department of State
Year of visit by Queen Elisabeth II	Royal family
Year of Summer Olympic Games or Football World Cup	IOC and FIFA
Share Catholics	CIA
GDP growth	WDI
Population growth	WDI
FX rate	WDI
Trade liberalization	Wacziarg and Welch (2008)
Inflation	WDI

Notes. ‘Exports’ denotes bilateral exports by a visited country to a trading partner, or total exports by a visited country to the rest of the world. ‘Share Catholics’ is the share, out of the total population, of citizens that identify as Catholics. ‘GDP growth’ denotes the year-on-year percentage change in real GDP per capita in a trading partner country. ‘Population growth’ denotes the year-on-year percentage change in total population. ‘FX rate’ denotes the real exchange rate. ‘Trade liberalized’ is a dummy variable equal to one if the country has liberalized its trade with the rest of the world. ‘Inflation’ denotes the year-on-year change in the CPI. ‘Vatican’ denotes the official Vatican archive of Pastoral visits, https://web.archive.org/web/20111101084344/http://www.vatican.va/holy_father/john_paul_ii/travels/index.htm for John Paul II and https://web.archive.org/web/20111101011528/http://www.vatican.va/holy_father/paul_vi/travels/index.htm for Paul VI; ‘Department of State’ denotes the archive of US Presidents’ foreign visits maintained by the Office of the Historian of the State Department, <https://history.state.gov/departmenthistory/travels/president>; ‘Royal family’ denotes the archive of the state visits of Elisabeth II, maintained by the Royal family https://www.royal.uk/sites/default/files/media/outbound_state_visits_since_1952_0.pdf; ‘IOC and FIFA’ denotes the official archive of Olympic Games and Football World Cups maintained by the International Olympic Committee, <https://olympics.com/ioc/celebrate-olympic-games>, and by the International Federation of Association Football, <https://www.fifa.com/tournaments/mens/worldcup>; ‘CIA’ denotes the CIA Factbook; ‘WDI’ denotes the World Bank’s World Development Indicators.

Appendix Table 3. Pastoral visits by Paul VI, by country and year

Visited country	Year of visit
Jordan	1964
Israel	1964
Lebanon	1964
India	1964
United States of America	1965
Portugal	1967
Turkey	1967
Colombia	1968
Bermuda	1968
Switzerland	1969
Uganda	1969
Iran	1970
Pakistan	1970
Philippines	1970
Western Samoa	1970
American Samoa	1970
Australia	1970
Indonesia	1970
Hong Kong	1970
Sri Lanka	1970

Notes. All visits by Pope Paul VI. Source: Vatican.

Appendix Table 4. Pastoral visits by John Paul II and bilateral trade: Robustness

	Log (Exports)		
	Excluding visits less than four years after a previous visit	Excluding countries with four or more visits	Excluding stopovers
	(1)	(2)	(3)
Share Catholics × Year 1	0.0683 (0.0524)	0.0480 0.0611	0.0771* (0.0462)
Share Catholics × Year 2	0.1268** (0.0550)	0.1529** (0.0642)	0.1385*** (0.0490)
Share Catholics × Year 3	0.1221** (0.0497)	0.1499*** (0.0551)	0.1316*** (0.0422)
Share Catholics × Year 4	0.1834*** (0.0506)	0.1890*** (0.0580)	0.1804*** (0.0461)
Share Catholics × Year 5	0.0978** (0.0446)	0.1007* (0.0529)	0.0977** (0.0407)
Visited country × Partner country FE	Yes	Yes	Yes
Visited country × Year FE	Yes	Yes	Yes
Partner country × Year FE	Yes	Yes	Yes
Observations	466,001	435,340	476,884
R-squared	0.86	0.85	0.86

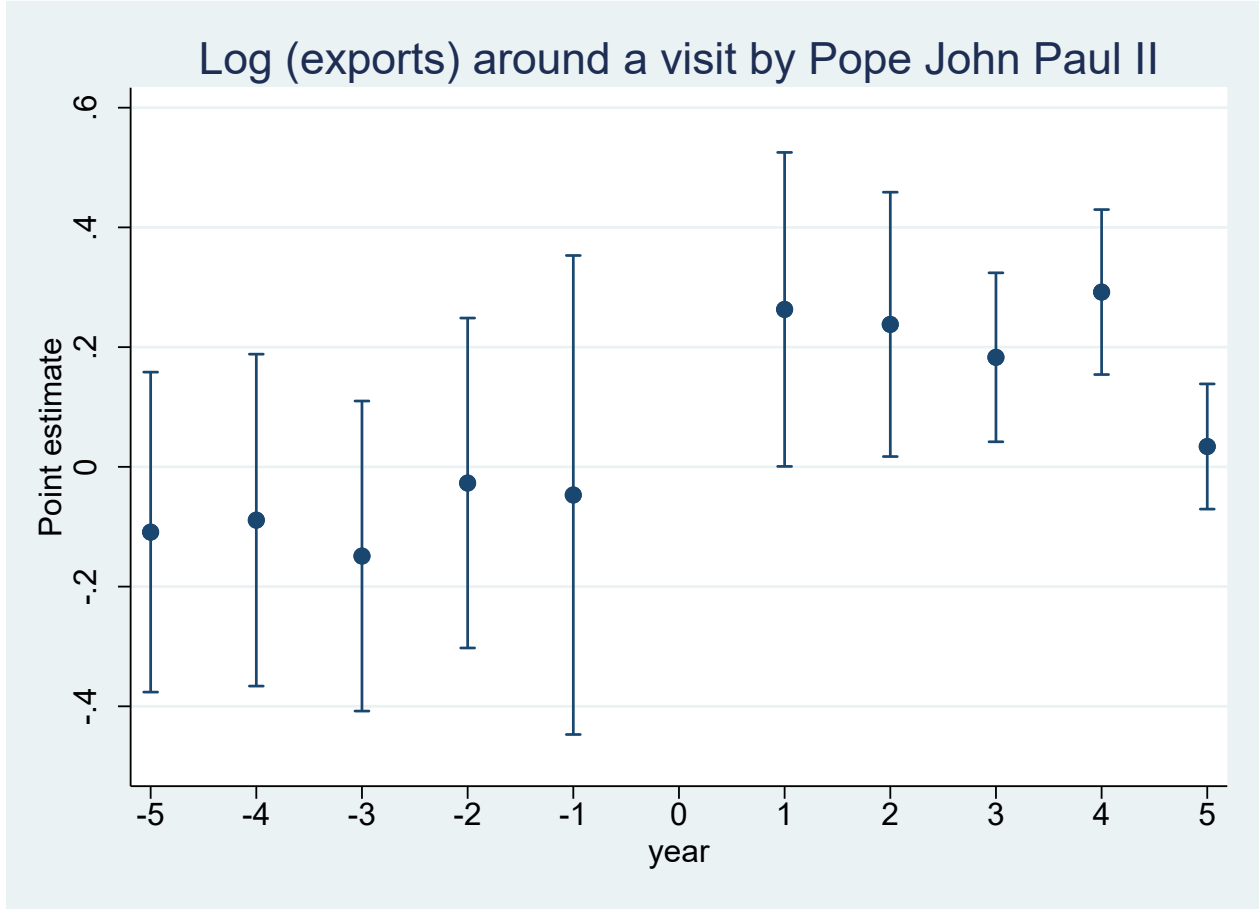
Notes: The dependent variable is the natural logarithm of total exports from a country visited by John Paul II to a trading partner country. ‘Share Catholics’ is the share, out of the total population, of citizens that identify as Catholics in a trading partner country. ‘Year 1’, ‘Year 2’, ‘Year 3’, ‘Year 4’, and ‘Year 5’ are dummy variables equal to one in first, second, third, fourth, and fifth year after the Pope’s visit, respectively, and to zero otherwise. The sample excludes visits that took place less than 4 years after a previous visit (column (1)); excludes all countries that the Pope visited four times or more (column (2)); and excludes stopovers (column (3)). The sample period is 1970–2010. All regressions are estimated using OLS and include fixed effects as specified. Standard errors clustered at the visited country level, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table 5. Summary statistics

Variable	Mean (1)	Median (2)	St. dev (3)	Min (4)	Max (5)
Exports (\$ billion)	0.132	0.001	2.344	0	162.623
Share Catholics	0.243	0.100	0.271	0	0.905
GDP growth	0.021	0.020	0.042	-0.316	0.557
Population growth	0.017	0.019	0.017	-0.444	0.177
FX rate	2.213	0.031	11.151	0.000	200.253
Trade liberalized	0.407	0	0.491	0	1
Inflation	0.481	0.069	4.517	-0.270	154.423

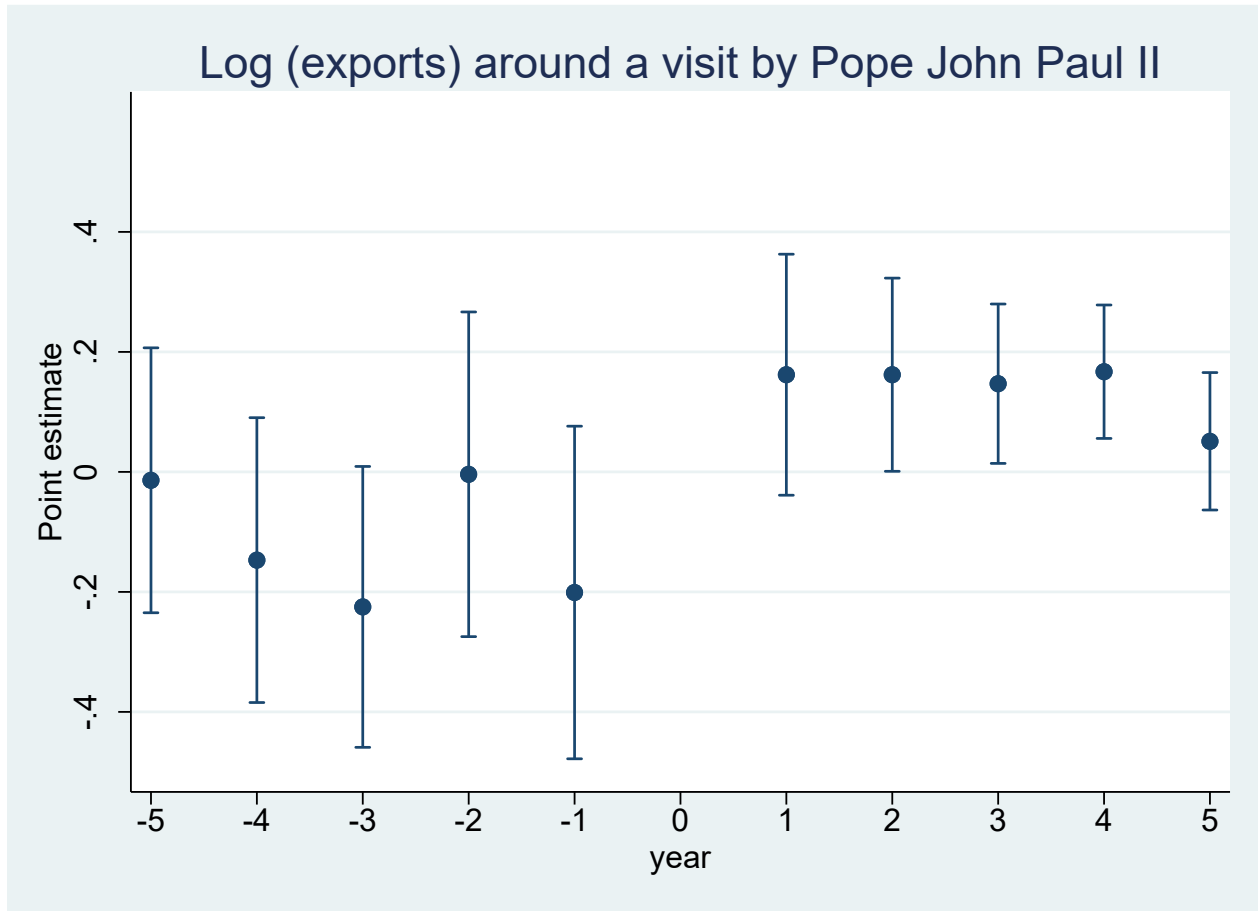
Notes: ‘Exports (\$ billion)’ denotes exports by a home country, in billions of constant USD, to a trading partner or aggregate. ‘Share Catholics’ is the share, out of the total population, of citizens that identify as Catholics in a trading partner country. ‘GDP growth’ denotes the year-on-year percentage change in real GDP per capita in a trading partner country. ‘Population growth’ denotes the year-on-year percentage change in total population. ‘FX rate’ denotes the real exchange rate to the USD. ‘Trade liberalized’ is a dummy variable equal to one if the country has liberalized its trade with the rest of the world. ‘Inflation’ denotes the year-on-year change in the CPI. For variable sources, see Appendix Table 2.

Appendix Chart 1. Bilateral exports around a Papal visit, top-half Catholic trading partners



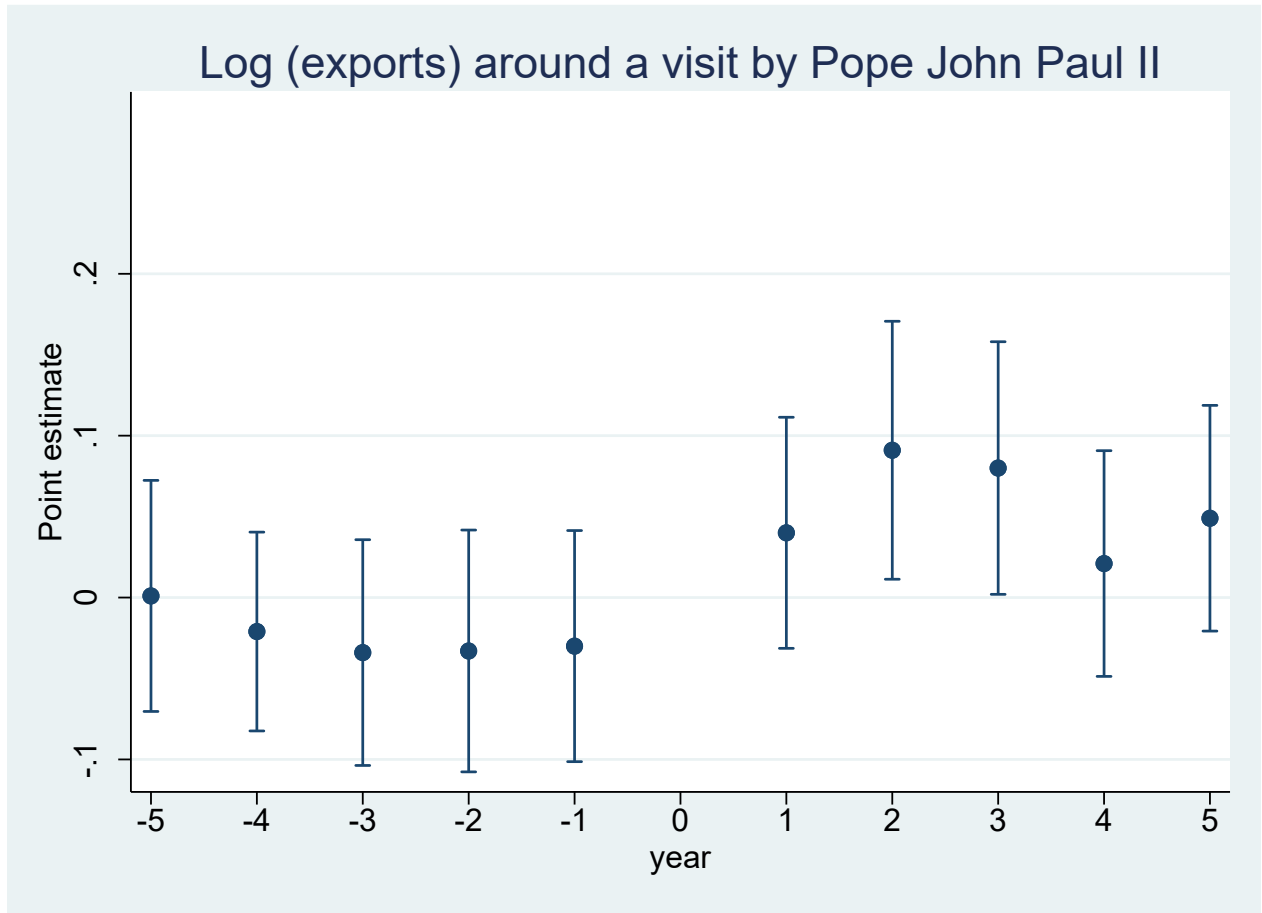
Notes: The Chart plots point estimates and 90-percent confidence intervals from a regression based on Equation (1), excluding interaction variables and including dummies for the pre-visit years. The sample includes only trade partner countries which are in the top half of the distribution of Catholic population.

Appendix Chart 2. Bilateral exports around a Papal visit, bottom-half Catholic trading partners



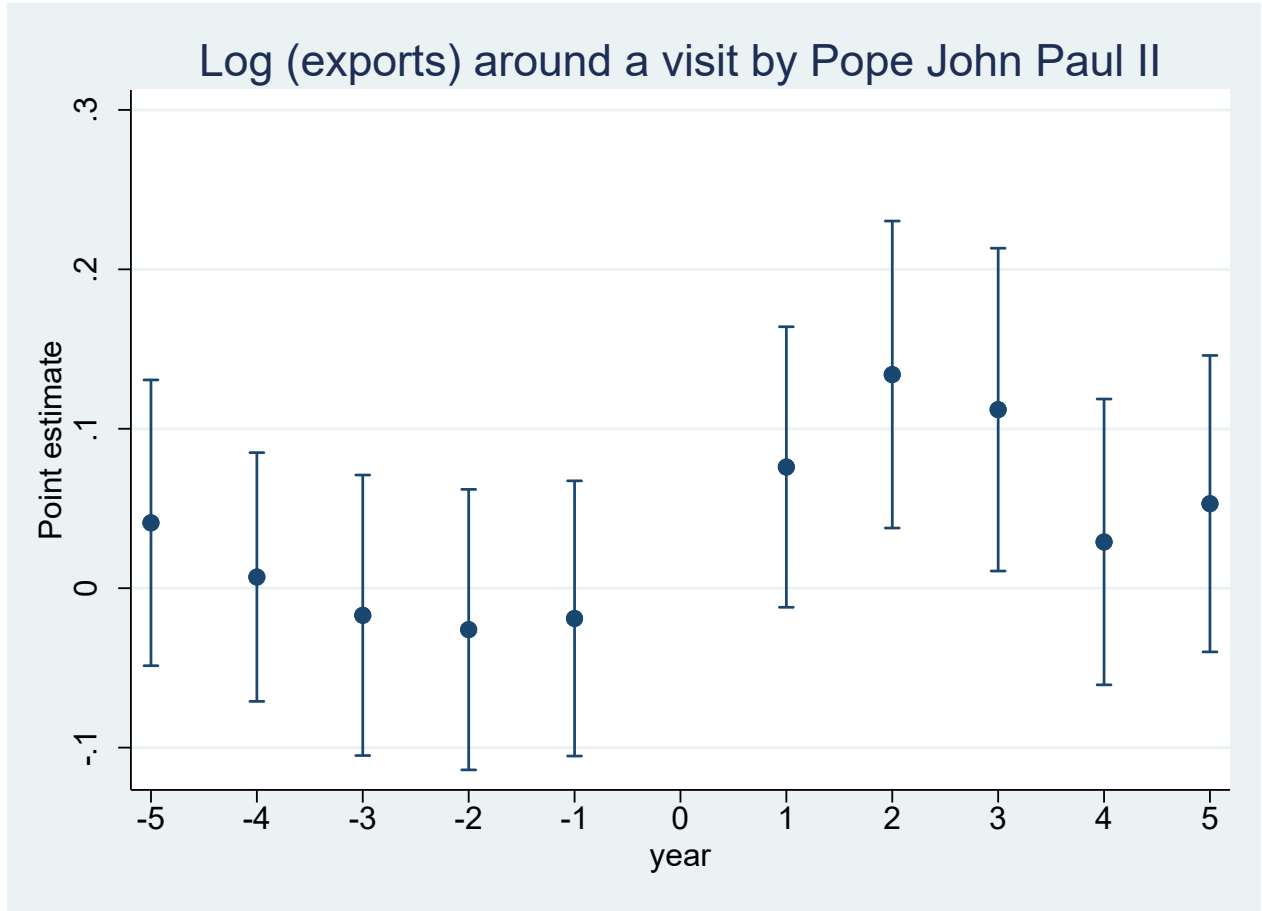
Notes: The Chart plots point estimates and 90-percent confidence intervals from a regression based on Equation (1), excluding interaction variables and including dummies for the pre-visit years. The sample includes only trade partner countries which are in the bottom half of the distribution of Catholic population.

Appendix Chart 3. Aggregate exports around a Papal visit, all visited countries



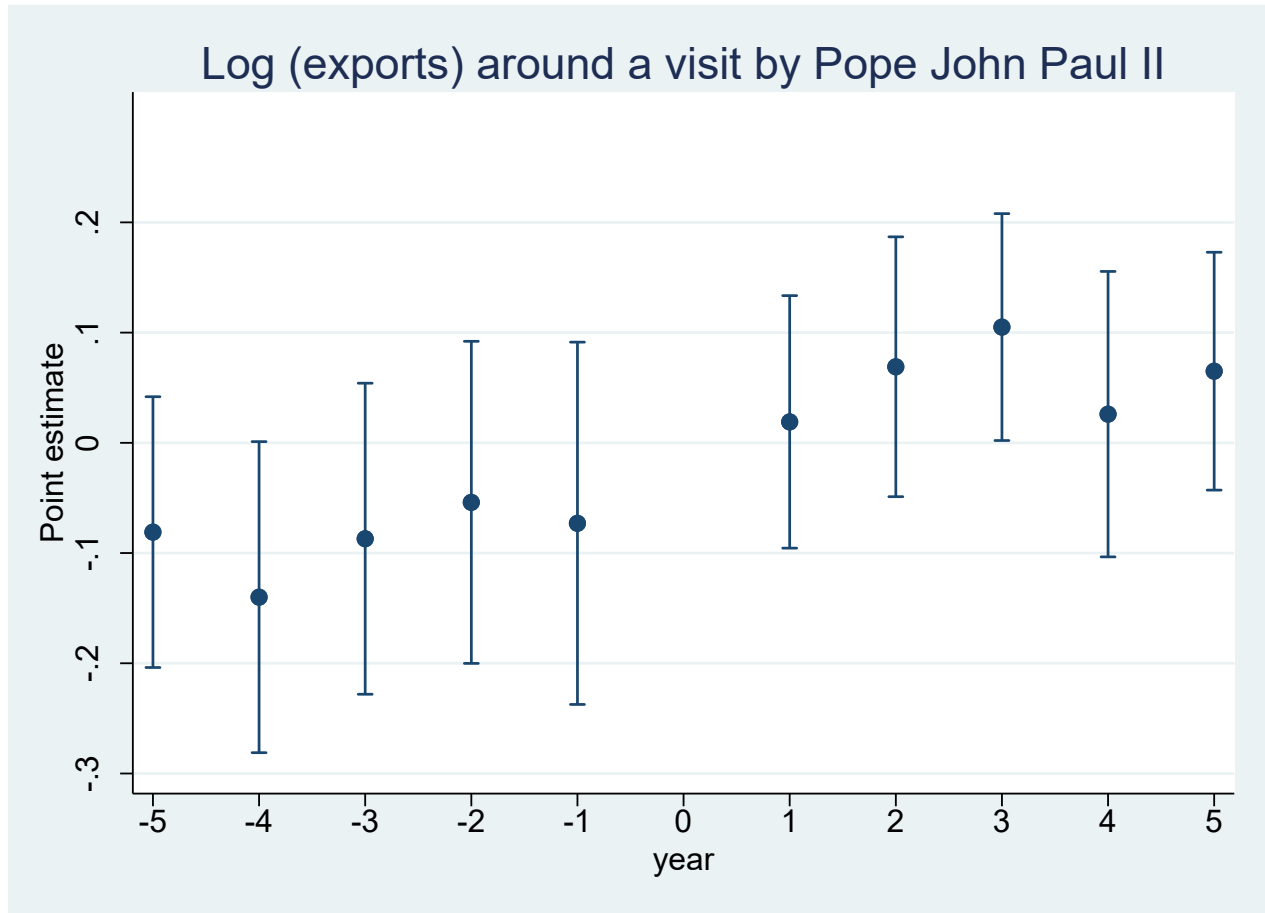
Notes: The Chart plots point estimates and 90-percent confidence intervals from a regression based on Equation (3), including dummies for the pre-visit years. The sample includes all visited countries.

Appendix Chart 4. Aggregate exports around a Papal visit, non-OECD visited countries



Notes: The Chart plots point estimates and 90-percent confidence intervals from a regression based on Equation (3), including dummies for the pre-visit years. The sample includes only visited non-OECD countries.

Appendix Chart 5. Aggregate exports around a Papal visit, bottom-half visited Catholic countries



Notes: The Chart plots point estimates and 90-percent confidence intervals from a regression based on Equation (3), including dummies for the pre-visit years. The sample includes only visited countries which are in the bottom half of the distribution of Catholic population.