Heterogeneous effects of economic diplomacy: Instruments, Determinants and Developments

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HETEROGENEOUS EFFECTS OF ECONOMIC DIPLOMACY: INSTRUMENTS, DETERMINANTS AND DEVELOPMENTS

HETROGENE EFFECTEN VAN ECONOMISCHE DIPLOMATIE: INSTRUMENTEN, DETERMINANTEN EN ONTWIKKELINGEN

Thesis

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To Nelleke, my parents and sister

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Acronyms

CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CIA	Central Intelligence Agency
CU	Currency Union
DAC	Development Assistance Committee
DIFF	Differentiated Goods
ECDPM	European Center for Development Policy Management
EDEM	Economics of Development and Emerging Markets
EPA	Export Promotion Agency
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GMM	Generalized Method of Moments
GNI	Gross National Income
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
HOM	Homogeneous Goods
IOB	Inspectie Ontwikkelingssamenwerking en Beleidsevaluatie (Policy and Operations Evaluation Department)
IMF	International Monetary Fund
IPA	Investment Promotion Agency
IV	Instrumental Variables
LAC	Latin American Country
LDC	Least Developed Country
LIC	Low Income Country

ML	Maximum Likelihood
MNE	Multinational Enterprise
NBSO	Netherlands Business Support Office
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
OLS	Ordinary Least Squares
PPML	Poisson Maximum Likelihood
REF	Reference Priced Goods
REPO	Regional Export Promotion Offices
ROC	Receiver Operating Characteristic
2SLS	Two Stage Least Squares
SITC	Standard International Trade Classification
TCS	Canadian Trade Commissioner Service
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
US	United States
VAR	Vector Autoregressive
WEO	World Economic Outlook
WITS	World Integrated Trade Solution
WOLS	Weighted Ordinary Least Squares
WRR	Wetenschappelijke Raad voor Regeringsbeleid (The Netherlands Scientific Council for Government Policy)
WTO	World Trade Organisation

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In January 2013 I handed in the research proposal "*The impact of economic diplomacy on international economic flows*" to Peter van Bergeijk. The idea of writing my dissertation had been popping up again and again ever since I finished my Master in Economics at the Erasmus University. In the period 2006-2012, I published several articles together with colleagues and friends. Writing those pieces always was a mixed pleasure. A struggle in the beginning but joy and pride at the end. I guess it was that joy and pride together with a lot of curiosity that led me to decide to finalize my economics study with a PhD.

Writing my PhD was rewarding, not only academically. It offered distraction from the sorrows from my job at the ministry of Foreign Affairs. It offered me an opportunity to think about causal relationships and future venues of research when I was ill and hospitalized. It offered me the chance to work on something that generally fascinates me: the relationship between international trade and investment and government agents. It offered me the luxury of knowing economic diplomacy from both the economic theory and a practitioner's perspective.

That being said, no PhD trajectory is easy. It probably does not help if the student also has a full time job and experiences quite some personal turmoil. To describe the road over the last four years therefore a few lines of the opening scene of Shakespeare's Macbeth come to mind.

FIRST WITCH: When should the three of us meet again? Will it be in thunder, lightning, or rain?

SECOND WITCH: We'll meet when the noise of the battle is over, when one side has won and the other side has lost.

THIRD WITCH: That will happen before sunset.

(Crowther, J. (ed.) (2005), *No Fear Macbeth*, Act I, Scene 1)

And now I can say: My PhD battle is over. I have many to thank. First of all my supervisors, Peter van Bergeijk and Mansoob Murshed. Over the past four years Peter and Mansoob have provide valuable advice and encouragement and helped me on my academic journey. I could not have finished this PhD without their supervision and understanding of the balancing act the PhD together with the job was.

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ing my thesis, there is at least one (former) colleague who is equally very interested in the field of economic diplomacy: Remco de Boer who co-authored two articles that are valuable building blocks for this thesis (Chapters 5 and 6). Remco, it has been a pleasure working with you.

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Finally, of course a word of gratitude to my family, my girlfriend Nelleke and to my ex-girlfriend Frederieke. You have been vital elements in my life. You have supported and encouraged me over the years. You have stood up with me when I was grumpy because of working too hard. And more importantly you forgave me for my grumpiness. Thank you for you love and care.

Abstract

Economic diplomacy is defined as the actions of both state and non-state actors aimed at promoting cross-border trade and investment flows. This thesis focuses on the heterogeneous effects of economic diplomacy as implemented by national governments as well as the factors that determine said heterogeneity.

The subject of economic diplomacy is increasingly popular in economic literature and is also a widely used tool in the policies of governments. Within bilateral relations between developed and developing countries, economic diplomacy plays an increasingly important role. Chapter 2 discusses this development from the perspective of development studies. Insights from this thesis can be helpful for the development of further research on economic diplomacy and policy design on this subject.

This thesis shows the great diversity of (possible) effects of economic diplomacy and the causes of this heterogeneity in economic diplomacy effects. For this, various research methods are used, varying from document analysis, literature reviews and statistical analyses for which new and unique data were collected. To analyze the factors behind said heterogeneity of economic diplomacy effects, 32 econometric studies (published in the period from 1985 to 2011) are investigated by means of a meta-analysis in Chapter 3. This meta-analysis, which has been published in a peer-reviewed journal, shows the influence of research characteristics (statistical method, model, period, etc.) and the instrument of economic diplomacy that is examined in the corresponding primary study. The meta-analysis suggests the need to make a distinction between specific instruments (such as between embassies and consulates) and the desirability to conduct further research into foreign direct investment.

The meta-analysis is supplemented in Chapter 4 by a review of 12 empirical studies on the impact of economic diplomacy on entry into new markets

(extensive margin) and the volume of bilateral trade (intensive margin). This literature review, which has been published in a peer-reviewed journal, makes apparent that the effect of economic diplomacy for Latin American countries is primarily observed for the entry into new markets. For OECD countries, the literature in particular stresses the effect on the traded volume. The study in Chapter 5, which has been accepted as a peer-reviewed publication, uses a gravity model with 63 countries for the year 2006 to examine the market entry and volume effects of economic diplomacy. With the use of the Rauch classification, internationally tradable goods have been subjected to further investigation. The analysis at this level of tradeable groups of goods offers a previously unexplored opportunity to address the problem of causality, which is fundamental to literature on economic diplomacy: does economic diplomacy lead to more trade, or does the total trading volume determine the use of economic diplomacy? Chapter 6 investigates the relationship between economic diplomacy and bilateral investment. The chapter shows again that economic diplomacy promotes international economic activities and the need to differentiate to the specific economic diplomacy instrument used.

This thesis contributes to the literature in four important ways:

1. The agenda of economic diplomacy is connected to the agenda for development cooperation. Based on the growing role of (former) developing countries in the world economy, issues are proposed that can be part of the bilateral agenda with these countries. Various components of economic diplomacy can play a role in the transition of bilateral relations with (former) developing countries, in which the combination of development cooperation and trade and investment relationships can be mutually reinforcing (Chapter 2).
2. This thesis is the first to present the meta-effect of economic diplomacy on international trade and investment as positive and significant. In the 32 studies that were investigated especially embassies and consulates (combined in one variable) and embassies (separately measured) are associated with a significantly positive meta-effect. Other instruments that were investigated, including export and investment promotion agencies, trade missions and state visits have a lower meta-significance (Chapter 3).
3. The diplomatic network is shown to be especially relevant to the market entry decision and traded volume for products that are not traded in organized exchanges. In this type of transaction, trust between buyers and sellers plays an important role and can be enhanced

through the use of economic diplomacy trust between buyers and sellers. The analysis shows that the observed effect of embassies is greater than the observed effect of consulates (Chapter 5).

4. For a large group of developed and developing countries it is, for the first time, established that the diplomatic network is a significant factor for outward foreign direct investment. Results show that investments beyond regional boundaries are particularly stimulated by economic diplomacy. It, furthermore, seems that, on average, countries with a larger share in the total number of diplomatic representations in the host country facilitate more investment from their home country (Chapter 6).

In addition to in-depth and policy-relevant findings on the heterogeneous impact of economic diplomacy, this study offers three methodological innovations that are also relevant and applicable outside the field of economic diplomacy research:

1. In the meta-analysis in Chapter 3, the number of available observations is doubled by focusing on the reported minimum levels of significance. This innovation is relevant to each meta-analysis for a multidisciplinary field of research with different reporting standards.
2. In the investigation into Rauch classified internationally tradable goods, an easily applicable solution is provided for goods that have no Rauch classification at the 4 digit SITC level. By interpolating, the number of not classified goods is brought back from 10 per cent to 3 per cent. The method of interpolation is easily applicable in other studies in which Rauch classified goods are used.
3. In the regression analysis in Chapter 5, groups of traded goods are used as dependent variables instead of the more frequently used total trade flows. By using these lower aggregated data in the presented research the concerns about causality are reduced. This approach is also relevant for other areas of research where causality is an issue.

Hetrogene effecten van economische diplomatie: instrumenten, determinanten en ontwikkelingen.

Samenvatting

Economische diplomatie betreft de acties van statelijke en niet statelijke actoren gericht op het bevorderen van handel- en investeringsstromen. Dit proefschrift richt zich op de heterogene effecten van economische diplomatie zoals uitgevoerd door nationale overheden en de factoren die deze heterogeniteit bepalen. Het onderwerp economische diplomatie is de afgelopen jaren steeds populairder geworden binnen de economische wetenschap en is daarnaast een veel gebruikt instrument in het beleid van Ministeries van Buitenlandse Zaken. Ook binnen bilaterale relatie tussen ontwikkelde en ontwikkelingslanden vervult economische diplomatie een steeds belangrijker rol, zoals blijkt in Hoofdstuk 2 dat deze beleidsontwikkeling bespreekt vanuit het perspectief van ontwikkelingsstudies. De inzichten uit dit proefschrift kunnen behulpzaam zijn voor zowel de verdere ontwikkeling van het onderzoek naar economische diplomatie als de beleidsvorming op dit onderwerp.

Dit proefschrift toont de grote diversiteit aan (mogelijke) effecten van economische diplomatie en de oorzaken van deze heterogeniteit. Daarvoor worden verschillende onderzoeksmethodes gebruikt variërend van bronnenonderzoek, literatuuronderzoek tot statistische analyses waarvoor ook nieuwe en unieke data zijn verzameld. Om de factoren achter de diversiteit in de effecten van economische diplomatie te onderzoeken worden 32 econometrische studies (gepubliceerd in de periode 1985-2011) door middel van een meta-analyse geanalyseerd in Hoofstuk 3. Deze meta-analyse, die inmiddels als wetenschappelijk artikel is gepubliceerd, toont de invloed van onderzoekkarakteristieken (statistische methode, model, periode etc.) en het instrument dat in de desbetreffende primaire studie wordt onderzocht. Uit de meta-analyse blijkt de noodzaak onderscheid te maken tussen specifieke instrumenten (zoals tussen ambassades en consulaten) en de wenselijkheid nader onderzoek te verrichten naar directe buitenlandse investeringen.

De meta-analyse wordt in Hoofdstuk 4 aangevuld met een bespreking van 12 empirische studies naar de invloed van economische diplomatie op toetreding tot nieuwe markten (extensieve marge) en het volume (intensieve marge) van bilaterale handel. Uit dit literatuuroverzicht, dat inmiddels als wetenschappelijk artikel is gepubliceerd, blijkt dat dat het effect van economische diplomatie voor Latijns-Amerikaanse landen primair loopt via markttoetreding. Voor OECD-landen wijst de literatuur met name op een effect op het verhandelde volume. Hoofdstuk 5, dat ook als wetenschappelijk artikel geaccepteerd is voor publicatie, onderzoekt met een gravitatiemodel voor 63 landen in 2006 toetreding- en volume-effecten van economische diplomatie. Daarbij zijn internationaal verhandelde goederensoorten, met behulp van de classificatie van Rauch, aan een nader onderzoek onderworpen. De analyse op het niveau van goederensoorten biedt een nog niet eerder geëxploreerde mogelijkheid om een causaliteitsprobleem te ondervangen dat elementair is voor deze literatuur: leidt economische diplomatie tot meer handel of is het totale handelsvolume bepalend voor de inzet van economische diplomatie? In Hoofdstuk 6 wordt de relatie tussen economische diplomatie en bilaterale investeringen nader onderzocht. Hierbij blijkt wederom dat economische diplomatie de internationale activiteiten stimuleert en wordt de noodzaak te differentiëren naar specifieke instrumenten tevens aangetoond

Het onderzoek biedt vier belangrijke nieuwe inzichten ten opzichte van de eerdere studies naar economische diplomatie:

1. De agenda voor economische diplomatie wordt verbonden met de agenda voor ontwikkelingssamenwerking. Op basis van de groeiende rol die (voormalig) ontwikkelingslanden spelen in de wereldeconomie wordt een voorstel ontwikkeld voor onderwerpen die in de bilaterale agenda met deze landen kunnen worden opgepakt. Verschillende onderdelen van economische diplomatie kunnen een rol spelen in het transitiepad van bilaterale relaties waarbij combinaties van ontwikkelingssamenwerking en handels- en investeringsrelaties elkaar kunnen versterken (Hoofdstuk 2).
2. Voor het eerst kon worden vastgesteld dat het meta-effect van economische diplomatie op internationale economische stromen positief en significant is. In de 32 onderzochte studies worden met name ambassades en consulaten (gecombineerd in 1 variabele) en ambassades (separaat gemeten) geassocieerd met een significant positief meta-effect. Andere instrumenten die zijn onderzocht, waaronder export- en inves-

teringspromotie-agentschappen, handelsmissies en staatsbezoeken hebben een lagere meta-significantie (Hoofdstuk 3).

3. Het diplomatieke netwerk blijkt bij de markttoetredingsbeslissing en het handelsvolume vooral relevant voor producten die niet via beurzen en platforms verhandeld worden. Bij dit type transactie speelt vertrouwen tussen de kopers en verkopers een grote rol en kan door de inzet van economische diplomatie vertrouwen tussen kopers en verkopers versterkt worden. Hierbij blijkt dat het waargenomen effect van ambassades groter is dan het waargenomen effect van consulaten (Hoofdstuk 5).
4. Voor het eerst is voor een grote groep van ontwikkelde en ontwikkelingslanden vastgesteld dat het diplomatieke netwerk een significante factor is voor uitgaande investeringen. Daarbij blijkt vooral dat investeringen die over regionale grenzen heen gaan door economische diplomatie gestimuleerd worden. Ook lijken landen die een groter aandeel hebben in het totaal aantal diplomatieke representaties in een land gemiddeld genomen meer investeringen vanuit hun moederland faciliteren (Hoofdstuk 6).

Naast verdiepende en beleidsrelevante inzichten over de heterogene invloed van de economische diplomatie biedt dit onderzoek drie methodische innovaties die ook buiten dit onderzoeksterrein relevant en toepasbaar zijn.

1. In de meta-analyse in Hoofdstuk 3 wordt het aantal voor onderzoek beschikbare waarnemingen verdubbeld door te focusseren op het gerapporteerde minimale significantieniveau. Deze innovatie is relevant voor iedere meta-analyse voor een multidisciplinair onderzoeksveld met verschillende rapportagestandaarden.
2. In de het onderzoek naar Rauch-geclassificeerde internationaal verhandelbare goederen soorten wordt een simpel toepasbare oplossing aangereikt voor goederensoorten die niet in de Rauch-classificatie (op het 4 digit SITC-niveau) voor komen. Door interpolatie wordt het aantal niet geclassificeerde goederensoorten terug gebracht van 10 procent naar 3 procent. De methode van interpolatie is makkelijk toepasbaar in ander onderzoek waarin Rauch-geclassificeerde goederensoorten worden gebruikt.
3. Door in Hoofdstuk 5 gebruik te maken van data op het aggregatieniveau van individuele groepen verhandelde goederen in plaats van de totale handel worden zorgen over causaliteit gereduceerd. Deze aanpak is ook relevant voor andere onderzoeksgebieden waar causaliteit een onderwerp van discussie.

1 Introduction

1.1 Economic diplomacy: background and definition

The relation between international trade on the one hand and investment and politics on the other has been on the forefront of (international) economics for a long time (Bayne and Woolcock, 2007; Krasner, 1976; Coolsaet, 2000; Okano-Heijmans, 2011). Between 1500 and 1750 Mercantilism[1] was the dominant economic school of thought in Europe (Beer, 1885). Mercantilist authors introduced the idea of export promotion (both via subsidizing exports and opening up new markets via bilateral relations) because according to them, the key objective of trade should be to promote a favourable balance of trade (Ekelund and Hebert, 1997; Irwin, 2001; Lamond; 1893).

The practice of economics has much advanced since the Mercantilists and so have the ideas regarding government intervention in (international) markets. The requirements for government intervention are that 1) the benefits of the intervention must outweigh the costs, and 2) the intervention must target the source of the inefficiency (Bergeijk et al., 2011a). Economic diplomacy, the topic of this thesis, is one of the interventions governments can undertake in international markets. Notwithstanding the advances made in international communication, transportation technology and strongly reduced formal trade barriers[2], international markets still function far from efficient (Bergeijk; 2009b; Tharakan and Bulke, 1998). Informal trade barriers like cultural and institutional differences, political measures and *modi operandi* act as intangible barriers to trade (Banalieva and Dhanaraj, 2013; Disdier and Head, 2008; Guiso et al., 2009; Head and Mayer, 2010; Kano et al., 2013; Möhlman et al., 2010). Furthermore, not all countries have made similar progress in reducing formal trade barriers.

Economic diplomacy targets the inefficiencies that hinder international trade and foreign direct investment (FDI). The aim of economic diplomacy is to influence decisions on cross-border economic activities (Bayne and Woolcock, 2007). Building on Bergeijk et al. (2011a) economic diplomacy is characterised as follows:

- Trade and investment promotion. This includes the promotion of exports as well as imports. It furthermore includes the promotion of cross border investments. This involves information gathering and supplying, nation branding and advisory tasks (Lee and Hudson, 2004; Saner and Yiu, 2003);
- Securing property rights and the stability of economic relations. This involves negotiating bilateral investment treaties and bilateral trade agreements. It aims at strengthening the benefits of favourable political relations thereby reducing the risk of international flows;
- Influencing foreign national policy making in favour of domestic multinational enterprises (Bergeijk et al., 2011a; Saner and Yiu, 2003). These activities involve the use of bilateral contacts aimed at tackling specific barriers that hamper the commercial interest of internationally active domestic companies;
- Maintain a favourable international policy environment. This involves the governments' multilateral efforts to preserve a functioning global governance system for trade and financial flows.

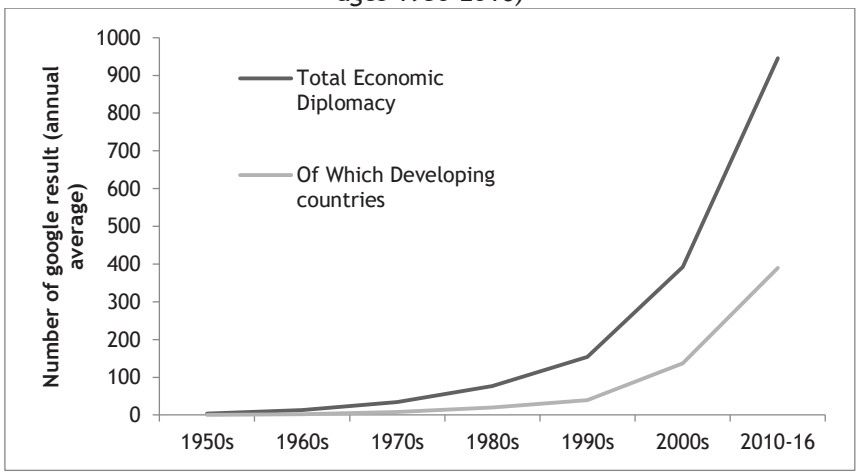
In this thesis the main focus is the econometrically measurable effect of (instruments of) economic diplomacy deployed by state actors in their bilateral relations. Typically nations interact with other nations through a broad range of actions of semi-permanent international representations (embassies, consulates and other public sector business support facilities) and diplomatic bilateral activities (trade and state visits) (Moons and Bergeijk, 2016). Governments also interact with foreign and domestic companies to stimulate trade and investment through domestic institutions (investment and export promotion offices) that stand under the auspices of economic diplomats, use information from the diplomatic network and in many countries form the home basis for trade and investment promotion activities in the diplomatic network (Moons and Bergeijk,

2016; Saner and Yiu, 2003)[3]. It are these networks, actions and institutions that will be subject of analysis of Chapters 3-6 of this thesis.

1.2 Motivation of the thesis

Economic diplomacy never was a main stream topic in economics due to the originally skeptical view of neo-classical economists regarding the subject (Bergeijk et al., 2011a). Empirical research relating to the role of (instruments) of economic diplomacy and determinants of the effect of economic diplomacy as a result is still relatively scarce. This thesis contributes to the economic literature by reducing this scarcity[4]. Understanding the heterogeneity in economic diplomacy effects and the determinants behind it is increasingly relevant now that economic diplomacy is attracting more attention both in academics and among policy makers in both developing and developed countries (see Figure 1.1 below).

Figure 1.1
Number of scientific searches addressing economic diplomacy (annual averages 1950-2016)



Source: adapted from Bergeijk (2017) Figure 1, pp. 1

The increasing attention for economic diplomacy is caused by both academic and policy reasons. In the 1980's and 1990's it was contested that economic diplomacy targets markets failures and that the benefits outweigh the costs (e.g. Gencturk and Kotabe, 2001; Hogan, 1991; Keesing and Singer; 1991; Seringhaus and Botschen, 1991). The objections

were put forward by researchers and the Washington consensus institutions[5] that published critically about economic diplomacy (e.g. Hogan, 1991; Keesing and Singer, 1991). Since the early 2000's there is however an increasing acknowledgement of both the role and benefits of economic diplomacy in international trade and investment (e.g. Lederman et al., 2006; Morriset, 2003; UNCTAD, 2001).

The economic justification for economic diplomacy is based on a) the existence of asymmetric information in the internationalization process and b) externalities associated with the collection and sharing of information about market conditions and business opportunities in international markets (Hausmann and Rodrik, 2003). Asymmetric information is caused by local and competing firms who restrict the availability of information in order to prevent competitors from entering the market. This is especially problematic for developing countries because published statistics and other sources of information are scarcer for those markets.

Externalities of collection and sharing of information about international markets are a result of the high cost associated with identifying and assessing potential business partners and business opportunities (Rangan and Lawrence, 1999; Rauch, 1996). It is likely that this type of information is under-produced from a societal point of view because first movers cannot reap the full benefits due to free riding rivals that can easily copy the choices of the first mover (Hausmann and Rodrik, 2003). For developing countries additional externalities are observed. The majority of products are not traded in organized exchanges and therefore buyers and sellers need to find other ways to establish a match (Möhlman et al., 2010). The decision making process that determines who trades (but also who invests) with whom is not only driven by rational cost perspectives, but also by reputation and trust (Guiso et al., 2009; Rauch, 1996; 1999). Here developing countries have another disadvantage because they stand at a larger cultural distance from the main consumer markets and their products are perceived as less advanced than substitutes from developed countries (Hudson and Jones, 2003). To solve the information asymmetries and establish positive externalities governments may step in by providing "unique, reliable and impartial access to information such as through the global embassy network and other government channels and contact, which become available through the government's very long term and non-commercial attachment to overseas markets" (Harris and Li, 2005: 74).

The growing popularity of economic diplomacy also has four additional motivations. First, the share of the former centrally planned economies in world trade has increased (Kowalski et al., 2013). In these countries government is still regarded as a natural partner in the economy. Second, state enterprises may be the counterpart of a company operating in the international markets. This creates a demand from entrepreneurs in their home nation because these entrepreneurs seek cooperation with their national government in order to equalize the power balance and to level the playing field. Third, (political) uncertainty about international transactions must often be removed or reduced. Government involvement may signal that a transaction will (not raise) political resistance (Bergeijk, 2009). This increases the trust needed for international exchange (Guiso et al., 2009). Fourth, some high-quality information needed for international transactions sometimes requires the involvement of government officials. Summarizing, there are both academic and policy-making motives why economic diplomacy is growing in popularity. But how much is actually known about the effect of economic diplomacy and the determinants of this effect?

1.3 Summary of the empirical literature

Econometric investigation of economic diplomacy is an emerging research field. Following its emerging status the gaps in the literature are many[6]. This thesis aims to fill those gaps and provides insights into the determinants of the effect of economic diplomacy. However, first there must be established what is known thus far.

1.3.1 Economic diplomacy effect

The first empirical estimates of the effect of economic diplomacy on trade and FDI can be dated back to the mid 1980's. The methodology used to measure the effect of economic diplomacy was rather crude in these early years of research. The papers published in the period between the mid 1980's and about 2000 mostly analyzed frequencies of relevant diplomatic events (called event data) used to explain the development of bilateral trade (e.g. Bergeijk, 1990, 1992 and 1994; Polachek, 1997; Pollins, 1989a and b) and FDI (Nigh, 1985)[7]. These studies find a significantly positive relation between trade (investment) and cooperation between nation states.

The more recent research agenda that has evolved since the early 2000's focusses on establishing the effect of economic diplomacy by an investigation of the economic diplomacy instruments used by states in their bilateral exchange. Following the discussion in section 1.1 of this thesis, these instruments can be divided in a) the network of (semi) permanent diplomatic representations, b) activities developed within that network and c) domestic institutions (investment and export promotion offices) that stand under the auspices of economic diplomats.

The network of (semi) permanent diplomatic representations was first analysed by Rose (2007). According to his seminal research the macroeconomic effect of the diplomatic network on bilateral trade was between 6 to 10 percent (Rose, 2007). Following the methodology of Rose, others also analysed the effect (e.g. Gil Pareja et al., 2015; Kang, 2011; Volpe Martincus et al., 2010a; Yakop and Bergeijk, 2011) and started investigating the change in the network (Afman and Maurel, 2010). The effect of the diplomatic network on FDI was also tested. US investors is are more likely to make an investment in a foreign market when the US has a diplomatic representation in that market (Du et al., 2008). Additionally, the heterogeneity in effects due to different forms of representation in the network was subject of research. Embassies have a larger impact on trade than consulates and honorary consulates on average do not increase the value of bilateral trade (Bergeijk et al, 2011a; Veenstra et al., 2011).

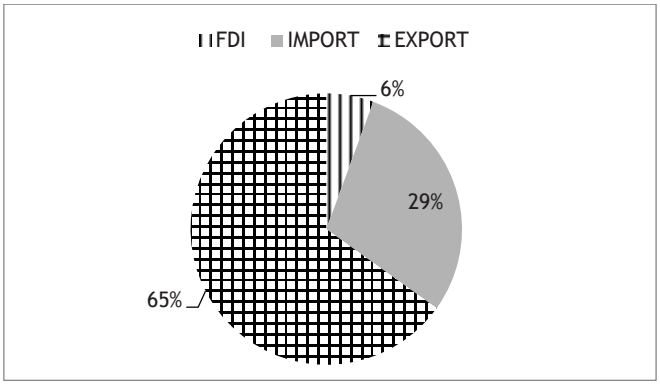
The activities organized within the diplomatic network that were investigated are the various higher and lower ranked visits by officials and heads of state. The estimated trade stimulating effects due to these visits by Heads of State range from 8 per cent to 10 per cent (Nitsch, 2007), 4 per cent to 14 per cent (Casey, 2015) to small negative and mainly insignificant effects (Head and Ries, 2010). Creusen and Lejour (2013) report significant effects for missions lead by members of cabinet, but no significant effects for missions lead by lower ranked civil servants or representatives from the private sector. The opposite of trade stimulation is also observed due to official visits. If countries officially receive the Dalai Lama at the highest level the trade with China of the receiving nation seems to suffer (Fuchs and Klann, 2013).

Domestic institutions that stand under the auspices of economic diplomats and aim to stimulate trade and FDI have also been tested for their trade and FDI stimulating effects. According to Morriset (2003)

investment promotion agencies significantly contribute to FDI. On average a 10 per cent increase in the budget of investment promotion leads to a 7.5 per cent increase of FDI flows. This effectiveness of the investment promotion agency is largely determined by the type of activities the agency engages in, with policy advocacy being most effective. More recently investment promotion in targeted sectors is reviewed as well as the connection between investment promotion and export upgrading (Hayakawa, 2014b; Harding and Javorcik, 2011; 2012a and b). Similarly positive and significant effects for export promotion agencies are published: each additional dollar of export promotion increases exports by 40 dollars for the median agency (Lederman et al., 2006; 2010). Investigating the effect of export promotion for different countries and regions various authors find significant and positive results (e.g. Hayakawa et al., 2014a; Gil et al, 2008; Gil-Pareja et al., 2015; Volpe Martincus et al., 2010a).

Although the preferred individual specifications of the papers mentioned above in general report significant coefficients, the total body of literature is not conclusive. Approximately half of the presented estimations do not pass the threshold of significance (Chapter 3 of this thesis). Differences in the reported results may partially be explained by the primary studies characteristics. Analyses are often constrained because of limited data availability and that databases have to be built from scratch. This leads to differences in measurement of economic diplomacy and its instruments. Variations in the length of the research periods also makes comparison between studies challenging. The wider applicability of a number of studies is furthermore confined because they only relate to one country. Examples are the studies of Head and Ries (2010) on the effectiveness of Canadian trade missions, Creusen and Lejour, (2013) that investigate the effect of the Dutch foreign network and its activities and of Gil-Pareja et al. (2008) and (2015) which is limited to regional exports in Spain. Next to this, "export" dominates as the dependant variable of economic diplomacy studies. Estimates dealing with the effect of diplomacy on import are less available and point estimates for its effect on FDI are even rarer (see Figure 1.2). By and large the subject of (instruments of) economic diplomacy and its impact on FDI flows remains uncharted territory.

Figure 1.2
Decomposition of independent variable in economic diplomacy studies (N=963)



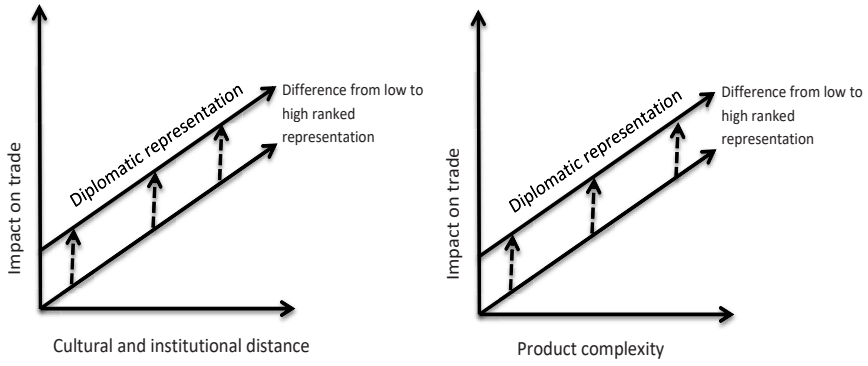
Note: Calculations by the author based on the meta-analysis database of chapter 3 of this thesis

A complicating factor in understanding the effect of economic diplomacy is the substantial difference in statistical methods used. Most studies use Ordinary Least Squares (OLS) at least as one of the reported estimation methods (Chapter 3 of this thesis; Moons and Bergeijk, 2016). Some however, use other methods like Generalized Least Squares (Pollins, 1989a), Generalized Method of Moments (Yakop and Bergeijk, 2011) and difference in difference estimations (Nitsch, 2007). Furthermore, a variety of fixed effects are included (and excluded). The different statistical methods used may cause some of the observed differences in effect size. Having these omissions in mind Chapter 3 of this thesis uses a meta-analysis in order to establish the 'genuine' economic diplomacy effect and to get an understanding of the drivers of heterogeneity due to the instrument of diplomacy used.

1.3.2 Determinants of heterogeneity

From the literature there are three sources of heterogeneity that become apparent and that will be explored: a) the diplomatic representation, b) cultural and institutional distance between trading partners and c) characteristics of the traded product. The sources of heterogeneity and the way they influence the reported estimates in the literature is graphically displayed in Figure 1.3 below. Notice that these effects are known for trade and not FDI because, as stated before, the number of studies dealing with the effects on FDI is limited.

Figure 1.3
Graphic display heterogeneous economic diplomacy effects on trade



The first source of heterogeneity is related to the diplomatic representation and its effect on trade. The higher ranked embassies seem to have a more pronounced effect on bilateral trade as compared to the lower ranked career or honorary consulates (Bergeijk et al., 2011; Veenstra et al., 2011). Diplomatic representations seem to generate a more substantial effect on bilateral economic relations as compared to export promotion offices (Chapter 3 of this thesis; Moons and Bergeijk, 2016; Veenstra et al., 2011). This heterogeneity is probably caused by the fact that an ambassador is the highest representative in a foreign country. As such an ambassador has better access to the government of its host country than lower ranked consular general or staff of the export promotion office. On the other hand, it can also be claimed that consulates and branches of export promotion agencies are located in economic growth regions in a country. They may have more business knowledge and thus be better equipped to help companies (Volpe Martincus, 2010a). Addressing the potential differences between diplomatic representations is something that several chapters in this thesis contribute to, amongst others by presenting the first multiple country based estimates on the effect of the diplomatic network on FDI (Chapter 6 of this thesis).

The second determinant of heterogeneity is the cultural and institutional difference between bilateral trade and investment partners. In economic diplomacy research, the cultural and institutional difference between countries is most frequently modelled by grouping developed and developing countries separately. As the differences between countries grow so does the uncertainty associated with the bilateral exchange

(Guiso et al., 2009; Kraus et al., 2015; Yu et al., 2015). The effect of economic diplomacy on trade uncertainty is theoretically motivated in chapter 3 of Bergeijk (2009) and may help to reduce uncertainty. It is therefore expected that economic diplomacy has the most substantial effect when cultural and institutional differences are large and uncertainty in bilateral transactions is perceived as being high. The literature confirms the strongest economic diplomacy effects for trade originating from high income countries going to low and middle income countries and vice versa, substantial for South-South flows and small for the flows between developed countries (e.g. Creusen and Lejour, 2013; Hayakawa et al., 2014a; Yakop and Bergeijk, 2011). This is of particular relevance in relation to the growing importance of South-South globalization (Murshed et al., 2009; Yakop and Bergeijk, 2011)[8]. Based on the economic diplomacy literature it is clear that good bilateral relations need to be established to stimulate bilateral trade from and between (former) developing countries. With that in mind, the instruments of economic diplomacy of both developed and developing countries are reviewed for their effect on establishing new trade relations and increasing the volume of bilateral trade (Chapters 4 and 5 of this thesis). Furthermore, the effect of economic diplomacy on investments between regions is tested in Chapter 6. Both Chapter 5 and 6 report results based on samples that include many developed and developing countries, making the results additional to the existing literature that generally covers (a few) OECD countries.

The third determinant of heterogeneous economic diplomacy effects is the characteristics of the traded product. Theory and econometric estimates show that trust is a significant determinant of international trade and investment. Due to characteristics of the traded product some traded products suffer more from a lack of trust than others (Guiso et al., 2009; Lankhuizen et al., 2015). This is the case when trade involves more complex products that are not traded in organised exchange (Rauch, 1999; Lankhuizen et al., 2015). These products demand more interaction and trust between the buyer and seller to establish the quality and reliability of the product and therefore are an interesting unit of analysis on the effects of economic diplomacy (Rangan and Lawrence, 1999; Rauch, 1999). Based on Rauch (1999) classification[9] of internationally traded goods, the literature shows that instruments of economic diplomacy report a bigger effect on trade in the group of more complex products (Gil-Pareja et al., 2015; Volpe Martincus and Carballo, 2012; Volpe Mar-

tincus et al., 2011). Publications are, however, limited to Latin American countries and Spain. An important contribution of Chapter 5 of the presented research is that it fills the gap in knowledge about economic diplomacy and the characteristics trade products by analysing this interaction using a comprehensive sample of countries.

1.4 The research questions

Based on the observed increasing attention for economic diplomacy in the policy arena, the first research question of this thesis is:

1) How can economic diplomacy contribute to bilateral relations between developed and developing countries?

The second question that emerges from the preceding discussion is:

2) What is the meta-effect of economic diplomacy on trade and FDI?

From this question several sub questions can be derived aimed at better understanding the meta-effect of economic diplomacy:

a) *Which (methodological) factors can be found that influence observed economic diplomacy effects?*

b) *What is the effect of instruments of economic diplomacy on observed economic diplomacy effects?*

c) *Is there consensus about the effect of economic diplomacy between scientific disciplines?*

Building on the findings of the meta-analysis the following questions were selected for further research:

3) How does economic diplomacy affect trade volumes (the intensive margin of trade) and the number of trading relations (the extensive margin of trade)?

4) What is the effect of product characteristics on the observed economic diplomacy effect?

The final questions addressed in this thesis relate to the underexplored relation between economic diplomacy and FDI:

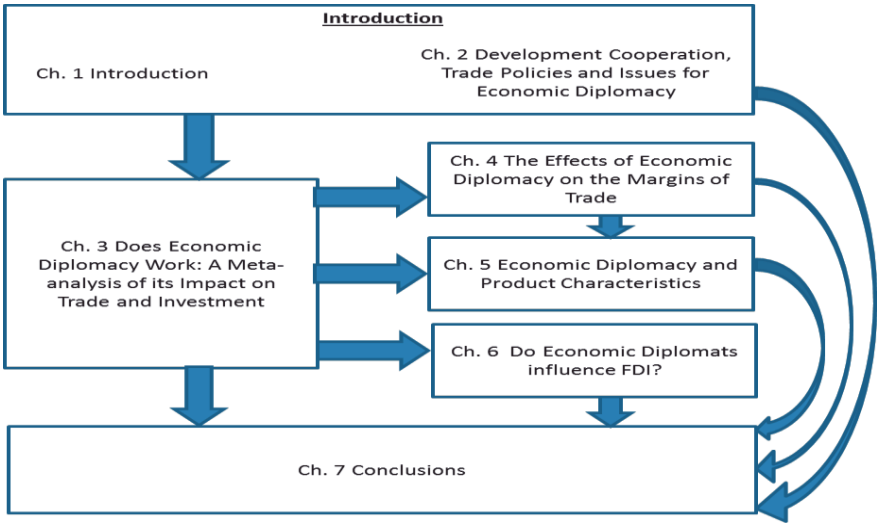
5) How does economic diplomacy affect FDI?

6) What are sources of heterogeneity in the effect of economic diplomacy on FDI?

1.5 Structure of the thesis

This thesis is organized in seven chapters and structured as follows (see Figure 1.4). Chapter 1 is the introductory chapter that provides the background for the thesis. Chapter 2 is based on an earlier published peer–reviewed article in *Human Welfare* (Moons, 2015). It identifies economic diplomacy issues that are relevant for the bilateral relations in South-South trade and South-North trade and vice versa. Chapter 3 is based on an earlier published peer reviewed article in *the World Economy* (Moons and Bergeijk, 2016). It empirically analyses the literature by means of a meta-analysis. Chapter 4 is based on a peer-reviewed article in the *International Journal for Diplomacy and Economy* (Moons, 2012). It scans the literature for the effects of economic diplomacy on the margins of trade. Chapters 5 and 6 zoom in to major unexplored areas of economic diplomacy research. Chapter 5 is in print in the *Research Handbook of Economic Diplomacy: Bilateral Relations in a Context of Geopolitical Change* (Moons and Boer, 2017). It empirically tests for the effect of economic diplomacy on Rauch classified product groups. Chapter 6 empirically establishes the relation between economic diplomacy FDI and identifies sources heterogeneous FDI effects. Chapter 7 is the concluding chapter of the thesis, summarizes and discusses results and presents area for future research.

Figure 1.4
Structure of the thesis



The Chapters 2-6 answer the six research questions and three subquestions as presented in section 1.4 of this thesis. In these chapters various research methodologies are used. Chapter 2 uses a review of literature, document analysis and a detailed case study for the Netherlands. Chapter 3 uses a meta-regression analysis for which a unique database was constructed of 32 economic diplomacy studies published between 1985 and 2011. From the 32 studies, 963 economic diplomacy estimates were collected and meta-analyzed to establish the "genuine" economic diplomacy effect. Chapter 4 reviews 12 studies and 987 estimates, published between 2000 and 2011, about the effect of economic diplomacy on the margins of trade. Chapter 5 and 6 econometrically investigate the effect of economic diplomacy using a gravity model. The model used in chapter 5 covers 63 countries for the year 2006. The dependent variables in chapter 5 result from classifying internationally traded goods in those products traded in organized exchange and those not traded in organized exchange. The model used in Chapter 6 covers 64 countries and the years 2006 and 2012. The economic diplomacy data for the year 2012 are manually collected from the sites of ministries of foreign affairs of the 64 countries which resulted in a unique sample. Chapter 6 also is the first piece of economic diplomacy research to focus on the effect of economic diplomacy on FDI in a broad country setting.

The major conclusion of this thesis is that heterogeneity is a key element for understanding economic diplomacy. This is important because, as this thesis shows, the effect of economic diplomacy is determined by the way economic diplomacy is deployed. Neglecting the sources of heterogeneity makes economic diplomacy effects random at best and unquestionably makes economic diplomacy less effective and efficient.

Notes

[1] Mercantilism puts the national economy first and can be considered as a form of economic nationalism. Mercantilism aims to empower the nation and state to the maximum degree. Mercantilism involved prioritizing national production, especially of military goods. Mercantilist policies furthermore include export subsidizing, opening up new markets for domestically produced goods and protecting the domestic markets for foreign products. These policies also extended to the colonies. Colonies were prohibited to trade with other nations than the colo-

nizer. Although Mercantilist thought was spread across Europe the majority of the literature is produced in the UK in the 17th century

[2] Formal trade barriers refer to barriers that result from government actions to formally restrict trade. Well known formal trade barriers are tariffs, trade embargoes and quota.

[3] Economic diplomacy has several elements: bilateral economic activities between nations, including the organisation of state and trade visits, use of investment and export promotion agencies and the export promotion activities of the diplomatic network. Note that some of these elements have been labelled "bilateral economic diplomacy" or "commercial policy" (Bergeijk, 2009; Hudson, 2004; Saner and Yiu, 2003; Lee and Hudson, 2004).

[4] Compare for example the number of empirical economic diplomacy studies with the number of empirical studies dealing with FDI spillovers; the latter can be found in multifold.

[5] The Washington consensus is a set of policy prescriptions considered to constitute the standard reform package for economies (in crisis). The cheerleaders for these reform packages were the Washington based International Monetary Fund, World Bank and US treasury

[6] A more elaborate discussion about the gaps in economic diplomacy literature can be found in Chapter 8 of Bergeijk (2009).

[7] A similar methodology was used to test the effect of cooperation on US investments by Biglaiser and DeRouwen Jr (2007). The study basically has its peers in the 1980's and 1990's studies but is published in 2007.

[8] South-South globalization is the phenomenon of emergence of major economic powers from within the developing world, who are often collectively labelled the global South, and who increasingly interact (Murshed et al., 2009).

[9] The Rauch (1999) classification divides internationally traded commodities into three groups: those traded on organized exchanges called homogeneous goods, those not traded on organized exchanges but nevertheless possessing a reference prices called reference priced goods, and all other commodities called differentiated goods.

2 Development cooperation, trade policies and issues for economic diplomacy[1]

[1] This chapter is based on Moons (2015) published December 2015 in *Human Welfare,* to which special acknowledgement is due. Comments from two anonymous reviewers are gratefully acknowledged.

2.1 Introduction

In recent decades development cooperation and trade have been considered to be conflicting by practitioners of both métiers. This can be illustrated best by a recent example of this conflict in Australia. On January 14th 2014 the Australian minister of Foreign Affairs, used the metaphor that trade is "a rising tide that lifts all boats". The development community was quick to respond by saying that the poor do not have a boat and are thus drowning as the tide rises (Negin, 2014). One of the underlying causes of the divide between development cooperation and trade is the different preferences between those who advocate trade and those who advocate development cooperation. Development cooperation is primarily the scope of government and non-governmental organizations while trade was (and is) dominated by the private sector. The development cooperation literature judges both shocks and structural changes induced by trade less favorably than the mainstream literature on trade and eco-

nomic growth and it puts more weight on short term and direct effects (Morressey, 2006; Page, 2007). The divide between development cooperation and trade is also apparent in the architecture of the international community. Trade issues are dealt with by the World Trade Organisation (WTO), development issues are dealt with by the (regional) development banks and the OECD Development Assistance Committee (DAC). The UNCTAD covers trade and development but is historically not supported in this mandate by the more developed countries that kept negotiating their trade agreements first within the GATT and later in the WTO. At the national level, however, since 2012 there is a tendency to integrate the two fields and the organizations responsible for the policy-making and implementation. Table 2.1 illustrates this development for members of the OECD development assistance committee; 15 out of 25 committee members have integrated the divisions for development cooperation and trade in 1 ministry. A few countries, among which the Netherlands have taken the integration even one step further and integrated the development and trade portfolio at the political level[2]. This chapter discusses development theory, trends in development cooperation and trade policies and identifies issues for the interdisciplinary field of economic diplomacy based on the aid and trade agenda.

The chapter starts by tracing history and as did the 1949 inaugural speech of US president Truman argues that development cooperation and trade are two pillars of the same policy. Section 2.2 discusses the methodology and sources used in this chapter. Next, section 2.3 discusses theoretical foundations in favor of combining development cooperation and trade into one policy. Section 2.4 shows how development cooperation and trade policies were separate pillars until recently. Section 2.5 discusses challenges in development policy for which the development cooperation and trade combination may provide an answer. Section 2.6 discusses the new development cooperation and trade policy of the Netherlands as a special case. The Dutch have been the first large donor country to fully integrate development cooperation and trade with one Minister for Foreign Trade and Development and integration of the executive departments of Foreign Economic Relations and International Cooperation[3]. Section 2.7 identifies issues for economic diplomacy based on the new aid and development cooperation policies. Finally, section 8 presents conclusions.

Table 2.1
Division of Development Cooperation and Trade responsibilities (April 2014)

	Trade and development cooperation in 1 ministry (But separate ministers)	*1 Minister for trade and development cooperation*
Australia	X	
Austria		
Belgium		
Canada	X	
Czech Republic	X	
Denmark	X	X
Finland	X	
France		
Germany		
Greece	X	
Iceland	X	
Ireland	X	X
Italy	X	
Japan		
Korea		
Luxembourg		
New Zealand	X	
Netherlands	X	X
Norway	X	X[4]
Portugal		
Spain		
Sweden	X	
Switzerland		
United Kingdom	X	
United States	*	*

* Formal situation. Practice is different (size and independence of USAID)

Source: OECD Development cooperation peer reviews and was last updated the 1st of May 2014.

2.2 Methodology

This paper uses a mixed method approach consisting of a review of literature, document analysis and a detailed case study for the Netherlands. The review of literature focusses on the question why some countries integrated development cooperation and trade policies while the international architecture of development cooperation and trade issues still re-

mains to a large extent separated (although there are important links between the international organizations).

Scholarly and academic sources were used – both in the review of the literature and in the case study - whenever possible, but the width and depth of the research also require me to consider official documents and the so-called grey literature. Examples of academic sources that provide theoretical and empirical underpinnings of the relation between development cooperation and trade are Chenery and Strout (1966), Edwards (1992) and Winters (2004). Academic sources also document the increasing connectedness of trade and development policies (Mawdsley et al., 2014).

Government reports, policy evaluations and publications by international institutions were used to get a deeper understanding of (the organization of) development cooperation and trade policies (e.g. IOB, 2014; UNCTAD, 2013). Specific knowledge about the way OECD countries organize their development cooperation and trade ministries was mainly obtained by studying OECD development cooperation peer reviews. The 25 reviews can be found and accessed via the OECD website[5, 6].

The information set is further complemented by expert comments published online in (policy) blogs and on websites to get a better understanding of informed perceptions regarding both development cooperation and trade policies and integrating the two. Examples are the article of Negin (2014) which was published by the Australian Development Policy Centre and the op-ed article by Jasper van Dijk in *Vice Versa* (2013), a specialized and popular Dutch e-magazine about development cooperation and global issues.

Further to this I was able to make good use of the work of the Dutch Historical Society, cited as Dierickx (2005 and 2007), who bundled all the main policy documents in the fields of trade and development cooperation for the 1949-1989 period. I also profited from the WTO project of Graig VanGrasstek (2013) who provides an overview of all multilateral trade agreements[7] in his elaborate work on the history and future challenges of the WTO.

Relying on overview publications carries some risk of getting misinformed because the authors of the overview studies may have misinterpreted the original sources or made a mistake when collecting the authentic sources. That risk is, however, limited, because the publications

used are from high quality institutions that have proper (internal) review mechanisms. Importantly, the overview studies are never used as the single source of information about the topic. The quality standards and use of multiple sources is also applicable to the entire presented review. In general reviews depend on the availability (and use) of high quality and credible sources (Oxman and Guyatt, 1988). The combined information used in this article attempts to achieve just that.

2.3 Development cooperation and trade: interconnected in theory

There is no blue print for development. However, combining development cooperation and trade policies presents huge economic development potential (Ismail, 2007; Morressey, 2006). The positive effects of trade as an engine for growth and development are documented (Berg and Krueger, 2003; Hallaert, 2006; Morressey, 2006; OECD, 2011 and 2013; UNCTAD, 2013; Winters, 2004) and according to the OECD (2011:21): "Despite the econometric difficulties of establishing beyond doubt that engaging in international trade enhances growth, the weight of the evidence …. is clearly in that direction."

Trade can contribute to economic growth. Development cooperation can help to create a positive policy environment for trade. Concessional finance can support investments in the physical and human capital of developing countries which enable them to participate more successfully in international trade. Development cooperation can alleviate the costs of structural reform needed to create a private sector that is able to respond to the opportunities the international trading system presents them (King et al., 2012). Development cooperation can be used to cover costs associated with trade agreements, for example via the provision of technical assistance for adjusting customs procedures.

In development economics development cooperation and trade are also intertwined. The two gap model of development identifies the conditions for economic growth. Building on Harrod (1939) and Domar (1946), who modeled the economy's growth rate in terms of the level of saving and productivity of capital, Chenery and Strout (1966) modified this theory to apply to developing countries. In the two gap model economic growth may be constrained in two ways. First, savings are not sufficient to finance the investment needed (savings gap). Second, there is

insufficient foreign currency to pay for the imports needed (foreign currency gap). The largest of the two gaps is binding. In the two gap model of Chenery and Strout (1966) the binding gap can be bridged by development cooperation or by net capital imports. If domestic savings are insufficient for the target investment rate, development cooperation may serve as a supplement. If there is insufficient foreign exchange to pay for the imports needed for a target growth rate, development cooperation, (development) bank lending and foreign investment may bridge the gap between expected exports and necessary imports (Adam and O'Connell, 2004; Bergeijk and Lensink, 1991). The interconnectedness of development cooperation and trade in the latter case is evident. More exports from developing countries would lead to less need for development cooperation. Thus trade policies where Western markets open their borders to products from low income countries are a powerful development tool. International trade allows for specialization where low-income countries earn through export and at the same time consume more imported goods based on productive efforts. Also, more foreign direct investments from companies from donor countries would lower development cooperation dependency.

The debate at the start of development cooperation recognized that development cooperation and (preferential) trade are both crucial for development (but do not always deliver optimal development results, as discussed in the next section). US President Truman's 1949 inaugural speech is widely seen as the starting point for this policy field (Truman, 1949). In Truman's inaugural, the first pillar of his program to assist poor countries consisted of financial and technical assistance, initially especially directed to war torn Europe. The second pillar addressed further liberalization of world trade in order to increase interconnectedness between countries as a base for peace and prosperity (Truman, 1949). Ever since many policy documents presented by the international community confirmed and reaffirmed the need to combine development cooperation and trade in development policies (e.g. UN, 1961, 1970, 1979 and 2000). In practice the two worlds have, however, remained divided.

2.4 Development cooperation and trade: theoretically united - divided in practice

In theory development cooperation and trade could be part of the same policy aimed at stimulating development. In practice development cooperation and trade have been separate pillars of the international community that have to, but do not necessarily, interact. The first pillar deals with financial assistance (ODA flows) and the second pillar deals with trade policies. This two-pillar approach did not result in coherent policies with an optimal impact for economic development (Morressey, 2006).

Trade policies are designed within the multilateral WTO framework under auspices of Ministers of International Trade. Since the start of the General Agreement on Trade and Tariffs in 1947, which later in 1994 was transformed into the WTO, various multilateral trade deals have been reached. This has been a success in general, the tariffs on trade of industrialized goods have now been reduced to almost zero and the WTO provides countries with a neutral arbiter in case of trade conflicts (VanGrasstek, 2013). Liberalizing the markets for products mostly produced in developing countries has, however, evolved less (Charlton and Stiglitz, 2005; Dierikx, 2005; WTO, 2014). Especially barriers in the agricultural sector, in which many developing countries have a natural comparative advantage, remain high. Even today it is difficult to make substantial progress (Van Grasstek, 2013). This had led to considerable criticism from development policy-makers (Charlton and Stiglitz, 2005; Ismail, 2007). Similarly, trade policies in numerous OECD countries allow exporting companies to operate in a cartel.[8] These export cartels confront developing countries with anti-competitive behavior like pricing strategies and dividing markets. Developing countries are particularly vulnerable for this behavior because they lack the institutions to counter these dynamics. It furthermore impacts developing countries indirectly through the higher trade barriers they face lobbied for by powerful cartels. Here also the trade community is being criticized (Bergeijk, 2010).

There are also general concerns about the effect of trade negotiations on the development prospects of low and middle income countries. Some actually see these multilateral trade negotiations as instruments that are too (financially) demanding for low income countries and, relatedly, too much in favor of high income countries' industries (Chang, 2003; Charlton and Stigltitz, 2005; McDonald et al., 2013; *Vice Versa*, 2013;

2014). Arguably, there is a risk that *bilateral* trade agreements reduce the commitment of the international community to negotiate new trade deals via the *multilateral* trading system in which low-income countries have as much to say as the high-income countries (Levy, 1997). This would put low-income countries at a comparative disadvantage because they lack the power and capacity to reach (a great number of) favorable trade deals on their own (Finger and Nogues, 2002) and lack the capacity to retaliate (Busch and Reinhart, 2003). Importantly, (bilateral) trade agreements reached by other countries will potentially have negative consequences for the outs, that is the developing countries. Bilateral trade agreements will have positive effects for members of the agreement because trade will increase. But this trade increase can be a "real increase" in trade of members within the trade block or an increase in trade of members in the trade block at the expense of trade diversion resulting in lower trade with non-members (Soalaga and Winters, 2001). In the latter case trade flows are potentially diverted away from low income countries that do not have an entire network of these agreements in place (Panagariya, 2002).

Finally, financial development cooperation has not met the UN target for official development cooperation of 0.7 per cent of Gross National Income. The allocation often reflects donor country priorities, political motives and strategic concerns (Qian, 2014). OECD development cooperation statics show that close to 50 per cent of development cooperation supplied in 2013 went to lower middle income and upper middle income countries while the Low Income Countries (LIC's) only received one third. This distribution results partially from donor programs, such as investment subsidies for companies, which are driven by corporate demand which is more concentrated in the higher developed developing countries (Qian, 2014; WRR, 2010). Donor priorities are also reflected in the supply of tied aid, i.e. development cooperation that must be spend in the donor country. Tied development aid potentially increases project development costs and may displace trade flows not supported by development cooperation (Morresey, 1993; OECD, 1991).

2.5 Development cooperation and trade: shifts in the international landscape

Sound theoretical arguments exist for coherent development cooperation and trade policies like trade facilitation, but the interaction between the two policies in practice has been limited so far. The changing landscape for both the development and trade communities present challenges that strengthen the case for integration of the two policy fields.

Economic gravity

As economic gravity is shifting towards (former) developing markets like China, India and Nigeria the need to recalibrate the governance of global issues emerges (Bergeijk, 2013; Quah, 2010; Sumner, 2010)[9]. Anno 2014 combining development cooperation and trade into one policy field would recognize that many former low income countries are now to be viewed not only as donor recipient but also recognized as economic powers (Bergeijk, 2009; Mawdsley et al., 2014). If the relation between (former) donor countries and (former) recipient countries would evolve towards a more equal footing this would greatly improve the chances of finding solutions to pressing international problems, such as climate change, energy and food security, that demand the integrated attention of all countries.

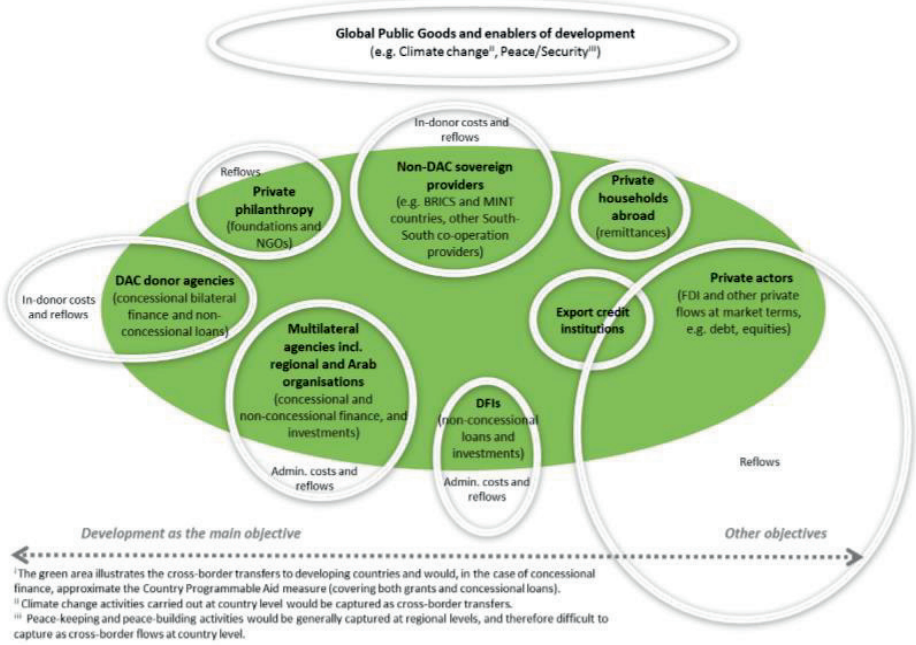
Economic developments also make the development cooperation and trade combination interesting for other reasons. Due to their economic success, countries can and recently do "graduate" from the least developed countries category of the United Nations[10]. Over the last 40 years, only 4 countries have officially graduated (Botswana, Cape Verde, the Maldives and Samoa), but more are expected to graduate in the coming years (World Bank, 2015). In 2011 the international community committed to assisting the least developed countries so that at least half of them will become able to meet the graduation criteria by 2020 (Kawamura, 2014). By combining development cooperation and trade policies a smooth transition from development cooperation flows towards trade and investment flows becomes subject of the bilateral relation/dialogue between low and high income countries. Something seriously needed for successful but more development cooperation dependent graduation countries (Fialho, 2015). In the current system LDC graduates lose their benefits which amongst others includes trade preferences, trade related

capacity building, ODA flows, a substantial discount on UN contributions and financial support by the UN for LDC representatives for the participation of UN meetings (Fialho, 2015). Combining the of the portfolios of development cooperation and trade thus provides for a continuum in the relation between (former) donor and (former) recipient.

Development finance landscape

In the slipstream of changing economic gravity the development finance landscape changes drastically. New sources of finance become available for low and middle income countries and new actors have entered development finance (Mawdsley, 2012; Mawdsley et al., 2014; Ministry of Foreign Affairs, 2013; OECD, 2014). These new players include non-DAC sovereign donors (like China), philanthropic organizations such as the Bill and Melinda Gates foundation, non-governmental organizations (NGOs) (e.g. Corddevelopment and Oxfam Novib) and special purpose funds (e.g. climate funds) (see Figure 2.1).

Figure 2.1
Development finance landscape



Source: Adapted from OECD (2014), Figure 2, pp.6

In the new development finance landscape official development flows loses ground and private flows are increasingly important. FDI and remittances already contributed 64 per cent to the financial flows to developing countries in 2000, in 2012 this has however increased to 75 per cent (OECD, 2014).

The importance of private flows is increasingly reflected in the development approach of many of the (re)emerging donors and development partners. They interweave trade, investment, concessional financing and technical assistance (Mawdsley et al., 2014). Combining development cooperation and trade policies by traditional DAC donors could be a necessary shift in paradigm on their side to bring private sector financial flows and export credit schemes, that traditionally are more in the domain of trade policy, in one hand with development cooperation. It will bring the policies of DAC donors more in line with the polices of the emerging donors and it could contribute to the much needed private sector investments into developing countries. In business trade and investment are intertwined because production processes across countries are characterized by fragmentation (OECD, 2015b). The tradability of goods from a production location, i.e. a country, therefor determines a large part of corporate investment decisions. Combined aid and trade policies can effectively deal with trade barriers and improve the investment climate in developing countries and by doing so add to development through more trade and investment.

Geography of inequality

The changing geography of inequality also has implications for the development cooperation and trade cooperation. Three quarters of the world's poor are no longer living in low income countries (Sumner, 2010). The majority of the world's poor now actually live in middle income countries like China, India, Indonesia and Nigeria which are no longer major recipients of official development cooperation. The result is that it is increasingly difficult to reach these people with development cooperation programs. Cooperation with the trade community, especially the corporate sector, could lead to projects that contribute to inclusive growth via the creation of jobs (ITC, 2008). Thereby alleviating the

needs of the poor in those countries with whom the Development cooperation community no longer has a donor relationship.

Policy coherence

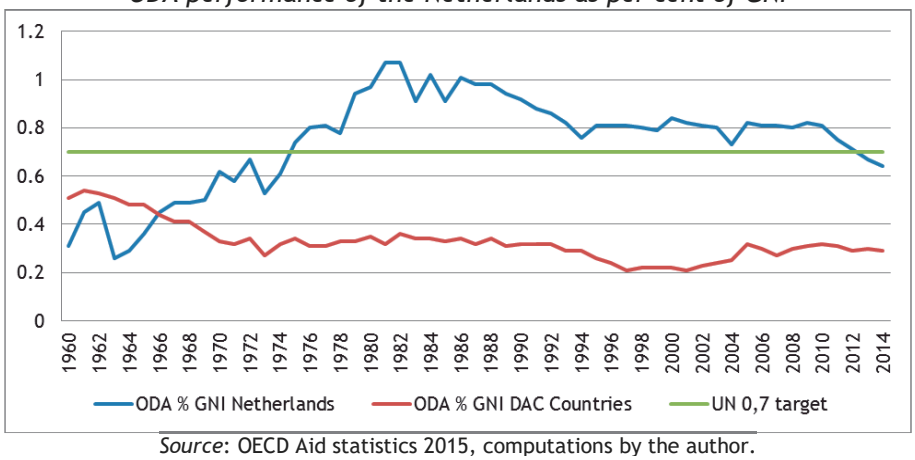
The international community has committed itself to policy coherence for development (King et al., 2012). Combining development cooperation and trade can greatly improve the coherence and coordination between development and trade policies. Policies must be integrated and coordinated to maximize potential growth and development benefits and reduce inefficiencies and contradictions (Morressey, 2006). One example is interaction between the Bali agreement on trade facilitation and aid. The Bali Trade Facilitation Agreement contains provisions for expediting the movement, release and clearance of goods. It amongst others sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation. Here the private sector development programs[11] can actively be used to assist low income countries in the process of improving for example their custom procedures, one of the issues from the Bali deal (Hallaert, 2015). The same can be said for programs that assist developing countries with the transition needed if the new economic partnership agreements between the EU and various African regions are implemented (ECDPM, 2011). Also, increased trade-related technical cooperation and capacity building are good examples of integrated development cooperation and trade policies because they guarantee proper participation of low and middle income countries in the multilateral trading system (Ismail, 2007).

2.6 Integrating development cooperation and trade: the case of the new Aid and Trade Policy in the Netherlands.

From the very beginning of the development cooperation policy field, The Netherlands followed Truman's plea to join the United Nations program to "greatly increase the industrial activity in other nations and … raise substantially their standards of living". The Netherlands was the first country in the world to commit to an aid target in 1966, four years before the UN adopted the 0.7 per cent target in October 1970 (Dierickx, 2005). In the following years, the Netherlands (together with the Denmark and Norway) were among the first countries to meet the UN target for ODA (see Figure 2.2) [12].

Eventually, the Netherlands became one of the major players in development cooperation (Qian, 2014). Some even judged the Netherlands as a front-runner and its development policy as a blueprint for others (Stokke, 1989). Amongst others due to the influence of the Nobel laureate Jan Tinbergen and its apprentice Jan Pronk who held the position of Minister of Development Coorperation in four different administrations. In 2012, however, the Dutch government decided to change the development policy framework drastically by merging the Ministry for Development Cooperation with the part of the Ministry of Economic Affairs responsible for International Trade (Ministry of General Affairs, 2012). Following this institutional redesign the Netherlands presented its first integrated aid and trade agenda. What was the rationale behind this new aid and trade agenda from the perspective of improved development outcomes? This section addresses this question in light of the topics earlier discussed in this article: the links between the new policy and (economic) theory, how it addresses(consequences of the historical) divide between aid and trade and its responses the changing international aid and trade landscape.

Figure 2.2
ODA performance of the Netherlands as per cent of GNI



Source: OECD Aid statistics 2015, computations by the author.
Note: The figures for 2014 are preliminary.

Development Cooperation and Trade in the Netherlands

The Netherlands formally integrated development cooperation and trade with its report *A World to Gain. A New Agenda for Aid, Trade and Investment*

(Ministry of Foreign Affairs, 2013). The report gives the rationale for the new policy, but does not provide detailed information about the institutional changes within the Netherlands, i.e. the merger of the Ministry of Development Cooperation and the Directorate General responsible for International Trade and parts of the economic diplomacy agenda[13]. The report provides answers of the new Ministry for Trade and Development to major challenges for the trade and development communities.

How does the new Development Cooperation and Trade policy in the Netherlands relate to (economic) theory?

As discussed, theory suggests that development cooperation and export can help by partially filling the foreign exchange gap. In line with this thought the development cooperation and trade policy of the Netherlands offers the opportunity to aid recipients and development graduates to obtain a value chain analysis to see what products can be sold on the EU market. The value chain analysis is followed up by assisting businesses from developing countries with their exports towards the European market. Furthermore, the Netherlands try to improve the conditions for exports from developing countries by pursuing a liberal stand within the EU on market access issues relating to low and middle income countries (Ministry of Foreign Affairs, 2013).

The new development cooperation and trade portfolio also relates to theory in other aspects. In line with economic development theory, the new aid and trade policy presents development as a continuum from aid relations to trade relations. More trade, in terms of more export oriented growth, leads to lower aid dependence. It also has an international relations component. Progressing on the ladder of development is a topic of mutual interest and bilateral relations. For the recipient phasing in trade can offer a solution to problems that arise when countries develop economically. The role of financial aid in economic activity can, over time, be substituted by the role of trade and incoming foreign direct investment. For the donor it offers the opportunity to capitalize on their relations. Familiarity and cultural ties associated with a (former) donor relationship are a potential advantage for companies when they want to expand their business in the former aid recipient country (IOB[14], 2014). Thus, integrating aid and trade gives the opportunity to shape the political dialogue between countries on a continuous basis. Trade issues will remain even after aid is long phased out.

Bridging the gap: How does the new policy close the former divide between development cooperation and trade?

We have seen that development cooperation and trade have been divided in practice. Policy coherence is one of the main potential benefits of a combined development cooperation and trade agenda and a way to deal with the divide between aid and trade. This is also a focus area in the aid and trade agenda of the Netherlands. The Dutch provide assistance to developing countries for the examples mentioned in section five of this paper, the implementation of the Bali agreement and capacity building for trade negotiators. Yet there are also other examples that show how the divide between the aid and trade community are solved.

For example, in 2012, the early days of the new Trade and Development Ministry, the language about the bilateral trade agreement between the EU and US primarily concerned national economic interests (TweedeKamer, 2013b). Now that the merger between development cooperation and trade has been further completed, the Dutch pay attention to possible consequences of trade diversion for developing countries trying to ensure that low and middle income countries will also benefit if the EU and US strike a trade deal (Oneworld, 2015). Here we see an obvious shift in the position of the Trade and Development Ministry towards a view that represents both national economic interests and development interest instead of only one of the two aspects.

Another example where policy coherence bridges the development and trade gap is the Netherlands' effort for domestic resource mobilization. Before the merge of aid and trade portfolio's the international trade policies dealt with attracting foreign investors to the Netherlands. Favorable tax treaties were a strong hold within that policy. Following the new institutional setting the Dutch government analyzed their tax treaties with developing countries and the potential negative consequences of these treaties for the tax base of developing countries. Now the Dutch government is renegotiating its tax treaties with 23 low-income countries and have committed to put an end to activities that erode the local tax base. It also offered developing country assistance in building their tax authority. In this way the new aid and trade approach tried to strike a better balance between development cooperation and trade issues, taking into account not only benefits of a competitive tax climate for the Dutch

economy but also the interests of developing countries (Tweede Kamer, 2013a).

How does the new development cooperation and trade policy address shifts in the international development and trade landscape?

The policy note formulates the ambition to interact with low and middle-income countries in a way that reflects their growing importance in the world economy. The Netherlands aims to work in close partnership with low and middle income countries to discuss development and global governance issues. One way the latter materializes is by co-chairing the global partnership for effective development co-operation with Malawi and Mexico.

The changing geography of inequality has consequences for the partners the Dutch government cooperates with in the development cooperation and trade policy. The Netherlands state that the leverage development cooperation offers in middle income countries to deal with poverty and equity issues is decreasing (Ministry of Foreign Affairs, 2013). Therefore the Dutch Government reaches out to businesses and research institutions in seeking solutions for problems faced by the poor in these countries. In an effort to keep balance between private and public motivations the incorporation of the private sector on the one hand is actively combined with promoting social responsible entrepreneurship on the other. This is done by making corporate social responsibility mandatory in all government programs aimed at the private sector and by organizing countervailing power via the cooperation with NGO's towards institution building in low and middle income countries (Ministry of Foreign Affairs, 2014).

In view of the changing development financing landscape new ways of financing development are sought. A new fund for development financing, the Dutch Good Growth Fund, was introduced to boost financing to small and medium sized enterprises within low and middle income countries to spur job growth (Ministry of Foreign Affairs, 2013). The ministry also has the ambition to open the international debate about the criteria for ODA. Given the decreasing role of ODA and the increasing role of other financial flows in the financing of developing countries the Netherlands wants to broaden the scope of development assistance to instruments that catalyze private flows to developing coun-

tries (e.g. guaranties and insurances). The discussion should be a first step to prepare public funded development cooperation to a world were trade and investment flows are the main financiers for most developing countries (Ministry of Foreign Affairs, 2013).

2.7 Development cooperation, Trade and Issues for Economic Diplomacy

Trends in the external environment to the trade and development community necessitate better integration of development and trade policies. This paradigm shift also has consequences for the economic diplomacy agenda. As mentioned in chapter 1, economic diplomacy is a set of actions related to cross border activities by government and non-governmental actors. These actions include trade and investment promotion, interventions in policymaking in favour of international trade, the maintenance of a favourable international policy environment and securing property right and the stability of economic relations (Bergeijk, 2009a; Bergeijk et al., 2011; Bayne and Woolcock, 2007). An integrated development cooperation and trade policy presents issues for all four elements of economic diplomacy.

Trade and investment promotion

Both from a developing and a developed country perspective it is important to identify economic diplomacy policies that successfully support companies that want to enter developing and emerging markets. These private sector investments are important for growth and productivity development in developing countries (Demena and Bergeijk, 2016). Furthermore, it is important for both developed and developing countries to stimulate trade. Enhancing markets access for developing countries to developed markets will increase their exports and reduce their aid dependency. But limited trade between developed and developing countries is not only a result from formal trade barriers but also other factors such as reputation. Economic diplomacy policies could be part of a solution for reputational disadvantages that some countries have in international trade. Here developing countries stand at a disadvantage because the more technologically advanced products coming from developing countries may be perceived as less advanced and of poorer quality than their substitutes from developed countries (Hudson and Jones, 2003). The

pricing mechanism fails in these circumstances because prices do not convey all the relevant information for international trade (Rauch, 1996 and 1999). The question arises what role trade promotion actions by economic diplomats can play to solve these challenges for developing countries (and how trade and development policies can assist).

Securing property rights and the stability of economic relations.

Traditionally the largest multinational enterprises come from developed countries. We have however seen that economic gravity is changing. In 2012 developing economies absorbed more FDI than developed countries (UNCTAD, 2013). In addition, they generated almost one third of global FDI outflows. This increases the need for economic diplomates from both FDI host and home countries to reduce and remove (political) uncertainty about international transactions. Determining economic diplomacy policies that enhance the security of investment (both physical investments and intellectual property) is thus an increasingly important issue for both developed and developing countries.

Influencing foreign national policy making in favour of domestic multinational enterprises

State(s) (enterprises) may be the counterpart of a company operating in the international markets. This creates the necessity for entrepreneurs to seek cooperation with their national government to equalize the playing field. This argument was traditionally used for economic diplomacy from "global North" to "global South" transactions. It can however also be expected to be relevant for companies from developing an emerging markets that want to internationalise. This element of economic diplomacy becomes more important as trade and development cooperation policies should in the longer run lead to more bilateral economic exchange.

Maintain a favourable international policy environment.

Maintaining a favourable international policy environment involves multilateral efforts to preserve a functioning global governance system for trade and financial flows. The agendas for development cooperation and trade meet in the multilateral arena in various ways and have arguably

not been fully successful in aligning the interests of both developing and developed countries. With the changing weights in the international economy it is however in the long term interest of both the development and trade community to have and keep a properly functioning multilateral trade and investment framework that addresses the needs and concerns of developing and developed countries. Here the new development and trade paradigm sets the stage for economic diplomats involved in multilateral negotiations.

2.8 Final remarks

With the connection of the development cooperation agenda and the trade agenda, major themes of development can be addressed more effectively. Indeed, it appear that when the trade and development cooperation portfolio are properly integrated, trade can finally play the role for economic development as hoped by the international community for the last decades (e.g. Dierikx, 2005 and 2007; Ismail, 2007; UN, 1961, 1970, 1979 and 2000). The "merger" requires modifications to both the trade and the development cooperation part of the portfolio. Neither alone is a guarantee for growth and development.

The theoretical foundations for combining development cooperation and trade are sound, but at the same time it needs to be acknowledged that the track record is still short. Combined development cooperation and trade policies, like in the Netherlands, have only existed for a couple of years and no overall policy evaluations are available yet although integrated trade and development policies are viewed increasingly favorable (Mawdsley et al., 2014). It is however important to keep in mind that in the past development cooperation and trade have been divided amongst others because interests between the development cooperation and trade community were not aligned. The dividing forces are still present and can influence policy design negatively. The effects of the combined policy should therefore be monitored closely.

As integrated development cooperation and trade is becoming more mainstream it is important to view economic diplomacy through a development and trade lens. The economic diplomacy research field should explicitly take into account the effect of its actions on both developed and developing countries. Especially for the latter a lot of knowledge still needs to be build.

Notes

[1] A preliminary version was presented at the Human Welfare Conference 2015 (University of Oxford [Green Templeton College], Oxford, May 2015).

[2] Table 1 is based on information from the OECD development cooperation peer reviews. 60 per cent of the countries in table 1 have actually combined ministries of trade and development cooperation. Only 8 per cent of the countries listed combined responsibilities for trade and development cooperation in the person of one minister.

[3] The Finish government was earlier to experiment with the combination in 2003-2006, but is a much smaller donor then the Netherlands. Finish official development assistance amounted to $1030 million in 2006, the Dutch contributions in that year were $6261 million. Anno 2014 Finish development assistance amounts to $1614 million, the Dutch contributions then were $5522 million.

[4] In Norway the portfolio of Foreign Affairs, Trade and Development are combined under the responsibility of the minister of Foreign affairs since 2013. Under the minister of Foreign Affiars the portfolio of Development Cooperation is covered by a (politically appointed) political advisers.

[5] http://www.oecd.org/dac/peer-reviews/bycountry/ last accessed 1st of May 2014.

[6] The OECD DAC peer review website reports 29 DAC members. I have included 25 in this chapter. I left out the EU because this chapter discusses developments in bilateral aid and trade policies. Furthermore Slovenia, the Slovak Republic, and Poland are (new) DAC members and their first peer review was not yet available at the time of writing.

[7] VanGrasstek (2013) discusses all GATT and WTO trade agreements. But his work goes much further he also explains many of the more technical details of trade negotiations.

[8] According to Bergeijk (2009b) countries that allow export cartels include: Canada, Germany, Japan, Germany, the United Kingdom and the United States. The disadvantages of these cartels are of course not only limited to developing countries.

[9] A detailed overview of expected shifts in economic activity and global wealth is provided by the OECD in: *Perspectives on Global Development 2010: Shifting Wealth*, http://www.oecd.org/development/pgd/shiftingwealth.htm

[10] A discussion of the LDC categorization is given in Fialho (2012). The UN LDC classification comes with LDC support measures. Graduating from the UN LDC status is based on a more complex analysis than GDP figures only, which is what the Worldbank (2015) figures refer to.

[11] Aid for trade programs are part of the private sector development agenda.

[12] The case of France is a-typical. Because of major flows to (former) colonies the French also met the 0.7 per cent norm in early years of development cooperation. French ODA expenditures however only went down, from 1.3 per cent of GNI in 1960 to below 0.5 per cent GNI in 1970. Ever since it has been fluctuating between 0.4 per cent - 0.6 per cent GNI.

[13] Before the "merger" of the Development Cooperation and Trade portfolio the Directorate-general for Foreign Economic Relations was part of the ministry of Economic Affairs.

[14] The Policy and Operations Evaluation Department (IOB) is the independent evaluator of aid and trade policies and operations in the Netherlands.

3 Does Economic Diplomacy Work? A Meta-analysis of Its Impact on Trade and Investment[1]

[1] This chapter is based on Moons and Bergeijk (2016) first published March 2016 in *the World Economy,* to which special acknowledgement is due. Comments from two anonymous reviewers are gratefully acknowledged.

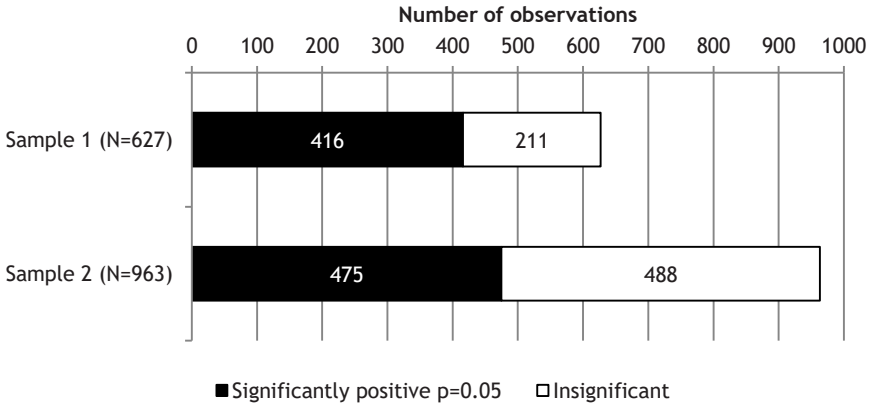
3.1 Introduction

The academic attention and the popularity of economic diplomacy among policy makers increases the importance of knowledge about the (size) effect and significance of economic diplomacy.

Since the empirical work in the field of economic diplomacy is still evolving, research results are not yet conclusive. This chapter takes stock of this literature by providing a meta-analysis of 32 empirical studies published in the period 1985-2011. These studies basically provide us with two samples. Sample 1 contains 627 *t*-values. Sample 2 is an extension of the first sample and consists of 963 reported significance levels[2]. By using reported significance levels instead of absolute reported *t*-values additional observations can be included. Both samples regard the impact of economic diplomacy on international economic flows; see Figure 3.1. Importantly, in the larger sample the number of insignificant and negative coefficients exceeds the number of significantly positive coefficients (for sample 1 the share of negative and insignificant *t*-values is 34%). We

scrutinize the mixed evidence that is provided by these studies, controlling for differences in research design, methodology, time frame and manner of data deployed in the 32 studies by doing a meta-regression analysis. This is a research method that enables researchers to synthesize and summarize previously obtained empirical findings for a similar research question in a quantitative and statistically rigorous fashion. Meta-analysis basically is a statistical approach in which the reported results are controlled for the characteristics of the identified primary studies. It therefore both includes and goes beyond a traditional systematic review.

Figure 3.1
Sample 1 (based on reported and calculated t values) versus Sample 2 (based on reported significance levels)



The use of a meta-analysis adds value to a traditional review of the literature: a meta-analysis is less prone to subjective bias and more transparent than a traditional literature review because it systematically analyses sources of (quantitative) variation of earlier primary studies (Bergeijk and Lazzaroni, 2015). A meta-analysis enables us to combine the results from the different (sub)disciplines where economic diplomacy is gaining ground like international relations, international marketing, international economics, development studies and international political economy. This is particularly relevant if only because the topic of economic diplomacy should be studied from a multidisciplinary point of view while empirical studies so far have by and large been mono-disciplinary in focus.

One contribution of this paper is that this is the first meta-analysis of the effects of instruments of economic diplomacy on international economic flows. Our findings are to some extent comparable to other meta-analyses from the field of economics in the sense that we also find that research design is an important determinant for significance (and magnitude) of the particular instrument(s) under econometric investigation (compare, Havránek and Iršova, 2010; Bergeijk and Lazzaroni, 2015; Ljungvall and Tingvall, 2008; Mebratie and Bergeijk, 2013; Sinani and Meyer, 2009). The second contribution is that we identify important methodological issues that can be taken into account in future research not only in the field of economic diplomacy, but also in any emerging field of international economic relationships. The third contribution is that we develop a logit model of significance levels that allows us to consider 50% more observations. This innovation is relevant for research fields where establishing the meta-sign and its meta-significance already constitutes relevant findings and where reporting in the primary studies frequently is incomplete or inexact[3]. The fourth contribution is that we show the importance of conducting sensitivity analysis in meta-analysis for cross disciplinary subjects like economic diplomacy.

The remainder of this chapter is structured as follows. Section 3.2 reviews empirical research that addresses the relation between economic diplomacy and trade and investment flows. We discuss the problems encountered in these studies. Section 3.3 discusses the construction of our sample and provides descriptive statistics. Section 3.4 sets out the design of the meta-analysis and section 3.5 presents and discusses the empirical results and conducts a meta-regression sensitivity analysis. Section 3.6 concludes and offers suggestions for future research.

3.2 Review of literature

Most studies in our sample use the gravity model that has a longstanding history in analysing the international pattern of bilateral trade and investment flows (Bergeijk and Brakman, 2010). The primary studies in our sample use economic diplomacy as one of the determinants of international trade and investment. The parameter estimate of economic diplomacy can be interpreted as the partial derivative of international trade (or investment) with respect to the particular diplomatic instrument(s) that is (are) investigated in the primary study.

Until the mid-1990s, the methodology used for analysis still was rather crude from today's perspective due to limited computing power and data availability. The studies predominantly pertained to cross section analysis of bilateral political events-data-based indicators to explain the development of bilateral trade (Bergeijk, 1992 and 1994; Polachek, 1997; Pollins, 1989a and b) and Foreign Direct Investment (Nigh, 1985). The empirical works uncovered a positive correlation between, on the one hand, trade and investment and, on the other hand, (net) diplomatic cooperation. Differences in the significance, strength and sometimes the sign of the correlations, occurred for single year studies (Bergeijk, 1992 and 1994) *versus* pooled cross sections (Nigh, 1985; Pollins, 1989a and b) and for developing *versus* developed countries (Nigh, 1985). Also the extent to which countries were integrated in the world economy appeared to be relevant (Pollins, 1989a) as well as the socio-political system (centrally planned *versus* market economies; Bergeijk 1992 and 1994).

The collapse of the Soviet Union and the breakdown of the Iron Curtain for some time reduced research interest in the topic, but in the mid-2000s economic diplomacy returned on the research agenda. Improving on the earlier literature, researchers deployed panel data, different econometric methods and used more specific tools of economic diplomacy as explanatory variables. The focal point became the international network of countries (consisting of embassies, consulates, the national, local, and regional export and investment promotion offices), and the use of that network (trade missions at various levels of diplomatic representation organized within this network).

Researchers at the World Bank published studies on the effectiveness of investment promotion agencies (IPAs) (Harding and Javorcik, 2007; Morisset, 2003) and EPAs (Lederman et al., 2006 and 2010). According to these studies, investment promotion and export promotion agencies have a strong and statistically significant effect. The studies claimed that on average a 10 per cent increase in the budget of investment promotion leads to a 7.5 per cent increase of FDI flows (Morriset, 2003), that each additional dollar of export promotion, increases exports by 40 dollars for the median agency (Lederman et al., 2006) and that a 10 per cent increase in the budget of export promotion agencies increases exports by 0.6 per cent to 1 per cent (Lederman et al., 2010). The World Bank publications were followed by other studies on the topic of export promotion and investment promotion, often producing positively significant effects of

much smaller size (Bobonis and Shatz, 2007; Veenstra et al., 2011). The empirical work that followed the World Bank publications had a somewhat different and wider scope as these studies dealt with the regional effect of export promotion and embassies (Gil et al., 2008 and 2011; Volpe Martincus et al., 2010a), the effect of the level of development on the impact of the international network of countries (Veenstra et al., 2011) and the effect of export promotion on the extensive and intensive margin of trade (Gil et al., 2011; Segura-Cayuela et al., 2008; Volpe Martincus et al., 2010a and b; Volpe and Carballo, 2012)[4,5].

Others investigated economic diplomacy by focussing on the contribution of the diplomatic service to trade and investment flows. Rose (2007) was the first to publish on the macroeconomic level effects of the network of embassies and consulates-general (Rose, 2007). The effect of the *changes* in the international diplomatic network are studied by Afman and Maurel (2010) and the heterogeneity in effects due to different forms of representation in this network are analysed by Bergeijk et al. (2011). The effects of export promotion units within the embassies are investigated by Kang (2011), Hayakawa et al. (2011), Gil et al. (2008) and (2011) and Creusen and Lejour, (2011). Furthermore, research has emerged on the use of the international network via organizing trade missions including state visits (Creusen and Lejour, 2011, 2013; Head and Ries, 2006; Nitsch, 2007).

The recent studies report positive and significant coefficients. Rose (2007) finds that the opening of an additional embassy or consulate is associated with 6 to 10 per cent higher exports. Kang (2011) reports that a 10% increase in the budget of export promotion units in embassies increases exports by 2 per cent to 6 per cent. Similarly, according to Hayakawa et al. (2011) this effect is 5 per cent to 6 per cent. Afman and Maurel (2010) calculate that the opening of an embassy has a similar impact as a 2 to 12 percentage points reduction in ad valorem tariff. Controlling for the level of development, Veenstra et al., (2011), however, find a smaller effect of only 0.5 per cent to 0.9 per cent additional exports when increasing the number of embassies and consulates by 10 per cent. The use of the diplomatic network via trade missions also shows mixed results varying from an export stimulating effect of 6 per cent to 10 per cent for the US, France and Germany (Nitsch, 2007) to insignificant econometric outcomes for Canada (Head and Ries, 2006). Exploring micro data for the Netherlands, Creusen and Lejour (2011) find a

significant export promoting effect of trade missions of 5 per cent to 20 per cent for low-income countries and OECD countries, respectively. Their estimates for missions to high income countries are insignificant (so that economic diplomacy hardly would seem to be effective in intra OECD trade).

Additionally, the interaction between measures of economic diplomacy is explored and shows that the type of diplomatic representation seems to matter. Embassies have a larger impact on trade than consulates, while honorary consulates on average do not add value to trade (Bergeijk et al., 2011). Again the effectiveness of both embassies and consulates, as well as export promotion agencies, depends on the levels of development of the trade partners. The impact of economic diplomacy seems to be significant in North-South, South-South and South-North trade and weak (if at all present) for the flows between rich (OECD) countries (Creusen and Lejour, 2011 and 2013; Veenstra et al., 2011).

The role of economic diplomacy and its relation to FDI flows has received less attention (this is also true for the more recent literature). Next to the earlier mentioned publications of Morriset (2003), Harding and Jovorick (2007) and Bobonis and Shatz (2007) on the role of investment promotion, some work has been done on the impact of the bilateral politic/diplomatic relation on FDI flows. The studies show a positive and significant impact of cooperation between countries, similar to the relation found for trade (Keshk et al., 2004; Polachek et al., 2007). Policies that increase economic security, such as similarity in foreign policy, enhance U.S. FDI (Biglaiser and DeRouwen, 2007).

It is difficult to draw general conclusions based on the reviewed literature because the studies are rather heterogeneous. The heterogeneity of the reported results may partially be explained by differences in the characteristics of the primary studies. A general observation is that analyses are often constrained because of limited data availability and that frequently data sets had to be built from scratch by the researchers by collecting primary data through surveys, by inspecting a great many number of national websites (in a great many languages) and/or coding of qualitative historical information. As a consequence the metrics of economic diplomacy vary. Also, some studies only relate to the trade and/or investment activities of one source country. Examples are Head and Ries (2006) on the effectiveness of Canadian trade missions, Creusen and

Lejour, (2011 and 2013) on Dutch foreign network and its activities, Kang (2011) who reports on the effect of export promotion units for South Korea and of Gil et al. (2008) and Gil et al. (2011) that study exports by Spanish regions. The samples of these studies are county-specific and general conclusions cannot be drawn on such a narrow basis. The same may hold true for analyses done for only a limited group of source countries such as the work of Hayakawa et al. (2011) that is limited to only two countries and many cross sections that only cover one year. Finally, most studies relate to the more developed source countries. Since higher cultural and institutional barriers typically exist at lower levels of development the sample should ideally cover source and destination countries at different stages of economic development (Yakop and Bergeijk, 2011). In order to deal with these and related issues our meta-analysis combines the information of the individual studies in order to distil the general pattern hidden in the individual studies.

3.3 The data

We constructed a database with the characteristics of studies that empirically investigate the impact of economic diplomacy on international economic flows. As a starting point we followed up on the references made in the primary studies that were surveyed by Bergeijk (2009), checked studies that cited these studies and, importantly, extended the list of studies by searching the EconLit electronic database and the internet, especially using Google Scholar[6]. In our search we used broad keyword listings with the following terminologies: economic diplomacy, diplomacy and (international) trade, diplomacy and FDI, information barriers and diplomacy, embassies, trade missions, consulates, export promotion institutions, export promotion, investment promotion agencies and investment promotion institutions. This provided us with a list of published articles, books, working papers and conference papers that investigate the effect of economic diplomacy on trade and FDI flows.

Not all uncovered studies could be included in our sample. Qualitative papers, mostly from the field of international relations, were not included since we were searching for empirical research. Our initial search also delivered a number of effectiveness studies published in the 1990s (Seringhaus and Botschen, 1991; Seringhaus and Rosson, 1998), but these studies do not deal with the impact of economic diplomacy on

trade and investment flows. Also excluded were studies based on surveys about successful export strategies at the company level (Bernard and Jensen, 2004; Francis and Collins-Dodd, 2004; Genctürk and Kotabe, 2001). The search, moreover, provided a limited number of micro data studies dealing with the effect of economic diplomacy on the margins of trade (Biesenbroeck et al., 2011; Volpe Martincus et al., 2010a and b; Volpe and Carballo, 2012). These studies, mostly conducted by Inter-American Development Bank researchers, primarily focus on the effects of trade promotion for Latin American countries (Biesenbroeck et al., 2011 analyse the effect of trade promotion in Canada). The margin of trade papers look into the development of trade patterns of firms that are treated with economic diplomacy but the studies cannot be included in our sample because they provide information on *how* overall trade is being influenced by trade promotion detailing the extensive and intensive margin but leaving the question of its *impact* on the level of total trade unanswered (the margins of trade literature will be reviewed in chapter 4 of this thesis). The studies, moreover, report results which are specific to the groups of assisted companies and do not answer the question what the overall (macroeconomic) impact of economic diplomacy is. Our initial search also provided us with a number of studies that used a logit or probit model to estimate the relationship between economic diplomacy and trade/FDI. In these models the dependent variable is usually a binary variable, i.e. the analysis is concerned with estimating the change in the probability to trade or invest abroad (see, e.g., Alvarez, 2004). As such the results from these models do not provide information on the size of the change in the level of trade or FDI by the use of economic diplomacy as is the case in the results of the rest of the included studies.

Table 3.1

Studies used in the meta-analysis and summary statistics for reported t values

Authors	Instrument of diplomacy in primary study	Period	Sample size	Number of t-statistics	Average t-statistic	Median t-statistic	Min t-statistic	Maximum t-statistic	Standard Deviation	pos/neg
Nigh (1986)	Diplomatic Relation	1954-1975	504	4	5.26	4.79	2.61	8.56	2.67	4/0
Pollins (1989a)	Diplomatic Relation	1955-1975	552	14	2.56	2.45	1.90	4.39	0.67	14/0
Pollins (1989b)	Diplomatic Relation	1960-1975	600	32	4.86	4.71	0.59	7.07	1.33	32/0
Summary (1989)	Consulates	1978, 1982	66	8	2.22	2.3	0.39	4.03	1.18	8/0
Bergeijk (1992)	Diplomatic Relation	1985	1560	4	5.72	6.31	3.08	7.18	1.81	123/39
Bergeijk (1994)	Diplomatic Relation	1986	1560	4	6.38	7.25	3.2	7.8	2.18	124/38
Polachek (1997)	Diplomatic Relation	1948-1978	n/a	1	0.3	0.3	0.3	0.3	n/a	1/0
Morriset (2003)	Investment Promotion Agency	2002	58	7	2.1	2.01	1.14	3.33	0.69	7/0
Keshk et al. (2004)	Diplomatic Relation	1950-1992	143792	1	2.86	2.86	2.86	2.86	n/a	1/0
Ciuriak and Kinjo (2006)	Embassies, Consulates	2002-2003	n/a	4	5.17	5.22	4.49	5.76	0.65	4/0
Head and Ries (2006)	State Visits, Trade missions	1990-2003	216969	32	1.1	0.2	-2.93	6.99	2.55	18/14
Lederman et al. (2006)*	Export Promotion Agency	2005	78	10	1.85	1.81	-0.27	4.4	1.74	9/1
Biglaiser and DeRouen Jr. (2007)	Diplomatic Relation	1966-2002	2335	4	1.31	1.08	1.22	0.16	2.93	4/0
Bobonis and Shatz (2007)	Investment Promotion Agency	1977-1997	5996	6	1.76	1.72	1.45	2.35	0.33	6/0
Gil-Pareha et al. (2007)	Embassies, Consulates	2001-2003	912	49	4.78	5.08	-0.11	8.26	1.56	48/1
Harding and Javorcikr (2007)	Investment Promotion Agency	1972-2005	2644	31	2.12	2.27	0.6	3.39	0.8	31/0
Nitsch (2007)	State Visits, Trade missions	1948-2003	18409	54	1.58	1.93	-1.59	6.354	1.8	41/13
Polacheck et al. (2007)	Diplomatic Relation	1990-2000	5549	2	9.15	9.15	8.59	9.7	0.79	2/0
Rose (2007)	Embassies, Consulates	2002-2003	4132	105	4.44	3.8	-1.69	16.5	3.44	104/1
Gil et al. (2008)	Embassies, Consulates, Foreign Exp. Prom. Office	1995-2003	26.098	64	3.75	2.71	-5.08	14.2	3.86	55/9
Segura-Cayuela Vilarrubia (2008)	Embassies, Consulates	1999	2138	2	1.79	1.79	1.70	1.87	0.12	2/0
Afman and Maurel (2010)	Embassies, Consulates	2005	4269	46	2.68	1.63	-0.37	8.17	2.50	42/4
Lederman et al. (2010)*	Export Promotion Agency	2005	78	11	2.50	2.16	1	3.63	0.84	11/0
Volpe Martincus et al. (2010a)	Embassies, Consulates	1995-2004	n/a	12	4.12	2.31	-1.23	16.66	4.74	11/1
Bergeijk et al. (2011)	Embassies, Consulates	2005	3730	24	1.66	0.9	-2.5	10.22	3.16	16/8
Creusen and Lejour (2011)	Embassies, Consulates, Foreign Export Promotion	2002-2007	68600	9	3.16	3.63	1.55	4.38	1.17	9/10
Ferguson and Forslid (2011)	Embassies, Consulates, Trade Missions	1997-2007	1120	4	-1.76	-1.47	-1.41	0.08	1.93	1/3
Gil-Pareia et al. (2011)	Embassies, Consulates and other representations	1993-2008	409684	9	2.44	1.73	-2.19	14.02	4.86	5/4
Hayakawa et al. (2011)	Foreign Export Promotion Office	1980-2009	6684	13	5.85	4.55	2.42	9.53	2.88	13/0
Kang (2011)	Foreign Export Promotion Office	1994-2004	558	33	2.84	2.20	0.20	10.3	2.18	33/0
Veenstra et al. (2011)	Embassies, Consulates, Export Promotion Agency	2006	1242	16	1.38	0.93	-2	5.6	2.18	15/5
Yakop and Bergeijk (2011)	Embassies, Consulates	2006	3906	12	3.77	3.91	1.5	6	1.43	28/0
Full sample				627	3,23	2,81	-5.08	16.66	2,96	822/141

* A major part of the econometrics in Lederman et al. (2006) and Lederman et al. (2010) are based on a similar sample/ a sample with only minimal differences. Both papers include a few identical regressions. Of these repetitive regressions only one regression is included in our sample. In case of doubt we took the results from Lederman et al., (2010) because these were published in a peer reviewed high quality academic journal whereas Lederman et al., (2006) was a working paper.

We did not use all observations from the studies included in our initial sample. We only took on board observations that relate to our search for the impact of economic diplomacy on international economic flows. By implication we use the observations that relate to the effect on all industries and all products and exclude numerous results relating to subsamples of goods and industries. From the following studies we used the overall or macro findings but not the product, industry or sector specific results: Harding and Jovorick (2007), Gil et al. (2011), Reuveny and Kang (1998), Hayakawa et al. (2011), Lederman et al. (2010) and Volpe Martincus et al. (2010a).

Our final meta-analysis database consists of 32 studies investigating the relationship between economic diplomacy and the macro impact on international flows (see Table 3.1). All primary studies investigate the impact of one or more instruments of economic diplomacy, controlling for a wide range of potentially relevant variables including distance between trading partners, markets size, common borders, common language and preferential trade agreements. In the database 963 coefficients on the effect of diplomacy and 627 *t*-values are reported. Furthermore we registered the dependent variable of the primary study, *i.e.* export, import, total trade or FDI, and the different instruments of diplomacy studied in the primary studies. In order to be able to control for methodological differences we also included other study characteristics such as the number of observations used for the primary regressions, the year of publication, the period under investigation and the econometric method that was used.

The metrics for economic diplomacy differ, i.e. economic diplomacy has been reported based on diplomatic event data, the geography of the foreign network of countries (embassies, consulates and foreign branches of export and investment promotion offices), the activities deployed by the foreign network of countries (trade missions and state visits) and finally activities headquartered in the source economy (export promotion) and destination economy (investment promotion). Also substantial heterogeneity exists with respect to research methods and dependent variables. We therefore created three categories of moderator variables for further analysis: empirical design factors, dependent variable characteristics and instruments of economic diplomacy. Table 3.2 provides an

overview of the various primary study characteristics included in our sample (key statistics are provided in Appendix A of this thesis).

Table 3.2
Moderator variables meta-regression analysis

Categories of moderator variables	*Moderator variable name*	*Description*
Empirical design factors	NOTOLS	Dummy, 1 if other than OLS estimate; 0 if OLS
	COUNTRYSPECIFIC	Dummy, 1 if primary sample is country specific; 0 otherwise
	ENDOGENEITY	Dummy, 1 if primary analysis corrects for endogeneity; 0 otherwise
	GRAVITY	Dummy, 1 if primary regression is gravity model; 0 otherwise
	PRE2000	Dummy, 1 if primary study is published before 2000; 0 otherwise
	OBSERVATION	Number of observations in the dataset of primary study
Dependent variable	EXPORT	Dummy, 1 if exports is dependent variable primary study; 0 otherwise
	IMPORT	Dummy, 1 if imports is dependent variable primary study; 0 otherwise
	FDI	Dummy, 1 if foreign direct investment is dependent variable primary study; 0 otherwise
	TOTALTRADE	Dummy, 1 if total trade is dependent variable primary study; 0 otherwise
Instrument of diplomacy	EMBASSIES	Dummy, 1 if embassies is included in primary study regression; 0 otherwise
	CONSULATES	Dummy, 1 if consulates is included in primary study regression; 0 otherwise
	EMBASSIESANDCONSULATES	Dummy, 1 if embassies and consulates is included as 1 group in primary study regression; 0 otherwise
	FOREIGN EPA OFFICE	Dummy, 1 if foreign export promotion office is included in primary study regression; 0 otherwise
	EXPORT PROMOTION AGENCY	Dummy, 1 if export promotion agency is included in primary study regression; 0 otherwise
	INVESTMENT PROMOTION AGENCY	Dummy, 1 if investment promotion agency is included in primary study regression; 0 otherwise
	STATEVISITS	Dummy, 1 if visits by head of state is included in primary study regression; 0 otherwise
	TRADEMISSION	Dummy, 1 if visits by minister of other representative is included in primary study regression; 0 otherwise
	DIPLOMATIC RELATION	Dummy, 1 if diplomatic relation is included in primary study regression; 0 otherwise

While collecting our data we were confronted with substantial heterogeneity in functional forms yielding a mix of linear and non-linear coefficients that, for consistent analysis, should be transformed into elasticities in order to estimate the size effect of economic diplomacy. In order to calculate the elasticity on average from linear models we need to know average values of the dependent and explanatory variables, but a number of studies do not report this basic and essential information. We repeatedly but unsuccessfully contacted the authors of the primary studies in order to get the missing data[7]. Moreover, those studies in our sample that fully report basic and essential information do so for the full sample while regression results are often based on subsamples (for example, subsamples for OECD and non-OECD countries). We do not want to only use those regression results that are based on full samples in order to avoid the loss of information regarding the effect of different sample characteristics. As pointed out by Disdier and Head (2008:43): "different estimates often differ in terms of sample period, method, etc., and therefore within-study variation (…) can be used to assess the importance of such variables." Since we are interested in the impact of research design and subsamples, the missing information problem needs to be solved.

Confronted with these issues we initially decided to work with the reported or calculated *t*-values, because a *t*-statistic (the estimated coefficient divided by its standard deviation) has no dimension and often is reported or can be calculated from the usually reported statistics. Our method thus solves the difficulties posed by differing units of measurement, specifications and incomplete reporting that makes a traditional meta-analysis of the size effect impossible. By implication we cannot answer the question of *how much* economic diplomacy contributes, but we are able to answer *whether* it contributes significantly and we can also investigate the sensitivity of this conclusion with respect to the methodological characteristics of the primary studies. This more modest goal is appropriate in view of the state of affairs in this field.

In a later stage it became clear that while 963 coefficients are reported in the 32 primary studies only 627 *t*-statistics could be calculated. Again we tried to contact the authors of the primary studies with little recourse. To solve this second missing information problem we enriched our dataset by manually counting "other ways" in which some authors communicated about significance levels. Many authors, e.g., use symbols like *, ** and *** to report the level of significance of their empirical estimate

at the 10, 5 or 1 per cent level, respectively. Importantly the levels of significance are also dimensionless. By incorporating these results (where we know the minimal significance level and the sign but not the actual t-statistic) we can include an additional 335 extra regressions in our sample, categorized by their significance level and using binary dummy variables (not significant or significant at the 5 or 1 per cent level, respectively). After this extra effort only one study that fitted our meta-search criteria dropped out completely. Because of missing *t*-values, or information that would allow us to calculate t values (and also information that would allow us to calculated elasticities) for the effect of economic diplomacy for trade of all industries we had to drop the Reuveny and Kang (1998)[8] study all together (otherwise the sample could have covered 33 studies).

The reported *t*-statistics (Table 3.1) vary considerably between studies. A number of studies have insignificant mean and/or median *t*-values (Polachek, 1997; Head and Ries, 2006; Biglaiser and DeRouen, 2007; Bobonis and Shatz, 2007; Nitsch, 2007; Segura-Cayuela and Villarubia, 2008; Fergusson and Forslid, 2011; Veenstra et al., 2011 and Bergeijk et al., 2011). Others such as Volpe Martincus et al. (2011), Hayakawa et al. (2011) and Gil et al. (2008), however, report very large *t*-statistics (both positive and negative). These differences could be due to country specific factors, data characteristics, differences in time period, differences in the dependent variable, and alternative measures of research design. We will explore these sources of heterogeneity in more detail in the next section by means of a multifactor regression in our meta-analysis, but before we do so we provide a first picture of the potential impact of some of the study characteristics. Following other meta-analyses (Havranek and Irsova, 2010; Mebratie and Bergeijk, 2013; Meyer and Sinani, 2009) we first compute composite bivariate *t*-statistics for a number of variables that we will later use as moderator variables in our meta-regression. The advantage of working with larger (sub)samples of *t*-statistics compared to looking at individual results is that factors with low significance in small samples could be significant in the aggregate even if they are not significant in the primary study because for a combined sample, the large sample's standard deviation is a more precise estimator of the population's standard deviation (Newbold, 1995). The uncertainty caused by the sample estimator as compared to the population's standard deviation is reduced as the sample size increases and the *t*-distribution more and

more fits the Standard Normal Distribution. Tests on the mean of aggregate *t*-statistics are thus more powerful than looking into individual *t*-statistics. We therefore computed the combined *t*-statistics by dividing the sum of *t*-statistics over the square root of the number of observations in the full sample. Let t_i denote the *t*-statistic corresponding to the specific characteristic of interest. *N* denotes the number of observations. Then the combined *t*-statistic t_c becomes:

$$t_c = \frac{\sum t_i}{\sqrt{N}} \sim N(0,1) \dots\dots\dots\dots 3.1$$

This straight forward calculation of the combined *t*-statistic may, however, be influenced by some studies that contribute particularly large numbers of *t*-statistics, for example, because a lot of sensitivity analyses are reported. Examples of such studies in our sample are Gil et al. (2008), Gil-Pareha et al. (2007), Nitsch (2007) and Rose (2007). To deal with the over representation of parameters from such studies we introduce weights per observation. Following Djankov and Murrell (2002) and Wooster and Diebel (2010), normally distributed test statistics are obtained as follows:

$$\frac{\sum_{k=1}^{m} w_k t_k}{\sqrt{\sum_{k=1}^{m} {w_k}^2}} \sim N(0,1) \dots\dots\dots\dots 3.2$$

Here w_k represents the weight assigned to the *k*-th observation. The weight depends on the total number of observations taken from a particular study; smaller weights are assigned to studies that have larger numbers of reported *t*-values. For example, the study of Gil et al. (2008) contributes 64 observations. The weight assigned to each *t*-statistic is 1/64= 0.015625. If a study contributes only one *t*-statistic, as in our sample Polachek (1997), the weight deployed to this observation is 1.

Results for aggregated and weighted aggregated t-statistics are presented in Table 3.3. We did calculations on the full sample of studies as well as on a sub sample excluding outliers to check robustness. For the sample excluding outliers we dropped the 5 per cent smallest and largest observations, leaving a total number of 565 *t*-statistics included in the

analysis. Table 3.3 shows that the median *t*-statistics for all the tested characteristics is always statistically significant except for State Visits. This is basically caused by the median t-value of Ferguson and Forslid (2011)[9], but note that Head and Ries (2006) also have report insignificant and negative *t*-values (including in their 'preferred equation'). The State Visits *t*-statistic based on the full sample excluding outliers always shows significant aggregate *t*-values. The weighted *t*-statistic is, however, negative.

Table 3.3
Aggregate t-statistics for the 32 studies

	Using median t-stat from each study		All obervations		Excluding Outliers		Weighted all observations		Weighted excluding outliers	
	t_c	N	t_c	N	t_c	N	t_w	N	t_w	N
Full data set	16.31	32	80.94	627	72.70	565	40.85	627	35.64	565
Fixed effects	9.17	18	55.92	297	48.89	275	20.34	297	18.14	275
Country specific	8.27	14	52.15	290	47.56	259	28.97	290	24.11	259
OLS	15.17	18	54.80	276	50.03	248	39.69	276	34.00	248
Endogeneity	9.93	22	69.75	505	62.04	452	26.37	505	23.93	452
Gravity	13.95	20	78.10	524	69.86	467	40.09	524	36.85	467
Dependent variables										
Imports	5.39	7	30.16	115	30.99	112	16.90	115	17.29	112
Exports	12.91	22	73.19	455	64.35	399	36.92	455	33.67	399
Total Trade	3.29	2	3.71	3	3.71	3	3.80	3	3.80	3
FDI	8.57	6	18.43	54	15.16	51	18.73	54	11.80	51
Economic Diplomacy Characteristics										
Embassies & consulates	9.46	10	51.0	176	47.70	168	20.70	176	19.18	168
Embassies	15.91	4	44.39	38	26.53	28	43.12	38	19.41	28
Consulates	5.45	5	16.19	72	17.61	67	19.19	72	19.73	67
Foreign EPA	4.83	5	34.37	106	27.28	87	13.05	106	9.97	87
Export Promotion Agency	3.64	4	13.78	33	12.53	29	15.32	33	11.36	29
Investment Promotion Agency	3.46	3	13.7	44	15.70	44	10.22	44	10.22	44
Trade Missions	3.08	2	5.26	20	6.96	17	7.25	20	8.03	17
State Visits	-0.81	3	12.29	72	15.70	62	-0.17	72	13.70	62
Diplomatic relation	15.12	6	34.16	54	31.35	51	25.71	54	18.21	51

Across studies, the use of export as a dependent variable is associated with more significant effects of economic diplomacy than studies that use imports, total trade or FDI as dependent variable. The number of observations related to FDI flows is remarkably lower than the number of observations for exports and imports.

As to the economic diplomacy characteristics, *i.e.* the instrument used to explain the effect of economic diplomacy, studies that analyse embassies and consulates on average tend to generate more significant outcomes than state visits, trade missions, export promotion offices and the more general diplomatic relation measure. The weighted aggregate *t*-statistic suggests that, corrected for the weight of individual studies, studies that only use embassies (as compared to embassies and consulates combined into one dummy) as characteristic for economic diplomacy will be more likely to report significant results.

Using a bivariate approach, Table 3.3 illustrates the extent of heterogeneity, both regarding empirical design, the definition of the dependent variable and the economic diplomacy characteristics. The next step is to investigate this in a multivariate setting. We do so by doing a meta-analysis on our collected sample of *t*-statistics and significance levels.

3.4 Design of the meta-analysis

3.4.1 Methodology

A meta-analysis combines several studies that address a particular research question with a similar design and investigates consistencies and discrepancies of the results of the primary studies. Each primary study is treated equally in meta-analysis, even when they do not use best practice methodology. Actually, alternative weighting schemes are regarded as prone to bias (Rose and Stanley, 2005; Stanley, 2001). Accordingly, all primary studies provide data points in the knowledge-generating mechanism towards the true relationship between economic diplomacy and international economic flows. The analysis investigates the sensitivity of the reported estimates to variations in the assumptions of the primary studies. The essence of meta-analysis is to obtain a single estimate of the effect of interest from statistics reported in each of several primary studies (Bradburn et al., 1998). This methodology is well established in medicine and psychology and increasingly also economics. The technique

provides revised interpretations of earlier research and is often useful to help indicate priorities for future research (Meyer and Sinani, 2009).

We focus on the *t*-statistic of the coefficient that represents the impact of economic diplomacy on international economic flows and the influence of study characteristics (method, research design) on this statistic. Our approach helps to uncover the effects of study characteristics on the sign and significance of the estimated effect of economic diplomacy on international flows. We start with a sample of 627 reported and (re)calculated *t*-statistics. Following Havranek and Irsova (2010), Ljungwall and Tingvall (2008), Meyer and Sinani (2009) and Gorg and Strobl (2001) we estimate the following meta-regression model:

$$Y_{ij} = \alpha_0 + \beta_1 OBSERVATIONS_{ij} + \beta_2 NOTOLS_{ij} + \beta_3 COUNTRYSPECIFIC_j + \beta_4 GRAVITYEQUATION_j + \beta_5 PRE2000_j + \beta_6 ENDOGENEITY_j + \beta_{7,\ldots,10} [primary\ dependent\ variable_{ij}] + \beta_{11,\ldots,18} [instruments\ of\ diplomacy_{ij}] + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots \quad (3.3)$$

In equation (3.3) we estimate how primary study characteristics influence the reported *t*-statistics of economic diplomacy on international flows. In our case Y_{ij} is the value of the *t*-statistic of the economic diplomacy coefficient derived from the j^{th} regression in the i^{th} article, α_0 represents the (random) effect that controls for the commonality and dependency of estimates within and across studies and ε_{ij} is the error term (Meyer and Sinani, 2009; Disdier and Head, 2008). The explanatory variables in equation (3.3) include empirical design and quality factors, primary dependent variables from the primary study and instruments of diplomacy used in the primary study (see Table 3.2 for classification and description). The explanatory variables are elaborated in section 4.2 - 4.4.

We present OLS, weighted OLS and random effects estimates of equation (3.3) for the sake of comparison. In the weighted OLS model we used probability weights to correct for the structure of our sample[10]. Because we have a few studies that contribute a large number of observations to our sample, each observation will be weighted by the inverse of its probability of being part of our sample (Dupraz, 2013).

The random effects model is our preferred estimation. The random effects model uses more realistic assumptions about the effect size, in this case the *t*-statistic, as compared to a fixed effects model. Under fixed

effects the *t*-statistic of a given variable is assumed to be homogenous across studies, i.e. the fixed effect model assumes that there is one true effect for all the studies in our sample (Hedges and Vevea, 1998). All observed differences would in that case be attributed to sampling error. Given the diversity in the investigated instruments of economic diplomacy, the differences in geographical coverage of the primary studies and the substantial variety of time periods investigated, it is vital to allow the *t*-statistic of economic diplomacy to vary from study to study. Random effects allows for different *t*-statistics per study which we find more realistic given the diversity of the studies under review.

Next to the influence of study characteristics on the magnitude of the *t*-statistic we also investigate the probability of finding a significant coefficient. We can now use our more extensive sample with 963 observations. We conduct a second meta-regression analysis with the following regression model:

$$\Pr(y_{ij}=1)=\alpha_0+\beta_1 OBSERVATIONS_{ij}+\beta_2 NOTOLS_{ij}+\beta_3 COUNTRYSPECIFIC_j+\beta_4 GRAVITYEQUATION_j+\beta_5 PRE2000_j+\beta_6 ENDOGENEITY_j+\beta_{7,\ldots,10}\,[\textit{primary dependent variable}_{ij}]+\beta_{11,\ldots,18}\,[\textit{instruments of diplomacy}_{ij}]+\varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots \quad (3.4)$$

Where y_{ij} is a binary variable that serves as the dependent variable. y_{ij} takes the value of 1, if the coefficient of the *i*-th regression in article *j* is significantly positive (we use different specifications of the dependent variable that distinguish between the 5 per cent or 1 per cent level, respectively). And, $y_{ij}=0$ if not. The relation between the dependent and the explanatory variables will be estimated with a logistic regression. Logit-analysis makes it possible to calculate the probability *Pr* that a specified use or availability of economic diplomacy yields a significant *t*-stat. If this probability exceeds 0.5, a significantly positive t-value is 'predicted'. We distinguish between the same three sets of explanatory variables as used in equation (3.3). Again we use weighted regressions and random effects to check for the robustness of our findings.

3.4.2 Empirical design

We use the same set of explanatory variables in equations 3.3 and 3.4. The dependent variable of course differs: in equation 3.3 it is a *t*-value as

reported in the primary study and in equation 3.4 it is a dummy variable that assumes the value 1 if the coefficient in the primary study is significantly positive (either as reported in the primary study or by implication) and else 0.

3.4.2.1 Primary dependent variable

We classify the explanatory variable in the primary studies with mutually exclusive and exhaustive dummy variables for *EXPORT*, *IMPORT*, *FDI* and *TOTALTRADE* in order to indicate what explanatory variable was used in the primary study regression.

3.4.2.2 Instruments of economic diplomacy

The economic diplomacy characteristics in equation (3.3) include mutually exclusive and exhaustive dummies for the instrument of economic diplomacy used in the given studies. The economic diplomacy dummies are *EMBASSIES*, *CONSULATES*, *EMBASSIESANDCONSULATES*, *FOREIGNEPA*, *TRADEMINISTERS*, *PMORROYAL*, *EXPORT PROMOTION AGENCY, INVESTMENT PROMOTION AGENCY* and *DIPLOMACY*. These variables respectively capture whether the economic diplomacy coefficient pertains to embassies, consulates, embassies and consulates (as one combined explanatory variable), export promotion offices abroad, trade mission, state visits, export (respectively, investment) promotion agencies or events data scores for the diplomatic relation.

3.4.2.3 Primary study characteristics

The empirical design factors included in equation 3.3 are *COUNTRYSPECIFIC*, *NOTOLS*, *PRE2000, GRAVITYEQUATION, ENDOGENEITY* and *OBSERVATIONS*. These variables capture the fact that a study deals with one source country only, the effect of the estimation method, the period of publication, whether or not the equation in the primary study was a gravity model, whether the author of the primary study corrected for endogeneity and the number of available observations, respectively.

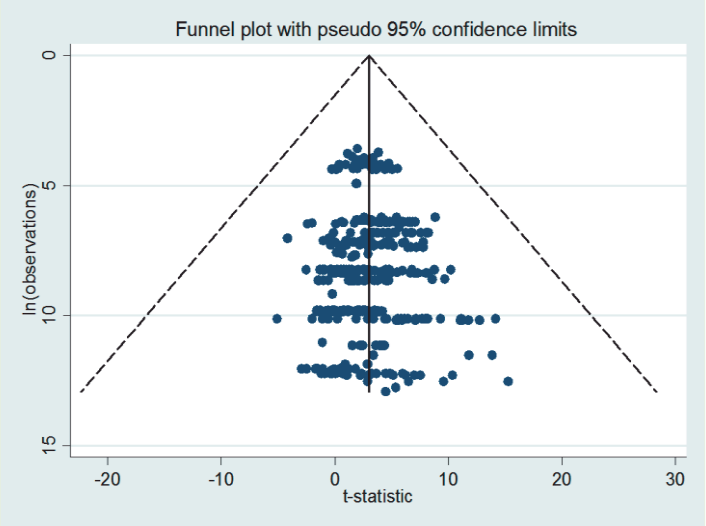
3.5 Empirical results

3.5.1 Determinants of magnitude t-statistic economic diplomacy: Random effects model

Table 3.4 presents the results for the ordinary least squares (with and without probability weighing) and random effects estimation of equation (3.3). For model 7 and 8 the sample without the 5 per cent most extreme observations is used.

The baseline uses exports as the reference for the dependent variable and embassies and consulates as the reference for the instrument of diplomacy under investigation in the primary study. Both these reference variables are the mode for their specific group of factors included in our econometric analysis[11]. The references for the empirical design factors are based on studies using standard OLS regression models based on multiple country databases published after 2000. The constant term can be interpreted as the baseline meta-significance level; it is positive and highly significant in all but one model.

Figure 3.2
Funnel plot economic diplomacy coefficients



Model 1, 3 and 5 are based on the full sample of studies and observations. Model 2, 4 and 6 are based on a smaller sample of 29 studies and 454 observations. The difference is due to the fact that some of the primary studies do not report the number of observations used for each reported regression. Three studies, Ciuriak and Kinjo (2006), Volpe Martincus et al. (2010a) and Polacheck (1997), drop out entirely because the number of observations used for the regressions in their papers is not provided. Likewise, observations of Rose's (2007) extensive sensitivity analyses can no longer be included when accounting for the number of observations[12]. Studies that use a larger number of observations are *a priori* expected to find higher *t*-statistics: as the number of observations increases the uncertainty caused by the sample estimator as compared to the population standard deviation is reduced. This is reflected in the direction and significance of *OBSERVATIONS*. This finding (in accordance with the indicative funnel plot in Figure 3.2) implies that no strong indications exist for publication and/or sample size bias in the primary studies.

Focussing attention on our preferred Random Effects models, we find that empirical design factors play an important role in the reported results of the primary studies that investigate the effect of economic diplomacy. Primary studies conducted on a single country basis (*COUNTRYSPECIFIC*=1) that correct for endogeneity (*ENDOGENEITY=1*) are associated with lower *t*-values[13]. Gravity trade studies (*GRAVITY*=1) report more significant results. Alternatives to OLS (*NOTOLS*=1) are not structurally associated with more significant coefficients. The measure of the dependent variable does not seem to be associated with the magnitude of the *t*-statistic indicating that studies on FDI, imports, exports and total trade can be meaningfully combined in our meta-analysis.

Table 3.4

The effect of economic diplomacy study characteristics on the magnitude of the t-value

	OLS		*WOLS*		*RE*		*RE without outliers*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
OBSERVATIONS (10^-5)		7.08**		0.69*		1.74***		0.73**
		(2.19)		(1.73)		(3.25)		(2.19)
NOTOLS	0.67***	0.403	0.293	0.104	0.779***	0.339	0.749***	0.394
	(2.63)	(1.39)	(1.00)	(0.33)	(2.78)	(0.99)	(3.63)	(1.50)
COUNTRYSPECIFIC	-0.81***	-1.14***	-1.10**	-1.29***	-0.97**	-1.36**	-1.23***	-0.60
	(-2.74)	(-3.18)	(-2.56)	(-3.10)	(-2.39)	(-2.13)	(-4.16)	(-1.50)
ENDOGENEITY	0.00	-0.27	-0.81**	-0.84**	-1.36***	-0.83	-0.91**	-0.24
	(0.01)	(-0.65)	(-2.17)	(-2.02)	(-2.82)	(-1.58)	(-2.54)	(-0.63)
GRAVITY	1.64***	1.04*	0.51	-0.01	2.03*	1.27	1.67**	1.61***
	(3.32)	(1.96)	(0.85)	(-0.03)	(2.28)	(1.25)	(2.52)	(2.70)
PRE2000	1.72*	2.14**	1.05	1.37	-0.55	1.65	0.95	1.91**
	(1.88)	(2.45)	(1.17)	(1.47)	(-0.39)	(1.09)	(0.89)	(2.12)
IMPORT	-0.94***	-0.46	-0.72**	-0.55	-0.25	-0.19	-0.42	-0.53**
	(-2.61)	(-1.39)	(-2.05)	(-1.64)	(-0.67)	(-0.53)	(-1.55)	(-2.00)
TOT TRADE	-2.59*	-2.83**	-1.61**	-1.97***	-2.38	-2.97	-1.96	-2.28**
	(-1.70)	(-2.06)	(-2.18)	(-2.80)	(-1.26)	(-1.64)	(-1.46)	(-2.01)
FDI	1.39	1.96*	1.53	1.52	1.60	2.53	0.27	-0.02
	(1.26)	(1.96)	(1.40)	(1.45)	(0.93)	(1.44)	(0.20)	(-0.01)
EMBASSIES	2.80***	0.14	1.85***	0.81	4.43***	0.69	1.35***	0.75
	(5.47)	(0.23)	(2.70)	(1.08)	(7.41)	(0.56)	(2.69)	(1.11)
CONSULATES	-2.44***	-4.01***	-2.95***	-3.46***	-0.40	-3.55***	-1.39***	-2.79***
	(-5.77)	(-8.58)	(-8.27)	(-7.79)	(-0.69)	(-3.08)	(-3.27)	(-4.79)
FOREIGN EPA OFFICE	-0.36	-0.59	-0.09	0.40	-1.24**	-1.82***	-0.58	-0.61
	(-1.11)	(-1.54)	(-0.22)	(0.72)	(-2.16)	(-3.21)	(-1.31)	(-1.48)
EXPORT PROMOTION AGENCY	-1.02*	-2.35***	-1.71**	-2.51***	0.22	-1.65	-0.064	-0.34
	(-1.66)	(-3.18)	(-2.01)	(-3.39)	(0.28)	(-1.48)	(-0.10)	(-0.45)
INVESTMENT PROMOTION AGENCY	-1.76	-3.69***	-3.05***	-3.83***	-1.32	-3.65*	-0.10	-0.23
	(-1.44)	(-3.11)	(-2.65)	(-3.32)	(-0.68)	(-1.81)	(-0.07)	(-0.19)
TRADE MISSION	-2.11***	-3.76***	-0.48	-1.46*	-1.62*	-3.03***	-0.81	-2.13***
	(-3.35)	(-4.95)	(-0.77)	(-1.76)	(-1.67)	(-3.15)	(-1.11)	(-3.16)
STATE VISIT	-2.66***	-3.70***	-2.37***	-2.85***	-1.49	-2.84***	-0.29	-1.83***
	(-6.24)	(-7.65)	(-5.61)	(-5.54)	(-1.59)	(-3.00)	(-0.39)	(-2.94)
DIPLOMACY	-0.21	-1.99**	-0.70	-1.31	1.04	-1.43	0.05	-0.55
	(-0.21)	(-2.09)	(-0.77)	(-1.46)	(0.67)	(-0.85)	(0.04)	(-0.57)
CONSTANT	2.48***	4.12***	4.42***	5.29***	2.74***	3.96***	2.64***	2.50***
	(3.51)	(5.12)	(5.59)	(6.71)	(2.66)	(3.29)	(3.44)	(3.16)
Number of estimates	627	454	627	454	627	454	565	409
Number of studies	32	29	32	29	32	29	31	28
Adj R^2	0.25	0.29	0.24	0.32				

t-statistics in parenthesis * p<0.10, **p<0.05, *** p<0.01

The instrument of diplomacy that is investigated in the primary study influences the significance of the coefficient in the primary study. If the primary study uses *EMBASSIES* as a proxy for economic diplomacy, higher *t*-values are reported. The *EMBASSIES* dummy is positive, but not always significant. The insignificant results are caused by sampling effects. Model 2, 4 and 6 leave out estimates if the number of observations used in the primary studies are not reported. It is this loss of estimates that is driving the change from significant to insignificant for our *EMBASSIES* dummy and not the inclusion of the *OBSERVATIONS* variable itself[14]. It may therefore be concluded that primary studies using *EMBASSIES* report higher *t*-statistics. If in contrast 'lower' forms of foreign representation are subject of the study, the significance of the coefficient in the primary study will be significantly lower. The results give an indication that studies taking embassies and consulates as one explanatory variable may lead to a problematic generalisation about the effectiveness of the diplomatic network. Our regression analyses show that regressions using embassies will give more significant coefficients than the embassies and consulates benchmark. Consulates on the other hand are systematically associated with lower levels of significance. Grouping the two (embassies *versus* consulates) into one (embassies *and* consulates) thus leads to an average significance that is too high for consulates and too low for embassies.

STATE VISITS and *TRADE MISSIONS* stand out negatively in all 8 models. Primary studies reporting coefficients for these instruments tend to find a significantly lower *t*-statistic as compared to our established benchmark (see also Table 3.3). The remaining proxies for economic diplomacy, *i.e.* export and investment promotion offices, export promotion units within embassies (our *FOREIGN EPA OFFICE* dummy) and the diplomatic relation are weakly related to a lower magnitude of the *t*-statistic. The sign is always negative but many of our specifications are not significant.

3.5.2 Logit estimates of factors explaining economic diplomacy significance

In order to broaden our sample we resort to an analysis that does not focus on the actual *t*-value but on the minimal significance level as reported in the primary studies. The cost of this procedure is the loss of information on the actual size of the *t*-values. The gain is that we can

increase our sample by 54 per cent. As before our logit meta-regressions show the relationship between, on the one hand, the empirical design, the dependent variable under investigation and the characteristics of economic diplomacy and, on the other hand, the likelihood of finding statistically significant coefficients for economic diplomacy.

Table 3.5 presents the logit estimates of equation (3.4). We investigate two variants: in the first variant we require that the primary study reports significance at the 5 per cent level and better (model 1, 2 and 3) and in the second variant the dependent variable is assigned value 1 if the reported significance in the primary study is at the 1 per cent level and better (model 4, 5 and 6).The reference case is similar to the one deployed earlier: a primary study that measures the impact of foreign representation (embassies *and* consulates) on exports using a standard OLS regression model based on a multiple country database. The models perform well in terms of correct predictions. Model 1, predicts reported significance at the 5 per cent level and better correctly in 76 per cent of the cases. Models 4 and 5 that predict significance at the 1 per cent and better level show similar, but more pronounced, dynamics as the share of correctly in sample predictions increases from 73 per cent to 82 per cent. Table 5 offers a breakdown of the predictions and reports Sensitivity and Specificity of the four logit models). Sensitivity, the true positive rate, measures the correctly identified proportion of actual positives. In this case true positives are the predicted significant coefficients for economic diplomacy. Specificity measures the proportion of true negatives, i.e. insignificant coefficients of economic diplomacy, which are correctly identified as such. As expected the models that include *OBSERVATIONS* generally perform better on both sensitivity and specificity.

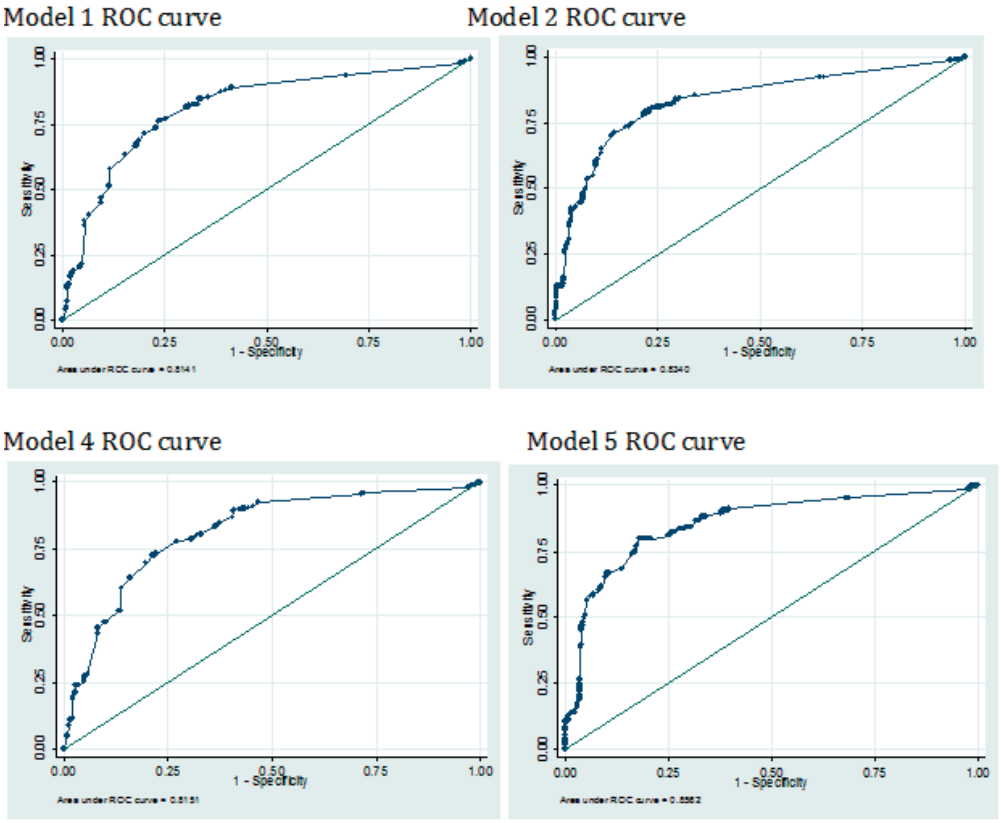
Table 3.5
Logit estimates on the significance of economic diplomacy

	logit 5%		*Weighted logit5%*	*Logit1%*		*weighted logit1%*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
OBSERVATIONS (10^-5)		1.75***	1.51***		1.90***	1.33**
		(4.70)	(2.69)		(4.99)	(2.34)
NOTOLS	0.95***	0.617**	0.60	0.58***	0.57*	0.29
	(4.13)	(1.99)	(1.59)	(2.64)	(1.79)	(0.74)
COUNTRYSPECIFIC	-2.10***	-3.388***	-3.04***	-2.03***	-3.38***	-2.94***
	(-8.15)	(-8.65)	(-8.15)	(-8.27)	(-9.32)	(-7.05)
ENDOGENEITY	0.51	0.932**	0.52	0.43	1.13**	0.38
	(1.51)	(2.00)	(1.11)	(1.27)	(2.20)	(0.73)
GRAVITY	-0.68	-1.750***	-1.81**	-0.06	-0.56	-0.73
	(-1.64)	(-3.24)	(-2.40)	(-0.15)	(-0.96)	(-1.09)
PRE2000	3.60***	5.811***	4.84***	2.73***	5.33***	3.89***
	(4.35)	(5.91)	(5.04)	(3.28)	(5.10)	(3.52)
IMPORT	-0.18	-0.139	-0.17	-0.42*	-0.25	-0.20
	(-0.89)	(-0.63)	(-0.75)	(-1.88)	(-0.98)	(-0.75)
TOT TRADE	-3.49**	-4.673***	-0.74	-2.50*	-4.27***	-0.15
	(-2.42)	(-3.12)	(-0.22)	(-1.76)	(-2.91)	(-0.05)
FDI	2.18**	2.755**	2.45*	2.94***	4.02***	3.77***
	(2.01)	(2.12)	(1.79)	(2.84)	(3.09)	(3.03)
EMBASSIES	-1.18**	-3.075***	-1.55*	-0.24	-2.58***	-0.73
	(-2.08)	(-4.24)	(-1.90)	(-0.45)	(-3.70)	(-0.93)
CONSULATES	-3.27***	-5.362***	-3.83***	-2.70***	-5.30***	-3.48***
	(-8.46)	(-8.99)	(-5.43)	(-7.50)	(-9.19)	(-5.22)
FOREIGN EPA OFFICE	-0.44	-0.677	1.11*	-0.28	-0.84**	0.87
	(-1.51)	(-1.57)	(1.83)	(-1.06)	(-2.08)	(1.42)
EXPORT PROMOTION AGENCY	-2.94***	-5.37***	-3.50***	-2.27***	-4.61***	-2.82***
	(-5.45)	(-6.40)	(-3.06)	(-4.42)	(-5.82)	(-3.17)
INVESTMENT PROMOTION AGENCY	-4.62***	-7.53***	-5.83***	-5.64***	-8.87***	-7.07***
	(-4.09)	(-5.30)	(-3.89)	(-5.19)	(-6.32)	(-5.23)
TRADE MISSION	-2.06***	-5.05***	-2.50*	-1.38**	-5.22***	-0.96
	(-3.90)	(-5.95)	(-1.92)	(-2.47)	(-5.72)	(-0.82)
STATE VISIT	-3.09***	-4.89***	-3.22***	-2.59***	-5.04***	-2.87***
	(-7.97)	(-8.17)	(-4.56)	(-6.99)	(-8.78)	(-4.24)
DIPLOMACY	-4.85***	-7.03***	-5.279***	-3.86***	-6.56***	-4.62***
	(-6.20)	(-7.57)	(-4.90)	(-4.91)	(-6.77)	(-4.15)
CONSTANT	2.69***	4.82***	3.732***	1.51**	3.06***	2.21**
	(4.32)	(5.21)	(2.91)	(2.45)	(3.26)	(2.08)
Number of estimates	963	774	774	963	774	774
Number of studies	32	29	29	32	29	29
Pseudo Rsq	0.23	0.27	0.28	0.22	0.30	0.27
Correct predictions	76%	79%		73%	82%	
Sensitivity	77%	73%		52%	60%	
Specificity	75%	83%		87%	92%	
False positives	25%	17%		13%	8%	
False negatives	23%	27%		48%	39%	

t-statistics in parenthesis * p<0.10, **p<0.05, *** p<0.01

The performance of model (1), (2), (4) and (5) in classifying economic diplomacy coefficients as significant or insignificant can also be illustrated by plotting the fraction of true positives out of the positives versus the fraction of false positives out of the negatives (the ROC curve in Figure 3.3). The greater the area under the ROC curve, the better the global performance of the diagnostic test. A perfect diagnostic test would yield an area under the ROC curve of 1, representing 100 per cent sensitivity (no false negatives) and 100 per cent specificity (no false positives). All models perform relatively well with area's between 81 per cent and 86 per cent.

Figure 3.3
ROC curves



The logit analysis of significance levels in Table 3.5 agrees with the Random Effects analysis of *t*-values in Table 3.4 regarding *OBSERVATIONS* (primary studies with more observations are more likely to report significant coefficients of economic diplomacy), *COUNTRYSPECIFIC* (it is less likely that studies with one source country report significant coefficients), *IMPORT* (insignificant), *TOTAL TRADE* (the primary study is less likely to report significant coefficients when it investigates total trade), *CONSULATES* (studies that specifically study consulates as opposed to a summary measure for consulates and embassies are less likely to report significant coefficients), *TRADE MISSION* and *STATE VISIT* (all are associated with a lower probability of reporting significant coefficients)[15]. These findings are robust with respect to sample, estimation technique and significance variant.

In contrast to the results in Table 3.4, the logit analysis find that studies published before the year 2000 (*PRE2000*=1) are significantly more likely to report positive results at both the 5 per cent and 1 per cent significance levels.[16] We also see this for studies that correct for endogeneity problems (*ENDOGENEITY*=1) when model (2) and (6) are used. Primary studies that use *FDI* as dependent variable are more likely to find significant results. For *EXPORT PROMOTION AGENCY* and *INVESTMENT PROMOTION AGENCY* we now have highly significant negative coefficients; a result that is also supported by the OLS and WOLS estimates in Table 3.4. Primary studies that use *EMBASSIES* alone are less likely to report significant coefficients.

All in all, harvesting more binary information from primary studies is rewarding. The analyses confirm our hypothesis of the diverging effects within the economic diplomacy network[17]. Also the negative influence of source country specific datasets on the significance of economic diplomacy coefficients is further confirmed. These are important results that should be taken into account in the design of future studies.

3.5.3 Economic diplomacy meta-regression sensitivity analysis

Given the emerging and interdisciplinary nature of the economic diplomacy research field we test our findings for various possible sample and definition effects. Thus far we have used a broad definition of economic diplomacy based on Bayne and Woolcock (2007), Lee and Hudson (2004) and Sanner and Yu (2003). We now use a different definition of

diplomacy that does not include the elements of the paper of Sanner and Yu (2003), i.e. domestic investment and export promotion institutions. What remains is a more homogeneous set of economic diplomacy variables that mainly concentrate on the actions of diplomats within the foreign network.

We also investigate the sensitivity of our meta-regression analysis for a sub-sample of papers published in peer reviewed (international) economics journals and for another sub sample where working papers and papers that do not correct for endogeneity are left out. We test the same baseline as presented earlier. Models (1)-(6) report random effects estimates, the absolute *t*-value is the dependant variable. Models (7)-(12) report logit estimates, and predict the likelihood of finding significant primary study results at the 5 per cent level or better.

Generally, the results of the sensitivity analysis are comparable with the earlier reported meta-regression analyses. Study characteristics influence the empirical results of primary studies across all samples and estimation techniques. Studies that focus on a single source country (*COUNTRYSPECIFIC=1*) are associated with lower *t*-values. Studies that use OLS do not significantly generate higher *t*-values than studies using more advanced econometric techniques. Regarding the instruments of economic diplomacy both the random effects and logit estimates indicate lower significance levels for studies that use *CONSULATES* and *STATE VISITS*[18]. The earlier identified differences between the random effects and logit estimates concerning our *EMBASSY, DIPLOMACY* and *ENDOGENEITY* dummy are consistent across all sensitivity analyses. Compared to the random effect regressions we again see that the logit analysis is more likely to predict positive and significant deviations from the baseline model for studies published before 2000 (*PRE2000=1*) and a lower likelihood of finding significance for *EXPORT PROMOTION AGENCY's*.

Across the tested samples in table 3.6 FDI is no longer associated with higher *t*-values, but this mainly reflect the small number of studies of varying quality, something not uncommon in an emerging research field. Here our conclusion is simply that the effect of economic diplomacy on FDI should be subject to further investigation to reduce the variance between study results.

Table 3.6
Meta-regression sensitivity analysis

	Random Effects						*Logit 5%*					
	Set: other def		*Set: Econ Journals*		*Set: no WP, corrected Endogeneity*		*Set: other def*		*Set: Econ Journals*		*Set: no WP, corrected Endogeneity*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	(12)
OBSERVATIONS (10^-5)		1.84***		0.40		14.5***		1.90***		2.41		4.31
		(3.12)		(0.97)		(6.46)		(4.93)		(1.14)		(1.63)
NOTOLS	0.80***	0.32	0.96***	0.76**	0.81***	0.63*	0.98***	0.66*	0.63**	0.74	1.04***	0.77**
	(2.70)	(0.83)	(3.12)	(2.11)	(2.75)	(1.95)	(4.03)	(1.96)	(2.14)	(1.35)	(3.94)	(2.10)
COUNTRYSPECIFIC	-1.20***	-1.38*	-1.00**	-0.678	-0.56	-0.087	-2.21***	-3.63***	-1.40***	-2.48***	-0.90*	-0.61
	(-2.71)	(-1.77)	(-2.37)	(-1.58)	(-1.20)	(-0.15)	(-8.00)	(-8.42)	(-3.67)	(-4.25)	(-1.91)	(-0.62)
ENDOGENEITY	-1.52***	-0.93	-1.01**	0.52			0.79*	1.96***	0.91**	1.78***		
	(-2.90)	(-1.52)	(-2.06)	(1.46)			(1.94)	(2.99)	(2.53)	(3.28)		
GRAVITY	1.86	1.60	2.17**	2.05***	2.22**	11.29***	-1.07**	-2.17***	0.96*	2.05**	-0.01	4.16*
	(1.63)	(1.18)	(2.07)	(3.70)	(2.33)	(6.40)	(-2.20)	(-3.62)	(1.78)	(2.18)	(-0.01)	(1.93)
PRE2000	-0.53	1.61	-0.69	2.66***	-2.30		3.97***	7.01***	3.23***	6.33***		
	(-0.35)	(0.94)	(-0.35)	(2.89)	(-0.82)		(4.57)	(6.08)	(3.23)	(4.71)		
IMPORT	-0.24	-0.17	-0.38	-0.21	-1.45***	-0.51	-0.21	-0.17	-0.61**	-0.31	-1.13***	-0.55
	(-0.62)	(-0.46)	(-0.92)	(-0.63)	(-2.92)	(-1.18)	(-1.00)	(-0.76)	(-2.50)	(-1.23)	(-2.90)	(-1.28)
TOT TRADE	-2.39	-2.97	-2.09	-3.31***	-1.95	-22.37***	-3.60**	-4.96***				
	(-1.22)	(-1.48)	(-0.92)	(-2.61)	(-0.73)	(-5.73)	(-2.49)	(-3.29)				
FDI	1.64	2.84	0.99	-0.11	-0.87	8.03***	1.88*	2.74**	-0.48	-0.47	-3.36**	0.215
	(0.89)	(1.41)	(0.72)	(-0.15)	(-0.54)	(3.82)	(1.69)	(2.07)	(-0.71)	(-0.42)	(-2.22)	(0.09)
EMBASSIES	4.31***	0.77	4.46***	-0.18	3.11***	0.70	-1.24**	-3.06***	-0.64	-2.77***	-0.23	-1.66
	(6.93)	(0.55)	(7.46)	(-0.29)	(5.06)	(0.98)	(-2.17)	(-4.07)	(-1.00)	(-2.79)	(-0.34)	(-1.60)
CONSULATES	-0.52	-3.487***	0.18	-3.47***	-2.13***	-3.27***	-3.33***	-5.53***	-2.31***	-4.96***	-2.26***	-3.79***
	(-0.86)	(-2.66)	(0.31)	(-6.18)	(-3.97)	(-5.58)	(-8.47)	(-8.99)	(-4.45)	(-5.32)	(-4.60)	(-4.10)
FOREIGN EPA OFFICE	-1.29**	-1.89***	0.37	-0.40	-0.98**	-2.54***	-0.40	-0.67	-0.50	0.73	-1.30***	-2.31***
	(-2.18)	(-3.10)	(0.30)	(-0.67)	(-2.49)	(-5.39)	(-1.36)	(-1.56)	(-1.25)	(0.73)	(-3.81)	(-3.59)
EXPORT PROMOTION AGENCY			0.54	-1.01	0.55	9.58***			-1.41**	-1.73*	-1.78**	2.15
			(0.72)	(-1.47)	(0.55)	(4.79)			(-2.56)	(-1.76)	(-2.01)	(0.88)
INVESTMENT PROMOTION AGENCY					0.74	0.36					0.132	-0.05
					(0.41)	(0.24)					(0.08)	(-0.03)
TRADE MISSION	-1.62	-2.85***	1.17	0.81	1.40	0.52	-2.15***	-5.41***	0.62	-0.31	-0.90	-0.29
	(-1.60)	(-2.72)	(0.84)	(0.81)	(0.86)	(0.35)	(-3.99)	(-6.24)	(0.48)	(-0.19)	(-0.59)	(-0.18)
STATE VISIT	-1.47	-2.64**	-2.62**	-3.53***	-2.54***	-5.138***	-3.19***	-5.19***	-2.55***	-4.55***	-2.33***	-3.69***
	(-1.49)	(-2.53)	(-1.99)	(-7.22)	(-4.33)	(-7.49)	(-8.06)	(-8.30)	(-4.96)	(-5.01)	(-4.47)	(-3.63)
DIPLOMACY	0.78	-1.31	2.11	-0.42			-4.93***	-7.23***	-4.60***	-7.24***		
	(0.47)	(-0.68)	(0.93)	(-0.35)			(-6.25)	(-7.62)	(-5.00)	(-6.01)		
CONSTANT	3.16**	3.63**	1.76	1.761**	1.79*	-7.59***	2.89***	4.45***	0.35	-0.28	1.86*	-1.74
	(2.40)	(2.29)	(1.60)	(2.21)	(1.79)	(-4.00)	(4.16)	(4.44)	(0.48)	(-0.22)	(1.95)	(-0.73)
Number of estimates	550	385	425	252	407	262	884	703	743	570	421	261
Number of studies	27	26	21	18	15	13	27	26	21	18	15	13
Pseudo R^2							0.25	0.29	0.26	0.26	0.16	0.21

t-statistics in parenthesis * p<0.10, **p<0.05, *** p<0.01

As to the differences that are analytically relevant, we note the lower and less significant *t*-values for the base line using the subsample of primary papers published in a peer reviewed economics journals. In this multidisciplinary field the implication is that the economic profession is less convinced on the significance of economic diplomacy. This is also reflected in the results for the subsample without working papers (economics tends to focus on published peer reviewed articles) and papers that do not address causality (correction for causality is a common requirement in economics). The earlier reported higher meta-significance is thus partly driven by working paper publications and publications in other research fields than economics (predominantly international relations). From this same analysis on sub samples we learn that the economics papers are more likely to produce positive and significant *t*-statistics when a gravity model (*GRAVITY=1*) is used.

This sensitivity analysis shows that it is rewarding to take into account several subsamples in a meta-analysis, especially when the research topic is interdisciplinary. Although it is common practise in meta-analysis to analyse all available papers that address the same research question if metrics are comparable (or can be made comparable as a group), it did in this case proves to be rewarding to also investigate sub-samples of primary studies because best practices differ between the different scientific disciplines.

3.6 Concluding remarks

This chapter investigated whether economic diplomacy has a significant effect on trade and investment flows and what the sign of that relationship is. Due to the heterogeneity of specifications and the occurrence of substandard reporting in the primary studies we resort to the analysis of *t*-statistics. Analysing 627 *t*-statistics of 32 primary studies in the aggregate we conclude that the bivariate evidence supports a positive and significant effect of economic diplomacy with the exception of state visits (Table 3.3). Our meta-regression analysis (Table 3.4) points towards more heterogeneity in the significance of economic diplomacy coeffi-

cients and highlights the importance of research design and other characteristics of the primary studies. In particular we find that primary studies that study only one source country are less likely to report significant positive effects and that studies that use a variable that lumps embassies and consulates(-general) into one indicator miss that these instruments differ significantly and should thus be included as separate instruments in future research.

We also perform an analysis of reported discrete significance levels (not, 10%, 5% and 1%) increasing our sample to 963 observations on 95 per cent significance in a logit analysis (Table 3.5) that by and large supports the findings on the smaller sample demonstrating robustness with respect to sample, methodology and significance variant. The logit analysis differs in two respects: studies published before the year 2000 are more likely to report significant coefficients and significant results and studies that use FDI are more likely to report positive and significant impact of economic diplomacy (research on the influence of economic diplomacy of FDI is scarce: only 54 out of 963 regressions deal with the effect of economic diplomacy on FDI flows, providing a clear indication that future research should deal with this issue). This approach loses information on the magnitude of the *t*-value, but it does enlarges sample and thus also gains information. Our econometric analyses show that reported effects of economic diplomacy on trade and investment in individual studies are sensitive to model specification and that this is true in the large and the small sample and independent of the specific estimation technique. This analysis also reveals that there is a difference in the reported significance of economic diplomacy coefficients between research fields and published versus working papers, even after correcting for study characteristics.

The fact that we see statistically significant and economically meaningful positive coefficients for economic diplomacy does not mean that the instrument is efficient. This would demand more in depth knowledge of its benefits and costs. Also from this perspective there is a clear need for improving the availability of data, for increasing the country coverage of the data and for better and more comprehensive reporting of findings and basic statistics. Furthermore, methodological improvements in the empirical literature can be made. Main-stream economics is still quite skeptical about economic diplomacy. Economic diplomacy, a tax-funded activity, in neoclassical thought merely is a disruptive income transfer

when markets are functioning properly. It is therefore important that economic diplomacy research addresses causality issues even when samples are restricted to for example cross sections. In chapter 5 I will provide a building-block for the causality debate by discussing the use product group data instead of macro level trade flows.

Notes

[1] Preliminary versions were presented at: the 4th International Biennale On Commercial Negotiations (Negocia, Paris, August 2010), the ETSG 2011 conference (Copenhagen Business School, Copenhagen, September 2011), The Hague Conference on Economic Diplomacy (Ministry of Foreign Affairs of the Netherlands and ISS, The Hague, August 2012), The Inter-American Development Bank conference on the effects of trade and export promotion, (IDB, Washington, October 2012) and the 2013 MEAR-NET colloquium (Greenwich University, London, September 2013).

[2] We started with the ambition to establish the meta-effect for economic diplomacy on international trade and investment. We quickly discovered that this could not be established because many papers did not provide sufficient information to calculate elasticities. A discussion of the various data issues we were confronted with can be found in the third section of this chapter.

[3] One third of the regression coefficients in our sample are reported without *t*-values or standard errors, but only with insignificance and significance at the 10%, 5% and 1% level, respectively.

[4] The number of papers that deal with intensive and extensive margin, while growing, is not yet sufficient to enable a meaningful meta-analysis. See, however, Moons (2012) for a review of the literature.

[5] Volpe Martincus and Carballo (2012) was included in both Chapters 3 and 4. The paper was first released online in 2011 and was therefore included in the search conducted in 2011 for our meta-analysis (Chapter 3) and literature review (Chapter 4). The referencing year (2012) may mis lead the reader in this context.

[6] In constructing a sample for a meta-analysis, it is best practice to use multiple search engines, check repositories such as RepEc, SSRN and IMF, WTO and World Bank working papers, and to follow up on qualitative reviews of literature.

[7] We thank Arjan Lejour and Harold Creusen for providing us with the necessary information about their 2011 publication.

[8] Table 6, p. 59 in Reuveny and Kang (1998) only reports the number of significant coefficients, but it is unclear which of these coefficients relate to total trade. Contact with the authors did not solve this problem.

[9] Relatively heavy weights are assigned to the negative t-values from the Ferguson and Forslid study because it only has 4 observations.

[10] We also checked our regression using analytic weights. Here Y_{ij} varies

at the individual level, but moderator and control variables are at the study level. Using analytic weights does not change the sign and pattern of significant explanatory variables.

[11] Export is used in 455 of 627 cases and embassies and consulates in 176 cases.

[12] Rose (2007) provides the number of observations for his main regression results, but not for his sensitivity analyses.

[13] The OLS models provide some evidence that studies published before the 2000s Report higher t-values.

[14] Control regressions are available upon request.

[15] Appendix B provides marginal effects for our logit estimates. The marginal effects show the discrete change in probability when the predictor or independent variable increases by one unit for my categorical variables. The marginal effect calculations reveal the extent to which study characteristics actually increase or decrease the probability of finding significant economic diplomacy coefficients.

[16] The former is in line with the results for OLS and WOLS in Table 3.4; the latter finding probably is a spurious finding as *GRAVITY* has become negative (it was positive and significant) while corrections for endogeneity by and large occur in the gravity models.

[17] In Moons (2017) I also explored the coefficients and marginal effects in a multinomial setting. The multinomial regressions confirm the established pattern in this chapter but add that country specific studies, export and investment promotion offices, state visits and trade missions are not only less likely to deliver significant coefficients. They are also more associated with negative (insignificant) coefficients.

[18] Lower significance levels compared to the baseline instrument of economic diplomacy: *EMBASSIESANDCONSULATES*.

4 The effects of economic diplomacy on the margins of trade[1]

[1] This chapter is based on Moons (2012) published in the *International Journal of Diplomacy and Economy* to which special acknowledgement is due.

4.1 Introduction

This chapter follows up on the meta-analysis presented in Chapter 3. It was established that the number of economic diplomacy coefficients relating to the effect of economic diplomacy was not sufficient to meta-analyze. The effect of economic diplomacy on the margins of trade is however an important area of empirical research. At the intensive margin, an established bilateral trading relationship changes in intensity i.e. the trade volume of previously traded goods changes (product intensive margin) and/or the volume between existing trade partners[2] changes (country intensive margin). At the extensive margin the number of trading relationships changes, i.e. new markets are entered (country extensive margin) or new products are traded (product extensive margin).

Understanding the relation between economic diplomacy and the margins of trade is relevant for several reasons. It is at the margins of trade where several theoretical concepts about the way economic diplomacy works come together. Economic diplomacy can reduce uncertainty and increase trust. The effect of economic diplomacy on trade uncertainty is theoretically motivated by Bergeijk (2009)[3]. The general effect of

trust in international exchange is extensively tested by for example Guiso et al., (2009) and more recently Kraus et al., (2015) and Yu et al., (2015). Both the theoretical framework and econometric tests indicate that relative levels of trust towards a country is a very significant determinant of international trade and investment. Furthermore, some investments and groups of traded products suffer more from a lack of trust, specifically more complex goods that demand more interaction between the buyer and seller to establish the quality and reliability of the product (Guiso et al., 2009; Rangan and Lawrence, 1999). If economic diplomacy is effective in reducing uncertainty economic diplomacy should have visible effects at both the extensive and intensive trade margin. Furthermore, economic diplomacy should have a relatively bigger effect on more complex/ trust intensive products and more complex markets.

The effect of economic diplomacy on the margins of trade is not only based on the macro-economic literature. From (models with) micro foundations follows that for the individual firm, trade barriers will be higher when a firm enters a new destination market or tries to introduce a new product on a foreign market[4]. On the other hand, the barriers to trade will be lower to the individual firm when it tries to sell more products with which it has previous international experience or if it goes to markets it is already familiar with. Ceteris paribus, this means that economic diplomacy has dissimilar effects on newly traded product versus previously traded products. And has different effects on firms thinking about trading with new foreign markets versus firms that want to trade in markets they are familiar with.

Furthermore, barriers to international trade are a potentially bigger problem for firms from lower income countries. Reputation effects hamper the export of technologically more advanced products from low income countries because the products coming from those countries may be perceived as less advanced and of poorer quality than their substitutes from developed countries (Hudson and Jones, 2003). Firms from countries not integrated in the global value chain that want to enter the world markets with highly differentiated products have the particular problem that prices alone do not convey all the relevant information for international trade (Rauch, 1996 and 1999). The heterogeneity along the dimensions of both characteristics interferes with the ability of their prices to signal relative scarcity. This is normally solved in the trading network where additional information about a product is communicated.

Not all countries are however integrated into these networks. And firms originating from countries outside the distribution networks have difficulty getting in because the search process between buyers and sellers is strongly conditioned by proximity and pre-existing `ties'. The buyers' search for trade partners does not proceed until the best match is achieved because of search costs (Rauch, 1999). Economic diplomacy can play a role when countries are not yet well integrated into global production networks (Veenstra et al., 2011).

Understanding the effect of economic diplomacy on the margins of trade is not only relevant for theorists but also for policy making purposes. Policy makers may have the economically sensible ambition to diversify exports, i.e. increase the extensive margin (Amurgo- Pacheco and Pierola, 2008; Easterly and Kraay, 2000; Jansen, 2004). Highly concentrated exports associated with an increased vulnerability to changes of the economic tide. Examples are plentiful among the developing countries where many are reliant on the export of a few traded goods (see Table 4.1). Take for example a country such as Mali whose exports are dominated by two products: gold (79%) and cotton (7%)[5]. Or Venezuela where one product (oil) is responsible for 93 per cent of total exports.

Table 4.1
Top 10 countries highest export concentration 2010

Ranking	*Country*	*Largest export sector*	*Share in exports*
1	Algeria	Oil or other mineral fuels	98.3%
2	Azerbaijan	Oil or other mineral fuels	94.5%
3	Venezuela	Oil or other mineral fuels	93.4%
4	Sao Tomé and Principe	Cacao	88.1%
5	Nigeria	Oil or other mineral fuels	87.7%
6	Maldives	Fish	87.2%
7	Saudi-Arabia	Oil or other mineral fuels	85.7%
8	Surinam	Natural resources	80.4%
9	Mali	Metals and jewellery	79.1%
10	Samoa	Electrical machinery and aequipment	76.6%

Source: Calculations by the author based on UN Comtrade database, accessed December 2011

The consequence of concentrated exports is that a country's terms of trade are influenced heavily by the price developments of a limited number of products. Terms of trade volatility is one of the determinants of income volatility which is bad for economic growth (Easterly and Kraay, 2000; Jansen, 2004; Lutz and Singer, 1994; Rodrik, 1997). Diversified exports on the other hand make a country less vulnerable to economic

shocks (Camanho da Costa Neto and Romeu, 2010). Many governments thus have a target to diversify their exports, increase their extensive margin (Amurgo-Pacheco and Pierola, 2008; Volpe Martincus et al., 2007). For policy makers in these countries it is important to know which instrument of economic diplomacy is most effective in stimulating the extensive margin and to what extent measures already taken are effective. Knowledge about the margins of trade is equally important for the private sector. Firms that want to develop their business internationally by entering new markets (increase the extensive margin) or by increasing their trade volumes (increase the intensive margin) may have to tap into different government support services. Looking into the effect of economic diplomacy on the margins of trade thus seems a useful additional way of analysing the effect of economic diplomacy. Evidence of the effect of economic diplomacy on the margins of trade is, however, scattered[6].

This chapter aims to contribute to a more systematic approach. I will do so by providing qualitative and quantitative literature review of a sample of 12 papers which in total have 987 economic diplomacy coefficients. Section 4.2 gives an overview of what is known so far about the effect of economic diplomacy on the margin of trade. We will discuss the literature per instrument of economic diplomacy and enhance the discussion by analysing the coefficients, trying to disentangle differences in effect between low and middle income Latin American and high income (OECD) countries. Section 4.3 discusses limitations of the literature discussed. Section 4.4 gives conclusions and recommendations for further research.

4.24.2 The effect of economic diplomacy on the intensive and extensive margin of trade

4.2.1 Reviewing the literature

So far this article has illustrated that it is relevant to know how the margins of trade are affected by economic diplomacy. A Google Scholar and EconLit database search on terms[7] related to economic diplomacy and its influence on the margin of trade, and a check of references of various articles delivered 12 papers that provide more insight into these dynamics[8]. A review of the main papers on the relationship between activities

of economic diplomacy and the intensive and extensive margin follows. An overview of the literature is found in Table 4.2.

Table 4.2
Studies on economic diplomacy and the margins of trade

Study	*Instrument of diplomacy investigated*
Latin American Countries (non OECD)	
Volpe Martincus et al. (2010a)	Export promotion agency, embassies and consulates
Volpe Martincus et al. (2010b)	Export promotion agency
Volpe Martincus and Carballo (2008)	Export promotion agency
Volpe Martincus and Carballo (2010a)	Export promotion agency
Volpe Martincus and Carballo (2010b)	Export promotion agency
Volpe Martincus and Carballo (2012)	Export promotion agency
OECD countries	
Alvarez and Crespi (2000)	Export promotion agency
Biesebroeck et al. (2011)	Export promotion agency (local and abroad)
Gil- Pareja et al. (2011)	Export promotion agency (local and abroad)
Volpe Martincus and Carballo (2010c)	Export promotion agency
Creusen and Lejour (2011)	Foreign representation, trade missions
Segura-Cayuela and Vilarrubia (2008)	Embassies and consulates

Export promotion agencies

Researchers trying to establish the significance and size of the impact of economic diplomacy on trade (intensive margin) have mainly focussed on the effect of embassies (see for example Gil-Pareja et al., 2008; Afman and Maurel, 2010; Veenstra et al., 2011; Yakop and Bergeijk, 2011). Unlike the intensive margin literature, export promotion agencies (EPAs) are the dominant topic of research in publications about economic diplomacy and the margins of trade. There are a number of empirical studies dealing with the effectiveness of export promotion agencies. The majority of studies concentrate on EPAs in Latin American countries.

Alvarez and Crespi (2000) report the effectiveness of the Chilean export promotion agency (PROCHILE) for the period 1992-1996. They use survey data obtained from 365 firms. They find no direct positive impact on Chilean exports. However, "promotion instruments increase the number of firm export markets and, after a period of four years, they generate more exports and a higher diversification by markets and products" (Alvarez and Crespi, 2000:240). For the period 2002-2006 the effect of PROCHILE is also estimated. For these years a more substantial contribution of PROCHILE to the export of Chilean exporters is found

(Volpe Martincus and Carballo, 2010c). The impact of PROCHILE in this study is however at the lower end of the scale compared to other Latin American export promotion agencies. Volpe Martincus and Carballo (2008) assess the effects of export promotion on Peruvian firms over the period 2001-2005. The analysis shows that export promotion activities by Peru's national export promotion agency (PROMEX) help firms in their internationalization efforts. PROMEX assistance led to an expansion of exports along the country and product extensive margins, i.e. PROMEX led to an expansion of the number of trade relations and number of traded products. Volpe Martincus and Carballo (2010a) establish the effect of the Uruguayan export promotion agency on the margins of trade. For this analysis they use a dataset of firms already active in international trade for the 2000-2007 period. The findings suggest that EPAs help firms reach new destination countries and in introducing new differentiated products. The effect of Uruguayan trade assistance seems to be especially effective for entering Latin American and Caribbean markets. Volpe Martincus and Carballo (2010b), using the entire population of Columbian exporters over the period 2003-2006, deliver insight into actions of economic diplomacy by the Columbian EPA (PROEXPORT) at a very micro level. Not only do they analyse the effect of export promotion activities on the margins of trade, they also look at which particular actions or combination of actions are most effective. They find that PROEXPORT actions facilitate the access of firms to new destination countries as well as the introduction of new differentiated products. The analysis shows that a combination of services is associated with better export outcomes along the country extensive margin. Firms which simultaneously receive counselling, participate in international trade missions and fairs, and get support in setting up an agenda of commercial meetings exhibit higher growth of total exports. These firms also export to a larger number of countries than comparable firms which only joined in one of these activities. It thus seems that services show significant complementarities.

The impact of Argentina's EPA is analysed in Volpe Martincus et al. (2010b). They investigate the effect of export promotion in Argentina for the 2002-2006 period. As in other publications on Latin American EPAs, they find that export promotion specifically influences the country extensive margin of trade. Additionally the question is answered whether EPA activities show heterogeneous effects depending on firm

sizes. Their findings suggest that positive effects are mainly associated with small and medium sized firms. The final paper in this part of the literature review on Latin American countries shows that PROCOMER, the Costa Rican export promotion agency, positively affects the extensive margin of trade for Costa Rican exporters (Volpe Martincus and Carballo, 2012). The improvement in the extensive margin is however limited to the country extensive margin, meaning that exporters assisted by PROCOMER exporters enter new markets but do not diversify their product range. The results furthermore show that the impact of Costa Rican export promotion activities is limited to traders of heterogeneous products and has no impact on exporters of homogeneous goods. This is consistent with earlier publications on the effectiveness of Latin American EPAs (see for example Volpe Martincus and Carballo, 2010a and 2010b and Volpe Martincus et al., 2010a).

Two studies analyse EPAs in countries outside Latin America. Biesebroeck et al. (2011) analyse the effectiveness of the Canadian Trade Commissioner Service (TCS). They find positive and significant effects for TCS activities on exports at the intensive margin of trade. This suggests that Canadian firms facilitated by the TCS are concentrating on fewer but more successful products and markets. The study shows heterogeneous effects along a number of dimensions. The TCS has a bigger effect on first time clients and effects are bigger for location specific assistance, which means that the services provided by foreign branches of the Canadian EPA stimulate trade more profoundly. Gil-Parreja et al. (2011) find that Spanish Regional Export Promotion Offices (REPOs) have a larger impact in stimulating an increase in trade margins of exports in differentiated goods. Using Spanish transaction data per product over the period 1993-2008, they show that total impact of REPOs on exports into three product margins[9] takes place mainly through an increase in both the number of products and the average number of firm transactions per product. An interesting observation in the paper is related to the export enhancing effect which is differentiated by region. The results show a large dispersion in the effectiveness. Of the 13 regions that have REPOs only four seem to have an appreciable trade stimulating effect. For the others the results are insignificant or even negative. According to the authors, the regions with the longest tradition in trade promotion show the best results. Allowing for the finding that lack of experience with export promotion of some regions is the cause of the

dispersion, the analysis makes it very clear that trade promotion practises matter a lot for the final outcome.

Diplomatic representations

The activities of diplomatic representations on the margins of trade have been subject of empirical work in three studies. Analysing a large cross sectional dataset with bilateral trade data for 21 exporter and 163 importer countries Segura-Cayuela and Villarrubia (2008) find that the presence of a foreign service office[10] in a given country increases the likelihood of trading with that partner between 11 per cent and 18 per cent. Economic diplomacy thus reduces uncertainty when a trading relationship is not yet established. Once a trading relationship is established they find no effect of economic diplomacy for the intensive margin of trade. Looking into the dynamics of the extensive margin they find that economic diplomacy matters most for sectors producing heterogeneous goods.

Creusen and Lejour (2011) look into the effect of several instruments of diplomacy, among which several forms of diplomatic representation and trade missions for the Netherlands. Their findings show that economic diplomacy is effective in increasing the country extensive margin. The probability that a Dutch firm enters new markets is somewhat larger in countries with bilateral chambers of commerce, Netherlands Business Support Offices (NBSO's) and embassies. High level trade missions also contribute significantly to chances of successful market entry by Dutch firms. Economic diplomacy is more effective when market entry barriers are higher, often related to the level of development of countries. Creusen and Lejour (2011) find evidence for an increase in the intensive margin of trade due to diplomatic representations and high-level trade missions, but have difficulty establishing the causality.

Finally, Volpe Martincus et al. (2010a) find heterogeneity in trade effects between EPAs and diplomatic representations. While agencies stimulate the increase in the number of differentiated goods that are exported, diplomatic representations improve exports of homogeneous goods (Volpe Martincus et al., 2010a). The study analyses the effects for a sample of 26 Latin American and Caribbean countries for the 1995-2004 period.

4.2.2 Bringing results together

It is not easy to draw general conclusions from all separate papers with results for individual countries or a specific group of countries. We can however bring together the presented empirical work to work towards some broad conclusions. In order to integrate findings Table 4.3 presents material of the 12 papers discussed earlier. In these 12 papers 987 coefficients are delivered on either the (country/product) intensive margin or the (country/ product) extensive margin. In the table the bandwidths of significant coefficients per margin are reported, next to the country or region for which the analysis was made, the instrument of diplomacy investigated and the way the effect of diplomacy is presented.

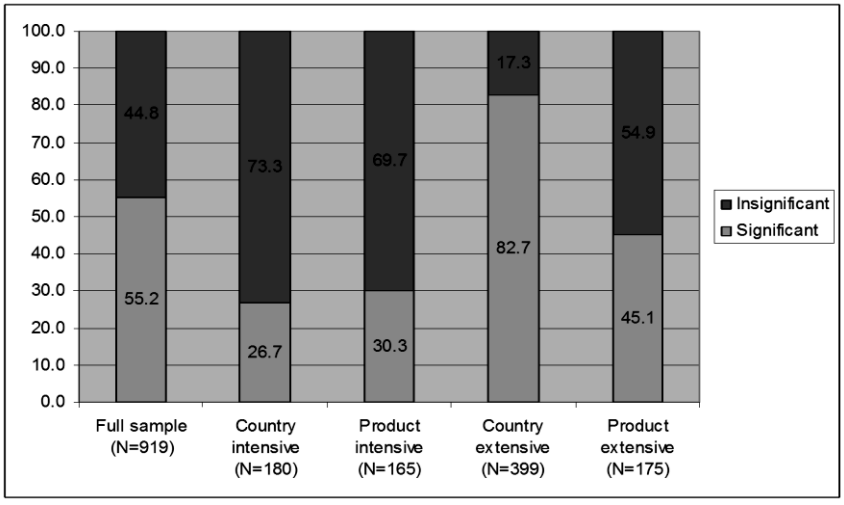
Table 4.3
Economic Diplomacy and the effect on the margin of trade

	Country/ Region	*Instrument*	*Effect*	*Intensive margin*		*Extensive margin*	
				Country	*Product*	*Country*	*Product*
Latin American Countries (non OECD)							
Volpe Martincus et al. (2010a)	26 Latin American and Caribbean	EPA, embassy and consulates	Higher value	n/a	n/a	4.0%-205.3%	n/a
Volpe Martincus and Carballo (2008)	Peru	EPA	Higher growth	2.8%-27.8%	3.1%-18.9%	4.8%-26.5%	2.8%-20.0%
Volpe Martincus and Carballo (2010a)	Uruguay	EPA services	Higher growth	n/a	n/a	9.6%-17.1%	not significant
Volpe Martincus and Carballo (2010b)	Columbia	EPA services	Higher growth	7.8%-22.4%	9.4%-20.0%	6.6%-19.6%	4.9%-14.5%
Volpe Martincus and Carballo (2012)	Costa Rica	EPA	Higher growth	38.1%-39.5%	6.2%-23.0%	5.1%-14.2%	4.1%-22.8%
Volpe Martincus et al. (2010b)	Argentina	EPA	Higher growth	5.8%-24.2%	8.1%-42.6%	0%-33.9%	2.4%-19.7%
OECD countries							
Alvarez and Crespi (2000)	Chile	EPA	Absolute increase in number of products/ markets	not significant	not significant	1.03-1.45	not significant
Biesebroeck et al (2011)	Canada	EPA, foreign EPA office	Higher growth	n/a	n/a	15.5%-20.8%	35.7%-55.6%
Gil- Pareja et al. (2011)	Spain	EPA	Higher value	-19.1%-22.2%		-12.1%- 44.9%	
Volpe Martincus and Carballo (2010c)	Chile	EPA	Higher growth	2.8%-23.7%	4,5%- 26,0%	2.3%-20.0%	3.1%-12.5%
Creusen and Lejour (2011)[11]	The Netherlands	Foreign representation, trade missions	Increased chance of trade and higher value	2.4%-5.9%	n/a	2.1%-5.9%	n/a
Segura-Cayuela and Vilarrubia (2008)	21 mainly OECD exporters	Embassies and consulates	Increased chance of trade	not significant	n/a	4.3%-180.3%	n/a

Table 4.3 shows that the reported results have a concentration on Latin American countries and we see that the influence on the margin of trade is measured in different ways. The basic question whether economic diplomacy is a useful tool to influence the margin of trade may however be answered affirmatively. No matter how the influence of economic diplomacy is measured, as higher export growth compared to peers, as higher value of exports or as an increased chance of entering a new export market, the studies deliver positive results. All studies find positive effects of economic diplomacy on market diversification, i.e. the extensive margin of trade. Within the extensive margin, the diversification along the number of countries served seems more pronounced than the number of products exported.

The parameters found for the intensive margin of trade are less convincing, especially for the richer OECD countries in the reported samples. Here the observed effects vary from small (and even negative) to quite substantial, but the parameters are always smaller in comparison to the Latin American countries in the sample. Furthermore, we see quite a number of results which are not significant on the intensive margin. This observation is further validated by checking the number of significant coefficients in all the presented papers (see Figure 4.1).

Figure 4.1
Significant and insignificant coefficients per margin of trade

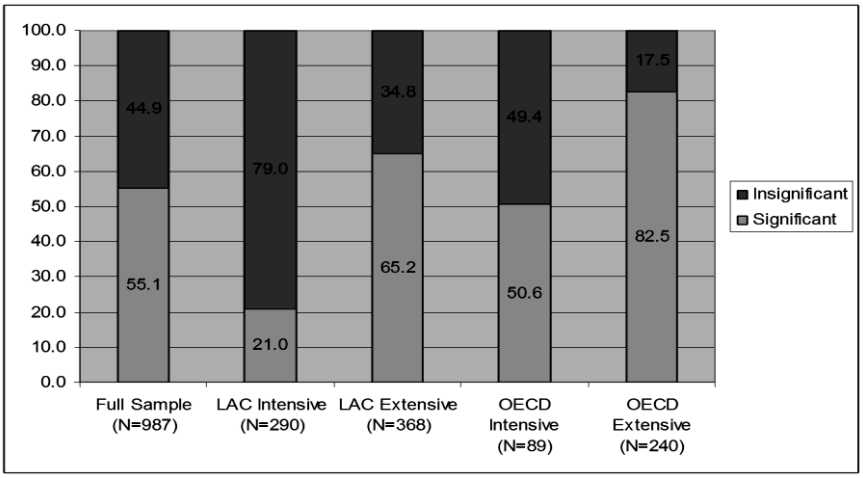


Notes: data collected from the studies reported in Table 2. Figure reports percentages of significant (10%, 5% and 1% level) and insignificant coefficients from primary studies.

In Figure 4.1 a coefficient is labelled significant when in the original paper the coefficient is significant at the 1, 5 or 10 per cent level. For the figure the total number of coefficients used is 919. All significant coefficients are positive. The coefficients of Gil-Pareja et al. (2011) were excluded because the paper only presented the results for intensive and extensive margins, without specifying country or product dimensions. The pattern of significance over the margins of trade in Gil-Pareja et al. (2011), however, does not differ from the picture presented in Figure 4.1, in which the margin effects are further disentangled.

Figure 4.1 clearly shows that the country extensive margin is the most affected by instruments of diplomacy. In the full sample some 55 per cent of the observations are significant. Of the reported effect of economic diplomacy on the country extensive margin 83 per cent of observations are significant. This further strengthens the presumption that economic diplomacy may serve as an effective way to lower country entry barriers. The results for the intensive margin, the increase in volume within existing relations, are mixed at best. Here insignificant results dominate.

Figure 4.2
Geographic division of significant and insignificant coefficients per margin of trade



Notes: data collected from the studies reported in table 2. Figure reports percentages of significant (10%, 5% and 1% level) and insignificant coefficients from primary studies.

It is useful the see if the above observed pattern is consistent between the richer and poorer countries in the sample. As observed earlier, countries with concentrated exports often have an ambition to diversify their exports. And firms from poorer countries often have more difficult in entering the worlds' markets because their domestic market is not integrated in production chains. Figure 4.2 shows a comparison of results for the extensive and intensive margin for non OECD Latin American countries (LAC) compared to the results for the OECD countries in the sample. Keeping in mind the reported margins in Table 4.3 Figure 4.2 confirms comparable positive effects on the extensive margin, for countries from either group. On the intensive margin we however see quite a substantial difference between the ratio of positive[12] and significant coefficients and insignificant coefficients between LAC and OECD countries. For the latter the contribution of economic diplomacy to an increase in the intensive margin of trade is much more significant. This is an important difference from the picture which emerges if one would only look at reported bandwidths in Table 4.3.

4.3 Limitations of the literature

A couple of general notes are warranted before drawing conclusions about the effect of economic diplomacy on the margins of trade. Firstly, one has to take into account that economic diplomacy is not a one size fits all. If the target is to increase the intensive margin of trade, to make the terms of trade more stable, the current structure of the country's trade matters. If firms from a particular country export a lot of different products to only a limited number of markets, trade costs may prove to be a problem and economic diplomacy may be part of the solution to this problem. If firms from a particular country export only a limited number of products, production costs[13] in different sectors may be part of the problem (next to impediments for firms to enter in world markets). In that case economic diplomacy will not prove to be panacea sought. Firms need to gain competitiveness first.

Second, having a concentrated export package is mainly a problem of small economies and developing countries (Jansen, 2004). An understanding of the problem, next to looking at the exporting country, will have to involve looking at the importing countries. Literature on multinational enterprises (MNEs) suggests that MNEs create highly integrated

regional production networks (UNCTAD, 1999). Evidence further suggests that retailers' decisions are important in determining who is included and who is not in cross border supply chains (Cadot et al., 2009). Thus, opportunities for exporters from small and developing countries are at least partially driven by the purchasing policies of large buyers, i.e. MNEs. If large buyers decide to concentrate on a few suppliers, for example to simplify the production process or because of government incentives, this limits the opportunity of those trying to diversify their trade. Understanding these policies is an important part of understanding the concentrated exports problem.

Third, the papers reviewed show important geographical limitations. Only two analyses were not country specific (Segura-Cayuela and Vilarrubia, 2008 and Volpe Martincus et al., 2010). Of the other papers almost three quarters of them have a focus on economic diplomacy activities for Latin American countries and a majority only focuses of the effect of export promotion agencies. None of the papers analyse the effect of economic diplomacy on the margins of trade for African countries and only the paper of Segura-Cayuela and Vilarrubia has Asian countries in its exporter sample. This makes it hard to draw general conclusions about the effect of economic diplomacy on the margins of trade. Results are potentially country or region specific and only include a limited number of activities of economic diplomacy.

Fourth, little is known about the interaction between instruments of economic diplomacy and their effects on the margins of trade. Some papers take into account several activities of EPAs, thereby reflecting the heterogeneity of export promotion programs (Alvarez and Crespi, 2000; Biesenbroeck et al., 2011; Volpe Martincus and Carballo, 2010b). Creusen and Lejour (2011) simultaneously address the effect of diplomatic representations and some of their activities. Most papers are however focussed on one instrument of diplomacy and do not take into account the risk that some of the companies may actually use other, not observed, instruments of diplomacy. The reported results in the single instrument studies may thus present some over estimation of the effect on the margin of trade.

Fifth, the data used have some problems. Studies that use the total number of bilateral traded products as a proxy for the extensive margin of trade and the value per traded product to proxy for the intensive margin have a disadvantage (Gil-Parreja et al., 2011). It potentially overesti-

mates the effect of economic diplomacy on the intensive margin. New trading relationships on the firm level can lead to an increase in the number of transactions per product. In the bilateral trade data this may only show up as an increase in the country intensive margin even though at the micro level the firm extensive margin increases. It is thus better to work with micro data when available to fully disentangle the channels through which economic diplomacy influences trade, as is done in most of the 2010 and 2011 publications. Working with micro data would bring the additional advantage that one could further gain understanding of important firm level dynamics. Currently, when looking into the margins of trade the literature focuses on the effects on a macro (country) of meso (sectors) level. That is, the analysis looks at the number of countries traded with and the number of products traded from a country or sectoral perspective. The reported margins of trade however miss the firm perspective which is important to understand. For example, diversification from a firm perspective may involve selling the same total quantity, of the same product in the same country to a different number of buyers. This makes sense from a producer's perspective because it makes the producer less dependent on one buyer leading to lower risks of non payment and a better price negotiating position. This is however not measured, nor mentioned in the margins of trade literature.

4.4 Conclusions

The vast majority of the empirical literature confirms the economic reasoning by stating the effectiveness of economic diplomacy as a tool to increase the extensive margin of trade. This relationship holds for OECD and non OECD Latin American countries. From our 987 economic diplomacy coefficients the empirical judgement on the effectiveness of EPAs as a suitable instrument to diversify exports, i.e. to tackle market entry barriers, is very favourable. Individual studies point to the fact that this effectiveness is highest for differentiated products (Gil-Pareja et al., 2011; Martincus and Carballo; 2012; Segura Cayuela, 2008; Volpe Martincus et al., 2010a) and to lower the obstacles to international trade for small and medium sized firms (Volpe Martincus et al., 2010b). This is more nuanced than the Moons and Bergeijk (2016) meta-analysis that indicates that significance on aggregate exports may be lacking.

The effect of economic diplomacy on the intensive margin of trade seems to be different when comparing OECD to non OECD Latin American countries. The positive relationship between economic diplomacy and the volume of trade is stronger for OECD countries. However, studies dealing with OECD countries in the sample more often use embassies and consulates as an explanatory variable. These are better at stimulating the intensive margin, a conclusion carefully drawn by Volpe Martincus et al. (2010a). The results may also be driven by differences in market entry barriers that OECD diplomats are confronted with. Or it is possible that the target of some of the economic diplomats in the OECD markets is focussed on higher volumes instead of diversification, which is a way to interpret the earlier presented results for Canada (Biesenbroeck et al., 2011).

Based on what is known to date, it seems that embassies and consulates in particular enhance existing trade relations (intensive margin). This may relate to the depth of the knowledge of the staff at embassies and consulates versus the depth of knowledge available at export promotion agencies. Embassy employees usually have a broad general knowledge which helps to solve more easier, problems which mainly impact (the already large) existing trade flows (Volpe Martincus, 2010). Employees of export promotion agencies on the other hand have more specific knowledge, aimed at promoting exports. These employees provide more specific solutions to problems for small niche players, resulting in a greater diversity in products traded (but not having a large impact on the total volume).

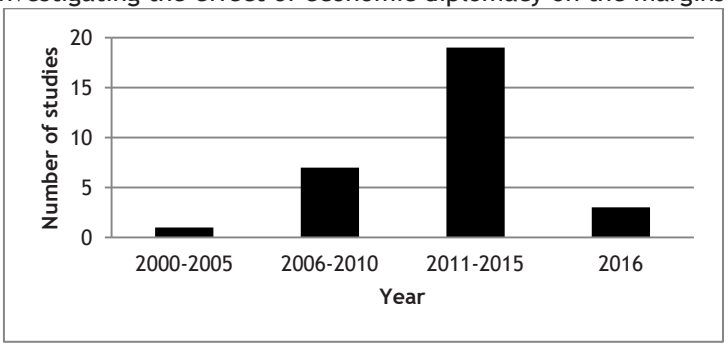
Literature furthermore suggests that next to the institution used for economic diplomacy the type of services offered by these institutions matters. Country results differ in size and even in the trade margin affected. Services offered by trade promotion agencies seem to have complementarities (Volpe-Martincus and Carballo, 2010b) and the trade promotion policy of regions with a longer tradition in trade promotion outperform those with lesser experience (Gil-Pareja et al., 2011).

4.5 Research agenda

The sample used for this paper was constructed between January and December 2011. Since new empirical work has been published that looks into the effect of economic diplomacy on *the extensive margin* and *the inten-*

sive margin of trade (e.g. Crespi and Alvarez, 2016; Gil- Pareja et al., 2015; Cadot et al., 2015; Lederman et al., 2016; Xu et al., 2014; Volpe-Martincus and Carballo, 2012) (see Figure 4.3 below). Given the importance of economic diplomacy in the link to the margins of trade I highly advise to try and conduct a meta-analysis on this topic.

Figure 4.3
Studies investigating the effect of economic diplomacy on the margins of trade



Notes: additional to the studies of the presented literature review I collected the new studies on the topic of economic diplomacy and the margins of trade on March 6th 2017. I used the same search strategy as described in section 4.2.1 of this chapter. This delivered 16 new studies which are marked with * in the references of this thesis.

Important issues for future research still remain. The geographical coverage of the literature of the effect of economic diplomacy on the margins of trade is still limited. Studies still by and large focus on OECD countries and Latin American countries (e.g. Cruz, 2014; Casey, 2015; Lederman et al., 2016; Schminke and Biesenbroeck, 2013). Conclusions drawn for OECD and Latin American countries may not prove to be a blueprint for others. So far limited analysis is available that includes Sub Saharan African countries and of the North African countries only Tunisia was topic of investigation (Cadot et al., 2015). This is an area of attention because economic diplomacy could be of help the efforts of African countries to diversify their exports. I will follow up on this particular point in the next chapter and investigate the effect of economic diplomacy on a large sample that included numerous African countries.

More generally, there is a need for data samples and studies that involve multiple countries because the majority of the literature reviewed for this article has a single country/region focus, making results country/region specific (e.g. Biesenbroeck et al., 2016; Casey, 2015; Hayakawa

et al., 2014a; Xu and Zang, 2014). It also limits the comparability between countries which is an important drawback because the effectiveness of economic diplomacy is likely to vary between countries (Bergeijk et al., 2011a; Lederman et al., 2009).

Another aspect of research should be on the interaction between instruments of diplomacy and their joint effect on the margins of trade. Current literature is too narrowly focussed on one instrument of diplomacy or a few instruments at best. It is important to have a deeper understanding how instruments of diplomacy interact. Volpe Martincus and Carballo (2010b) show that the combined use of different EPA services is associated with better export performance. Literature illustrating the impact of economic diplomacy on trade flows already shows quite strong heterogeneous effects when several instruments of diplomacy are tested simultaneously (Veenstra et al., 2011). A better understanding of the interaction between instruments and heterogeneity in effects will provide valuable policy insights.

A point of consideration should also be that effective export promotion policies could also involve imports (Beltramello et al., 2012). This is not a particularly popular topic under politicians but may become more popular if development cooperation and trade get combined in more countries (Chapter 2 of this thesis; Moons, 2015). Effective export promotion agency may have to play a role in facilitating linkages for domestic producers to find better imports as an input in their production process. This may in turn lead to a better position in the international economy. The role of imported goods in the position of exporting firms is an area that should be part of future micro data analysis on the determinants of the margins of trade.

Notes

[1]I would like to thank two anonymous reviewers and Roelof van der Kraan and Richard Shirley for their useful comments on earlier drafts.

[2] Trade partners in this case refers to the trade between countries.

[3] See Chapter 3 in Bergeijk (2009), pp. 47-65

[4] This is in line with the thought of the Melitz (2003) model.

[55] Figures based on UN Comtrade database for 2010.

[6] An overview of the general economic effects of economic diplomacy on trade may be found in Moons and Bergeijk (2016)

[7] Terms associated with economic diplomacy, like trade promotion, embassies, consulates, export promotion where also used for the search

[8] The first papers were found because of the Moons and Bergeijk (2016) meta-analysis search. They concluded that the margins of trade literature could not be included in the meta-analysis.

[9] Different from other papers in this section on the effect of EPAs Gil-Parreja et al. (2011) do not use a database with contains firm specific information provided by the EPA. Gil-Parreja et al. (2011) instead use transaction level data on the exports of various Spanish regions and estimate the REPOs impact with a gravity model. This analysis 'only' allows them to disentangle 3 type of margins of trade; the extensive margin, the intensive margin and the mixed margin.

[10] In this study a foreign service office can be an embassy or consulate.

[11] I would like to kindly thank the authors for providing me with additional information about the margins of trade as observed in their paper.

[12] See Table 3 for bandwidth. Vast majority of reported coefficients have a positive sign.

[13] Production costs involve the cost of labour and the cost of capital. Especially for less developed countries the access to and cost of capital can be a serious impediment.

5 Economic diplomacy and product characteristics.[1]

[1] This chapter is based on Moons and Boer (2017) which is accepted for publication in the *Research Handbook of Economic Diplomacy: Bilateral Relations in a Context of Geopolitical Change* to which acknowledgement is due.

5.1 Introduction

Leading publications in the field of economic diplomacy work under the assumption that economic diplomacy has a homogeneous effect on trade (e.g. Nitsch, 2007; Rose, 2007)[2]. It is however increasingly recognized that the effect of economic diplomacy is more heterogeneous (e.g. Gil-Pareja et al., 2015; Moons and Bergeijk, 2016; Moons, 2017; Volpe Martincus et al., 2011).

Empirical research provides indications that this heterogeneity can be expected in relation to the level of economic development of the trading partner. Economic diplomacy will have a more pronounced effect on trade from and to low income countries (e.g. Creusen and Lejour, 2013; Hayakawa et al., 2014a; Gil-Pareja et al., 2015; Yakop and Bergeijk, 2011;

Veenstra et al., 2011). Furthermore, the effect of diplomacy may be different for the number of traded products/ trading relations (*extensive margin of trade*) as compared to its effect on the traded volume (*intensive margin of trade*) (Crespi and Alvarez, 2016; Gil- Pareja et al., 2015; Lederman et al., 2016; Volpe-Martincus and Carballo, 2012). Next to this, the instrument of economic diplomacy deployed in bilateral economic relations matters. For instance, higher ranked embassies seem to have a more pronounced effect on bilateral trade as compared to the lower ranked career or honorary consulates (Bergeijk et al., 2011a; Veenstra et al., 2011). Diplomatic representations seem to generate a more substantial effect on bilateral economic relations as compared to export promotion offices (Moons and Bergeijk, 2016; Veenstra et al., 2011).

An underexplored source of heterogeneity is the effect of economic diplomacy on internationally traded Rauch classified product groups. Thus far this has only been explored in a regional or country specific setting (e.g. Gil-Pareja et al., 2015; Volpe Martincus et al., 2011; Volpe Martincus and Carballo, 2012)[3]. The Rauch classification groups tradable products according to their complexity to trade. Product complexity increases the need for deliberation between buyer and seller because the reliability, trustworthiness, timeliness, and capabilities of the product need to be assessed (Rangan and Lawrence, 1999). Trade in the most sophisticated goods as a consequence depend most on trust between the buyer and seller (Guiso et al., 2009; Möhlman et al., 2010). Economic diplomacy can reduce costs and increase trust by, for example, providing information and matchmaking and reducing matching frictions. We test the relation between product group characteristics and economic diplomacy in this chapter and add to the literature by providing the first comprehensive analysis that takes into account 1) the different forms of diplomatic representation, 2) the complexity of the traded product and 3) the effect of diplomatic representations on the formation of bilateral trade (*country extensive margin of trade*). Different from earlier studies which are specific to Latin America, Costa Rica and Spain this chapter uses a sample of countries that includes countries from all continents (the list of countries is presented in Appendix C) .

This chapter also has two methodological contributions to the literature. First, it presents a way to deal with missing Rauch 4 digit SITC classifications. By interpolating missing 4 digit SITC codes we reduce the value of unclassified trade from 10 per cent to less than 3 per cent of our

sample. This is important because bilateral trade data of developing countries have high percentages of unclassified trade that would otherwise not be taken into account. Second, the chapter adds to the understanding of the causal relation between diplomacy and trade. In the discussion on whether trade causes economic diplomacy or economic diplomacy causes trade we grew more confident of the latter. This is due to two reasons, the first being that we use product group data. Countries may decide to open diplomatic offices because of a high level of aggregate exports. It is however unclear that they will do so for the exports of a particular group of traded goods. We therefore interpret the heterogeneity in product group trade effects of economic diplomacy as an additional argument that the causal effect between economic diplomacy and trade works in the sense that diplomacy leads to trade. Second of all, we (extensively) test our empirical findings using an instrumental variables (IV) approach. This approach confirms the robustness of the estimated coefficients and indicates that the causal relationship goes from diplomacy leading to trade.

The remainder of this chapter is structured as follows. First, we discuss the rationale for economic diplomacy in relation to the traded product group. Second, we classify the bilateral trade of a broad set of 63 countries in three goods categories based upon their four digit SITC numbers: homogeneous goods, reference priced goods and differentiated goods using the Rauch categorization. Third, we discuss our empirical design. Fourth, we determine the effect of economic diplomacy on the value of bilateral trade across different product categories. Fifth, we test the effect of economic diplomacy on the formation of trade relations and present sample and selection bias corrected estimates for the associated increase in bilateral trade. Sixth, we test for the causality of the presented relations. The final section concludes and presents potential future areas of research.

5.2 Economic diplomacy: its rationale and the heterogeneous effects due to product characteristics

5.2.1. The rationale of economic diplomacy

The necessary requirements for government intervention to have a positive welfare effect are that the intervention targets market failures and

that the benefits outweigh the costs of intervention. The rationale for economic diplomacy is the existence of asymmetric information and externalities associated with the collection and sharing of information about market opportunities in international markets (Bergeijk, 2009; Lederman et al., 2016)[4].

Information asymmetry is a problem that arises particularly for countries that are less connected to global trading networks. Retailers' decisions are important in determining who is and who is not included in trading networks (Cadot et al., 2011; Rauch, 1999). This decision making process is not only driven by rational cost perspectives, but also by reputation and trust (Guiso et al., 2009; Möhlman et al., 2010). Here the problem arises that prices do not convey all the relevant information for international trade (Rauch, 1996 and 1999). Additional information about the product is shared within the trading network. However, not all countries are part of the trading network for the product they want to sell. Governments may, as a result, need to signal that their producers meet the highest product and environmental standards and that firms originating from their country are reliable partners (Yakop and Bergeijk, 2011). This is critically important for developing countries that stand at a disadvantage because the more technologically advanced products coming from these countries may be perceived as less advanced and of poorer quality than their substitutes from developed countries (Hudson and Jones, 2003).

The externalities of collecting and sharing information about international markets are particularly relevant in the situation of market entry. The search for information by the first mover and the associated investments reveal information that may be used by followers, saving them these initial costs (see Gil-Pareja et al., 2015; Moons, 2012; Rauch, 1996). The potential gains of being a first mover and investing in the production of new knowledge about entering new foreign markets is thus reduced. The private returns from developing market entry/ markets opportunities information could be lower than the corresponding social returns, leading to a sub-optimally lower production about how to pursue cross border economic activities (Greenwald and Stiglitz, 1986; Westphal, 1990). Markets then fail to deliver a socially optimal return. Economic diplomacy counters this market failure by reducing private costs for information gathering via the provision of public information and the reduction of barriers to international trade.

5.2.2 Interaction between economic diplomacy and characteristics of the trade product

The core contribution of this chapter is the test for potential heterogeneous effects of economic diplomacy in relation to characteristics of the traded good. Several different classification schemes exist that allow us to arrange trade flows into detailed product groups (e.g. Hummels and Schaur, 2013; Lankhuizen et al., 2015). We use the Rauch (1999) classification scheme because it has several virtues in the context of this chapter. The Rauch classification is suitable to test for the effects of economic diplomacy on exported products with clearly differentiated levels of product-sophistication. The scheme is intuitively logical since it can be related to information asymmetries and matching frictions between buyer and seller (the more complex the traded product, the higher the transaction cost) and via that route to the role of economic diplomats. The scheme has been used by others to test the effects of economic diplomacy, making the use of the Rauch classification a prerequisite to compare our results with other empirical economic diplomacy literature.

"Rauch (1999) develops a model of international trade within a search theoretical framework" (Lankhuizen et al., 2015:139). Trade is classified accordingly by its four-digit Standard International Trade Classification (SITC) product group into i) homogeneous, ii) reference priced and iii) differentiated goods. Rauch classified homogeneous goods are easiest to trade. Homogeneous goods are relatively straightforward and can be bought at organized exchanges; i.e. confectionary sugar (SITC 0620). No matter which factory produced the confectionary sugar the buyer will have a good idea of what he will get. Furthermore, the characteristics of the product and the price of homogenous goods are sufficient for buyers to identify a match to their needs. Based on these product characteristics there is no a priori rationale for economic diplomacy in transactions involving homogeneous goods.

Reference priced goods are goods that are not listed on an international exchange but prices can be found in specialized magazines/ websites and buyers can get quotes for specialized traders. An example is natural honey (SITC0616) for which US prices are gathered by the National Honey Board. The matching from sellers and buyers is more difficult than for homogenous goods. Based on the characteristics of reference priced goods we expect that economic diplomacy may have a role to play to lower information asymmetries.

Finally, differentiated goods vary in terms characteristics and quality and are not traded on organized exchanges. We take for example photographic camera's (SITC 8811). These cameras may vary in different ways (i.e. optical vs digital zoom, big vs small internal processor). The price is determined by many factors, for example trademark and the (origin of the) maker. This makes it difficult to sell these goods in organized exchanges, to establish a "correct price" thereby complicating trade (Rauch, 1999). Hence, economic diplomacy may have a stronger impact on the trade of these differentiated goods (Gil-Pareja et al., 2015). This because there are many possibilities for economic diplomats to supply information and to build trust (about the quality of products coming from his home nation).

5.3 Empirical design

Turning to the empirical design our goals are twofold. First, our aim is to test our predictions, in particular what factors determine whether trade takes place at all. Second, we wish to see to how much trade is created ("the treatment stage") and how to establish differences between product groups. Because collecting economic diplomacy data is labor intensive we use the sample of the Yakop and Bergeijk (2011) paper which was made available by the researchers. We start with a modification of their gravity model to show known heterogeneity inherent to different forms of diplomatic representation (Moons and Bergeijk, 2016). We therefore separately report the effects of embassies and consulates on trade instead of grouping the two into one variable as done in Yakop and Bergeijk (2011). This leads to the following estimated equation:

$$\text{Ln}(X_{ij}) = \beta_0 + \beta_1 \ln(D_{ij}) + \beta_2 \ln(Y_i) + \beta_3 \ln(Y_j) + \beta_4 \ln(Pop_i) + \beta_5 \ln(Pop_j) + \beta_6 Lang + \beta_7 Cont_{ij} + \beta_8 Landl_{ij} + \beta_9 Island_{ij} + \beta_{10} \ln(Area_i * Area_j) + \beta_{11} Col_{ij} + \beta_{12} CU_{ij} + \beta_{13} FTA_{ij} + \beta_{14} Embassy_{ij} + \beta_{15} Consulates_{ij} + \varepsilon_{ij} \quad \ldots\ldots \quad (5.1)$$

Equation (5.1) statistically explains the (volume of) exports between country pairs based on a number of explanatory variables. Ln denotes the natural logarithm operator. In our equation X_{ij} is the bilateral export from county i to country j. We expect countries that are more distant to each other to trade less and countries that are larger to export more. Therefore, D_{ij} is included, which covers geographic distance between

country i and j. Three measures are furthermore included to correct for markets size. *Y* stands for the national income of the trading country, *Pop* gives the size of the population and $Area_i * Area_j$ is the area of the trading countries in squared kilometers.

In equation (5.1) several dummies control for country characteristics that are known to influence bilateral trade. These dummies include past and current colonial relations (*Col=1*), if trading partners have a bilateral trade agreement (*FTA=1*), if they are part of a single currency union (*CU=1*) and the number of landlocked countries and island states in the country pair (value between 0 and 2). $Embassy_{ij}$ and $Consulates_{ij}$ are included to account for the effect of economic diplomacy. The *Embassy* and *Consulates* variables give the number of embassies and consulates that country *i* has in country *j*. Finally, ε_{ij} represents the error term.

We transform equation (5.1) to the theoretically founded Anderson and Wincoop (2003) model which is known to deliver more precise specifications than the traditional gravity model (Anderson and Wincoop, 2003, 2004; Head and Mayer, 2013). This model is specified as:

$$\ln(X_{ij}/Y_i{*}Y_j) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 Lang + \beta_3 Cont_{ij} + \beta_4 Landl_{ij} + \beta_5 Island_{ij} + \beta_6 \ln(Area_i{*}Area_j) + \beta_7 (Col_{ij}) + \beta_8 CU_{ij} + \beta_9 FTA_{ij} + \beta_{10} Embassy_{ij} + \beta_{11} Consulates_{ij} + \lambda_i + \lambda_j + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (5.2)$$

Here the dependent variable is ln(Xij/Yi*Yj) which scales bilateral exports (X_{ij}) to the incomes (*Y*) of countries *i* and *j*. This avoids an endogeneity bias from trade flows to GDP (Baier and Bergstrand, 2010). Furthermore, λ_I and λ_j represent importer and exporter fixed effects. These fixed effects are included to capture the bilateral and multilateral resistance to trade (Head and Mayer, 2013; Redding and Venables, 2004). The estimation of the effect of economic diplomacy on bilateral trade is thereby corrected for the push factor of differences in trade cost in two ways. First, the estimation is correct for the fact that trade between two countries will be more intense if the trade with other countries is more resistant. Second, the estimation is corrected for the fact that it will be more attractive to trade internationally rather than internally when world trade resistance is reduced. Additionally clustered robust standard errors are used to take into account the potential problem of correlation of the error terms across country pairs[5]. The cost of this procedure is that we

lose the ability to estimate country specific variables reflecting sums and averages like our Population variable (Head and Mayer, 2013).

A drawback of estimating equations (5.1) and (5.2) is that they don't give information about the effect of economic diplomacy on the propensity to trade at a country level (i.e. *the country extensive margin of trade*). This information is valuable because one of the effects of economic diplomacy potentially is that it enhances trust/ reduces cultural biases and can thereby stimulate market entry that would not otherwise occur. Furthermore, not taking potential sample selection effects into account will produce biased estimates (for a thorough discussion see Linders and Groot, 2006). We therefore use a two stage selection model to gather additional information and correct the economic diplomacy estimates for sample selection effects. The first estimation stage in essence presents the likelihood of bilateral trade between two countries determined by the factors included in the first stage regression. Econometric reasoning suggests that the first stage selection equation should at least contain the same independent variables as the second regression stage (Linders and Groot, 2006; Möhlman et al., 2010). We include *Common Religion* as an additional regressor in the selection equation to conform to the empirical practice in trade modeling (e.g. Helpman et al., 2008; Möhlman et al., 2010)[6]. If the first stage is positive the second stage regression determines the potential size of bilateral trade. The corresponding first stage selection equation is:

$$\tilde{\pi}_{ij} = \gamma_0 + \gamma_1 Ln(D_{ij}) + \gamma_2 Lang_{ij} + \gamma_3 Cont_{ij} + \gamma_4 Landl_{ij} + \gamma_5 Island_{ij} + \gamma_6 Ln(Area_i * Area_j) + \gamma_7 Col_{ij} + \gamma_8 CU_{ij} + \gamma_9 FTA_{ij} + \gamma_{10} Embassy_{ij} + \gamma_{11} Consulates_{ij} + \gamma_{12} Common\ Religion_{ij} + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (5.3)$$

Where $\tilde{\pi}_{ij} = 1$ if $X_{ij} > 0$ and zero otherwise. The independent variables are similar to those described earlier. The second stage of the procedure assesses the determinants of the volume of bilateral exports. The assessment using only positive bilateral export flows is based on the following regression equation:

$$Ln(\frac{X_{ij}}{Y_i * Y_j}) = \beta_0 + \beta_1 Ln(D_{ij}) + \beta_2 Lang_{ij} + \beta_3 Cont_{ij} + \beta_4 Landl_{ij} + \beta_5 Island_{ij} + \beta_6 Ln(Area_i * Area_j) + \beta_7 Col_{ij} + \beta_8 CU_{ij} + \beta_9 FTA_{ij} + \beta_{10} Embassy_{ij} + \beta_{11} Consulates_{ij} + \varepsilon_{ij}$$

..... (5.4)

$$Ln(X_{ij}) = Ln(\widetilde{X_{ij}}) \text{ if } X_{ij} = 1$$

$$Ln(X_{ij}) = \text{not observed if } X_{ij} = 0$$

$$(\mu_{ij}, \varepsilon_{ij}) \sim \text{bivariate normal}[0,0,1, \sigma_\varepsilon^2, \rho_{\varepsilon\mu}].$$

Where $\tilde{X}_{ij}$ is the selected sample of positive export flows and other variables are similar to equation (5.1). Both the selection and regression stage are estimated using a maximum likelihood approach (Möhlman et al., 2010; Puhani, 2000). Because we are interested in the effect of economic diplomacy on the trade in homogeneous, reference prices and differentiated products we consequently replace X_{ij} from the left hand side variable of equation (5.2) and (5.3) by HOM_{ij}, REF_{ij} and DIF_{ij} and repeat the estimations. Here HOM_{ij} represents the exports of al homogeneous goods of country *i* to country *j*, DIF_{ij} represents the exports of al differentiated goods from country *i* to country *j* and REF_{ij} stands for the export of reference priced goods of country *i* to country *j*. This allows us to get an understanding of the economic diplomacy effect on the probability to trade and the traded volume of the three Rauch classified product groups.

Finally, in the sensitivity section we test the direction of the causal relation. To establish the direction of causality we analyze and discuss the correlation of the Rauch categorized product groups with macro level trade flows, which is where the direction of causality is a potential issue. We also present two stage least squares (2SLS) Instrumental Variables (IV) regressions to control for reversed causality.

5.4 The Data

5.4.1 Classifying exports

Our export data is extracted from the UN Comtrade database for 63 exporting countries, which represent about 80 per cent of world trade.

Based on their 4 digit SITC export flows we categorize exports into homogeneous goods, reference priced goods and differentiated goods using the classification proposed by Rauch (1999)[7]. What resulted was a substantial loss of data. Some countries report more than 99 per cent of their total trade on the 4-digit level (e.g. New Zealand, Israel, China, Japan), but others report less than 75 per cent of their total trade at the 4-digit level (Belarus, Russian Federation, Egypt)[8]. Furthermore, numerous 4-digit codes are not included in the Rauch classification. The original Rauch classification was made based on 1990 trade data. In the 16 years between the creation of the Rauch classification and the year of our sample a variety of new products was introduced that lack Rauch classification. In total 10% of our sample remains unclassified (with large cross country variation). The empirical literature does not offer any guidance how to resolve this issue, nor to what extent other authors faced this problem (see for example Gil-Pareja et al., 2015; Volpe and Carballo, 2008; Volpe Martincus et al., 2010b). Rauch himself states at his website: "When my classification is not available at the 4-digit SITC level, the corresponding 3-digit SITC classification can be used" [9].

We followed Rauch's approach but ran into some 3 digit SITC categories that have a mix of different classifications on the 4 digit level. We therefore developed a system to solve the data problems. If a 4-digit SITC category has no Rauch classification, but the two directly adjacent 4-digit categories (within the same 3-digit group) have an identical Rauch classification, the unclassified category takes on the same classification as its two adjacent neighbors. If the two adjacent categories have a different Rauch classification, the SITC category remains unclassified. For example, the 4-digit category 4214 (groundnut/peanut oil) does not have a Rauch classification, but the adjacent categories 4213 (cotton seed oil) and 4215 olive oil are classified as homogeneous goods, we can assume that 4214 is also a homogeneous good. But if category 4213 and 4215 would have had different classifications, we cannot make this assumption. Furthermore, if the missing category has no directly adjacent categories, but all other 4-digit categories within the same 3-digit group have the same Rauch classification, the unclassified category also uses that Rauch classification. If the other 4-digit categories within the same 3-digit group have different Rauch classifications, the unclassified category remains unclassified. Again an example: if category 5324 (tanning extracts of natural origin) has no classification, and there are no directly

adjacent categories, but all other 4-digit categories within the 532 group are differentiated goods, we assume 5324 is also a differentiated good. If the other categories within the 532 group have different classifications, we cannot make this assumption. This methodology reduces the value of unclassified trade to about 3 per cent.

Of all 3906 possible pairs 200 zero trade flows are reported, of which 124 concern Sudan. The rest of these "zero value" observations stem from different countries, but it should be noted that Algeria, Nigeria, Kuwait and Venezuela also have an above average concentration. For the Rauch categorized product categories the number of zero's increase. Differentiated goods has 251 zero's, reference priced goods 338 and homogeneous goods 528.

5.4.2 Other data

Distance, *GDP per Capita*, *Population* and *Land Area* of country *i* and *j,* the number of *embassies* and *consulates* of country *i* in *j* are retrieved from the Yakop and Bergeijk (2011) sample. Similarly, the dummy variables reflecting a common language (*Common Language=1*), having a common border (*Common Border=1*), the number of landlocked countries in the trading pair (*Landlocked=0,..,2*), the number of island states in the trading pair (*Island= 0,..,2*) , past and current colonial relations (*Colonial relation=1*), and membership of the same currency area of free trade zone (*Currency Area=1*, *FTA=1*) are from the Yakop and Bergeijk (2011) sample. The primary sources for the variables in the Yakop and Bergeijk (2011) sample are well-known and frequently used sources like the IMF World Economic Outlook database, the CEPII GeoDist database and the WTO website.

To this sample we added 4 digit SITC *export*s, as described before. Furthermore, we included a common religion dummy. This dummy takes a value of one if the dominant religion in the bilateral trading pair is the same. We retrieved the *common religion* data from the Sala-I-Martin (1997) database on common religion and colonial ties[10]. When religion data were missing we supplemented the sample using the CIA world fact book. Summary statistics of the data are provided in Table 5.1.

Table 5.1
Summary statistics

Variable	*Obs*	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*
Total exports (USD)* (10^9)	3706	2.49	1.95	10.9	0	297
Exports homogeneous goods (USD)* (10^9)	3378	0.377	0.0163	1.94	0	58.8
Exports reference priced goods (USD)* (10^9)	3598	0.478	0.0328	2.13	0	69.9
Exports differentiated goods (USD)*(10^9)	3655	1.51	0.071	7.53	0	182
Ln (X^{ij}/Y_i*Y_j)	3706	-40.63	-40.42	2.13	-54.51	-33.96
Ln (HOM_{ij}/Y_i*Y_j)	3378	-43.21	-43.04	2.75	-58.04	-58.04
Ln (REF_{ij}/Y_i*Y_j)	3598	-42.44	-42.30	2.19	-56.41	-34.82
Ln (DIF_{ij}/Y_i*Y_j)	3655	-41.70	-41.35	2.48	-54.51	-34.77
X_{ij}/Y_i*Y_j (10^-14)	3706	1.16	0.279	5.46	0	178
HOM_{ij}/Y_i*Y_j (10^-15)	3378	2.37	0.199	10.4	0	327
REF_{ij}/Y_i*Y_j (10^-15)	3598	2.79	0.423	19.6	0	757
DIF_{ij}/Y_i*Y_j (10^-15)	3655	5.55	1.09	25.6	0	798
Income (USD) (10^11)	3906	7.31	2.11	17.8	0.094	132
Distance (km)	3906	7353.8	7282.0	4738.5	173.0	19747.4
Income p/c (USD)	3906	17240.1	6856.1	17738.71	316.3	72305.5
Population (mln)	3906	87.0	30.4	212.8	3.1	1314.1
Common Religion** (dummy)	3906	0.474	0	0.499	0	1
Common language (dummy)	3906	0.098	0	0.298	0	1
Common border (dummy)	3906	0.035	0	0.183	0	1
Landlocked (dummy)	3906	0.079	0	0.270	0	1
Island (dummy)	3906	0.127	0	0.333	0	1
Land area (sq km)	3906	1565251	336593	3106020	646	17100000
Colonial relation (dummy)	3906	0.026	0	0.158	0	1
Currency union (dummy)	3906	0.029	0	0.167	0	1
Trade agreement (dummy)	3906	0.398	0	0.490	0	1
Embassy	3906	0.794	1	0.404	0	1
Consulate	3906	0.492	0	1.476	0	45

Source: variables denoted with a * are retrieved from the UN Comtrade database using the WITS system on the 14th of January 2014. ** Sala-I-Martin (1997) sample retrieved 28th of January 2016. The other variable come from the Yakop and Bergeijk (2011) sample provided by the authors January 5th 2014.

5.5 Empirical results: economic diplomacy, the diplomatic network and product groups

5.5.1 Effect heterogeneity due to different representations

Table 5.2 presents the results of our first regression analysis. Empirical model (1) reports the coefficients adopted from Yakop and Bergeijk

(2011). Model (2), replicates the analysis of Yakop and Bergeijk (2011) using our different source of the trade data[11]. Minimal differences are found and we therefore conclude that the signs and significance of the coefficients are comparable.

In model (3) we differentiate for the possibly different effect of embassies and consulates, as presented in equation (5.2) of this chapter. We replace the *Number of foreign missions* variable from model (2) with two variables: *Embassies* and *Consulates*. This modification does not significantly affect the control variables, with exception of the *currency union* dummy. The coefficient of *Embassies* does differ significantly from the coefficient found for *Consulates*[12,13]. This is in line with the empirical literature where generally embassies have a much more pronounced effect on exports as compared to consulates (e.g. Bergeijk et al., 2011a; Rose, 2007).

Model (4) presents our preferred empirical specification. It presents the Anderson and Wincoop (2003) theoretically founded gravity model. Following the empirical literature we use importer and exporter fixed effects to correct for bilateral and multilateral trade resistance. Model (4) shows that the pattern found in the seminal work of Rose (2007) still holds: i.e. diplomatic representations contribute significantly to trade. Rose (2007) reports that establishing an embassy is associated with an increase of exports between 118 per cent and 180 per cent while the effect of consulates on exports lies between 5 per cent and 11 per cent. Our estimates are somewhat similar, with an increase in exports of between 92 per cent (exp(0.65)-1) and 161 per cent (exp(0.96)-1) associated with opening an embassy and an increase of between 3 per cent (exp(0,03)-1) and 8 per cent (exp(0,08)-1) associated with opening a consulate.

Because equation (5.4) uses fixed effects and our sample only has cross sectional data, we can only identify bilateral variables in this regression which comes with the cost that country or region specific variables drop out of the equation (Head and Mayer, 2013). In Appendix D we present an alternative approach to incorporate multilateral trade costs that allows to also report country specific variables.

Table 5.2
The effect of economic diplomacy on exports

	Yakop & Bergeijk (2011)	*Base model*	*Separate E & CG*	*A&vW estimation Including country fixed effects*
	(1)	(2)	(3)	(4)
Log distance	-0.74***	-0.76***	-0.68***	-1.14***
	(0.04)	(0.04)	(0.04)	(0.05)
Log GDP p.c. of exporter	1.23***	1.28***	1.21***	
	(0.02)	(0.03)	(0.03)	
Log GDP p.c. of importer	0.99***	0.97***	0.91***	
	(0.02)	(0.03)	(0.03)	
Log population exporter	1.28***	1.29***	1.22***	
	(0.03)	(0.03)	(0.03)	
Log population importer	1.12***	1.12***	1.05***	
	(0.03)	(0.03)	(0.03)	
Common language	0.71***	0.79***	0.71***	0.71***
	(0.10)	(0.11)	(0.11)	(0.10)
Common border	0.90***	0.86***	1.04***	0.28*
	(0.17)	(0.19)	(0.18)	(0.14)
Landlocked	-0.23***	-0.26***	-0.29***	-24.59
	(0.08)	(0.08)	(0.08)	(73.39)
Island	-0.07	-0.06	-0.01	-28.25
	(0.06)	(0.07)	(0.07)	(87.38)
Land area	-0.20***	-0.17***	-0.18***	-7.11
	(0.02)	(0.02)	(0.02)	(21.64)
Colonial relation	0.04	-0.06	-0.04	0.33***
	(0.18)	(0.20)	(0.20)	(0.12)
Currency union	-0.34*	-0.38**	-0.27	-0.58***
	(0.18)	(0.19)	(0.19)	(0.12)
Free trade agreement	0.37***	0.39***	0.32***	0.18**
	(0.06)	(0.07)	(0.07)	(0.08)
Number of foreign missions	0.09***	0.11***		
	(0.02)	(0.02)		
Embassies			0.96***	0.65***
			(0.09)	(0.10)
Consulates			0.08***	0.03*
			(0.02)	(0.02)
Constant	-0.86	-0.61***	-5.50***	180.48
	(0.607)	(0.65)	(0.64)	(641.85)
Fixed effects	NO	NO	NO	YES
N	3730	3706	3706	3706
R^2	0.68	0.66	0.66	0.57
Adjusted R^2	0.67	0.66	0.66	0.56

Note: Standard errors reported in parentheses, *,**,*** implies significant at the 90%, 95% and 99% levels respectively. Dependent variable equation (1)-(3) is *log exports*$_{ij}$. Dependent variable of equation (4) is $ln(X_{ij}/Y_i{*}Y_j)$. Eq. (4) uses importer and exporter fixed effects and clustered standard errors.

5.5.2 Economic diplomacy and trade in product groups

We now test our hypothesis that more complex product groups stand to benefit more from economic diplomatic intervention compared to easily tradable product groups. We investigate the effects of *Embassies* and *Consulates* on total trade flows and the trade in homogeneous, reference priced and differentiated product groups. We use our preferred econometric specification that corrects for both bilateral and multilateral resistance. Results are presented in Table 5.3.

Table 5.3
The effect of economic diplomacy on exports of different types of goods

	Homogenous goods	***Reference priced goods***	***Differentiated goods***
	(1)	***(2)***	***(3)***
Log Distance	-1.43***	-1.34***	-1.17***
	(0.07)	(0.05)	(0.05)
Common language	0.42***	0.56***	0.88***
	(0.14)	(0.10)	(0.10)
Common border	0.10	0.33**	0.24
	(0.18)	(0.14)	(0.16)
Landlocked	89.19	3.79	-77.94
	(78.04)	(59.57)	(48.12)
Island	149.46	-3.41	-126.12
	(129.21)	(24.93)	(79.62)
Land Area	36.74	2.74	-30.63
	(31.99)	(24.39)	(19.71)
Colonial relation	0.61***	0.37***	0.26*
	(0.18)	(0.12)	(0.14)
Currency union	0.08	-0.42***	-0.60***
	(0.17)	(0.13)	(0.12)
Free trade agreement	0.49***	0.18**	0.11
	(0.11)	(0.08)	(0.07)
Embassy	0.32**	0.86***	0.75***
	(0.15)	(0.11)	(0.09)
Consulate	0.06***	0.04**	0.06***
	(0.02)	(0.01)	(0.02)
Fixed effects	YES	YES	YES
N	3378	3568	3655
R^2	0.49	0.57	0.75
Adjusted R^2	0.47	0.55	0.74

Standard errors in parentheses, *, **, *** implies significant at the 90%, 95% and 99% levels respectively. Importer and exporter fixed effects included. Clustered standard errors used. Constant included but not reported. Dependent: $ln(HOM_{ij}/Y_i{*}Y_j)$, $ln(REF_{ij}/Y_i{*}Y_j)$, $ln(DIFF_{ij}/Y_i{*}Y_j)$ respectively.

We observe that the volume of trade in homogeneous, reference priced and differentiated goods is influenced by similar factors. The sign of the coefficients is similar across specifications except for our *Landlocked*, *Land Area*, *Island* and *Currency Union* variables. The coefficients for *Landlocked*, *Land Area* and *Island* are, however, never significant. The negative significant coefficients for our *Currency Union* variable is a spurious finding caused by the dominance of one major currency zone in the sample (the EMU currency zone). The negative sign reflects being in or out of this zone of high income countries (that dominantly trade in reference priced and differentiated products) (Yakop and Bergeijk, 2011)[14].

The empirical results by and large confirm our expectations. We find *Embassy* coefficients of 0.32 for homogeneous goods, 0.75 for differentiated goods and 0,86 for reference priced goods. This corresponds with a 38 per cent, 112 per cent and 136 per cent increase in exports of the grouped goods respectively. However, a Wald test shows that not all *Embassy* coefficients differ significantly. The coefficients for the group of homogenous goods is always statically different from the coefficient of the other product groups. The coefficients for the group of reference priced and differentiated goods are different from the group of homogeneous goods but not meaningfully different from one another (Chi square=0.92, p=0.33)[15]. *Consulates* have an effect on exports of between 4 per cent and 6 per cent depending of the group of traded goods. The observed difference between reference priced and differentiated goods is statistically meaningful (Chi square=3.34, p=0.07)[16]. Overall, this confirms our hypothesis that the effect of economic diplomacy is more substantial when trade concerns more complex goods[17].

We also note that between homogeneous goods and reference priced goods there is substantial difference in coefficients both concerning our main variables of interest (economic diplomacy variables) and other control variables in our model[18]. This to us is clear indication that homogeneous and reference priced goods should not be treated and discussed as similar like in the studies of Lankhuizen et al. (2015) and Harding and Javorick (2012b) because heterogeneity between the group of heterogeneous and reference priced goods gets lost.

Furthermore, in line with the literature we observe that of the two economic diplomacy variables, *embassies* have a more substantial effect on trade than *consulates*. This shows (again) that in the higher ranked diplomatic representations have more impact on trade (Bergeijk et al., 2011;

Rose, 2007). Rauch's classification, which according to Guiso et al. (2009) can also be interpreted as a classification of the degree of trust-intensiveness of the different goods, thus also indicate that economic diplomats increase trust in bilateral exchange.

5.5.3 Market entry, economic diplomacy and product groups

We test the effect of economic diplomacy on the likelihood that countries form a bilateral trade relation. This is presented by the first stage of our Heckman regressions. Predicted components of the first stage selection equation are then used in the second regression equation stage to estimate the gravity equation. Common religion is used as an exclusion variable[19]. The second stage presents (sample) bias corrected coefficients (see Table 5.4 below). We disregard the *Currency Union* variable in these regressions. The EMU currency zone is the major zone in the sample and all EMU member trade between one another. The currency union variable was thus dropped from our regressions because of perfect collinearity in the selection stage.

We observe that the formation of trade relations is partially influenced by similar factors as the trade volume. This is in line with the empirical literature (e.g. Helpman et al., 2008). *Distance* reduces the likelihood that countries trade and reduces trade volume. Speaking a similar *language* and being part of the same free trade area (*FTA=1*) increases the likelihood that country i exports to country j and increases the trade volume. Statistically less robust but also generally converging in the direction of its effect is our *common border* dummy. We observe that being adjacent has a positive effect on both the group of reference priced and differentiated goods, but only significant for the group of differentiated goods.

There are, however, also various regressors where our selection equation and regression equation divert. This is the case for our *landlocked*, *island* states and *colony* dummy and the *land area* variable. These variables indicate that land locked countries, island states and countries that have or had a colonial relation are less likely to trade between one another. This is probably caused by the higher risks associated with several of the Sub Saharan countries in our sample where countries are less inclined to build a trading relation with. The selection equation is likely to be quite heavily influenced by countries with many zero flows, in this case Sudan

and Algeria. This may explain the negative coefficients for the *colony* dummy and *land area* variable since Sudan (landlocked, Former Egyptian and English colony) and Algeria (former French colony) are the 9th and 10th largest countries in the world[20].

Table 5.4
The effect of economic diplomacy on market entry and bilateral exports in different types of goods[21]

	Homogeneous goods selection (1a)	*Homogeneous goods regression (1b)*	*Reference priced goods Selection (2a)*	*Reference priced goods regression (2b)*	*Differentiated goods selection (3a)*	*Differentiated goods regression (3b)*
Log Distance	-0.68***	-1.44***	-0.51***	-1.33***	-0.62***	-1.15***
	(0.12)	(0.07)	(0.17)	(0.05)	(0.19)	(0.05)
Language	0.47**	0.42***	0.74***	0.56***	0.37	0.87***
	(0.20)	(0.14)	(0.27)	(0.10)	(0.34)	(0.09)
Common border	-0.08	0.11	4.43***	0.31**		0.22
	(0.41)	(0.18)	(0.64)	(0.14)		(0.16)
Landlocked	-17.55***	88.08	-24.10***	11.78	-22.06***	-66.35
	(2.26)	(76.39)	(5.51)	(58.31)	(2.73)	(47.28)
Island	-13.35***	82.10	-19.88***	11.89	-17.35***	-60.84
	(2.06)	(69.58)	(5.01)	(53.09)	(2.46)	(43.04)
Land Area	-6.64***	36.29	-8.85***	4.91	-8.48***	-27.37
	(0.92)	(31.31)	(2.24)	(23.89)	(1.08)	(19.37)
Colony	-1.48***	0.60***	-7.30***	0.40***		0.31**
	(0.52)	(0.18)	(0.95)	(0.12)		(0.14)
Free trade agreement	0.35***	0.49***	0.27	0.15**	-0.20	0.07
	(0.14)	(0.11)	(0.19)	(0.08)	(0.27)	(0.07)
Embassy	0.48***	0.32**	0.73***	0.87***	0.95***	0.76***
	(0.13)	(0.14)	(0.16)	(0.11)	(0.23)	(0.09)
Consulate	0.37	0.06***	0.24	0.03**	-0.32	0.06***
	(0.22)	(0.02)	(0.39)	(0.01)	(0.38)	(0.02)
Common Religion	0.22**		0.19		-0.08	
	(0.11)		(0.14)		(0.19)	
Fixed effects	YES	YES	YES	YES	YES	YES
Observations	3906		3906		3906	
"Censored"	528		338		251	
rho	0.01		0.02		-0.06	
lambda	0.02		0.02		-0.08	
sigma	1.97		1.44		1.26	

Standard errors in parentheses, *,**,*** implies significant at the 90%, 95% and 99% levels respectively. Importer and exporter fixed effects included. Clustered standard errors used. Constant included but not reported. All regressions are estimated using Heckman maximum likelihood. The selection equation for differentiated goods did not fully converge we therefor also estimated the same equation using the Heckman (1979) two step procedure. Coefficients were of similar size and direction as the reported maximum likelihood estimates.

The volume of trade is higher if countries have a (or had) a colonial relation which is in line with common economic reasoning. Our Heckman regressions also show that *embassies* are important for market access and the volume of trade. This is observed for all groups of traded goods, however *embassies* increase the probability that country *i* exports to country *j* more for the more complex differentiated goods and goods that do not have an organized exchange. Holding the other variables of our model at fixed value country *i* is 62 per cent (exp (0.48)) more likely to export homogeneous goods, 108 per cent (exp (0.73)) more likely to export reference priced goods and 158 per cent (exp (0.95)) more likely to export differentiated goods to country *j* if country *i* has an *embassy* in country *j*[22]. This is pattern is as expected because especially differentiated goods are trust-intensiveness and economic diplomats try increase trust in bilateral exchange/minimize uncertainty.

Consulates do not contribute significantly to the formation of trade relations for the countries in our sample. This may be due to the fact that consulates are mainly present in the more developed markets, and the role to reduce trade uncertainty is less obvious for these markets. *Consulates* do contribute to the volume of trade once trading relations are established.

A final remark is that the selection equation for differentiated goods did not fully converge our *colony* and *common border* dummies[23]. We used maximum likelihood estimations because these generally perform better than the simple Heckman (1979) two-step estimator (Mohlman et al., 2010; Nawata, 1994 and 2004). The maximum likelihood estimator is, however, known to be computationally demanding. We therefore also estimated the two-step estimator for estimating the group of differentiated goods[24]. This estimation procedure is easier to compute and is frequently used in (economic) literature (Cheung et al., 2012; Nawata, 1994; 2004). The economic diplomacy coefficients were of similar size and significance as the coefficients of our (not fully converged) selection stage estimation reported as empirical specification 3a in Table 5.4[25].

5.5.4 Econometric challenges

The literature on economic diplomacy has dealt with endogeneity and causality issues in several ways. Most papers use instrumental variables, elaborate fixed effects approaches or both to get consistent estimates

(e.g. Harding and Javorick, 2012b; Nitsch, 2007; Rose, 2007; Veenstra et al., 2011; Yakop and Bergeijk; 2011). We also apply these methods, but it should be noted that trade broken down by goods category is less vulnerable for inconsistent estimates because reversed causality is less of an issue.

Our main data concerns categories of traded goods instead of total trade flows at country level. Countries may decide to open diplomatic offices because of a high level of aggregate exports. It is however unclear that they will do so for the exports of a particular group of traded goods. Furthermore, the total trade sample and homogeneous, reference priced and differentiated goods samples move in similar directions between 44 per cent and 96 per cent of the time (Table 5.5 below). There is no statistical logic to assume that, if reversed causality is an issue in one sample, it would also apply to another sample that shows limited correlation (i.e. does not move in similar direction). This, at a minimum, reduces the risk reversed causality across the presented results in this chapter, especially for the group of homogeneous goods that shows the lowest correlation with the other samples in this paper.

Table 5.5
Correlation between total trade and categories of traded goods

	Differentiated goods	*Homogeneous goods*	*Reference priced goods*	*Total trade*
Differentiated goods	1			
Homogeneous goods	0.44	1		
Reference priced goods	0.83	0.56	1	
Total trade	0.96	0.62	0.91	1

In addition to the qualitative approach to determine causality described above we test the causal relation of our specifications using an instrumental variables (IV) approach. We use a set of IVs (Table 5.6) which correlate with the number of foreign representations and yet are uncorrelated with the error term of bilateral trade flows between countries[26]. We use two groups of variables that relate to the geopolitical weight of countries and the attractiveness of living/visiting a country because they give other motives for opening up a diplomatic establishment (Rose, 2007; Yakop and Bergeijk, 2011). Conforming to the literature we use both a simple and more extended set of instrumental variables. The simple set is retrieved from the Yakop and Bergeijk (2011)

sample. We also opted for broader variables that indicate the attractiveness, prestige and importance of the country.

Table 5.6
Instrumental variables

	DESCRIPTION	*SOURCE*
SIMPLE SET	Proven oil and gas reserves	Yakop and Bergeijk (2011)
	Number of lonely planet guides sold	Yakop and Bergeijk (2011)
	Monsoonal climate	Yakop and Bergeijk (2011)
EXTENDED SET[27]		
	the average temperature	WB Climate Change Data
	the average precipitation	WB Climate Change Data
	the UN happiness index	UN SDSN World Happiness Report 2013
	military expenditure in USD[28]	WB World Development Indicators
	migration flows	WB Global Bilateral Migration Database
	Number of lonely planet guides sold	Yakop and Bergeijk (2011)
	Monsoonal climate	Yakop and Bergeijk (2011)

Note: World Bank and UN databases are accessed on 31 March 2016.

We first duplicate the approach of the leading publication on the effect of the diplomatic network and use the total number of representations variable in the 2SLS analysis(e.g. Rose, 2007 and Yakop and Bergeijk, 2011). The F-statistic of the first stage of this 2SLS regression is sufficiently strong (F-STAT=204,5 for the simple set and 301,3 for the extended set). Results for total trade are comparable to earlier reported results (Rose, 2007; Yakop and Bergeijk, 2011). Furthermore, the earlier established pattern where more complex product groups report higher economic diplomacy coefficients is also still observable.

To check the causality of our *embassy* and *consulates* coefficients separately we adapt our approach. The nature of the *embassy* variable is like a dummy; either you have an embassy or you don't (binary). Following Wooldridge (2002) we transform the dichotomous endogenous variable (i.e. our *embassy* variable) into a continuous variable using probit estimates obtained via an additional regression ran before our first stage estimations. These estimates serve as instruments in an ordinary 2SLS setting. The *consulates* variable is continuous and the first stage regression is the standard OLS regression used in a 2SLS regression that includes instrumental variables. In the second stage the fitted values for *embassies* and *consulates* are combined into a single OLS regression (details and empirical specifications are provided in Appendix E)[29]. Table 5.7 below presents the results. The instrumental variables approach confirms the earli-

er established pattern. Economic diplomacy has a more enhancing effect on trade when trade concerns more complex products, especially when economic diplomacy involves the establishment of an *embassy*.

Table 5.7
Instrumental variables

Total # of representations	***Base regression (1)***	***2SLS (simple) (2)***	***2SLS (extended) (3)***
Total trade	0.05***	0.26***	0.08**
	(0.02)	(0.09)	(0.04)
Homogeneous goods	0.07***	0.23*	0.02
	(0.02)	(0.12)	(0.06)
Reference priced goods	0.07***	0.23***	0.07*
	(0.02)	(0.09)	(0.04)
Differentiated goods	0.09***	0.28***	0.15***
	(0.02)	(0.09)	(0.05)

Standard errors in parentheses, *,**,*** implies significant at the 90%, 95% and 99% levels respectively. Importer and exporter fixed effects included. Clustered standard errors used. Dependent: $\ln(X_{ij}/Y_i*Y_j)$ ln(HOMij/Yi*Yj), ln(REFij/Yi*Yj), ln(DIFFij/Yi*Yj) respectively. Other gravity variables included but not reported.

Embassy	***Base regression (1)***	***PROBIT IV (simple) (2)***	***PROBIT IV (extended) (3)***
Total trade	0.65***	1.78***	0.98***
	(0.10)	(0.35)	(0.25)
Homogeneous goods	0.32**	-0.44	-0.99**
	(0.15)	(0.52)	(0.39)
Reference priced goods	0.86***	2.08***	1.18***
	(0.11)	(0.38)	(0.27)
Differentiated goods	0.75***	1.98***	1.30***
	(0.09)	(0.40)	(0.29)

Standard errors in parentheses, *,**,*** implies significant at the 90%, 95% and 99% levels respectively. Importer and exporter fixed effects included. Clustered standard errors used. Dependent: $\ln(X_{ij}/Y_i*Y_j)$,. $\ln(HOM_{ij}/Y_i*Y_j)$, $\ln(REF_{ij}/Y_i*Y_j)$, $\ln(DIFF_{ij}/Y_i*Y_j)$ respectively. Other gravity variables included but not reported.

Consulate	***Base regression (1)***	***2SLS IV (simple) (4)***	***2SLS IV (extended) (5)***
Total trade	0.03*	0.38***	0.07*
	(0.02)	(0.10)	(0.04)
Homogeneous goods	0.06***	0.23*	-0.01
	(0.02)	(0.14)	(0.06)
Reference priced goods	0.04**	0.37***	0.07
	(0.01)	(0.10)	(0.04)
Differentiated goods	0.06***	0.40***	0.13***
	(0.02)	(0.11)	(0.05)

Standard errors in parentheses, *,**,*** implies significant at the 90%, 95% and 99% levels respectively. Importer and exporter fixed effects included. Clustered standard errors used. Dependent: $\ln(X_{ij}/Y_i*Y_j)$ $\ln(HOM_{ij}/Y_i*Y_j)$, $\ln(REF_{ij}/Y_i*Y_j)$, $\ln(DIFF_{ij}/Y_i*Y_j)$ respectively. Other gravity variables included but not reported.

The base regression is similar to the earlier presented estimates in Table (5.3). These are the Anderson and Wincoop (2003) estimates for total trade and trade in the Rauch classified product groups. The IV results are even closer to our a priori expectation that the effect of economic diplomacy on trade is more substantial when product complexity increases. Earlier (Table 5.3) our *consulates* coefficients indicated rather similar percentage increases in the three Rauch classified groups of exported goods when a consulate was opened. The IV estimates associate consulates with a between ~0 per cent and 25 per cent increase in trade for homogeneous goods, 7 per cent and 45 per cent for reference priced goods and 14 per cent and 49 per cent for differentiated goods. These estimates are not always significant and post estimation test show that IV estimates with the simple set of instrumental variables for reference priced and differentiated goods are not significantly different from one another. However, taken as a whole they follow the pattern that the effect of economic diplomacy is most noticeable on differentiated goods, followed by reference priced goods and with a lesser effect on homogeneous goods.

5.6 Conclusions

This chapter investigated the effect of the diplomatic network taking into account product characteristics. The presented results follow up on Chapter 4 of this thesis by testing and confirming that economic diplomacy is important for both the likelihood that countries establish a trade relation (*country extensive margin of trade*) and the traded volume.

The hypotheses that economic diplomacy has a role to play when information asymmetries (that relate to the complexity of the traded product) are large was tested. The hypothesis is confirmed for both the establishment of trade relations and the volume of traded goods. Trade in homogeneous goods is on the whole less influenced by the diplomatic network as compared to the trade in reference priced and differentiated goods. This suggests that economic diplomacy is an important instrument to deal with information asymmetries and trust issues in international exchange.

Our findings show clear differences between diplomatic representations. Embassies contribute clearly to the likelihood that countries form a trade relation. Equally, embassies contribute significantly to bilateral trade in our sample and the largest effects on grouped product trade

flows are found for trade in more complex goods. Consulates on the other hand do not have a statistically meaningful effect on the formation of bilateral trade relations and have only modest trade stimulating effects in the main specifications of this chapter.

This chapter discussed the causality of economic diplomacy in a quantitative and qualitative manner, as well as established that the effect indeed runs from economic diplomacy to trade. The findings show that an analysis of product group trade flows is additional to the use of the (often unsatisfactory) instrumental variables regressions. The approach involves investigating the correlation between micro and/or meso level and macro level trade data and presenting key figures about the composition of trade between countries. This approach will not take away concerns about causality completely but does provide an understanding whether or not causality is an issue in the specific study and the extent to which the causality question may vary between countries within the same study. Furthermore, the presented analysis is applicable for cross sectional data which is frequently the case.

Finally, literature indicates that economic diplomacy is especially effective for increasing the extensive margin of trade for (developing) countries (Moons, 2012; Gil-Paraja et al., 2015; Volpe Martincus and Carballo, 2012). These studies concentrate on the number of trades products and the number of firm active in international trade. This chapter additionally shows that economic diplomacy also increases the formation of trade relations on a country level (*country intensive margin*). For future research that is of high value and also for policy making and evaluation. As mentioned in Chapter 4, it would be very useful to meta-analyze the effect of economic diplomacy on the various different trade margins. This would help in selecting the bilateral diplomatic intervention that suites the trade promotion goal policymakers strive to achieve (more volume or diversification of exports).

Notes

[1] Earlier versions of this paper were presented at the ETSG 2014 in Munich, Pharmmaccess 2015 seminar series in Amsterdam and at a 2016 EDEM seminar. I thank the participants for their suggestions and remarks.

[2] These studies do allow for country specific fixed effects.

[3] These papers are, in order of the reference, specific to Latin-America, Costa Rica and Spain.

[4] The mere fact that economic diplomacy has a clear cut economic rationale does not provide insight into the cost of intervention.

[5] The usual assumption is that the standard errors are independently and identically distributed. We use the, more realistic, assumption that errors are clustered i.e. that observations within group i are correlated in some unknown way, but that groups i and j do not have correlated errors. In the presence of clustered errors, OLS estimates are still unbiased but standard errors are biased.

[6]Heckman (1979) introduces the Heckman selection procedure to correct for selection bias. In the selections stage variables are included that explain the selection into bilateral exports (zero or positive exports) but not the value of these exports. Common religion is frequently used as one of these variables that is included in the selection stage. However, these 'identification' variables are frequently criticized (Möhlman et al., 2010). Based on the first stage the inverse of the Mills ratio is constructed and then included in the second stage to correct for sample selection effects.

[7] Rauch made both a conservative and a liberal classification, with the former more biased towards differentiated goods than the latter. We divided the 4-digit SITC trade flows into the three Rauch categories using both the liberal and conservative Rauch classification. For the regressions presented in the remainder of this paper we used a sample with the liberal classification only. Using the conservative classification leads to negligible changes in the results and are available upon request.

[8] A possible explanation is that the original Rauch classification predates our dataset by a few years, and new products have been introduced since. Also, dividing trade into smaller groups of traded products leads to some confidentiality issues for smaller trade flows.

[9] http://econweb.ucsd.edu/~jrauch/rauch_classification.html date accessed 3rd March 2017

[10] Sample is downloaded January 28th 2017: http://www.columbia.edu/~xs23/data.htm

[11] Yakop and Bergeijk (2011) use IMF trade data, we use UN Comtrade data.

[12] Two things should be noted relating to our embassy variable. The first is that some embassies have a regional hub function that service multiple countries. We do not have this information in our sample so the reported coefficient may be inflated due to this effect. Second, embassies have export promotion agencies in house. To address this more specifically a sample containing diplomatic activities should be used.

[13] The Wald-test was used to test and confirm that *Embassies* and *Consulates* are significantly different from zero (F-STAT=21.77) and to test and confirm that the *Embassies* coefficient is significantly different from the *Consulates* coefficient (F-STAT=39.74).

[14] 83 per cent of the trade between high income countries in our sample consists of reference priced and differentiated products

[15] Both the coefficient of reference priced and differentiated goods are significantly different from homogeneous goods at the 5% level or better.

[16] The hypothesis that the *consulates* coefficient for homogenous goods is the same as for the group of reference priced and differentiated goods cannot be rejected (p=0.19 and p=0.93 respectively).

[17] Based on the theory, we would expect the coefficients of differentiated goods>reference priced goods>homogenous goods. This is not fully observed but it is clear that coefficients for reference priced and differentiated goods> homogeneous goods.

[18] The hypothesis that the embassy coefficient for homogeneous goods was similar to the coefficient for reference priced goods was rejected (Chi-square=10.31, p=0.001).

[19] The number of satisfying exclusion variables, i.e. variables that strongly impact the formation of trading relations yet are not associated with an impact on the traded volume, is very limited. Some even argue that exclusion variables are not needed (e.g. Linders and Groot, 2006). We tested the first stage both with and without *common religion* as exclusion variable. The differences are negligible. Conform with the literature we present the selection regressions with *common religion.*

[20] The sample is based on 2006 when Soudan was not divided yet. Since the division of North and South Soudan in 2011 Algeria is larger than Sudan.

[21] We also estimated the Heckman equations for our total trade variable. The Heckman model for our total trade variable reported many non-intuitive results and did not compute many of the country specific dummies. The difficulties are to our opinion a result of the very limited number of zero's (200) compared to the high number of coefficients that need to be estimated (63 imported and exporter dummies plus the variables of our estimated equation)

[22] A Wald-test shows that coefficients between the groups of traded goods are significantly different from each other (p=0.000)

[23] We used STATA 13 and allowed for 1500 iterations.

[24] Estimations available up on request

[25] The *embassy* coefficient in the selection stage was 0.98*** and 0.73*** in the regression stage. The *consulate* coefficient in the selection stage was -0.35 and 0.06*** in the regression stage.

[26] This is notoriously difficult to find and some authors argue it is better to use dyadic fixed effects (Head and Mayer, 2013). However, since our dataset contains only 1 year, dyadic fixed effects are not viable.

[27] Oil and gas are excluded from the extended set, because they may intuitively not be the strongest instrument; they also influence trade directly (not only through the presence of an embassy).

[28] Military expenditure is included to conform to the seminal work of Rose (2007) who included military expenditure in his instrumental variables approach.

[29] We also tested a normal 2SLS on the sample where embassies and consulates are separately included in the analysis. Especially the first stage of the (dummy) embassy variable seems to be problematic, as was to be expected. Coefficients in the second stage were extreme and non-credible. Results are available at the authors upon request.

6 Do economic diplomats stimulate Foreign Direct Investment?[1]

6.1 Introduction

Policymakers around the world are engaged in fierce competition for Foreign Direct Investment (FDI) (Barthel et al., 2010; Ma, 2013). One of the instruments used in this competition is economic diplomacy. Economic diplomacy pursued by governments and non-state actors aims to influence decisions about cross-border economic activities (Bayne and Woolcock, 2007; Bergeijk, 2009; Okano-Heijmans, 2011). It involves the activities of economic diplomats and the use of economic diplomatic networks.

The role of economic diplomacy is increasingly researched in international economics[2]. The research agenda has so far focused on the relation between the diplomatic network and bilateral trade (Afman and Maurel, 2010; Bergeijk et al., 2011, Creusen and Lejour, 2013; Hayakawa et al., 2014a; Rose, 2007; Segura-Cayuela and Villarubia, 2008; Veenstra et al., 2011; Yakop and Bergeijk, 2011) and the activities organized within that network (Creusen and Lejour, 2013; Head and Ries, 2006; Nitsch, 2007). Next to this, the effect of export promotion offices was analyzed (Gil Pareja et al., 2015; Lederman et al., 2010; Volpe Martincus and Carballo, 2008; Volpe Martincus et al., 2010a).

The latest strand of the literature about economic diplomacy deals with the effect of economic diplomacy on the margins of trade (Chapter 4 of this thesis; Moons, 2012; Gil Pareja et al., 2015). Specifically, the literature addresses the question if economic diplomacy is more effective in enhancing the traded volume of already internationally traded prod-

ucts with existing trade partners, i.e. increase the intensive margin. Or that economic diplomacy is more effective in creating new trading relationships by increasing the number of newly traded products or due to the entry of new markets, i.e. increase the extensive margin of trade (Chapter 5 of this thesis; Gil Pareja et al., 2015; Moons and Boer, 2017; Volpe Martincus et al., 2010a and 2010b; Volpe Martincus and Carballo, 2010).

Although the understanding of the effect of economic diplomacy on bilateral trade flows is getting refined with every publication, few analyses exist on the relationship between economic diplomacy and FDI (Chapter 3 of this thesis; Moons and Bergeijk, 2016). Nigh (1985) looked into the effect of diplomatic cooperation between countries and concluded that cooperation has a positive effect on FDI flows. Biglaiser and DeRouwen Jr (2007) present similar, but country specific, findings for the US. The effect of the diplomatic network on US investors is also investigated by Du et al. (2008); according to them, US firms are more likely to make an investment in a foreign market when the US has a diplomatic representation in that market. US investors are also more likely to invest in developing countries when these countries target US investments via their investment promotion agency (Harding and Javorcik, 2011). Morriset (2003) shows that investment promotion agencies also generally contribute to incoming FDI. This has been put into context in more recent studies that show that sector targeting by investment promotion agencies is associated with a substantial increase in FDI inflows in the targeted sector (Harding and Javorcik, 2011; and 2012b). Furthermore, the effectiveness of the investment promotion agency is largely determined by the type of activities the agency engages in, with policy advocacy being most effective. In line with these findings Harding and Jovorcik (2012a) establish a positive relation between investment promotion activities and FDI, especially for those investment promotion agencies that provide high quality (digital) information. Case studies show that effective investment promotion should combine marketing with company targeting and investment after-care as well as that the effectiveness depends on the age of the investment promotion agency (Loewendahl, 2001; Lim, 2008).

The amount of empirical evidence on the effect on the diplomatic network, i.e. embassies and consulates, on FDI thus is still rather limited. It can be expected that generally there is a positive causal relation that

shows heterogeneous effects of economic diplomacy depending on the cultural proximity of the FDI originator and recipient (Cezar and Escobar, 2015; Guiso et al., 2009). There is however no specific literature that invests this relation. This gap in the literature is remarkable, as many countries use their diplomatic network to facilitate FDI. The mission statement of various Foreign Affairs ministries have a global trade and investment component (Rose, 2007). Also the websites of individual embassies clearly offer services to their domestic companies that want to invest abroad. And to foreign companies that want to invest in the embassies home country. The Dutch embassy in Australia for example states:

> We can help Dutch companies doing business in Australia or help Australian companies to trade with the Netherlands. (The Netherlands Embassy in Australia, http://australia.nlembassy.org/doing-business accessed 3 January 2015)

The UK embassy in Canada states:

> Encouraging Canadian investment in the UK and increasing the number of British firms successfully doing business in Canada. (The UK Embassy in Canada, https://www.gov.uk/government/world/canada accessed 3 January 2015)

And the Danish embassy in India states:

> The Trade Council offers the following services tailored to the individual client: …. Information about establishing a company… (The Danish Embassy in India, http://indien.um.dk/en/the-trade-council/services-provided-by-the-trade-council/ accessed 3 Janaury 2015)

And the Polish ministry of Economy states:

> Trade and Investment Promotion Sections of Polish Embassies and Consulates were created to help Polish businesses to internationalise, particularly SMEs. Our mission is not only to help Polish companies but, also, to assist foreign businesses looking to buy goods and services in Poland or locate their activity in our country. Our offices around the world are equally sensitive to the needs and requests of Polish as well as foreign businesses. (The Polish ministry of Economy, https://polska.trade.gov.pl/en/o_nas accessed 3 January 2015)

This chapter will provide, to our knowledge, the first multidimensional analysis of the effect of the diplomatic network on FDI[3]. We use a unique multiyear sample that shows the dynamics within the diplomatic network of 64 countries between 2006 and 2012. We add to the literature by testing for the effect of the diplomatic network on outgoing investment flows and answer the question whether or not economic diplomats have an effect on FDI. We allow for differences in the effect of economic diplomacy based on the difference in the continent of the FDI originator and recipient. Finally, we analyze the effect of competition for FDI by economic diplomats by allowing interactions between the diplomatic network of various origin countries in one FDI recipient and researching the effect of 'the market share' of diplomatic establishments. The remainder of this chapter is structured as follows: section 6.2 gives the rationale for economic diplomacy. Section 6.3 discusses the empirical design. Section 6.4 describes the data, section 6.5 gives the results of the regression analysis and section 6.6 presents a sensitivity analysis of our results. Section 6.7 concludes and gives recommendations for future research.

6.2 FDI and the rationale for economic diplomacy

The literature provides ample evidence for the impact of distance on international trade and FDI (see the seminal work of Cezar and Escobar, 2015; Disdier and Head, 2008). The cultural and institutional barriers, associated with the increase in distance, have an impact on FDI (see, e.g. Cezar and Escobar, 2015; Globerman and Shapiro, 2003; Guiso et al., 2009; Lankhuizen et al., 2011; Siegel et al, 2013). Economic diplomacy interacts with the intangible effects of distance because it, among others, enhances trust. As pointed out by Lankhuizen et al. (2011), FDI is more vulnerable to instability than trade is. A country needs a certain level of stability and security as a precondition to investments by multinational corporations (Loewendahl and Ertugal-Loewendahl, 2000). Political risk is a major factor in dealing with cross border transactions (Hayakawa et al., 2014b ; Moser et al., 2008). Once the investor has capital into an investment, the bargaining power tends to shift towards the host country (Biglaiser and DeRouen Jr, 2007). Having economic diplomats in the country of investment may serve as a token of trust. The investor may turn to the economic diplomat in case the investment runs into trouble with the local government. And having diplomats of the investors' home

country in the country of his investment may provide the investor with the comfort that there are no major conflicts about to erupt that could potentially harm his investment (Naray, 2011). Diplomats can also reduce the insecurity about potential political upheaval about an investment by tapping into the local government and informing them (in an early stage) about the intention to invest and the good nature of the investment.

The economic rationale for economic diplomacy lies in positive externalities, i.e. it counters market failure (see for example Chapter 1 of this thesis; Bergeijk, 2009; Loewendahl, 2001; Moons and Bergeijk, 2016; Volpe Martincus et al., 2010a and 2010b; Yakop and Bergeijk, 2011). Firms that engage in international activities invest a significant amount of money and time in information gathering about both tangible and intangible barriers to investments. They need to understand local rules and regulations, find financiers for their international expansion, know local norms and behavior and find reliable local business partners (Siegel et al., 2013). This search by the first mover and the associated investments reveal information that may be used by other investors, who do not have these initial costs because they can free ride on the successful search of the first moving firm (Rauch, 1996)[4]. The potential gains of being a first mover and investing in the production of new knowledge about entering new foreign markets is thus reduced. Due to this potential free riding the private returns from developing knowledge about how to invest abroad could be lower than the corresponding social returns, leading to a suboptimally low production (Westphal, 1990). The diplomatic network plays an important role in transmitting information to investors regarding national and regional rules, regulations and culture, thereby reducing private costs of information gathering and stimulating the production of information about investing abroad. In other words, economic diplomats reduce information asymmetries (Harding and Javorcik, 2012a).

Not a first best economic motive, but an important motive within politics is that economic diplomacy may be used for leveling the playing field. The information supply on where to locate is far from perfect and foreign investors have an information asymmetry compared to domestic investors. The spatial distribution of FDI can partially be determined by the information costs for the foreign investor, instead of the production and transportation cost of the host country (Lim, 2008). Economic dip-

lomats can improve the information position of enterprises from their home country.

6.3 Empirical design

Just like trade, FDI has been successfully explained by gravity structures (Anderson, 2011; Head and Mayer, 2013). Different from trade is the fact that the theoretical micro economic foundation of the gravity model for FDI is less developed, although work by Kleinert and Toubal (2010), Bergstrand and Egger (2010) and Sousa and Lochard (2011) has made progress. We derive the gravity equation to investigate the relation between economic diplomacy and FDI. The basic gravity equation for FDI can be written as:

$$FDI_{ij}=\beta_{0,}\, GDP_i^{\beta 1}, GDP_j^{\beta 2}\, Distance_{ij}^{\beta 3}\, \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots \quad (6.1)$$

The basic intuition behind this equation is that outward FDI[5] from home country *i* to affiliates in host country *j* is increasing in the sum of their economic sizes (GDP). That is, bigger markets attract more FDI and there is more FDI coming from firms located in bigger markets. At the same time distance has a negative effect on FDI. In equation (6.1) β_0, β_1, β_2 and β_3 represent parameters to be estimated and the error term ε_{ij} is assumed to be statistically independent of the regressors. To this basic equation we add several variables common to the gravity literature on FDI. These variables capture the tangible and intangible costs of investing in foreign markets from the perspective of the investor. The log linearized form of our gravity equation then becomes:

$$\ln (FDI_{ijt}) = \beta_0 + \beta_1 \ln(GDP\ p.c._{it}) + \beta_2 \ln(GDP\ p.c._{jt}) + \beta_3 \ln(Pop_{it}) + \beta_4 \ln(Pop_{jt}) + \beta_5 \ln(w\ D_{ij}) + \beta_6\ RTA + \beta_7\ Common\ Currency + \beta_8\ Common\ Language + \beta_9\ Common\ Border + \beta_{10}\ Island + \beta_{11}\ Landlocked + \beta_{12}\ Col + \beta_{13} \ln(Land\ Area_i * Land\ Area_j) + \beta_{14}\ Tax\ Haven + \gamma_1\ Number\ of\ diplomatic\ representations_{ij} + \lambda_{it} + \lambda_{jt} + \varphi_{ij} + \xi_t + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots \quad (6.2)$$

Where *i* and *j* are FDI partners and *t* is time. *GDP p.c.* stands for the Gross Domestic Product per capita of the investment partners, *Pop* for the population of the investment partners and *D* for the distance be-

tween investment partners. Furthermore, *RTA*, *Common Currency*, *Common Language*, *Comon Border*, *Island*, *Landlocked*, *Col* and *Tax Haven* represent dummy variables that take the value of 1 if the home and host are part of a *Regional Trade Agreement*, if the partners are part of a similar *Currency Zone*, have a *Common Language*, have *Common Borders*, are an *Island*, are *Landlocked*, have (had) a *Colonial Relation* and if the destination country is classified as a *Tax Haven*. *Land area* is included as the product of the land areas of the home and host countries. Finally the *Number of diplomatic representations* is the main variables of interest and gives the number of diplomatic establishments of country *i* in country *j*. These variables are discussed in more detail in the sections below. To our equation we add λ_{it} and λ_{jt} which represent fixed origin-year and destination-year dummies, year dummies ξ_t and country pair random effects φ_{ij} to account for unobserved within and between country sources of variance[6]. This is the most promising approach to deal with endogeneity related issues (Bacchetta et al., 2012; Baltagi et al., 2016; Head and Mayer, 2013). Finally, ε_{ij} represents the error term. Country pair clustered standard errors are used.

We will present an instrumental variable approach of equation (6.2) as an alternative to our fixed and random effects analysis to further deal with endogeneity issues in section 6 of this chapter. In section 6 we will also present two alternative ways to deal with the structure of our sample (how zero flows are divided) by applying a Poisson Pseudo Maximum Likelihood approach (Santos Silva and Tenreyro, 2006; 2011) and a zero inflated regression.

6.4 Data

6.4.1 Dependent variable

Compared to trade, FDI data are harder to obtain and can vary substantially between different sources. Commonly used sources include the OECD FDI statistics database, the IMF coordinated direct investment survey and UNCTAD's bilateral FDI statistics. Investigating these three sources the UNCTAD data proved to be the most complete for the countries under investigation. We are using a dataset of 64x64 countries for the years 2006 and 2012. From a maximum of 8064 datapoints (64*64*2-64), we have 5465 observations[7]. This includes 2489 zero-

observations. The dataset contains a mix of countries from different continents (see Table 6.1 below).

We follow others and use FDI stocks instead of flows because stock data have the advantage of containing less negative observations, being less volatile and are better measured (see for instance Bergeijk, 1995; Blonigen and Wang, 2004; Du et al., 2008; Lankhuizen et al., 2011). We are using outward stocks because, analogous to research on trade, we are looking for the effect of embassies of origin countries in destination countries incoming investments. We take the natural log of FDI stocks because this allows for an easy interpretation of estimated coefficients as elasticities and reduces skewness of the dependent variable, which increases goodness of fit of the model (Berger et al., 2013; Blonigen, 2005).

Table 6.1
Geographical distribution sample

Region	*% of observations*	*% of investment*
Africa and Middle East	23	0.5
Asia	22	11.7
Europe	38	67.3
Latin America	12	0.8
North America	5	19.7

6.4.2 Data on the diplomatic network

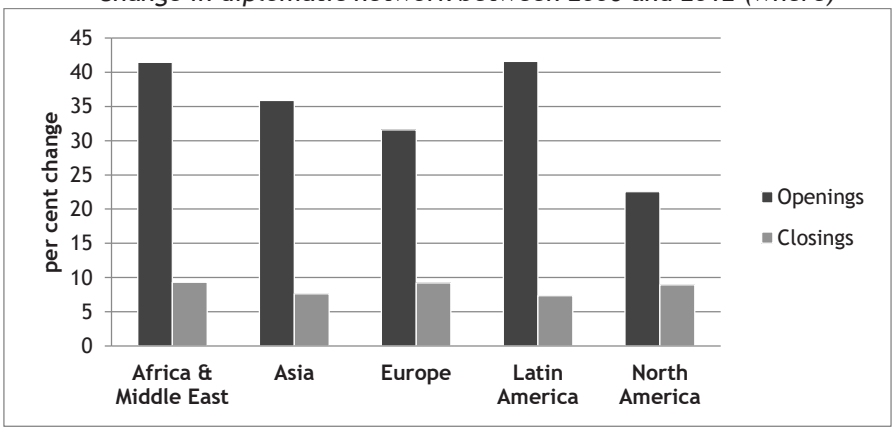
The explanatory variable of main interest is *the number of foreign representation*. To construct a sample of these diplomatic representations we first checked if updated versions of samples used in previous studies were available (Elkins et al., 2006; Yakop and Bergeijk, 2011). Unfortunately we found none[8, 9]. Therefore the websites of 64 ministries of foreign affairs were manually consulted in 2012 and the beginning of 2013. For 2006 we make use of part of the embassies and consulates sample used in Yakop and Bergeijk (2011) which is available via the DANS website[10].

We observe that many more representations (embassies and consulates) were opened than closed (over 1600 as compared to 450)[11, 12]. European and Latin American countries in our sample were responsible for the majority of the new representations. Taking into account the relative size of Latin American countries in our sample we see that these countries were most active in terms of opening new establishments. European

and African and Middle Eastern countries closed down the most representations, followed by Asian countries.

Figure 6.1 shows where most countries opened and closed their representations. Relative to the existing network of representations we see the biggest percentage change in Latin America, followed by Africa and the middle East and Asia. In absolute numbers most new representations were opened in Europe (627) and Asia (390). At the same time we also see that most representations were closed in Europe (183). Below the surface we see a lot of dynamics in Europe, particularly in Central and Eastern Europe, where large numbers of representations are both closed and opened. This is done by many different countries, not just European countries among each other but also for example by many Latin American. This may be due to the combination of a large, attractive market, with many different cultures and business climates. On the other hand, the economic circumstances during the period under investigating (slow economic growth in Europe due to the 2008 crisis) may be a reason to reconsider diplomatic representations in Europe, which can explain the closing of representations.

Figure 6.1
Change in diplomatic network between 2006 and 2012 (where)



6.4.3 Other explanatory variables

Next to the diplomatic network, other common gravity variables are included in the right hand side of the estimated equation:

- The log of origin and destination *GDP per capita* in (current) USD, taken from the October 2013 IMF World Economic Outlook database[13] (WEO), to control for the level of development in the origin and destination country (Bloningen and Piger, 2014).
- The log of *Population* of the country of origin and destination. The log of population of the origin and destination country together with the log of the squared root of $Land\ Area_{ij}$ serves to control for market size, which is expected to have a positive influence on FDI (market-seeking FDI) (Bloningen and Piger, 2014).
- Bilateral weighted *Distance* ($\ln(w\ D_{ij})$) is included as a proxy for tangible and intangible investment costs that increase over distance. The log of weighted distance is obtained from the CEPII GeoDist database[14]. The weighted bilateral distance is a function of the inter-city distances weighted by the share of the city in the overall country's population. A negative impact on FDI is expected based on earlier papers (see Bergstrand and Egger, 2010; Bloningen and Piger, 2014; Markusen and Maskus, 2002; Paniagua et al., 2015; Petri, 2012). Or as Martin and Drogendijk (2014:4) put it: "Distance means trouble."
- *Regional Trade Agreements* are taken from the CEPII Gravity database. Theory suggests that when bilateral trade costs are reduced, bilateral trade becomes the more likely mode to serve the market and at the same time investment in that market becomes economically less attractive (McCulloch, 1993; Paniagua and Sapana, 2014). At the same time reduced trade costs and regional trade agreements make productive investments that serve international markets more attractive (Bloningen and Piger, 2014; Paniagua et al., 2015; Petri, 2012).
- A few other variables are taken into account that are likely to influence the similarity or dissimilarities between countries. We include *Common Language*, *Common Currencies* and *Common Borders* taken from the CEPII GeoDist database. Based on earlier papers we expect positive coefficients (Brakman et al., 2010; Guiso et al., 2009; Mohlmann et al., 2010)[15]. We use a *colonial relationship* dummy to account for past colonial relations between the origin and destination country of FDI. Here also a positive relationship is ex-

pected because cultural understanding and similarity is bigger if a past colonial relationships exists (Bloningen and Piger, 2014; Brakman et al., 2010).

- Also natural advantages and disadvantages are included, specifically whether the FDI recipient is an *Island* or *Landlocked* country. This information is also extracted from the CEPII GeoDist database. We expect negative coefficients based on the trade literature (see, e.g. Afman and Maurel, 2010; Rose, 2007; Yakop and Bergeijk, 2011).
- Various authors have included dummies for *Tax havens* in the past to control for the effect that investments in these tax havens are driven mainly for their tax characteristics (Bloningen and Piger, 2014). Following Van t'Riet and Lejour (2014) the dummy tax haven is constructed out of the results from an extensive study by Gravelle (2013). She summarized the literature about tax havens for the US congress. A positive coefficient for the *tax haven* dummy is expected.

Summary statistics of the dependent variable, the explanatory variables and instrumental variables (that will be introduced in section 6.6) are included in Appendix F.

6.5 Empirical results

6.5.1 The diplomatic network and FDI

We test for the effect of the diplomatic network on FDI, of which the results are presented below. Table 6.2, column (1) and (2) present OLS estimates. Column (3) presents our preferred fixed and random effects equations. We use our fixed and random effects to address various forms of endogeneity. This forces identification to come from the within dimension of the data. We use FDI originator-year and FDI recipient-year fixed effects to correct for unobserved endogeneity relating to the home and host country of FDI. Time fixed effects are included to capture across year variance. We furthermore use country pair random effects to control for unobservable sources of between-country variance. With this approach theoretical concerns about omitted variable bias is greatly reduced (Anderson, 2011; Bacchetta, 2012; Head and Mayer, 2013).

The overall explanatory power of the model (see adjusted R^2) is comparable to, or better than, recently published gravity models on FDI that report adjusted R^2 statistics of between 0.20 to 0.66 (e.g. Brakman et al., 2010; Paniagua et al., 2015; Paniagua and Sapana, 2014; Petri, 2012; Subasat and Bellos, 2013). We observe that the OLS estimates seem to somewhat overestimate the impact of speaking a *common language* and the influence of having a favorable tax climate (*Tax Haven=1)*. The estimates in column (1) are based on the constraint that the intercept is identical for each country for each year. In column (2) this constraint is relaxed by allowing for (more realistic) year varying intercepts. This is important if the mode omitted important time-varying variables (Afman and Maurel, 2010).

Looking to the preferred fixed and random effects specification we observe that coefficients are as expected, showing similar directions as in previous gravity analysis on FDI (e.g. Paniagua et al., 2015; Paniagua and Sapana, 2014; Petri, 2012). *Distance* negatively impacts FDI, similar to the pattern observed for the gravity model in international trade and other publications estimating distance effects on FDI. The less tangible dimensions of distance also have a significant effect on FDI, the coefficients for having a *Colonial Relation* and having a *Common Language* are positive and highly significant. Our econometric investigation also makes clear that policy influences the behavior of foreign investors, our *Regional Trade Agreement* suggest a big FDI stimulus if a country has trade agreements in place (similar to Bloningen and Piger, 2014).

Finally, both the OLS and fixed and random effects specification indicate that the diplomatic network, our main variable of interest, is a factor that matters for the location of FDI. Table 6.2 indicates that a unit increase in the diplomatic network of the FDI originator would lead to an increase in FDI of between 4 per cent and 7 per cent, depending on the specification. These positive and significant coefficients are comparable to those observed in trade literature (Moons and de Boer, 2017; Rose, 2007; Yakop and Bergeijk, 2011). This is in line with the idea that FDI follows "the flag", a relation established for trade by Pollins (1989a).

Table 6.2
Determinants of Bilateral FDI Stocks

	(1) OLS	*(2) OLS*	*(3) Fixed & random effects*
Log GDP p.c. origin	1.98***	2.00***	
	(0.04)	(0.04)	
Log GDP p.c. destination	0.78***	0.82***	
	(0.04)	(0.04)	
Log Pop origin	1.08***	1.10***	
	(0.04)	(0.04)	
Log Pop destination	0.80***	0.84***	
	(0.04)	(0.04)	
Landlocked	0.07	0.06	1.26
	(0.10)	(0.10)	(1.93)
Island	-0.12	-0.15*	-1.02
	(0.08)	(0.08)	(4.06)
Log Land Area	-0.10***	-0.10***	0.49
	(0.02)	(0.02)	(2.53)
Log Distance	-0.81***	-0.80***	-1.25***
	(0.05)	(0.05)	(0.07)
Common Language	1.44***	1.44***	0.80***
	(0.12)	(0.12)	(0.16)
Common border	0.27	0.28	0.28
	(0.17)	(0.17)	(0.20)
Colonial relation	1.18***	1.17***	1.31***
	(0.25)	(0.24)	(0.26)
Regional Trade Agreement	0.44***	0.47***	0.30***
	(0.10)	(0.10)	(0.11)
Common currency	0.16	0.10	-0.28
	(0.16)	(0.16)	(0.18)
Tax haven	1.31***	1.26***	4.16
	(0.23)	(0.23)	(16.37)
Number of Diplomatic Representations (Origin in Destination)	0.07***	0.06***	0.04***
	(0.02)	(0.02)	(0.01)
Year 2006		0.45***	
		(0.08)	
Fixed and Random effects	No	No	Yes#
Observations	2826	2826	2826
Adjusted R^2	0.63	0.63	0.77

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01. # Includes origin-year, destination-year, year-fixed effects and country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant.

6.5.2 Heterogeneous effects of the diplomatic network on FDI stocks between regions

Based on the literature it can be expected that the diplomatic network is more important for culturally more distant locations (Cezar and Escobar, 2015; Harding and Javorcik, 2011 and 2012b; Hayakawa, 2014a and b; Yakop and Bergeijk, 2011). We want to test this relation and investigate whether or not we observe differences in the effect of the diplomatic network if the FDI originator is located in a different continent than the FDI recipient.

We investigate the effect of diplomatic offices on FDI between regions by introducing a dummy that captures intercontinental FDI flows and interacting this dummy with our diplomatic network variable. In column (1) and (3) of Table 6.3 we introduce our *different region* dummy. By including this dummy we allow for region varying intercepts (next to the earlier introduced year intercept in our OLS model). Ceteris paribus some regions may invest more/less than others. This is confirmed by the highly significant *different region* dummy both in our OLS and fixed and random effect models[16]. The baseline estimate uses FDI from origin countries to destination countries in the same continent.

In column (2) and (4) we introduce the interaction: *Number of diplomatic representations* Different Region* to our OLS and fixed and random effects estimations. This interactions is used to test for the effect of the diplomatic network in relation the investments within the same geographical continent as compared to investments on a different continent. The estimates present interesting results. The diplomatic network is relevant for FDI between continents. Here we see significant coefficients of between 0.07 for the fixed and random effects equation and 0.12 for the OLS equation. In the model presented in column (2) and (4) the *Number of diplomatic representations* variable is not significant. For investments within the same continent diplomats play a very limited role (if one at all).

Table 6.3
Determinants of bilateral FDI stocks taking into account differences in regions

	(1) OLS	*(2) OLS*	*(3) Fixed & Random Effect*	*(4) Fixed & Random Effects*
Log GDP PC origin	2.01***	2.01***		
	(0.04)	(0.04)		
Log GDP PC destination	0.83***	0.81***		
	(0.04)	(0.04)		
Log Population origin	1.10***	1.11***		
	(0.04)	(0.04)		
Log Population destination	0.85***	0.83***		
	(0.04)	(0.04)		
Landlocked	0.08	0.07	1.43	1.18
	(0.10)	(0.10)	(1.91)	(1.92)
Island	-0.25***	-0.23**	-0.89	-1.55
	(0.08)	(0.08)	(4.05)	(4.08)
Log Land area	-0.11***	-0.12***	0.58	0.11
	(0.02)	(0.02)	(2.53)	(2.55)
Log Distance	-0.59***	-0.57***	-1.06***	-1.05***
	(0.07)	(0.07)	(0.11)	(0.11)
Common Language	1.42***	1.38***	0.77***	0.74***
	(0.12)	(0.12)	(0.15)	(0.15)
Common border	0.32**	0.48***	0.36*	0.44**
	(0.17)	(0.18)	(0.20)	(0.20)
Colonial relation	1.32***	1.20***	1.41***	1.35***
	(0.25)	(0.25)	(0.27)	(0.27)
Regional Trade Agreement	0.44***	0.44***	0.28***	0.27**
	(0.10)	(0.10)	(0.11)	(0.11)
Common currency	0.00	0.02	-0.34*	-0.31*
	(0.16)	(0.17)	(0.18)	(0.18)
Tax haven	1.23***	1.22***	4.57	1.43
	(0.23)	(0.23)	(16.36)	(16.51)
Number diplomatic representations	0.06***	0.01	0.03***	0.01
	(0.02)	(0.02)	(0.01)	(0.01)
Year 2006	0.45***	0.45***		
	(0.08)	(0.08)		
Different region	-0.56***	-0.80***	-0.42**	-0.55***
	(0.12)	(0.13)	(0.17)	(0.18)
Interaction Number of diplomatic representations*Different Region		0.12***		0.07***
		(0.03)		(0.02)
Fixed and Random effects	No	No	Yes#	Yes#
Observations	2826	2826	2826	2826
Adjusted R^2	0.63	0.63	0.77	0.77

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01. # Includes origin-year, destination-year, year-fixed effects and country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant.

6.5.3 Policy competition

Policy competition for FDI via fiscal incentives is manifest (Ma, 2013). In international relations it is also frequently suggested that diplomats compete for FDI (e.g. Capik, 2007; Stopford et al., 1991). Econ-

ometric investigations on this topic were until now not available. We make a first effort to quantify these dynamics in two ways. In Table 6.4 below.

Column (1) and (3) include the number of diplomatic representations of competing countries in our regression, i.e. if next to country *j* other countries have a presence in country *i*, these representations are included in our regression via our *Number of Diplomatic network (other)* variable. Next, column (2) and (4) add the interaction between the network of country *i* and the diplomatic network of other countries to test for its effect on FDI stocks. The OLS results in column (1) and (2) show that FDI stocks not only relate to the diplomatic network of the country of origin, but also to the network of other countries[17]. The reported negative coefficient for the interaction term (in column (2)) indicates that the effect of the network of the country *i* in *j* decreases as the network from other (competing countries) increases. The marginal effect is, however, economically negligible. The effect of representations of other countries on FDI stocks disappears in the fixed and random effects estimates reported in column (3) and (4). Here both the *Number of Diplomatic network (other)* variable and the interaction term is insignificant. The observed OLS estimates may thus be an effect of omitted variables or country specific characteristics that interact with our interaction term.

Column (5) of Table 6.4 tests the question of competition between diplomatic establishments using a different approach. In the estimated model in column (5) the share of diplomatic representations from the origin country in the total number of diplomatic representations that is present in the destination country is included. For example, if country *i* has 3 diplomatic offices in country *j* on a total of 50 diplomatic offices in that country, country *i* has a market share in the network of 6 per cent. The *share of network* variable is significant at the 1 per cent level. According to our estimates having a larger share in the number of diplomatic representations in the country of destination is beneficial. The coefficient shows that an increase of 1 per cent point in market share amounts to about 5 per centmore bilateral investment. Since opening a representation on average amounts to increase in the market share of a little over 1 per cent point, this is in line with our other results[18]. It may accidentally also capture the effects of market size (the larger the market, the more representations there are, the smaller the share of representations for a

single country). This makes us cautious with putting too much weight on the column (5) estimates.

Table 6.4
Competing for FDI stocks: effect of the diplomatic network

	(1) OLS	*(2) OLS*	*(3) Fixed & Random Effects*	*(4) Fixed & Random Effects*	*(5) Fixed & Random Effects*
Log GDP PC origin	2.01***	2.01***			
	(0.04)	(0.04)			
Log GDP PC destination	0.61***	0.57***			
	(0.05)	(0.05)			
Log Population origin	1.13***	1.13***			
	(0.04)	(0.04)			
Log Population destination	0.61***	0.57***			
	(0.05)	(0.05)			
Landlocked	0.02	0.02	2.08	1.87**	1.45
	(0.10)	(0.10)	(1.46)	(0.85)	(1.93)
Island	-0.05	-0.03	0.87	0.42	-0.64
	(0.08)	(0.08)	(1.98)	(1.26)	(4.06)
Log Land area	-0.13***	-0.13***	1.87*	1.50	0.78
	(0.02)	(0.02)	(0.99)	(1.33)	(2.53)
Log Distance	-0.82***	-0.80***	-1.25***	-1.25***	-1.25***
	(0.05)	(0.05)	(0.07)	(0.07)	(0.07)
Common Language	1.38***	1.37***	0.80***	0.79***	0.80***
	(0.12)	(0.12)	(0.16	(0.16)	(0.16)
Common border	0.35*	0.32*	0.29	0.28	0.27
	(0.17)	(0.17)	(0.20)	(0.20)	(0.19)
Colonial relation	1.11***	1.09***	1.32***	1.31***	1.31***
	(0.24)	(0.24)	(0.26)	(0.26)	(0.26)
Regional Trade Agreement	0.49***	0.49***	0.30***	0.30***	0.31***
	(0.10)	(0.10)	(0.11)	(0.11)	(0.11)
Common currency	0.04	0.02	-0.28	-0.28	-0.28
	(0.16)	(0.16)	(0.18)	(0.18)	(0.18)
Tax haven	1.21***	1.21***	13.44**	10.87	6.11
	(0.23)	(0.23)	(6.35)	(10.48)	(16.35)
Year 2006	0.46***	0.47***			
	(0.08)	(0.08)			
Number of diplomatic representations (own)	0.04**	0.14***	0.03***	0.05**	
	(0.02)	(0.03)	(0.01)	(0.02)	
Share of network					0.05***
					(0.02)
Number of Diplomatic network (other)	0.01***	0.01***	-0.00	-0.00	
	(0.00)	(0.00)	(0.00)	(0.00)	
Interaction Log Diplomatic network (own)* Diplomatic network (other)		-0.00***		-0.00	
		(0.00)		(0.00)	
Fixed and Random effects	No	No	Yes#	Yes#	Yes#
Observations	2826	2826	2826	2826	2826
Adjusted R^2	0.63	0.63	0.77	0.77	0.77

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01. # Includes importer-year, exporter-year, year fixed effects and country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant.

Of the reported regressions in Table 6.4 three out of five estimations indicate that there is correlation between the effect of diplomatic representations of the home country with diplomatic representations of others in the destination country. In two out of five, including our preferred fixed and random effects model, the correlation is not significantly measurable. This remains a relevant issue for future research.

6.6 Robustness

6.6.1 Two econometric challenges: Endogeneity and zero flows

So far we assumed a relation between the diplomatic network and FDI. Specifically that the diplomatic network has influence on FDI flows between the country of origin and the country of destination. It is, however, possible that diplomatic representations are set up in countries with which a strong FDI-relation already exists. If so, reversed causality leads to inconsistent and biased estimates. Next to the earlier applied fixed and random effects we therefore test our results using an instrumental variables approach (IV) (results are reported in Table 6.5). We introduce a set of instrumental variables, which correlate with the number of foreign representations and yet is uncorrelated with the error term of bilateral FDI flows between countries. In the case of the diplomatic network, this is notoriously difficult to find and some authors argue it is better to use dyadic fixed effects (Head and Mayer, 2013). We therefore use dyadic effects in our baseline equations up to here and for the sake of robustness we also present our results using instrumental variables[19]. We use two groups of variables that relate to the geopolitical weight of countries (military expenditure) and the attractiveness of living/visiting a country (tourism flows) because they give other motives for opening up a diplomatic establishment (Rose, 2007; Yakop and Bergeijk, 2011).

We estimate regressions both with and without fixed effects and, following Yakop and Bergeijk (2011), include Generalized Method of Moments results. The F-statistic of the first stage of the 2SLS regression (not reported) is 13, which shows that these instruments are sufficiently strong. Using two stage least squares both with 2SLS and GMM we find that previous results still hold. The estimates for our main variable of interest, the *number of diplomatic representations*, are in three out of four instances larger than earlier presented (Table 6.2, column (1)). In column (2) the *diplomatic representations* variable is no longer significant. Corrected

for unobserved within and between country sources of variance and using instrumental variables to obtain consistent estimates results in an insignificant and negative coefficient. Based on the overall reported findings we are, however, confident that our estimates do not suffer from reversed causality.

Table 6.5
Instrumental variables

	(1) *2SLS: IV (military expenditure, tourism flows)*	*(2)* *2SLS:IV + FE (military expenditure, tourism flows)*	*(3)* *GMM: IV (military expenditure, tourism flows)*	*(4)* *GMM: IV + FE (military expenditure, tourism flows)*
Log GDP PC origin	1.89***		1.88***	
	(0.06)		(0.06)	
Log GDP PC destination	0.47***		0.48***	
	(0.14)		(0.14)	
Log Population origin	1.01***		1.03***	
	(0.05)		(0.05)	
Log Population destination	0.41***		0.43**	
	(0.16)		(0.17)	
Landlocked	0.13	2.63	0.10	
	(0.12)	(1.58)	(0.11)	
Island	0.08	1.62	0.05	-1.42***
	(0.13)	(2.13)	(0.13)	(0.33)
Log Land area	-0.17***	2.27*	-0.18***	0.99***
	(0.04)	(1.17)	(0.04)	(0.02)
Log Distance	-0.66***	-1.27***	-0.66***	-1.17***
	(0.09)	(0.34)	(0.09)	(0.06)
Common Language	1.33***	0.81***	1.28***	
	(0.14)	(0.11)	(0.14)	
Common border	-0.41	0.41	-0.24	0.36**
	(0.36)	(0.71)	(0.37)	(0.15)
Colonial relation	0.40	1.37*	0.61	1.34***
	(0.44)	(0.81)	(0.51)	(0.20)
Regional Trade Agreement	0.33***	0.25**	0.32***	0.26**
	(0.13)	(0.10)	(0.12)	(0.10)
Common currency	0.23	-0.22	0.16	-0.11
	(0.19)	(0.22)	(0.17)	(0.13)
Tax haven	1.16***	15.86**	1.08***	9.69***
	(0.26)	(2.41)	(0.23)	(0.33)
Number of diplomatic representations	0.55***	-0.06	0.54**	0.13***
	(0.19)	(0.58)	(0.23)	(0.04)
Fixed and Random effects	No	Yes##	No	Yes##
Observations	2777	2777	2777	2777
Adjusted R^2	0.54	0.76	0.52	0.75

Dependent: ln (FDI_{ijt}). Standard errors in parentheses,* p < 0.1, ** p < 0.05, *** p < 0.01, ##Includes importer-year, exporter-year and year fixed effects[20]. Clustered standard errors are used. Included in the regression but not reported: the constant.

A second econometric concern we want to address is the number of zero flows within the sample. Anderson and Wincoop (2004) and Help-

man et al. (2007) show that omitting the zero-valued observations in a gravity analysis leads to a non-random sample that can result in biased results (Kleinert and Toubal, 2010). Our sample has 45 per cent zero flows which are not to distributed randomly[21]. There is a reason that people from one country do not invest in the other. This may indeed be the essence of the relationship that we are testing. We apply several solutions to the zero observation problem; we follow Santos Silva and Tenreyro (2006, 2011) who propose Poisson Pseudo maximum likelihood regressions, which offers consistent estimates when using data with a vast amount of zero observations. Furthermore we also add a small constant to zero-flows resulting in a zero-inflated regression (Winkelmann, 2008). Results are presented in Table 6.6.

Table 6.6
Zero flows

	(1) ***PPML***	***(2)*** ***Zero inflated FE, RE[22]***
Landlocked	0.87**	-110.79***
	(0.39)	(7.09)
Island	1.25***	-367.58***
	(0.38)	(28.47)
Log Land area	-0.29*	-256.17***
	(0.16)	(21.30)
Log Distance	-0.65***	-3.17***
	(0.07)	(0.21)
Common Language	0.59***	2.82***
	(0.11)	(0.46)
Common border	-0.04	-0.37
	(0.11)	(0.60)
Colonial relation	0.47***	1.04
	(0.13)	(0.82)
Regional Trade Agreement	0.02	0.75**
	(0.11)	(0.32)
Common currency	0.28**	-0.11
	(0.12)	(0.66)
Tax haven	2.62***	-1721.21***
	(0.46)	(146.50)
Number of diplomatic representations	0.03***	0.14***
	(0.01)	(0.05)
Fixed and Random effects	Yes[##]	Yes[#]
Observations	4722	5286
Adjusted R^2	0.86	0.66

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, [#]Includes importer-year, exporter-year and year fixed effects, and country pair random effects, [##]Includes importer-year, exporter-year and year fixed effects. Does NOT include country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant.

We see the total explanatory power of the model increase using PPML. This cannot be said for the zero inflated model. Here we see the R^2 decrease and also observe some changes in the presented results, like the very negative and significant coefficient for the *tax haven* dummy, that we cannot explain. We therefore focus on the PPML results. Taking into account the zero FDI stocks in our sample has no mark able influence on the sign and significance of our main variable of interest. We see that the coefficient of the *number of diplomatic representations* reduces somewhat in size but its positive effect remains mostly undisputed. This is also the case for the *colonial relations*, *common language* and *tax haven* dummy. This downward effect on the coefficient estimate is to be expected when many zero flows are added to the equation.

6.6.2 Does the diplomatic network work stimulate outgoing FDI as well as help attract incoming FDI?

Until here we focused on the stimulus of the diplomatic network on outgoing FDI, i.e. the effect of the diplomatic network of the FDI origin country. The symmetric nature of our sample also allows us to test for the opposite: the effect of the diplomatic network of the destination country on their incoming FDI. We have seen from the web statements of various embassies that they often have a dual ambition. On the one hand they want to support their domestic companies in foreign markets. On the other, they want to help foreign companies to invest in the representations' country of origin. We investigate this econometrically by including both the *Number of diplomatic representations* of country i in country j and country j in country i (results are presented below).

We focus on the main variable of interest: *the number of diplomatic representations*. We see no changes in the earlier reported coefficients for the effect of the diplomatic network of the FDI origin country. The OLS and fixed and random effects estimates in Table 6.7 are very similar to the estimates documented in Table 6.2 (column (2) and (3)). The findings for the interaction between the diplomatic network and FDI stocks between regions are also comparable to earlier reported results (Table 6.3, column (4)). Based on the regressions in Table 6.7 the diplomatic network of the destination country has no significant on the estimated effect of the diplomatic network of the FDI origin country.

Table 6.7
The dual FDI mandate of the diplomatic network explored

	(1) OLS	*(2) Fixed & Random Effects*	*(3) Fixed & Random Effects +Interactions*	*(4) PPML*
Log GDP PC origin	1.98***			
	(0.04)			
Log GDP PC destination	0.81***			
	(0.04)			
Log Population origin	1.07***			
	(0.04)			
Log Population destination	0.84***			
	(0.04)			
Landlocked	0.07	1.18	1.05	0.82**
	(0.10)	(1.93)	(1.92)	(0.38)
Island	-0.13	-1.24	-1.76	1.18***
	(0.08)	(4.06)	(4.09)	(0.37)
Log Land area	-0.11***	0.36	0.01	-0.29*
	(0.02)	(2.53)	(2.55)	(0.16)
Log Distance	-0.79***	-1.24***	-1.04***	-0.61***
	(0.05)	(0.07)	(0.11)	(0.07)
Common Language	1.42***	0.80***	0.73***	0.63***
	(0.12)	(0.15)	(0.15)	(0.11)
Common border	0.24	0.26	0.46**	-0.12
	(0.17)	(0.20)	(0.20)	(0.11)
Colonial relation	1.19***	1.30***	1.32***	0.46***
	(0.24)	(0.26)	(0.27)	(0.13)
RTA	0.46***	0.30***	0.26**	0.03
	(0.10)	(0.11)	(0.11)	(0.11)
Common currency	0.11	-0.27	-0.29	0.29**
	(0.17)	(0.18)	(0.18)	(0.12)
Tax haven	1.29***	3.28	0.89	2.71***
	(0.23)	(16.35)	(16.52)	(0.46)
Year 2006	0.44***			
	(0.08)			
Number of diplo reps i in j	0.06***	0.03***	0.01	0.02*
	(0.02)	(0.01)	(0.01)	(0.01)
Number of diplo resp j in i	0.04**	0.02	0.00	0.03***
	(0.02)	(0.01)	(0.02)	(0.01)
Different region			-0.61***	
			(0.18)	
Interaction number of diplo reps i in j * Different region			0.06***	
			(0.02)	
Interaction number of diplo reps j in i * Different region			0.04	
			(0.02)	
Fixed and Random Effects	No	Yes[#]	Yes#	Partial[##]
Observations	2826	2826	2826	4722
Adjusted R^2	0.63	0.767	0.769	0.864

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, [#]Includes importer-year, exporter-year and year fixed effects, and country pair random effects, [##]Includes importer-year, exporter-year and year fixed effects. Does NOT include country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant.

The results furthermore show that the diplomatic network of the FDI destination country is effective in attracting FDI. Our OLS and PPML estimates report a modest FDI attracting effect of 3 to 4 per cent when the number of representations increases with one extra diplomatic office. This effect is not robust across specifications and does not show the earlier observed heterogeneity in effect in relation to the geographical origin of the investments.

6.6.3 Differentiation in the network

The final source of variation in the diplomatic network we want to address is the ranking of the diplomatic office under consideration in the regressions. We know from trade literature that differences in the political ranking of representations may lead to variation in the coefficients (Chapters 3 and 5 in this thesis; Moons, 2017). The main idea boils down to the fact that an embassy is politically higher ranked than a consulate. It may therefore be the case that embassies are better equipped to lobby for important policy issues. On the other hand there generally are many consulates, often in important regions of the host country with the task to assist citizens and firms. Therefore it is also possible that consulates have more specific knowledge about local rules and regulations of use for the investor, thereby potentially having a bigger effect on FDI than embassies (Volpe Martincus et al., 2010a). Table 6.8 shows the effects of embassies and consulates on FDI for our sample using our preferred model (equation 6.2) but replacing the *number of diplomatic representations* variables by one variable for *embassies* and one for *consulates*.

Similar to papers in the trade literature we observe more substantial coefficients for embassies as compared to consulates. These coefficients are, however, insignificant. The coefficients for consulates on the other hand are positive and significant for both the fixed and random effects and PPML estimations. Econometrically, it thus seems that consulates contribute more significantly to stimulating FDI from the country of origin than embassies. Appendix G explores these coefficients further using a Heckman (1979) two-step approach. The Heckman approach suggests that coefficients for *embassies* are significant and of larger magnitude than the equally significant coefficients for *consulates*. The effect on FDI of different diplomatic establishments is a relevant issue for future research. Furthermore, these results, similar to the findings in Chapter 3

of this thesis, confirm the importance of reporting embassy and consulate estimates separately.

Table 6.7
Embassies versus Consulates

	(1) ***Fixed Effects***	***(2)*** ***PPML***
Landlocked	1.33	0.89**
	(1.92)	(0.39)
Island	-1.03	1.26***
	(4.05)	(0.38)
Land area	0.46	-0.31*
	(2.52)	(0.16)
Distance	-1.25***	-0.65***
	(0.07)	(0.07)
Common Language	0.80***	0.59***
	(0.16)	(0.11)
Common border	0.29	-0.04
	(0.20)	(0.11)
Colonial relation	1.31***	0.46***
	(0.26)	(0.13)
RTA	0.31***	0.00
	(0.11)	(0.11)
Common currency	-0.27	0.29**
	(0.18)	(0.12)
Tax haven	3.85	2.63***
	(16.37)	(0.46)
Embassy	0.21	0.34
	(0.18)	(0.24)
Consulate	0.03***	0.03***
	(0.01)	(0.01)
Fixed and Random effects	Yes[#]	Partial[##]
Observations	2826	4722
Uncensored		
Adjusted R^2	0.767	0.856

Dependent: ln (FDI_{ijt}). Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, [#]Includes importer-year, exporter-year and year fixed effects, and country pair random effects, [##]Includes importer-year, exporter-year and year fixed effects. Does NOT include country pair random effects. Clustered standard errors are used. Included in the regression but not reported: the constant. Country specific variables (population and GDP per capita) are included but not reported because these variables can no longer be identified in the presence of fixed effects (Head and Mayer, 2013).

6.7 Conclusions

We established the relation between diplomatic representations and FDI, differentiated the effect of the diplomatic network for investments within versus investments between continents and looked into effect of competition based in the number of diplomatic representations.

The results show that the diplomatic network of the FDI country of origin exerts a robust, positive, FDI stimulating effect. The presented preferred specification that accounts for time and country varying sources of variation reports a 3 per cent to 7 per cent increase in outgoing FDI associated with a one unit increase in the number of diplomatic representations. This confirms that economic diplomats are successful in assisting firms from their home country. The effects are concentrated on transactions between different continents as compared to transactions within the same continent. Which is inline with the intuition that for intercontinental transaction, where cultural differences are most substantial, the trust enhancing and information supplying function of the diplomatic network is the largest. Based on the presented findings we cannot come to definite conclusions about the effect of the diplomatic network on attracting FDI. The findings show a less robust relation for attracting FDI as compared to the opposite (outgoing FDI). Similarly, the reported estimates are not (yet) conclusive about policy competition via the diplomatic network for FDI. Three out of five estimates indicated that representations of "other" countries may influence the FDI stimulating effect of the diplomatic network of the home country. The effect was however not significant in our preferred fixed and random effects estimations and the other reported effects may be caused by omitted variables bias.

We tested for reversed causality using an instrumental variables approach. Based on the findings reversed causality is not a major issue in the relation between the diplomatic network and FDI. Also, zero flows were accounted for by Poisson Pseudo Maximum Likelihood and zero inflated estimations. Taking zero flows into account did not influence the conclusions about the positive and significant effect of the diplomatic network on outgoing FDI.

Following up on Chapter 3 of this thesis we ended this chapter with an investigation of the different forms of diplomatic representation. The results show that it is rewarding to separately report on embassies and consulates. Where in the literature on economic diplomacy and trade embassies seem to have the most pronounced effect this research shows the opposite. Different estimation techniques could, however, provide new insight on the relation between embassies and consulates and FDI (as Appendix G of this thesis also shows). It is thus advised that the effect on FDI of different forms of economic diplomacy is area of future

research. Future research should also focus on data availability. FDI data, especially for developing countries are still hard to come by. We have managed to include a substantial number of them in our sample, yet greater data availability would provide additional methodological options to researches and possibly delivers new insights.

Notes

[1] I would like to thank Remco de Boer who was co-author of the research paper that is the fundament for this Chapter. An early version of this paper was presented during my Post Field Work Seminar the 28th of April 2016. I thank the participants of this seminar for their valuable suggestions. I would like to thank Sophie Leeuwenburgh and Zahra Zarepour for providing assistance with data collection.

[2] For a thorough discussion on the recent literature about economic diplomacy see the meta-analyses of Moons and Bergeijk (2016) and Moons (2017)

[3] As stated in the introduction the relation between FDI and investment promotion agencies is explored to a certain extend (e.g. Morriset, 2003; Harding and Jovorcik, 2011 and 2012). The scope of investment promotion agencies is much more narrow as compared to the diplomatic network. The majority of overseas investment promotion agencies are located in only 6 high income markets. The average OECD country investment promotion agency has 7 overseas offices. Developing countries that have overseas offices generally only have three of them (UNCTAD; 2001). Analysis the diplomatic network, that has a much broader geographic coverage, is very additional to was is known to day about the effects of investment promotion agencies.

[4] Rauch paper was talking about the cost of trading. But a similar reasoning can be followed for foreign investments

[5] Some papers use affiliate sales because they can be compared across time and industries with less concern over divergent accounting methodologies. However, affiliate sales data are scarce. Furthermore, Lankhuizen et al. (2011) show correlations up to 92 per cent between affiliate sales and FDI data.

[6] A Hauman test was used to test if the random effects were appropriately used. The Hausman test confirmed that the country pair random effect estimates are efficient compared to the fixed effects alternative.

[7] We downloaded the FDI files on November 12th 2015.

[8] We are hopeful that initiatives such as http://embassyworld.com/ will provide future researchers with the possibility to get their hands on extended samples

with information about the diplomatic network of countries. The initiative does prove a substantial amount of information about embassies and consulates of many countries. The sample is however far from complete when we compared it with the website information of the various Foreign Affairs websites (check performed March 2013).

[9] Various authors in the past used the Tagish Diplomatic Directory, which should be available at http://www2.tagish.co.uk/Links/embassy1b.nsf/ (see, e.g. Elkins et al., 2006). The particular sample seems no longer available online, neither directly nor via links which are for example given by the University of Berkley website (date of last check January 2nd 2015).

[10]We are grateful to Peter van Bergeijk who provided us with the Yakop and Bergeijk (2011) sample (also available via https://dans.knaw.nl/nl). This sample is collected in 2006 and originally includes 63 countries. To this sample we added the United Arab Emirates.

[11] The data were collected between summer 2012 and summer 2013 by visiting the foreign affairs websites of 64 countries. Valuable research assistance was delivered by Zahra Zarepour (PhD student at ISS) and Sophie Leeuwenburg (at that time Master Student at the VU Amsterdam). A final check was performed by Selwyn Moons in December 2016 on all observations where the difference between 2006 and 2013 was more than 2 representations.

[12] Even though we double checked all the results from our website search we still did not think the large number of newly opened representations was credible. We therefor did a google search on the 24th of February 2017 with the search term "open new embassies". From the various statements on the first two pages of the google search we already saw more than 60 new embassies announced (excluding an additional 50 new EU embassies that we did not include in this number because EU embassies are not included in our sample). Because of this quick search, only in the English language, we grew more confident of dynamics observed in our sample.

[13] All databases (IMF world Economic Outlook, CEPII Gravity Database and GeoDist, World Bank, UNCTAD) are accessed December 2013

[14] A full description of the various variables in the CEPII Gravity Database and its origin is provided by Mayer and Zignago (2011)

[15] In Brakman et al. (2010) the sign of the common border dummy varies over time and across specifications. Guiso et al. (2009) does not include the colonial relations dummy

[16] The highly significant different region dummy also is an indication that important region varying variables are omitted in our model

[17] A Wald test reports that for column (1) and (2) the null hypothesis that the coefficient *Number of Diplomatic network (other)* is zero can be rejected (F-statistic, 1 numerator 2807 denominator degrees of freedom, 39.55 and 51.98 respectively, both with p=0.00).

[18] We must note that not all diplomatic representations are of similar size and importance. The results presented are an estimation of the average effect for all the representations and countries in our sample. Clearly a one man post in a country versus a large embassy or consulate will have a different effect on FDI. But we do not have sufficient disaggregated data to also correct for these issues.

[19] As stated before in endnote VI we tested for the use of country pair random instead of fixed effects via a Hausman test. The results presented so far are thus in line with the advised dyadic fixed effects approach.

[20] Country pair random effects were not included because they were to computationally demanding

[21] Skewness of FDI stock=11.82, Kurtosis=187.77 two strong indications that the distribution is not normally distributed.

[22] We also ran the regression without the *tax haven* dummy variable because we found the reported coefficient in column (2) of Table 6.6 difficult to explain. This regression is available upon request with the author. Removing the tax haven dummy had no influence on the other reported estimates.

7 Summary and Conclusions

7.1 Summary of the thesis

This thesis investigates the heterogeneous effects of economic diplomacy. This heterogeneity is analysed by looking into economic diplomacy instruments, observing other determinants of heterogeneity and analysing developments.

In Chapter 1 of this thesis six main research questions and three sub questions were set out:

1) *How can economic diplomacy contribute to bilateral relations between developed and developing countries?*
2) *What is the meta-effect of economic diplomacy on trade and FDI?*
    a) *Which (methodological) factors can be found that influence observed economic diplomacy effects?*
    b) *What is the effect of instruments of economic diplomacy on observed economic diplomacy effects?*
    c) *Is there consensus about the effect of economic diplomacy between scientific disciplines?*
3) *How does economic diplomacy affect trade volumes (the intensive margin of trade) and the number of trading relations (the extensive margin of trade)?*
4) *What is the effect of product characteristics on the observed economic diplomacy effect?*
5) *How does economic diplomacy affect FDI?*
6) *What are sources of heterogeneity in the effect of economic diplomacy on FDI?*

All of these questions relate to topics on economic diplomacy which have as yet received little to no academic research.

Each chapter of this thesis deals with a different dimension of the heterogeneity in economic diplomacy effects and the instruments, determinants and developments behind it. More specifically, Chapter 2 identifies forms of economic diplomacy that could be part of future bilateral relations of (former) developing countries. The chapter connects economic diplomacy to the field of development studies. Chapter 3 studies the 'meta' impact of economic diplomacy: it summarizes the literature, in particular the reported effects of economic diplomacy, by means of a meta-analysis. It furthermore identifies sources of heterogeneity stemming from research design and the instrument of economic diplomacy used. Chapter 4 reviews the literature and presents what is known about the relation between economic diplomacy and the margins of trade. Chapter 5 econometrically investigates the effect of the diplomatic network on market entry and the trade volume of Rauch classified internationally traded goods. The chapter shows that economic diplomacy has the most influence on goods not traded in organized exchange. The chapter also reconfirms the need to diversify between economic diplomacy instruments. Chapter 6 econometrically establishes the relation between diplomatic representations and FDI and shows the heterogeneous economic diplomacy effects in relation to FDI between regions.

In this thesis, a research design is applied that uses mixed methods and analyzes primary and secondary data. Chapter 2 reviews the literature, analyzes documents and uses a detailed case study for the Netherlands. Here, scholarly and academic sources, official documents and the so-called grey literature were triangulated. Chapters 3 and 4 rely on collection of secondary data through literature review. Chapter 3 uses all the relevant information about study design, the instrument of economic diplomacy under investigation and the dependent variable on which the effect of economic diplomacy was tested, to construct our meta-analysis database. For Chapter 4 the estimates on the effect of economic diplomacy on the margins of trade were collected from the literature. Chapter 5 relies on the collection of secondary data from databases that are provided by well-known institutions, such as the World Bank and United Nations, that make data available online. Chapter 6 relies on the collection of both primary and secondary data. The primary data are obtained by manually checking the websites of Ministries of Foreign Affairs to harvest the available information about their diplomatic network. The secondary data are obtained online from well-known and frequently used

sources. The data are used in a variety of empirical approaches, among which a meta-effect analysis (Chapter 3) and various econometric investigations (Chapters 5 and 6). The results of the different chapters suggest that heterogeneity is a key element for understanding economic diplomacy. The main findings per chapter are summarized below.

Chapter 2 contributes to the literature by linking economic diplomacy to development studies. The chapter starts with an investigation of development cooperation and trade policies. The combined development cooperation and trade portfolio offers a basis for a continually evolving bilateral agenda with (former) developing countries. Applying a development studies perspective, the chapter identifies economic diplomacy components that can be part of bilateral relations, in which the combination of development cooperation and trade and investment relationships can be mutually reinforcing. Because of these elements, economic diplomacy can be an important aspect of the new "development" relations that countries such as Denmark, Ireland and the Netherlands are implementing. It furthermore offers important element for policies that aim to stimulate South-South, North-South and South-North trade.

Chapter 3 contributes to the literature by providing the first meta-analysis in the field of economic diplomacy and presenting a methodological innovation in meta-analysis data collection. The chapter offers a meta-analysis of the empirical literature on the impact of economic diplomacy on international trade and FDI published between 1985 and 2011. A unique database was constructed with 963 economic diplomacy estimates and a variety of study characteristics that could be of influence on the reported effects in primary studies. While collecting our data, we were confronted with a lack of information in primary studies (and lack of response by the authors when information was requested) which prohibited us to transform many of the reported coefficients into elasticities. To resolve this issue we focused the meta-regression analysis on establishing the meta-significance of economic diplomacy estimates. By using the reported minimum levels of significance we introduced a methodological innovation that allowed us to increase the number available observations by 50 per cent. This innovation is relevant to each meta-analysis for a multidisciplinary field of research with different reporting standards.

The meta-regression analysis points towards a general positive and significant effect of economic diplomacy. This is however not the same

across the board. The analysis shows significant heterogeneity between economic diplomacy instruments and highlights the importance of research design and other characteristics of the primary studies. In particular we find that primary studies that only use one source country are less likely to report significant positive effects. It also concluded that studies that use a variable that combine embassies and consulates(-general) into a single indicator miss that these instruments differ significantly and should thus be included as separate instruments in such research. The chapter also shows that research on the relation between economic diplomacy and FDI is rare. The meta-analysis, furthermore, shows that peer reviewed economics journals report fewer significant economic diplomacy coefficients compared to coefficients reported in international relations journals and working papers.

Chapter 4 provides the first literature review of the effect of economic diplomacy on the margins of trade. The chapter reviews 987 estimates from 12 studies published between 2000 and 2011 that deal with the question whether economic diplomacy creates new trading relations (extensive margin of trade) or if economic diplomacy primarily impacts the traded volumes within already existing relations (intensive margin of trade). Categorizing the estimates between those that apply to OECD countries and those that apply to non-OECD Latin-American countries (unfortunately, data on other sets of countries are scarce or incomplete) the review concludes that most significant positive estimates are observed for the effect of economic diplomacy on the extensive margin of trade. Findings for the impact on the intensive margin are more ambiguous. In general, economic diplomacy does not seem to influence the intensive margin of trade significantly. Investigating the two groups of estimates, however, reveals that this result is mainly driven by the large number of insignificant observations for the non-OECD Latin-American countries.

Chapter 5 contributes to the literature by providing the first economic diplomacy estimates on Rauch classified internationally tradable goods, using a sample that covers a broad range of both developing and developed countries. The chapter also offers two methodological approaches that are applicable to other research. The first approach is the use of interpolation to solve missing data problems. While building our sample we were confronted by a number of missing Rauch 4 digit SITC classifications. These were highest for the developing countries in our sample.

Chapter 5 provides a methodology to supplement missing Rauch 4 digit SITC classifications via interpolation. This reduced the number of missing observations in Chapter 5 from 10 per cent to 3 per cent. The second contribution is that the chapter uses data that reduce concerns regarding causality, which is fundamental to the economic diplomacy literature. Countries may decide to open diplomatic offices because of a high level of aggregate exports. It is however unclear (and less likely) that they will do so for the exports of a particular group of traded goods. Using lower aggregated data, as Chapter 5 does, is a relevant recommendation for other areas of research where causality is an issue.

The econometric contribution of Chapter 5 is the investigation of the effect of the diplomatic network on market entry and the bilaterally trade volume Rauch classified goods; i.e. homogeneous, reference priced and differentiated goods. The chapter differentiates between representations in the diplomatic network. The results show that economic diplomacy is relevant for both market entry and the bilaterally traded volume, especially for products that are not traded in organized exchange. Differentiation of diplomatic representations furthermore reveals that embassies have the most pronounced effect for both market entry and the traded volume.

Chapter 6 adds to the literature by, for the first time, analyzing the relation between FDI and economic diplomacy for a large group of developed and developing countries. For the chapter a unique sample of 64 countries for the years 2006 and 2012 was constructed. The sample reveals substantial expansion in the number of diplomatic representations for many countries (especially Latin American ones). The reported estimates show a positive and significant relation between diplomatic representations and outgoing FDI. These results are particularly strong for FDI over different continents. The results show no substantial effect of diplomatic offices on attracting FDI. Furthermore, a majority of the estimates in Chapter 6 indicate that representations of "other" countries may influence the FDI stimulating effect of the diplomatic network of the home country. More specifically, it shows that countries with a larger share in the total number of diplomatic representations generate more FDI. Finally, differentiation of diplomatic representations shows that consulates have more effect on FDI as compared to embassies.

7.2 Policy recommendations

This thesis contributes to understanding the heterogeneous effects of economic diplomacy on international trade and investment. With the presented results in mind, the following policy recommendations should be taken into account in order to optimize the deployment of economic diplomacy by governments:

a) Economic diplomacy can be a useful part of bilateral relations with developing countries and amongst developing countries (see Chapter 2). Economic diplomacy can contribute to shaping these relations because the subject of economic diplomacy offers benefits to both developed and developing countries. Economic diplomacy serves to reduce markets access barriers and enhances trust. This is a precondition for establishing (mutually beneficial) trade and investment relations.

b) The significance of economic diplomacy instruments is heterogeneous and depends on the instrument that is used and characteristics of the primary study under investigation (see Chapter 3). Governments can use the presented results when evaluating economic diplomacy policies and when shaping their bilateral economic diplomacy efforts. Researchers can use the presented results to improve their study design.

c) The network of diplomatic representations is an effective instrument to increase the number of trade relations (see Chapters 4 and 5). Economic diplomacy can consequently be used to diversify exports, which is particularly relevant for developing countries.

d) The focus of economic diplomacy is best targeted on products that are not traded in organized exchange (i.e. more complex products/transactions). This result is reported for both the market entry decision and the bilaterally traded volume of goods (see Chapter 5). Trade promotion efforts are thus best focused on trade in more complex products.

e) The effects of economic diplomacy on bilateral trade and investment are more pronounced when transactions are towards more culturally and institutionally distant markets (see Chapters 1 and 6). If efficiency and effectiveness in investment and trade promotion is the objective, this thesis recommends that trade and investment promotion efforts focus on those markets.

f) There are various factors that drive FDI. One of those factors is the share in the total number of diplomatic establishments on a foreign market for facilitating FDI to that market (see Chapter 6). Without advising for policy competition between diplomatic establishments, this thesis does recommend to include an analysis of representations of other countries when thinking about the geography of the diplomatic network. This supplements the analysis on other factor that determine FDI between countries.

7.3 Discussion and further avenues for research

In this thesis, many new or improved insights were reported. It is also important to report what has not been covered. The focus of this thesis was on economic diplomacy by governments. As a consequence, this thesis does not deliver insights into the effect of economic diplomacy by non-state actors and the interaction between state and non-state actors in economic diplomacy which is growing in popularity in international relations research (Strange, 2015). The thesis also does not cover other objectives (political, consular) of the diplomatic network. Nor does it include the effect of various international representations that relate to the various international institutions. The presented conclusions represent research into the effect of economic diplomacy on trade and investment and the conclusions should be interpreted against that background.

The thesis established in Chapter 3, 4 and 6 that economic diplomacy is heterogeneous in relation to the instrument deployed. Based on these chapters, new questions also present themselves. The chapters do not deliver an understanding of the complementarity between instruments. Understanding of the interaction between instruments will shed light on possible crowding out effects when several instruments are used simultaneously. This possible effect is shown in Veenstra et al. (2011) and Creusen and Lejour (2013). Simultaneously testing for the effect of export promotion agencies and the effect of embassies and consulates, Veenstra et al. (2011) find no significant effects for export promotion agencies while the impact of embassies and consulates on bilateral trade flows remains substantial. Creusen and Lejour (2013), also testing several instruments of diplomacy simultaneously, show that private sector trade missions are not effective for stimulation trade while trade missions with

Ministers or the head of State do have a positive and significant effect on trade flows.

In Chapter 3, the thesis established that economic diplomacy has a positive significant effect on trade and FDI. However, Chapter 3 does not deliver an estimate of the 'true' economic diplomacy effect. This should remain the ambition of future research and is an effort worth pursuing because it can contribute to answers about the efficiency of economic diplomacy. This is still under-researched, although Nooij et al. (2017) provide first estimates for the Netherlands. The step towards establishing a meta-size effect is not (only) a matter of producing more research, but much more a matter of reporting the results in a way that all relevant information about estimates is included in the literature. In order to calculate the elasticity on average from linear models one needs to know average values of the dependent and explanatory variables, but a number of studies does not report this basic and essential information. Chapter 3, 4 and 5, furthermore identified a meta-analysis in the effect of economic diplomacy on the margins of trade as an additional area of investigation that is promising because of the increased availability of estimates.

In Chapter 6, the thesis established the relation between economic diplomacy and FDI. In the differentiation between the different diplomatic establishments consulates seemed to facilitate FDI more than embassies. When using different estimation techniques (as presented in the Appendix G of this thesis) this relation turned around. The effect of instruments of diplomacy, specifically the diplomatic network, is an important subject of future research. The research should include both the formation of investment relations and the bilaterally invested volume. Both these elements are relevant potential economic diplomacy effects that, even though Chapter 6 contributed to the literature on this subject, remain under explored.

As mentioned in Chapter 3, it is important that economic diplomacy research addresses the issues of causality. In Chapter 5 of this thesis additional methodological suggestions are made to address/prevent causality. Furthermore, in Chapter 5 and 6 we also present what is the current standard of dealing with causality issues: an instrumental variables approach. Still, various possible methodologies to address causality have not been used in economic diplomacy research or only very marginally so. For example, we have seen very limited use of time lags (with the use

of General Method of Moments models) and structural vector autoregressions. In the coming years, these methods could be explored to further establish the causal relation between economic diplomacy and international economic flows.

The thesis estimates the relation between economic diplomacy and Rauch categorized goods for the year 2006 in Chapter 5. Chapter 6 estimates the effect of economic diplomacy on FDI for a sample with the years 2006 and 2012. These samples were relatively limited in terms of the timespan covered, simply because the number of sources where economic diplomacy data are available remains very limited. The effect of economic diplomacy could vary over time, like what is already measured for the effect of distance (Disdier and Head, 2008). This is an interesting area of further research.

Finally, this thesis has shown the heterogeneous effects of economic diplomacy. We revealed the effect of instruments, showed the many determinants of heterogeneity and discussed future elements for economic diplomacy policies and research. This dissertation provides relevant insights for both policy makers and academics in the field of economic diplomacy. Based on the presented lessons in this dissertation, economic diplomacy can be deployed more effectively by governments and interesting avenues of research can be further explored.

Appendices

Appendix A

Summary statistics moderator variables meta regression

Variable	*# Obs*	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*
Dependent Variables						
T values	627	3.23	2.81	2.96	-5.08	16.66
T values no outliers	565	3.06	2.81	2.05	-0.87	8.22
5% significant observations	963	0.49	0	0.50	0	1
1% sigificant observations	963	0.38	0	0.49	0	1
Empirical Design Factors						
Observations	774	12612.87	600	41266.71	36	409684
Notols	963	0.37	0	0.48	0	1
Countryspecific	963	0.63	1	0.48	0	1
Endogeneity	963	0.54	1	0.50	0	1
Gravity	963	0.89	1	0.31	0	1
PRE2000	963	0.40	0	0.49	0	1
Primary study dependant variable						
Export	963	0.65	1	0.48	0	1
Import	963	0.29	0	0.45	0	1
Total Trade	963	0.00	0	0.06	0	1
FDI	963	0.06	0	0.23	0	1
Instruments of diplomacy						
Embassies and Consulates	963	0.20	0	0.40	0	1
Embassies	963	0.04	0	0.19	0	1
Consulates	963	0.07	0	0.26	0	1
Foreign EPA office	963	0.11	0	0.31	0	1
Export Prmotion Agency	963	0.04	0	0.19	0	1
Investment Promotion Agency	963	0.05	0	0.21	0	1
Trade mission	963	0.02	0	0.14	0	1
State Visit	963	0.07	0	0.26	0	1
Diplomacy	963	0.40	0	0.49	0	1

Appendix B
Marginal effects of factors explaining economic diplomacy significance

This annex B reports the marginal effects of factors that explain the significance of economic diplomacy coefficients. The marginal effects are reported against the earlier used baseline in Chapter 3. Exports is the reference for the dependent variable and embassies and consulates is the reference for the instrument of diplomacy under investigation in the primary study. The references for the empirical design factors are based on studies using standard OLS regression models based on multiple country databases published after 2000.

Marginal effects show the discrete change in probability when the predictor or independent variable increases by one unit for my categorical variables (*NOTOLS, COUNTRYSPECIFIC, ENDOGENEITY, GRAVITY, PRE2000*). For the primary study dependant variables this should be interpreted as the increased/decreased probability of observing a positive and significant coefficient against the *EXPORTS* baseline. Similarly the marginal effects for economic diplomacy instruments should be interpreted against the *EMBASSIESANDCONSULATES* baseline variable. For my continuous variable (*OBSERVATIONS*) the marginal effect represents the instantaneous change given a one unit change. In table B.1 the predicted probability of finding a significant economic diplomacy coefficient for each economic diplomacy instrument is presented, holding all other variables in the model at their means.

The marginal effect confirm the importance of study design factors and instruments of diplomacy and show the magnitude of their influence. Across the various econometric specifications country specific studies are between 35 and 53 per cent less likely to report significant economic diplomacy coefficients. If a sample increases with 100.000 observations the probability of finding significant coefficients increases with ~25 per cent and the older studies in my sample (*PRE2000=1*) are ~30 per cent more likely to report significant coefficients.

Table B.1
Marginal effects

	logit 5%		*Weighted logit5%*	*Logit1%*		*weighted logit1%*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
OBSERVATIONS (10^-5)		0.27***	0.25***		0.27***	0.21***
		0.06	0.08		0.05	0.08
NOTOLS	0.16***	0.08	0.09	0.11***	0.08*	0.05
	0.04	0.05	0.07	0.04	0.05	0.06
COUNTRYSPECIFIC	-0.37***	-0.53***	-0.53***	-0.36***	-0.51***	-0.46***
	0.04	0.03	0.04	0.04	0.04	0.05
ENDOGENEITY	0.08	0.14	0.08	0.07	0.17**	0.05
	0.07	0.07	0.08	0.06	0.08	0.08
GRAVITY	-0.13*	-0.33***	-0.30**	-0.04	-0.13	-0.11
	0.07	0.09	0.13	0.07	0.09	0.11
PRE2000	0.29***	0.33***	0.30***	0.30***	0.35***	0.33***
	0.02	0.02	0.02	0.05	0.02	0.03
IMPORT	-0.04	-0.03	-0.03	-0.07**	-0.04	-0.02
	0.04	0.04	0.03	0.04	0.03	0.03
TOT TRADE	-0.42***	-0.38***	-0.11	-0.30***	-0.29***	-0.03
	0.08	0.04	0.39	0.10	0.04	0.32
FDI	0.34***	0.42***	0.43***	0.45***	0.54***	0.54***
	0.13	0.15	0.16	0.11	0.10	0.10
EMBASSIES	-0.12*	-0.18***	-0.11*	-0.02	-0.18**	-0.07
	0.07	0.06	0.07	0.09	0.08	0.08
CONSULATES	-0.45***	-0.51***	-0.44***	-0.48***	-0.63***	-0.52***
	0.06	0.08	0.08	0.06	0.08	0.074
FOREIGN EPA OFFICE	-0.04	-0.02	0.04	-0.04	-0.04*	0.06
	0.03	0.02	0.03	0.04	0.02	0.05
EXPORT PROMOTION AGENCY	-0.36***	-0.50***	-0.34**	-0.42***	-0.56***	-0.41***
	0.10	0.14	0.16	0.10	0.14	0.14
INVESTMENT PROMOTION AGENCY	-0.70***	-0.80***	-0.72***	-0.75***	-0.90***	-0.80***
	0.11	0.08	0.08	0.05	0.02	0.06
TRADE MISSION	-0.22**	-0.42***	-0.20	-0.24**	-0.64***	-0.11
	0.085	0.14	0.17	0.115	0.13	0.16
STATE VISIT	-0.41***	-0.42***	-0.35***	-0.43***	-0.57***	-0.42***
	0.08	0.09	0.10	0.07	0.10	0.11
DIPLOMACY	-0.71***	-0.75***	-0.66***	-0.64***	-0.78***	-0.64***
	0.05	0.03	0.06	0.07	0.03	0.08

Note: standard errors in parentheses, *p<0.10, **p<0.05, ***p<0.01

Compared to the baseline of *EMBASSIESANDCONSULATES* we observe substantial lower probabilities for significant coefficients for all other instruments of diplomacy. *CONSULATES*, *EXPORT PROMOTION AGENCY*, *TRADE MISSIONS* and *STATE VISITS* are between 35 per cent and 65 per cent less likely to report significant coefficients depending on the tested model. Investment promotion agencies (*INVESTMENT PROMOTION AGENCY=1*) and the diplomatic relations divert even more from the baseline with negative marginal effects going as high as 90 per cent.

Appendix C

Country sample Chapter 5

Countries in sample		
Algeria	Iran, Islamic Rep.	Romania
Argentina	Ireland	Russian Federation
Australia	Israel	Saudi Arabia
Austria	Italy	Singapore
Bangladesh	Japan	South Africa
Belarus	Kenya	Spain
Belgium	Korea, Rep.	Sudan
Brazil	Kuwait	Sweden
Bulgaria	India	Switzerland
Canada	Indonesia	Thailand
Chile	Malaysia	Tunisia
China	Mexico	Turkey
Czech Republic	Morocco	Uganda
Denmark	Netherlands	Ukraine
Dominican Republic	New Zealand	United Kingdom
Ecuador	Nigeria	United States
Egypt, Arab Rep.	Norway	
Finland	Pakistan	
France	Peru	
Germany	Philippines	
Greece	Poland	
Hungary	Portugal	

Appendix D

A different approach to multilateral and world resistance

The Baier and Bergstrand (2010) gravity estimation provides the option to calculate theoretically motivated multilateral resistance terms using OLS[1]. The advantage of this method is that country specific variables can be reported which in case of using fixed effects would be precluded. Furthermore, it allows for asymmetric bilateral trade cost (the Anderson and Wincoop (2004) mode is built under the assumption of symmetric trade cost). This leads to the following Baier and Bergstrand (2010) model that uses equal weights instead of GDP shares to calculate multilateral and world resistance terms[2]:

$$\text{Ln}(X_{ij}/Y_i{*}Y_j) = \beta_0 + \beta_1 Landl_{ij} + \beta_2 Island_{ij} + \beta_3 \ln(Area_i{*}Area_j) - \beta_4 (1-\sigma) \ln D_{ij} - \beta_5(1-\sigma)\, Lang - \beta_6(1-\sigma)Cont_{ij} - \beta_7(1-\sigma)(Col_{ij}) - \beta_8(1-\sigma)CU_{ij} - \beta_9(1-\sigma)FTA_{ij} - \beta_{10}(1-\sigma)Embassy_{ij} - \beta_{11}(1-\sigma)Consulates_{ij} + \gamma_4(1-\sigma)\,\text{MWR}D_{ij} + \gamma_5(1-\sigma)\text{MWR}Lang + \gamma_6(1-\sigma)\text{MWR}Cont_{ij} + \gamma_7(1-\sigma)\text{MWR}Col_{ij} + \gamma_8(1-\sigma)\text{MWR}CU_{ij} + \gamma_9(1-\sigma)\text{MWR}FTA_{ij} + \gamma_{10}(1-\sigma)\,\text{MWR}Embassy_{ij} + \gamma_{11}(1-\sigma)\text{MWR}Consulates_{ij} + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots (C.1)$$

Here the explanatory variables are similar to the earlier presented models. MRW represents the multilateral and world resistance term.[3] The MRW is created for every variable that relates to trade cost and has bilateral variance, i.e. distance, common border, common language, colonial relation, currency union, trade agreement, embassy and consulate. We estimate the model for the different Rauch goods categories. For those econometric analyses $\ln(REFij/Y_i{*}Y_j)$, $\ln(DIFij/Y_i{*}Y_j)$ and $\ln(HOM_{ij}/Y_i{*}Y_j)$ are the dependent variable. This leads to the following estimates.

Table D.1
A different approach to multilateral and world resistance: Baier Bergstrand (2010) estimations

	Total trade	*Homogeneous goods*	*Reference priced goods*	*Differentiated goods*
Log Distance	-1.17***	-1.39***	-1.32***	-1.17***
	(0.06)	(0.08)	(0.06)	(0.07)
Landlocked	-0.13	-0.82***	-0.40***	0.27***
	(0.09)	(0.12)	(0.09)	(0.10)
Island	-0.37***	-0.64***	-0.43***	-0.23***
	(0.06)	(0.09)	(0.07)	(0.07)
Land Area	-0.13***	-0.02	-0.16***	-0.21***
	(0.01)	(0.02)	(0.01)	(0.02)
Common Language	0.68***	0.40**	0.43***	0.72***
	(0.12)	(0.16)	(0.13)	(0.14)
Common border	-0.25*	-0.12	-0.32**	-0.19
	(0.14)	(0.18)	(0.15)	(0.18)
Colonial Relation	0.34**	0.58**	0.38**	0.32
	(0.15)	(0.26)	(0.16)	(0.21)
Currency Union	-0.52***	0.15	-0.31**	-0.46**
	(0.15)	(0.18)	(0.15)	(0.19)
FTA	0.20**	0.47***	0.24**	0.19*
	(0.10)	(0.13)	(0.10)	(0.11)
Embassies	0.57***	0.22	0.72***	0.56***
	(0.12)	(0.17)	(0.13)	(0.14)
Consulates	0.04**	0.06**	0.06**	0.09***
	(0.02)	(0.03)	(0.02)	(0.02)
Constant	-36.91***	-42.36***	-37.89***	-36.03***
	(0.34)	(0.43)	(0.33)	(0.41)
Fixed Effects	No	No	No	No
Observations	3706	3378	3568	3655
Adjusted R^2	0.24	0.19	0.29	0.22

Standard errors in parentheses, multilateral and world resistance terms included for distance, language, border, colony, currency union, trade agreement, embassy and consulate. Dependent: $\ln(export_{ij}/gdp_i*gdp_j)$. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The Baier Bergstrand estimations again show that the diplomatic network has the largest trade stimulating effects for trade in more complex products and when cultural differences are big. Table C.1 shows this pattern even more pronounced than Table 5.2 especially for the baseline: the trade from high to low income countries. But substantial net coefficients also remain for trade in several product groups from low income countries (both towards high income countries as well as between low income countries).

Looking into the interaction between the diplomatic network and the income level of the exporting and importing country we see that the network is most important for transactions between high income exporters and low income importers. All the other coefficients are negative, (but not all of them significant) indicating a smaller effect. We again see net coefficients close to zero for consulates for the majority of the coefficients, the exception being the trade of differentiated goods coming from low income countries.

Notes

[1] The Baier and Bergstrand (2010) model is an extention of the Baier and Bergstrand (2009) model. The Baier and Bergstrand (2010) model provides a simpeler derivation of the multilateral resistance terms compared to the Baier and Bergstrand (2009) model.

[2] Baier and Bergstrand (2010), pp. 104-105

[3] $$mwrZ_{ij} = \frac{1}{N}(\sum_{j=1}^{N} Z_{ij}) + \frac{1}{N}(\sum_{i=1}^{N} Z_{ij}) - \frac{1}{N^2}(\sum_{j=1}^{N} \sum_{i=1}^{N} Z_{ij})$$

Z is the multilateral and world trade cost variable, i is the importer and j is the exporter. The first term is essentially an average of trade cost for exporter j across all importers i and the second term is an average of trade cost for importer j across all exporters i.

Appendix E

Explanatory notes to the instrumental variables approach (presented in Table 5.7)

Similar to Rose (2007) and Yakop and Bergeijk (2011) we presented a regular two stage least squares approach for the *Number of foreign missions* variable in table 5.7 of Chapter 5. Additionally we present an instrumental variables approach for our *embassies* and *consulates* variables. Because of the nature of the *embassy* variable (binary) an additional step is needed to derive fitted values for this variable (Wooldridge, 2002). The "normal" two stage procedure thus becomes a three stage procedure. This annex presents the regressions used. First there is a pre stage to the normal two stage least squares IV regressions. This pre first stage regression is as follows:

$$P(\hat{e}_{ij}=1) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2\ Lang + \beta_3\ Cont_{ij} + \beta_4 Landl_{ij} + \beta_5\ Island_{ij} + \beta_6 \ln(Area_i * Area_j) + \beta_7\ (Col_{ij}) + \beta_8\ CU_{ij} + \beta_9\ FTA_{ij} + \beta_{10,\ldots,} [instrumental\ variable_{ij}]^1 + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (E.1)$$

Where e_{ij} is a binary variable that serves as the dependent variable. e_{ij} takes the value of 1, if country *i* has an embassy in country *j*. And, $e_{ij} = 0$ if not. The relation between the dependent and the explanatory variables is estimated with a binary response model. A probit regression enables calculation of the probability *p* that the explanatory variables used in our model predict the embassy presence of country *i* in country *j*. We distinguish the same set explanatory variables as presented in our preferred (Anderson and Wincoop (2004)) regressions and add the sets of instrumental variables. We run separate regressions for both the simple and the extend set of instrumental variables. Following we perform a regular two stage regression. The first stage equation is:

$$\hat{E}_{ij} = \beta_0 + \beta_1 \ln D_{ij} + \beta_2\ Lang + \beta_3\ Cont_{ij} + \beta_4 Landl_{ij} + \beta_5\ Island_{ij} + \beta_6 \ln(Area_i * Area_j) + \beta_7\ Col_{ij} + \beta_8\ CU_{ij} + \beta_9\ FTA_{ij} + \beta_{10}\hat{e}_{ij} + \varepsilon_{ij} \quad \ldots\ldots\ldots (E.2)$$

Where $\hat{E}_{ij}$ presents the regular *embassy* variable, i.e. the number of embassies that country *i* has in country *j*. The relation between the depend-

ent and explanatory variables is estimated using OLS. The explanatory variables in equation (E.2) are similar to those in equation (E.1) and the fitted values of the embassy values acquired via the probit regression ($\hat{e}_{ij}$) are also included. Simultaneously, the first stage for the *consulate* variable is executed, this is the normal OLS regression that one would expect in a 2SLS that includes the instrumental variables. The first stage consulates regression is:

$$C_{ij} = \beta_0 + \beta_1 \ln D_{ij} + \beta_2\ Lang + \beta_3\ Cont_{ij} + \beta_4 Landl_{ij} + \beta_5\ Island_{ij} + \beta_6 \ln(Area_i * Area_j) + \beta_7\ (Col_{ij}) + \beta_8\ CU_{ij} + \beta_9\ FTA_{ij} + \beta_{10,\ldots}[instrumental\ variable_{ij}] + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (E.3)$$

Next we perform the second stage of the two stage least squares. The second stage equation is:

$$\mathrm{Ln}(X_{ij}/Y_i * Y_j) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2\, Lang + \beta_3\, Cont_{ij} + \beta_4\, Landl_{ij} + \beta_5\, Island_{ij} + \beta_6 \ln(Area_i * Area_j) + \beta_7\ (Col_{ij}) + \beta_8\ CU_{ij} + \beta_9\ FTA_{ij} + \beta_{10}\hat{E}_{ij} + \beta_{11}\ C_{ij} + \varepsilon_{ij} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (E.4)$$

Where $\mathrm{Ln}(X_{ij}/Y_i * Y_j)$ is the income weighted trade between country *i* and *j*. $\hat{E}_{ij}$ and C_{ij} are the fitted values for the embassies and consulates acquired from the first stage regressions (equations E.2 and E.3). The other explanatory variables are similar to the earlier presented preferred regressions. The relation between dependent and explanatory variables is estimated using OLS. These regressions are presented for the different groups of dependent variables, i.e. total trade, homogeneous goods, reference priced goods and differentiated goods, and two sets of instrumental variables. Coefficients in Table 5.8 in chapter 5 thus present 24 individual regressions for which coefficients are corrected for causality issues.

Notes

[1] In the equation we used the simple set of instrumental variables. We however also run separate regressions for the extended set

Appendix F

Summary statistics variables Chapter 6

Variable	*Obs*	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*
Investment (stocks USD)	5465	3.84E+09	700000	2.01E+10	-2.98E+09	4.64E+11
GDP per capita	8064	21114.54	10913.31	21013.32	419.75	101172.1
Population	8064	8.87E+07	3.15E+07	2.19E+08	3183000	1.35E+09
Landlocked	8064	0.08	0	0.27	0	2
Island	8064	0.25	0	0.46	0	2
Land area	8064	1542101	33853.5	3086929	646	1.71E+07
Distance	8064	7364.08	7345.39	4666.57	160.93	19650.13
Common language	8064	0.10	0	0.30	0	1
Common border	8064	0.03	0	0.18	0	1
Common religion	8064	0.47	0	0.50	0	1
Colony	8064	0.01	0	0.12	0	1
Trade agreement	8064	0.24	0	0.43	0	1
Common currency	8064	0.03	0	0.16	0	1
Tax haven	8064	0.05	0	0.21	0	1
Diplomatic network	7937	1.42	1	1.83	0	46
Embassy	7937	0.81	1	0.39	0	1
Consulate	7937	0.62	0	1.73	0	45
Tourism flows	7875	1.26E+07	6995000	1.61E+07	90000	8.31E+07
Military expenditure	8001	2.22E+10	4.49E+09	7.75E+10	2.71E+08	6.85E+11

Appendix G
Embassy and consulate coefficients

A Heckman (1979) two-step approach is used to further investigate the effect of the diplomatic network on bilateral FDI. The Heckman approach takes account of potential sample selection effects and reduces biased estimates (for a thorough discussion see Linders and Groot, 2006). The first estimation stage in essence presents the likelihood of bilateral FDI between two countries determined by the factors included in the first stage regression. The first stage selection equation should at least contain the same independent variables as the second regression stage (Linders and Groot, 2006; Möhlman et al., 2010). We include Common Religion as an additional regressor in the selection equation to conform to the empirical practice in FDI and trade modeling (e.g. Helpman et al., 2008; Möhlman et al., 2010). If the first stage is positive the second stage regression determines the potential size of bilateral FDI. Results are presented in Table G.1.

Table G.1
Embassy and consulate coefficients explored

	(1a)	*(1b)*	*(2a)*	*(2b)*
	Heckman Selection	***Heckman Regression***	***Heckman Selection***	***Heckman Regression***
Landlocked	10.15*	0.91	9.98*	0.96
	(1.71)	(0.34)	(1.67)	(0.36)
Island	7.07**	-1.16	7.11**	-1.46
	(2.45)	(-0.16)	(2.45)	(-0.20)
Land area	4.91***	0.61	4.94***	0.37
	(4.43)	(0.13)	(4.44)	(0.08)
Distance	-0.95***	-1.30***	-0.93***	-1.29***
	(-15.21)	(-20.25)	(-14.86)	(-20.14)
Common Language	0.95***	0.89***	0.96***	0.90***
	(8.75)	(7.50)	(8.84)	(7.64)
Common border	-0.13	0.190	-0.09	0.21
	(-0.70)	(1.31)	(-0.51)	(1.47)
Colonial relation	0.76	1.23***	0.77	1.23***
	(1.39)	(5.82)	(1.39)	(5.79)
Regional Trade Agreement	0.08	0.25**	0.07	0.23**
	(0.88)	(2.42)	(0.77)	(2.30)
Common currency	-0.06	-0.18	-0.05	-0.14
	(-0.27)	(-1.10)	(-0.26)	(-0.89)
Tax haven	32.65***	5.23	32.71***	3.51
	(5.04)	(0.16)	(5.03)	(0.11)
Common Religion	0.55***		0.55***	
	(7.10)		(7.01)	
Number of diplomatic establishments	0.056**	0.07***		
	(2.45)	(4.37)		
Embassy			0.39***	0.64***
			(4.06)	(4.21)
Consulate			0.04*	0.06***
			(1.75)	(4.16)
Fixed effects	Included	Included	Included	Included
Observations	7937		7937	
Uncensored	2826		2826	
Mills lambda	0.39***		0.43***	
	(3.36)		(3.68)	
Rho	0.25		0.28	
Sigma	1.53		1.53	
Lambda	0.39		0.43	

Dependent selection equation (1a, 2a): binary variable that takes the value of 1 of country *i* invests in country *j* in year *t*, and 0 otherwise. Dependent regression equation (1b, 2b): ln (FDI_{ijt}). Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, importer-year, exporter-year and year fixed effects included. Clustered standard errors are used. Included in the regression but not reported: the constant, country specific variables are included but not reported because these variables can no longer be identified in the presence of fixed effects (Head and Mayer, 2013: 31).

The Heckman (1979) selection regressions (1a, 2a) reveal that the likelihood that country *i* invest in country *j* is positively influenced by factors that reduce the intangible barriers to FDI (*Common Language* and *Common Religion*). Bigger markets (*Land Area*), *landlocked* countries and *island* states and *Tax Havens* are also more likely to invest internationally. As expected *Distance* negatively influences the likelihood that countries have a bilateral investment relation. Zooming in on our economic diplomacy variables we observe that both the more generic *Number of diplomatic establishments* variable and the separately reported *Embassies* and *Consulates* variable are associated with increased likelihoods of bilateral investments. For example, if country i has a *consulate* in country j, country i is 4 per cent more likely to invest in that country. Having an *Embassy* even increase the likelihood of bilateral investment by 48 per cent.

Our inverse Mills ratio is positive significant, which indicates that there are unobserved factors in the first stage selecting process that affect the volume of bilateral FDI in the second stage. The positive direction of the Mills ratio indicates that (unobserved) factors that make bilateral investment more likely tend to be also associated with higher FDI flows in the second stage. The Mills ratio is therefore included as an additional regressor in the second stage to correct for this bias.

The second stage of our regressions, which are controlled for selection effects, shows that the factors that drive the amount of investment are not fully identical as those that determine the invest-or-not-to-invest decision. We observe that having a *Regional Trade Agreement* and *Colonial Relation* stimulates the volume of FDI. These variables had no significant influence in the selection phase. The opposite is observed for our *Tax Haven* dummy and our markets size variable (*Land Area*), these variables were highly significant for selection into an investment relation but does not seem to influence the volume of FDI in the second stage. Our economic diplomacy variables are highly significant and indicate that having an embassy increases FDI with 64 per cent and having an additional consulate increases FDI with 6 per cent.

Al in all, using the Heckman (1979) two-step procedure helped to get a better understanding of the effect of our embassy and consulate variables. Prior regressions in this chapter did not produce significant embassy coefficients and pointed towards a significant effect of consulates. The Heckman (1979) estimations show that both embassies and consulates are important in bilateral FDI. The estimations indicate that the effect of

embassies and consulates is observable in both the invest-or-not-to-invest decision and in the volume of bilateral FDI. It is worthwhile exploring this relation further in future research. The results presented in this annex could be caused due to the fact that computing power forced us not to include dyadic fixed effects in our Heckman estimations. We were also unable to estimate the relation in a maximum likelihood setting.

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